of coral-reef rock, without, as far as is known, any blown-sand formation. The sand on the beaches is scanty. The presence of blown sand-rock on coral islands must depend on the freedom of some part of the coast from breakwaters of coral, in order that a heavy surf may form sand in abundance. In Bermuda the sand is derived from the unsheltered side of the island.

In some rock, about 30 feet above sea level, I saw, as Dana describes, some Brain Corals imbedded in the position in which they had grown. About the reefs are to be seen curious cylindrical blocks of coral standing on end, and often hollowed out at the top. These arise from the growing of a mass of ordinarily rounded coral until the top reaches the surface of the water or an insufficient depth to allow of further growth. The top of the mass then dies, whilst growth goes on at the sides, and the dead core is hollowed out by decay.

The surface of the rock in Tonga is covered with a reddish soil, like that of Bermuda. It is so hidden with soil and vegetation that it is very difficult to observe the rock structure. The wells, round holes sunk to a depth of four or five feet close to the shore, show a mere continuation of the reef-structure of the shore covered by about a foot of soil.

I was interested to recognise amongst the littoral plants of Tonga, many forms which I had gathered on the shores of the far-distant Bermuda. They were cosmopolitan tropical plants, and became familiar objects on nearly all the tropical shores visited subsequently. One plant grows in Tonga which is almost identical with one occurring in Kerguelen's Land, but it again is a cosmopolitan, a water weed, *Nitella flexilis*. To remind one of Australia, there are Casuarina trees in Tonga, but they are nowhere abundant.

In every direction in Tonga are large tracts of land which have been under cultivation, but are now overrun with a wild growth, affording plain evidence of the reduction of the population. These tracts are overrun with a dense low tangle of several species of convolvulus and a trailing bean. The position of the more recent clearings is marked in the distance by the projection from the main mass of dark foliage of the dead branches of trees that have had their bark ringed. These, with a species of *Acacia* (?), which at the time of our visit in winter had a yellow tint upon its foliage, formed a marked feature in a general view of the vegetation from a distance.

There are naturally no indigenous mammals in Tonga except bats. A large Fruit-bat, probably *Pteropus keraudrenii*, which occurs in Fiji and Samoa and also in the Caroline Islands,* is

* "Journal des Museum Godeffroy, Heft II. 1873." "Die Carolinen Insel Yap oder Guap."