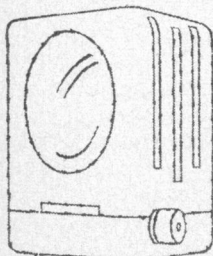


ANOTHER NEW

Bausch & Lomb OPTI-LUME ILLUMINATOR



**AMPLE LIGHT
FOR BINOCULAR
MICROSCOPES**

**3 TIMES BRIGHTER
AT LOWEST PRICE**

NOW, a low-cost attachable illuminator with aluminized reflector and spherical condenser—provides plenty of light for oil immersion work with binocular microscopes. Another exclusive advantage of Bausch & Lomb, world's finest laboratory microscopes.

- Attaches instantly, focuses with condenser, tilts with microscope—or may be used separately.
- Uniform intensity, abundant light on full field.
- Cool stage—no heat damage to specimens.
- Standard lamp, less than 25¢ at most appliance stores.

WRITE for descriptive literature
D-123. Bausch & Lomb Optical Co.,
64252 St. Paul St., Rochester 2, N.Y.

BAUSCH & LOMB

SINCE  1853



Dynoptic

LABORATORY MICROSCOPES

field intensity, defined directly from Coulomb's law, converges only conditionally at points of the dipole distribution; he thus implies that some formulas express theorems when in fact they express arbitrary conventions. He follows tradition by localizing the energy; the method leads to no wrong results, but it encourages wrong interpretations of the results. Confusion about these things has loaded the literature with futile controversy. These are regrettable defects in an otherwise masterly presentation, which shows much originality.

Durand uses Giorgi meter-kilogram-second units; he has even translated all his magnetization curves from the original electromagnetic.

There are few specific references; data and figures are often quoted with no, or only vague, mention of the sources. But if the reader wishes to follow up particular topics, he can ultimately find what he needs by consulting the general references that are listed at the ends of the chapters.

WILLIAM FULLER BROWN, JR.

Sun Physical Laboratory

Sun Oil Company, Newtown Square, Pennsylvania

The Furans. A.C.S. Monograph Series. A. P. Dunlop and F. N. Peters. Reinhold, New York, 1953. xix + 867 pp. Illus. + plates. \$18.

It may be said that furan chemistry has had its ups and downs. Older than benzenoid chemistry, the advancement of knowledge in furan chemistry declined gradually as coal-tar chemistry gained importance; then it was revived about 1925 when the industrial production of furfural provided raw material and incentive for renewed investigation. The cycle of interest is understandable to furan chemists, some of whom say jocularly that "a 40-percent yield from furans is equivalent to 100 percent in benzene chemistry." Behind this platitude is the fact that the manipulative art is paramount in furan chemistry. In these circumstances a comprehensive monograph such as the one under review becomes a necessity. It is fitting that it should have been compiled by representatives of the company that pioneered in production of furfural.

In addition to a preface by the authors, in which they wisely exclude lactones and anhydrides comprising 5-membered oxygen heterocycles, there is a short foreword by Brownlee and Miner who early realized the value of a naturally-generated chemical raw material, furfural, and who pioneered in its production. There is also a general introduction by the editors of the A.C.S. monograph series in which the curious and somewhat questionable statement is made that, "most workers in the sciences were coming to see the artificiality of the separation (between so-called 'pure science' publications and technologic or applied science literature)." Fortunately, Dunlop and Peters have realized the distinction, and the monograph is divided into Part I (707 pages, *The Chemistry of the Furans*), and Part II (76 pages, *Industrial Applications of Furfural and its Derivatives*).

The first 14 chapters of Part I cover the functional group derivatives of furan. The last two chapters of this part involve the important reactions of furan ring cleavage and catalytic hydrogenation. These chapters are excellently written with complete literature reference, adequate graphic formulation, and convenient tabulation. I regret that a short chapter describing furan syntheses from noncyclic substances was not included. Undoubtedly such an effort would have included the important syntheses of Morel and Verkade [*Rec. trav. chim.* 67, 539 (1948)], as well as alkyl furans, which are not mentioned.

Part II includes three chapters describing furfural as a chemical intermediate, as a solvent and, together with furfuryl alcohol, as a resin component. Since the authors state in their preface that only well-recognized industrial processes are included, Part II must necessarily be incomplete. An appendix summarizes the furan resin patents.

The typography is good and free from errors. Unfortunately, there is no author index, and the classification in the subject index is not uniform; but these deficiencies are minor. The monograph is highly recommended.

GEORGE F WRIGHT

Department of Chemistry, University of Toronto

New Books

Proceedings of a Conference on the Utilization of Scientific and Professional Manpower. Held Oct. 7-11, 1953, Columbia University. National Manpower Council, Columbia Univ. Press, New York, 1954. xii + 197 pp. \$3.50.

Elementary Fluid Mechanics. ed. 3. John K. Vennard. Wiley, New York; Chapman & Hall, London, 1954. xii + 401 pp. Illus. \$5.50.

Living Crafts. G. Bernard Hughes. Philosophical Library, New York, 1954. 192 pp. Illus. + plates. \$4.75.

Plant Breeding for Everyone. John Y. Beaty. Charles T. Branford, Boston, 1954. 102 pp. Illus. + plates. \$2.75.

Problems of Consciousness. Trans. of the Fourth Conference, Mar. 29-31, 1953. Harold A. Abramson, Ed. Josiah Macy, Jr. Fdn., New York, 1954. 177 pp. Illus. \$3.25.

Plague. R. Pollitzer. World Health Organization, Geneva, 1954. (U. S. distr.: Columbia Univ. Press, New York.) 698 pp. Illus. + plates. \$10.

A Thousand Geese. Peter Scott and James Fisher. Houghton Mifflin, Boston, 1954. 240 pp. Illus. + plates. \$4.

Matter Energy Mechanics. Jakob Mandelker. Philosophical Library, New York, 1954. ix + 73 pp. Illus. \$3.75.

Applied Electronics. ed. 2. Truman S. Gray. Technology Press, Cambridge, Mass.; Wiley, New York; Chapman & Hall, London, 1954. xxviii + 881 pp. Illus. \$9.

Polymer Degradation Mechanisms. Proc. of NBS symposium, Sept. 24-26, 1951. National Bureau of Standards, Washington, 1953. (Order from Supt. of Documents, GPO, Washington, D.C.) iv + 280 pp. Illus. \$2.25.

Instrumental Analysis. John H. Harley and Stephen E. Wiberley. Wiley, New York; Chapman & Hall, London, 1954. vii + 440 pp. Illus. \$6.50.

The Collected Papers of Peter J. W. Debye. Interscience, New York-London, 1954. xxi + 700 pp. Illus. \$9.50.

Insecticides and Colonial Agricultural Development. Proc. of 6th symposium of Colston Research Society, Mar. 23-27, 1953. T. Wallace and J. T. Martin, Eds. Butterworths, London, 1954. x + 169 pp. Illus. 30s.

The Physical Chemistry of the Silicates. Wilhelm Eitel. Univ. of Chicago Press, Chicago; Cambridge Univ. Press, London, 1954. xvii + 1592 pp. Illus. \$30.

A French-English Dictionary for Chemists. ed. 2. Austin M. Patterson. Wiley, New York; Chapman & Hall, London, 1954. xiv + 476 pp. \$6.50.

History of American Industrial Science. Courtney Robert Hall. Library Publ., New York, 1954. xix + 453 pp. \$4.95.

The Chemical Structure of Proteins. Ciba Foundation Symposium. G. E. W. Wolstenholme and Margaret P. Cameron, Eds. Little, Brown, Boston, 1954. xii + 222 pp. Illus. + plates. \$6.

New Green World. Josephine Herbst. Hastings House, New York, 1954. 272 pp. + plates. \$4.

Methods of Biochemical Analysis. Vol. I. David Glick, Ed. Interscience, New York, 1954. x + 521 pp. Illus. \$9.50.

Analytic Geometry. ed. 2. Edward S. Smith, Meyer Sal-kover, and Howard K. Justice. Wiley, New York; Chapman & Hall, London, 1954. xiii + 306 pp. Illus. \$4.

Energy Metabolism and Nutrition. Raymond W. Swift and Cyrus E. French. Scarecrow Press, Washington, 1954. 264 pp. Illus. \$5.75.

Methods in Medical Research. Vol. 6. J. Murray Steele, Ed. Year Book Publ., Chicago, 1954. xiii + 271 pp. Illus. \$7.

The Dynamics of Virus and Rickettsial Infections. International symposium sponsored by the Henry Ford Hospital, Oct. 21-23, 1953. Frank W. Hartman, Frank L. Horsfall, Jr., and John G. Kidd, Eds. Blakiston, New York, 1954. xii + 461 pp. Illus. \$7.50.

Chromium. A. H. Sully. Academic Press, New York; Butterworths, London, 1954. xii + 272 pp. Illus. \$5.50.

Lower Tertiary Foraminifera of the Qatar Peninsula. Alan Hilder Smout. British Museum (Natural History), London, 1954. ix + 96 pp. Illus. + 15 plates. £2 5s.

Zirconium. G. L. Miller. Academic Press, New York; Butterworths, London, 1954. xviii + 382 pp. Illus. \$7.50.

Tornadoes of the United States. Rev. ed. Snowden D. Flora. Univ. of Oklahoma Press, Norman, 1954. xvi + 221 pp. Illus. + plates. \$3.50.

The Mating Instinct. Lorus J. and Margery J. Milne. Little, Brown, Boston, 1954. 243 pp. Illus. \$4.50.

First Year College Physics. Clarence E. Bennett. Ronald Press, New York, 1954. vi + 526 pp. Illus. \$6.

Of Whales and Men. R. B. Robertson. Knopf, New York, 1954. xii + 300 pp. Plates. \$4.50.

Endogenous Endocrinotherapy Compendium. Ed. 4. Including the causal cure of cancer. Jules Samuels. N. V. Cyclocoop, Amsterdam, 1954. 600 pp. + plates. 37 guilders.

Copper. The science and technology of the metal, its alloys and compounds. Allison Butts, Ed. ACS Monogr. Ser., No. 122, William A. Hamor, Ed. Reinhold, New York, 1954. xii + 936 pp. Illus. \$20.

Annuario Generale. Accademia Nazionale Dei XL, Rome, 1935. 536 pp. + index + plates.

Foundations of Potential Theory. Oliver Dimon Kellogg. Dover, New York, 1953 (Reprint of 1929 ed.). ix + 384 pp. Illus. Cloth, \$3.95; paper, \$1.90.

Scientific and Technical Papers. Seinen Yokota. Comp. and pub. by the Yokota Memorial Com., Univ. of Tokyo, 1954. xx + 398 pp. + 137 tables. Illus.

Compounds with Condensed Thiophene Rings. Howard B. Hartough and S. L. Meisel. Part of *The Chemistry of Heterocyclic Compounds* Ser., Arnold Weissberger, Ed. Interscience, New York-London, 1954. xv + 515 pp. Illus. Single copy, \$16.50; subscription, \$15.

Books Reviewed in THE SCIENTIFIC MONTHLY

July

Science, Medicine and History. E. Ashworth Underwood, Ed. (Oxford Univ. Press). Reviewed by Jane Oppenheimer.

Physical Chemistry. ed. 4, David Ingersoll Hitchcock (Little, Brown). Reviewed by Robert Livingston.

Planning Guide for Radiological Installations. Wendell Scott, Ed. (Year Book Publishers). Reviewed by Herbert C. Francis.

Biochemistry and Physiology of Nutrition. vols. I and II, Geoffrey H. Bourne and George W. Kidder, Eds. (Academic Press). Reviewed by Victor E. Levine.

Culture and Diseases of Game Fishes. H. S. Davis (Univ. of California Press). Reviewed by Kenneth D. Carlander.

Voices of the Night. Paul Peter Kellogg and Arthur A. Allen (Cornell Univ. Records). Reviewed by Karl P. Schmidt.

Westward Ho with the Albatross. Hans Petterson (Dutton). Reviewed by Dennis Puleston.

Evolution: Die Geschichte ihrer Probleme und Erkenntnisse. Walter Zimmerman (Karl Alber). Reviewed by Ernst Mayr.

Life of the Past: An Introduction to Paleontology. George Gaylord Simpson (Yale Univ. Press). Reviewed by William L. Straus, Jr.

Soil and Fertilizer Phosphorus in Crop Nutrition. W. H. Pierre and A. G. Norman, Eds. (Academic Press). Reviewed by T. F. Buehrer.

Vegetation and Watershed Management. Edward A. Colman (Ronald Press). Reviewed by Bernard Frank.

Wild Flowers of America. H. W. Rickett, Ed. (Crown).

Wild Flowers of Western Pennsylvania and the Upper Ohio Basin. vols. I and II, O. E. Jennings (Univ. of Pittsburgh Press). Reviewed by Edgar Anderson.

Thomas Jefferson's Farm Book. Edwin Morris Betts, Ed. (Princeton Univ. Press). Reviewed by Carl Bridenbaugh.

Glacier Variations and Climatic Fluctuations. H. W. Son. Ahlmann (American Geographical Society). Reviewed by Richard Foster Flint.

Science in Alaska, 1951. Reviewed by Joseph T. Flakne.

Astronomical Photoelectric Photometry. F. B. Wood, Ed. (American Association for the Advancement of Science). Reviewed by Horace W. Babcock.

The Comets and Their Origin. R. A. Lyttleton (Cambridge Univ. Press). Reviewed by Glen H. Draper.

Space Travel. Kenneth W. Gatland and Anthony M. Kunesch (Philosophical Library) Reviewed by Herbert B. Nichols.

Semimicro Qualitative Analysis. rev. ed., Hervey Hubbard Barber and T. Ivan Taylor (Harper). Reviewed by Lloyd E. Malm.

Mathematics in Western Culture. Morris Kline (Oxford Univ. Press). Reviewed by Gaylord M. Merriman.

Miscellaneous Publications

- Parental Age and Characteristics of the Offspring.** Annals, vol. 57, art. 5. L. C. Strong *et al.* 163 pp. Illus. \$3.50.
- Basic Odor Research Correlation.** vol. 58, art. 2. Albert R. Behnke *et al.* 247 pp. Illus. \$3.50. **Mathematical Deductions from Empirical Relations between Metabolism, Surface Area, and Weight.** vol. 56, art. 7. Hermann Von Schelling. 22 pp. Illus. \$1. N.Y. Acad. of Sciences, New York 21, 1954.
- Reach for the Sky** (Chapter 20). Paul Brickhill. W. W. Norton & Co., New York, 1954. 13 pp.
- Report on the Astrophysical Observatory, 1953** (From the Smithsonian Report for 1953). Leonard Carmichael. 5 pp. **Insect Metamorphosis.** Smithsonian Misc. Coll., vol. 122, No. 9. R. E. Snodgrass. 124 pp. Illus. **Two Silicified Carboniferous Trilobites from West Texas.** vol. 122, No. 10. Harry B. Whittington. 16 pp. Illus. + plates. **A Revision of the Sea-Stars of the Genus Tethyaster.** vol. 122, No. 11. Ailsa M. Clark and Austin H. Clark. 27 pp. Illus. + plates. **Washington, D.C., Precipitation of 1953 and 1954.** vol. 122, No. 13. C. G. Abbot. 4 pp. Illus. **Songs and Stories of the Ch'uan Miao.** vol. 123, No. 1. David Crockett Graham. 336 pp. Illus. + plates. **Studies in the Bromeliaceae, XVII.** Contr. U.S. Natl. Herbarium, vol. 29, Pt. 11. Lyman B. Smith. 23 pp. Illus. 20¢. Smithsonian Institution, Washington 25, 1954.
- Composition of Cane Juice and Cane Final Molasses.** Ser. No. 15. Wendell W. Binkley and Melville L. Wolfrom. Sugar Res. Foundation, New York, 1953. 24 pp.
- Bollworm and Tobacco Budworm as Cotton Pests in Louisiana and Arkansas.** La. Tech. Bull. No. 482. James R. Brazzel *et al.* La. Agricultural Expt. Station and Ark. Agricultural Expt. Station, Fayetteville, Ark., 1953. 47 pp. Illus.
- Origin, Development, and Structure of Important Vegetable Fibres.** Proc. 41st Indian Sci. Congress. Hyderabad-Deccan, 1954, Pt. II B. C. Kundu. Indian Sci. Congress Assoc., Calcutta 16. 21 pp.
- Proceedings of the Symposium on the Biochemical and Structural Basis of Morphogenesis.** Utrecht, 27-29 Aug. 1952. E. J. Brill, Leiden, Netherlands, 1953. 176 pp. Illus.
- East African Medical Survey Annual Report 1952.** No. 4. 107 pp. **Filariasis Research Annual Report 1952.** No. 4. 39 pp. East Africa High Commission, Nairobi, 1953.
- Proceedings of the First Japan National Congress for Applied Mechanics, 1951.** 1952. 650 pp. Illus. **Proceedings of the Second Japan National Congress for Applied Mechanics, 1952.** 1953. 377 pp. Illus. Japan Natl. Committee for Theoretical and Applied Mechanics, Tokyo.
- Report on Cetacea Stranded on the British Coasts from 1930 to 1947.** No. 13. F. C. Fraser. 48 pp. Illus. 12s. 6d. **The Pelagic Tunicata.** John Murray expedition 1933-34, vol. X, No. 1. R. B. Seymour Sewell. 90 pp. Illus. + plate. £1. **Notes on Podostemaceae for the Revision of the Flora of West Tropical Africa.** Botany, vol. I, No. 3. G. Taylor. 28 pp. Illus. 10s. **Carbonatites of the Chilwa Series of Southern Nyasaland.** Mineralogy, vol. I, No. 4. W. Campbell Smith. 25 pp. Illus. + plate. 8s. British Museum (Natural History), London, 1953.
- Careers in Photography.** C. B. Neblette. Rochester Inst. of Technology, Rochester, N.Y., 1954. 28 pp. Illus. Free.
- Bibliographie des Articles Parus dans Les Periodiques Turcs** (In Turkish and French). L'Institut National Ture de Bibliographie, Istanbul, 1952. 138 pp.
- Social Science Research Council Annual Report 1952-1953.** Social Sci. Res. Council, New York 17. 78 pp.
- A Climatological and Astronomical Interpretation of the Ice Ages and of the Past Variations of Terrestrial Climate.** Contrib. from the Armagh Observatory, No. 9. E. J. Öpik. Armagh Observatory, Armagh, North Ireland, 1953. 79 pp. Illus. 10s. 6d.
- First Report on the Geographical and Geological Distribution of Carcinoma in the Netherlands.** vol. I. J. C. Diehl and S. W. Tromp. Foundation for the Study of Psycho-Physics, Leiden, Netherlands, 1953. 120 pp. + plates. \$2.10.
- Trends in Economic Activity and Transportation in San Francisco Bay Area,** pt. 5 of *Parking as a Factor in Business.* David A. Revzan. 1953. 160 pp. Illus. \$2.10.
- Engineering Applications of Soil Surveying and Mapping.** Highway Res. Bd. Bull. 83. 1953. 73 pp. Illus. \$1.05. **Experiments in Extension Programs for County Highway Engineers.** Highway Res. Bd. Bull. 85. 1953. 15 pp. Illus. 30¢. **Culvert Hydraulics.** Highway Res. Bd. Res. Rpt. 15-B. 1953. 71 pp. Illus. \$1.05. **Automobile Parking in the U.S.** Highway Res. Bd. Bibliog. 14. 1953. 119 pp. \$1.35. **Mechanization of Roadside Operations.** Highway Res. Bd. Spec. Rpt. 16. 37 pp. Illus. 60¢. 1953. **The Washo Road Test,** Pt. 1. Design, construction, and testing procedures. Highway Res. Bd. Spec. Rpt. 18. 1954. 121 pp. Illus. \$2.25. Natl. Acad. of Sciences-Natl. Res. Council, Washington 25.
- Indo-Pacific Fisheries Council Proceedings.** 4th meeting, Quezon City, Philippines, 23 Oct.-7 Nov. 1952. Sec. II. 174 pp. Illus. **Fish-Culture in Indonesia.** Seminar held in Indonesia, 11 Apr.-23 May 1951. Spec. Publ. No. 2. 129 pp. Illus. **List of Scientific and Other Periodicals Published in the Indo-Pacific Area.** ed. 2. 50 pp. Food and Agriculture Organization of the UN, Bangkok, Thailand, 1953.
- Magnetic Fields of Cylindrical Coils and Annular Coils.** Natl. Bur. of Standards Applied Math. Ser. 38. Chester Snow. 1953. 29 pp. 25¢. **Protection against Betatron-Synchrotron Radiations up to 100 Million Electron Volts.** Natl. Bur. of Standards Handbook 55. 1954. 52 pp. Illus. 25¢. **Table of Secants and Cosecants to Nine Significant Figures at Hundredths of a Degree.** Natl. Bur. of Standards Applied Math. Ser. 40. 1954. 46 pp. 35¢. (Order from Supt. of Documents, GPO, Washington 25.)
- Discrete Sources of Extra-terrestrial Radio Noise.** Spec. Rpt. No. 3. International Scientific Radio Union, Brussels, Belgium, 1954. 56 pp. Illus. \$1.50.
- Poliomyelitis Current Literature.** A periodical annotated list. vol. 8, No. 2. 19 pp. **Poliomyelitis Current Literature.** vol. 8, No. 3. 20 pp. Natl. Foundation for Infantile Paralysis, New York, 1954.
- Program of African Studies** (The first five years, 1949-1953). Northwestern Univ., Evanston, Ill. 31 pp.
- Mineral Nutrient Immobilization under Forest and Grass Fallow in the Yangambi (Belgian Congo) Region.** Série Scientifique No. 57. W. V. Bartholomew, J. Meyer, and H. Laudelout. 27 pp. 30 fr. **L'Alimentation Minérale du Cacaoyer.** No. 58 (In French). Marcel V. Homès. 128 pp. 125 fr. L'Institut National pour l'Etude Agronomique du Congo Belge, Bruxelles, 1953.
- Staff Papers Presented to the Commission on Foreign Economic Policy.** Commission on Foreign Economic Policy, Washington 25, 1954. 531 pp. Illus. \$1.75.