IMPROVEMENT OF THE COLUMBIA.

IN view of the importance of the Columbia river navigation to the whole Pacific northwest, the recently issued annual report of Major Handbury contains a good deal that is of popular interest on this subject. This report embraces both the improvement at the mouth of the river and the work at the Cascades, and gives in condensed form the progress that has been made from the beginning, the present state of the work, and the needs for its successful prosecution. Following is a statement of the condition of the work at the mouth of the Columbia:

"The project under which this work is being carried on was adopted in 1884. It contemplates providing a channel across the Columbia river bar, having a depth of thirty feet at mean low tide. This is to be accomplished by concentrating the water flowing over the bar and increasing the resultant currents to such a degree as to procure the desired depth. Of late years the main bar channel has varied from nineteen to twenty-one feet in depth at low water, with insufficient width; twenty-six feet are required in a wide, direct and stable channel, and thirty feet are desirable for the deep vessels needed by the Columbia river trade, on account of heavy seas in the locality. The work which is now in progress is the building of a low-tide jetty from Point Adams on the south cape, and extending in a westerly direction, with a slight curve to the south, out across Clatsop spit. The project calls for this to extend four and one-half miles, or less, as circumstances may require, to a point about three miles south of Cape Hancock. The material is principally stone, placed in position from a tramway resting on piles driven along the line of the jetty. The jetty is now under construction for a little more than one-half a mile; over much of this distance only a thin layer of stone has yet been placed. The work is not sufficiently advanced to show any appreciable effect upon the channel over the bar. The amount appropriated for this work is $287,500.00, of which there has been expended to June 30, 1888, $247,331.75."

The report says this work is now in fair shape to be pushed forward rapidly as soon as funds in sufficiently large amounts are made available for the purpose. "An early completion of this work is exceedingly desirable; first, because of the necessity for giving relief to the commerce, which is large and important, that passes out and in over the bar; and second, to avoid the increased cost that must result from a deterioration and renewal of the plant, which is necessarily large and expensive. The jetty tramway from which the rock is delivered, extends out on the proposed spit and is severely tried by every storm that visits this locality. It is very liable to be injured and parts of it washed away. To drive new piles into the sand through the rocks of the jetty and reconstruct it would be very difficult and expensive. Where so large an amount of money is invested as must eventually be in this project, and where so many interests are concerned, a sound business policy would dictate that the work should be pushed as rapidly as money could be profitably expended upon it. It is estimated that $1,000,000.00 could be profitably expended upon this work in the fiscal year ending June 30, 1890."

Concerning the construction of a canal at the cascades of the Columbia, the first interruption to navigation encountered in passing up the stream, the engineer's report has the following:

"The general scope of the improvement which it is desired to effect at the cascades of the Columbia river includes a reach of about four and one-half miles, where the river rushes through a narrow gorge in the Cascade mountains. The fall in the distance is about forty-five feet at high water and thirty-six feet at low water. The principal obstruction to navigation occurs at the upper end of the reach, known as upper cascades. The project for the improvement contemplates that the river should be improved below the upper cascades by removing bowlders and projecting points in the bed and banks, so as to give good navigable water from its lowest up to a twenty-foot stage. The fall at the upper cascades is to be overcome by digging a canal about three thousand feet in length across the neck of a low projecting spur, around which the river is forced at the entrance to the gorge, and placing in this a lock and other suitable structures which would permit of the passage of boats up to a twenty-foot stage of the water in the river. This lock and canal to be so arranged, that, should the future necessities of commerce so demand, additional structures may be added which will permit of navigation at much higher stages. The first part of this project, that of improving the river below the foot of the upper cascades, is essentially finished. The plan on which the future work in the canal, with its lock and accessories, is to be prosecuted, has for its object to make this portion of the river available for navigation to a stage up to twenty feet, at the earliest possible moment, with the funds that are from time to time appropriated for the purpose, and may be briefly outlined as follows: A lock is to be constructed in the lower half of the canal, having an available length for boats of four hundred and sixty-two feet, and a width of ninety feet. There will be eight feet of water over the miter sills at low water, which corresponds to a reading of seventy-two feet on the gauge established at the lower end of the