

in connection with it I would desire to make some general remarks on the features of these interesting deposits.

We have here an indubitable instance of a marine boulder-clay. I have observed fossiliferous boulder-clays at Murray Bay, St. Nicholas, and Cape Elizabeth, but the example afforded at Cacouna and its vicinity is more clear and instructive; and there is also evidence that the surface under the boulder-clay is polished and striated, the direction of the striæ being north-east and south-west, or that of the St. Lawrence valley.*

The Cacouna boulder-clay is a deep-water deposit. Its most abundant shells are *Leda truncata*, *Nucula tenuis*, and *Tellina proxima*, and these are imbedded in the clay with the valves closed, and in as perfect condition as if the animals still inhabited them. At the time when they lived, the Cacouna ridges must have been reefs in a deep sea. Even Mount Pilote has huge Laurentian boulders high up on its sides, in evidence of this. The shales of the Quebec group rocks were being wasted by the waves and currents; and while there is evidence that much of the fine mud worn from them was drifted far to the south-west to form the clays of the Canadian plains, other portions were deposited between the ridges, along with boulders dropped from the ice which drifted from the Laurentian shore to the north. The process was slow and quiet; so much so that in its later stages many of the boulders became encrusted with the calcareous cells of marine animals before they became buried in the clay. No other explanation can, I believe, be given of this deposit; and it presents a clear and convincing illustration, applicable to wide areas in Eastern America, of the mode of deposit of the boulder-clay.

A similar process, though probably on a much smaller scale, is now going on in the Gulf. Admiral Bayfield has well illustrated the fact that the ice now raises, and drops in new places, multitudes of boulders, and I have noticed the frequent occurrence of this at present on the coast of Nova Scotia. At Cacouna itself, there is, on some parts of the shore, a band of large Laurentian boulders between half tide and low-water mark, which are moved more or less by the ice every winter, so that the tracks cleared by the people for launching their boats and building their fishing-weirs, are in a few years filled up. Wherever such boulders are dropped on banks of clay in process of accumulation, a species of

* South 55° west mag., near Cacouna.