this purpose by the superintending electricians at those places. The observing station at Malta was Spencer's Monument, and at Gibraltar the head of the mole in Rosia Bay, and the following were the results :—

	h.	m.	s.
Meridian distance, by signals transmitted from Gibraltar to Malta,	1	19	29·75
Do. do. Malta to Gibraltar,	1	19	28·54
Mean meridian distance, ...	1	19	29·15

From which it appears that it took 0·60 s. to transmit the signal between the two places, a distance of 1000 miles.

The magnetic observing station at Gibraltar was in the middle of the garden of the Main Guard, on the Neutral Ground. The observing station for rating chronometers was the head of the mole in Rosia Bay, which is a much more convenient place for this purpose than almost any other in Gibraltar, as, besides its seclusion, the sun is seen there earlier in the morning than at the Ragged Staff, or the dockyard mole, a matter of some moment when the easterly winds, so frequent in summer, keep the summit of the rock constantly capped with cloud, for when this occurs, the town, the Ragged Staff, and the dockyard are in the shade during the greater part of the forenoon, whilst the sun is shining brilliantly on Europa Point, and nearly always as far north as Rosia Bay.

On the 26th January, at 9 A.M., the vessel proceeded to the eastward of the Rock to be swung for the errors of the compass and dipping needle. For the deviation of the compass the ship was swung on the line of transit of Frayle Tower with Europa Lighthouse, the true bearing of which had been previously ascertained. The error of the dipping needle was ascertained by keeping the ship steaming slowly and steadily on a given point of the compass, while observations were made for inclination, and these observations were repeated on a sufficient number of points, to allow a curve to be drawn from which the error could be ascertained for any part of the circle. The force of the ship was ascertained by vibrating a needle on the four cardinal points, and comparing its results with those obtained by the same needle on shore. These operations having been satisfactorily completed, the ship returned to port to land letters, &c., and finally left at 6 P.M. for Madeira.

Gibraltar to Madeira.

Between Gibraltar and Madeira six soundings and three hauls of the trawl were obtained, in depths varying from 1090 to 2600 fathoms (see Sheets 3 and 4). The deposit at each of these Stations was a Globigerina ooze. The percentage of carbonate of lime ranged from 53 to 75, and consisted almost entirely of pelagic Foraminifera, Coccoliths, and Rhabdoliths. The residue, insoluble in weak acid, consisted of a few Radiolarians, minute particles of quartz, felspar, augite, glassy volcanic fragments, and clayey matter.