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The fundamental question pertaining to the Pleistocene features of the New York City region is: "Did one glacier do it all? or was >1 glacier involved?" Prior to Fuller's (1914) monographic study of Long Island's glacial stratigraphy, the one-glacier viewpoint predominated. Fuller's classification included products of 4 glacial advances. In 1936, MacClintock and Richards rejected two of Fuller's key age assignments, and made a great leap backward to the one-glacier interpretation. Subsequently, most geologists have accepted the MacClintock-Richards view and have ignored Fuller's work; the one-glacial concept has become a stampede. What is more, all previous workers, Fuller included, have classified Li's two terminal- moraine ridges as products of the latest Pleistocene glaciation (i. e., Woodfordian).

Provenance data from coastal cliffs in a terminal-moraine ridge in southern Staten Island prove that ice flowed regionally across Staten Island from NW to SE (across the Hudson Valley) not NNE to SSW, (down the Hudson Valley) with local diversions to the SE, the pattern inferred by many one-glacier advocates. Much- decayed stones in outwash gravels that overlie Cretaceous sands at the AKR Excavating Corp. imply a pre-Wisconsinan age. Finally, glacial striae and -crescentic marks on the dolerite exposed at the Graniteville quarry are inferred products of two ice-flow directions: an older NW to SE cut by a younger NNE to SSW.

Although the critical stratigraphic data required to demonstrate our multi-glacial interpretation are not yet available, we think existing data strongly imply that on Staten Island are products of at least 3, possibly 4, glacial advances. We regard their ages as: Nebraskan (?) for the much-decomposed outwash at AKR; Kansan (?) +/- Illinoian (?) for the coastal exposures of "terminal-moraine" materials derived from the NNW (including a well-developed paleosol and giant "erratic" slab of displaced Cretaceous sediments); and Wisconsinan (Woodfordian) for the till overlying the striae trending NNE-SSW at Graniteville. We do not know the location on Staten Island of any Woodfordian terminal- moraine ridge. Elsewhere, this ridge follows the S coast of CT.

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