

71. CORAL SAND.—Station 172.

Lat. 20° 58' S., long. 175° 9' W., 18 fathoms (Renard).

- I. 1.1310 grms. of substance dried at 110° C., treated with hydrochloric acid, gave 0.016 gm. of phosphoric acid, alumina, and iron, 0.5686 gm. of lime, 0.0944 gm. of pyrophosphate of magnesia = 0.0340 gm. of magnesia.
- II. 0.852 gm. of substance dried at 105° C. served for the determination of carbonic acid, and gave 0.3602 gm.
- III. 2.2746 grms. of substance dried at 110° C., treated with dilute hydrochloric acid, gave 0.06346 gm. of flocculent residue of organic matter.

|                                     |           |        |
|-------------------------------------|-----------|--------|
| Lime,                               | . . . . . | 50.27  |
| Magnesia,                           | . . . . . | 3.00   |
| Carbonic acid,                      | . . . . . | 42.28  |
| Alumina, iron, and phosphoric acid, | . . . . . | 1.42   |
| Organic substances,                 | . . . . . | 2.78   |
| Manganese and alkalies,             | . . . . . | traces |
|                                     |           | 99.75  |

72. PHOSPHATIC CONCRETIONS.—Station 142.

Lat. 35° 4' S., long. 18° 37' E., 150 fathoms (Klement).

- I. 0.8215 gm. of substance dried at 110° C. gave 0.0990 gm. of carbonic acid, and 0.0328 gm. of sulphate of barium.
- II. 0.5715 gm. of substance dried at 110° C. gave 0.1784 gm. of pyrophosphate of magnesia (P<sub>2</sub>O<sub>5</sub>), 0.0078 gm. of silica, 0.2253 gm. of lime, 0.0107 gm. of pyrophosphate of magnesia (MgO), 0.0068 gm. of alumina, 0.0145 gm. of peroxide of iron, and 0.0991 gm. of residue insoluble in dilute nitric acid.
- III. 0.2428 gm. of insoluble residue, calcined and fused with the carbonates of soda and potash, gave 0.1880 gm. of silica, 0.0301 gm. of alumina, 0.0192 gm. of peroxide of iron, 0.0026 gm. of lime, and 0.0069 gm. of pyrophosphate of magnesia.

|                                |                 | Ratio of Equivalents. |
|--------------------------------|-----------------|-----------------------|
| Phosphoric acid,               | . . . . . 19.96 | 0.422                 |
| Carbonic acid,                 | . . . . . 12.05 | 0.274                 |
| Sulphuric anhydride,           | . . . . . 1.37  | 0.017                 |
| Silica,                        | . . . . . 1.36  |                       |
| Lime,                          | . . . . . 39.41 | 0.704                 |
| Magnesia,                      | . . . . . 0.67  | 0.017                 |
| Peroxide of iron,              | . . . . . 2.54  |                       |
| Alumina,                       | . . . . . 1.19  |                       |
| Loss on ignition, <sup>1</sup> | . . . . . ...   |                       |
| Insoluble residue,             | . . . . . 17.34 |                       |
|                                | 95.89           |                       |

Composition of the insoluble residue :—

|                   |           |       |
|-------------------|-----------|-------|
| Silica,           | . . . . . | 77.43 |
| Alumina,          | . . . . . | 12.40 |
| Peroxide of iron, | . . . . . | 7.91  |
| Lime,             | . . . . . | 1.07  |
| Magnesia,         | . . . . . | 1.02  |
|                   |           | 99.83 |

<sup>1</sup> An accident during the operation prevented the determination of the loss on ignition.