Silica,	53·29
Ferric oxide,	3·84
Ferrous oxide,	7·08
Alumina,	14·86
Lime,	9·31
Magnesia,	7·81
Potash,	0·31
Soda,	2·57
Water,	1·69
	100·76

82. Basic Volcanic Glass.—Station 285.

Lat. 32° 36′ S., long. 137° 43′ W., 2375 fathoms (Sipöcz).

I. 1·0841 grms. of substance, fused with the carbonates of soda and potash, gave 0·5417 grm. of silica, 0·1543 grm. of ferric oxide, 0·1267 grm. of alumina, 0·1215 grm. of lime, 0·3864 grm. of pyrophosphate of magnesia = 0·1392 grm. of magnesia, and 0·0056 grm. of pyrophosphate of magnesia = 0·0036 grm. of phosphoric acid, and trace of manganese.

II. 0·5185 grm. of substance, treated with hydrofluoric and sulphuric acids, required for oxidation 9·4 c.c. permanganate of potash solution (1 c.c. permanganate of potash solution = 0·0058463 grm. of ferrous oxide), corresponding to 0·05495 grm. of ferrous oxide.

III. 1·0448 grms. of substance, treated with hydrofluoric and sulphuric acids, gave 0 0357 grm. of the chlorides of soda and potash, 0·0137 grm. of chloroplatinate of potash. The finely pulverised scoria, passed through fuming hydrochloric acid, was but incompletely decomposed.

Silica,	49·97
Alumina,	11·68
Ferric oxide,	2·45
Ferrous oxide	10·60
Manganous oxide,	trace
Lime,	11·20
Magnesia,	12·84
Potash,	0·25
Soda,	1·60
Phosphoric acid,	0·33
	100·92

83. Palagonite.—Station 276.

Lat. 13° 28′ S., long. 149° 30′ W., 2350 fathoms (Dittmar).

A brown, apparently amorphous, substance, some of it powdery, some in lumps, which when broken exhibited a dirty-white fracture. The microscope showed white and yellow crystalline parts, and here and there black globules, also a few metallic-looking particles. Having been led to understand (by Mr Murray) that there were good grounds for looking upon this substance as disintegrated "pumice," and knowing that pumice is in a very high degree proof against the action of even strong acids, it struck me that the proper mode of investigating this substance was to extract from it all that could be rendered soluble by successive treatment with a (*a*) hot hydrochloric acid, (*b*) boiling carbonate of soda solution, (*c*) semi-concentrated boiling vitriol, (*d*) boiling carbonate of soda solution; to analyse the ultimate residue, and compare the results with reliable published analyses of pumice or obsidians. This line of research was accordingly adopted; but not wishing to rely altogether on second-hand information in this respect, an undoubted specimen of pumice from the Challenger collection was examined in precisely the same manner.