proached, and it will remain unique for many generations to come.

I am sure that the great body of scientific people of this country will be in full sympathy with the proposition here made, and it should not be a difficult matter to select and appoint a committee to carry it out successfully. The sanction of Congress can doubtless be readily secured, and the necessary means for the purpose easily obtained through subscriptions from American scientists and scientific institutions.

R. W. SHUFELDT

WASHINGTON, D. C.

BELGIAN PROFESSORS AND SCHOLARS

TO THE EDITOR OF SCIENCE: It would seem to me that the present time is a particularly appropriate one for our university administrators and other organizations having to do with educational exchanges with Europe to give a special consideration to professors in Belgium. It is well known that in the universities of that country there are many men eminent in the different departments of learning, and in the present necessarily deranged conditions in their own country, an opportunity to teach, or work in laboratories, in America might be particularly welcome. There could naturally be no thought of a completion of the exchange by sending Americans to Belgium at this time.

It might also be a useful thing if some of the generous benefactors of American institutions could establish at least temporary fellowships or scholarships in appropriate American institutions, carrying with them a stipend fully sufficient for academic, traveling and living expenses, for the benefit of young Belgians whose studies are interrupted by the war and who are not called to take arms in behalf of their country.

EDWIN B. FROST

YERKES OBSERVATORY,
September 30

SCIENTIFIC BOOKS

The Middle Triassic Marine Invertebrate Faunas of North America. By JAMES PERRIN SMITH. U. S. Geological Survey, Professional Paper No. 83. Washington, Government Printing Office, 1914. 4°. Pp. 254, pl. I–XCIX.

Many years ago the author of this paper planned, with Professor Alpheus Hyatt, a monographic treatment of the Triassic invertebrate faunas of America. As time went on it became evident that Professor Hyatt's other engagements would prevent the carrying out of this plan. With his advice and assistance Professor Smith prepared a synoptic introduction to the Cephalopod fauna, issued as U. S. Geological Survey Professional Paper No. 40.

As the work went on it became evident that the material would be too bulky for a single volume, so the Upper, Middle and Lower Triassic were planned to occupy each a single volume.

That the Middle Triassic part is now first published follows from the fact that the manuscript was nearer completion than the others and contains more new material. The classification is that of the synoptic introduction above cited and is not repeated in detail in the present volume.

The Middle Triassic fauna consists in the main, as here shown, of Cephalopoda, with a few bivalves, brachiopods and echinoderms, but not a single gastropod.

Marine fossils of the Middle Triassic, according to Professor Smith, are known in North America, only from California, central Nevada and British Columbia. The Triassic of the eastern states is all non-marine. The continental deposits of Western America appear to have resulted from arid conditions, but the fossils of the marine sediments were laid down in an arm of the ocean and not in a closed basin like the Caspian Sea. This is indicated by their close relation, faunally, to those of the other Pacific borders and to the ancient sea which in Mesozoic time covered a large part of southern Asia. The Middle Triassic of Western America is divided into two zones, the lower having a mixture of boreal and East Indian types and called after its zone-fossil, *Parapopanoceras;* the upper, with a Mediterranean fauna, plus

some East Indian types and taking its designation from the bivalve *Daonella dubia*.

A certain kinship still exists between the Middle Triassic faunas of western America and Asia, due perhaps to common descent as much as to migration. The relationship with the Eurasian Mediterranean or "Tethys" fauna begins to be strong, especially among the Ceratitidæ. In the west Humboldt range of Nevada about twenty-five per cent. of the species are either identical with, or closely related to forms of the same age in the Mediterranean region. The faunas of the latter and of America are more closely related to each other than either is to the boreal or to the East Indian fauna. These propositions are exhaustively illustrated by tabulation of the species. A full bibliography of the subject is given, followed by descriptive matter which contains comparative data of great value, the more welcome because so seldom furnished by authors. The plates are admirable and the typography such as usually comes from the Government printing office. It may save some student time to know that "Plate one" on pages 144 and 145, should read "Plate fifty." W. H. DALL

Monograph of the Shallow-water Starfishes of the North Pacific Coast from the Arctic Ocean to California. By ADDISON EMERY VERRILL. Harriman Alaska Series, Volume XIV. City of Washington. Published by the Smithsonian Institution. 1914. Large octavo, 2 vols., text (xii + 408 pp.) and plates (110).

For many years the remarkable starfish fauna of the west coast of America has occupied a large part of Professor Verrill's time and attention, and these two fine volumes are the result of his study. The short preface recounts the varied sources of his material, which was very extensive and included nearly all of the important collections on the American continent. The original material on which Dr. William Stimpson based his species is fortunately still extant and the reproduction of photographs of many of his types is one of the notable features of Professor Verrill's book.

A large part of the material incorporated in the "Introduction" (pp. 1–19) has been published by the author previously in articles in scientific periodicals, but considerable new matter is also included. The whole makes up a very interesting, though somewhat fragmentary account of habits, senses, variability and other characteristics of starfishes in general and of the west coast starfishes in particular. The general morphology of the Asterioidea is then taken up (pp. 20–24) and naturally, the classification of the group is next discussed (pp. 24–26). The family Asteriidæ, which occupies more than two-fifths of the entire volume, is then treated in considerable detail; the morphology requires more than ten pages (27–39); the classification and the discussion of various genera and subgenera, many new, occupy pages 40–56; and a very detailed but useful key to west coast species of Asteriidæ fills pages 57–67.

There then follows (pp. 67–202) the full and often elaborate account of these species, beginning with the well-known *Pisaster ochraceus* (Brandt). It is interesting to note that Verrill makes the families Stichasteridæ and Heliasteridæ, as recognized by most former workers, subfamilies of the Asteriidæ, a change which is almost certainly in the right direction. The old, familiar genus *Asterias*, which others have sought to subdivide but generally on trivial grounds and with poor success, Verrill boldly transforms into the subfamily Asteriinæ, and divides, on more or less important morphological grounds, into more than twenty genera. It is greatly to be regretted that nowhere does Verrill bring his proposed genera together in an analytical table or key, for it is by no means easy to determine what the interrelationships of his groups are. There can be little doubt that many of these groups are valid genera, but it is hard to believe that all are. The difficulty of comprehending Verrill's opinions regarding the groups is complicated by the use of "subgenera" and "sections," which certainly seem superfluous, when one old, long-recognized genus is split into more than twenty!

In his treatment of species, too, Professor