

creased agricultural production. In searching for impediments to increased agricultural production, Schultz examines and rejects land and capital shortages, limitations resulting from farm size, and allocative efficiency and omits consideration of structures and infrastructures. He concludes that the major impediment is the low rate of return on investment which provides little or no incentive to acquire credit or increase savings.

Turning to United States aid programs in less-developed countries, Schultz states that such programs should be founded on the knowledge, availability, acceptance, and use of new agricultural inputs with relatively high payoff as inducements to improve agricultural production. He reiterates the role and importance of investment in labor.

Within modern agriculture, particularly in the United States, Schultz emphasizes the need for providing farm

people with the knowledge and means for adjusting themselves and their resources to changing economic conditions emanating from within and outside the agricultural sector. But he finds that the political influence of the Southern Tradition, conflicting views among farm people, confused ideas of their leaders, and vested interests in production-price programs are walls that block progress—but walls which he forecasts will come tumbling down.

The book is provocative and stimulating. However, its reasoning rests heavily on an implicit faith in price-income incentives which alone are not likely to bring the sought-after large increases in agricultural production in less-developed countries. The agricultural problems and their possible solutions at home and abroad are much more complex.

JOHN F. TIMMONS

*Department of Economics,
Iowa State University, Ames*

Monographs in Experimental Botany Series

Introduction to Thermodynamics. D. C. Spanner. Academic Press, New York, 1964. xii + 278 pp. Illus. \$7.50.

The book under review, *Introduction to Thermodynamics*, is the first of a series of monographs in experimental botany. As Spanner states in his preface it is intended as a textbook on thermodynamics for those who are interested in any biological field, even though there is some bias in the book toward botanical problems. Most students in the biological sciences acquire whatever understanding they have of thermodynamics during their study of chemistry. That contact with the subject usually leaves the impression that thermodynamics is a subtle, magical discipline that is invoked to explain phenomena which cannot be described in a more immediate physical context. It is to the alleviation of this unfortunate situation that the author has devoted this book.

I believe that he has in large measure accomplished the task that he set for himself. The book is sound scientifically and didactically and should provide a good basis for classroom teaching; it should also be useful to the mature research worker who wishes to study on his own.

In content the book is divided somewhat naturally into two main parts. The

first part, comprising the first ten chapters, constitutes a rather abbreviated presentation of the basic principles of thermodynamics, a presentation much like that used in the standard undergraduate course in a physical science curriculum. Brevity is the principal characteristic that distinguishes this treatment from others in the textbook literature. The reader whose interest lies principally in the biological application of the subject and whose general background in thermodynamics is adequate might reasonably begin his study with chapter 11, a procedure made practical by the inclusion of a list of symbols and their denotations.

The second part of the book is concerned with the application of thermodynamic reasoning to biological problems. As one might expect, a major portion is devoted to the subjects of membrane equilibria, properties of electrolytes, and water relations. The strength of the author's treatment resides in his insistent use of the chemical potential in an explicit manner. The remainder of the book is concerned with photosynthesis, thermodynamic efficiency, and irreversible processes.

EDWARD W. HART

*General Electric Research Laboratory,
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New Books

Biological and Medical Sciences

Advances in Clinical Chemistry. vol. 7. Harry Sobotka and C. P. Stewart, Eds. Academic Press, New York, 1964. 536 pp. Illus. \$16.50. Six papers: "Principles and applications of atomic absorption spectroscopy" by Alfred Zettner; "Aspects of disorders of the kynurenine pathway of tryptophan metabolism in man" by Luigi Musajo and Carlo A. Benassi; "The clinical biochemistry of the muscular dystrophies" by W. H. S. Thomson; "Mucopolysaccharides in disease" by J. S. Brimacombe and M. Stacey; "Proteins, mucosubstances, and biologically active components of gastric secretion" by George B. Jerzy Glass; and "Fractionation of macromolecular components of human gastric juice by electrophoresis, chromatography, and other physicochemical methods" by George B. Jerzy Glass.

Advances in Ecological Research. vol. 2. J. B. Cragg, Ed. Academic Press, New York, 1964. 276 pp. Illus. \$9.50. Four papers: "Analysis of processes involved in the natural control of insects" by M. E. Solomon; "The use of statistics in phytosociology" by J. M. Lambert and M. B. Dale; "Litter production in forests of the world" by J. Roger Bray and Eville Gorham; and "Forty years of genecology" by J. Heslop-Harrison.

Advances in Genetics. vol. 12. E. W. Caspari and J. M. Thoday, Eds. Academic Press, New York, 1964. 398 pp. Illus. \$14. Four papers: "The biological coding problem" by Frank Lanni; "Differentiation in monolayer tissue culture cells" by Eric H. Davidson; "The biological composition of a taxonomic species in *Gilia*" by Verne Grant; and "Cytoplasmic inheritance in the genus *Streptocarpus*" by Friedrich Oehlkers.

Advances in Gerontological Research. vol. 1. Bernard L. Strehler, Ed. Academic Press, New York, 1964. 422 pp. Illus. \$13.50. Ten papers: "Histophysiology of the aging nervous system" by William Bondareff; "Proteins in development and senescence" by Simion Oeriu; "Changes in the nucleus with advancing age of the organism" by Warren Andrew; "Similarities and contrasts between radiation and time pathology" by George W. Casarett; "Cross-linkage and aging" by F. Marott Sinex; "The nucleic acids in development and aging" by Zh. A. Medvedev; "Genetic factors associated with aging" by Arnold M. Clark; "Isolated lipofuscin granules—a survey of a new field" by Sören Björkerud; "Autoimmunity in aging" by Herman T. Blumenthal and Aline W. Berns; and "On the histochemistry and ultrastructure of age pigment" by Bernard L. Strehler.

Advances in Immunology. vol. 4. F. J. Dixon, Jr., and J. H. Humphrey, Eds. Academic Press, New York, 1964. 488 pp. Illus. \$15. Seven papers: "Ontogeny and phylogeny of adaptive immunity" by Robert A. Good and Ben W. Papermaster; "Cellular reactions in infection" by Emanuel Suter and Hansruedy Ramseier; "Ultrastructure of immunologic processes" by Joseph D. Feldman; "Cell wall antigens" (Continued on page 1140)

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(Continued from page 1084)

of gram-positive bacteria" by Maclyn McCarty and Stephen I. Morse; "Structure and biological activity of immunoglobulins" by Sydney Cohen and Rodney R. Porter; "Autoantibodies and disease" by H. G. Kunkel and E. M. Tan; and "Effect of bacteria and bacterial products on antibody response" by J. Munoz.

Advances in Pharmacology. vol. 3. Silvio Garattini and Parkhurst A. Shore, Eds. Academic Press, New York, 1964. 349 pp. Illus. \$12. Six papers: "Experimental approaches to the development of antianginal drugs" by Martin Winbury; "Pharmacological aspects of Parkinsonism" by Alexander H. Friedman and Guy M. Everett; "The pharmacology and biochemistry of parasitic helminths" by Tag E. Mansour; "The adrenergic system and sympathomimetic amines" by E. Marley; "Pharmacological aspects of drug dependence" by G. A. Deneau and M. H. Seever; and "Drugs used in control of reproduction" by G. Pincus and G. Bialy.

Advances in Veterinary Science. vol. 9. C. A. Brandly and E. L. Jungherr, Ed. Academic Press, New York, 1964. 397 pp. Illus. \$14. Seven papers: "The development of veterinary medical science: Some historical aspects and prospects" by J. F. Smithcors; "Uitpeuloog (bulging eye disease): A recently described oculo-vascular myiasis of domestic animals in southern Africa" by R. A. Alexander; "SPF swine" by George A. Young; "Rinderpest" by Gordon R. Scott; "Porcine enteroviruses" by A. O. Betts; "The profession and the science: International trends in veterinary medicine" by W. Ross Cockrill; and "Anthrax" by Ralph E. Lincoln, Jerry S. Walker, Frederick Klein, and Bertram W. Haines.

Drugs and Respiration. Papers presented during the Second International Pharmacological Meeting (Prague), August 1963. Domingo M. Aviado and František Paleček, Eds. Pergamon, London; Macmillan, New York, 1964. 253 pp. Illus. \$10. Twenty-three papers; the topics are Central Control of Respiration (5 papers); Respiratory Failure (6 papers); Respiratory Stimulants (4 papers); Reflexes from Pulmonary Circulation (4 papers); Reflexes from Other Areas (4 papers).

Ecology of Soils. V. R. Volobuev. Translated from the Russian edition (Baku, 1963) by A. Gourevich. Israel Program for Scientific Translations, Jerusalem; Davey, New York, 1964. 264 pp. Illus. \$10.25.

Embryology of the Ovary and Testis: Homo sapiens and Macaca mulatta. Gertrude van Wagenen and Miriam E. Simpson. Yale Univ. Press, New Haven, Conn., 1965. 274 pp. Plates. \$7.50.

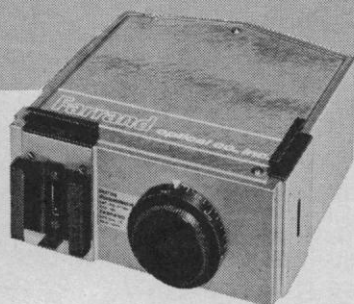
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The Hormones: Physiology, Chemistry, and Applications. vol. 5. Gregory Pincus,

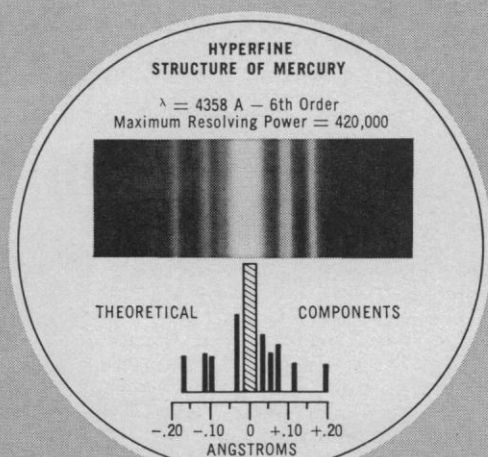
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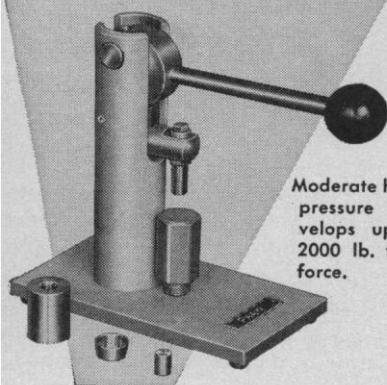
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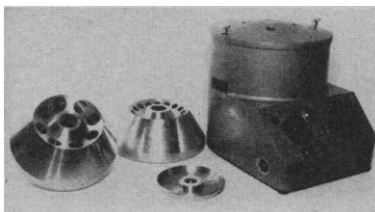
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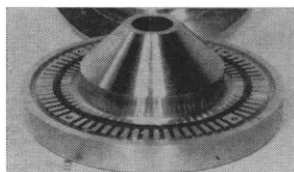


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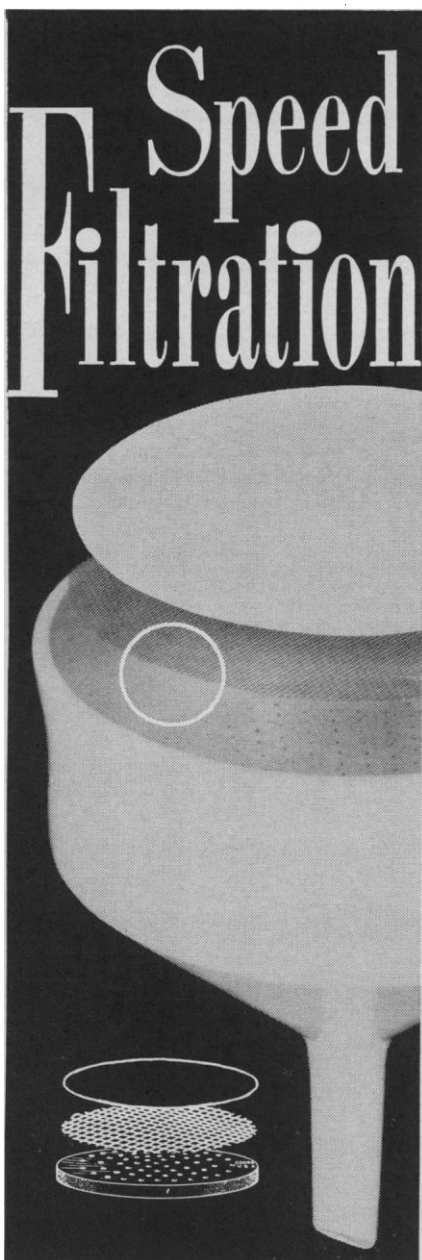
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Kenneth V. Thimann, and E. B. Astwood, Eds. Academic Press, New York, 1964. 976 pp. Illus. \$28. Seven papers: "Chemistry of pituitary hormones" by H. B. F. Dixon; "Metabolic actions of pituitary hormones" by Frank L. Engel and Jack L. Kostyo; "The thyroid" by J. E. Rall, J. Robbins, and C. G. Lewallen; "In vivo studies of steroid dynamics in man" by J. F. Tait and Shlomo Burstein; "Tumors and hormones" by R. L. Noble; "On the action of mammalian hormones" by O. Hechter and I. D. K. Halkerston; and "Selected problems in endocrine medicine" by Rachmiel Levine.

International Review of Experimental Pathology, vol. 3. G. W. Richter and M. A. Epstein, Eds. Academic Press, New York, 1964. 442 pp. Illus. \$16. Eight papers: "The use of labeled antibodies in ultrastructural studies" by G. B. Pierce, Jr., J. Sri Ram, and A. R. Midgley, Jr.; "The mode of reproduction of the psittacosis-lymphogranulomatous (PLT) group viruses" by Noboru Higashi; "Ultrastructural and subcellular pathology of the liver" by Jan W. Steiner, Melville J. Phillips, and Katsumi Miyai; "Ultrastructure of the enamel organ" by Ennio Pannese; "The significance of the 'dying back' process in experimental and human neurological disease" by J. B. Cavanagh; "Intravascular clotting: Focal and systemic" by George D. Penick and Harold R. Roberts; "Experimental production of malformations of the limbs by means of chemical substances" by Berthe Salzgeber and Etienne Wolff; and "Teratogenic effects of ionizing radiations on the embryonic development of the higher vertebrates" by Jean-Michel Kirmann and Etienne Wolff.

International Review of General and Experimental Zoology, vol. 1. William J. L. Felts and Richard J. Harrison, Eds. Academic Press, New York, 1964. 459 pp. Illus. \$14.50. Nine papers: "The biology of foraminifera" by R. H. Hedley; "The study of longevity in biting insects" by M. T. Gillies; "Equilibrium orientation in fish" by Wolfgang Pfeiffer; "Environment and reproduction in domesticated species" by E. S. E. Hafez; "The evolution of the long flexor muscles of the leg and foot" by O. J. Lewis; "Experimental, histochemical, and ultrastructural contributions to our understanding of mammalian pituitary function" by R. L. Holmes; "The reproductive biology of a Strepsirrhine (*Galago senegalensis senegalensis*)" by H. Butler; "The phylogeny of mineralized tissues" by Melvin L. Moss; and "Influence of chronic exposure to increased gravity upon growth and form of animals" by Charles C. Wunder and Lorenz O. Lutherer.

International Review of Neurobiology, vol. 7. Carl C. Pfeiffer and John R. Smythies, Eds. Academic Press, New York, 1964. 380 pp. Illus. \$13. Eight papers: "Alteration and pathology of cerebral protein metabolism" by Abel Lajtha; "Micro-iontophoretic studies on cortical neurons" by K. Krnjević; "Responses from the visual cortex of unanesthetized monkeys" by John R. Hughes; "Recent developments of the blood-brain barrier concept" by Ricardo Edström; "Monoamine oxidase inhibitors" by Gordon R.



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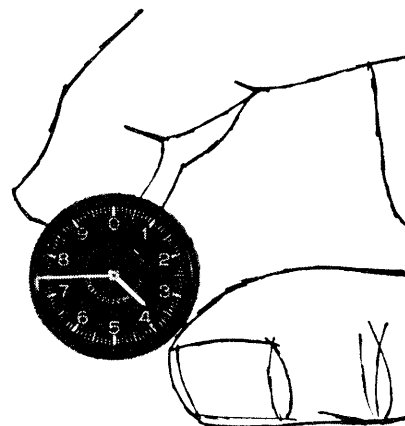
Pscheidt; "The phenothiazine tranquilizers: Biochemical and biophysical actions" by Paul S. Guth and Morris A. Spirtes; "Comments on the selection and use of symptom rating scales for research in pharmacotherapy" by J. R. Wittenborn; and "Multiple molecular forms of brain hydrolases" by Joseph Bernsohn and Kevin D. Barron.

Methods in Carbohydrate Chemistry. vol. 5, *General Polysaccharides*. Roy L. Whistler, Ed. Academic Press, New York, 1965. 485 pp. Illus. \$16.50. Eighty-nine papers; the sections are General Isolation Procedures (18 papers); Polysaccharides Preparations (38 papers); Chemical Analyses (4 papers); Physical Analyses (5 papers); Molecular Weight Determinations (4 papers); Structural Methods (13 papers); Derivatives (7 papers); and Selected Methods Found in Other Collections.

Methods in Hormone Research. vol. 3, pt. A, *Steroidal Activity in Experimental Animals and Man*. Ralph I. Dorfman. Academic Press, New York, 1964. 544 pp. Illus. \$19. Nine papers: "Estrogens" by C. W. Emmens and L. Martin; "Anti-estrogens" by C. W. Emmens and L. Martin; "Irradiation protection" by Wendell H. Rooks, II; "Anti-mammary tumor activities in rats and mice" by Wendell H. Rooks, II; "Steroids and lipid metabolism" by Donald L. Cook; "Activities of adrenocorticosteroids in experimental animals and man" by Ira Ringler; "Anti-aldoosterones" by C. M. Kagawa; "Steroid central depressants" by S. Y. P'an and G. D. Lubach; and "Copulatory reflex response to steroids" by Fred A. Kincl.

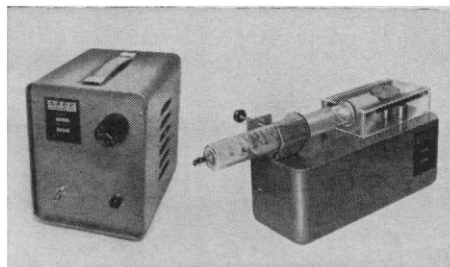
The Physiology of Insecta. vol. 2, pts. B and C. Morris Rockstein, Ed. Academic Press, New York, 1965. 921 pp. Illus. \$33. Fourteen papers: "Physiology of insect behavior" by H. Markl and Martin Lindauer; "Social behavior and mutual communication" by Martin Lindauer; "Migration" by C. G. Johnson; "Locomotion: Terrestrial" by George M. Hughes; "Locomotion: Swimming (hydrodynamics) of aquatic insects" by Werner Nachtigall; "Locomotion: Flight" by J. W. S. Pringle; "Neural integration (central nervous system)" by F. Huber; "Neural control of skeletal muscle" by Graham Hoyle; "The biochemistry of the contractile elements of insect muscle" by Koscak Maruyama; "Energetics and respiratory metabolism of muscular contraction" by Bertram Sacktor; "Intermediary metabolism of carbohydrates in insects" by W. Chefurka; "Intermediary metabolism of nitrogenous and lipid compounds in insects" by W. Chefurka; "Insect nutrition" by H. L. House; and "Digestion" by H. L. House.

Physical Processes in Radiation Biology. Proceedings of an international symposium (East Lansing, Mich.), May 1963. Leroy Augenstein, Ronald Mason, and Barnett Rosenberg, Eds. Academic Press, New York, 1964. 393 pp. Illus. \$14. Twenty papers contributed by D. P. Craig; M. Kasha; E. G. McRae and M. Kasha; Eugene J. Rosa and William T. Simpson; Robert H. Haynes; Leroy Augenstein, James Carter, Jayanti Nag-Chaudhry, DeVaughn Nelson, and Edward Yeagers; Sean P. McGlynn, Leo



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The Physiology of Insecta. vol. 3, pt. C. *The Insect and the Environment-Homeostasis-2.* Morris Rockstein, Ed. Academic Press, New York, 1964. 706 pp. Illus. \$25. Eleven papers: "The circulatory system of insects" by Jack Colvard Jones; "Hemolymph: Composition" by Marcel Florkin and Ch. Jeuniaux; "Hemolymph coagulation" by Ch. Grégoire; "Salt and water balance: Excretion" by R. H. Stobart and J. Shaw; "Immunological responses" by John D. Briggs; "The physiology of insecticide resistance by insects" by Albert S. Perry; "The structure and formation of the integument in insects" by Michael Locke; "Chemistry of the insect cuticle" by R. H. Hackman; "The permeability of insect cuticle" by Walter Ebeling; "Respiration—airial gas transport" by P. L. Miller; and "Respiration: Some exogenous and endogenous effects of rate of respiration" by Margaret Keister and John Buck.

Progress in Nucleic Acid Research and Molecular Biology. vol. 3. J. N. Davidson and Waldo E. Cohn, Eds. Academic Press, New York, 1964. 377 pp. Illus. \$11.50. Eight papers: "Isolation and fractionation of nucleic acids" by K. S. Kirby; "Cellular sites of RNA synthesis" by David M. Prescott; "Ribonucleases in takediastase: Properties, chemical nature, and applications" by Fujio Egami, Kenji Takahashi, and Tsuneko Uchida; "Chemical effects of ionizing radiations on nucleic acids and related compounds" by Joseph J. Weiss; "The regulation of RNA synthesis in bacteria" by Frederick C. Neidhardt; "Actinomycin and nucleic acid function" by E. Reich and I. H. Goldberg; "De Novo protein synthesis in vitro" by B. Nisman and J. Pelmont; and "Free nucleotides in animal tissues" by P. Mandel.

The Proteins: Composition, Structure, and Function. vol. 3. Hans Neurath, Ed. Academic Press, New York, ed. 2, 1965. 599 pp. Illus. \$21. Six papers: "Fractionation of proteins" by Herbert A. Sobier, Robert W. Hartley, Jr., William R. Carroll, and Elbert A. Peterson; "Structure and function of virus proteins and of viral nucleic acid" by H. Fraenkel-Conrat; "Structure and function of the plasma proteins" by Frank W. Putnam; "Structure and function of antigen and antibody proteins" by S. J. Singer; "The proteins of blood coagulation" by Earl W. Davie and Oscar D. Ratnoff; and "Interaction of proteins with radiation" by G. Weber and F. W. J. Teale.

Psychoanalysis and Current Biological Thought. Proceedings of a conference (Madison, Wis.), June 1963. Norman S. Greenfield and William C. Lewis, Eds. Univ. of Wisconsin Press, Madison, 1965. 390 pp. Illus. \$8. Sixteen papers contributed by Milton H. Miller; Herbert Weiner; Benjamin B. Rubinstein; John

D. Benjamin; Karl Pribram; Robert R. Holt; Sydney G. Margolin; William C. Lewis; Donald Oken; Norman S. Greenfield and A. A. Alexander; Richard A. Sternback; Joseph C. Speisman; George S. Klein; Frederick Snyder; Sheldon T. Selesnick and Zanwil Sperber; and Mortimer Ostow.

Psychopharmacological Agents. vol. 1. Maxwell Gordon, Ed. Academic Press, New York, 1964. 694 pp. Illus. \$23.50. Twelve papers: "Tranquilizing drugs from rauwolfia" by Emil Schlittler and Albert J. Plummer; "Iminodibenzyl and related compounds" by Franz Häfliger and Verena Burckhardt; "Meprobamate and related compounds" by F. M. Berger and B. J. Ludwig; "1,4-benzodiazepines (chlor-diazepoxide and related compounds)" by Leo H. Sternbach, Lowell O. Randall, and Sarah R. Gustafson; "2-benzylpiperidines and related compounds" by G. L. Krueger and W. R. McGrath; "Piperazine derivatives (except phenothiazines)" by H. G. Morren, V. Bienfet, and A. M. Reyntjens; "Benactyzine" by Erik Jacobsen; "Thioxanthene derivatives" by P. V. Petersen and I. Møller Nielsen; "Benzoxazoles, benzothiazoles, and benzimidazoles" by C. K. Cain and A. P. Roszkowski; "Monoamine oxidase inhibitors (hydrazines)" by J. H. Biel, A. Horita, and A. E. Drukker; "Monoamine oxidase inhibitors (nonhydrazines)" by C. L. Zirkle and C. Kaiser; and "Psychotomimetic compounds" by D. F. Downing; and an introduction by the editor.

Rapid Mixing and Sampling Techniques in Biochemistry. Proceedings of a symposium (Philadelphia), July 1964. Britton Chance, Rudolf H. Eisenhardt, Quentin H. Gibson, and K. Karl Lonberg-Holm, Eds. Academic Press, New York, 1964. 412 pp. Illus. \$9. 32 papers.

Reality Therapy: A New Approach to Psychiatry. William Glasser. Harper and Row, New York, 1965. 190 pp. \$3.95.

Resistance to Tuberculosis: Experimental Studies in Native and Acquired Defensive Mechanisms. Max B. Lurie. Published for the Commonwealth Fund by Harvard Univ. Press, Cambridge, Mass., 1964. 411 pp. Illus. \$10.

Speciation in Wrens of the Genus *Campylorhynchus* (Univ. Calif. Pubs. Zool. 74). Robert K. Selander. Univ. of California Press, Berkeley, 1964. 309 pp. Illus. Plates. Paper, \$6.

Uses of Epidemiology. J. N. Morris. Williams and Wilkins, Baltimore, ed. 2, 1964. 346 pp. Illus. \$7.50.

Vagotomy. Harold Burge. Williams and Wilkins, Baltimore, 1964. 278 pp. Illus. \$10.25.

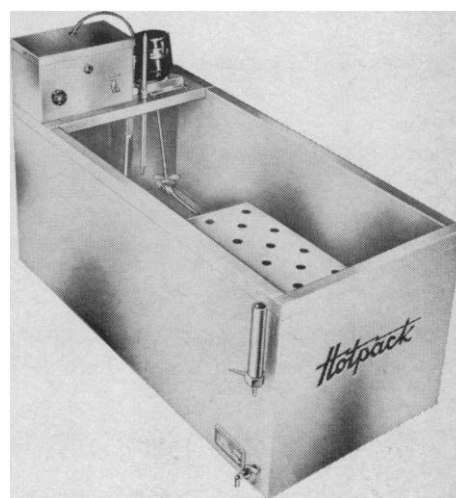
Vitamins and Hormones: Advances in Research and Applications. vol. 22. Robert S. Harris, Ira G. Wool, and John A. Loraine. Academic Press, New York, 1964. 960 pp. Illus. \$16. Thirty-five papers.

Mathematics, Physical Sciences, and Engineering

Acetylene: Manufacture and Uses. D. W. F. Hardie. Oxford Univ. Press, New York, 1964. 114 pp. Illus. \$2.60.

Acid-Base Equilibria. Edward J. King.

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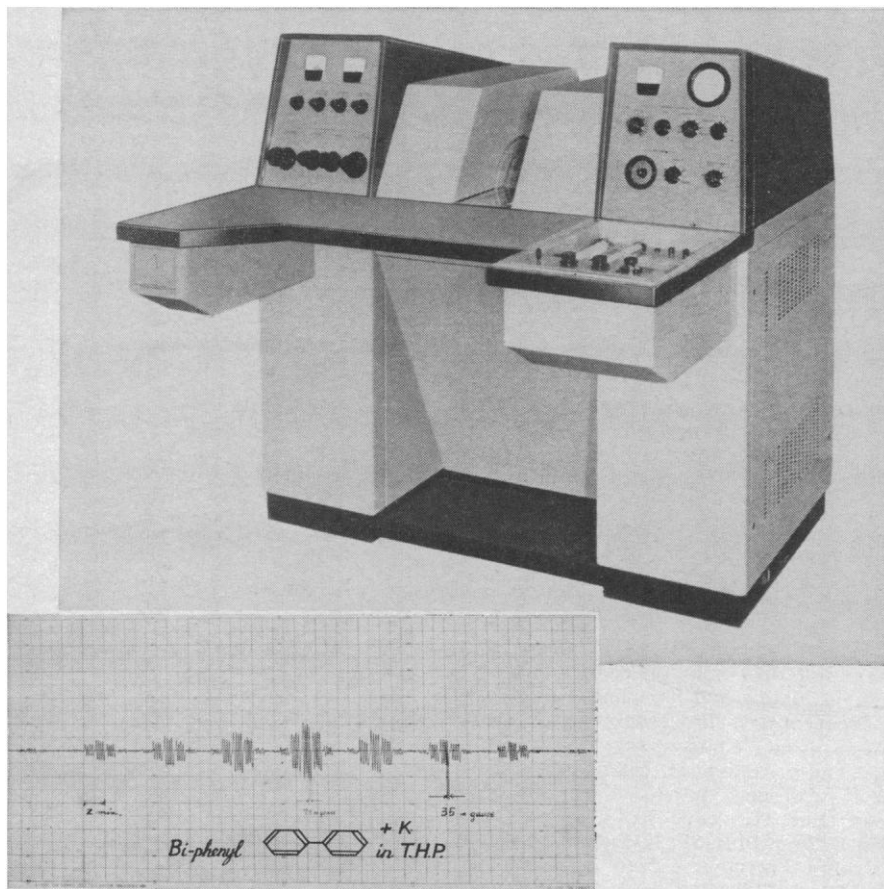


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Advances in Communication Systems: Theory and Applications. vol. 1. A. V. Balakrishnan, Ed. Academic Press, New York, 1965. 326 pp. Illus. \$11.50. Six papers: "Signal selection theory for space communication channels" by A. V. Balakrishnan; "Theories of pattern recognition" by David Braverman; "The digilock orthogonal modulation system" by R. W. Sanders; "Telemetry and command techniques for planetary spacecraft" by J. C. Springett; "Communication from weather satellites" by Rudolf A. Stampff; and "Information theory of quantum-mechanical channels" by H. Takahasi.

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advances in the organometallic chemistry of nickel" by G. N. Schrauzer; "The strengths of metal-to-carbon bonds" by H. A. Skinner; "Electronic structure of alkali metal adducts of aromatic hydrocarbons" by E. De Boer; "Reactions of alkali metal derivatives of metal carbonyls and related compounds" by R. B. King; "Heterocyclic organoboranes" by R. Köster; "Allyl metal complexes" by M. L. H. Green and P. L. I. Nagy; and "Synthesis of cyclopentadienyl metal compounds" by John Birmingham.

Advances in Quantum Chemistry. vol. 1. Per-Olov Löwdin, Ed. Academic Press, New York, 1964. 397 pp. Illus. \$14. Nine papers: "The Schrödinger two-electron atomic problem" by Egil A. Hylleraas; "Energy band calculations by the augmented plane wave method" by J. C. Slater; "Spin-free quantum chemistry" by F. A. Matsen; "On the basis of the main methods of calculating molecular electronic wave functions" by R. Daudel; "Theory of solvent effects on molecular electronic spectra" by Sadhan Basu; "The pi-electron approximation" by Peter G. Lykos; "Recent developments in the generalized Hückel method" by Y. I'Haya; "Accuracy of calculated atomic and molecular properties" by G. G. Hall; and "Recent developments in perturbation theory" by Joseph O. Hirschfelder, W. Byers Brown, and Saul T. Epstein.

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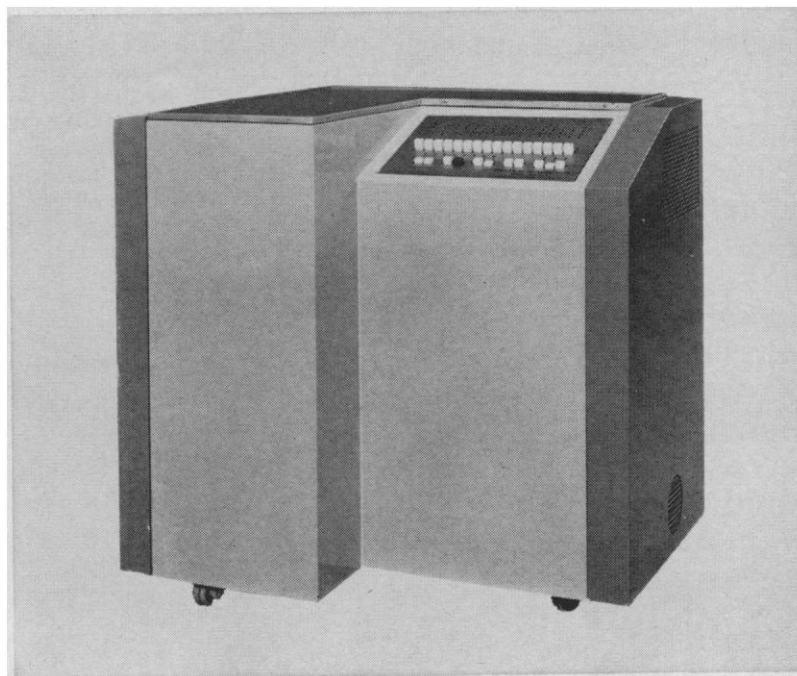
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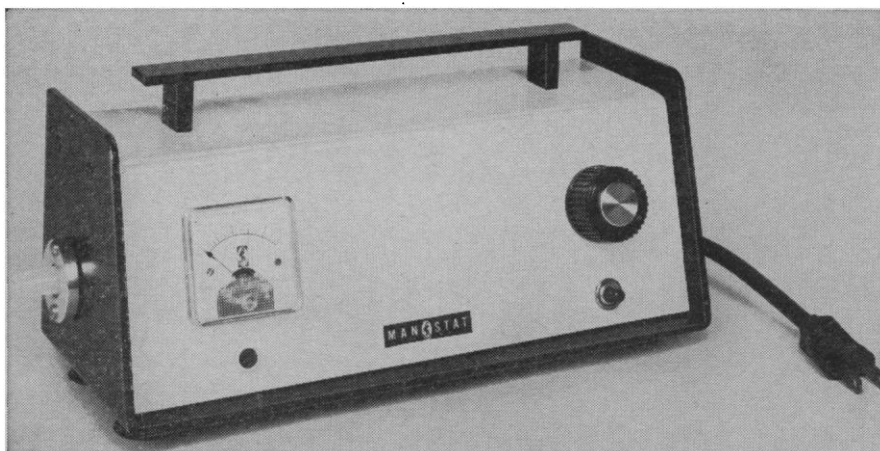
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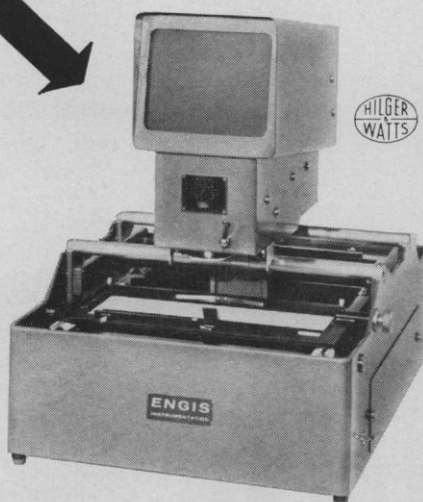
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Twenty-one papers.

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at a symposium sponsored by the Royal
Australian Chemical Institute, the Uni-
versity of New South Wales, and the
University of Tasmania. The papers are
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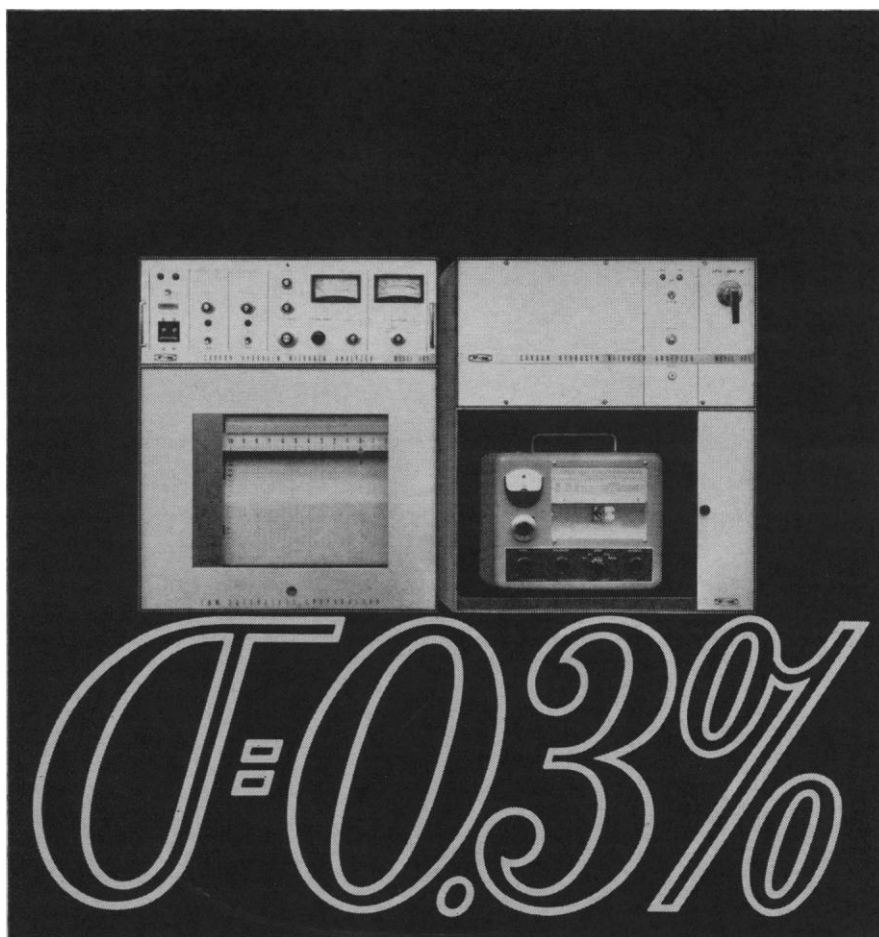
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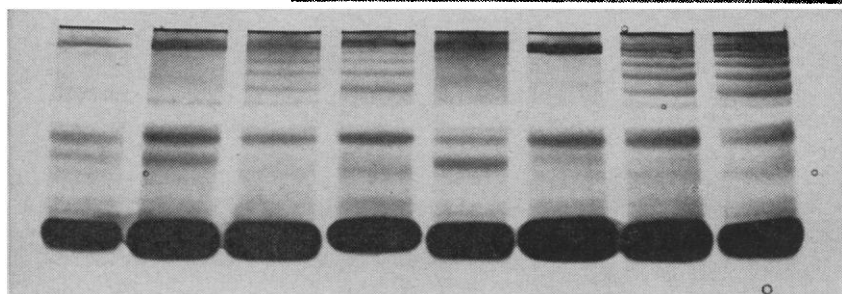
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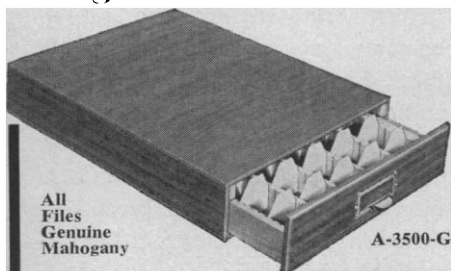
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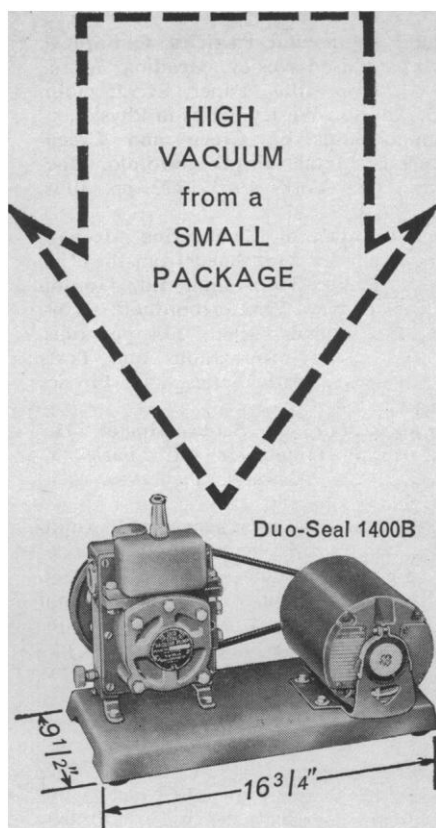
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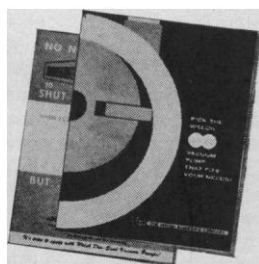
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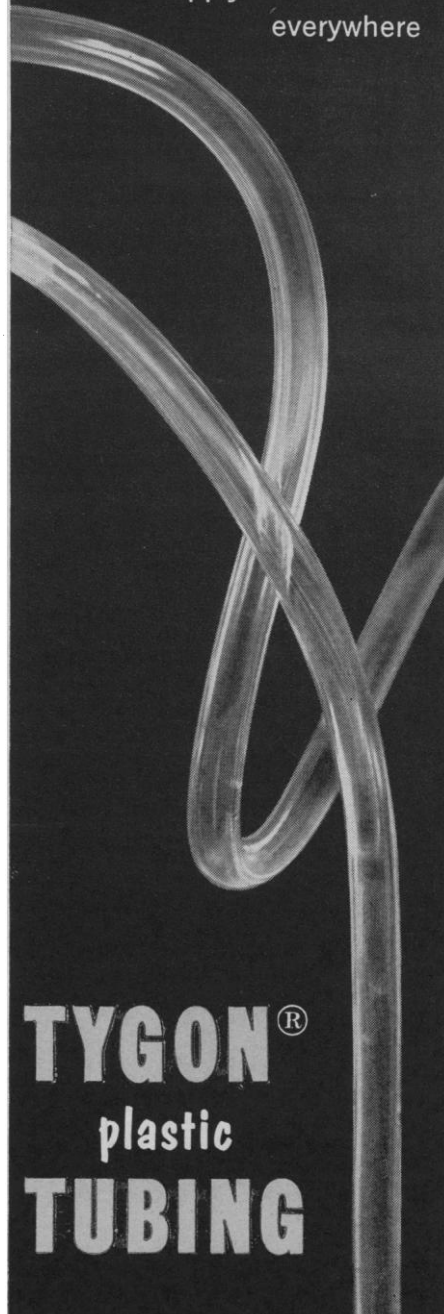
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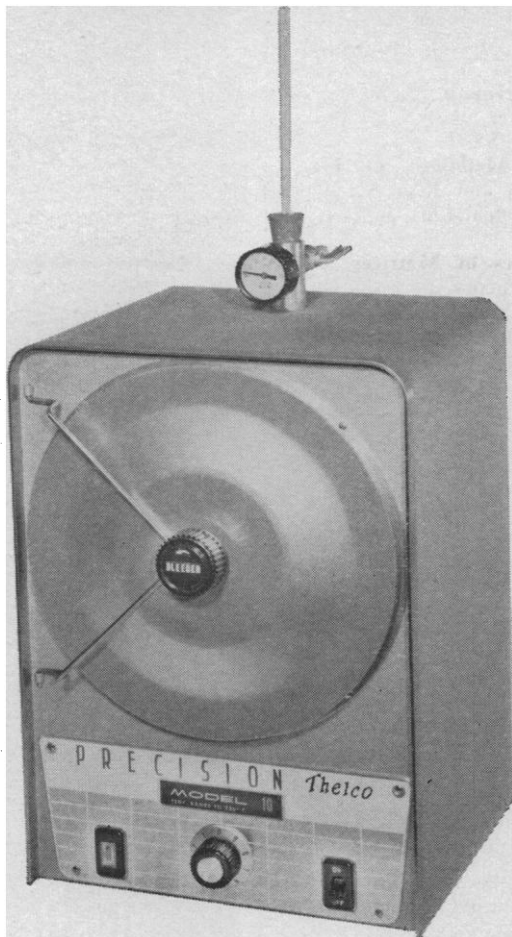
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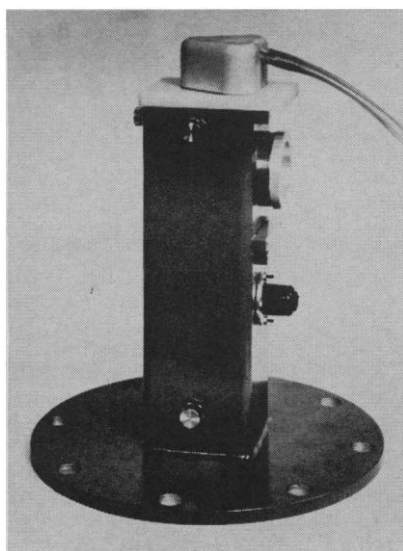
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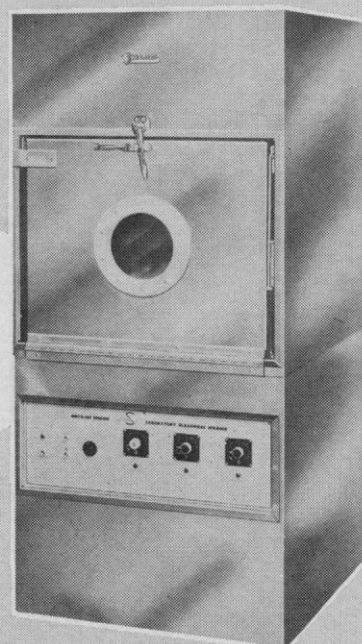
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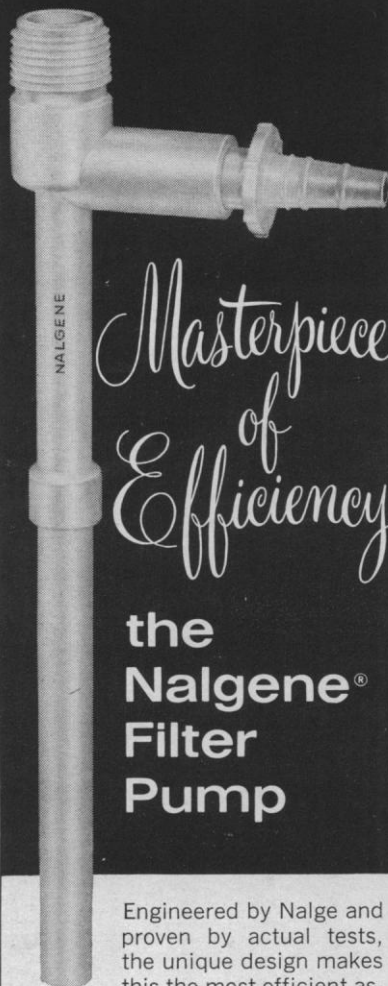
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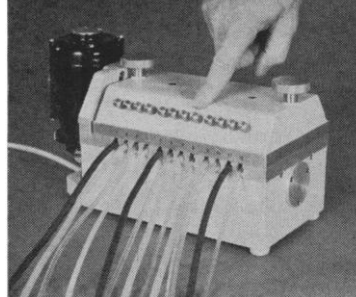
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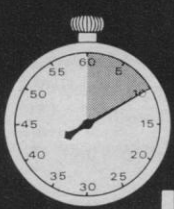
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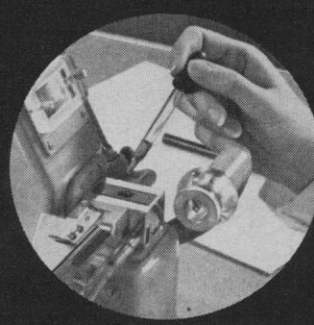
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10 SECONDS

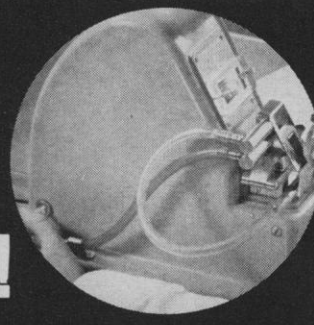
LOAD!

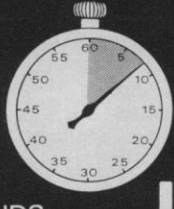




2 SECONDS


LIGHT!

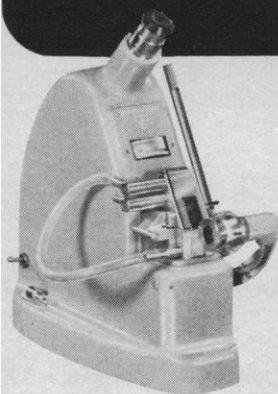




8 SECONDS

LOOK!





A TOTAL OF 20 SECONDS
...at a fraction of a cent per test

Test any product within an extended range of ND 1.30 to ND 1.71 easily, speedily, accurately with the Abbe 3-L Refractometer. *Loading is quick*... horizontal prisms are right-up-front and unobstructed... permit easy wipe-off to prevent contamination. *Lighting is quick*... a conveniently placed push button illuminates the scales. *Looking is quick*... and sure. Read refractive index instantly to .0005 (with reliable estimates to .0001). Dissolved solids can be read to .2% (estimates to .1%). Solids scale reads 0% to 85%. Either transmitted or reflected illumination can be used. You can make a complete test in just 20 seconds! Instrument costs are less than 29¢ a day!

Bausch & Lomb offers you the most complete line of refractometers available... the Abbe 3-L, the High Range Abbe 3-L, the Precision, the Butyro, the Industrial, Hand, Juice and Dipping models. To get complete data on range and application, write for Catalog D-202.

Bausch & Lomb, 75917 Bausch Street,
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