SCIENCE

8 March 1968
Vol. 159, No. 3819

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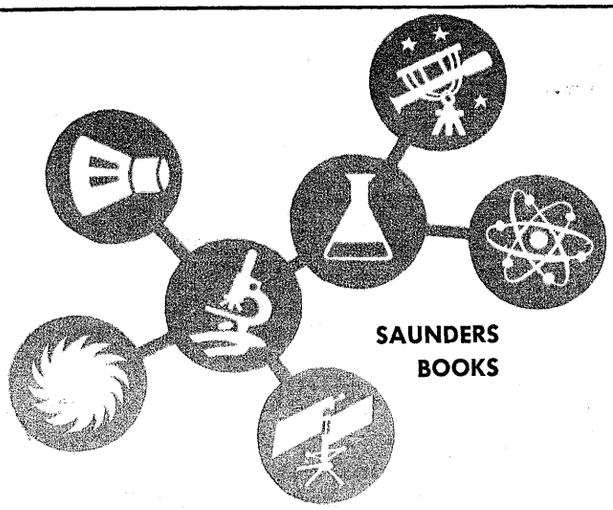

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239 pages, illustrated. $4.75. Published January, 1968.

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For both the theoretical and experimental chemist and interested physicist, this volume offers a precise discussion of the theoretical quantum-mechanical considerations involved in the definition and calculation of properties of many-electron systems. In addition, it is eminently suited for course offerings in Advanced Theoretical Chemistry and in Intermediate and Advanced Quantum Mechanics. Included is the author's original research on atomic and molecular structure.
196 pages. $7.50. Published January, 1968.

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Fairleigh Dickinson University

Here is a detailed exposition of special relativity based on the recently developed Loedel Diagram. Dr. Shadowitz, using the fundamental nature and simplicity of the geometric approach, makes special relativity comprehensible to the beginner and creates a valuable reference for the high-energy physicist. Special attention is given the significance of space-time geometry, the interval, proper and non-proper observers, the "twin paradox", conduction currents, the distinction between contravariant and covariant vectors and pseudovectors.
203 pages, illustrated. $6.50. Published January, 1968.

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795 pages, 577 illustrations. $9.75. Published March, 1967.

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332 pages. $6.75. Published June, 1966.

ELEMENTS OF MAGNETOGASDYNAMICS

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Moscow Physical-Technical Institute

Translated from the Russian, this book illuminates the theory of magnetogasdynamics, various problems involved in the motion of plasma, the investigating methods employed, and selected applications. The author presents vital data on the most significant and major aspects of this rapidly developing subject. Especially valuable are the many examples given of the interaction between moving plasmas and boundaries. This information and other data makes this a valuable volume for the theorist, the experimental plasma physicist, and the engineer.
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COVER

Man Tormented by Dreams, a 16th-century engraving after Raphael (1483–1520). It expresses the medieval view that dreams are external and caused by supernatural beings. In this case, demons are flagellating the sleeper. "Dreaming sleep" is now believed to be initiated internally by brain-stem structures, although external stimuli affect the content of dreams. The terrifying dream portrayed is very different from the abrupt and stereotyped nightmare. See page 1070.

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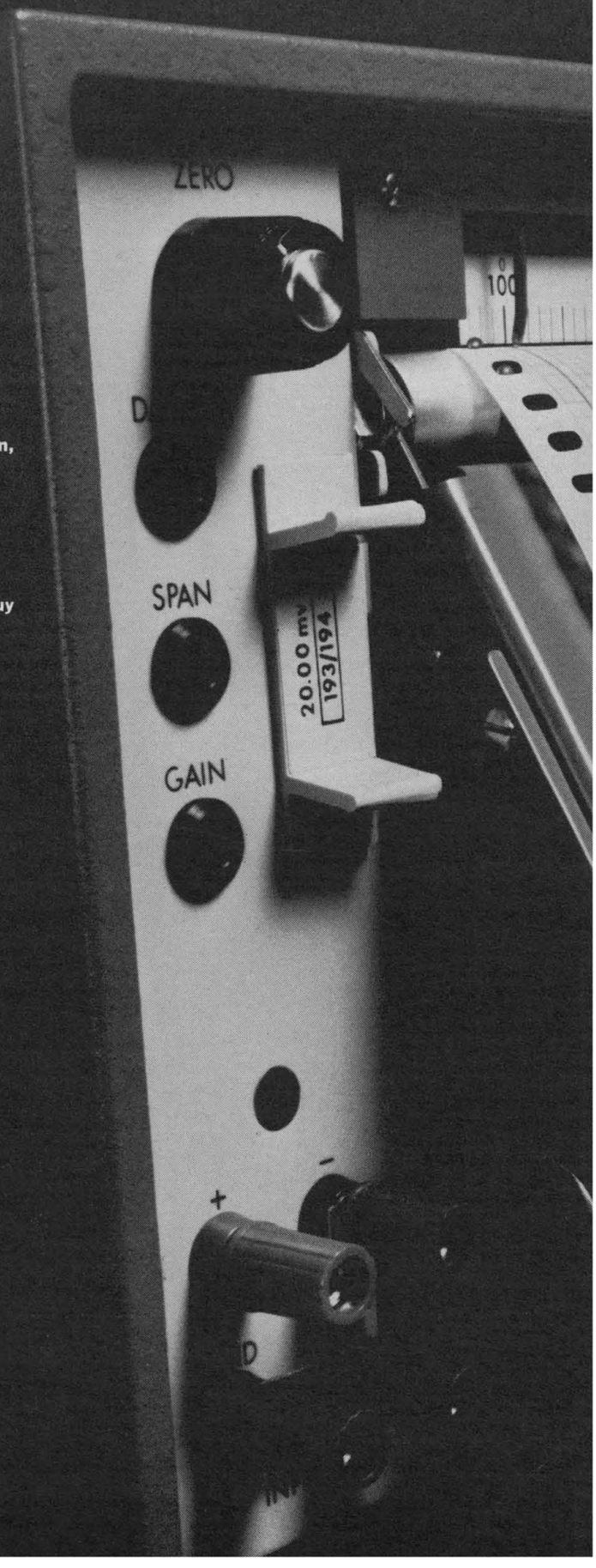

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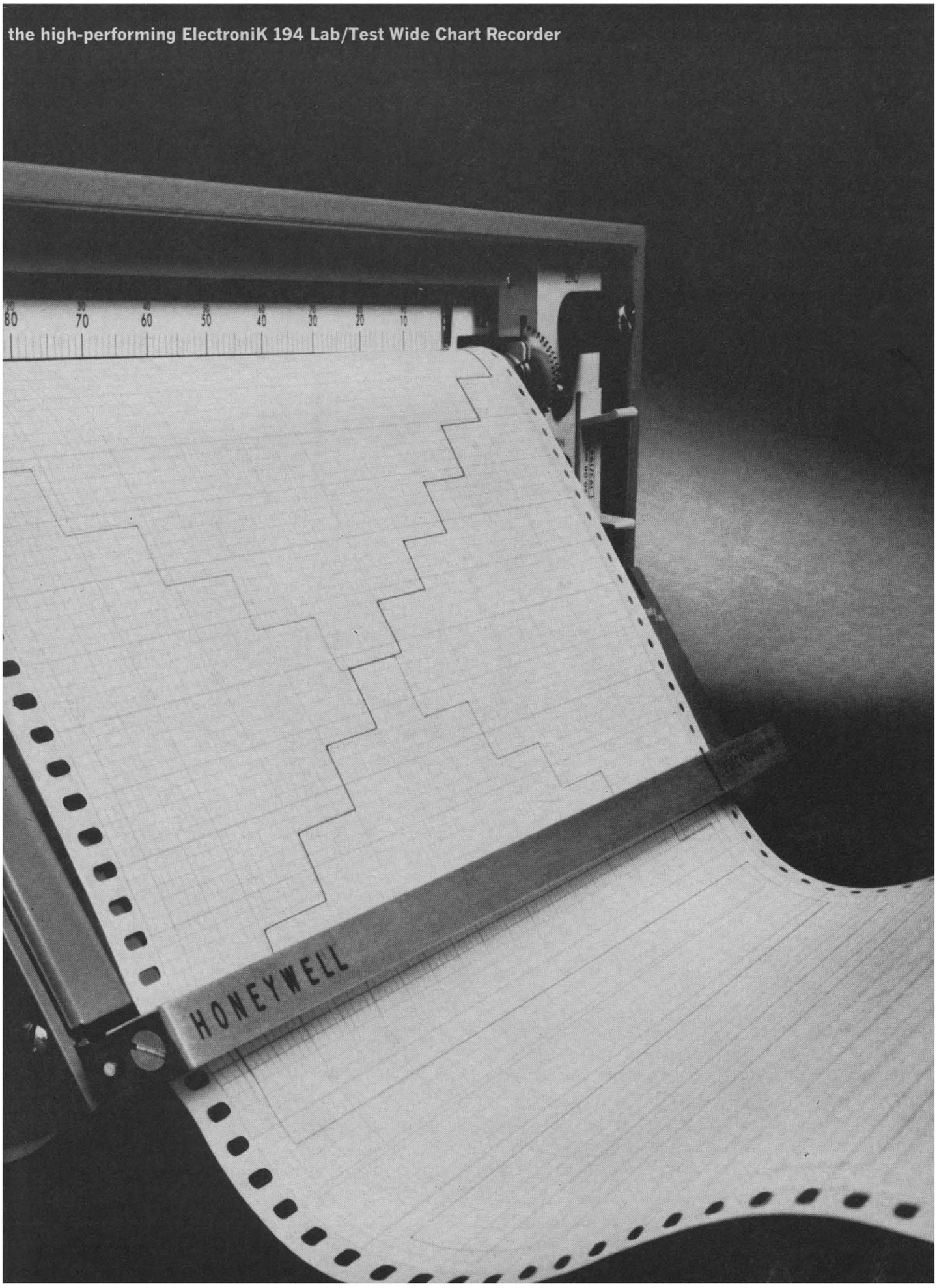
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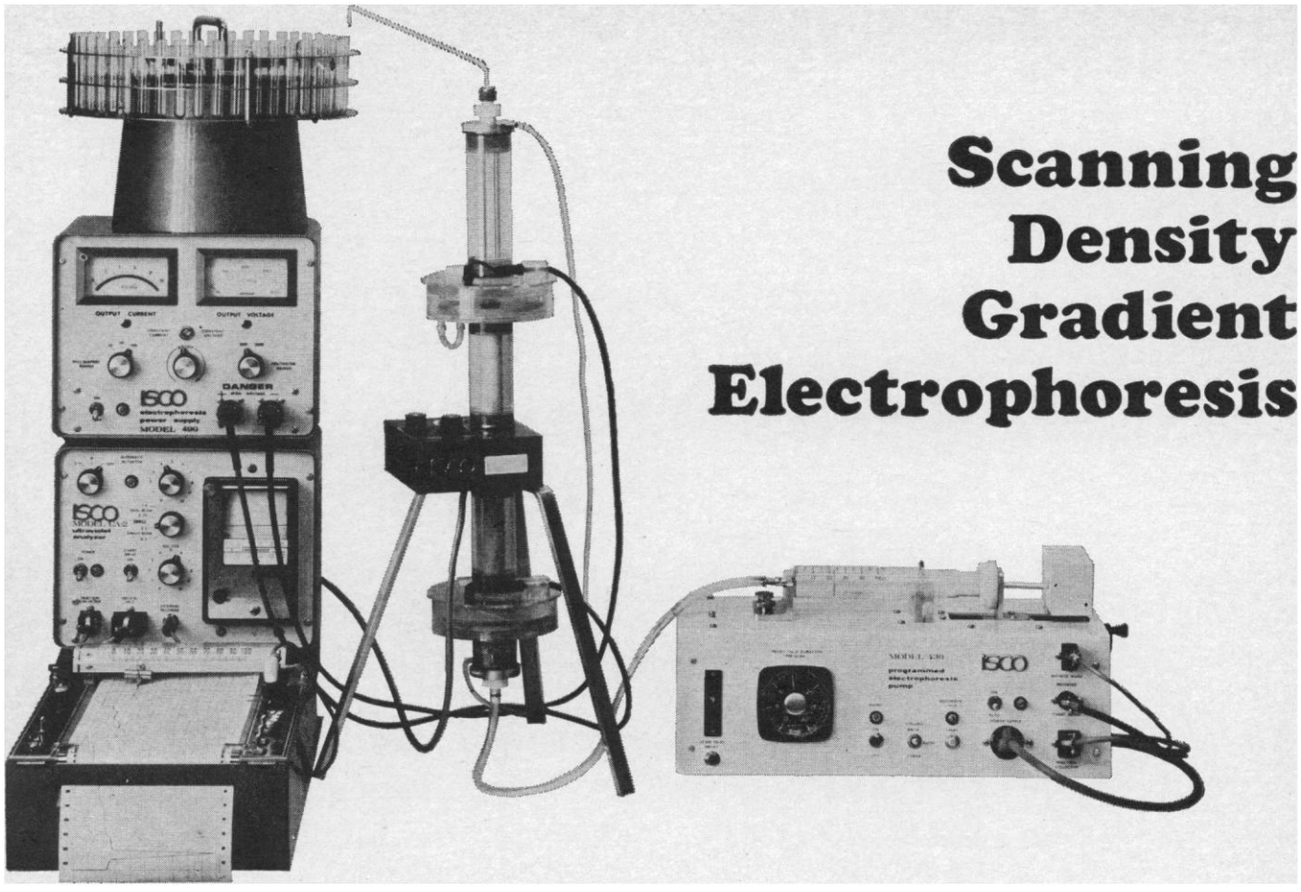

Scanning Density Gradient Electrophoresis

Top: Model 270 Fraction Collector
Center: Electrophoresis Power Supply
Bottom: Model UA-2 UV Monitor

Model 210 Density Gradient Electrophoresis Apparatus

Model 430 Programmed Electrophoresis Pump

Accurate analysis and fractionation of mixtures has been possible for some time with conventional density gradient electrophoresis equipment. Now easy determination of electrophoretic mobilities as well as physical separation of mixtures and quantitative microanalytical results can be obtained with the new ISCO Model 210 Density Gradient Electrophoresis apparatus. Microgram size samples can readily be separated. Low sample concentration permits the use of dilute buffers, resulting in a wide operational temperature range of from 0 to 25° C.

The Model 210 makes repeated scans of zones during migration through a density gradient column. A water-jacketed Teflon central tube contains a gradient which is raised and lowered past a narrow-bandwidth UV-absorbance (O.D.) monitor at programmed intervals. Recorded scans during migration provide data to confirm uniform migration rates or to plot changing migration rates for the purpose of determining electrophoretic mobilities. Quantitative results can be obtained from these scans or from a final chart record made automatically at the conclusion of migration as separated specimen components are discharged into a fraction collector for further assay. Figure 1 is a profile of a typical run showing the relative positions of the same peak during the first and eighth scans. Note that repeated scans have not resulted in loss of resolution.

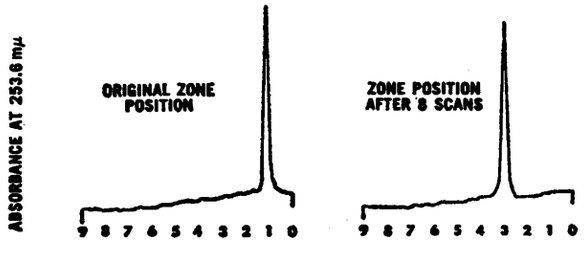

FIG. 1 ZONE POSITION OF 10 μg TMV IN GRADIENT COLUMN, CENTIMETERS.

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A similar preparative apparatus which has a larger capacity but can monitor the gradient only during discharge is also available. Much of this electrophoresis apparatus can also be used for monitoring column chromatographic eluants or for fractionating centrifuged density gradients.

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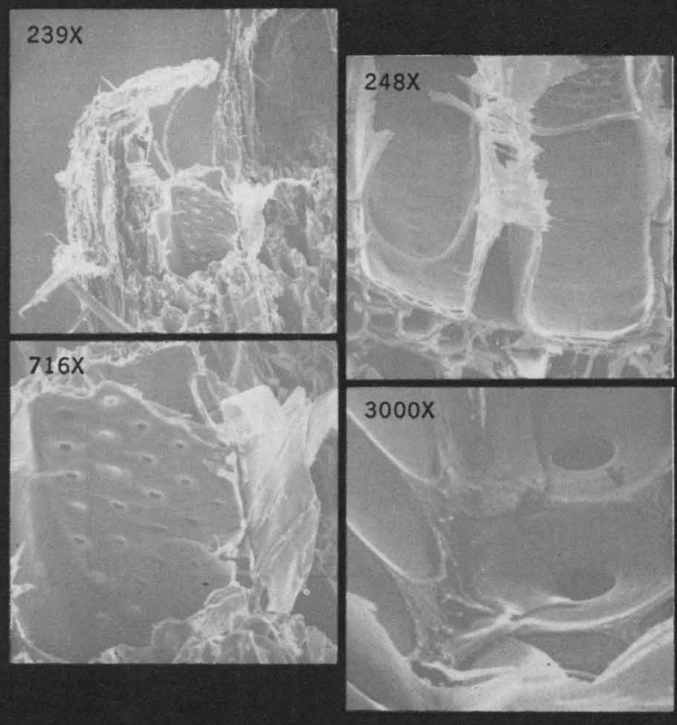

examination is a snap using a JSM scanning electron microscope.

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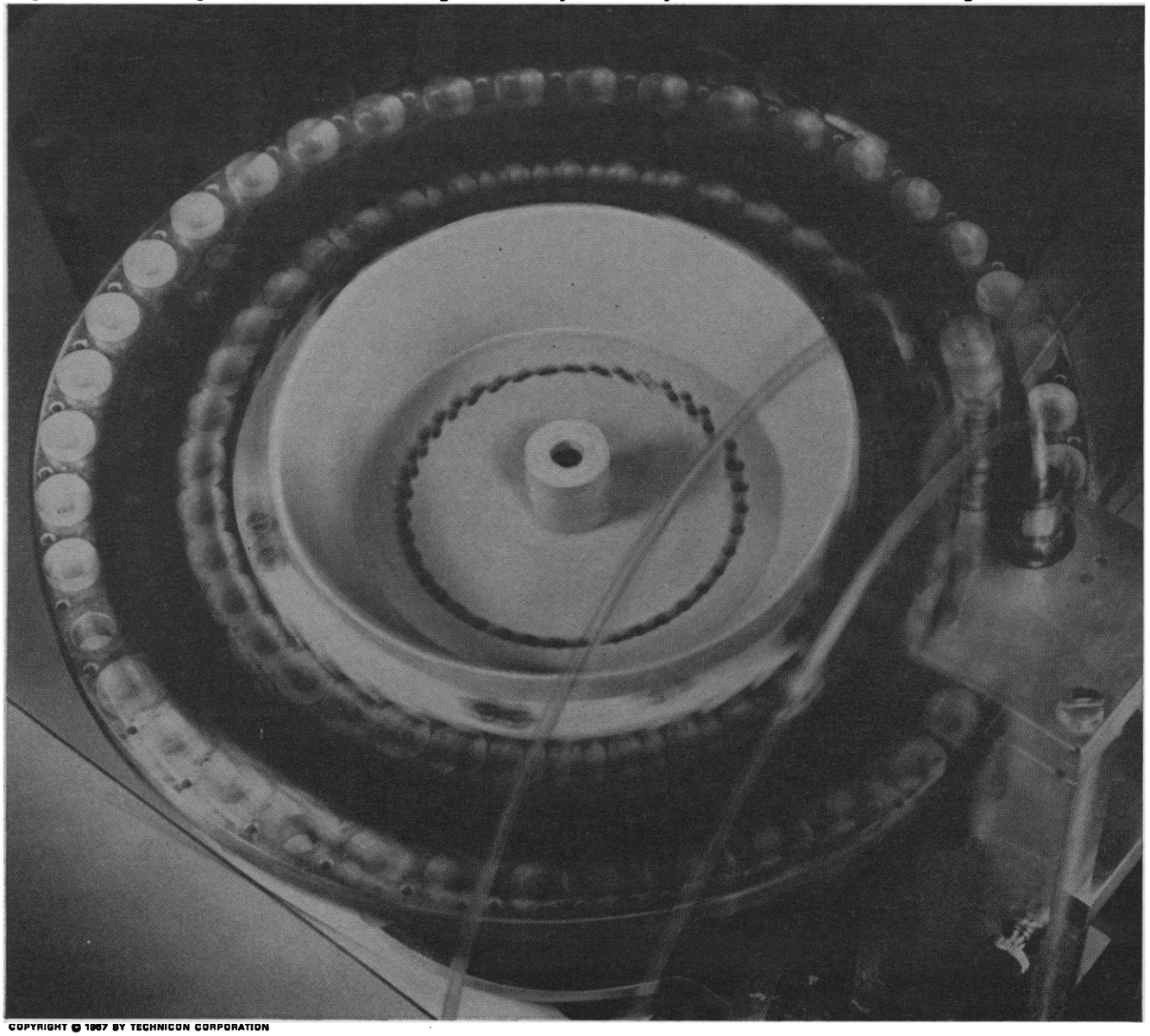

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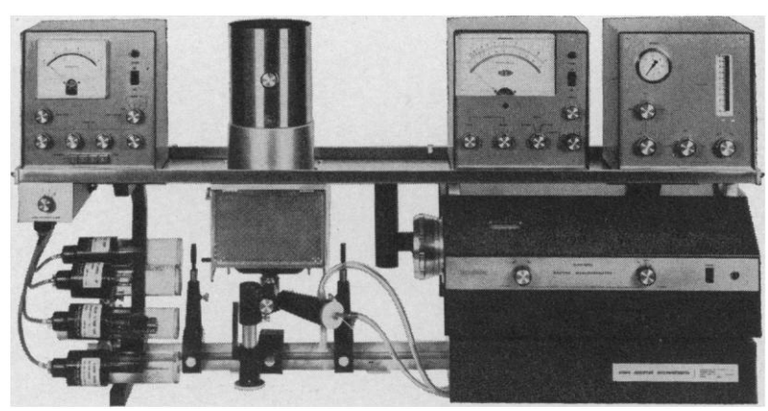

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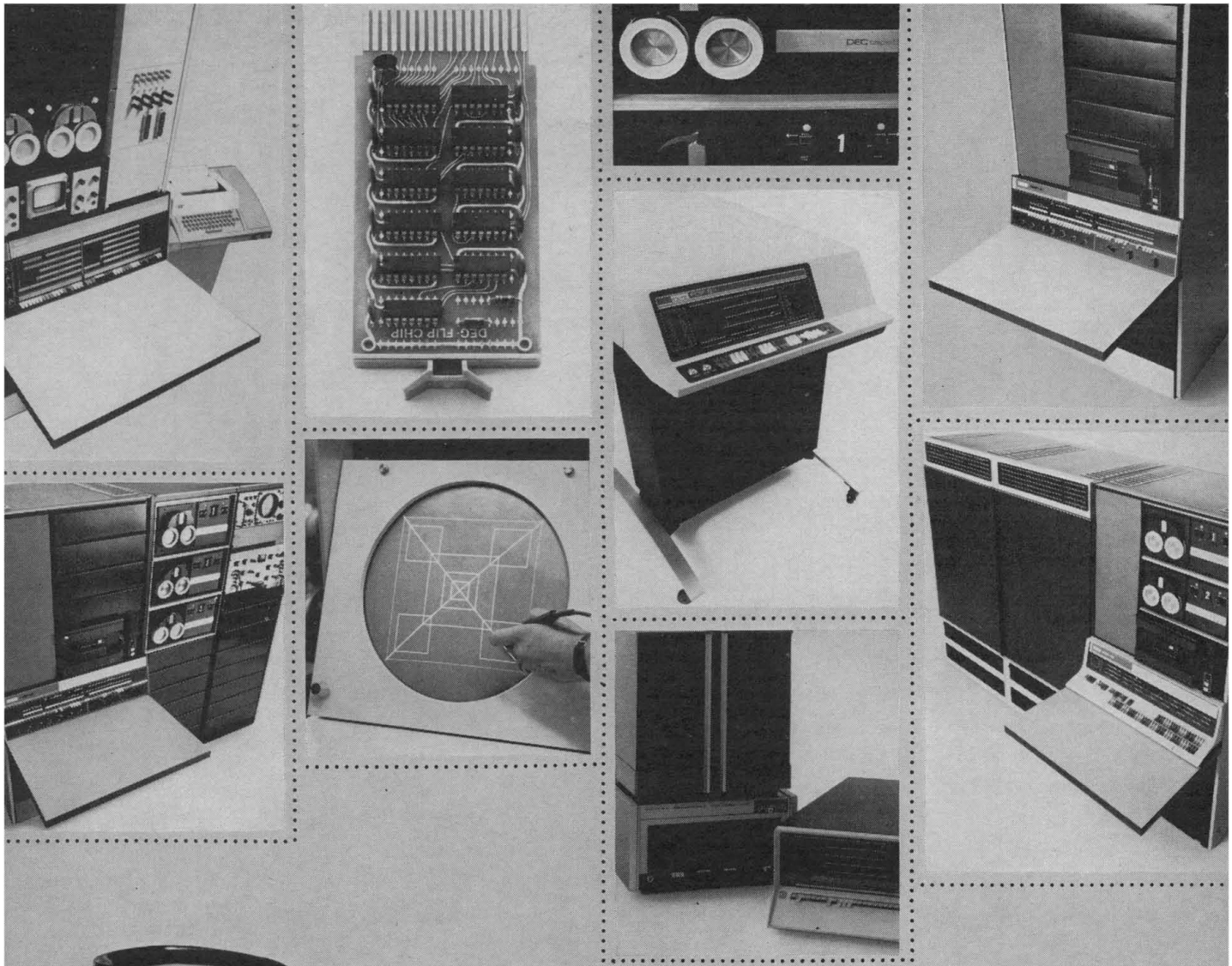

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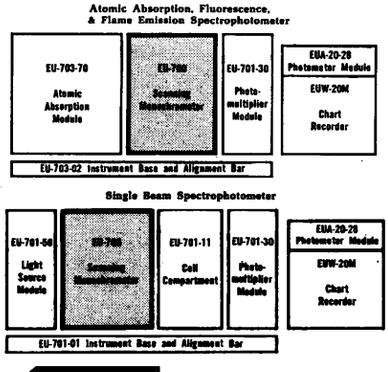

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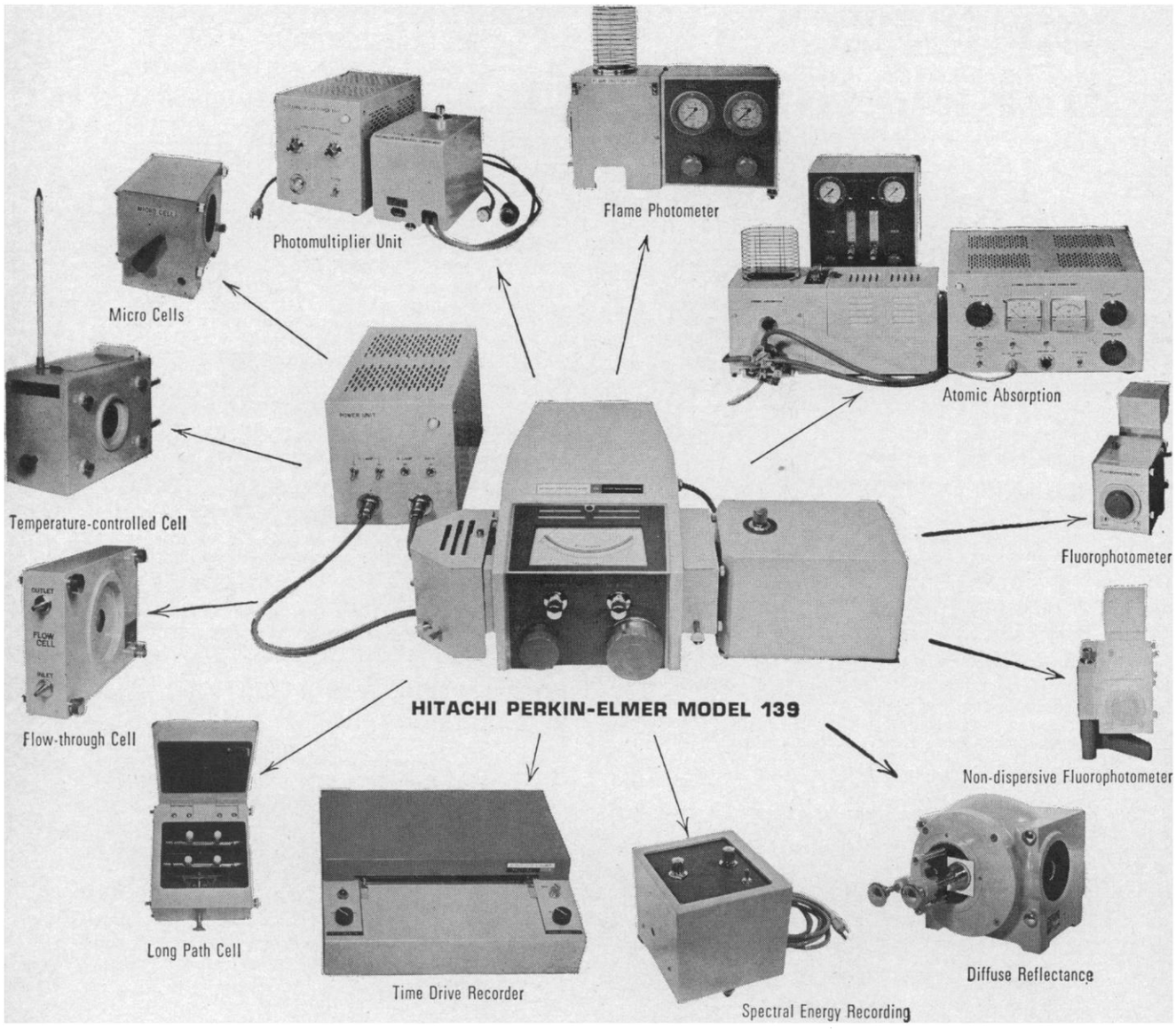

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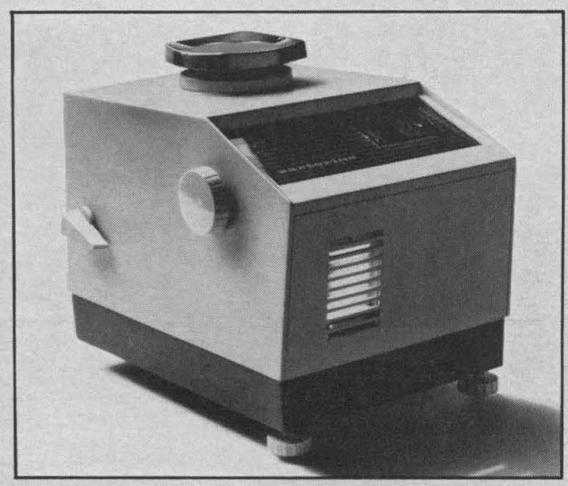

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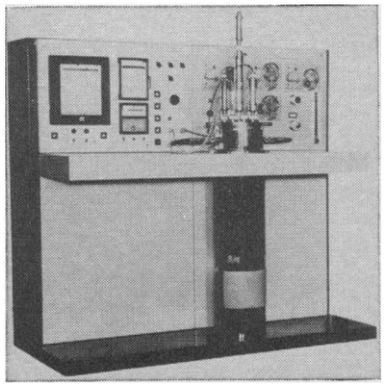

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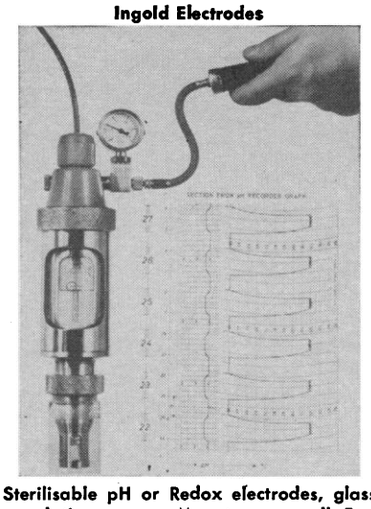

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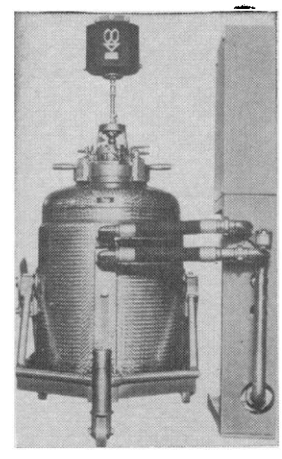
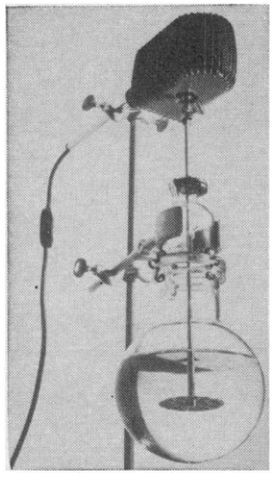
Vibro-Mixer Fermentors



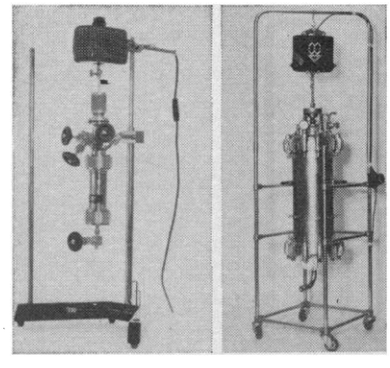
Inexpensive, simple fermentation units, now offered by CHEMAPEC, comprise Vibro-Mixer, glass fermentor vessel, 1-5 liters, with water jacket, six openings and sterilisable pH electrode, for tissue cultures, pplo and other fragile organisms. Vibro-Mixer Fermentors are also supplied in industrial sizes (see ill.).

Laboratory Vibro-Mixers, E.1



Vibratory, non-rotational mixing system. The Vibro-Mixer can be used for agitation under pressure and vacuum from full vacuum to 75 psig. Many varied attachments allow mixing, grinding, cell disruption, pumping, spraying, etc.

Vibro Concentrator (dynamic ultrafilter)



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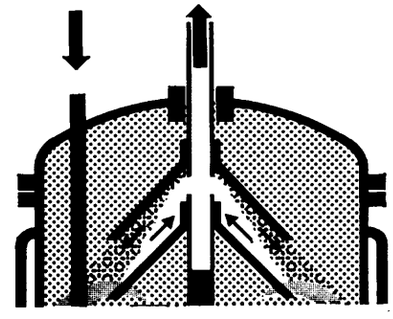

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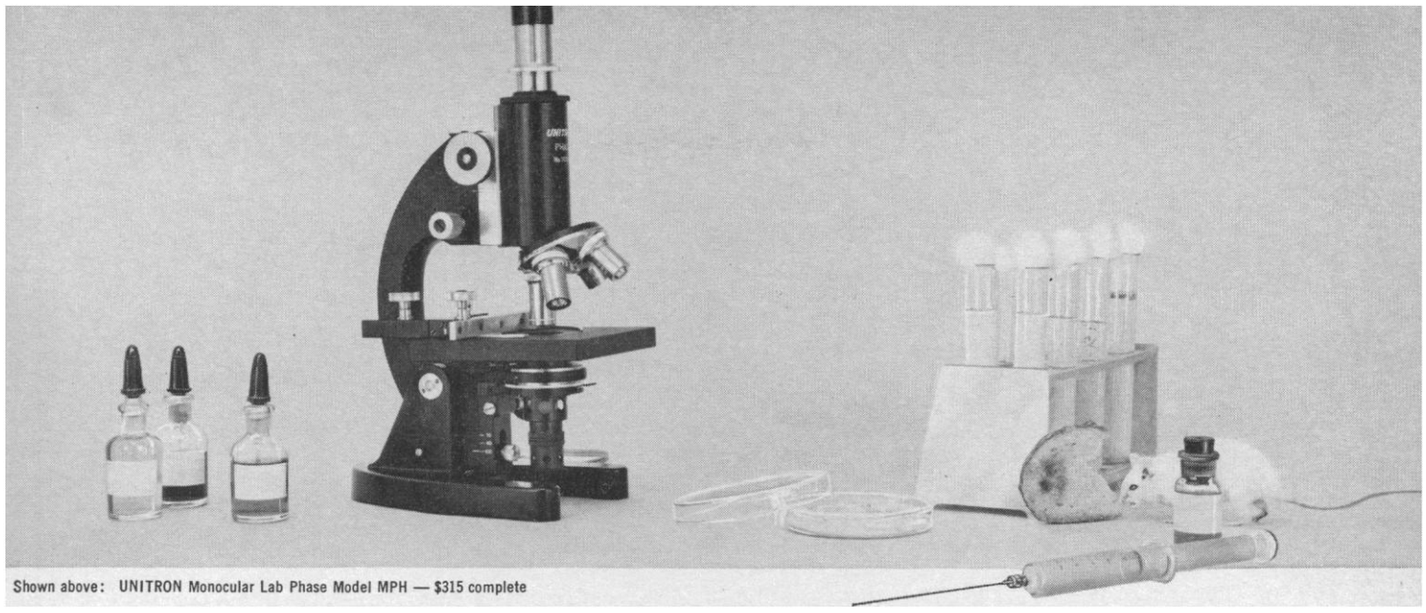


Shown above: UNITRON Monocular Lab Phase Model MPH — $315 complete

There are 3 microscopes in this picture

...at a distinctly singular UNITRON price

Most lab microscopes are used for ordinary *brightfield* studies.

So is UNITRON's MPH.

Some lab microscopes can also be used for *darkfield.*

So can UNITRON's MPH.

Still other lab microscopes offer *phase contrast* to aid in the study of *living, unstained* material.

So does UNITRON's MPH.

Until now, no lab microscope has provided all 3 for the price of 1.

UNITRON's MPH does. The 3 most important techniques of microscopy are built-in, yet the MPH costs less than many single-purpose microscopes.

That's not all. UNITRON's MPH gives you more than just the advantages of 3 specialized microscopes. It unites them in "Continuous-Transition Microscopy." With a turn of the condenser knob, you change from *brightfield* to *darkfield* to *phase contrast,* all in rapid succession. Operation is so easy, it's almost automatic. There are no accessories to attach and no time-consuming adjustments to make. Everything has been factory-centered for you. Even the light source is built-in and permanently aligned.

Have cost and complexity kept you in the dark about phase? If so, you're in for a treat. UNITRON phase contrast will impress you all the more if you've tried to study *unstained, living* material with ordinary brightfield microscopes. There's no need to close the iris to pinhole size, reducing resolution and detail. Gone are those ghostly artificial images.

UNITRON Phase Contrast provides optical staining. You get the benefits of chemical staining, without the time-consuming preparation. And what's more, you see material *alive* with vivid contrast and pin-point detail. With phase, even your stained slides show unsuspected details. All this, without any special effort.

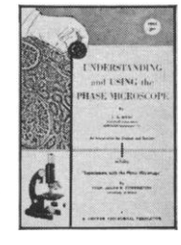
There's more. UNITRON's built-in illuminator provides five intensities . . . more than enough to meet your visual and photographic needs. Even the eyepieces are special . . . the widefield type for comfortable viewing.

And now, the moment of truth. The price. Only $315 for UNITRON's Monocular Laboratory Phase Model MPH . . . less than you pay for many ordinary brightfield lab microscopes. The Binocular Model BPH, with several additional features of its own, costs only $527.

UNITRON prices include everything but the specimens. In addition to all the special features of our phase models, you'll find everything else you expect in a good lab microscope. Four achromatic objectives (including high-power oil-immersion), mechanical stage, focusable substage condenser with iris diaphragm and filter system, fitted cabinet, etc. These, and all the other features we've described, are standard equipment with UNITRON. *There are no hidden extras to buy.*

Too good to be true? You needn't take our word for it. Borrow a UNITRON Monocular MPH or Binocular BPH for 10 days. No cost or obligation. (We'll even pay shipping charges for a chance to let you put our microscope through its paces.) Give this UNITRON an opportunity to prove its value in your lab. We think it will sell itself.

Teachers will be interested to learn that UNITRON even offers *student phase models* for as little as $99. To introduce phase to the student lab, and to other areas where it has been a stranger, UNITRON has published a fully illustrated 64-page booklet, *Understanding and Using the Phase Microscope.* The text includes a special chapter of experiments written by Professor Julian D. Corrington of the University of Miami. Other subjects are covered, including the optical theory of microscopes in general. The booklet normally sells for $1.00 but we will be glad to send a free copy to any interested teacher or researcher.



Ask for a free 10-day trial. Please specify whether you want to try Model MPH or BPH. A phase booklet is shipped with each microscope . . . or, you may request the booklet separately.

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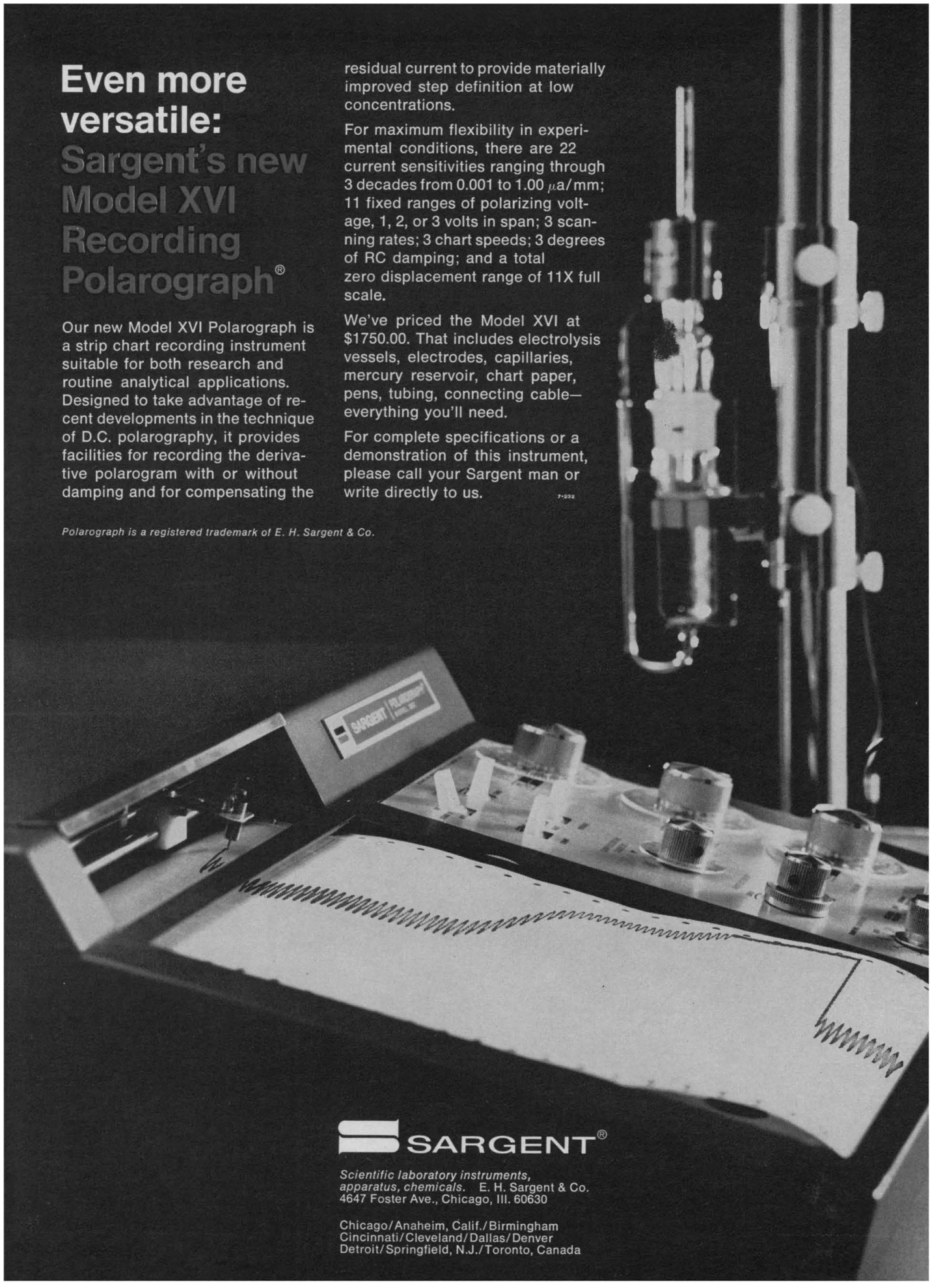

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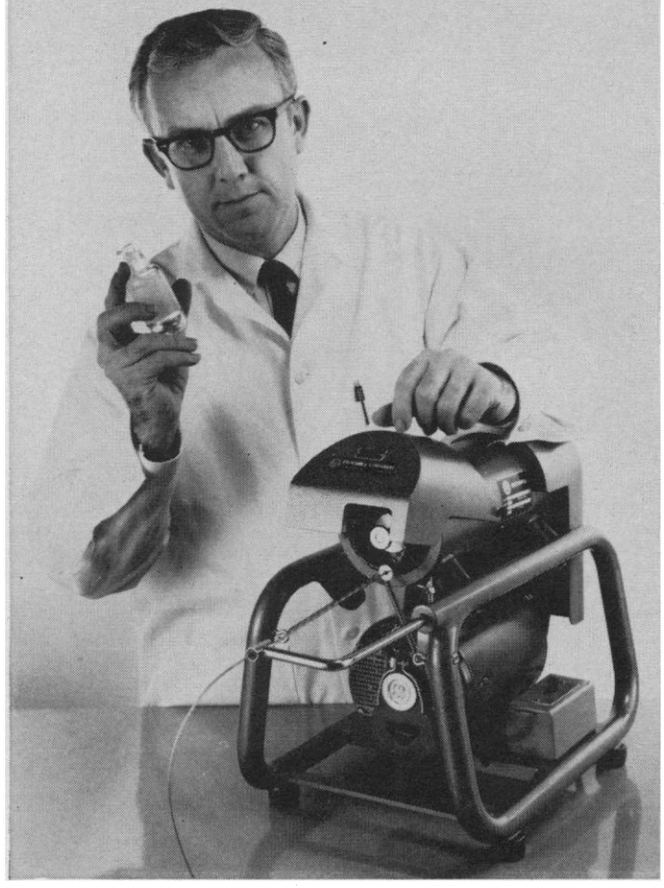
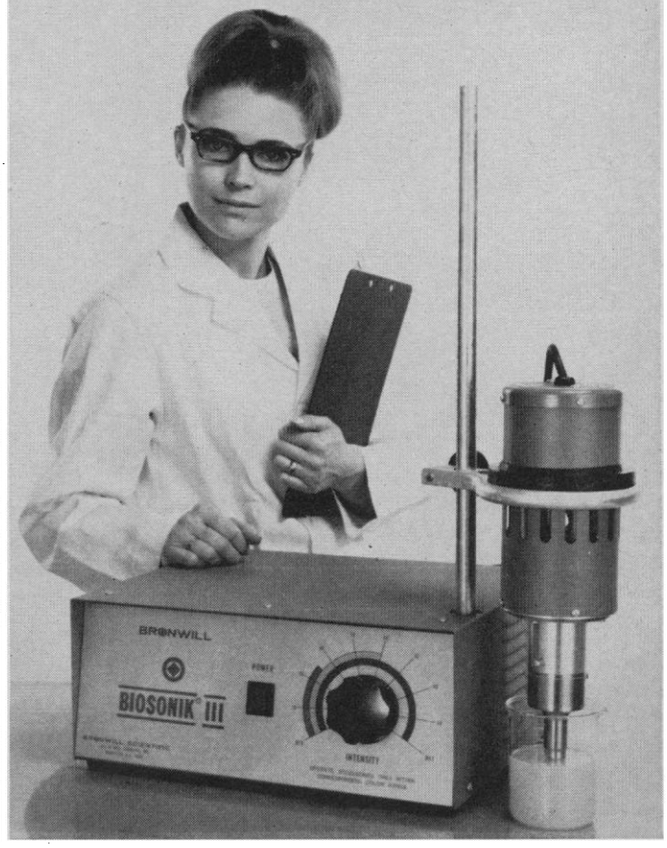


For disrupting E. coli and other cylindrical bacteria, I find that ultrasonics are more effective. High power of the Bronwill Biosonik III shortens running time and minimizes heat build-up. Convenience is a factor, too, since I use the equipment regularly. (And, it converts to an ultrasonic cleaner.)



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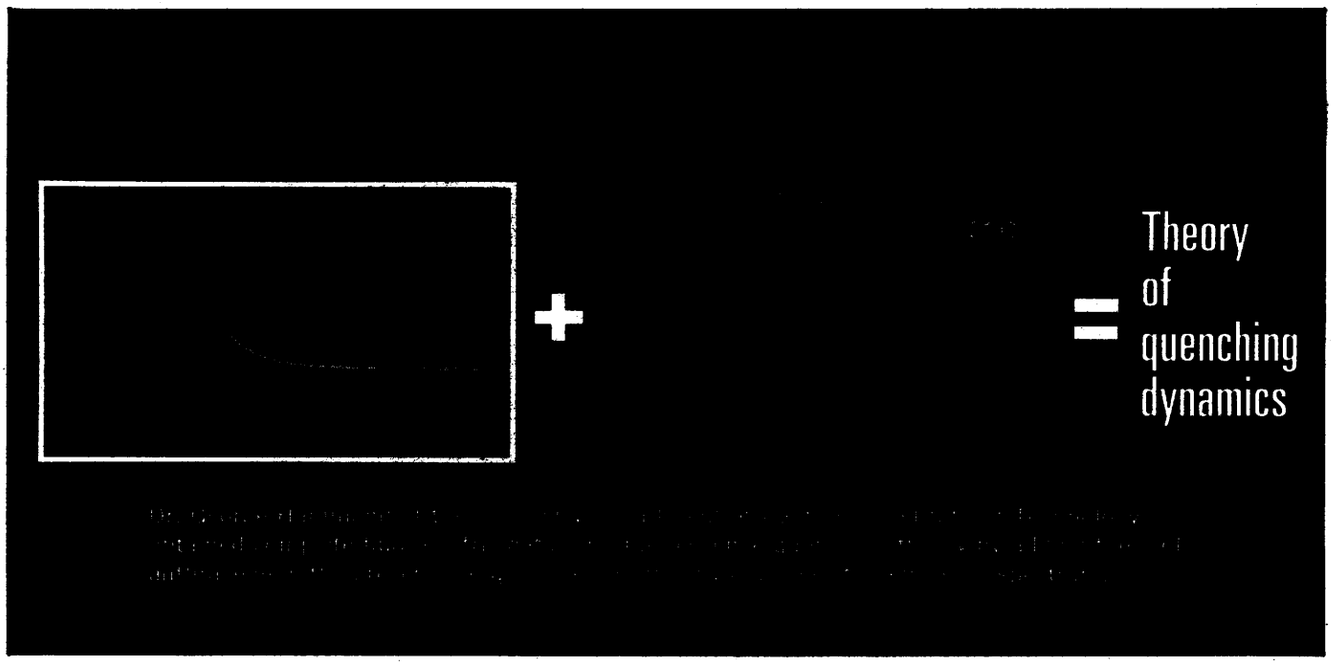

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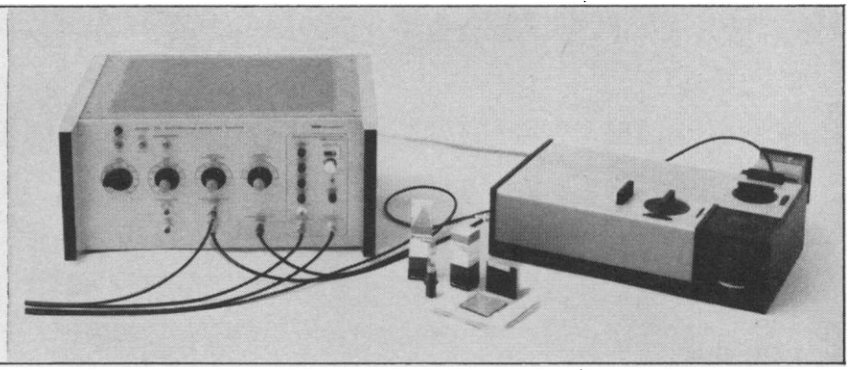

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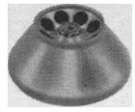

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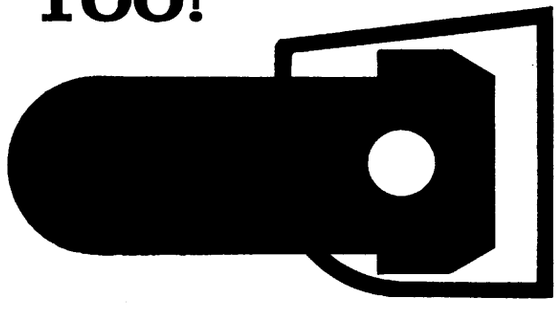

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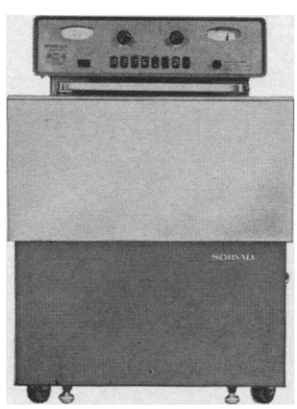

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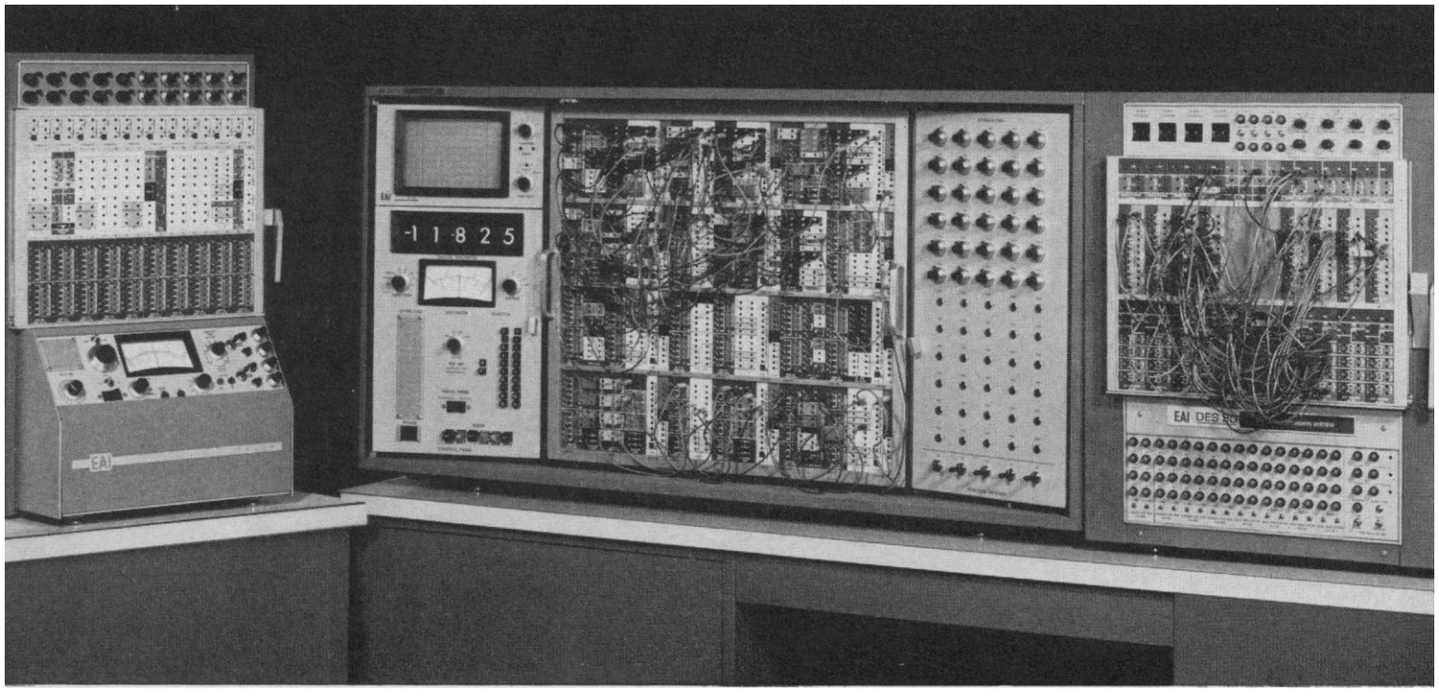

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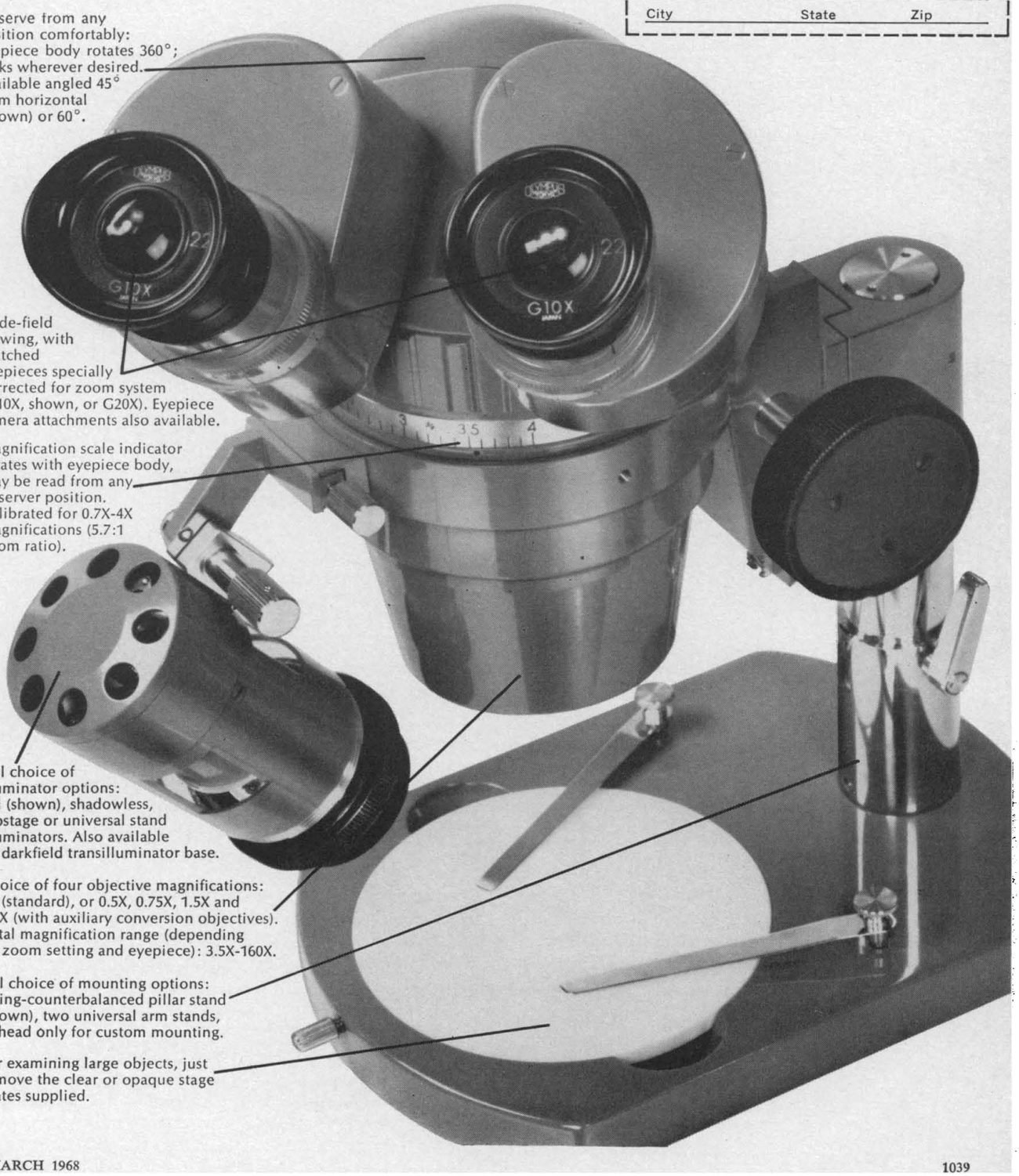

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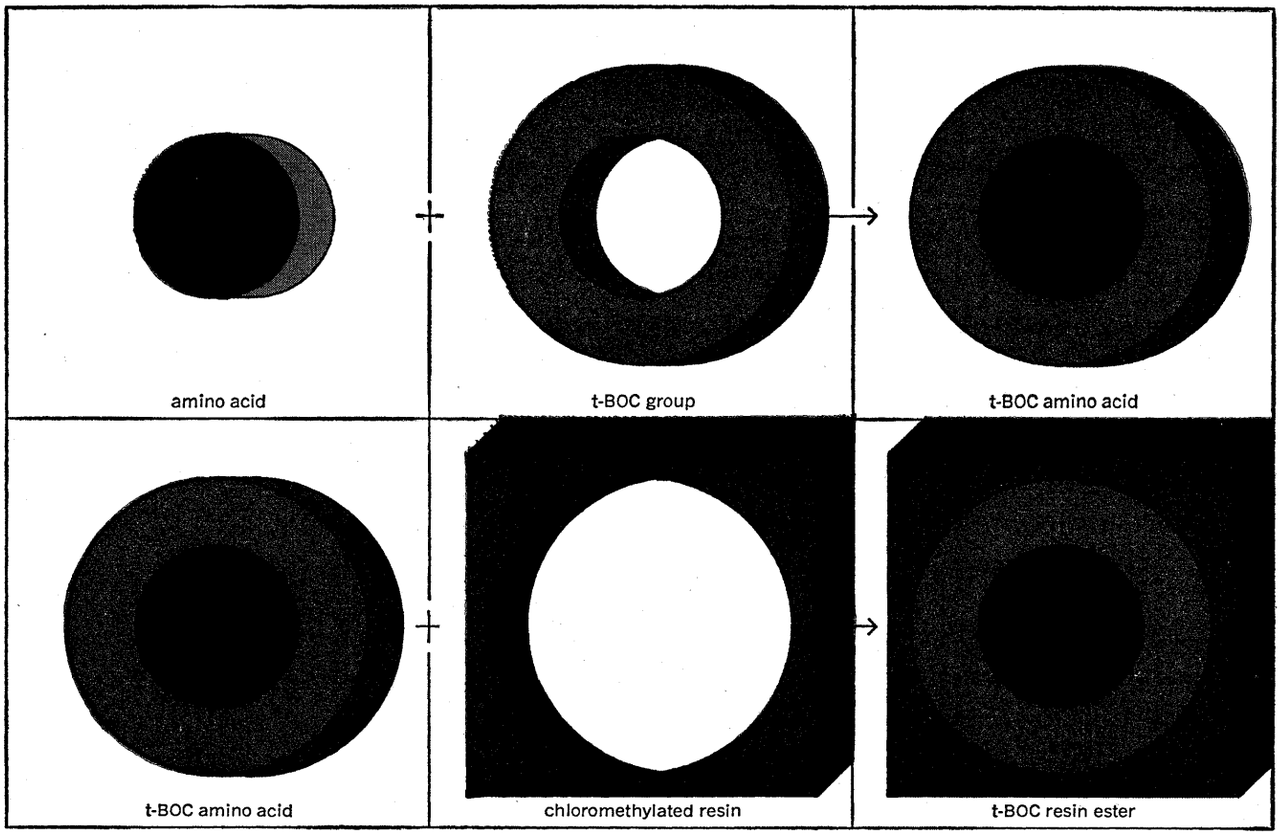

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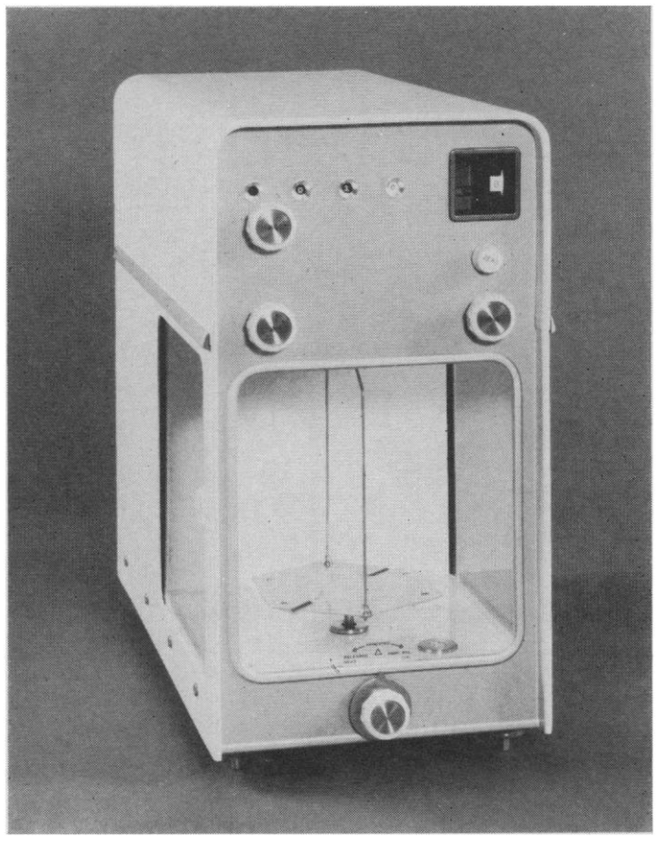

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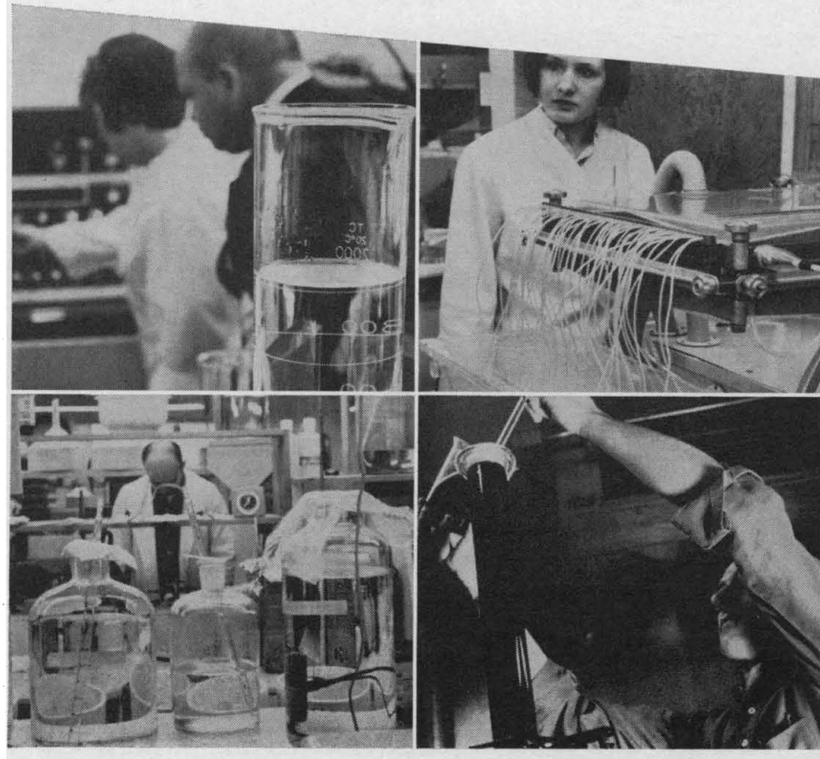

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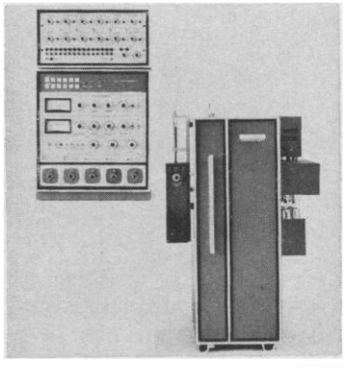

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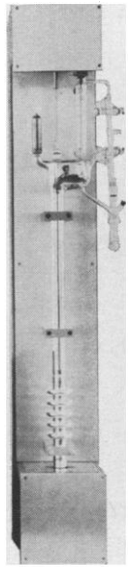

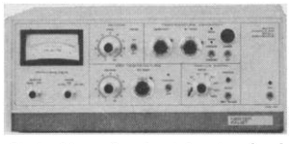

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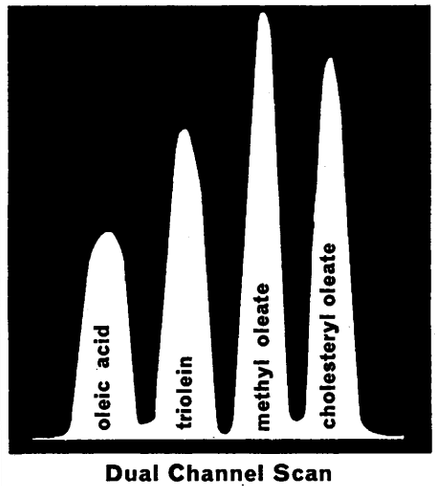

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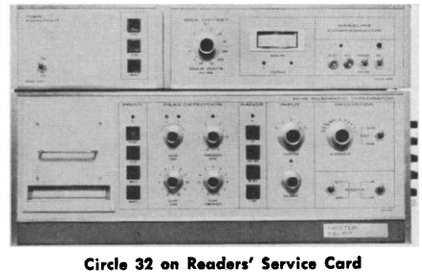

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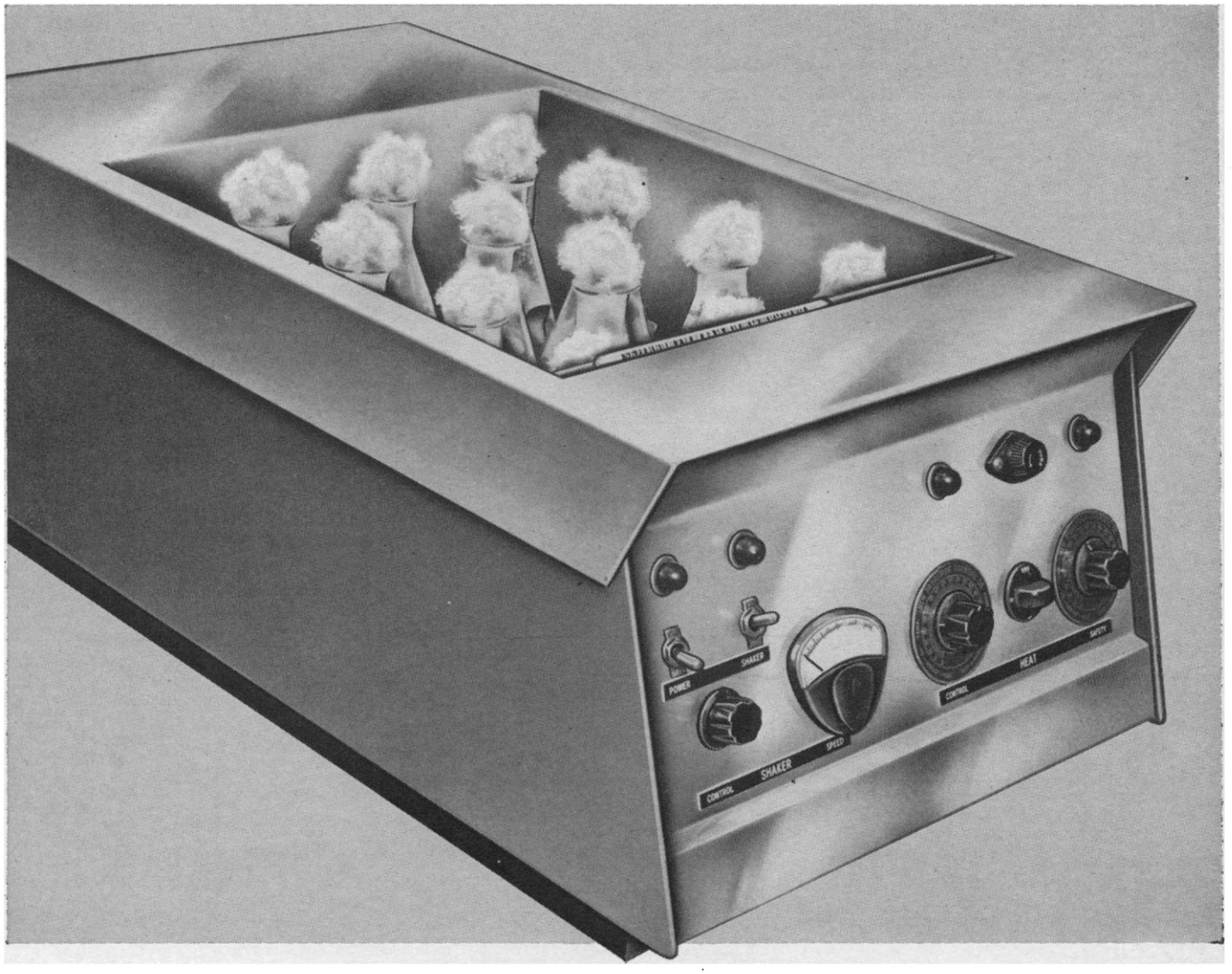

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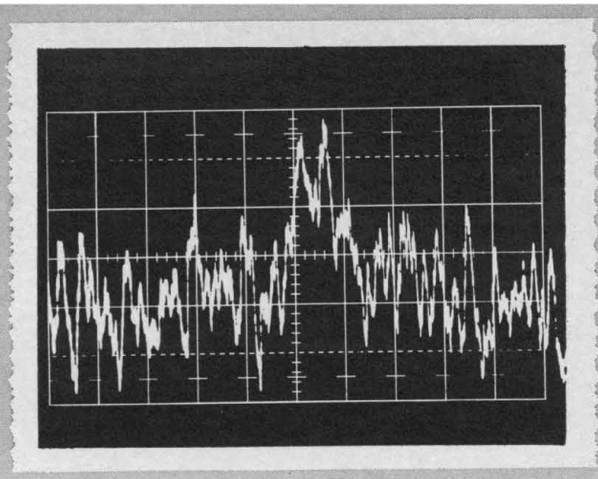

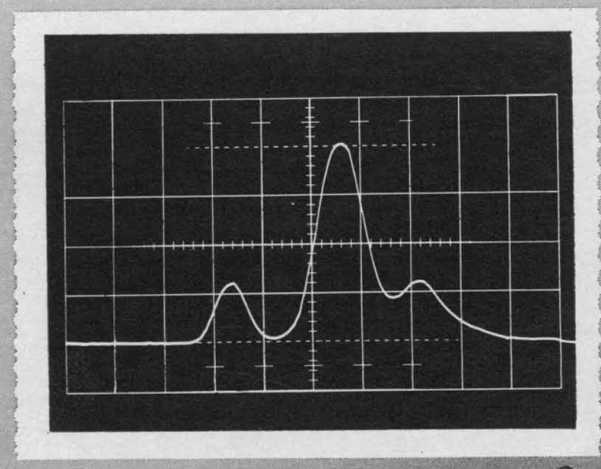

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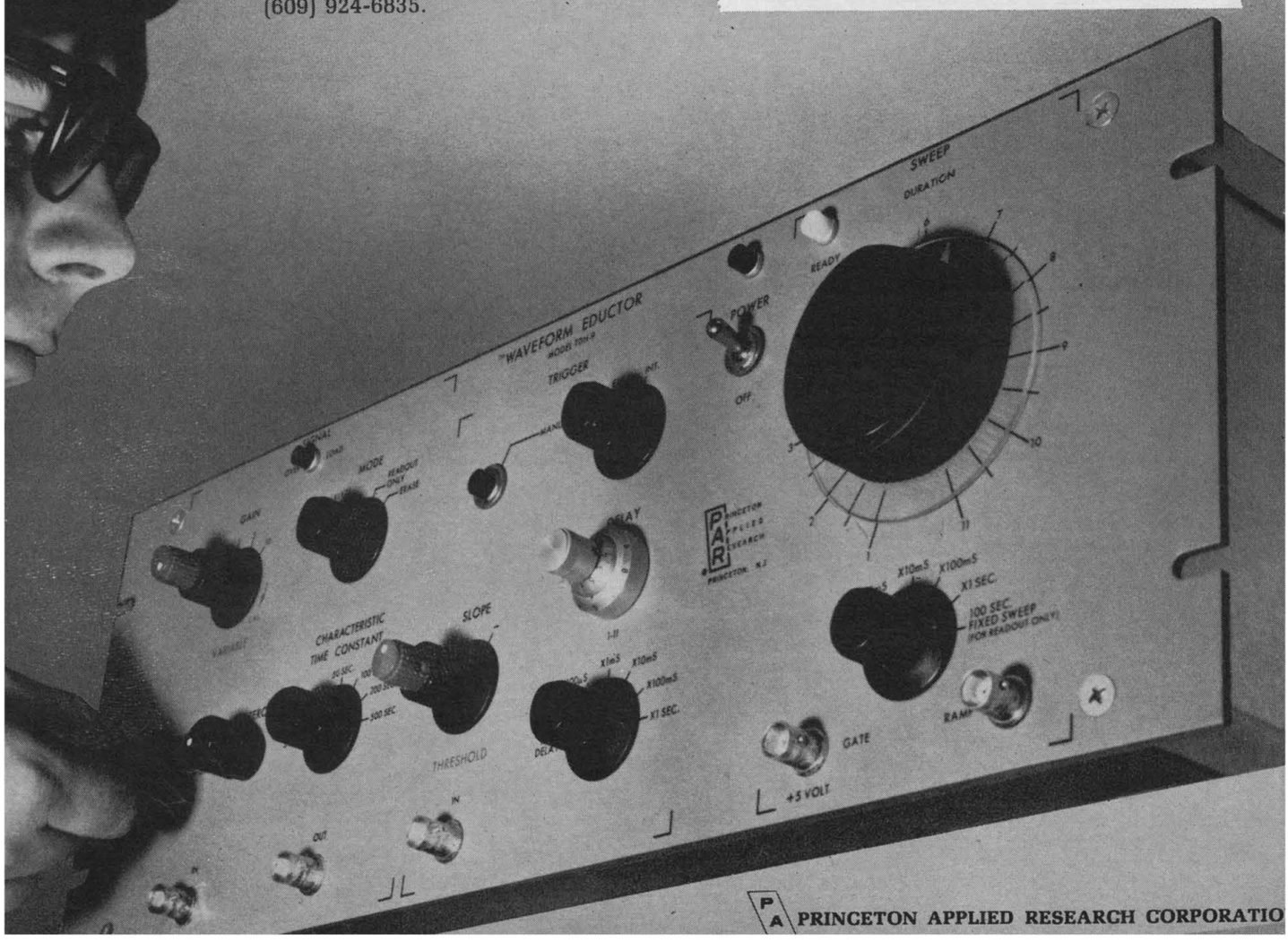

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our own aspect of the human condition.

With reference to prediction, prediction by a supposedly disengaged observer is not only impossible, but if possible, would be repellent. It is impossible because to the degree that persons refuse to act historically in any positive sense, let us say in behalf of their so-called predictions, they are making their predictions less probable. It is increasingly obvious that in the modern situation, whether we engage or disengage, whether we speak or keep our mouths shut, we are nonetheless making decisions which will affect the outcome of the species.

The perspective that Steward adopts is not new; it is the perspective of the alienated professional, the specialist, the expert, no matter what his field. If anthropologists lay claim to any greater insight into alternative chains of events, then they have the responsibility to help actualize that sequence which is most conducive to the cultural development and survival of the species. If it were possible to predict, and at the same time not to act, then one must consider *that* both "scientifically" self-defeating and morally unjustifiable. If anthropology is a science, it is a moral science.

I find it peculiarly interesting that after at least a generation of nihilistic ruminations about the complexity of modern society, the autonomy of culture, and the irrelevance of individual behavior or of "values," the weaponry of modern war, including the means involved, and the activating decisions, are now in the hands of a few people. That is to say, fewer and fewer people can make decisions that have broader and broader consequences. This is one of the absolutely critical conditions of our time, and I think that it is about time that we all frankly admit that such decisions imply judgment, which, in fact, is ultimately moral in character. Man in the 20th century has been casual about, and contemptuous of, moral inquiry, and we scientists share a large part of the responsibility for that unconcern. But the wheel has come full circle and it is now rather clear that, whether we recognize it or not, we create, or destroy, the world in which we live.

It is clear then that I disaffiliate myself from Steward's value-free concept of modernization. On the other hand, Wolf's review would have been fairer to the contributors had he examined more carefully the premises and assumptions of each. My own contribution, for example, was clearly a protest

against the obliterating consequences of a certain type of modernization. Rousseau, our *bête noir*, shows us that it is very hard to have the anthropological consciousness without having one's heart broken, but that is no excuse for a paralysis of the will.

STANLEY DIAMOND
New School for Social Research,
66 West 12 Street, New York 10011

True Genius Kindles

The announcement (8 Dec., p. 1345) of an AAAS symposium on Michael Faraday uses the phrase, "Despite his lack of formal education. . . ."

This is the sad fate of pioneers. Heinrich Hertz had no formal courses in electromagnetic theory, nor did James Clerk Maxwell. Lord Rayleigh was exposed to few courses in acoustics. Jacques Yves Cousteau never had formal education in undersea exploration.

Who are the followers and who the leaders—teachers or students?

LAWRENCE FLEMING
440 South Carmelo Avenue,
Pasadena, California 91107

Doctors, Patients, and Malingerers

Dutton can't believe that people ever *want* to be hospitalized (Letters, 29 Dec.). Ho! Ho! Ho! I don't know where he works, but I'd wager it is not in the area of patient care. Sooner or later, every hospital and every physician makes the acquaintance of a person who *likes* hospital life. If you can afford it, and you are not very sick, it has its enticements: sympathetic people dedicated to taking care of you, and a routine which functions without any effort on your part (hot water bottles and fruit juice on request, meals served in bed with no dishes to wash, backrubs, and clean sheets and housecleaning done by someone else). This actually appeals, if only temporarily, to the lonely and the tired—ask any mother of small children! The real malingerers will put up with the inconveniences and pain to carry out their deception.

Furthermore, it is not rare to find the malingerer not stopping with symptoms that require only x-rays or aspirin. Some submit willingly not only to having blood drawn (which is not really all that traumatic), but to spinal taps, cystoscopy, orthopedic braces, and even

surgery. The physician who deals with compensation (insurance) cases sees them, as does the neurologist; but so does the internist, the orthopedist, the gynecologist, and the dermatologist. Some patients go so far as to deliberately aggravate a minor condition or even inflict wounds on themselves.

Obviously, Dutton has better things to do with his time than submit to needless hospitalization—but the "unthinkable" is true. Such occurrences are far more numerous than the general public realizes, and probably more numerous than I realize, for I am not a physician.

DOROTHY BRANSON
Columbia Hospital,
Milwaukee, Wisconsin 53211

Dutton's letter is as sinister as it is disturbing in its implications. To attack the American Medical Association "persecution complex" is his royal prerogative but he ought not attribute his own Machiavellian mental concoctions "to cynical laymen in this country and foreigners." Every doctor I know is currently working behind schedule with overcrowded waiting rooms and with patients disgruntled about having to wait a week, a month, or more for appointments. Every doctor I know devotes considerable time daily at the telephone consulting with patients, trying to discourage unnecessary appointments to lighten his office load. I believe a similar situation exists throughout this country. . . . There are sufficient meritorious arguments for a National Health Service without stooping to snide remarks regarding doctors' character, honesty, and integrity. If we are going to have a National Health Service program, let it be not in retaliation against the medical profession, but rather because we believe it will improve the health standing and medical care of the American people.

THEODORE ROSEN
808 Main Street,
Manchester, Connecticut 06040

Conserving Rare Wildlife

Gregg's letter (12 Jan.) reflects the growing concern over the rapid depletion of wild animal populations. Many animals on import lists are also on the "endangered list."

Conservationists usually respond by attempts to (i) establish sanctuaries and game management laws; and (ii) reduce the export of such animals. Both efforts are often thwarted inas-

much as many such animals come from the developing nations where conservation ranks low on the list of national priorities. National development means developing natural resources, especially arable land to feed rapidly increasing populations. Wild animals are both a resource to be exploited and a hinderance to agricultural development. They may eat, or otherwise damage crops, and game wardens are kept busy destroying animals they receive complaints about. Even where model game laws exist, enforcement is neglected. Need one cite practices in our own country with regard to golden eagles, coyotes, wolves, mountain lions, crows, and such "vermin"?

Since conservationists are frustrated at the source, some advocate blocking importation of endangered animals into those developed countries which serve as the market. This negative approach —stopping destruction by stopping demand—fails on two counts. One, destruction of natural habitats and local demands remain unaffected. Two, desirable importation is hindered.

I suggest that the proper positive approach is to (i) encourage establishment of game sanctuaries and preserves; (ii) encourage establishment of enforceable game laws; (iii) encourage establishment of transplanted captive or free-ranging breeding colonies into areas which can be protected; and (iv) encourage substitutions or local breeding for endangered animals used in experiments, biological supply procedures, or displays which tend to "use up" animals.

IRWIN S. BERNSTEIN
Yerkes Regional Primate Research Center, Emory University, Atlanta, Georgia 30322

Phosphine

This is to call attention to the fact that new stocks of reagent-grade phenol crystals contain a preservative which liberates phosphine (PH_3) upon distillation. Bottles are not conspicuously labeled and should be carefully examined by those who customarily distill phenol. Most companies market USP phenol crystals that do not contain preservative. I hope the accident which nearly occurred in this laboratory may be avoided in others.

VALERIE CAMPBELL
Department of Biochemistry, University of Washington, Seattle

8 March 1968, Volume 159, Number 3819

SCIENCE

Evolution or Catastrophe*

Ever since the days of Herbert Spencer, observers have been struck by the fact that human societies frequently seem to resemble biological systems in some aspects of both evolution and structure. The mechanisms involved, of course, have been quite different, as has been pointed out repeatedly over the years. The capacity to react sensitively to information, to conserve, communicate, and use it, and constantly to accumulate new stores is central to successful evolution in either context. But the biological mechanisms of accumulation, selection, use, and transfer of information differ in obvious and extremely important practical ways from the mechanisms involved in the accumulation, use, and transfer of social information by the processes of learning and through the medium of culture. The potential for what is in effect the inheritance of acquired characteristics confers upon the evolution of the culturally mediated society a dynamism, a flexibility, and a versatility that the biological organism or system can probably never remotely match. The obvious penalty attached to this versatility and flexibility, of course, is a degree of vulnerability also seldom matched in the biological world, as the disappearance of past great civilizations bears silent, poignant witness.

But these differences of mechanism, conspicuous and indeed basic as they are, should not obscure the parallel requirements for success that face the evolving society and the evolving organism. There are a number of such similar requirements. They are characteristically elementary, and by that very token may be especially noteworthy. Thus, precisely as in the biological world, there is a sharp limit to the rate at which evolutionary change can take place in social evolution, and to the magnitude of any given step, if the innovations are to be successful and if the society that they will affect is not to be severely disoriented or even crippled by the process. As in biological evolution, effective social evolution must be at once radical and conservative, freely embracing the new yet scrupulously preserving basic and well-tested elements that have had a high survival value in the past and which remain relevant to the present. Like successful biological evolution, successful social evolution must constantly guard against discarding the essential with the trivial.

The more rapid the social evolution, the more imperative becomes this requirement and the more vigilance is demanded to satisfy it. Through history this has been one of the most difficult lessons for man to learn. Repeated failures to understand it or to act upon it adequately must have accounted for major historical debacles—and indeed for major distortions of social evolution. It is a danger if anything more acute today than ever before, because of the immensely increased dynamism of social movements and evolutionary forces with which we live, and because the stakes of failure, like those of success, are so much higher than they have ever been. It would be difficult to find a more apposite general caveat for our time than this of exercising due care that, in embracing new and experimental courses on myriad fronts of movement with the ardor that we must, we do not at the same time discard long-tested values and long-tried adaptive courses which, if they are lost, will only have, one day, to be re-won—and probably at enormous cost. This is a consideration that is before us in all our affairs, every minute of every day. —CARYL P. HASKINS

* From the *Report of the President, 1966–67* (Carnegie Institution of Washington, Washington, D.C., 1968).

K. L. Johnson, "The behavior of elastohydrodynamic oil films in combined rolling and sliding."

Lysosomes

Zanvil A. Cohn and Samuel Dales are chairman and vice chairman.

1 July. Metabolism and composition of the granulocyte: J. G. Hirsch, "Composition and fate of PMN granules"; P. Elsbach, "Lipases and phospholipases"; S. S. Spicer, "Composition and cytochemistry"; M. Karnovsky, "Metabolic consequences of phagocytosis." Functional aspects of the granulocyte: W. Barry Wood, "Formation of leukocytic pyrogen"; J. Spitznagel, "Cationic proteins"; S. Klebanoff, "Peroxidase mediated antibacterial mechanisms."

2 July. Macrophages and the RES: A. Volkman, "Origin, turnover, and function of RES macrophages"; B. Bloom, "Macrophages and delayed hypersensitivity"; Z. Cohn, "Macrophage lysosomes"; A. Novikoff, "Structure of the RES." Physiology of mononuclear phagocytes: G. Mackaness, "Mechanisms of cellular immunity"; A. Dannenberg, "Enzymes in cell immunity"; R. North, "Phagocytosis and postphagocytic events"; B. Ehrenreich, "Uptake and processing of soluble molecules."

3 July. Early events in viral penetration, uncoating, and replication: S. Silverstein, "Lysosomes in the penetration and uncoating of virus particles"; A. C. Allison, "Lysosomes in viral infection"; B. Mandel, "Interactions of antibody neutralized virus with host cells." Cellular response to viral infections: G. C. Goodman, "Cytopathogenic effects of picornavirus infections"; H. C. Bubel, "Hydrolytic enzymes in virus"; E. H. Ludwig, "Infected cells"; R. Wagner, "Studies with interferon"; R. Z. Lockart, "Use of interferon to study cell destruction by mengovirus."

4 July. Intracellular parasitism: P. D'Arcy Hart, "Mycobacteria modification of the intracellular environment"; L. Hayflick, "Interactions of mycoplasma with cultured cells"; M. Müller, "Studies with protozoa"; H. Harris, "Genetic activity in hybrid animal cells."

5 July. Genetic alterations in leukocyte functions: R. Good, "Chronic granulomatous disease of childhood"; E. Kauder (subject to be announced). F. Bang, "Murine viral hepatitis."

Radical Ions

Michael Szwarc and Glen A. Russell are chairman and vice chairman, respectively.

8 July. George K. Fraenkel, "Recent applications of ESR to organic free radicals and radical ions"; G. Vincow, "Electron spin resonance studies of radical ions"; F. W. McLafferty, "Unimolecular decompositions of gaseous radical ions."

9 July. (S. I. Weissman, discussion leader): E. de Boer, "ESR and NMR of radical ions and their ion pairs"; M. C. R. Symons, "Some aspects of ionic solvation and ion-pair formation derived from ESR studies"; G. J. Hoijtink, "Our present knowledge about aromatic ions."

10 July. (Glen A. Russell, discussion leader): Shelton Bank, "Reduction and addition reactions of aromatic radical anions"; Nathan Kornblum, "Radical anions as intermediates in substition reactions"; Edward G. Janzen, "Radical anions and di-anions of weak carbon acids"; Nathan L. Bauld, "Radical anions, di-anions, and tri-anions."

11 July. (Ralph N. Adams, discussion leader): Raymond E. Dessy, "Organometallic electrochemistry"; Ralph N. Adams, "Electrochemical oxidation (radical cations)"; M. Levy, "Hydrodimerization of radical ions of acrylonitrile and of related monomers"; A. Weller, "Chemiluminescent reactions of radical ions"; E. Chandross, "Chemiluminescent reactions of radical ions in electrode processes."

12 July. J. Jagur-Grodzinski, "Formation of radical ions by electron transfer from carbanions"; E. M. Kosower, "Stable pyridinyl radicals.

Spectral Line Shapes

Lewis S. Klein and Marshall Lapp are chairman and vice chairman, respectively.

15 July. H. Griem, "Spectral line shapes in plasmas" (A. Kolb, discussion leader); J. Cooper, "Astrophysical applications of line shapes" (W. R. Hindmarsh, discussion leader); H. L. Welsh, "Experimental studies of line shapes in collision-induced absorption"; J. Van Kranendonk, "Theoretical studies of line shapes in collision-induced absorption."

16 July. B. Zwanzig, "Liouville operator techniques in line shape theories"; E. Smith, "Relaxation theory of line

broadening in plasmas"; (A. Ben-Reuven, discussion leader): G. Birnbaum, "Collision-induced absorption in polyatomic molecules"; L. Galatry, "Far-infrared line broadening in liquids"; R. Herman, "Impact theory of rare gas-broadened HCl lines"; (H. Jacobson, discussion leader).

17 July. C. Alkemade, "The measurement of metal vapor damping parameters"; W. Behmenburg, "The determination of interatomic potentials from line shape measurements"; (M. Lapp, discussion leader); B. Bezzerides, "Kinetic equation approach to spectral line shapes"; A. Mead, "Resolvent operator method in the theory of spectral lines"; L. Klein, "Green function theory of stark broadening."

18 July. R. A. Hill, "Current status of experiments on spectral line broadening in plasmas"; H. W. Drawin, "Stark broadening in the presence of magnetic fields"; J. R. Greig, "Recent experimental results on stark broadening" (W. Lochte-Holtgraven, discussion leader); H. Van Regemorter, "Spectral lines from stellar atmospheres"; D. Hummer, "Spectral line shapes for optically thick radiating systems" (C. Pecker, discussion leader).

19 July. S. Y. Ch'en, "Developments in neutral atom line broadening" (G. Hammond, discussion leader).

Biological Regulatory Mechanisms

H. Edwin Umbarger is chairman.

22–26 July. Mechanisms regulating protein synthesis in prokaryotic and eukaryotic forms. The goal is to proceed from the simpler systems that led to the Jacob-Monod model through yeast and neurospora to more complex forms in which hormonal controls are operating. Both negative control and positive control systems will be considered. Speakers: S. Bourgeois, M. Cohn, E. Englesberg, W. Gilbert, R. F. Goldberger, S. R. Gross, I. C. Gunsalus, U. Henning, J. G. Kaplan, W. Maas, B. Magasanik, R. G. Martin, G. M. Tomkins, L. Gorini, O. Greengard, P. A. Kitos, and B. Komisaruk.

Energy Coupling Mechanisms

Henry A. Lardy and Lester Packer are cochairmen.

29 July. Protein conformation (S. J. Singer, chairman): J. Kraut, "Protein structures viewed by x-ray crystallography"; H. M. McConnel and W. Hub-

bell, "Spin label studies"; S. J. Singer, "Optical rotation and circular dichroism" (D. W. Urry, discussant). Membrane assembly (P. Siekevitz, chairman): D. Woodward, "Genetic control of mitochondrial proteins"; E. Racker, "Assembly of mitochondrial proteins"; S. Fleisher, "Membrane arrangements" (E. Wintersberger, discussant).

30 July. Outer mitochondrial membrane (D. F. Parsons, chairman): L. Ernster, J. Greenwalt, and D. Allman, "Composition and function"; O. Kreutziger, "Structure by freeze etching." Inner mitochondrial membrane —macromolecular conformation (W. Stoeckenius, chairman): D. E. Green, "Conformation and energy coupling"; L. Packer and J. Wrigglesworth, "Molecular and macromolecular correlations"; C. R. Hackenbrock, "Electron transport-dependent ultrastructural transformation" (P. V. Blair, discussant).

31 July. Inner mitochondrial and microbial membranes—energy transduction (H. A. Lardy, chairman): B. Chance, "Coupling and control mechanisms"; C. P. Lee and L. Ernster, T. Onishi and H. Schleyer, "Discussion of coupling at site I"; J. Mattoon, "A genetic defect of oxidative phosphorylation in yeast mitochondria"; R. Eisenhardt, " Energy transduction in brown fat"; M. Cusanovich, "Light-induced electron transport in chromatium chromatophores"; D. de Vault, "Redox carriers and coupling mechanisms"; A. Caswell, "Cytochrome *c* potentials during metabolic perturbations"; A. Brodie, "Coupling factors from *M. phelï*"; R. Sanadi, "Coupling factors in partial reactions of oxidative phosphorylation"; J. Fesenden, "Coupling factors in partial reactions of oxidative phosphorylation"; G. Pinchot, "The purification and nature of the high-energy intermediates"; (E. C. Slater, chairman): P. D. Boyer, "Paths of phosphate oxygen in oxidative and photosynthetic phosphorylation"; A. Loyter, "Calcium accumulation by submitochondrial particles"; E. Carafoli and A. Lehninger, "Movements of H^+ and K^+ in relation to energy coupling in mitochondria"; R. Cockrell, "Synthesis of ATP driven by an ion gradient"; J. Howland, "Ion movements associated with tetramethyl-*p*-phenylenediamine oxidation."

1 August. Photosynthetic membrane —energy transduction (A. San Pietro, chairman). Electron transport and phosphorylation: N. Good and S. Izawa, W. Lynn, and R. E. McCarty, "Plants"; B. Chance, M. Baltscheffsky,

and M. Nishimura, L. Vernon, R. E. McCarty, "Bacteria"; R. Dilley, N. Shavitt, G. Hind, and D. W. Deamer, "Ion movements." Special lecture: E. C. Slater, "Coupling mechanisms."

2 August. Electron transport mechanisms (H. Kamin, chairman): V. Massey, "Electron transfer from flavins to sulfur and iron" (G. Foust and J. Vorhaben, discussants). H. Beinert, "Interaction between flavins and metals" (K. V. Rajagopalan, L. Siegel, and T. Singer, discussants). J. Wang, "Model mechanisms for electron transport and oxidative phosphorylation" (J. Peisach, L. Parkhurst, and M. Morrison, discussants).

Holderness School

Animal Cells and Viruses

David M. Prescott and George K. Hirst are chairman and vice chairman, respectively.

10–14 June. The structure of chromosomes: H. Swift, J. H. Tavlor, H. Ris, E. Stubblefield, A. Cole, D. Wolstenholme, and J. Vinograd. Cell transformation: H. Koprowski, W. Nichols, H. Green, W. Eckart, H. Eagle, and G. Todaro. Viral RNA synthesis: R. Franklin, M. Girard, J. Bader, and M. Pons. Genetics of RNA viruses: E. Pfefferkorn, B. Fields, and R. Simpson. DNA tumor viruses: E. Winocour and W. Doerfler.

Science and Technology of Biomaterials

Charles P. Bean and Robert I. Leininger are chairman and vice chairman, respectively.

17 June. Electrodes I (Sumner N. Levine, chairman): Sumner N. Levine, "Electrodes in biological environments"; Alan R. Kahn, "Tissue impedance and electrodes." Electrodes II (speaker to be announced), "Implanted electrodes"; R. N. Scott, "Myoelectric control."

18 June. Charged surfaces (Robert I. Leininger, chairman): Richard Falb, "Protein absorption on charged electrodes"; William V. Sharp, "Bioelectric polyurethanes"; Preston Murphy, "Electrets as nonthrombogenic surfaces." Polymers (Donald Lyman, chairman): C. W. Cooper, "Specification of the mechanical properties of polymers"; John A. Lontz, "Cranial implant with dilatational polymers"; (speaker to be

announced), "Materials and piezoelectric energy sources."

19 June. Mechanical properties of teeth and restorations (John W. Stanford, chairman): George R. Dickson, "Mechanical properties of the tooth structure"; David Mahler, "Mechanical properties of restorative materials"; Robert Craig, "Stresses in teeth and restorations." Bones and joints (Harlan Amstutz, chairman): Edward Korostoff, "Electrical properties of dentin and bone"; Ernest Gardner, "Anatomy and physiology of joints"; Charles McCutchen, "What's good about synovial fluid?"

20 June. Friction, wear, and adhesion (John Wulff, chairman): John Wulff, "Mechanism of friction and wear of metals"; Donald G. Flom, "Friction and wear of polymers"; L. Lurie, "Acrylic adhesives"; Henry Lee, "Epoxys and polyurethanes as adhesives for hard tissues." (Edward I. Salkovitz, chairman): John Charnley, "The development of arthroplasty."

21 June. Progress in biomaterials (James A. Bougas, chairman).

Chemistry and Physics of Isotopes

A. J. Kresge and W. Spindel are chairman and vice chairman, respectively.

24 June. (R. E. Weston, Jr., chairman): M. Wolfsberg, "Magnetic resonance"; (L. Friedman, chairman): J. L. Beauchamp, "Ion-molecule reactions."

25 June. (L. Melander, chairman): P. C. Myhre, "Organic systems"; (S. Seltzer, chiarman): V. J. Shiner, Jr., "Secondary isotope effects."

26 June. (R. N. Clayton, chairman): T. A. Rafter, "Geochemistry"; (W. Spindel, chairman): J. Mühlenpfordt, A. Liberti, "Isotope separation."

27 June. (G. M. Harris, chairman): J. B. Hunt, "Inorganic systems"; (J. J. Katz, chairman): H. L. Crespi, "Biochemical systems."

28 June. (F. A. Long, chairman): R. P. Bell, "Proton transfer."

Lasers in Medicine and Biology

Myron L. Wolbarsht and Elmer N. Zeitler are cochairmen; H. Christian Zweng is vice chairman.

1–5 July. (W. J. Mautner, moderator): "Physical models of laser effects on biological materials"; (M. Cox, moderator): "Safety procedures for research and general usage"; (R. W.

Neidlinger, moderator): "Effects of laser radiation on the eye"; (R. Stern, moderator): "Special effects of lasers on teeth, bone, and skin"; (R. J. Rockwell, moderator): "Instrumentation and calibration"; (B. Chance, moderator): "Analysis and stoichiometry"; (L. Rose, moderator): "Medical aspects"; (R. C. Rosan, moderator): "Pathology"; (E. Zeitler and M. Wolbarsht, moderators): "Miscellaneous subjects."

Myocardial Contractility

William W. Sleator, Jr., is chairman.

Cellular Control of Cardiac Contraction

12 August. W. Trautwein, R. W. Tsien, K. Peper, and H. A. Fozzard, "Ionic mechanisms of the action potential plateau"; J. W. Woodbury, Lloyd Barr, M. M. Dewey, and E. A. Johnson, "Propagation of the action potential."

13 August. Ernest Page, J. Sommer, E. A. Johnson, and P. Müller, "Excitation-contraction coupling I: Structural consideration"; H. A. Fozzard, D. Hellam, M. Morad, and W. Trautwein, "Excitation-contraction coupling II: Voltage control of tension."

14 August. R. F. Furchgott, S. Winegrad, F. Jobsis, and John Blinks, "Excitation-contraction coupling III: Where does the calcium come from?"; W. W. Sleator, M. Reiter, and P. Braveny, "Relations between frequency, force, and action potential configuration."

15 August. Setsuro Ebashi and A. Martonosi, "Subcellular studies of proteins and calcium"; R. E. Davies, C. L. Gibbs, and G. Langer (subject to be announced).

16 August. H. Morgan, J. Williamson, and T. Cooper, "Metabolic controls."

Metals and Metal Binding in Biology

Frank R. N. Gurd and Paul D. Saltman are chairman and vice chairman.

19 August. Stereochemistry, structure, and reactivity in small complexes (R. H. Holm, chairman); Large complexes (M. Cohn, chairman).

20 August. Ligand exchange reactions (D. Margerum, chairman); Metal ion catalysis (R. G. Pearson, chairman).

21 August. Electron-transfer processes (H. Taube, chairman); Properties of nonheme iron (A. Bearden, chairman).

22 August. Biological nonheme iron systems (J. Rabinowitz, chairman); Presentation and discussion of molecular models (R. E. Marsh, chairman).

23 August. Biological transport mechanisms (J. B. Neilands, chairman).

Geochemistry

S. R. Silverman is chairman.

26 August. Geochemistry of organic matter in recent sediments (W. G. Meinschein, chairman): W. G. Meinschein and J. M. Mitchell, "Lipids in hydrothermal sediments"; additional speakers and subjects to be announced. Physics and chemistry of organic substances in aqueous media (P. A. Dickey, chairman): P. A. Witherspoon, "Diffusion of hydrocarbons in water"; R. L. Wershaw, "Particle size determination of humic acid fractions by low-angle x-ray scattering"; P. A. Dickey and J. C. Cartmill, "Capillary processes in primary oil accumulation."

27 August. Geochemistry of organic matter in ancient sediments (W. E. Robinson, chairman): E. Hare, "Amino acid diagenesis in fossil shells and associated sediments"; D. H. Welts, "Isoprenoid hydrocarbons produced by low temperature pyrolysis of kerogen and biochemical substances"; D. Anders, "Geochemistry of Green River oil shale bitumen"; W. E. Robinson, "Geochemistry of kerogen in Green River formation"; A. L. Burlingame, H. K. Schnoes, P. A. Haug, and D. R. Simoneit, "Carboxylic acid content of organic matter in Green River formation"; B. Nagy, "Ozonolysis of kerogen"; W. Van Hoeven, J. R. Maxwell, and M. Calvin, "Fatty acids in ancient sediments."

28 August. Symposium—Environments of coal deposition (P. H. Given, chairman): W. Spackman, "Dependence of coal types on the environment of deposition"; A. Traverse, "Structure and formation of jets"; D. J. Swaine, "Boron as an environmental indicator in Australian coals"; F. M. Swain, "Distinction between primary and diagenetic variations in Minnesota peats." Coal geochemistry (P. H. Given, chairman): J. D. Brooks and J. Smith, "Diagenesis and metamorphism of lipids and cuticles"; F. J. Stevenson, "Chemistry of humic substances"; J. P. Martin, "Formation of humic substances by fungi"; P. H. Given, "Carbon isotope studies of peat constituents and corresponding living plant material."

29 August. Petroleum geochemistry (E. E. Bray, chairman): W. L. Orr,

"Sulfur compounds in the maturation of petroleum"; W. D. Redfield, "Optical rotation in petroleum"; F. H. Meister, "Distribution of carbon isotopic compositions of Permian basin crude oils." Origin of petroleum (J. G. Erdman, chairman): G. T. Phillippi, "The deep subsurface temperature-controlled origin of petroleum"; E. V. Whitehead, "Fossil fuels: their composition and evolution in relationship to living organism"; W. M. Sackett, "Kinetic isotope effects in the formation of natural gas and petroleum"; S. R. Silverman, "Carbon isotopic evidence for the origin and transformation of petroleum and gas."

30 August. Special topics in organic geochemistry (S. R. Silverman, chairman): R. A. Friedel, "Some spectral applications in organic geochemistry"; C. Ponnamperuma, "Abiogenic hydrocarbons"; M. Duel and G. J. Schrayer, "Evolution and migration of methane and heavier hydrocarbons in coal beds."

Crystal Inn

Theoretical Chemistry

John A. Pople and Albert Moscowitz are chairman and vice chairman, respectively.

24 June. L. C. Snyder, "Heats of reaction from Hartree-Fock energies of closed shell molecules"; D. A. Ramsey, "Recent problems in the electronic spectra of polyatomic molecules"; D. H. Levy, "Gas-phase electron resonance"; K. Ruedenberg, "*Ab initio* separated pair wave functions for some diatomic molecules."

25 June. J. L. Whitten, "*A priori* studies of excited electronic states of intermediate size molecules"; M. B. Robin, "Electronic states of small ring molecules"; J. N. Murrell, "Calculation of predissociation rates."

26 June. M. Karplus, "Correlation calculations and perturbed Hartree-Fock theory"; G. A. Segal, "Theory of electric dipole derivatives"; J. Hinze, "General multiconfiguration formalism."

27 June. S. F. Boys, "Correlation effects in many-electron wave functions"; I. Shavitt, "Configuration interaction calculations"; R. L. Stewart, "Study of electron density by x-ray and neutron diffraction."

28 June. H. F. Hameka, "Green function techniques in atomic and molecular calculations"; R. L. Somorjai, "A model of a linear chain of hydrogen bonds."

Chemistry and Physics of Coatings and Films

J. E. Guillet and Walter S. Ropp are chairman and vice chairman, respectively.

1 July. Warren Johnson, "Coatings requirements for high-performance aircraft and space vehicles"; John R. Chalmers, "Investigation of polyimides as coatings and laminates."

2 July. Irving Einhorn, "Thermal degradation of high-performance coatings"; Ronald Rheinisch, "Photodegradation of polymers in space environments."

3 July. H. Nelson Wright, "Photochemical deposition of protective coatings"; J. Hinsch, "Radiation cure of organic coatings."

4 July. S. G. Mason, 'Microrheology of suspensions"; Irving Krieger, "Rheology of monodisperse latices."

5 July. R. N. O'Brien, "The use of interferometry in the study of film properties"; F. W. Poling, "Application of infrared techniques to study absorbed and deposited films." Discussion leaders: Field H. Winslow, Walter S. Ropp, Raymond R. Meyers, Frank W. Maine, and Percy Pierce.

Physical Metallurgy

Paul G. Shewmon and Johannes Weertman are chairman and vice chairman, respectively.

8 July. M. J. Stowell, "Epitaxial growth"; Kenneth Russell, "Nucleation kinetics" (G. M. Pound, discussion leader). Wolfgang Pitsch, "Nucleation in solids" (John Hilliard, discussion leader).

9 July. R. Armstrong, "Twinning and martensite"; Paul Shewmon, "Mobility of coherent interfaces" (R. Fullman, discussion leader). K. R. Kinsman and H. I. Aaronson, "Coherent precipitation growth" (Gareth Thomas, discussion leader).

10 July. H. Gleiter, "Structure of grain boundaries"; B. B. Rath and H. Hu, "Grain boundary mobility" (M. Ashby, discussion leader). John Cahn, "Massive transformations" (Walter Owen, discussion leader).

11 July. Fred Bolling, "Cellular precipitation"; Martin Glicksman, "Solidification at large ΔT" (Fred Weinberg, discussion leader). Cyril S. Smith, "On interfaces in general."

12 July. (Presentations brought by conferees); (Paul Shewmon, discussion leader).

Molecular Pathology

Earl P. Benditt and Robert M. O'Neal are chairman and vice chairman.

15–19 July. "Control mechanisms and their aberrations." Some facts and fancies about and errors in regulation of DNA, RNA, and protein synthesis will be discussed. Drs. Baserga, Coffey, Gelboin, H. Harris, Lagunoff, Pitot, Smuckler, Van Lanker, Van Potter, and others will participate. Two sessions will be devoted specifically to DNA, two to RNA, two to protein synthesis, and the remainder to other general and specific aspects of regulatory phenomena.

Quantum Solids and Fluids

T. H. Geballe and S. Doniach are cochairmen.

Local Moments in Metals and Weak Magnetism

22 July. Localized magnetic moments: H. Suhl, "Theory of moment formation"; B. T. Matthias, "Experimental moment formation"; B. R. Coles, "Experimental studies: spin resonance, neutron diffraction, optical methods"; F. T. Hedgecock, "Semiconductors as solvents."

23 July. Compensated kondo states: W. Steyert, "Experiments"; P. W. Anderson, "Theory"; K. Yosida, "Theory: singled bound state of a localized spin"; A. C. Gossard and A. Narath, "NMR results."

24 July. Further compensated state experiments: J. Applebaum, "Tunneling"; R. D. Parks, "Superconductors"; A. J. Heeger, "Interaction effects."

25 July. Magnetic excitations, weakly magnetic and nearly magnetic metals: P. M. Platzmann, "Electron spin resonance in metals"; A. W. Overhauser, "Charge and spin density waves"; T. M. Rice and A. R. Mackintosh, "Chromium and rare earth metals."

26 July. Nearly ferromagnetic metals and alloys: W. F. Brinkmann and J. R. Schrieffer, "Theory"; S. Foner, "High field properties"; S. Ogawa, "Weakly magnetic compounds: $ZrZn_2$."

High-Temperature Chemistry

Daniel D. Cubicciotti, Jr., and Robert J. Thorn are chairman and vice chairman, respectively.

29 July. Keynote address: Leo Brewer, "Significant new directions in high-temperature research"; Electron impact

cross sections (F. E. Stafford, chairman): F. E. Stafford, "Introductory remarks"; J. Kistemaker, "Physical processes occurring during the passage of energetic ions through matter"; R. H. McFarland, "Electron impact cross sections by crossed beam methods"; E. N. Lassettre, "Excitation of atoms and molecules by electron impact"; M. Inokuti, "Some theoretical aspects of collision cross sections."

30 July. Theoretical aspects of bonding in high-temperature molecules (K. D. Carlson, chairman): K. D. Carlson, "Introductory comments"; E. Clementi, "Theoretical chemistry and high-temperature chemistry: recent *ab initio* computations on carbon vapor"; L. C. Allen (subject to be announced): A. C. Wahl, "*A priori* thermodynamics of alkali dimer vapors"; Donald F. Gibbons, "Electronic structure of solid refractory metals, compounds, and alloys."

31 July. Surface phenomena at high temperatures (G. M. Rosenblatt, chairman): G. A. Somorjai, "Low-energy electron diffraction"; G. Ehrlich, "Atomic view of surface diffusion and bonding"; W. P. Ellis, "Low-energy electron diffraction"; G. M. Rosenblatt, "Experimental studies of vaporization mechanisms."

1–2 August. Transport and chemical reactions in nonstoichiometric solids (R. J. Thorn, chairman): R. J. Thorn, "Introductory comments"; B. Fender, "Ordering in FeO"; M. O'Keeffe, "Diffusion in highly disordered solids"; J. B. Wagner, "Transport in transition metal compounds."

This program is supported in part by the Directorate of Chemical Sciences, Air Force Office of Scientific Research.

Toxicology and Safety Evaluations

Joseph C. Calandra and Mitchell R. Zavon are chairman and vice chairman, respectively.

5 August. (Robert P. Giovacchini, moderator): Howard I. Maibach *et al.* "The mechanisms of skin sensitization and photosensitization"; "The molecular basis of delayed-type hypersensitivity." (Sheldon D. Murphy, moderator): James W. Gillett, "Comparative metabolism of insecticides"; Donald I. Mount, "Comparative toxicity of chemicals to fish."

6 August. (Alfred E. Earl, moderator): William P. Purcell, "Physicochemical factors determining structure-activity relationships in toxicology";

Leo Friedman, "A biochemical screening approach to toxicology." (Milton Eisler, moderator): Marvin Legator, "The role of pharmacogenetics in toxicology"; Warren W. Nichols, "Virus-drug chromosome relationships."

7 August. (Earl H. Dearborn, moderator): Jean Sice *et al.*, "Drug or chemical interaction and toxicology: (a) biotransformation mechanisms, (b) transport and distribution processes, (c) intestinal absorption." (Mitchell R. Zavon, moderator): Robert E. Eckardt, "The interaction of toxicology and biology in the evalution of environmental health"; Paul Kotin, "The interaction of man and his environment."

8 August. (O. Garth Fitzhugh moderator): H. Druckrey, "The contribution of new carcinogens to the understanding of carcinogenesis"; Leon Golberg, "Subcutaneous sarcomas as an index of carcinogenic potential." (Verald K. Rowe, moderator): Bruce W. Halstead, "Marine biotoxicology."

9 August. (Paul J. Schouboe, moderator): Robert E. J. Moddes, "Cybernetics and toxicology"; Lloyd W. Hazelton, "Systems analysis in toxicology."

Chemistry and Physics of Paper

Bengt Rånby and Bengt Leopold are chairman and vice chairman, respectively.

12 August. S. G. Mason, "The microrheology of dispersions"; P. H. Norberg, "Studies of fiber curling in high-consistency refined pulps"; K. E. Eriksson, "Enzymatic attack on surfaces of wood fibers."

13 August. Mrs. R. Marton, "Anatomical and pulping properties of normal and fast-grown softwoods and hardwoods"; P. H. Norberg, "Morphology of native barks and their properties in pulping processes"; A. M. Scallan, "The concept of accessibility in cellulose."

14 August. D. L. Brink, "Component analysis of fiber and fiber properties"; B. B. Thomas, "Observations on fiber and paper relations"; J. K. Craver, "Sonic modulus techniques."

15 August. E. Strazdins, "Role of surface charge in the interaction of stock additives with cellulose fibers"; N. A. Bates, "Retention and curing behavior of polyamide-epichlorohydrin resin"; V. Stannett, "Sonic observations on the mechanisms of wet strength."

16 August. Discussion of new directions in paper research: D. A. I. Gor-

ing, "Surface modifications in a corona discharge"; B. Rånby, "Some new paper fiber and synthetic polymer combinations."

Biology and Chemistry of Pyrrole Compounds

Donald P. Tschudy and Lawrence Bogorad are chairman and vice chairman, respectively.

19 August. Porphyrin and metalloporphyrin chemistry: David Mauzerall, Winslow Caughey, and Joseph J. Katz. Metalloporphyrin biosynthesis and its control: David Shemin, June Lascelles, Gerald Marks, Bruce Burnham, and S. Aranoff.

20 August. Metalloporphyrin biosynthesis and its control (continued): S. Granick, Harvey Marver, Robert F. Labbe, Herbert Schwartz, and Goro Kikuchi. Metalloporphyrin biosynthesis and its control (continued): Lawrence Bogorad, Richard Levere, A. Kappas, E. Y. Levin, and R. J. Porra.

21 August. Hemoproteins and control of hemoglobin synthesis: Emanuel Margoliash, Samuel P. Bessman, Arthur Grayzel, and Marco Rabinovitz. Clinical aspects of porphyrin metabolism: Allan C. Redeker, Lennox Eales, and Marilyn Cowger.

22 August. Clinical aspects of porphyrin metabolism (continued): Donald P. Tschudy, George Ludwig, and Leonard Harber. Bile pigment chemistry and metabolism: C. J. Watson, Roger Lester, Barbara Billing, and Lionel Israels.

23 August. Bile pigment chemistry and metabolism (continued): Rudi Schmid, Paul Berk, Irwin Arias, and Samuel Schwartz.

Calendar of Events

National Meetings

March

18–21. American **Physical** Soc., Berkeley, Calif. (W. Whaling, California Institute of Technology, Pasadena 91109)

18–21. American **Radium** Soc., annual mtg., Miami Beach, Fla. (J. L. Pool, Executive Secretary, Memorial Hospital, 444 E. 68 St., New York, N.Y.)

18–22. National Assoc. of **Corrosion Engineers,** 24th annual conf. and show, Cleveland, Ohio. (T. J. Hull, 980 M & M Building, Houston, Tex. 77002)

19–20. **Equipment Manuals** Symp., Washington, D.C. (National Security In-

dustrial Assoc., 1030 15th St., NW, Washington, D.C. 20005)

19–20. **Ocean Sciences and Engineering of the Atlantic Shelf**, natl. symp., Philadelphia, Pa. (T. Evans, Conference Management Organization, Inc., Sheraton Park Hotel, 2660 Connecticut Ave., NW, Washington, D.C. 20008)

19–21. American **Railway Engineering** Assoc., Chicago, Ill. (E. W. Hodgins, Executive Secretary, 59 E. Van Buren St., Chicago 60605)

20. **Suicidology**, 1st natl. conf., Chicago, Ill. (E. S. Shneidman, Center for Studies of Suicide Prevention, National Inst. of Mental Health, 5454 Wisconsin Ave., Chevy Chase, Md. 20203)

20–22. American **Petroleum** Inst., southwestern district meeting, Tyler, Tex. (American Petroleum Inst., 1271 Avenue of the Americas, New York 10020)

20–22. Institute of **Management Sciences**, Atlanta, Ga. (E. T. Alsaker, Lockheed-Georgia Co., Dept. 88-la, Zone 283, Marietta, Ga. 30060)

20–22. Progress in **Operable Heart Disease**, American College of Cardiology, New York, N.Y. (W. D. Nelligan, Executive Director, 9650 Rockville Pike, Washington, D.C. 20014)

20–23. American **Orthopsychiatric** Assoc., 45th annual, Chicago, Ill. (The Association, 1790 Broadway, New York 10019)

21–22. **Modulation Transfer Function**, Boston, Mass. (Society of Photo-Optical Instrumentation Engineers, P.O. Box 288, Redondo Beach, Calif. 90277)

21–23. Symp. on **Microwave Power**, 3rd symp., Boston, Mass. (C. Olsen, % Eimac, Division of Varian Assoc., 301 Industrial Way, San Carlos, Calif. 94070)

21–24. **Radiographic Diagnosis of Head and Neck**, Miami Beach, Fla. (L. R. Kelley, Dept. of Radiology, Jackson Memorial Hospital, Miami, Fla.)

22–23. Montana **Medical Assoc.**, Helena. (L. R. Hegland, The Association, P.O. Box 1692, Billings, Mont. 59103)

22–23. **Socio-Economics of Health Care**, 2nd natl. congr., Chicago, Ill. (H. W. Doan, Dept. of Health Care Services, American Medical Assoc., 535 N. Dearborn St., Chicago 60610)

22–27. California **Medical** Assoc., San Francisco. (R. L. Thomas, 693 Sutter St., San Francisco 94102)

23. New Jersey **Post Graduate Anesthesia** Seminar, 9th annual, Cherry Hill. (P. A. Tucci, 22 The Fairway, Upper Montclair, N.J. 07043)

23–24. Missouri Soc. of **Anesthesiologists**, Kansas City. (G. W. N. Eggers, Jr., Univ. of Missouri Medical Center, Columbia 65201)

23–25. Postdoctorate Seminar in **Professional Development**, Philadelphia, Pa. (L. Hymes, Pennsylvania College of Podiatry, Pine at Eighth, Philadelphia 19107)

24–27. American Assoc. of **Dental Schools**, 45th annual session, San Francisco, Calif. (D. E. Mattson, 211 E. Chicago Ave., Chicago, Ill. 60611)

24–29. American College of **Allergists**, 24th annual congr., Denver, Colo. (E. Bauers, 2160 Rand Tower, Minneapolis, Minn. 55402)

24–30. American Soc. of **Clinical Pathologists**, New Orleans, La. (L. H. Hoyt, Methodist Hospital, Indianapolis, Ind.)

25–26. **Geochemistry of Subsurface Brines**, symp., Lawrence, Kans. (E. E. Angino, State Geological Survey, Univ. of Kansas, Lawrence 66044)

25–27. **Electrocardiographic Interpretation of Arrhythmias**: A Physiological Approach, American College of Cardiology, Indianapolis, Ind. (W. D. Nelligan, Executive Director, 9650 Rockville Pike, Washington, D.C. 20014)

25–27. **Operations Research** Symp., 2nd, Pittsburgh, Pa. (H. O. Teeple, TAPPI, 360 Lexington Ave., New York 10017)

25–27. **Simulation and Support** Conf., AIAA 2nd flight test, Los Angeles, Calif. (Meetings Manager, American Inst. of Aeronautics and Astronautics, 1290 Sixth Ave., New York 10019)

25–28. National **Plant Engineering and Maintenance** Show and Conf., Philadelphia, Pa. (K. E. Knowles, 245 Park Ave., New York 10017)

25–28. **Organic Solid State Chemistry** Symp., Upton, N.Y. (G. Adler, Brookhaven National Lab., Upton, L.I., N.Y. 11973)

25–28. Southeastern **Surgical** Congr., Washington, D.C. (A. H. Letton, 340 Boulevard NE, Atlanta, Ga. 30312)

27. **Oral Cancer** Symp., 6th, Poughkeepsie, N.Y. (M. A. Engelman, One East Academy St., Wappingers Falls, N.Y. 12590)

27. Association for the Advancement of **Psychoanalysis**, New York, N.Y. (E. Schattner, Secretary, 147 E. 50 St., New York 10022)

27–28. **Railroad** Conf., Chicago, Ill. (Institute of Electrical and Electronics Engineers, Inc., 345 E. 47 St., New York 10017)

27–29. **Linear Free Energy Relationships**, 2nd conf., Irvine, Calif. (J. E. Leffler, Dept. of Chemistry, Florida State Univ., Tallahassee 32306)

28–29. American Assoc. of **Petroleum Geologists**, Pacific Section, Bakersfield, Calif. (E. W. Ellsworth, Convention Manager, 1444 South Boulder, Box 979, Tulsa, Okla. 74101)

28–30. **Etiology, Diagnosis, and Treatment of Thromboembolism**, American College of Chest Physicians, Philadelphia, Pa. (H. L. Kruse, 112 E. Chestnut St., Chicago, Ill.)

28–30. American **Fertility** Soc., San Francisco, Calif. (H. H. Thomas, 944 S. 18 St., Birmingham, Ala. 35205)

28–31. Missouri State **Medical** Assoc., Kansas City. (R. McIntyre, The Association, 515 E. High St., Jefferson City, Mo. 65101)

29. **Symbiosis**, symp., Fullerton, Calif. (L. A. Stevens, Div. of Life Sciences, Fullerton Junior College, 321 Chapman Avenue, Fullterton 92634)

29–2. National **Science Teachers** Assoc., natl. conv., Washington, D.C. (R. H. Carleton, NSTA, 1201 16th St., NW, Washington, D.C. 20036)

29–30. **Rural Health**, 21st natl., Seattle, Wash. (B. L. Bible, 535 N. Dearborn St., Chicago, Ill. 60610)

29–31. American **Nuclear** Soc., student conf., Tucson, Ariz. (K. D. Kearns, Dept. of Nuclear Engineering, Univ. of Arizona, Tucson 45215)

29–31. **Clinical Pharmacology of Cardiovascular Drugs**, American College of Cardiology, Nutley, N.J. (W. D. Nelligan,

Executive Director, 9650 Rockville Pike, Washington, D.C. 20014)

29–31. American **Psychosomatic** Soc., Inc., Boston, Mass. (H. Weiner, Secretary-Treasurer, 265 Nassau Road, Roosevelt, N.Y. 11575)

29–31. American Soc. of **Group Psychotherapy and Psychodrama,** New York, N.Y. (H. B. Weiner, 1323 Avenue N, Brooklyn, N.Y. 11230)

29–31. American Soc. of **Internal Medicine,** Boston, Mass. (E. E. Daleske, 3410 Geary Blvd., San Francisco, Calif. 94118)

29–31. Arizona **Chest Disease** Symp., Tucson. (L. D. Hudson, P.O. Box 6067, Tucson 85716)

30–3. American Soc. of **Abdominal Surgeons,** Chicago, Ill. (B. F. Alfano, 675 Main St., Melrose, Mass. 02176)

30–3. Technical Assoc. of **Pulp and Paper** Industry, 5th water conf., Portland, Ore. (The Association, 360 Lexington Ave., New York 10017)

31–3. American **Mosquito Control** Assoc., New Orleans, La. (G. Carmichael, New Orleans Mosquito Control, 6601 Lakeshore Dr., New Orleans 70126)

31–3. **Erosion as Related to Air and Water Pollution,** Las Vegas, Nev. (R. B. Reams, Desert Research Inst., Univ. of Nevada, Reno 89507)

31–4. American Assoc. of **Cereal Chemists,** 53rd annual, and American **Oil Chemists** Soc., 58th annual, joint mtg., Washington, D.C. (R. J. Tarleton, 1955 University Ave., St. Paul, Minn. 55104)

31–4. **Materials Engineering and Sciences,** conf. and exposition, Philadelphia, Pa. (C. S. Grove, Jr., 5110 Brockway Lane, Fayetteville, N.Y. 13066)

31–5. American **Chemical** Soc., 155th spring natl. mtg., San Francisco, Calif. (A. T. Winstead, 1155 16th St., NW, Washington, D.C. 20036)

31–7. North American **Clinical Dermatologic** Soc., New Orleans, La. (E. F. Finnerty, The Society, 510 Commonwealth Ave., Boston, Mass. 02115)

April

1–3. Specialized Inst. on **Data Processing,** American Assoc. of Medical Record Librarians, Boston, Mass. (M. C. Beard, Director, Institute Dept., 840 N. Lake Shore Dr., Chicago, Ill. 60611)

1–3. **Open Hearth and Basic Oxygen Steel** Conf., 51st natl., Atlantic City, N.J. (J. V. Richards, 345 E. 47 St., New York 10017)

1–4. **Materials Engineering/Sciences** Exposition and Conf., Philadelphia, Pa. (H. F. Grebe, Reber-Friel Co., 117 S. 17 St., Philadelphia 19103)

1–4. **Thermophysical Properties,** 4th symp., College Park, Md. (A. B. Conlin, Jr., Meetings Manager, 345 E. 47 St., New York 10017)

1–5. American College of **Physicians,** 49th annual, Boston, Mass. (E. C. Rosenow, Jr., Executive Director, 4200 Pine St., Philadelphia, Pa. 19104)

1–5. American **Welding** Soc., Chicago, Ill. (American Welding Soc., 345 E. 47 St., New York 10017)

2–4. American **Astronomical** Soc., Charlottesville, Va. (A. K. Pierce, Kitt Peak National Observatory, P.O. Box 4130, Tucson, Ariz. 85717)

2–4. Fast **Reactor Systems, Materials and Components**, Cincinnati, Ohio. (C. S. Robertson, Jr., General Electric Co., P.O. Box 132, Cincinnati 45215)

2–5. National Council on **Alcoholism**, New York, N.Y. (The Council, 2 E. 103 St., New York 10029)

3–4. Institute of **Electrical and Electronics Engineers** and American Soc. of **Mechanical Engineers**, joint railroad conf., Chicago, Ill. (Office of the Technical Activities Board, IEEE, 345 E. 47 St., New York 10017)

3–5. National Soc. for the **Prevention of Blindness**, New York, N.Y. (V. S. Boyce, Assistant Executive Director, 79 Madison Ave., New York 10016)

3–5. **Numerical Control** Soc., 5th annual, Philadelphia, Pa. (Miss M. A. De Vries, 44 Nassau St., Princeton, N.J. 08540)

3–5. **Structures, Structural Dynamics, and Materials**, 9th conf., Palm Springs, Calif. (Meetings Manager, American Inst. of Aeronautics and Astronautics, 1290 Sixth Ave., New York 10019)

4–5. **Numerical Simulation of Reservoir Performance**, symp., Dallas, Tex. (D. L. Riley, 6200 N. Central Expressway, Dallas 75206)

4–6. American **Nuclear** Soc. student conf., Gainesville, Fla. (J. E. Swander, Dept. of Nuclear Engineering Sciences, Univ. of Florida, Gainesville 32601)

4–6. **Health Education of the Public**, 3rd natl. conf., Chicago, Ill. (Dept. of Health Education, American Medical Assoc., 535 N. Dearborn St., Chicago 60610)

4–6. South Central Assoc. of **Blood Banks**, Dallas, Tex. (J. A. Barney, Executive Secretary, 301 Pasteur Building, Oklahoma City, Okla. 73103)

4–7. American Assoc. of **Endodontists**, 25th annual, New York, N.Y. (J. F. Bucher, Secretary, 6828 Winterberry Lane, Bethesda, Md. 20034)

5–12. **Laboratory Methods in the Diagnosis of Viral Exanthems**, Atlanta, Ga. (U.S. Public Health Service, National Communicable Disease Center, Atlanta 30333)

7–9. **Exercise and Heart Disease**, San Francisco, Calif. (W. D. Nelligan, American College of Cardiology, 9650 Rockville Pike, Washington, D.C. 20014)

7–11. American Assoc. of **Neurological Surgeons** (Harvey Cushing Soc.), Chicago, Ill. (B. B. Whitcomb, Executive Secretary, 85 Jefferson St., Hartford, Conn. 06103)

7–11. American **Radium** Soc., Miami Beach, Fla. (F. C. Bloedorn, Executive Secretary, Univ. of Maryland Hospital, Baltimore 21201)

7–11. **Oil and Gas Power** Conf. and Exhibit, New Orleans, La. (Meetings Manager, American Soc. of Mechanical Engineers, 345 E. 47 St., New York 10017)

8–9. **Histochemical Soc.**, 19th annual, New Orleans, La. (G. M. Lehrer, Program Chairman, c/o Division of Neurochemistry, Mount Sinai School of Medicine, 11 E. 100 Street, New York 10029)

8–10. **Aerodynamic Testing**, 3rd conf., San Francisco, Calif. (Meetings Manager, American Inst. of Aeronautics and Astronautics, 1290 Sixth Ave., New York 10019)

8–10. **Communications Satellite**, 2nd mtg., San Francisco, Calif. (Meetings

Manager, American Inst. of Aeronautics and Astronautics, 1290 Sixth Ave., New York 10019)

8–11. American **Meteorological** Soc. (with the American Geophysical Union), Washington, D.C. (K. C. Spengler, Executive Director, 45 Beacon St., Boston, Mass. 02108)

8–12. **Laboratory Methods in Medical Mycology** (refresher), Atlanta, Ga. (U.S. Public Health Service, National Communicable Disease Center, Atlanta 30333)

9–11. **Telemetering**, natl. conf., Houston, Tex. (R. M. Emberson, 345 E. 47 St., New York 10017)

9–12. American Assoc. of **Anatomists**, 81st annual, New Orleans, La. (J. C. Finerty, Louisiana State Univ. School of Medicine, 1542 Tulane Ave., New Orleans 70112)

10. American Soc. of **Clinical Oncology**, Inc., Atlantic City, N.J. (M. Sears, M. D. Anderson Hospital, Texas Medical Center, Houston 77025)

10. American Soc. of **Therapeutic Radiologists**, Miami Beach, Fla. (J. A. del Regato, Executive Secretary, 2215 N. Cascade St., Colorado Springs, Colo. 80907)

10–12. **Latent Inherited Diseases**, National Foundation for Neuromuscular Disease Workshop, Harriman, N.Y. (P. S. Gerlad, Children's Hospital Medical Center, 300 Longwood Ave., Boston, Mass. 02115)

10–12. **Plastic Surgery** Research Council, annual mtg., Chapel Hill, N.C. (E. E. Peacock, Jr., Dept. of Surgery, Univ. of North Carolina, Chapel Hill 27514)

11–12. **Seismological** Soc. of America, annual meeting, Tucson, Ariz. (D. Tocher, The Society, P.O. Box 826, Berkeley, Calif. 94701)

11–13. American Assoc. for **Cancer Research**, 59th annual, Atlantic City, N.J. (H. J. Creech, 7701 Burholme Ave., Philadelphia, Pa. 19111)

11–13. Society for **Philosophy and Psychology**, 60th annual, Louisville, Ky. (D. Browning, Dept. of Philosophy, Univ. of Miami, Coral Gables, Fla. 33124)

15–18. American Acad. of **Oral Pathology**, Scottsdale, Ariz. (S. M. Standish, Indiana Univ. School of Dentistry, 1121 W. Michigan St., Indianapolis, Ind. 46202)

15–19. **Laboratory Methods in Medical Mycology** (advanced), Atlanta, Ga. (U.S. Public Health Service, National Communicable Disease Center, Atlanta 30333)

15–20. Federation of American Societies for **Experimental Biology**, annual, Atlantic City, N.J. (H. B. Lemp, Convention Manager, 9650 Rockville Pike, Bethesda, Md. 20014)

16–17. American Assoc. of **Planned Parenthood Physicians**, 6th annual, San Antonio, Tex. (G. J. Langmyhr, Planned Parenthood Federation, 515 Madison Ave., New York 10022)

16–18. National Conf. on **Instrumentation for the Iron and Steel** Industry, Pittsburgh, Pa. (T. Cauley, Crucible Steel Co., P.O. Box 998, Pittsburgh 15230)

16–18. William Hunt Eisenman Conference on **Heat Treating**, Cleveland, Ohio (American Soc. for Metals, Metals Park, Ohio 44073)

16–20. American Assoc. of **Immunologists**, Atlantic City, N.J. (Convention Manager, 9650 Wisconsin Ave., Bethesda, Md. 20014)

16–20. American Inst. of **Nutrition**, Atlantic City, N.J. (Convention Manager, 9650 Wisconsin Ave., Bethesda, Md. 20014)

16–20. American **Physiological** Soc., Atlantic City, N.J. (Convention Manager, The Society, 9650 Wisconsin Ave., Bethesda, Md. 20014)

16–20. American Soc. of **Biological Chemists**, Inc., Atlantic City, N.J. (Convention Manager, The Society, 9650 Wisconsin Ave., Bethesda, Md. 20014)

16–20. American Soc. of **Experimental Pathology**, Atlantic City, N.J. (Convention Manager, The Society, 9650 Wisconsin Ave., Bethesda, Md. 20014)

16–20. American Soc. for **Pharmacology and Experimental Therapeutics**, Inc., Atlantic City, N.J. (Convention Manager, The Society, 9650 Wisconsin Ave., Bethesda, Md. 20014)

17. Association for the Advancement of **Psychoanalysis**, New York, N.Y. (E. Schattner, Secretary, 147 E. 50 St., New York 10022)

17–19. American **Surgical** Assoc., Boston, Mass. (H. B. Schumacker, Jr., Indiana Univ. Medical Center, 1100 W. Michigan, Indianapolis, Ind. 46207)

17–19. Southwestern Inst. of **Electrical and Electronics Engineers**, 20th annual, Houston, Tex. (J. V. Leeds, ML 106—SWIEEECO, Rice Univ., Houston 77001)

17–20. American Assoc. for the **History of Medicine**, St. Louis, Mo. (J. B. Blake, National Library of Medicine, Bethesda, Md. 20014)

17–21. **Atomic Physics** Conf., New York, N.Y. (C. C. Butler, Secretary General, Intern. Union of Pure and Applied Physics, Imperial College of Science and Technology, Prince Consort Rd., South Kensington, London, S.W.1, England)

18–19. American Assoc. of **Railway Surgeons**, Houston, Tex. (C. Y. Werelius, 5800 Stony Island Ave., Chicago, Ill. 60637)

18–19. **Fiber** Soc., New Orleans, La. (L. Rebenfeld, Box 625, Princeton, N.J.)

18–19. **Production Automation** Symp., Hobbs, N.M. (American Inst. of Mining, Metallurgical and Petroleum Engineers, 345 E. 47 St., New York 10017)

18–20. American **Otological** Soc., Hollywood Beach, Fla. (W. H. Bradley, 1100 E. Genesee St., Syracuse, N.Y.)

18–20. Eastern **Psychological** Assoc., 39th annual, Washington, D.C. (W. W. Cumming, Dept. of Psychology, Columbia University, New York 10027)

18–24. American **Leprosy Missions**, Carville, La. (O. W. Hallelblad, 297 Park Ave. S., New York 10010)

19–20. Ohio Acad. of **Science**, 77th annual, Bowling Green, Ohio. (J. H. Melvin, 505 King Ave., Columbus, Ohio)

19–20. **Population** Assoc. of America, Boston, Mass. (D. M. Heer, Harvard School of Public Health, 665 Huntington Ave., Boston 02115)

19–21. Cooper **Ornithological** Soc., Salt Lake City, Utah. (W. H. Behle, 203 Biology Building, Univ. of Utah, Salt Lake City 84112)

20–25. American **Ceramic** Soc., 70th annual, Chicago, Ill. (R. S. Sheldon, 4055 N. High St., Columbus, Ohio 43214)

21–22. American **Broncho-Esophagological** Assoc., Hollywood, Fla. (J. R. Ausband, Bowman Gray School of Medicine, Winston-Salem, N.C. 27103)

21–22. American Soc. for **Artificial Internal Organs**, Philadelphia, Pa. (P. M. Galletti, Div. of Biological Medical Science, Brown Univ., Providence, R.I. 02912)

21–24. American **Oil Chemists** Soc., Memphis, Tenn. (Administrative Assistant, The Society, 35 E. Wacker Drive, Chicago, Ill. 60600)

21–24. American **Orthopaedic** Assoc., Boca Raton, Fla. (S. W. Banks, Executive Secretary, 29 E. Madison St., Chicago, Ill. 60602)

21–24. **Radiation Research** Soc., 16th annual, Houston, Tex. (F. Smith, Biology Dept., American Univ., Washington, D.C. 20016)

21–24. Society of **Head and Neck Surgeons**, Los Angeles, Calif. (H. W. Baker, 2250 NW Flanders St., Portland, Ore. 97210)

21–25. American Assoc. of **Cereal Chemists**, 53rd annual, Cincinnati, Ohio. (Executive Secretary, The Association, 1955 University Ave., St. Paul, Minn. 55104)

21–25. **Paper Coating** Conf., Miami Beach, Fla. (K. G. Chesley, Technical Assoc. of Pulp and Paper Industries, 360 Lexington Ave., New York 10017)

21–26. American **Laryngological, Rhinological and Otological** Soc., Hollywood Beach, Fla. (V. R. Alfaro, 916 19th St., NW, Washington, D.C. 20006)

22–23. **Chemical and Petroleum Instrumentation** Symp., 9th natl., Wilmington, Del. (E. M. Brandle, Leeds and Northrup, 2625 Concord Pike, Wilmington 19803)

22–24. American Assoc. of **Thoracic Surgery**, Pittsburgh, Pa. (A. Hanvey, 311 Carondelet Building, St. Louis, Mo. 63105)

22–24. Association of **Iron and Steel Engineers**, spring conf., St. Louis, Mo. (Managing Director, The Association, 1010 Empire Building, Pittsburgh 22, Pa.)

22–25. American Assoc. of **Petroleum Geologists**, Oklahoma City, Okla. (E. P. Kerr, Jr., Mobil Oil Co., Box 1828, Oklahoma City 73101)

22–25. American College of **Obstetricians and Gynecologists**, 16th annual clinical mtg., Chicago, Ill. (D. C. Sommers, 79 W. Monroe St., Chicago 60603)

22–25. American **Industrial Health** Conf., San Francisco, Calif. (C. D. Bridges, Industrial Medical Assoc., 55 E. Washington, Chicago, Ill. 60602)

22–25. American **Physical Soc.**, Washington, D.C. (W. W. Havens, Jr., Columbia Univ., New York 10027)

22–26. American Soc. of **Tool and Manufacturing Engineers**, Detroit, Mich. (General Manager, The Society, 10700 Puritan Ave., Detroit, Mich.)

22–27. American Acad. of **Neurology**, 20th annual, Chicago, Ill. (S. A. Nelson, 4005 W. 65 St., S, Minneapolis, Minn. 55435)

22–10. **Laboratory Methods in Medical Parasitology**, Atlanta, Ga. (U.S. Public Health Service, National Communicable Disease Center, Atlanta 30333)

23–24. **Relay** Conference, 16th annual, Stillwater, Okla. (D. R. Wilson, School of Electrical Engineering, Stillwater, 74074)

23–25. American Assoc. of **Physical Anthropologists**, Detroit, Mich. (F. G. Johnston, Dept. of Anthropology, Univ. of Pennsylvania, Philadelphia 19104)

NEW BOOKS

(Continued from page 1092)

Co., Cleveland, Ohio, 1967. xii + 568 pp., illus. $17.50.

Cybernetics and Forecasting Techniques. A. G. Ivakhnenko and V. G. Lapa. Translated from the Ukrainian edition (Kiev, 1965) by Scripta Technica. Robert N. McDonough, Translation Ed. Elsevier, New York, 1967. xxviii + 168 pp., illus. $13.75. Modern Analytic and Computational Methods in Science and Mathematics.

Danske ynglefugle i fortid og nutid. Historiske og faunistiskc undersøgelser over fuglenes inadvandring, forkomst og livsvilkår i Danmark. Bernt Løppenthin. With a Summary in English. Danish Breeding Birds: Past and Present. Odense University Press, Odense, Denmark, 1967. 609 pp. D. kr. 100. Acta Historica Scientiarum Naturalium et Medicinalium, vol. 19.

Defense of the Realm. British Strategy in the Nuclear Epoch. R. N. Rosecrance. Columbia University Press, New York, 1968. xii + 308 pp. $7.50.

Delayed Hypersensitivity. J. L. Turk. North-Holland, Amsterdam; Interscience (Wiley), New York, 1967. x + 252 pp., illus. $13. Frontiers of Biology, vol. 4.

The Economics of Cycles and Growth. Stanley Bober. Wiley, New York, 1968. xii + 305 pp., illus. $8.95.

Encyclopedia of Polymer Science and Technology. Plastics, Resins, Rubbers, Fibers. Herman F. Mark, Norman G. Gaylord, and Norbert M. Bikales, Eds. Vol. 7, Fire Retardancy to Isotopic Labeling. Jo Conrad, Claire Comiskey, and Aria Ruks, Eds. Wiley, New York, 1967. xiv + 870 pp., illus. $50; subscription, $40.

Excellence in Engineering. W. H. Roadstrum. Wiley, New York, 1967. xxii + 247 pp., illus. $8.95.

Fiber-Strengthened Metallic Composites. A symposium presented at the American Society for Metals congress, Chicago, November 1966. American Society for Testing and Materials, Philadelphia, 1967. vi + 178 pp., illus. $12.75; 30 percent discount to members. ASTM Special Technical Publication No. 427.

Fundametntals of Ultrasonics. Jack Blitz. Plenum, New York; Butterworths, London, ed. 2, 1967. x + 220 pp., illus. $8.50.

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Genetic Diversity and Human Behavior. J. N. Spuhler, Ed. Aldine, Chicago, 1967. xii + 291 pp., illus. $7.50. Viking Fund Publications in Anthropology, No. 45.

Genetics. Monroe W. Strickberger. Macmillan, New York; Collier-Macmillan, London, 1968. x + 868 pp., illus. $12.95.

The Ghost in the Machine. Arthur Koestler. Macmillan, New York, 1967. xiv + 384 pp. $6.95.

The Glory of the Tree. B. K. Boom and H. Kleijn. Illustrations by G. D. Swanenburg de Veye. Translated from the Dutch edition (Amsterdam, 1966) by

Edgar T. Wherry. Doubleday, Garden City, N.Y., 1966. 128 pp. $12.95.

Gluttons and Libertines. Human Problems of Being Natural. Marston Bates. Random House, New York, 1968. viii + 244 pp. $5.95.

The Goal of Full Employment. From the Research Program on Unemployment, Institute of Industrial Relations, University of California, Berkeley. Robert Aaron Gordon. Wiley, New York, 1967. xii + 204 pp., illus. $6.95. Books in Research Program on Unemployment.

A Guide to Feyman Diagrams in the Many-Body Problem. Richard D. Mattuck. McGraw-Hill, New York, 1967. xii + 294 pp., illus. $10.50. European Physics Series.

Handbook of Middle American Indians. Robert Wauchope, Ed. Vol. 6, Social Anthropology. Manning Nash, Ed. University of Texas Press, Austin, 1967. viii + 597 pp., illus. $15.

Handbook of Physics. E. U. Condon and Hugh Odishaw, Eds. McGraw-Hill, New York, ed. 2, 1967. xxxii + 1626 pp., illus. $32.50.

Handbook of Physiology. A Critical, Comprehensive Presentation of Physiological Knowledge and Concepts. Section 6, Alimentary Canal, vol. 1, Control of Food and Water Intake. Charles F. Code, Werner Heidel *et al.*, Eds. American Physiological Society, Washington, D.C., 1967. viii + 479 pp., illus. $22.

Heat-Resistant Coatings. Proceedings of a symposium, Leningrad, May 1964. N. A. Toropov, Ed. Translated from the Russian edition (Leningrad, 1965). Consultants Bureau, New York, 1967. vi + 167 pp., illus. Paper, $15. Special Research Report.

High-Temperature Materials and Technology. Ivor E. Campbell and Edwin M. Sherwood. Sponsored by the Electrochemical Society, Inc. Wiley, New York, 1967. xii + 1022 pp., illus. $27.50. Electrochemical Society Series.

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International Nuclear Physics Conference. Gatlinburg, Tenn., September 1966. Richard L. Becker, C. D. Goodman, P. H. Stelson, and A. Zucker, Eds. Academic Press, New York, 1967. xxxvi + 1121 pp., illus. $22.50.

Introduction to Automata. R. J. Nelson. Wiley, New York, 1968. xiv + 400 pp., illus. $12.95.

Introduction to Cell Physiology. Information and Control. John L. Howland. Macmillan, New York; Collier-Macmillan, London, 1968. x + 214 pp., illus. $7.95. Macmillan Biology Series.

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Introductory Algebra. A College Approach. Milton D. Eulenberg and Theodore S. Sunko. Wiley, New York, ed. 2, 1968. xiv + 317 pp., illus. $6.50.

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Metacolloids in Endogenic Deposits. Lev M. Lebedev. Translated from the Russian edition (Moscow, 1965) by John B. Southard. Plenum, New York, 1967. x + 298 pp., illus. $19.50. Monographs in Geoscience.

Molecular Genetics. Part 2. J. Herbert Taylor, Ed. Academic Press, New York, 1967. xvi + 517 pp., illus. $18. Molecular Biology: An International Series.

1967 Book of ASTM Standards with Related Material. Part 8, Magnetic Properties; Metallic Materials for Thermostats and for Electrical Resistance, Heating, and Contacts; Ceramics for Electronics; Materials for Electron Devices and Microelectronics. American Society for Testing and Materials, Philadelphia, 1967. xviii + 865 pp., illus. $14; 30 percent discount to members.

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National Norms for Entering College Freshmen—Fall 1967. Robert J. Panos, Alexander W. Astin, and John A. Creager. American Council on Education, Washington, D.C., 1967. vi + 89 pp. Paper, $2.50. Research Reports, vol. 2, No. 7, 1967.

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The Nature of Mathematics. Frederick H. Young. Wiley, New York, 1968. xiv + 407 pp., illus. $7.50.

Neurosciences Research Symposium Summaries. Vol. 2, An Anthology from the Neurosciences Research Program Bulletin. Francis O. Schmitt, Theodore Melnechuk, Gardner C. Quarton, and George Adelman, Eds. M.I.T. Press, Cambridge, Mass., 1967. xiv + 642 pp., illus. $12.

New Linear Polymers. Henry Lee, Donald Stoffey, and Kris Neville. McGraw-Hill, New York, 1967. viii + 374 pp., illus. $17.50.

Nuclear Geology on Geothermal Areas. Proceedings of an international conference, Spoleto, Italy, 1963. E. Tongiorgi, Ed. Consiglio Nazionale delle Richerche, Laboratorio di Geologia Nucleare, Pisa, Italy, 1967. 284 pp., illus. Paper, $5.

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Physics of Shock Waves and High-Temperature Hydrodynamic Phenomena. Vol. 2. Ya. B. Zel'dovich and Yu. P. Raizer. Translated from the Second Russian edition by Scripta Technica. Wallace D. Hayes and Ronald F. Probstein, Eds. Academic Press, New York, 1967. xxvi + 451 pp., illus. $18.

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The Planetarium and Atmospherium. An Indoor Universe. O. Richard Norton. Naturegraph, Healdsburg, Calif., 1968. viii + 176 pp., illus. Cloth, $4.50; paper, $2.75.

Principles of Electricity for Students of Physics and Engineering. Eugene George Key. Barnes and Noble, New York, 1967. xxii + 342 pp., illus. Paper, $1.95. College Outline Series, No. 118.

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