

proved, and accounts of some of them which are now in progress, as that of Sweden and that of Greenland, are to be found in any geological treatise.

But it admits of direct demonstration that such a subsidence has actually taken place. It has been stated that the depth of the reef at different distances from the shore it encircles may generally be estimated from the slope of the shore. On this principle it has been shown on a former page (p. 125) that the thickness of the distant barrier reef cannot be less in some instances than a thousand feet; and in many cases it is probably much greater. Now as reef corals do not grow below eighteen or twenty fathoms, there is no way in which this thousand feet of reef could have been formed except by a gradual subsiding of the land upon which it stands. The large number of instances of distant barriers in the Pacific remove any doubt with regard to these conclusions. The map of the Feejees abounds in them through its eastern part, and we may infer with reason that over this extended area there has occurred, since the reefs began to form, a slowly progressing subsidence, like that which is now going on in Greenland.

Again, the island of Metia is 250 feet in height, full twice the coral-growing depth. At the island of Mangaia, in the Hervey group, the coral rock is raised 300 feet out of water. Such thick beds could not have been made by corals growing in depths not exceeding 120 feet without a sinking of many scores of feet during their progress.

The fact that subsidence has actually taken place during the formation of many reefs is therefore put beyond doubt. It must form a part of any true theory of reefs, whether it be the crater hypothesis, or the view here advocated. The latter has this advantage, that it explains all the facts, and requires no other element but this single one of subsidence. It rests on a simple fact and demands no hypothesis whatever.

The manner in which subsidence would operate is shown in the following sketches, representing ideal transverse sections of an island and its reefs. In the annexed figure, if I be the water line, the island, like Goro, has a simple fringing reef, f, f :