tain species-groups of littoral crustaceans that straddle the gap between water and air, we find a progressive reduction of gill volume in the same direction. In his chapter of nearly fifty pages on "changes," from which these examples are drawn, Professor Pearse presents a masterly review of many orders of animals under such headings as integument, respiration, body fluids, metabolism, locomotion, nervous system, excretion, reproduction, food and digestive organs, acclimatization and parasites.

It is very unfortunate that the editorial plane of a work of such consummate scholarship should be so far below its scientific standard. The reviewer has checked three or four times as many typographic errors as the 13 listed on the errata slip, and there is a bewildering discrepancy between the spelling of authors' names in text and bibliography, from the latter of which, by the way, at least a dozen authorities referred to by name and date are omitted altogether. Occasionally a misprint, as near the top of p. 115, has resulted in a meaningless sentence, and it is likely that one or more apparent errors of fact are in reality misprints. For example, the substitution of "common eel" for "conger eel" on p. 9 would make a false statement true. A few other factual details are open to question, such as the allegations that most species of salmon die after spawning and that the usual winter range of highly migratory birds is selected because of "more desirable" attributes. For the sanderling, New Jersey furnishes a no less optimum winter range than Patagonia, even though many more birds migrate to the latter than remain in the former.

The book lends weight to the tenet that the body fluids of the higher animals are still substantially isotonic with the primordial sea; that the migration from saline water to fresh and from the latter to air has been fought out against a steep respiratory gradient, and that "a film of aqueous liquid" has been carried throughout the course of evolution as the only respiratory medium. As a whole, the text, which is admirably lucid, serves up a concentrated "intellectual pemmican," with a challenge to further thought on every page, and with a capable summary, as well as a key to more detailed sources, in almost every paragraph.

ROBERT CUSHMAN MURPHY
AMERICAN MUSEUM OF NATURAL HISTORY

## NORTH AMERICAN FOSSILS

*Type Invertebrate Fossils of North America (Devonian), Unit 7b, Ammonoidea.* By A. K. MILLER. Wagner Free Institute of Science, Philadelphia, 1936, 50 cards, 8″ × 11½″. $2.50, plus postage.

THE Paleontological Society and the Wagner Free Institute of Science have begun the publication of a great card catalog of the fossil invertebrates of North America. With this first unit of 50 cards they have set out to carry through one of the most ambitious programs of research and publication ever undertaken by students of the life of the past. If the paleontologists of North America can keep the future units of their catalog up to the high standard of the first one, their work will rank as a classic and they will have erected a milestone on the highroad of progress of their science.

The program calls for the preparation, by the specialists most competent to do the work, of cards for every species of North American fossil invertebrate, such cards to bear figures of the holotypes or cotypes of the species involved and condensed information about their distinctive characters, original places of description, type localities and occurrences and the locations of type specimens. The first unit, which is made up of the cards for the 50 species of Devonian Ammonoidea which have been described from this continent, was prepared by Professor Arthur K. Miller, of the University of Iowa. The cards for other groups of Devonian invertebrates are being prepared by American and Canadian specialists and will be issued as rapidly as they are completed.

These cards are not to be mere scissors and paste compilations of previously published facts and figures. They are to carry many new and better illustrations of type specimens and previously unpublished information. Aided by grants from the Geological Society of America and the Wagner Free Institute of Science, Professor Miller was able to visit the museums where the type specimens of North American Devonian ammonoids are preserved and study and photograph them. The cards bear eloquent testimony to the thoroughness of his work and the care with which he prepared them.

This portion of the catalog will prove an invaluable tool for students of Devonian fossils, not only in North America, but throughout the world. Accurate, up-to-date, beautifully printed and easy to use, it should both inspire those who use it to better work and help to make that better work possible. The conception of such a monumental undertaking proved that North American paleontologists have vision and enterprise: the quality of its first published unit proves that they have the skill and the determination to carry out their program successfully.

B. F. HOWELL

## A BOOK OF WONDER PLANTS

*Illustrations of North American Pitcherplants.* By MARY VAUX WALCOTT. Published by the Smithsonian Institution, Washington, D. C., 1935. Quarto. Price $25.00.

FROM the earliest times the pitcherplants, conspicuous, strange and beautiful among the wild flowers of America, have excited the wonder and admiration of those who knew them. With their water-holding leaves and their evident equipment for attracting, trapping, holding and killing insects, they have always stimulated human curiosity. To the older interest has now been added the knowledge that some, at least, of the species digest the insects they have caught and utilize the product for the plant's own nourishment. Mrs. Walcott now publishes fifteen full-page colored illustrations covering all the known North American species, each with a descriptive text, and to this have been added maps and text by Dr. Edgar T. Wherry, showing the geographic distribution of the species, and a description, by Dr. Frank Morton Jones, of the marvelous interrelationship between pitcherplants and insects, the insects that they catch and utilize for food, the insects that pollinate their flowers, and the insects that live and thrive in the same pitchers that kill and digest other insects. Mrs. Walcott has produced a book that not only is a work of art, from the beauty and fidelity of its illustrations, but is a fountain of scientific knowledge regarding these amazing plants, and she also has told how they may be grown in our greenhouses, so that we may watch them at their insect-catching operations.

FREDERICK V. COVILLE

# SOCIETIES AND MEETINGS

## THE SOUTHWESTERN DIVISION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE sixteenth annual meeting of the Southwestern Division of the American Association for the Advancement of Science was held from April 26 to April 30, at Flagstaff and the Grand Canyon, Arizona, in conjunction with the Third Annual Tree-Ring Conference, Southwestern Section of the Society of American Foresters, Ecological Society of America and the Southwestern Conservation League. Host institutions were the Arizona State Teachers College at Flagstaff, the Museum of Northern Arizona, the Lowell Observatory and the National Park Service at the Grand Canyon.

Attendance was unusually large, as was also the number of scientists giving papers. The local committee especially should be congratulated for their efficient handling of the meeting, which, in addition to the unexpectedly large number of registrants, came at the beginning of the tourist season for Flagstaff.

In addition to the usual section meetings for presentation of papers, features of the meeting were: The address by the retiring president, Dr. Harold S. Colton, on "The Rise and Fall of the Prehistoric Population of Northern Arizona," and the John Wesley Powell Lecture, by Dr. J. C. Merriam, on "The Wilderness as a Teacher, Preacher, and Companion—a Study of the Contribution Made by a Great National Park"; the opening of the new quarters of the Museum of Northern Arizona and the reception at the home of Dr. and Mrs. Colton; the inspection of the Lowell Observatory; excursions to nearby points of interest; and, lastly, the excursions conducted by Park officials on the last day at the Grand Canyon.

At the business meeting at the end of the sessions, resolutions of thanks were sent to host institutions and to the officials at the Grand Canyon. Officers for the coming year are as follows:

*President:* F. E. E. Germann, University of Colorado, Boulder.

*Vice-President:* E. D. Ball, University of Arizona, Tucson.

The present Secretary-Treasurer was continued for another year.

*Executive Committee:* O. C. Lester, University of Colorado, Boulder (1937); E. F. Carpenter, University of Arizona, Tucson (1938); S. A. Northrop, University of New Mexico, Albuquerque (1938); F. W. Sparks, Texas Technological College, Lubbock (1939); and D. S. Robbins, State College, New Mexico (1939).

*Biological Science Section: Chairman,* R. J. Gilmore, Colorado College, Colorado Springs; *vice-chairman,* Donald M. Crooks, University of Arizona, Tucson; *Secretary,* R. H. Canfield, Las Cruces, New Mexico.

*Mathematics Section: Chairman,* Paul K. Rees, State College, New Mexico; *vice-chairman,* C. A. Barnhart, University of New Mexico, Albuquerque; *Secretary,* W. M. Craig, Texas Technological College, Lubbock.

*Social Sciences: Chairman,* F. H. Douglas, Denver Art Museum, Denver; *Secretary,* W. S. Stallings, Laboratory of Anthropology, Santa Fe.

The meeting of the division for 1937 will be held in conjunction with the Pacific Division and the parent association at Denver. Meeting places for 1938 and 1939 will be at Alpine, Texas, and Tucson, Arizona, with final decision as to which place will be associated with which date to be made later.

VEON C. KIECH,
*Secretary-Treasurer*

## THE MINNESOTA ACADEMY OF SCIENCE

THE Minnesota Academy of Science held its fourth annual meeting as the guests of Carleton and St. Olaf Colleges at Northfield, Minnesota, on April 18, 1936. At the general meetings approximately 400 persons