

p., paper, 40 cents. Report of a special study made by the School of Business, Indiana University.

FRESH-WATER LIMESTONE FROM THE TOROLA VALLEY, NORTHEASTERN EL SALVADOR—Sharat Kumar Roy and Robert Kriss Wyant—*Chicago Natural History Museum*, Fieldiana—Geology, Volume 10, Number 16, 19 p., illus., paper, 50 cents.

THE GEOLOGY OF CHACO CANYON, NEW MEXICO IN RELATION TO THE LIFE AND REMAINS OF THE PREHISTORIC PEOPLES OF PUEBLO BONITO—Kirk Bryan—*Smithsonian*, Miscellaneous Collections, Volume 122, Number 7, 65 p., illus., paper, 90 cents. Shows that the canyon went through a cycle of cutting and refilling three times. Evidence indicates that the residents of Pueblo Bonito practiced floodwater farming and abandoned the site when cutting of the arroyo put an end to this type of farming.

GEOLOGY OF THE GRIFFITH PARK AREA LOS ANGELES COUNTY, CALIFORNIA—George J. Neuerburg—*California Division of Mines*, Special Report 33, 29 p., illus., paper, 50 cents. The site of this study is the largest municipal park in the world, and it is there that Griffith Observatory is located.

INDUSTRIAL FERMENTATIONS: Volume I—Leland A. Underkofler and Richard J. Hickey—*Chemical Publishing Company*, 565 p., illus., \$12.00. Fermentations are among the oldest chemical processes used by mankind, but it is only in the present century that they have been put on a scientific basis. This symposium presents an authoritative review of recent advances.

INTERTIDAL INVERTEBRATES OF THE CENTRAL CALIFORNIA COAST: S. F. Light's Laboratory and Field Text in Invertebrate Zoology—Revised by Ralph I. Smith and others—*University of California Press*, 446 p., illus., \$5.00. At the time of Prof. Light's death, the first edition of this manual was practically out of print and only a small amount of the work of revision had been carried out by the author. It has now been completely revised.

AN INTRODUCTION TO JOURNALISM: A Survey of the Fourth Estate in All Its Forms—F. Fraser Bond—*Macmillan*, 358 p., illus., \$4.50. A text book for general beginning courses in journalism.

THE MACMILLAN WILD FLOWER BOOK—Descriptive text by Clarence J. Hylander, illustrations by Edith Farrington Johnston—*Macmillan*, 480 p., illus., \$15.00. A profusion of 4- to 6-color plates makes this a beautiful book as well as a useful guide to wild flowers.

THE MIND AND THE EYE: A Study of the Biologist's Standpoint—Agnis Arber—*Cambridge University Press*, 146 p., \$3.00. Presenting a botanist's approach to his own subject and to philosophy.

THE MONKEY BOOK—Ernest P. Walker—*Macmillan*, 153 p., illus., \$6.50. Bringing together the answers to the questions most frequently asked about the care and handling of this delicate pet.

THE NATURAL HISTORY OF MAMMALS—Francois Bourliere—*Knopf*, 363 p., illus., \$5.00. A readable account of the interesting habits and ecology of wild mammals.

NATURE AND THE GREEKS—Erwin Schroedinger—*Cambridge University Press*, 96 p., \$2.00. "By the serious attempt to put ourselves back into the intellectual situation of the ancient thinkers, far less experienced as regards the actual behaviour of nature, but also very often much less biased," explains the Nobelist author, "we may regain from them their freedom of thought—albeit possibly in order to use it, aided by our superior knowledge of facts, for correcting early mistakes."

PUBLIC EXPENDITURE ON EDUCATION: A Preliminary Statistical Report—Department of Social Science, UNESCO—*Education Clearing House, UNESCO*, 129 p., paper, free upon request direct to publisher, 19, Avenue Kleber, Paris XVI, France.

RAT QUALITY A CONSIDERATION OF HEREDITY, DIET AND DISEASE: Proceedings of the Symposium Held at Columbia University, College of Physicians and Surgeons, New York, N. Y., January 31, 1952—W. E. Heston and others—*National Vitamin Foundation*, 138 p., illus., paper, \$2.50. Despite the complexity of the rat as a laboratory instrument, some investigators have failed to pay much attention to its standardization.

SOME MAMMALS OF YEMEN AND THEIR ECTOPARASITES—Colin Campbell Sanborn and Harry Hoogstraal—*Chicago Natural History Museum*, Fieldiana—Zoology, Volume 34, Number 23, 24 p., paper, 35 cents.

SUPPLEMENT TO INSECT ENEMIES OF EASTERN FORESTS (MISCELLANEOUS PUBLICATION 657): Index to Insects by Host Plants—J. V. Schaffner, Jr.—*Govt. Printing Office*, 29 p., paper, 15 cents. Intended to enable foresters and others not trained in entomology to identify an insect that is causing damage to a particular kind of tree or shrub.

TOXICITY OF INDUSTRIAL ORGANIC SOLVENTS: Revised in Consultation With the Toxicology Committee—Ethel Browning—*Chemical Publishing Company*, rev. American ed., 411 p., \$8.00. Important to those concerned with the health and safety of industrial workers.

A TREASURY OF SCIENCE—Harlow Shapley, Samuel Rapport and Helen Wright, Eds.—*Harper*, 3d rev. ed., 724 p., \$5.95. In this new edition, the atom is removed from a supplement and integrated into the main part of the book. A new section is added on Science and the Future.

TUNGSTEN DEPOSITS OF MADERA, FRESNO AND TULARE COUNTIES, CALIFORNIA—Konrad B. Krauskopf—*California Division of Mines*, Special Report 35, 83 p., illus., paper, \$1.25. The surface exposures have been well prospected and most of the accessible deposits have been exploited.

ZEIN: An Annotated Bibliography 1891-1953—Dorothy M. Rathmann—*Mellon Institute*, 118 p., paper, free upon request direct to publisher 4400 Fifth Ave., Pittsburgh 13, Pa. Since it became commercially available in 1944, interest has been increasing in this alcohol-soluble protein from corn with its ever-widening industrial uses. Here are listed 942 citations.

Science News Letter, February 20, 1954

MYCOLOGY

Soil Fungus Produces Nitrate From Nitrogen

► A SOIL fungus that can produce nitrate nitrogen from organic nitrogen has been found by Dr. Edwin L. Schmidt of the University of Minnesota.

Since around 1890, scientists have attributed the formation of nitrates in the soil to a few kinds of highly specific soil bacteria that oxidize ammonium nitrogen to nitrate in a two-step process.

Nitrogen is fundamental in the production of protein by plants. Most plants cannot use pure nitrogen, and need it fixed in some other form as nitrates, nitrites or ammonia.

Dr. Schmidt's work, reported in *Science* (Feb. 5), is the first indication that fungi may participate in the nitrification process. Most such organisms stop with the production of nitrite nitrogen, one step below nitrate.

The fungus is *Aspergillus flavus*, a common soil organism. Dr. Schmidt grew the fungus in a liquid culture medium containing organic nitrogen. No observation that the fungus will produce nitrates in soil has been made. He said that studies are now underway to determine the abundance of nitrifying fungi in the soil.

Science News Letter, February 20, 1954

The farmer's share of the consumer's food dollar in 1953 averaged about 45 cents, about two cents less than in 1952.

Citrus fruits, important crops in Florida, California and Texas, are native to Asia.

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