

them. Thus in addition to the evidence afforded by the rounded pebbles of a sea wall or the sand-grains of a sandy beach, as to their origin as beach deposits, so the fine muds tell an equally legible and still more interesting story, one which "he who runs may read." Evidently, armed with such means of recognition, the student can pass from the gravelly and sandy beaches, or from the muddy tidal flats of today, and finding what are practically the same things in the rocky ledges, or in the extensive marsh lands which skirt the bay, will reach the conclusion that they, too, must once have been at or below the sea-level, and were produced in the same way.

A word or two further as to the marsh lands. These are usually spoken of as the "dyked marshes," because, were it not for artificial embankments or dykes, they, too, would be frequently submerged, as indeed they sometimes are when through neglect or through extraordinary high tides, like those of the Saxby gale, the dykes are broken through and the "turbulent tides," as Longfellow expresses it, "are allowed to wander free o'er the meadows." These meadows are very extensive in both provinces, and are also of extraordinary fertility, producing crop after crop of fine grass without the aid of artificial manures.

I have space to refer to only one other interesting point connected with the dyked marshes. It is this: At certain points these marshes have been found to contain the buried but still erect trunks of upland trees. They occur several feet below the surface of the marsh, and of course as much below the level now reached by the flood tides. They could not possibly have grown where they were subject to submergence under salt water; and hence the conclusion is forced upon us that the land bordering the bay is now lower than it formerly was. Indeed there is good reason for believing that not the Bay of Fundy trough only, but the whole Atlantic seaboard of America, is undergoing subsidence. In Northumberland Straits the sinking is even more marked than in the bay. The sea is said to be attacking the ruins of old Fort Moncton, and from a cemetery near by is washing out the bones of certain unfortunates who, as recorded on one of the tombstones, were those scalped by the Indians.\* Finally both in New Brunswick and Nova Scotia are to be found at many places remains of old Indian encampments, originally, of course, located above the reach of the sea, but which are now being con-

\*See Bulletin Nat. Hist. Soc. of N. B., Vol. V, Part I, p. II.

stantly washed and removed by the waves. In New Brunswick such old encampments, marked by the occurrence of shells, arrow heads, beads, bones, etc., are to be seen at Oak Bay, on the St. Croix river, at the mouth of the Bocabec river, and on Frye's Island; while in Nova Scotia I have observed them about Mahone Bay and at the head of Port La Tour.

Such movements as are indicated in the above facts are general in the earth's crust, but are not always *downward*. When in this direction they lead to the submergence of the coast, the "drowning" of rivers (as will be discussed in a later chapter), the origination of islands, the deepening of harbours, etc. When in the opposite direction, they extend the coast seaward, re-unite the islands with the mainland, lengthen the course of rivers, and for a time determine conditions of general uniformity. If affecting larger areas, they may in places lift the land to mountain heights. In the next chapter we shall have to consider some of the effects of their elevatory movements.

#### Letter From Northern Alberta.

W. W. B. Webb, writing from Astleyville, Alberta, April 12th, says: "We have had a remarkably mild winter, with but little snow, not more than three inches, perhaps. Have had none since February 1st. Wagons have been in constant use. The farmers have been at work since April 2nd, the land being very dry. Have had almost continuous sunshine all winter; the days are warm and pleasant now, but colder at night-fall. The Anemone is blooming, and the poplar trees are looking green with the hanging catkins.

"The last few numbers of the REVIEW have been especially good. The pictures are valuable and very helpful in many ways. The articles on the Coast by Dr. Bailey are particularly helpful; these ought to be especially so in Acadia—to use the old name—and such pictures are of great interest in prairie sections, as they help to impress the description that may be given of the sea-shore. Your article on trees ought to be very useful to teachers, but we have few of the trees in Alberta that you have described."

The Japanese do not allow their children to go to school until they are six years old. They claim to have scientifically proved that if a child goes to school at an earlier age it is both mentally and physically detrimental.