The Making of Boston Harbor

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When the ice melted away from New England the land stood somewhat higher above the sea than it does now, and the sea was farther to the east. New rivers developed and eroded new valleys. Gradually the land sank and the sea came into the valleys, flooding them and forming long bays. Hills that were surrounded by the sea became islands, and ridges that projected our into the water-formed peninsulas. As there were many valleys, hills, and ridges along the New England coast, many bays, islands, and peninsulas were formed, making our coast very irregular.

The sea came into the valleys of the Charles, Neponset, and Mystic rivers and the other streams about Boston, thus making Boston Harbor and the other bays that indent our coast. These flooded river valleys are called drowned valleys. All the deep bays of the New England coast have been formed in this way. Drowned valleys are especially well developed on the coast of Maine.

Where the invading sea surrounded hills, islands were formed and the shape of the island depended on the shape of the hill. Drumlins have a regular outline and they produced islands of regular shape, but those formed from rock hills are usually very irregular and rugged. In this way the numerous islands of Boston Harbor were made. Most of them are drumlins and are quite different in appearance from the rugged rock islands of the coast of Maine.

The other islands of the New England coast have a similar origin, since they were formed by the sinking of the land and the surrounding of the hills by the sea. Drumlin islands are characteristic of Boston Harbor and rock islands of the coast of Maine.

When a hill was connected with higher land by a ridge and the sea came in about it, a peninsula was made. In this way Boston Neck, Charlestown Neck, Dorchester Neck, and the numerous peninsulas of the New England coast were given their present aspect.

After the sea flooded a shallow valley the streams deposited mud and partly filled it, making a salt water marsh. There was much shallow water about Boston in which mud collected, and salt marshes are a frequent feature of our shores. A coast like ours with its numerous deep bays, islands, and peninsulas is made by the sinking under the sea or submergence of land topography. This is known as a shore line of submergence. If you look at the country about you anywhere near the coast in New England and imagine what would happen if the sea were to rise a hundred feet, you will see that the new shore line would greatly resemble the present shore line. It would have deep bays, long peninsulas, and numerous islands.

The New England coast is a typical shore line of submergence, and is in strong contrast to the shore line produced by the raising of the land and the uplifting of the sea bottom to form new land. The bottom of the sea is fairly smooth and level and when it is uplifted to form land, a straight shore with long beaches and no deep bays is produced. The east coast of Florida is typical of this kind of shore. It is called a shore line of emergence, since it is caused by the emergence of the sea bottom to become new land.

If you look at a map and see a very irregular shore you can be certain that it is a shore line of submergence and was the result of the sinking of the land under the sea. But if the map shows a straight shore with long beaches and few bays, then you know that it is a shore line of emergence, and that the ocean bottom has been lifted up out of the water.

When you sail down Boston Harbor or cruise along the coast of Maine, it is interesting to know that you are sailing over a drowned land on which animals and Indians probably roamed at one time. We know that the Indians lived here before the sea rose to its present level. In digging for the [Boston] subway a fish weir was found far below the surface of [Boylston] street, eighteen feet below the level of the sea. This proves that men were living here several thousand years ago and that the shore was different then. The sea rose very slowly, so slowly that the Indians living here probably never knew that anything was happening.

Some think that the land is still slowly sinking, about a foot a century, and that eventually Boston will be covered by the sea. Geologists are not agreed as to whether it is sinking or not, and it is very difficult to prove because the movement is so extremely slow. If the city were several thousands of years old we could tell by noticing whether any old buildings had sunk under the water. At Pozzuoli in Italy is an old temple which was sunk thirteen feet under the sea, and has been raised up again in the last few centuries. On the New England coast are tree stumps which have sunk under the water, but we do not know how long they have been there.

Even if our land is sinking slowly there is no cause for alarm. It would be hundreds of years before we could notice any difference. Man is continually building up the land and, even if the sea is rising a foot a century, it will be a long time before there can be any serious trouble.

We have now traced the development of the Boston region up through the formation of the harbor, but some finishing touches were still to be applied before the white man appeared. Our beautiful beaches, Nantasket, Revere and Nahant, did not exist, and the harbor was partly open to storm waves because the protecting peninsulas of Nantasket and Point Shirley had not yet been formed.