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New York Underground

Q. *Geologists say that New York City sits on top of something called Cameron's Line. Does it matter which side of it I'm on?*

A. No. Cameron's Line is a suture-like fault line that descends from New England and runs beneath the Bronx and East Rivers, touching the western edge of Queens and looping into the lower third of Manhattan before heading south beneath New York Bay and Staten Island. First identified by a geologist, Eugene F. Cameron, in the 1950's, the line separates the prehistoric North American continent from the oceanic plate that smashed against it 450 million years ago.

The impact of the collision, known as the Taconic Orogeny, forced the American coastal shelf miles underground, where heat and pressure changed the material into Manhattan schist, Fordham gneiss and Inwood marble. These rocks are now

found west of Cameron's Line, while to the east lie Harrison gneiss and the Hartland Formation — Long Island's bedrock — which were formed where sea-floor formations were pushed up against the mainland. Subsequent continental collisions 400 and 320 million years ago folded and refolded the bedrock, pushing portions much closer to the surface.

Cameron's Line itself is a 30- to 50-meter wide looping band of crushed and sheared rock that undulates hundreds of feet below the surface. Charles Merguerian, a structural geologist at Hofstra University, began studying the line in 1977, and in 1986, during the excavation for the third New York City water tunnel, discovered an unmapped section beneath Long Island City.

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