

to the north of them; that salt water reached up the St. Lawrence, then a great bay, nearly to Lake Ontario, and that this lake lay at sea level, receiving the tides, although freshened in its waters by the flow from the contributing streams, so that no marine remains have been found on its borders. It also appears that a great branch bay extended from the St. Lawrence northwestward up the Ottawa valley, to a point 75 miles beyond the city of Ottawa, and another southward over the region of Lake Champlain.

Moreover, this great arm of the sea, 500 to 600 feet in depth of water at Montreal, and 700 to 900 feet in Lake Champlain, besides nurturing Mollusks, was a sporting ground for Seals, Morses, and Whales. Bones of the Hump-backed Whale, *Megaptera longimana*, have been reported by Dawson as found 440 feet above the sea in the County of Lanark, 31 miles north of the outlet of Lake Ontario; and remains of the White Whale, or Beluga (a species related to the Porpoise), both along the St. Lawrence, and on the borders of Lake Champlain, in Vermont, where a skeleton was found. The latter is the *Delphinapterus leucas* (= *catodon*) or "White Whale," the *Beluga Vermontana* of Z. Thompson. These two Arctic species, the Hump-backed Whale and Beluga, are now occasionally met with in St. Lawrence River.

At New Haven, Conn., an even slope of the terrace surface is continued to the Sound, near Savin Rock, and appears to indicate no change of level since the Champlain period. But on the borders of the bay, both the eastern and western, there is a terrace of 20', which is safer evidence on this point.

South of Cape Cod, at Sancati Head on Nantucket, the beds above sea level, as described and represented in a section by Desor (1849), consist, at base, of tilted beds of clay; horizontally above, of 33' of beds of sand, gravel, and clay containing fossils; 42' of sand and gravel without fossils; and then, at top, of 1' of peat and 6' of dune sand. The species of shells in the beds, according to Verrill (1875), are kinds now inhabiting the region, those of the lower beds indicating a summer temperature of 70°-75° F., and those above, of 55°-60° F. Shaler gives a full account of the geology, with Verrill's list of species, in *Bull.* 53, *U. S. G. S.*, 1889.

In Maine, shell-beds occur at many places near the coast — at Portland, Cumberland, Brunswick, Thomaston, Cherryfield, Lubec, Perry, etc., at different elevations up to 225'; also distant from the coast, at Gardiner, Hallowell, Lewiston, Skowhegan, Clinton Falls, and Bangor. At Lewiston, a starfish and various shells were found in a bed 200' above the ocean and 100' above the Androscoggin River; at Skowhegan, the beds are 150' above the ocean, and 100' at Bangor; near Mount Desert, a sea bottom deposit, on North Haven Island, is 217' above sea level.

The beds of Maine have afforded (Packard): *Pholas crispata*, *Saxicava arctica*, *Mya truncata*, *M. arenaria*, *Thracia Conradi*, *Macoma fragilis*, *M. sabulosa*, *Mastra ovalis*, *Astarte Banksii*, *A. elliptica*, *A. arctica*, *Cardium Islandicum*, *Serripes Grænlandicus*, *Leda pernula*, *L. minuta*, *Yoldia glacialis*, *Pecten Grænlandicus*, *P. Islandicus*, *Natica clausa*, *Lunatia heros*, *L. Grænlandica*, etc.

Shell-beds occur at several levels and many localities, along the St. Lawrence, as observed by Logan and Dawson. Part of them, as Dawson has shown, are sea beaches, and others are offshore deposits — the *Leda* clays. Beds occur west of Montreal, near Kemptville, at a height of 250'; near Ogdensburg, 275', and also near Brockville; near the city of Ottawa, 450'; in Winchester, 300'; in Kenyon, 270'; in Lochiel, 264' and 290'; at Hobbes