life. The generally accepted facts are well, and sometimes finely, portrayed, and a large series of illustrations by Maurice Wilson help to round off the story. There is an especially good bibliography. Furthermore, the work is written from the European point of view. Many non-geologists will find this a highly satisfactory statement, and quite a number of geologists can use it as a stepping-stone to further, more academic, studies. W. E. Swinton

ASPECTS OF MARINE SCIENCE

Papers in Marine Biology and Oceanography

Dedicated to Henry B. Bigelow. By his former Students and Associates. (*Deep-Sea Research*, Supplement to Volume 3.) Pp. xx+498. (London and New York: Pergamon Press, Ltd., 1955.) 75*s*. net; 10.50 dollars.

IN 1927 the United States National Academy of Sciences set up a committee, with Henry B. Bigelow as secretary, to report on the part which the United States should take in a world-wide programme of oceanographic research. One of the major results of the inquiry was the foundation of a new research institute at Woods Hole, Massachusetts, in 1930 with Bigelow as its first director, a post which he held for ten years, before asking to be relieved in order to devote more time to his own researches. To commemorate the twenty-fifth anniversary of the Woods Hole Oceanographic Institution, which now enjoys an outstanding reputation throughout the world, this volume has been prepared and dedicated to Dr. Bigelow by his former colleagues and students.

The forty-eight contributions to the volume comprise both original research papers and review articles. It would be impossible to review them individually or even refer to the names of all the authors or the titles of their papers. The impression which one gets from the volume as a whole is how well it bears out Bigelow's own view in 1931, expressed in his book, "Oceanography: its Scope, Problems and Economic Importance", of the essential unity of the science of the sea and the close interrelationships between all its aspects—biological, geological, chemical and physical. Many of the papers themselves deal with such relations, and others, while confining themselves to work in one field, can be seen, at the same time, to fall into a general pattern.

The zoological papers range from systematic studies, such as that by P. L. Kramp on medusæ, to those on the behaviour of animals in the sea. A review of the recent researches on hearing in fishes and cetaceans is given by D. R. Griffin. A. S. Romer, in "Fish Origins—Fresh or Salt Water ?", examines the fossil evidence from European and American sources. Several papers are concerned with the relations between one kind of marine organism and another. C. E. Lucas's paper on external metabolites and E. Steemann Nielsen's on plankton algæ and bacteria are examples. Studies relating to the productivity of the sea and to problems of fisheries research are also represented.

A large group of papers is concerned with surveys of physical conditions, particularly water movements, and their relation to the circulation of nutrients and to the distribution of plant and animal life. Regional accounts are given of the Gulf of Venezuela by A. C. Redfield and of Long Island Sound by G. A. Riley. Discussing coastal currents and fisheries, C. O'D. Iselin refers to a new programme for the investigation of coastal currents which has been started at Woods Hole. G. Wüst contributes a study of current velocities in the deep and bottom waters of the Atlantic.

A number of papers deal with the geology of the ocean floor or the relation of sediments to the chemical or biological features of the water above them. A paper by the late H. C. Stetson discusses the differences between the Atlantic and Gulf terraces of the United States. An account of new instruments, by which they have taken water samples within 5–50 cm. of the bottom, is given by J. Brouardel and L. Fage. There are papers by F. B. Phleger and by Frances L. Parker on foraminifera, and by H. Pettersson on manganese nodules and oceanic radium.

This volume gives a stimulating impression of the position of marine science to-day and of some of the lines along which one may expect future advances to be made. K. F. Bowden

EARLY SCIENCE IN MEXICO

Montaña y los Origenes del Movimiento Social y Cientifico de Mexico

Por Prof. José Joaquin Izquierdo. Pp. xvi+442. (Mexico, D.F.: Ediciones Ciencia, 1955.) n.p.

THE colonization of the New World by Spain in the sixteenth century was carried out on an ambitious scale. In Mexico, then known as Nueva España, the Royal and Pontifical University was founded in 1553, and various types of medical institutions were also set up. At that time these establishments were as good as those of the Old World, but during the next two centuries, the many advances in science and medicine that were made in Europe did not reach or were not accepted in Mexico, and towards the end of the eighteenth century the courses in medicine taught in Mexico City had not changed in any way since they were instituted in the sixteenth century.

In this most interesting volume, Prof. J. J. Izquierdo has taken as his principal subject the life of the Mexican-born doctor, botanist and social reformer, Luis José Montaña (1755–1820); but interwoven with details of his life is a carefully documented account of the contemporary knowledge and teaching of science and medicine in Mexico, so that it is in effect a study in the history of science rather than a biography.

Montaña was a child of unknown parentage, reared in an orphanage, whose intelligence and aptitude for study took him to the University of Mexico, where he first graduated B.A. in 1771 and then took up the study of medicine. At that time the five chairs in medicine at the University included one in astrology, and Hippocrates and Galen were still the revered masters. There was no connexion with the hospitals and no clinical teaching. It was not until at the end of the eighteenth century that the advances made in Europe began to be recognized and accepted in Mexico; and in their gradual introduction Montaña played an important part.

Montaña was interested in botany and the pharmacological uses of the native plants. The dispatch in 1787 of a scientific expedition from Spain