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They Do Geology on the Run

By Dan Fagin
Staff Writer

Just another day on the Northern State Parkway: bumper-to-bumper traffic, orange cones, and an Ice Age geologist in a floppy hat digging for ancient charcoal.

John Sanders smiled as he dug on a sweltering July morning, unlike the irritated drivers who had to slow down as they passed the Westbury road-widening project. A few weeks earlier, a construction crew had bulldozed the edge of a small hillside, exposing rocks buried for tens of thousands of years. Now the retired Barnard College geology professor was happily chipping at the newly created cliff with a metal tool.

``This is a really nice exposure," he said, admiring arched bands on the cliff face that he said suggested the passage of an ancient south-flowing stream fed by a melting glacier. His discourse on glacial history was difficult to hear over the passing traffic, but Sanders kept talking -- and digging -- anyway.

The small band of geologists who labor to reconstruct Long Island's distant past is accustomed to working in less-than-ideal conditions, and to taking advantage of whatever opportunities come along.

Chronically short of research funds, they piggyback onto other projects, including road work, sand mining, well-digging, water-tunneling and even toxic cleanups. After big storms, they race to the shoreline to see rocks and cliffs uncovered by the pounding surf.

They even wish for a nasty nor'easter now and then. ``It's very opportunistic. You hope there's a nice big storm so you can get out there and see all the nice smooth [rock] surfaces," said Gilbert Hanson, a professor of geosciences at the State University at Stony Brook.

Lack of money isn't the only obstacle. So much of Long Island is already paved over that there aren't many good places left for fossil-hunting. Geologically rich sites such as the Flower Hill Bog in Manhasset have been destroyed by development, and many fossil cliffs around Long Island have been wrecked by seawalls and other erosion controls. The cliffs near the Montauk Lighthouse, a rich source of information for local geologists for more than a century, have been partially covered in recent years as the U.S. Army Corps of Engineers has tried to stave off erosion of Montauk Point.

What little geological research does take place on Long Island is almost conducted for public health or business reasons, not natural history. ``There's not much geology for geology's sake," said Glen Richard, another Stony Brook geologist.

Much of what is known about Long Island's ancient history has been discovered almost as an afterthought. Charles Merguerian, a professor of structural geology at Hofstra University, has shed new light on the formation of Long Island's bedrock by studying the walls of the new water tunnel that New York City is digging 700 feet below Brooklyn and Queens. A chronology of Long Island glaciers developed by Les Sirkin, a research professor of earth sciences at Adelphi University, is based in part on his many years of research in the abandoned sand mines of Port Washington -- a site that will soon be drastically altered by a planned 18-hole golf course and senior citizens housing complex.

Non-scientists have also done their part. Amateurs, mostly fishermen, have found all of the woolly mammoth and mastodon teeth discovered on or near Long Island. In 1967, for example, George Stires was fishing for ocean skimmer clams 70 miles south of the Rockaways when he netted a six-inch black object.

``It was pretty, so I took it home and washed it off, and after a while I called the Smithsonian," said Stires, of Bricktown, N.J. The object turned out to be the tooth of a mastodon, an Ice Age elephant species now extinct. It now resides in the Smithsonian Institution, where Stires has proudly visited it with his children.

The next important discoveries could come as a side benefit to the massive groundwater cleanup effort that is just getting underway in and around Brookhaven National Laboratory, Hanson said. Wells being dug in the area to test for chemical contamination also may be used to study long-buried sediments, just as they have at toxic-waste sites around Long Island.

Or maybe the next big revelation will come near Exit 33 on the Northern State. Sanders hopes that charcoal buried in the roadside cliff could shed some light on the controversial question of when, and how many times, the glaciers reached Long Island.

Unlike rocks, charcoal samples are relatively easy to test and date, and Sanders has already recovered one piece of charcoal he hopes to test soon.

He won't be able to get additional samples from the site, however. The little cliff on the side of the parkway, like so many other potential treasure troves for Long Island's natural historians, is due to be covered in concrete any day now.

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