

REPORT  
OF THE  
SECRETARY OF WAR;

BEING PART OF  
THE MESSAGE AND DOCUMENTS

COMMUNICATED TO THE  
TWO HOUSES OF CONGRESS  
AT THE  
BEGINNING OF THE SECOND SESSION OF THE FORTY-FOURTH CONGRESS.

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VOLUME II.  
PART I.

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1876.

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REPORT  
OF  
THE CHIEF OF ENGINEERS.

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ments he was unable to carry on the work. The work will be completed in the course of the present fiscal year.

Amount available July 1, 1875.....	\$24,572 69
Amount expended during fiscal year ending June 30, 1876.....	192 42
Amount available July 1, 1876, including \$20,657.21 due on contracts.....	24,380 27

(See Appendix DD 3.)

4. *Improvement of Sacramento and Feather Rivers, California.*—One hundred and eighty snags were removed from the Sacramento River, between Grimes Landing and Walsh's Landing, a distance of 115 miles.

On the Feather River 1,820 linear feet of brush-dams were built, distributed between 3 shoal places, namely: Marysville Rapids, Suttee Ranch, and Whisky Chute. Twenty-four snags were removed from the Feather River.

The effect on the Sacramento River was to give an available channel of 3½ feet depth as high as Jacinto, and 2½ to Walsh's Landing. This improvement was of great value to the farmers along the river, who send by this route large agricultural products.

The Feather River was also improved so that the boat to Marysville was able to pass the shoalest places easily.

Amount available July 1, 1875.....	\$14,982 66
Amount expended during fiscal year ending June 30, 1876.....	14,722 78
Amount available July 1, 1876.....	259 88
Amount that can be profitably expended in fiscal year ending June 30, 1878.	20,000 00

(See Appendix DD 4.)

#### IMPROVEMENT OF THE HARBOR OF SAN DIEGO, CALIFORNIA.

Officer in charge, Lieut. Col. C. S. Stewart, Corps of Engineers, with Lieut. J. H. Weeden, Corps of Engineers, under his immediate orders.

1. *San Diego Harbor, California.*—During the fiscal year a project for this work was formed by the majority of the Board of Engineers for the Pacific Coast, and approved by the Secretary of War. The new survey, maps, descriptions of land, &c., required for procuring the right of way were then made, and proceedings instituted in the proper court, by the United States attorney for California, for condemnation of the land needed for public use. As the result, on May 29, 1876, the title to the land was vested in the United States. Contracts having in the meantime been made for earth and stone work, under them ground was broken on June 5.

At the end of the fiscal year a portion of the channel had been excavated in part, and corresponding embankment of the levee made for a length of 890 feet from its western terminus, and 350 feet of levee built from the eastern end; the latter length had also been faced with stone.

Total earth excavated and put in place under the contract, 4,365 cubic yards. Total stone in place, 434 cubic yards.

Amount available July 1, 1875.....	\$78,330 74
Amount expended during fiscal year ending June 30, 1876.....	4,185 72
Amount available July 1, 1876.....	74,145 02

(See Appendix EE 1.)

#### IMPROVEMENT OF RIVERS IN OREGON AND WASHINGTON TERRITORY.

Officers in charge, Maj. N. Michler, Corps of Engineers, to December 28, 1875, since which time Maj. John M. Wilson, Corps of Engineers.

1. *Improvement of the Lower Willamette and Columbia Rivers.*—Operations during the fiscal year have consisted of dredging at Post-office Bar

and the bar at the mouth of the Willamette, and at Saint Helen's bar, in the Columbia River. Surveys have been made of these various bars, of the shore-line at Sand Island, and of the bar at the mouth of the Columbia.

Extensive repairs have been made to the United States dredge and scows.

During the present season it is proposed, whenever the freshet will admit, to continue dredging the bars at Swan Island, Post-office, mouth of the Willamette, and at Saint Helen's, in the Columbia, and to make new surveys of those bars. An additional dredge is required.

The proposed project of the officer now in charge for the permanent improvement of the Willamette and Columbia Rivers from Portland to the sea (see Appendix F F 10) has been referred to the Board of Engineers for the Pacific Coast for opinion thereon.

Amount available July 1, 1875 .....	\$26,625 74
Amount expended during fiscal year ending June 30, 1876 .....	17,532 50
Amount available July 1, 1876 .....	9,093 24
Amount appropriated by act approved August 14, 1876 .....	20,000 00
Amount (estimated) required for completion of proposed project.....	328,526 00
Amount that can be profitably expended in fiscal year ending June 30, 1878.	150,000 00

(See Appendixes FF 1 and FF 10.)

2. *Improvement of the Upper Willamette River, Oregon.*—Operations during the fiscal year have consisted of the removal of snags, stumps, rocks, &c., the construction of wing-dams, and the survey of portions of the river.

The United States snag-boat has removed 707 snags, stumps, &c., and 12½ yards of rock; wing-dams have been constructed at Union and Lone Tree bars, aggregating 1,530 feet in length. Surveys have been made from Eugene City to Ingram's Bend, from Albany to Salem, and of various bars between Salem and Oregon City, aggregating in all a distance of 66 miles.

During the present season it is proposed to continue operations with the snag-boat, to construct about 3,100 feet of wing-dam, to elevate 75 cubic yards of rock, and to make a survey of the river from Salem to Portland.

Amount available July 1, 1875 .....	\$25,000 00
Amount expended during fiscal year ending June 30, 1876.....	16,961 75
Amount available July 1, 1876, including \$275.40 due on contracts.	8,038 25
Amount appropriated by act approved August 14, 1876 .....	20,000 00
Amount (estimated) required for completion of existing project... Project incomplete.	
Amount that can be profitably expended in fiscal year ending June 30, 1878.....	45,000 00

(See Appendixes FF 2 and FF 11.)

3. *Improvement of the Upper Columbia and Snake Rivers, Oregon, Washington, and Idaho.*—Operations during the winter season of the fiscal year, the only time work can be carried on, have been in progress at Homly and Upper Umatilla Rapids, 118.36 cubic yards of rock having been removed from the former, and 367.49 cubic yards from the latter, the channel in both places having been greatly improved.

During the working season of the present fiscal year it is proposed to continue the excavation of dangerous rocks from the channel at Umatilla, Rock Creek, Owyhee, and Squally Hook Rapids, in the Columbia River, and from Pine-Tree Rapid, in the Snake River.

Amount available July 1, 1875.....	\$35,644 51
Amount expended during fiscal year ending June 30, 1876.....	19,637 41
Amount available July 1, 1876, including \$2,291.90 due on contracts.	16,007 10

Amount appropriated by act approved August 14, 1876.....	\$15,000 00
Amount (estimated) required for completion of existing project... Project incomplete.	
Amount that can be profitably expended in fiscal year ending June 30, 1878 .....	30,000 00
(See Appendixes FF 3 and FF 12.)	

4. *Improvement of the Umpqua River, Oregon.*—No additional work has been accomplished on this river during the fiscal year, and no further work is proposed.

There is a balance of \$4,685.89 remaining from the appropriation of March 3, 1871.

#### EXAMINATIONS AND SURVEYS FOR IMPROVEMENT.

Major Michler was charged with and submitted to this office reports upon the following, for which provision was made in the river and harbor act of March 3, 1875:

1. *At mouth of Nehalem River, Oregon.*—(See Appendix F F 6.)
2. *Puyallup River, from the coal-mines to its mouth, Washington Territory.*—(See Appendix FF 7.)
3. *For canal to connect Shoalwater Bay with the Columbia River.*—(See Appendix FF 8.)
4. *Alsea River and Bar, Oregon.*—(See Appendix FF 9.)

Major Wilson has also, under instructions from this office, submitted reports upon the Puyallup River and the canal route from Shoalwater Bay to Columbia River. (See Appendixes FF 13, and FF 14.)

#### IMPROVEMENT AND CARE OF PUBLIC BUILDINGS AND GROUNDS IN THE DISTRICT OF COLUMBIA—WASHINGTON AQUEDUCT.

Officer in charge, Col. O. E. Babcock, Corps of Engineers.

The condition of the public reservations in the city of Washington, and of the aqueduct for supplying the cities of Washington and Georgetown with water, and the character of the improvements made on them during the fiscal year, will be found in the detailed report of the officer in charge.

The estimates of the officer in charge for the fiscal year ending June 30, 1878, as revised in this office, are as follows:

For improvement and care of public buildings and grounds.....	\$229,050
For compensation to persons employed on and around public buildings and grounds.....	46,980
For contingent and incidental expenses.....	2,000
	278,030
For the Washington Aqueduct.....	349,500
(See Appendix GG.)	

#### SURVEYS AND EXAMINATIONS WITH A VIEW TO THE IMPROVEMENT OF RIVERS AND HARBORS.

For examinations and surveys of rivers and harbors and for incidental repairs of harbors, for which there is no special appropriation, an appropriation of \$150,000 should be made.

#### SURVEY OF NORTHERN AND NORTHWESTERN LAKES.

Officer in charge, Maj. C. B. Comstock, Corps of Engineers, who has under his immediate orders the following officers of the Corps of Engi-