

shoals (Fig. 187), like Graham's Island, in the Mediterranean. On the other hand, submarine volcanic peaks, if originally too low, may conceivably be brought up to the coral-zone by the constant deposit of the detritus of marine life (foraminifera, radiolaria, pteropods, etc.), which, as above stated, is found to be very abundant in the upper waters, whence it descends as a kind of organic rain into the depths. Mr. Murray holds also that the dead coral, attacked by the solvent action of the sea-water, is removed in solution both from the lagoon (which may thus be deepened) and from the dead part of the outer face of the reef, which may in this way acquire greater steepness.<sup>380</sup>

Prof. A. Agassiz has arrived at similar conclusions from detailed explorations among the coral-reefs and submarine banks of the West Indian seas and the Hawaiian Islands. He believes that barrier-reefs and atolls have arisen without the aid of subsidence, upon a platform prepared for them by the upward growth of submarine calcareous banks, under the most favorable condition of ocean-currents, temperature, and food.<sup>381</sup>

That the widespread oceanic subsidence demanded by Darwin's theory cannot be demonstrated by coral-reefs must now, I think, be conceded. The coexistence of fringing and barrier-reefs, and of atolls, in the same neighborhood, with proofs of protracted stability of level or even with evidence of upheaval, likewise the successive stages whereby a true atoll may be formed without subsidence, have been demonstrated so clearly in the West Indian region, that we

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<sup>380</sup> Proc. Roy. Soc. Edin. 1880, p. 505, ante, pp. 74, 741, 742.

<sup>381</sup> Amer. Acad. xi. 1882, p. 107; Bull. Mus. Comp. Zool. Harvard, xvii. 1889, No. 3. See also the papers of Messrs. Guppy, Wharton, Bourne and Sluiter, cited, ante, p. 814.