

The mineral particles range from 10 to 25 per cent., the average being 21·11 per cent. The particles are rounded and angular; in size they vary from 0·07 to 0·30 mm. in diameter, the average being 0·15 mm. Quartz is the most abundant mineral, and the other minerals are similar to those found in the other terrigenous deposits along continental shores.

The fine washings range from 28·21 to 68·25 per cent., the average being 45·61 per cent.

By arranging the amount of minerals, their size, and the fine washings according to depth, it is seen that the mineral particles are larger and the amount of fine washings less in the shallower depths.

	Minerals.	Size.	Fine Washings.
Under 500 fathoms, .	20 per cent.	0·30 mm.	33·37 per cent.
500-1000 ,, .	20 ,,	0·126 ,,	49·04 ,,
Over 1000 ,, .	25 ,,	0·075 ,,	49·24 ,,

The following table shows the average composition of the Challenger samples of Red Mud :—

Carbonate of lime,	{	Pelagic Foraminifera, . . . . .	13·44	
		Bottom-living Foraminifera, . . . . .	3·33	
		Other organisms, . . . . .	15·51	
			32·28	
Residue, . . . . .	{	Siliceous organisms, . . . . .	1·00	
		Minerals, . . . . .	21·11	
		Fine washings, . . . . .	45·61	
			67·72	
			100·00	

The following analysis was made to determine the chemical composition of a Red Mud, from Station 120, 675 fathoms :—

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>	CaO	MgO	Na <sub>2</sub> O	K <sub>2</sub> O	SO <sub>2</sub>	CO <sub>2</sub>	Cl.	Total.
120	675	54	6·02	31·66	9·21	4·52	25·68	2·07	1·63	1·33	0·27	17·13	2·46	101·98

In combining the carbonic acid with the oxide of calcium indicated by the analysis we obtain 38·93 per cent. of carbonate of calcium, with an excess of oxide of calcium, which may come from the silicates containing lime, or from the phosphate and sulphate of lime. There must be, according to the analysis, a relatively large quantity of argillaceous matter and hydrated peroxide of iron in the deposit, and free silica in the form of quartz or hydrated silica from organic remains. The presence of alkalis indicates that alkaline silicates are among the minerals, as indeed was shown by microscopic analysis, but a good