

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.

B. GUTENBERG

Seismological Laboratory,
California Institute of Technology

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.

RALEIGH GILCHRIST

National Bureau of Standards

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.

A. C. ZETTMAYER

Chemistry Department,
Lehigh University

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.