POSSIBLE OBJECTIONS TO THE ELEVATION THEORY

The view presented in this report that the land was for a part of the time during the retreat of the ice and at the time of the maximum submergence on the north several hundred feet higher than now at the mouth of the Hudson is, I am aware, in distinct opposition to the views held by some geologists and it seems necessary in this connection to meet the objections which may be raised so far as is permissible by the evidence now at hand. It should be borne in mind however that the time since the ice began to retreat is relatively long when compared with the time taken for such changes of level as are admitted by all in the St Lawrence district and that it may be that what at first is regarded as contradictory evidence of elevation and subsidence about the mouth of the Hudson river is but proof of movements which have succeeded each other.

Early in the field work on which this report is based it seemed to me probable that the land about New York city had not undergone since the ice began to retreat, a notable change of level either of uplift or depression and after examining the typical marine deposits and shore lines of the Champlain district it became evident that no recent marine deposit had been seen by myself or convincingly described by others above the most recent beaches in that southern field. I believe that one who has had the opportunity of studying attentively the Champlain marine district will be compelled to abandon the view of a postglacial submergence within the field of the Wisconsin drift sheet about New York city other than that now in progress.

The most positive statement which the elevation theory has to meet is the supposition of Professor Salisbury,[1] that the gravels of the Far Rockaway ridge on Long Island are a marine shallow water deposit of a date as late as the ice retreat, and the statement that they are regarded by him as the local equivalent of his Cape May formation in Southern New Jersey. From a reconnaissance of the area on Long Island I had about the same

[1] Salisbury, R. D. in Geologic Atlas of the United States, New York City Folio, no. 83. 1902. p.15, 16; *also* Surficial Geology Sheet of the Brooklyn Quadrangle, where the Far Rockaway deposit is given as "gravel and sand of marine shallow water origin."