

**THIRD ANNUAL REPORT OF
THE BOARD OF HARBOR
COMMISSIONERS, HOUSE,
NO. 13, JANUARY 1869**

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Various

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THIRD ANNUAL REPORT

OF THE

City of Boston
Board of Harbor Commissioners.

JANUARY, 1869.

BOSTON:
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1869.

Commonwealth of Massachusetts.

REPORT.

*To the Honorable the Senate and the House of Representatives
of the Commonwealth of Massachusetts.*

In accordance with the provisions of section 8, chapter 149 of the Acts of the year 1866, the Board of Harbor Commissioners beg leave to submit their Third Annual Report.

PLAN FOR THE OCCUPATION OF SOUTH BOSTON FLATS.

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19/8
The existing plan for the improvement of the South Boston Flats in its main features was developed by the United States Commissioners on Boston Harbor, representing in Professor Bache, the Superintendent of the Coast Survey, Gen. Totten, and after his decease, Gen. Delafield, Chief Engineers of the United States Army, Rear-Admiral Davis, of the United States Navy Observatory, and Mr. Henry Mitchell, Consulting Engineer to the Commission, scientific and engineering ability of the highest character in the country. A series of annual reports made to the city of Boston, gave the elaborate investigations and studies of Boston Harbor, out of which the plan for the occupation of the South Boston flats was matured. Their investigations led them to recommend, from a purely physical point of view, and as benefit to the tidal system of the harbor, the construction on the easterly line of Fort Point Channel and the south-westerly margin of the main channel, of a sea-wall of solid masonry to prevent the dispersion of tide-water over the flats, and by its concentration in the main channel along the wall, counteract a tendency to shoaling that now exists there.

The attention of these Commissioners having then been called

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to the question of the occupation of these flats for business, and the importance of making them available for such purposes, they made investigations to ascertain the conditions upon which this could be done with safety. The displacement from the upper harbor of the immense volume of tide-water which at every tide floods the hundreds of acres of these flats and helps to keep the harbor channels open, and the reduction of scouring force that must be the necessary result of such displacement, were insuperable objections in their minds to the scheme of occupation, unless compensation for such displacement could be secured by making available elsewhere for scour, an equally effective volume of tide-water.

Upon this necessity of compensating for any tide-water displaced in the upper harbor of Boston, we quote their emphatic and imperative language. "The filling up of a portion of the harbor near the mouth, in this particular case, would, perhaps, be locally of no measurable injury, and would deprive the main avenue leading to the sea of so little scouring power that no sensible effect would ever follow; but higher up towards the head of the harbor the same displacement would deprive the entire avenue below it of an element of scouring power which it cannot everywhere or as a whole afford to lose. The upper harbor of Boston, because of the local value of its main channel, and because of the indirect value of its tidal volume to adjacent portions of the lower harbor channels, *cannot, in our opinion, afford to lose another cubic yard of tide-water.* If the application of the compensation rule involves expenses exceeding the benefits to be derived in the most desirable project of occupation, still, we repeat, the harbor cannot afford the loss of tide-water. We do not doubt that the business facilities of your city may be improved by the occupation of flats at various points, but can you or your successors afford to see the smallest additional injury inflicted upon the channel, which some of your clipper ships cannot now traverse till helped over its bars by the rise of the tide, and then only with the aid of a fair wind or a steam-tug? You ask us to advise you in the conservation of your harbor, and we recommend as a matter of primary importance to this end, that you solicit of the legislature the passage of a law *prohibiting any further displacement of the upper harbor tide-water without compensation.*"

The system of compensation devised by the United States Commissioners as inseparable from any plan of occupation, provided that the volume of water displaced from the flats of South Boston should be transferred to Charles River, Mystic River and Chelsea Creek, by extensive excavations between high and low water mark in those tidal reservoirs. In 1866, by chapter 149 of the Acts of that year, the Commonwealth adopted these recommendations of the United States Commissioners, by passing a law establishing the Board of Harbor Commissioners, and requiring compensation for all tide-water displaced by structures built under subsequent grants of the legislature, in the upper harbor of Boston. By chapter 81 of the Resolves of the same year, the Commonwealth adopted the plan for the occupation of the South Boston flats, made in accordance with the views of the United States Commissioners and presented to the legislature of 1866 in the report of the State Commissioners on harbors and flats; a copy of this plan with the modifications of the same since authorized and made, is annexed to this Report. The execution of it requires the construction of a sea-wall on the easterly side of Fort Point Channel and along the margin of the main channel to Castle Island, the extension of the wharves on the westerly side of Fort Point Channel at the mouth on the lines laid down, and the filling solid of all the flats inclosed by the sea-wall, except what shall be reserved for docks opening out upon the main channel, and for a channel-way, so long as it is deemed advisable, on the line of riparian ownership, to give convenient access to the land of the shore owners. The same legislature that established this Board and enacted the law which it was to administer, instructed it to report to the following legislature the probable cost of the filling and the building of the wall, wharves, streets, and sewers required by the plan; "also the probable expense of making compensation for tidal water to be shut out by the filling of said flats; also to ascertain and report on what terms and conditions the said walls, wharves, streets, sewers, or any part thereof can be built by any corporations or individuals, and on what terms and conditions the said flats or any part thereof can be filled, and on what terms and conditions the said flats or any parcels thereof can be sold to any corporations or individuals, either for money or for filling other portions of said flats, and in what

places and manner compensation for the tide-water shut out by filling said flats can best be made, and on what terms and conditions persons whose lands are to be affected by said compensation will give authority to make the same * * * *, the said commissioners in all plans and proposals submitted by them always regarding the protection and improvement of the harbor of Boston as of paramount importance in any intended occupation of said flats * * * *; provided that compensation for all tide-water excluded by carrying into effect these resolves shall be duly made as provided in the act to establish a Board of Harbor Commissioners * *; provided that no money shall be paid from the treasury of the Commonwealth; provided also that nothing shall be done under this resolve which shall conflict with the plan of the South Boston flats accompanying the report of the Commissioners on harbors and flats of the Commonwealth of Massachusetts, presented to the legislature on the sixth day of January in the year 1866, or which shall conflict with the reports of the United States Commissioners."

The Board reported in accordance with these instructions, to the legislature of 1867. No offer to purchase the flats could be obtained. The only terms of a contract for carrying out the proposed improvement, which the Board was able to obtain, were those arranged with the city of Boston, though not finally agreed to, and these terms were communicated to the legislature. Under them the whole territory, comprising some 750 acres, was to be conveyed to the city of Boston, on condition that the city should carry out the improvement on the plan adopted by the Commonwealth, make the requisite compensation for displaced tide-water, by excavations on Chelsea Creek, Charles and Mystic Rivers, pay into the State treasury one hundred thousand dollars, and ten per cent. of the net profits of the improvement, for the benefit of all the harbors throughout the State, except that of Boston, and hold the remaining ninety per cent. of the profits and the income of the same, as a fund to be applied for the benefit of the harbor of Boston. The estimated cost of dredging and excavations for compensation alone for the first two sections, as recommended by the U. S. Commissioners, amounted to nearly two million dollars.

The legislature of 1867, however, preferred that the Com-

monwealth should retain the control in the execution of this improvement, and accordingly authorized this Board, subject to executive approval, to contract for the construction of a "continuous" sea-wall as far as Slate Ledge, noted on the annexed plan, upon a location to be fixed by an engineer to be appointed by the Governor. This was the least extent of wall which, in the opinion of the United States Commissioners, could be built without injury to the harbor. Two hundred thousand dollars were appropriated for its construction. The same legislature also appointed a committee of nine of its members, with full powers to carry out the proposed improvement by any contracts payable in land or flats, which should not take money from the treasury of the Commonwealth; and in relation to compensation, provided "that said committee shall neither fill nor make any contract for the filling of any portion of said flats, nor allow the same to be filled by any person or persons without first providing for such compensation for tide-water displaced as may be necessary for the protection and preservation of the harbor of Boston," &c. In consequence of the inadequacy of the appropriation for the construction of a "continuous" sea-wall, according to the specifications of the State engineer, and heavy enough for the location finally fixed by him, no contract was made by the Board. The legislative committee in the course of their investigations, came to the conclusion that the legislation then existing did not furnish a satisfactory basis for the prosecution of the work, and they too made no contracts.

Although no wall was built or filling done in the year 1867, much was accomplished by way of developing a plan of operations for the execution of this improvement. Impressed with the magnitude of the incumbrance upon the scheme for the occupation of the South Boston flats, imposed by the obligation to compensate for displaced tide-water by enlarging tidal reservoirs of the harbor according to the plan of the United States Commissioners, which was adopted by the legislature of 1866, and which by the legislation of that year the Harbor Commissioners were enjoined to adhere to, the Board determined soon after the adjournment of the legislature of 1867, to make a new investigation for the purpose of ascertaining whether this method of making compensation was the best and most economical that could be devised, and whether some other solution of this prob-

lem of compensation could not be worked out. This investigation was conducted by the United States Advisory Council, and the result was to relieve this great undertaking of the principal obstacle that stood in the way. The United States Commission had declared that as a preliminary step to the excavations to be made in Mystic and Charles Rivers, an improvement of the outlets would be indispensable. The encroachment of wharves and bridges on the mouths of these rivers had already made them insufficient for the free course of the water flowing through them. The obstruction of these outlets, and the increased velocity induced by this reduction of the outlets, had caused the mud and sand to be swept by the current in large masses from their beds, and carried into the harbor. To make these avenues sufficiently large for an increased flow of tide-water, without further disturbance of the beds, either the wharves and bridges must have been in part removed, or artificial excavations must have been made in anticipation of the new regimen to be induced by the introduction of the compensating volume of tide-water. Either mode of *preparing* for the adoption of a system of compensation in kind would involve a large expenditure of money to be added to the expense of compensation itself. It was estimated that "the expense of a proper transfer of the tide-water from South Boston flats to interior basins would exceed the cost of removing all the bars and shoals from the main channel, and the further cost of maintaining the channel in its improved condition forever." The Board, therefore, in their report to the legislature of 1868, recommended that, instead of expending vast sums upon these reservoirs and their outlets, and waiting many years for improvements to develop themselves in the harbor below, the expenditure should be made directly upon the main channel, especially as every shovelful of earth taken from the bed of the channel would be available for filling upon the flats. They made, therefore, the following proposition: "As soon as the wall has sufficiently advanced to offer proper protection to the filling, dredging shall commence in the main channel, and the material be used for reclamation, until the flats in front of the wall are wholly removed to the depth of twenty-three feet at mean low water, and the anchorage shoal also excavated to the same depth; and furthermore, from the profits arising from