

With the increasing independence of the fishes came also greater freedom of movement. They cast away their armor, and became free swimmers rather than mere sluggish lurkers on the dangerous bottom where the eurypterids crawled. This freedom of movement, with agility and speed the main dependence for both escape from enemies and capture of food, may have been one of the factors that started the evolution of the front end of the central nervous system into a real brain and the development of intelligence.

Prof. Romer cautions that he does not necessarily consider the perilous association of the first fishes with the hungry eurypterids as the only, or even the principal, factor in the subsequent evolution of backboned animals. Nevertheless he does think that this association played an important part in the early stages of vertebrate history.

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OCEANOGRAPHY

Swedish Oceanographer Studies Submarine Waves

GREAT wavelike disturbances far beneath the surface of the sea, that never show themselves at the top, are being studied by a noted Swedish oceanographer, Prof. Otto Pettersson. He first noticed them while he was getting data on the salt content of the waters in the Kattegat, outlet strait between the Baltic and North seas. He found that the boundary between the salt water at the bottom and the fresher Baltic water at the surface was subject to great wave-like undulations, as much as two or three yards, although the tide changes at the surface were measurable in mere inches. Since his Kattegat observations, Prof. Pettersson has found even greater submarine or internal waves, especially in partially landlocked waters. In Gullmar fjord, at the western end of the Skagerrak, they reach a height of over thirty yards.

Prof. Pettersson has found a twelve and a half hour cycle in these submarine wave movements, and also other cycles corresponding to various lunar periods. He has advanced the hypothesis that these internal waves depend on the vertical component of the moon's tide-producing force. Not all oceanographers are in agreement with him on this point, and the discussion of the cause of these internal waves is still in lively progress in scientific circles.

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• First Glances at New Books

Additional Reviews on Page 320

History of Science

CHARLES DARWIN'S DIARY OF THE VOYAGE OF H.M.S. "BEAGLE"—Edited by Nora Barlow—*Macmillan*, xxx+451 p., 2 folded maps, \$6.50. One of the most famous and epoch-making voyages in the whole history of science, told by the man through whom it was instrumental in revolutionizing modern biology, checked back to his original manuscript by a careful and scholarly editor. Even those fortunates who can boast a first edition of the "Beagle" Diary should have this new book on hand for purposes of comparison; for the rest of the biological world it is practically a necessity.

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Herpetology

REPTILES OF THE WORLD—Raymond L. Ditmars—*Macmillan*, xx+321 p., 89 pl., \$5. This new and revised edition of Dr. Ditmars' well-known book has been necessitated primarily through changes in nomenclature; the facts he told us when his book first came out are still so, though there have naturally been some additions to incorporate into the new text. Herpetologists, and zoologists generally, will welcome the new edition.

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Education—Psychology

THE SOCIAL BELIEFS AND ATTITUDES OF AMERICAN SCHOOL BOARD MEMBERS—Claude E. Arnett—*Emporia Gazette Press*, 235 p., \$1.75. The findings suggest that "board members are probably far more interested in instilling in the youth of the land the social inheritance of the past than they are in making any serious attempt to prepare them to meet intelligently and tolerantly the complex problems of the future." The study was made possible by the Commission on the Investigation of the Social Studies in the Schools.

Science News Letter, November 11, 1933

Archaeology—Geology

PALEOLITHIC MAN AND THE NILE VALLEY IN NUBIA AND UPPER EGYPT—K. S. Sandford and W. J. Arkell—*Univ. of Chicago Press*, 92 p., 43 pl., \$6. This is Volume II of the Oriental Institute's report on its prehistoric survey of Egypt and Western Asia. Stone implements left by Old Stone Age men along the Nile and later embedded

in the banks have been carefully studied in relation to their geologic background by the expedition. The region discussed in this volume is the 350 miles from Semnah to Luxor. Some rock drawings, perhaps the oldest found in the Nile Valley, are described.

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Botany—Zoology

PLANTS AND ANIMALS—Edited by Deette Rolf—*Holt*, 560 p., \$6. From Aardvark to Zinnia, this book, which is Vol. IV of Champlin's Young Folks Cyclopedia, describes thousands of animals and plants, with hundreds of good halftone illustrations. An excellent volume for the school library, or for the home bookshelf if there are growing children about.

Science News Letter, November 11, 1933

Nutrition

WHAT SHALL I EAT?—Edith M. Barber—*Macmillan*, 106 p., \$1.75. A practical and amusing discussion of a universal problem.

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Psychology

PSYCHO-ANALYSIS AND ITS DERIVATIVES—H. Crichton-Miller—*Holt*, 256 p., \$1.25. The work and theories of Freud, Jung, Adler, and Prinzhorn discussed and compared by the director of an organization where psychotherapists of all the schools are putting their theories to the daily test of practice. Although a pocket-size volume, it is printed in unusually large and readable type.

Science News Letter, November 11, 1933

Horticulture

ORNAMENTAL TREES—Harold Mowry—*Agric. Exp. Sta., Gainesville, Fla.*, 136 p., free. Descriptions, well illustrated, of the principal ornamentals of value in Florida and elsewhere in the Gulf Coast region, both native and introduced. Of value both to home owners and nurserymen.

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Agricultural Economics

FARMERS' COOPERATIVE ASSOCIATIONS IN FLORIDA. II. ORGANIZATION AND MANAGEMENT—M. A. Brooker and H. G. Hamilton—*Agr. Exp. Sta., Gainesville, Fla.*, 100 p., free.

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