

The valleys beneath the Antillean seas have, in part, been excavated out of disturbed strata, as is suggested by the exposures of the formations on the adjacent islands, and also in part out of undisturbed beds, which last occurrence is generally the case on the coastal plains of the continent. The formations immediately adjacent to the drowned valleys belong everywhere to late geological periods.

The characters of the submarine valleys—in their magnitude; in their declivity; in their being extensions of existing rivers; in their receiving tributaries from various directions, like modern streams; and in the long reaches of their floors, with low gradients, resembling gradation plains and base levels of land valleys—are so strongly analogous to land features, as to more than indicate their common origin. Indeed, the likeness is so strong as to suggest a satisfactory explanation of the submarine valleys off the south-eastern coast of North America, and those of the West Indies, that is to say, they appear to be drowned valleys of atmospheric origin. With the occurrence of the submerged valleys thus explained, it follows as a conclusion that the West Indian region and the margin of the continent stood once nearly as high as the drowned valleys are traceable, which feature extends nearly to the floors of the Antillean basins. This implies a late elevation of the region to a height of two or three miles, which altitude is greater than that generally assumed in late geological times. But the recent extraordinary depression of the Antillean plateau does not extend to the western boundary of the region. Between the east and the west there was a zone of diminished terrestrial movements. The broad valley which is now the floor of the Gulf of Mexico, has its counterpart setting into the continent from the Pacific side, but the Mexican barrier between the two oceans has only been recently elevated—in part to 8,000 or 10,000 feet. This seems then to be a physical compensation for the sinking of the Antillean plateau of the east, and illustrates stupendous movements in the opposite direction, in late geological times.

Many writers have regarded the West Indian Islands as remnants of mountain ranges submerged, but no standard was found for measuring the amount of depression, until the application of geomorphy to the drowned valleys was suggested by the writer. It might have been formerly supposed that the West Indian basin alone sank, while there was no considerable change of continental elevation; but such a hypothesis is now opposed by the analysis of the character of the valleys. Nor have ocean currents greatly deepened the channels, for even the