

Chapter 1

PHYSIOGRAPHY OF THE HUDSON AND CHAMPLAIN VALLEYS IN RELATION TO THE CONTROL OF GLACIAL PRODUCTS

PHYSIOGRAPHY OF THE HUDSON VALLEY

The valley of the Hudson river, from the point of view of the stream bearing that name, is a geographic group of drainage slopes whose axial trough, if we except the Adirondack portion of the river, has a nearly north and south direction, traversing a geologic area of variable structure formed of rocks of widely different ages in its various parts, and having different degrees of topographic development. The order and structure of the rocks of its valley have long been portrayed on the geologic maps of the State, and the contour of the land forms bordering the river are now faithfully delineated on topographic maps, but the precise history of the origin of this river has not been determined. The reader must, therefore, be content with a statement of the main facts in the form and cross-section of this valley and it is important that these features should be understood in following any attempt to unravel the Pleistocene history of the valley, particularly in relation to its occupation by the last ice sheet and to the retreat of that ice from eastern New York and the subsequent invasion by the sea of at least the neighboring Champlain valley.

For the greater portion of its length, the Hudson valley consists of a gorge within a valley. Both the valley and the gorge vary so greatly in minor detail from point to point that it is desirable first to generalize the parts in which the valley, as a whole, has something like a characteristic geologic and geographic expression. From this point of view there are four longitudinal divisions of the Hudson valley each with a landscape somewhat peculiar to itself.

Longitudinal divisions of the Hudson valley. The four segments of the Hudson valley above referred to comprise two regions of mountainous relief and two of lowlands, one of the latter being relatively roughened by somewhat advanced dissection.