to the locality to be nothing more than conchoidal fracture chips from the checking of the clay as it dried in the sun. Small concretions have also been found to constitute the basis of an informant's description of fossil shells. If I understand Mr Baldwin's interpretation of the marine limit in the Champlain district he also considered the two localities above mentioned as negligible.

Ebenezer Emmons[1] states that two fossils shells, including Saxicava rugosa, are found the entire length of Lake Champlain, but he cites no locality south of the southermost named in this report nor have I been able to get a record of any such southern extension of the fauna.

Depth of the submergence indicated by fossils. The bottom of the sea within the reach of continental deposits is a surface sloping from the shore out into deep water, and is normally divided into a zone of pebbly and sandy deposits at the shore, a zone of sandy deposits farther out, and still farther out a zone of clay. The pebble and sand zone is the littoral belt; in tidal seas, bared at intervals to the atmosphere. The sand zone proper is in shallow water; the clay zone extends from the sand zone out into deep water. Each zone of bottom varying thus in its lithologic character differs also in its depth of water and consequently the pressure and temperature of the water and thus each zone becomes the abode of different animals. The marine shells found in the clays and sandy clays of the uplifted sea bottom in the St Lawrence and Champlain valleys are, according to Sir William Dawson, like if not identical with those of species now living in the lower St Lawrence river and gulf at depths less than 100 fathoms. The beaches of the sea in which the marine shells in the Champlain valley lived should not then occur more than 600 feet above the shells. Sir J. W. Dawson regarded the fauna at Beauport, Quebec, as living in from 100 to 300 feet of water. The species found there include most of those known in the Champlain valley. Evidences of water levels exist in the Champlain area between 600 and 700 feet above the present sea level. As shown in the diagram [pl. 28] the known localties of marine shells ranging as high from 540

[1]Geol. N. Y. 2d Dist. 1842. p.283–85.