. John Murray & Rev. A.F. Renard, Report on the Deep-Sea Deposits Collected During the Voyage of H.M.S. Challenge

the average depth being 2894 fathoms, which is deeper than the average depth of the Red Clay samples, viz., 2730 fathoms.

The carbonate of lime in these nine samples ranges from a trace in five cases to 20 per cent. in 2550 fathoms at Station 269, the average percentage being 4·01. This carbonate of lime is chiefly made up of pelagic Foraminifera, but the shells of bottom-living species of Rotalidæ and Nummulinidæ are also present. Teeth of fish are mentioned in seven of the samples, and otoliths of fish, Ostracode shells, Echinoderm fragments, Gasteropod shells, and Coccoliths, occur, but never in great abundance.

The residue after the removal of the carbonate of lime by dilute acid, which is red or red-brown, ranges from 80 to nearly 100 per cent. in the nine samples, the average being 95·99 per cent. In this residue the remains of siliceous organisms are estimated to make up from 30 per cent. at Station 273 in 2350 fathoms to 80 per cent. at Station 225 in 4475 fathoms. The remains of Radiolarians make up the principal part of these siliceous organisms, but Diatoms and Sponge spicules are also present, and among arenaceous Foraminifera, species of Lituolidæ and Astrorhizidæ can nearly always be observed.

The mineral particles with a mean diameter of over 0·02 mm. are all angular, and average 0·1 mm. in diameter. They make up from 1 per cent. of the deposit in most cases to 5 per cent. at Station 274 in 2750 fathoms, the mean percentage of mineral particles present in the nine samples being 1·67 of the whole deposit.

The fine washings range from 17 per cent. in 4475 fathoms to 67 per cent. in 2350 fathoms, the average being 39·88. These fine washings are largely made up of the minute undeterminable fragments of siliceous organisms.

The following table shows the average composition of the Challenger samples of Radiolarian Ooze :—

Carbonate of Lime,	Pelagic Foraminifera,	3·11	
	Bottom-living Foraminifera,	0·11	
	Other organisms,	0·79	
			4·01
Residue,	Siliceous organisms,	54·44	
	Minerals,	1·67	
	Fine Washings,	39·88	
			95·99
			100·00

When this average composition is compared with that of the Red Clay, it will be observed that the difference lies almost wholly in the large percentage of the siliceous organisms present in the residue.

The constitution of the Radiolarian Ooze as revealed by the above microscopic examination is confirmed by the two following analyses :—

http://19thcenturyscience.org/HMSC/HMSC-Reports/1891-DeepSeaDeposits/README.htm