

some striking examples of the rapid changes which a coast line may undergo. Hon. Joseph Howe a number of years ago reported that by actual measurement 11 miles of the west end of the island had disappeared in 30 years. The commodious harbour on Sable island which was formerly a favorite haven of safety for fishing vessels was closed by a gale in 1836 shutting in two American vessels whose ribs are now buried in the sand.

On parts of the south coast of England the work of the sea is largely constructive. Some of the towns on the coast which were located on the sea shore in the days of the early English kings, are now one or more miles inland. During storms from the southwest the waves and currents drive enormous quantities of shingle and gravel onto this coast, often making it difficult or impossible to keep the harbours open. At the Port of Dover it was long the custom for the Mayor to summon with a drum, by day or night, all the householders in the city to the harbour to shovel shingle whenever it was endangered by the influx of shingle drift.

Facts like these had been observed long before the development of modern science. Some of the more reflective minds of the Middle ages were deeply impressed by them. Mohammed Kaswini an Arab writer of the 13th century had at that early period felt the spell of the mighty past of geological time. His impressions were put into allegorical form. They are given in the following narrative of Kidhz, an allegorical personage: "I passed one day by a very ancient and wonderfully populous city and asked one of its inhabitants how long it had been founded. It is indeed a mighty city, replied he, we know not how long it has existed, and our

ancestors were on this subject as ignorant as ourselves. Five centuries afterwards as I passed by the same place I could not perceive the slightest vestige of the city. I demanded of a peasant who was gathering herbs upon its former site, how long it had been destroyed. In sooth a strange question, replied he, the ground here has never been different from what you now behold it. Was there not of old, said I, a splendid city here? Never, he answered, so far as we have seen and never did our fathers speak to us of any such. On my return there five hundred years afterwards I found the sea in the same place and on its shores were a party of fishermen of whom I inquired how long the land had been covered by the waters. Is this a question said they for a man like you? This spot has always been what it is now. I again returned five hundred years afterwards and the sea had disappeared. I inquired of a man who stood alone upon the spot how long ago this change had taken place; and he gave me the same answer as I had received before. Lastly, on coming again, after an equal lapse of time, I found there a flourishing city more populous and more rich in beautiful buildings than the city I had seen the first time; and when I would fain have informed myself concerning its origin, the inhabitants answered me, Its rise is lost in remote antiquity; we are ignorant how long it has existed, and our fathers were on this subject as ignorant as ourselves."

This allegory of the old Arab writer was doubtless inspired by finding somewhere fossil sea shells representing, like those of the Rideau sand pits, a long vanished sea. In this ancient story we can discern a glimmer of the dawn of the science of historical geology.



Fig 2.—The Champlain submergence. The shaded portion of the map indicates the extent of this invasion of the sea. (After F. Taylor).