

## APPENDIX C.

*Notes on Specimens of the Bottom collected during the First Cruise of the 'Porcupine' in 1869.* By DAVID FORBES, F.R.S.

ATLANTIC MUD contained in a small bottle marked 'Soundings No. 20, 1,443 fathoms.'

A complete analysis of this sample shows its chemical composition to be as follows:—

Carbonate of lime . . . . .	50·12
Alumina <sup>1</sup> ('soluble in acids') . . . . .	1·33
Sesquioxide of iron ('soluble in acids') . . . . .	2·17
Silica (in a soluble condition) . . . . .	5·04
Fine insoluble gritty sand (rock <i>débris</i> ) . . . . .	26·77
Water . . . . .	2·90
Organic matter . . . . .	4·19
Chloride of sodium and other soluble salts . . . . .	7·48
	100·00

If we compare the chemical composition as above with that of ordinary chalk, which consists all but entirely of carbonate of lime, and seldom contains more than from 2 to 4 per cent. of foreign matter (clay, silica, &c.), it will be seen that it differs chiefly in containing so very large an amount of rock-matter in a fine state of division. If we subtract the water, organic matter, and marine salts, which would probably in greatest part be removed before such mud could in process of ages be converted into solid rock, even then the amount of carbonate of lime or pure chalk would not be more than at highest some 60 per cent. of the mass.

As such deposits must naturally be expected to vary greatly in mechanical character and chemical composition, it would be

<sup>1</sup> With phosphoric acid.