THE ANTECEDENTS : PROTO-HISTORY

To introduce the second chapter of our history, we must jump across some 48,000,000 years which have elapsed since the close of the Cretaceous. During that incredibly long period of time, forces in the earth were at work elevating and depressing continents and raising and leveling mountains. No doubt other layers of rock were deposited on top of our Cretaceous shale; they were, however, destined to be destroyed and erased by later events. About 2,000,000 years ago, a new series of events commenced to mould and shape our land. This was a sequence of perhaps as many as four profound climatological changes which gave rise to what we now call "Ice Ages".

Numerous reasons for these climate changes have been cited: fluctuations in ground temperature attributable to turbulence in the molten volcanic rocks in the earth's mantle; variations in the output of solar energy; shifts in the orientation of the earth's axis (witness the Antarctic coal seams and fossils of tropical vegetation); and pollution of the atmosphere by volcanic dust. Certain it is

however, that each Ice Age was preceded by a cooling trend of several thousand years duration, which caused the formation and accumulation of staggering amounts of ice over the polar regions. These accumulations, the Ice Caps, spread slowly but relentlessly toward the south in the fashion of viscid tar, until their progress was countered by the warmer climates of the lower latitudes.

It was the last of these Ice Ages - variously estimated to have commenced between 1,000,000 and 1,500,000 years ago and to have ended 15,000 to 20,000 years ago - that created what is now Long Island. In North America one of the three focal points of the Ice Age was in Labrador, where the ice built up to a depth of many thousands of feet. Of necessity, the locking up of so much of the earth's surface water in ice caps significantly lowered sea levels around the world. Spreading outward from its Labrador center, the ice oozed southwardly. It engulfed southern Canada and proceeded across New England, gouging, plucking off and transporting the topsoil, surface material and boulders of the ancient "Canadian Shield." Using this loot much in the fashion of the teeth of a file, it pressed ever southward, submerging even the highest of New England's mountains to their very tops and scouring, grinding and assimilating the Upper soils of the land it crossed. In its relentless drive south, the glacier, for such in fact it had become, no longer retained the characteristics of pure ice, but had become a frozen plastic mush of intermingled sands, clays, boulders and ice. In effect, it was an enormous conveyor belt, moving untold millions of tons of debris southward.

Eventually the leading edge of the ice reached the latitude of southern Connecticut, only to meet counterforces in the form of a global warming trend which slowed, but did not completely halt, its southward march. With decreasing pace, the leading edge of the ice moved offshore and stalled

at what is now Long Island's north coast. Though the pressures impelling forward movement continued, meltback resulting from the warmer influences to the south gave rise to a state of equilibrium some 15,000 years ago.

This combination of circumstances gave birth to Long Island. The glacier, with its inclusions of rocks, minerals and debris, continued to press onward, but the meltback of its leading edge prevented it from extending further south. The result was a pile-up, as at the leading edge of a conveyor belt, of all the debris, refuse and boulders scraped of f Canada and New England, forming a long, unstratified dump known to geologists as a "terminal moraine. This constitutes the primordial North Shore of today.

At the outset, the crest of the moraine was considerably higher than the land surface of today, but meltwater, flowing southward from the retreating glacier, washed the deposited material toward the South Shore. Hence, the South Shore is low and level, while the North Shore is high and hilly. The entire island, consequently, slopes from north to south.

On the North Shore, localized areas of banded or stratified clays, silts and sands mark the courses of old glacier-fed streams which transported the deposits toward the south. The banding results from seasonal changes in temperature much in the same fashion that trees show annual growth rings: during warmer months, the meltwater was abundant and the glacier-fed streams, running high, could transport coarser materials; in colder months, streams ran low and could move only the finer silts and clays. As the face of the glacier retreated, the conveyor-belt effect was lost, and Long Island Sound was left between the moraine and the Connecticut bedrock. Subsequent weathering carved the ravines, gullies and valleys so characteristic of today's

North Shore, and these forces are still at work, inexorably cutting the land down toward sea level.

Upon the surface of the moraine, plants and animals established themselves. We can only speculate as to precisely how life came to these shores. Wind and water-borne seeds account for some of the plant life, and animals may have arrived either as unwilling passengers on driftwood or by swimming across from the mainland. By 5000 B.C., the biosystem, which would later be observed by the first European visitors, was in all likelihood fully established.

next section Table of Contents