

the philosophical mind of Mr. Darwin the first hint with regard to the origin of the atoll ; the contrast, and, at the same time, the resemblance, were striking ; the conclusion was natural and most happy. Captain Beechey, in his Voyage in the Pacific, implies this resemblance, when he says of the Gambier Group, which he surveyed, "It consists of five large islands and several small ones, *all situated in a lagoon formed by a reef of coral.*" Balbi, the geographer, as Mr. Darwin remarks (p. 41), describes those barrier reefs which encircle islands of moderate size by calling them atolls, with high lands rising from their central expanse.

As some interest is connected with the history of new principles, and the illustration afforded is highly satisfactory, we give here a sketch of the Gambier Group. The very features of the coast of the included islands,—the deep indentations,—are sufficient evidence of subsidence to one who has studied the character of the Pacific islands ; for these indentations correspond to valleys or gorges formed by denudation during a long period while the island stood above the sea.

The manner in which a further subsidence results in producing the atoll is illustrated in the upper of the following figures. Viewing V as the water line, the land is entirely submerged ; the barrier,  $b''''$ ,  $b''''$ , then incloses a broad area of waters, or a *lagoon*, with a few island patches of reef over the peaks of the mountains. A continuation of the subsidence would probably sink beneath the waters some of the islets, because of their increasing in height less rapidly than the barrier : and this condition is represented along the upper line of the following figure, VI., subsidence having taken place to that level. The lagoon has all the characters of those of atoll reefs.

Should subsidence now cease, the reefs, no longer increasing in height, would go on to widen, and the accumulations produced by the sea would commence the formation of dry land, as exhibited in figure 2. Verdure may soon after appear, and the coral island will finally be completed. It is not impossible that dry land might form in certain favourable spots on the reef.