

*Gorge of the Hudson.* The Hudson river flows in a gorge of more recent age than its valley proper. The gorge, widened out into a well opened valley in the region of the Tappan Sea, is usually elsewhere steep sided, and throughout the middle and upper segments of the river it has a singularly uniform width and height of wall above sea level. From the head of tide near Troy the rock floor of this gorge is, except for a few islands, below sea level, thus converting the river from near Albany to the sea into a fiord. As this portion of the floor of the gorge is now and has been for some time in the past receiving sediments, its exact depth below sea level is not known.

Beginning on the south, this gorge is believed to be traceable seaward in the so called submarine extension of the Hudson. Between the 100 and 300 foot fathom lines, the outer, deeper part of

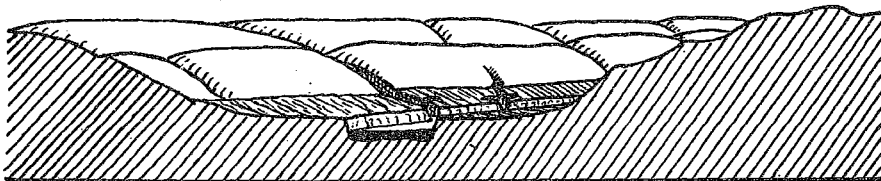


Fig. 2. Late Cenozoic stage of the Hudson valley. The river with the surrounding region has been uplifted an undetermined high above its old base level; the river has cut a deep gorge to or near the new base level; the side streams have cut lateral gorges, and the surface of the rock terraces has become roughened by incipient dissection. Approximate preglacial condition of the Hudson river valley.

the gorge attains a depth of 452 fathoms. If the view be accepted that this part of the gorge has been excavated by the river when the land was higher than it now is, it is necessary to admit that the coast has recently stood 2700 feet higher in relation to the sea. This elevation, if it can be shown to have taken place during the Pleistocene epoch, must have had important consequences in the distribution of glaciers and their deposits during epochs of glaciation and in the work of streams in the interglacial epochs. Not only the exact geologic epoch or epochs in which this submarine gorge has been excavated is in doubt, but its origin as a subaerial phenomenon has been disputed by eminent writers on the subject of the topography of the continental shelves of the continents.

Remarkable examples of these submarine gorges exist on the east shore of the Atlantic ocean off the mouth of the Congo river,