

shows clearly that at that point the sea must have penetrated formerly farther than at present.

*Silting up of Estuaries.* — At Yarmouth, the sea has not advanced upon the sands in the slightest degree since the reign of Elizabeth. In the time of the Saxons, a great estuary extended as far as Norwich, which city is represented, even in the thirteenth and fourteenth centuries, as “situated on the banks of an arm of the sea.” The sands whereon Yarmouth is built, first became firm and habitable ground about the year 1008, from which time a line of dunes has gradually increased in height and breadth, stretching across the whole entrance of the ancient estuary, and obstructing the ingress of the tides so completely, that they are only admitted by the narrow passage which the river keeps open, and which has gradually shifted several miles to the south. The ordinary tides at the river’s mouth rise, at present, only to the height of three or four feet, the spring tides to about eight or nine.

By the exclusion of the sea, thousands of acres in the interior have become cultivated lands; and, exclusive of smaller pools, upwards of sixty freshwater lakes have been formed, varying in depth from fifteen to thirty feet, and in extent from one acre to twelve hundred.\* The Yare, and other rivers, frequently communicate with these sheets of water; and thus they are liable to be filled up gradually with lacustrine and fluviatile deposits, and to be converted into land covered with forests. Yet it must not be imagined, that the acquisition of new land fit for cultivation in Norfolk and Suffolk indicates any permanent growth of the eastern limits of our island, to compensate its reiterated losses. No *delta* can form on such a shore.

Immediately off Yarmouth, and parallel to the shore, is a great range of sand-banks, the shape of which varies slowly from year to year, and often suddenly after great storms. Captain Hewitt, R. N., found in these banks, in 1836, a broad channel sixty-five feet deep, where there was only a depth of four feet during a prior survey in 1822. The sea had excavated to the depth of sixty feet in the course of fourteen years, or perhaps a shorter period. The new channel thus formed serves at present (1838), for the entrance of ships into Yarmouth Roads; and the magnitude of this change shows how easily a new set of the waves and currents might endanger the submergence of the land gained within the ancient estuary of the Yare.

That great banks should be thrown across the mouths of estuaries on our eastern coast, where there is not a large body of river-water to maintain an open channel, is perfectly intelligible, when we bear in mind that the marine current, sweeping along the coast, is charged with the materials of wasting cliffs, and ready to form a bar anywhere, the instant its course is interrupted or checked by any opposing stream. The mouth of the Yare has been, within the last five cen-

\* Taylor’s Geology of East Norfolk, p. 10.