

The definiteness of the characters of these, and the amount of specialisation they show, indicate not only a great antiquity for the whole group, but also the great amount of extinction that has gone on amongst its members in the past, in the process of which nearly all the intermediate and less specialised forms have disappeared."

THE CROZETS TO KERGUELEN.

On the 4th, 5th, and 6th January the ship was running before a northwest gale for Kerguelen Island, the velocity of the wind, which was fairly steady in strength, being 30 miles per hour, the waves varying from 18 to 22 feet in height from hollow to summit, and 420 to 480 feet in length from crest to crest. So far as was determined, the wave undulations had a velocity of 29.5 miles per hour, very nearly equal to that of the wind.

The length of the waves was measured by veering a canvas balloon called a Burt's nipper astern until it rose on the crest of the advancing wave at the same moment that the ship's stern was on the crest of the wave preceding it; the height was estimated by the observer taking up such a position in the ship that when in the trough of the sea his eye could just see the horizon over the crest of the wave nearest the ship; the speed of the undulation was calculated by the number of waves that passed the ship in a given time, allowing for the velocity of the ship through the water, and the length of waves, which for this purpose was assumed as 450 feet. To these undulations the Challenger rolled through an arc of from 25° to 50°, that is, from 12° to 25° each side of the perpendicular, 5 to 5½ rolls per minute, the average speed through the water being 9 knots per hour.

The weather during these three days was fairly clear, passing showers of rain or snow were occasionally experienced, and as Kerguelen Island was approached the temperature of both air and sea decreased to 39°, a good preparation for the cruise southward towards the ice. Notwithstanding a gratuitous issue of warm clothing the sick list amounted to twenty-four, due principally to colds (a large percentage); the stokers felt the cold most.

Owing to the strong wind and high sea the ship neither sounded nor dredged, a matter of considerable regret to all, as it would be most interesting to know the depth of the channel that separates the Crozets from Kerguelen Island. It will be seen, however, by referring to the Chart of the World which accompanies this narrative, that the depth is assumed as being greater than 1000 fathoms.

On the 6th January, at noon, Bligh's Cap was 74 miles off. Such was the confidence in the determination of its position by Captain Cook that, like Sir James Ross, notwithstanding the misty state of the weather, the ship ran straight towards it, and at 7 P.M. it was observed ahead. At 8 P.M. Bligh's Cap being S.E. by E., about 5 miles distant, the ship was brought to the wind under double-reefed topsails for the night. At this time