No other gases were present in detectable quantities until just prior to the present Mauna Loa activity.

In the collection of March 14, 1940, however, hydrogen sulfide appeared for the first time. It was easily detected qualitatively by odor, by the darkening of lead acetate paper and by the formation of yellow cadmium sulfide when the gas was passed into cadmium sulfate solution. There was not sufficient hydrogen sulfide to make its quantitative determination possible.

On April 7, 1940, volcanic activity broke out at the summit of Mauna Loa. Samples of solfataric gas collected at Kilauea on April 11 again showed the presence of hydrogen sulfide, and samples collected on April 21 likewise contained hydrogen sulfide. The collections of May 10 and June 18 showed no hydrogen sulfide, even though Mauna Loa was still erupting, although with greatly lessened activity.

The appearance of hydrogen sulfide in the Kilauea solfataric gases just prior to Mauna Loa activity may have been a premonitory sign. If so, this appears to afford an exceedingly valuable method of forecasting volcanic outbreaks. Furthermore, this incidence of hydrogen sulfide suggests a close relationship between solfataric activity and primary volcanism.

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SCIENTIFIC BOOKS

A GEOLOGICAL EXPEDITION TO THE SUNDA ISLANDS

Geological Expedition of the University of Amsterdam to the Lesser Sunda Islands in the Southeastern Part of the Netherlands East Indies, under the Leadership of H. A. Brouwer. Vol. 1, 348 pages, with numerous plates, maps and sections, 1940. Amsterdam (American sales agent, Nordeman Publishing Company, New York). Price, $8.40. Work to be completed in four volumes, by 1941; price for the set, $33.50.

THE able geologists and geophysicists of Holland have already shown that the vast East Indian Archipelago is supremely important for the genetic problems of continental stability, the origin of sea basins and the origin of mountain chains. Because it is a key region for investigations of terrestrial dynamics, the new data recorded in this four-volume symposium, due to the energy of Professor Brouwer, are particularly welcome. The present volume, on the geology and paleontology of the Netherlands half of the island of Timor, is written by D. Tappenbeck, A. L. Simons (both dealing with the general geology); by F. A. H. W. de Marez Oyens, another member of the 1937 expedition; and by Professor J. Wanner, of Bonn University. Oyens describes the Permian crinoids of Timor, and Wanner the Permian blastoids. Throughout, the emphasis is on the details of observation, in field and laboratory. The projected fourth volume "will coordinate the different contributions [including also those by seven other members of the expedition] and give the general conclusions which might arise."

The oldest system of Timor rocks, crystalline schists, were carefully studied; their age is pre-Triassic, but could not be more closely determined. Sedimentary series belonging to the Permian, Triassic, Jurassic, Cretaceous and Tertiary were found; unfortunately, their respective thicknesses are not given. An outstanding conclusion of Tappenbeck is that the Tertiary epoch of intense folding and thrusting should be placed in Oligocene time, rather than in the mid-Miocene, as so long believed by other investigators. Since Timor lies in the great "negative strip" of gravity anomalies, discovered by Vening Meinesz, this change of date for the major, orogenic disturbance of Tertiary time has significance for the general theory of mountain-making. The Simons chapter describes large masses of serpentine, especially voluminous along the north shore of the island; here is another proof that eruption of ultra-basic, igneous rock is an accompaniment of the intense deformation along the principal mountain arcs.

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THE INVERTEBRATES

The Invertebrates: Protozoa through Ctenophora. By LIBBIE H. HYMAN. First edition. 726 pp. McGraw-Hill Publications in the Zoological Sciences. A. Franklin Shull, consulting editor. 1940.

DR. HYMAN is to be congratulated on the appearance of the first volume of her courageous project to furnish a reasonably complete and modern account of the morphology, physiology, embryology and biology of the invertebrates. The real need of an accurate and critical survey of this sort in English has long been recognized alike by teachers, professional zoologists specializing in other fields and by advanced students. The author has achieved a satisfying measure of success in this important, confused and difficult field. "It is obviously impossible," Dr. Hyman says in her preface, "for any one person to have a comprehensive first-hand knowledge of the entire range of invertebrates, and consequently a work of this kind is essentially a compilation from the literature." It is obvious to the reader that the present work is not a mere rehashing of the literature but a fresh study of a