

chapter of less than eight pages does not seem adequate.

The chapter "Adventitious toxic factors in processed foods" is concise and complete. It provides a competent review of food additives, processing contamination, and chemical items reaching food by accidental means. Again, the effects of simple processing techniques such as washing or boiling are critically presented. Perhaps the authors felt that other sources have adequately covered artificial sweeteners; discussion of these agents is not presented in this chapter.

Several factors which limit extrapolation to man of results obtained in toxicological studies on animals are noted in the Liener book. These include the lack of suitable animal models for testing plant foods containing goitrogens, lathyrogens, or allergens; the problems of identification and purification of plant toxins; and alterations in toxicity due to differences in mode of administration. Sapeika also suggests that some toxic symptoms may be exacerbated in persons suffering from starvation.

The most didactic chapter in Liener's book is on favism. This condition, in which acute hemolytic anemia follows ingestion of fava beans, is perhaps the most complex and interesting of the food-induced toxicities. The authors note that both inhalation of pollen and ingestion of the beans from the *Vicia faba* plant elicit symptoms in susceptible individuals. The mosaic of epidemiological, biochemical, and genetic factors contributing to this disease illustrates the multifarious nature of the basic studies required in food toxicology.

In the chapter on protease inhibitors the authors point out that the literature dealing with these substances is "fraught with inconsistencies, claims, and counterclaims." Some of these problems apparently arise from "variations in experimental conditions involving such factors as species, . . . strain, age, and sex, composition of the diets employed." Their further complaint that there is often a "failure to use well-defined preparations of the protease inhibitor" is basic to all toxicological investigations and should explain why toxicologists insist that testing be done on adequate amounts of material of high (or at least known) purity.

Although Liener's book is intended primarily for food technologists, it is sufficiently broad in scope to warrant inclusion in the library of any scientist

interested in the occurrence of poisons at any point in the food chain. From the number of public statements currently being made, there appear to be many individuals interested in this topic, and if they will take the time to read an excellent text such as *Toxic Constituents of Plant Foodstuffs* some knowledge will be added to their interest.

This reviewer is sure that any manpower utilization survey would show that, for such a universally important commodity as food, there are too few bench scientists involved with methods of assuring its safety.

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## Bacteria

**Microbial Growth.** Nineteenth Symposium of the Society for General Microbiology, London, 1969. PAULINE M. MEADOW and S. J. PIRT, Eds. Published for the Society of General Microbiology by Cambridge University Press, New York, 1969. xii + 452 pp. + plates. \$16.50.

The symposia of the Society for General Microbiology have a commendable tradition that makes the resulting publications especially useful. In general, each article combines a particularly thorough introduction and review of the literature (many papers have five to ten pages of references) with a discussion of the particular author's work and views. This volume further benefits by a timely choice of topic—microbial growth—and the decision to define the subject very broadly. Included in the first section, Growth of Populations, are papers on energy production and utilization in growth, regulation of enzyme synthesis (from the standpoint of determining the physiologically important effectors of a pathway controlled by a balance of induction and catabolic repression), effects of oxygen and carbon dioxide on growth, and growth in extreme environments. And included in the second section, Growth and Differentiation of Cells, are papers on control over the cycle of DNA synthesis, the development of subcellular organelles, growth of animal and plant cells in tissue culture, spore formation, and slime mold differentiation.

This symposium differs from most recent works on the determinants of cell growth in that the talks stress more

the unknown and yet-to-be-accomplished than the known. Indeed, if one has become blasé about the accomplishments of studies of microbial subsystems, such as are exemplified by the characterization of the *lac* repressor protein, then reading any one of the articles concerned with a greater-than-subsystem view of the cell should return one to what I think will prove to be a more realistic position.

Three articles in particular underline the dearth of knowledge on the regulation of cell growth: J. Maynard Smith's introductory remarks on the limitation of the growth rate of a cell, B. C. Goodwin's "Growth dynamics and synchronization of cells," and that by A. G. Marr and his collaborators, "Growth and division of individual bacteria." In each of these three instances we see that for the particular question at hand, the maximum rate at which a cell can grow, the periodicity of enzyme synthesis, and the periodicity of cell division, we do not know even which cellular components have primary roles in the regulatory networks controlling these functions.

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## Books Received

**ABM.** An Evaluation of the Decision to Deploy an Antiballistic Missile System. Abram Chayes and Jerome B. Wiesner, Eds. xxii + 282 pp., illus. Harper and Row, New York, 1969; cloth, \$5.95. Signet (New American Library), New York, 1969; paper, 95¢.

**Abundant Nuclear Energy.** Proceedings of a symposium, Gatlinburg, Tenn., August 1968. W. W. Grigorieff, Coordinator. Division of Technical Information, U.S. Atomic Energy Commission, Oak Ridge, Tenn., 1969 (available as CONF-680810 from Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). vi + 354 pp., illus. Paper, \$3. AEC Symposium Series, vol. 14.

**Achievement-Related Motives in Children.** Papers presented at a research conference, New York, October 1967. Charles P. Smith, Ed. Russell Sage Foundation, New York, 1969. viii + 264 pp. \$8.75.

**Administration and Policy-Making in Education.** John Walton. Johns Hopkins Press, Baltimore, ed. 2, 1969. xii + 228 pp. \$6.95.

**Advances in Enzymology and Related Areas of Molecular Biology.** Vol. 32. F. F. Nord, Ed. Interscience (Wiley), New York, 1969. vi + 546 pp., illus. \$19.95.

**Advances in Geophysics.** Vol. 13. H. E. Landsberg and J. Van Mieghem, Eds. (Continued on page 790)

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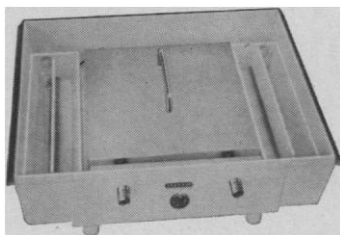
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## BOOKS RECEIVED

(Continued from page 732)

Academic Press, New York, 1969. x + 270 pp., illus. \$14.50.

**Advances in Oto-Rhino-Laryngology.** Vol. 16. L. Ruedi, Ed. The Ventral Cochlear Nucleus: The Significance of the Crossed, Inhibitory Pathways towards the Nucleus for Directional Hearing. R. K. J. Pfalz. Restoration of Laryngeal Function after Laryngectomy Experimental Research in Animals. I. Serafini. Karger, Basel, 1969 (U.S. distributor, Phiebig, White Plains, N.Y.). vi + 122 pp., illus. \$8.40. Bibliotheca Oto-Rhino-Laryngologica, No. 16.

**Advances in Physical Organic Chemistry.** Vol. 7. V. Gold, Ed. Academic Press, New York, 1969. x + 354 pp., illus. \$13.50.

**Aerial Geophysical Survey of Guyana.** Final Report Prepared for the Government of Guyana by the United Nations, New York, 1968. 64 pp., illus. + maps. Paper. U.N. Development Programme.

**Agricultural Sciences and the World Food Supply.** An international symposium, Wageningen, Netherlands, March, 1968. Veenman and Zonen, Wageningen, 1968. 112 pp., illus. Paper. Landbouwhogeschool Miscellaneous Papers 3.

**Aktiver Transport.** (Kurzstreckentransport bei Pflanzen.) U. Lüttge. Springer-Verlag, New York, 1969. iv + 146 pp., illus. \$16.95. Protoplasmatologia, vol. 8/7/b.

**Annual Review of NMR Spectroscopy.** Vol. 2. E. F. Mooney, Ed. Academic Press, New York, 1969. xii + 468 pp., illus. \$18.

**Annual Review of Plant Physiology.** Vol. 20. Leonard Machlis, Winslow R. Briggs, and Roderic B. Park, Eds. Annual Reviews, Palo Alto, Calif., 1969. viii + 692 pp., illus. \$8.50.

**Antarctic Map Folio Series.** Folio 10, Primary Productivity and Benthic Marine Algae of the Antarctic and Subantarctic. E. Balech, S. Z. El-Sayed, G. Hasle, M. Neushul, and J. S. Zaneveld. 15 plates. \$6. Folio 11, Distribution of Selected Groups of Marine Invertebrates in Waters South of 35°S Latitude. A. W. H. Bé et al. 29 plates. \$10. American Geographical Society, New York, 1969.

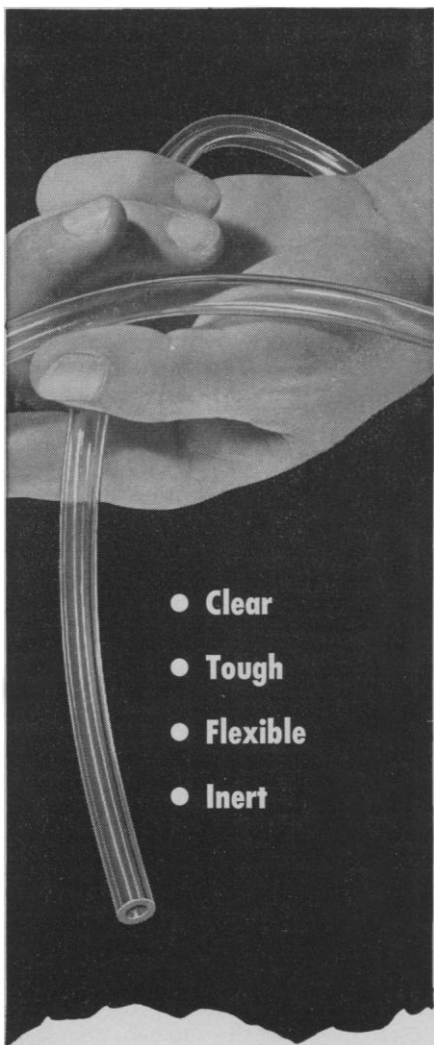
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**Appointment on the Moon.** The Full Story of Americans in Space from Explorer 1 to the Lunar Landing and Beyond. Richard S. Lewis. Ballantine, New York, 1969. viii + 568 pp. + plates. Paper, \$1.25. Revised version of the 1968 edition.

**The Arid Zones.** K. Walton. Hutchinson, London; Hillary House, New York, 1969. 176 pp., illus. \$4.50. Hutchinson University Library.

**Atlas of Mass Spectral Data.** E. Stenhagen, S. Abrahamsson, and F. W. McLaff-



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ferty, Eds. Interscience (Wiley), New York, 1969. Vol. 1, Molecular Weight 16.0313 to 142.0089 (xvi + 848 pp.); vol. 2, Molecular Weight 142.0185 to 213.2456 (xiv + 847 pp.); vol. 3, Molecular Weight 213.8629 to 702.7981 (xvi + 847 pp.). \$150.

**Atlas of Seeds and Small Fruits of Northwest-European Plant Species (Sweden, Norway, Denmark, East Fennoscandia and Iceland) with Morphological Descriptions.** Part 2. Cyperaceae. Greta Berggren. Swedish Natural Science Research Council, Stockholm, 1969. 68 pp. + plates. \$6.

**Atmospheric Emissions.** Proceedings of a NATO Advanced Study Institute, Ås, Norway, July–August 1968. Billy M. McCormac and Anders Omholt, Eds. Van Nostrand Reinhold, New York, 1969. xii + 564 pp., illus. \$25.95.

**Atti della XLIX Riunione.** Siena, September 1967. Societa Italiana per il Progresso delle Scienze, Rome, 1968. Vol. 1, pp. 1–544; vol. 2, pp. 545–1232, illus. Paper.

**Australian Mineral Industry 1967 Review** (Including Information to June 1968). Bureau of Mineral Resources, Geology and Geophysics, Canberra, 1968. viii + 304 pp., illus. Paper. \$A3.

**Autoradiography of Diffusible Substances.** Based on a series of lectures presented at an international conference, Chicago, June 1968. Lloyd J. Roth and Walter E. Stumpf, Eds. Academic Press, New York, 1969. xx + 372 pp., illus. \$13.50.

**Les Bases Moléculaires des Fonctions de l'Organisme.** Introduction Biochimique à la Médecine. Marcel Florin. Editions Desoer. Liège, 1969. xiii + 528 pp., illus.

**The Biological Basis of Medicine.** E. Edward Bittar, Ed., assisted by Neville Bittar. Academic Press, New York, 1969. Vol. 3 (xvi + 494 pp., illus. \$17.50); vol. 4 (xii + 396 pp., illus. \$14).

**Biological Phosphorylations.** Development of Concepts. Herman M. Kalckar. Prentice-Hall, Englewood Cliffs, N.J., 1969. xx + 740 pp., illus. \$16.95. Prentice Hall Biological Science Series.

**Biology and Taxonomy of Bark Beetle Species in the Genus Pseudohylesinus Swaine (Coleoptera: Scolytidae).** Donald E. Bright, Jr. University of California Press, Berkeley, 1969. vi + 46 pp. + plates. Paper, \$2. University of California Publications in Entomology, vol. 54.

**The Biology of Degenerative Joint Disease.** Leon Sokoloff. University of Chicago Press, Chicago, 1969. x + 166 pp., illus. \$6.50.

**Biology of Mammals.** Richard G. Van Gelder. Scribner, New York, 1969. x + 198 pp. Cloth, \$5.95; paper, \$2.45.

**Biology of Microorganisms.** Sanders T. Lyles. Mosby, St. Louis, 1969. viii + 608 pp., illus. \$10.50.

**Catalysis in Chemistry and Enzymology.** William P. Jencks. McGraw-Hill, New York, 1969. xvi + 656 pp., illus. \$14.50. McGraw-Hill Series in Advanced Chemistry.

**Celestial Mechanics.** Part 1. Shlomo Sternberg. Benjamin, New York, 1969. xxiv + 168 pp., illus. Cloth, \$12.50; paper, \$3.95. Mathematics Lecture Note Series.

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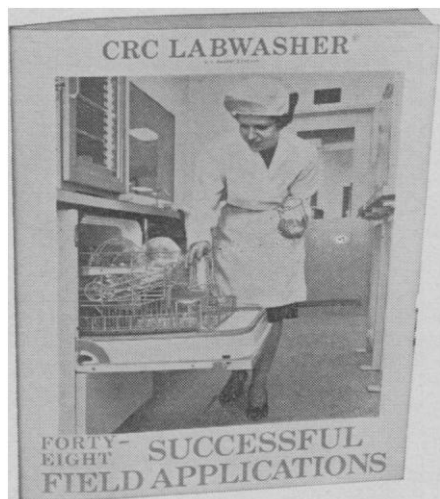
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Second Hundred Years. Published for the Centennial Committee, Oregon State University, by Oregon State University Press, Corvallis, 1969. 128 pp., illus. Cloth, \$4; paper, \$2.

**The Chemical Thermodynamics of Organic Compounds.** Daniel R. Stull, Edgar F. Westrum, Jr., and Gerard C. Sinke. Wiley, New York, 1969. xx + 876 pp., illus. \$29.95.

**Circulatory Drugs.** Pharmacological and Clinical Approach to the Detection and Evaluation of New Circulatory Drugs. Proceedings of an international symposium, Milan, December 1967. A. Bertelli, Ed. North-Holland, Amsterdam; Interscience (Wiley), New York, 1969. x + 332 pp., illus. \$17.50.

**The Classifying of High Polymers.** Ottmar Leuchs. Translated from the German by Rubber and Plastics Research Association, U.K. G. M. Kline, Ed. Plenum, New York; Butterworths, London, 1968. \$12. *Pure and Applied Chemistry*, Vol. 16, No. 4, pp. 492-702.

**Clinical Psychology as Science and Profession.** A Forty-Year Odyssey. David Shakow. Aldine, Chicago, 1969. xiv + 354 pp. \$12.50. Modern Applications in Psychology.

**A Coastal Pond.** Studied by Oceanographic Methods. K. O. Emery. Elsevier, New York, 1969. xiv + 82 pp., illus. \$5.50.

**Color Atlas and Textbook of Hematology.** William R. Platt. Lippincott, Philadelphia, 1969. xviii + 446 pp. + plates. \$27.

**Colour Television Reception and Decoding Technique.** B. W. Osborne. Hart, New York, 1969. xvi + 176 pp., illus. \$12.50.

**Conception, Birth and Contraception.** A Visual Presentation. Robert J. Demarest and John J. Sciarra. Blakiston (McGraw-Hill), New York, 1969. xii + 132 pp., illus. \$8.95.

**Conceptual Physics.** Matter in Motion. Jae R. Ballif and William E. Dibble. Wiley, New York, 1969. xii + 644 pp., illus. \$9.95.

**Conversion Factors and Tables.** For Engineers, Chemists, Biologists, Architects, Geologists, Metallurgists, Physicists, Surveyors, Mechanics, Electricians, and Students. Gaboury, Montreal, 1969. 70 pp. Paper, 60¢.

**Cowles Encyclopedia of Science, Industry and Technology.** Cowles, New York, 1969. xii + 644 pp. + plates. \$17.50. New enlarged edition. Cowles Volume Library.

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**Design with Nature.** Ian L. McHarg. Published for the American Museum of Natural History by Natural History Press, Garden City, N.Y., 1969. x + 198 pp., illus. \$19.95.

**The Developmental Sequence of the Marine Red Alga Pseudogloiothloea in Culture.** J. Ramus. University of California Press, Berkeley, 1969. viii + 44 pp., illus. Paper, \$2.50. University of California Publications in Botany, vol. 52.

**The Devil Has Slippery Shoes.** A Biased Biography of the Child Development Group of Mississippi. Polly Greenberg. Macmillan, New York; Collier-Macmillan, London, 1969. xvi + 704 pp. \$14.95.

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**Earthquake Hazard in the San Francisco Bay Area.** A Continuing Problem in Public Policy. Karl V. Steinbrugge. Institute of Governmental Studies, University of California, Berkeley, 1968. x + 82 pp., illus. Paper, \$1.50.

**Eclectic Climatology.** Selected Essays Written in Memory of David I. Blumensstock, 1913-1963. Arnold Court, Ed. Oregon State University Press, Corvallis, 1969. 184 pp., illus. \$6. Published also as Yearbook of the Association of Pacific Coast Geographers, vol. 30 (1968).

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**Einstein Spaces.** A. Z. Petrov. Translated from the Russian edition (Moscow, 1961) by R. F. Kelleher. J. Woodrow, Transl. Ed. Pergamon, New York, 1969. xiv + 414 pp. \$12.

**Electronic Laboratory Techniques.** L. W. Price. Churchill, London, 1969. viii + 266 pp., illus. Paper, 40s.

**Elementary College Arithmetic.** David A. Ledbetter. Goodyear, Pacific Palisades, Calif., 1969. xviii + 270 pp., illus. \$7.95.

**Elementary Rheology.** G. W. Scott Blair. Academic Press, New York, 1969. xii + 160 pp., illus. \$5.50.

**Elements of Cytology.** Norman S. Cohn. Harcourt, Brace and World, New York, ed. 2, 1969. xvi + 496 pp., illus. \$10.95.

**Elements of Physical Geology.** Adapted by Doris L. Holmes. Ronald, New York, 1969. viii + 272 pp., illus. \$7.50. Adapted from *Principles of Physical Geology*, ed. 2 (1965).

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**Engineering Design.** The Choice of Favourable Systems. Duncan Morrison. McGraw-Hill, New York, 1969. xii + 204 pp., illus. \$9.95.

**Engineering in the Heart and Blood Vessels.** George H. Myers and Victor Parsonnet. Wiley-Interscience, New York,

## MICROSOMES AND DRUG OXIDATIONS

edited by **JAMES R. GILLETTE**, *Laboratory of Chemical Pharmacology, National Heart Institute, Bethesda, Maryland.*

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**CONTENTS:** RICHARD D. O'BRIEN, Poisons as Tools in Studying the Nervous System. R. S. McCUTCHEN, Teratology. ROGER P. SMITH, The Significance of Methemoglobinemia in Toxicology. P. B. HAMMOND, Lead Poisoning: An Old Problem with a New Dimension. 1969, 169 pp., \$7.50, Paperback \$3.75

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1969. xvi + 208 pp., illus. \$14.95. Wiley Interscience Series on Biomedical Engineering.

**Die Entstehung der Alpen und die Formung des Mittelmeeres.** Aarno Niini. Suomalainen Tiedeakatemia, Helsinki, 1969 (distributor, Academic Bookstore, Helsinki). 28 pp., illus. Paper. Annales Academiae Scientiarum Fennicae, Series A, 3, Geologica-Geographica, No. 97.

**Enzyme Handbook.** Thomas E. Barman. Springer-Verlag, New York, 1969. Vol. 1 (xii + 500 pp.); vol. 2 (pp. 501-928). \$19.50.

**Eskimo Prehistory.** Hans-Georg Bandi. Translated from the German edition (Stuttgart, 1964) by Ann E. Keep. University of Alaska Press, College, 1969 (distributed by University of Washington Press, Seattle). xii + 228 pp., illus. \$6.50. Studies of Northern Peoples, No. 2.

**Essentials of Biology.** Willis H. Johnson, Louis E. Delaney, and Thomas A. Cole. Holt, Rinehart and Winston, New York, 1969. xii + 612 pp. + plates. \$9.95.

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**Estudios sobre la Organización Espacio-Temporal de la Actividad Eléctrica Cerebral.** Juan de Dios Pozo-Olano. Printing Department, University of Georgia, Athens, 1968. 112 pp., illus.

**L'Evolution Regressive des Poissons Carnivores et Abyssaux.** Georges Thines. Masson, Paris, 1969. iv + 396 pp., illus. 95 F.

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**L'Expansion du Machinisme.** M. Dubousson et al. Presses Universitaires de France, Paris, 1968. xxiv + 884 pp. + plates. Histoire Générale des Techniques, vol. 3.

**Exploration of the Universe.** George Abell. Holt, Rinehart and Winston, New York, ed. 2, 1969. xvi + 722 pp., illus. \$13.95.

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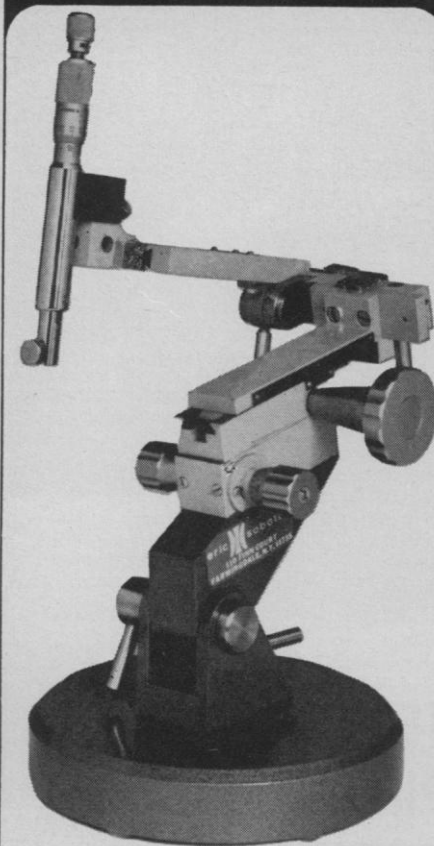
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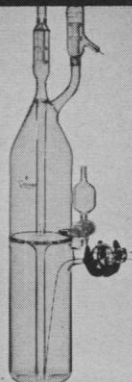
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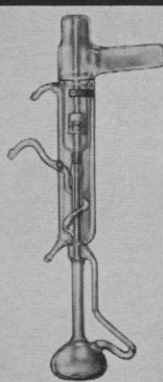
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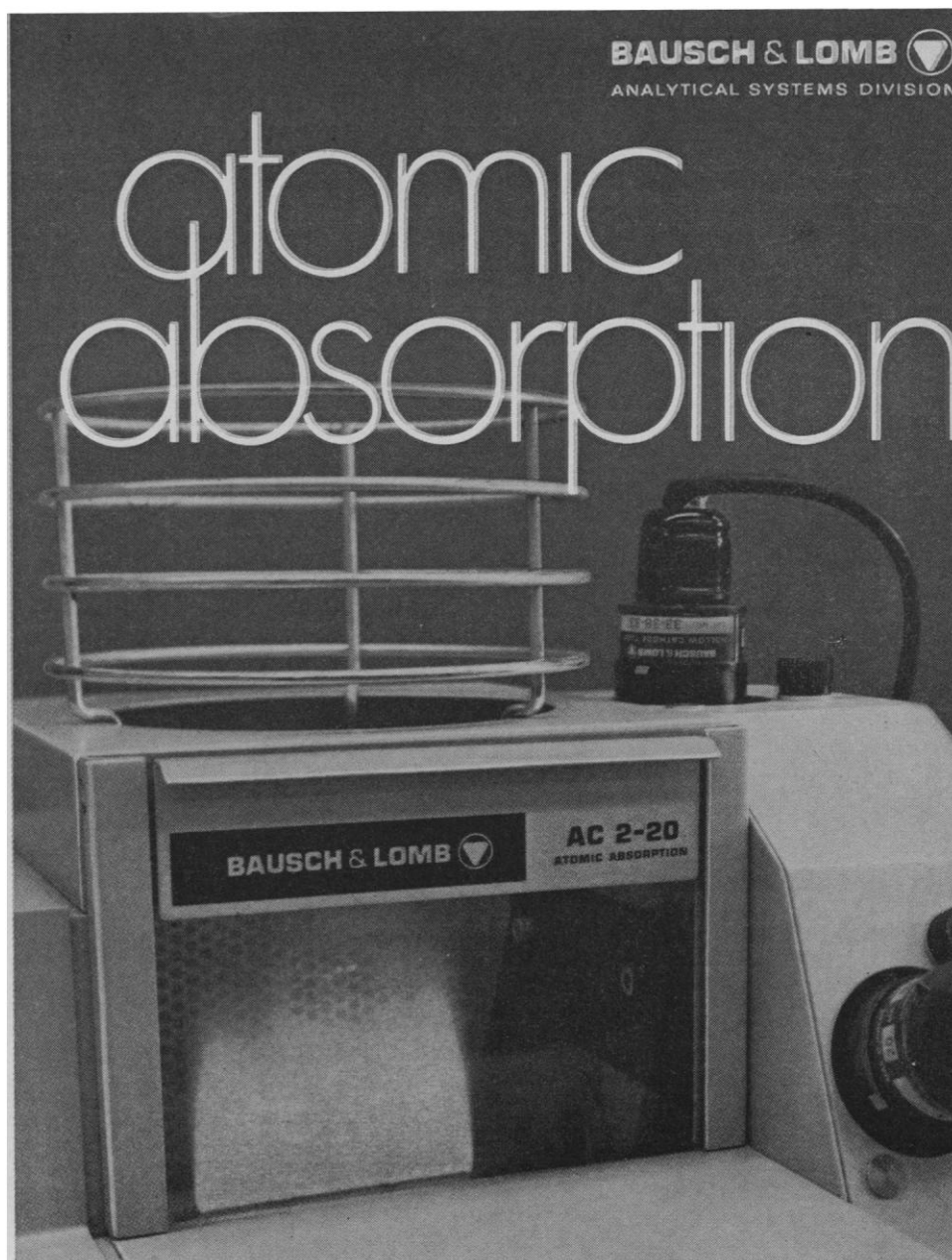
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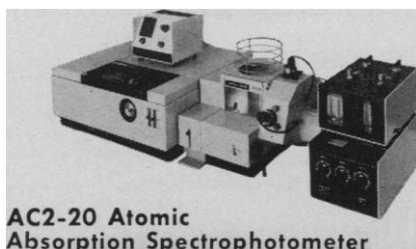
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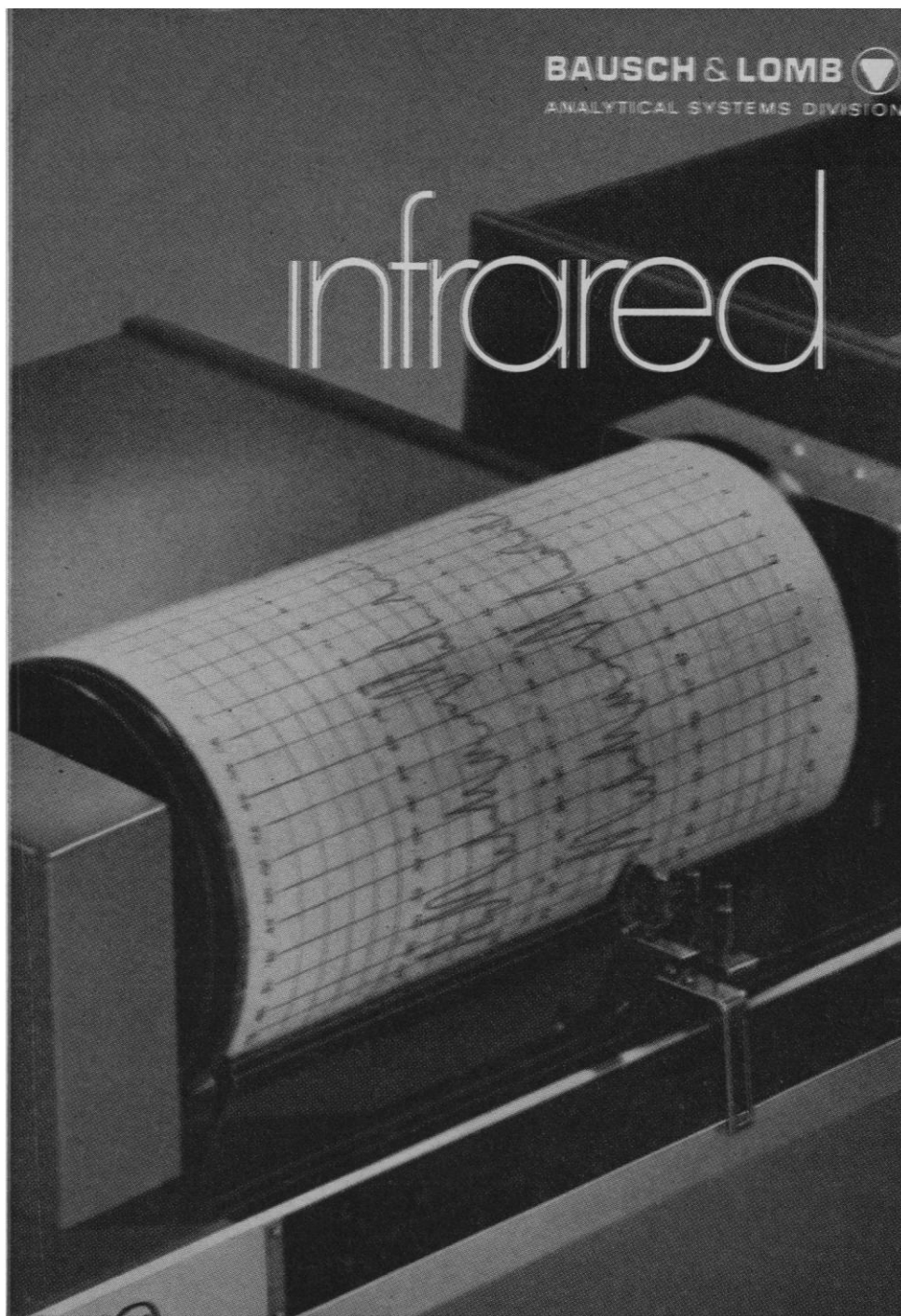
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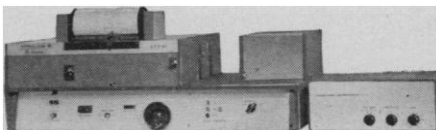


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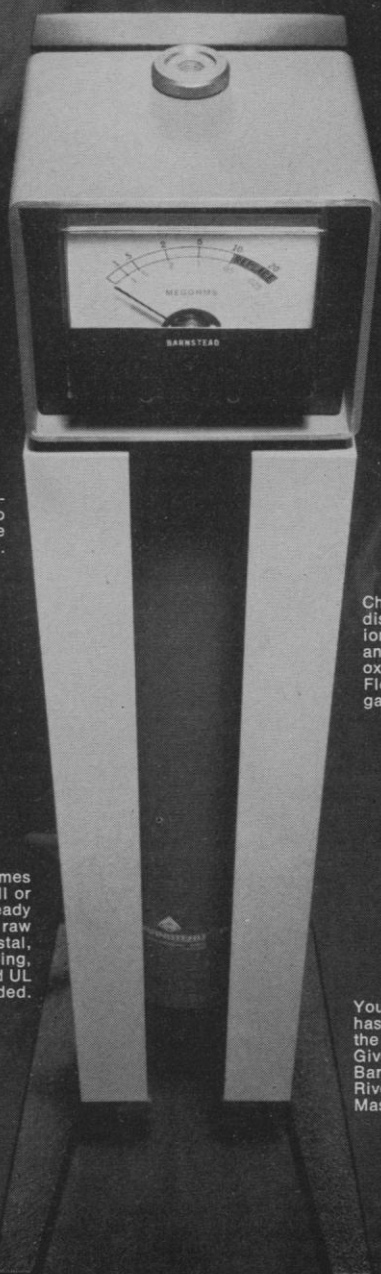


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