

calcium, and magnesium; indeed the presence of these silicates was revealed by the microscopic examination of the mineral particles.

The following analysis of a Radiolarian Ooze was made by Dr. Sipöcz:—

Station.	Depth in Fathoms.	No.	Loss on Ignition.	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MnO	CaO	MgO	P <sub>2</sub> O <sub>5</sub>	CuO	Co	K <sub>2</sub> O	Na <sub>2</sub> O	Total.
266	2750	80	16.52	52.85	8.22	5.94	1.74	6.61	4.84	3.99	0.16	tr.	tr.	tr.	100.87

This analysis likewise shows a high percentage of silicic acid, and from the large quantity of water shown by the loss on ignition, the major part of this silica, as well as of the iron and alumina, must be in the form of hydrate. The phosphoric acid, and a part of the calcium, are due to the presence of phosphate of lime in the organic remains. The rather high percentage of magnesia is probably explained by the presence in the deposit of fragments of rocks, containing magnesia and lime, such as the numerous fragments of altered volcanic minerals and glass noticed in the microscopic examination. The foregoing analyses then corroborate the results obtained by the macroscopic and microscopic examination of the Radiolarian Ooze; that is to say, we find the deposit composed of a mass of mineral matters analogous to those met with in the Red Clays, but this deposit is distinguished from the Red Clay by a greater abundance of hydrated silica due to the presence of the organisms which give their name to the deposit.

In addition to the samples of Radiolarian Ooze obtained by the Challenger, other areas of this deposit were discovered by the U.S. ship "Tuscarora" in the Pacific, and by H.M.S. "Egeria" in the Indian Ocean. No specimens of this deposit have as yet been met with in the Atlantic Ocean, and for a variety of reasons it is, indeed, unlikely that a Radiolarian Ooze will be discovered in the Atlantic. By reference to Chart 1 it will be seen that the patches of Radiolarian Ooze in the Pacific are confined to the central and western regions of that ocean, the seven patches shown on the map covering about 1,161,000 square miles. In the Indian Ocean there is a great patch of this deposit, in the deep water of the central eastern region surrounding the Cocos and Christmas Islands, the area of which is estimated at about 1,129,000 square miles.

#### DIATOM OOZE.

Just as the name Radiolarian Ooze was introduced by Mr. Murray to distinguish those deposits in which Radiolarian remains played a prominent part, so the name Diatom Ooze was applied during the Challenger Expedition to distinguish those deposits in which Diatom frustules were exceptionally abundant. Dr. Joseph Hooker,<sup>1</sup> during Sir James

<sup>1</sup> Botany of the Antarctic Voyage of H.M.S.S. "Erebus" and "Terror," I. "Flora Antarctica," p. 503, London, 1847; Report of British Association for 1847, pp. 83-85, London, 1848.