

TONGATABU TO THE FIJI ISLANDS.

On the 22nd July, at 8 A.M., the Challenger left Tongatabu for the Fiji Islands, passing out to the northward between Mallenoah and Atataa Islands. Nothing was seen of the Juno Shoal, or of any belt of shallow water, the shallowest sounding being 9 fathoms. This northern route appeared to be a better channel into and out of the harbour than the eastern, for, although the water is not so deep, the channel is wider. Cook on his first visit used it, but ran on shore two or three times, and left by the east channel, out of which he had to beat against a fresh trade wind. The water appears to have deepened since his time, at any rate the shoals are fairly known, and can be avoided, and no one would now think of working out through the narrow east channel, when he could proceed through the northern with a leading wind. When outside a line joining Mallenoah and Atataa Islands dredgings were obtained, first in 18 fathoms (Station 172), and then in 240 fathoms (Station 172A, see Sheet 28). The deposit at both these depths was a coral mud containing 90 per cent. of carbonate of lime, and composed of fragments of Coral, calcareous Algæ, *Orbitolites* and many other Foraminifera, fragments of Polyzoa, Echinoderms, and Molluscs. At the greater depth farther from the reef, the fragments were smaller and the pelagic shells more abundant than in the depth of 18 fathoms nearer the reef. At 0.30 P.M. the ship proceeded to the westward towards Turtle Island, which was sighted at 11 A.M. on the 23rd. At 2 P.M. on that day the northern extremity of the detached reef off Turtle Island was passed, and a course shaped towards Matuku Island, the weather being rainy and cloudy.

On the 24th July, at 6 A.M., Matuku Island was sighted, and the vessel having proceeded to the lee side, a party was landed and remained on the island for two or three hours. During this time the ship was engaged in dredging off the mouth of the harbour in 310 and 315 fathoms (Stations 173 and 173A, see Sheet 29).

THE FIJI ISLANDS.

Matuku Island.—Matuku Island (see fig. 141), one of the Fiji group, lying about 70 miles east of Kandavu, is volcanic, and surrounded by a barrier reef which is about 16 miles in circumference. The highest peak is about 1200 feet in height. From its summit the island was seen to consist of a single crater, the edge of which had been denuded and cut into a series of fantastic peaks, with intervening steep-sided gullies. The ancient crater itself now forms the harbour, the inlet to which is through an opening in the girdling reef, at a spot where the border of the crater has been broken down. The surfaces of the irregular hills showed the peculiar sharp-angled ridges so characteristic of volcanic cones denuded by pluvial action. The windward side of the main peak was precipitous, and