

marks on the problem of motions in a rotating fluid." D. Fultz (pp. 27-63) gives "A survey of certain thermally and mechanically driven fluid systems of meteorological interest," including experiments to aid study of polar fronts and geostrophic motions.

H. L. Kuo's paper, "On convective instability of a rotating fluid" (pp. 65-72), discusses symmetric convection in a thin layer of an almost incompressible fluid contained in a cylindrical vessel. A paper by E. N. Lorenz on "A proposed explanation for the existence of two regimes of flow in a rotating symmetrically-heated cylindrical vessel" (pp. 73-80) and one by M. J. Rubin on "Results of recent observational studies of the southern hemisphere circulation" (pp. 81-87) are intended as bases for future model investigation. In a chiefly theoretical paper G. S. Benton (pp. 149-162) gives "A general solution for the celerity of long gravitational waves in a stratified fluid."

Small-scale phenomena are discussed by C. S. Yih (pp. 117-133), with experimental results on "Free convection due to boundary sources" and by R. R. Long (pp. 135-147) in "Models of small-scale atmospheric phenomena involving density stratification," including flow over a barrier. W. S. von Arx (pp. 89-99) discusses, in "Some techniques for laboratory study of the primary ocean circulation," model experiments to investigate the vorticity theory of the circulation in a realistically shaped ocean, the exchange of water between the North Atlantic Ocean and the Arctic Ocean, and the Gulf Stream system. R. Hide (pp. 101-116), in "Fluid motion in the earth's core and some experiments on thermal convection in a rotating liquid," describes experiments suggested by S. K. Runcorn to study motions which possibly occur in the liquid core of the earth and could produce the earth's magnetic field.

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Gmelins Handbuch der Anorganischen Chemie. vol. 44. **Thorium and Isotopes.** Edited by Gmelin Institute under the direction of E. H. E. Pietsch. Verlag Chemie, GmbH, Weinheim, Bergstrasse, ed. 8, 1955. 406 pp. Illus. \$55.68.

This volume on thorium and its isotopes supersedes the chapter on thorium in the 7th edition, which was published in 1928. Whereas that chapter was prepared by one author, the present work is the result of the combined effort of some 14 or more coworkers. The new text is about three times the length of the older one. The whole chapter has been com-

pletely rewritten and covers the literature to 1949 and, in certain instances, to 1954.

Discussion of the extraction of thorium from its ores, of the reactions whereby thorium is separated from other elements, of the preparation of metallic thorium in different forms, and of the preparation of thorium compounds is given in much more detail than formerly.

An outstanding feature of this newer version is the inclusion of the mass of information that was obtained during World War II and that has been obtained since World War II concerning the nuclear chemistry and physics of thorium and its isotopes. The addition of this material greatly enhances the value of the treatise.

Prepared with the painstaking care and thoroughness characteristic of the modern Gmelin series, this volume on thorium comprises a comprehensive account of the element, its isotopes, and its compounds.

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Advances in Catalysis and Related Subjects. Vol. VII. W. G. Frankenburg, V. I. Komarevsky, E. K. Rideal, Eds. Academic Press, New York, 1955. xi + 362 pp. \$9.

It becomes increasingly clear that heterogeneous catalysis mechanisms are dominated by the electronic factor and the effect of defect solid structures. Modern workers have given much attention to these complex matters, and the present volume in this excellent series strongly reflects this situation.

Volume 7 begins with "The electronic factor in heterogeneous catalysis" by M. McD. Baker and G. I. Jenkins, which presents an excellent review of solid-state theory of metals and semiconductors as it pertains to catalysis. Chemisorption and catalysis on semiconductors is continued through three further contributions: "Chemisorption and catalysis on oxide semiconductors" by G. Parravano and M. Boudart, "The application of the theory of semiconductors to problems of heterogeneous catalysis" by K. Hauffe, and "Surface barrier effects in adsorption, illustrated by zinc oxide" by S. Roy Morrison. Further contributions stressing metals are: "Field emission microscopy and some applications to catalysis and chemisorption" by Robert Gomer, "Adsorption on metals and its bearing on catalysis" by J. A. Becker, and "Electronic interaction between metallic catalysts and chemisorbed molecules by R. Suhrmann. These chapters are intermixed with the first group. In between, E. Cremer discusses his "Compensation effect in het-

erogeneous catalysis," which concerns the often prevalent case of simultaneous increase of entropy of activation and heat of activation as the catalytic conditions are changed.

All of these contributions are uniformly good, and the text is well printed and mostly free from errors. As a reviewer of a previous volume indicated, it would be helpful if each volume were restricted to a definite specialty. At least, the arrangement could be improved, and some duplication between authors could be prevented.

Komarevsky eulogizes N. D. Zelinsky and his work in the beginning of the book.

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New Books

Sodium, Its Manufacture, Properties and Uses. Marshall Sittig. With a chapter on "The physical and thermodynamic properties of sodium" by George Wm. Thomson and Edward Gareis. Reinhold, New York; Chapman & Hall, London, 1956. 529 pp. \$12.50.

The Rain Forests of Golfo Dulce. Paul H. Allen. University of Florida Press, Gainesville, 1956. 417 pp. \$8.50.

The Diné: Origin Myths of the Navaho Indians. Smithsonian Institution Bureau of American Ethnology Bull. 163. Aileen O'Bryan. U.S. Government Printing Office, Washington 25, 1956. 187 pp. \$1.75.

The Blue Book of Awards. A compilation of major prizes, medals, honors and distinctions, including significant graduate scholarships and fellowships, open to citizens of the United States and Canada; indexed by donors and classified by fields. Herbert Brooks, Ed. Marquis—Who's Who, Chicago, Ill., 1956. 186 pp.

Man's Role in Changing the Face of the Earth. William L. Thomas, Jr. University of Chicago, Chicago, Ill. 1956. 1193 pp. \$12.50.

The Structure of Wood. F. W. Jane. Macmillan, New York, 1956. 427 pp. \$9.50.

In Search of Adam. The story of man's quest for the truth about his earliest ancestors. Herbert Wendt. Trans. by James Cleugh. Houghton Mifflin, Boston, Mass., 1956. 540 pp. \$6.50.

Dead Towns and Living Men. Leonard Woolley. Philosophical Library, New York, 1956. 220 pp. \$6.

Mandl's Television Servicing. Matthew Mandl. Macmillan, New York, rev. ed., 1956. 460 pp. \$6.50.

Protozoologie. Karl G. Grell. Springer, Berlin, 1956. 284 pp. DM. 59.

Chazyan and Related Brachiopods. pt. 1, text; pt. 2, plates. G. Arthur Cooper. Smithsonian Institution, Washington, 1956. 1263 pp. 269 plates.

Linear Transient Analysis. vol. II, *Two-Terminal-Pairs Networks Transmission Lines.* Ernst Weber. Wiley, New York; Chapman & Hall, London, 1956. 452 pp. \$10.50.

A Study of Thinking. Jerome S. Bruner, Jacqueline J. Goodnow, George A. Austin. Wiley, New York; Chapman & Hall, London, 1956. 330 pp. \$5.50.

Hurricanes. Their nature and history, particularly those of the West Indies and the Southern coasts of the United States. Ivan Ray Tannehill. Princeton University Press, Princeton, N.J., ed. 9, 1956. 308 pp. \$4.50.

Physics, Psychology and Medicine. A methodological essay. J. H. Woodger. Cambridge University Press, New York, 1956. 146 pp. \$1.75.

The Zoological Record. vol. 90. Records of zoological literature relating chiefly to the year 1953. G. Burder Stratton, Ed. Zoological Soc. of London, London, 1956. 19 sections. 1750 pp.

The Potentials about a Point Electrode and Apparent Resistivity Curves for a Two-, Three-, and Four-Layer Earth. Harold M. Mooney and W. W. Wetzel. University of Minnesota Press, Minneapolis, 1956. 146 pp. + graphs. Text, \$4.50; complete set, \$18.

Reading Improvement for Adults. Paul D. Leedy. McGraw-Hill, New York, 1956. 465 pp. \$5.95.

Minimum Weight Analysis of Compression Structures. George Gerard. New York University Press, New York, 1956 (distributed by Interscience). 194 pp. \$6.

Electric Circuit Theory and Operational Calculus. John R. Carson. Chelsea, New York, ed. 2, 1953. 197 pp. Paper, \$1.88.

The Theory of Groups. vols. I and II. A. G. Kurosh. Trans. from the Russian and edited by K. A. Hirsch. Chelsea, New York, 1955. 272 pp.; 308 pp. \$4.95 each.

Diseases of Fruit Crops. Harry W. Anderson. McGraw-Hill, New York, 1956. 501 pp. \$8.50.

White Collar. The American middle classes. C. Wright Mills. Oxford University Press, New York, 1956 (reprint of 1951 ed.). 377 pp. Paper, \$1.75.

Proceedings of the Third Berkeley Symposium on Mathematical Statistics and Probability. Held at the Statistical Laboratory, University of California, December 1954. July and August 1955. vol. IV, *Contributions to Biology and Problems of Health.* Jerzy Neyman, Ed. University of California Press, Berkeley, 1956. 179 pp. \$5.75.

Proceedings of the Third Berkeley Symposium on Mathematical Statistics and Probability. Held at the Statistical Laboratory, University of California, December 1954. July and August 1955. vol. V, *Contributions to Econometrics, Industrial Research, and Psychometry.* Jerzy Neyman, Ed. University of California Press, Berkeley, 1956. 184 pp. \$5.75.

Weather Analysis and Forecasting. vol. II, *Weather and Weather Systems.* Sverre Pettersen. McGraw-Hill, New York, ed. 2, 1956. 266 pp. \$6.

Chemical Engineering Kinetics. J. M. Smith. McGraw-Hill, New York, 1956. 402 pp. \$8.

Minerals and the Microscope. H. G. Smith. Revised by M. K. Wells. Macmillan, New York, rev. ed., 1956. 148 pp. \$3.

Fertilization. Lord Rothschild. Methuen, London; Wiley, New York, 1956. 170 pp. \$3.50.

Transport and Accumulation in Biological Systems. E. J. Harris. Academic Press, New York; Butterworths, London, 1956. 291 pp. \$7.80.

Evolution and Classification of the Mountain Caddisflies. Herbert H. Ro's. University of Illinois Press, Urbana, 1956. 213 pp. \$6.

Civil Air Regulations and Flight Standards for Pilots. Associated Aeronautical Staff. AERO, Los Angeles 26, Calif., 1956. 138 pp. \$2.

Common Exotic Trees of South Florida (Dicotyledons). Mary Franklin Barrett. University of Florida Press, Gainesville, 1956. 414 pp. \$8.50.

The Menninger Story. Walker Winslow. Doubleday, Garden City, N.Y., 1956. 350 pp. \$5.

Measurements of Mind and Matter. G. W. Scott Blair. Philosophical Library, New York, 1956. 115 pp. \$4.50.

Photosynthesis and Related Processes. vol. II, pt. 2, *Kinetics of Photosynthesis.* Eugene I. Rabinowitch. Interscience, New York, 1956. 877 pp. \$18.50.

California and the Southwest. Clifford M. Zierer, Ed. Wiley, New York; Chapman & Hall, 1956. 376 pp. \$11.25.

Wheat-Climate Relationships and the Use of Phenology in Ascertaining the Thermal and Photo-Thermal Requirements of Wheat. Based on data of North America and of some thermally analogous areas of North America in the Soviet Union and Finland. M. Y. Nuttonson. American Institute of Crop Ecology, Washington, 1956. 388 pp.

Immigrants and Their Children, 1850-1950. E. P. Hutchinson for the Social Science Research Council in cooperation with the Bureau of the Census. Wiley, New York; Chapman & Hall, London, 1956. 391 pp. \$6.50.

An Introduction to Scientific German. J. Henry Wild. Oxford University Press, New York, ed. 2, 1956. 177 pp.

Nuclear Explosions and Their Effects. Foreword by Jawaharlal Nehru. Publications Division, Ministry of Information & Broadcasting, Govt. of India, Delhi, 1956. 184 pp. \$2.

The American Experiences of Swedish Students. Retrospect and aftermath. Franklin D. Scott. University of Minnesota Press, Minneapolis, 1956. 129 pp. \$3.

Cryptanalysis. A study of ciphers and their solution (formerly *Elementary Cryptanalysis*). Helen Fouché Gaines. Dover, New York, 1956. Paper, \$1.95.

Elementary Crystallography. M. J. Buerger. Wiley, New York; Chapman & Hall, London, 1956. 528 pp. \$8.75.

Exploring the Deep Pacific. Helen Raitt. Norton, New York, 1956. 272 pp. \$3.75.

The Chemistry and Technology of Waxes. Albin H. Warth. Reinhold, New York and Chapman & Hall, London, ed. 2, 1956. 940 pp. \$18.

Polysaccharides in Biology. Trans. of the First Conf. 27-29 April 1955, Princeton, N.J., Georg F. Springer, Ed. 271 pp. \$5. *Neuropharmacology.* Trans. of the Second Conf. 25-27 May 1955, Princeton, N.J. Harold A. Abramson, Ed. 328 pp. \$4.25. Josiah Macy, Jr. Foundation, New York, 1956.

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Morris. University of Chicago Press, Chicago, Ill., 1956. 209 pp. \$5.

Valency and Molecular Structure. E. Cartmell and G. W. A. Fowles. Academic Press, New York; Butterworths, London, 1956. 256 pp. \$5.80.

The Generation of Electricity by Wind Power. E. W. Golding. Philosophical Library, New York, 1956. 318 pp. \$12.

Muscle Testing. Techniques of manual examination. Lucille Daniels, Marian Williams, Catherine Worthingham. Saunders, Philadelphia, ed. 2, 1956. 176 pp.

Plants in Action. A laboratory manual of plant physiology. Leonard Machlis and John G. Torrey. Freeman, San Francisco, 1956. 282 pp.

Vom Unbelebten zum Lebendigen. Eine Ringvorlesung an der Universität Munster (Westf.) Enke, Stuttgart, Germany, 1956. 273 pp.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, but to the publisher or sponsoring agency.)

South African Council for Scientific and Industrial Development, Tenth Annual Report, 1954-1955. The Council, Pretoria, Union of South Africa, 1956. 169 pp.

Marine Pleistocene Invertebrates from Near Puerto Penasco, Sonora, Mexico. Transactions of the San Diego Society of Natural History, vol. XII, No. 8. Leo G. Hertlein and William K. Emerson. 23 pp. *Upper Pleistocene Mollusca from Potrero Canyon, Pacific Palisades, California.* vol. XII, No. 10. James W. Valentine. 25 pp. San Diego Society of Natural History, San Diego, Calif., 1956.

Food Hygiene, Fourth Report of the Expert Committee on Environmental Sanitation. WHO Tech. Ser., No. 104. 28 pp. \$0.30. *Expert Committee on Trachoma, Second Report.* WHO Tech. Rept. Ser., No. 106. 20 pp. \$0.30. *Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel, Third Report.* WHO Tech. Rept. Ser., No. 109. 19 pp. \$0.30. World Health Organization, Geneva, 1956.

The Chemistry and Vertical Distribution of the Oxides of Nitrogen in the Atmosphere. Geophysical Research Papers No. 39. Lewis E. Miller. 1954. 135 pp. *Methods and Results of Upper Atmosphere Research.* Geophysical Research Papers No. 43. J. Kaplan, G. F. Schilling, H. K. Kallmann. 1955. 162 pp. *Results of Numerical Forecasting with the Barotropic and Thermotropic Atmospheric Models.* Geophysical Research Papers No. 46. W. Lawrence Gates, Leon S. Pocinki, Carl F. Jenkins. 1955. 105 pp. *A Review of Charge Transfer Processes in Gases.* Geophysical Research Papers No. 48. S. N. Ghosh, W. F. Sheridan, J. A. Dillon, Jr., H. D. Edwards. 1955. 17 pp. Geophysics Research Directorate, Air Force Cambridge Research Center, Bedford, Mass. (order from U.S. Department of Commerce, Office of Technical Education, Washington 25).