

**The Report of the
Chief of Engineers
1917-1918-1919-1920**

July 1, 1917, balance unexpended	\$30,099.06
Amount appropriated by river and harbor act approved Aug. 8, 1917	64,000.00
Receipts from sales, etc., during fiscal year 1918	845.44
	94,944.50
June 30, 1918, amount expended during fiscal year for maintenance ¹	27,598.37
July 1, 1918, balance unexpended	67,346.13
July 1, 1918, outstanding liabilities	\$4,294.56
July 1, 1918, amount covered by uncompleted contracts	28,272.60
	32,567.16
July 1, 1918, balance available, including \$33,112.24 available only for maintenance	34,778.97
Amount that can be profitably expended in fiscal year ending June 30, 1920 for maintenance	² 20,000.00

14. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

The improvement for which report is made under this caption forms part of the project for Bayou Plaquemine, Grand River and Pigeon Bayous, La. (C3). See pages 942 to 946 of this report, where general information can be found. The completed lock has been operated and maintained under the permanent indefinite appropriation since July 1, 1909.

Operations and results during fiscal year.—The operating and care of lock and grounds were carried on, which included repairs to controlling mechanism of filling valves, the painting of inside and outside of lock gates, renewing of gate anchor base blocks, repairing hydraulic capstan, repairing and painting gasoline storage tank, and repairing steps on north wall; the machinery and boilers in power house were kept in good condition by minor repairs; water connections for fire protection were made to new blacksmith shop and warehouse; walks and roadways on the reservation and connecting with adjacent streets were kept in good condition; construction of blacksmith shop was completed; power house, lockmaster's house, etc., were kept in good repair. The U. S. dredge *Dela-tour* dredged in lock chamber and in the approaches, removing a total of 31,508 cubic yards of material at a cost of \$3,195.15, as follows: 25,629 cubic yards from river approach, 2,195 cubic yards from lock chamber, and 3,684 cubic yards from bayou approach. There were constructed by hired labor the blacksmith shop, the U. S. launches *Vermilion* and *Mermentau* and partial construction of U. S. launch *Nezpique* and U. S. barges *Nos. 38, 39, 40, 41, and 42*. The U. S. launches *Vermilion*, *Salvador*, and *Maurepas* were docked and repaired. There was expended \$23,289.98 for operating and care.

Condition at end of fiscal year.—The work of securing the mouth of Bayou Plaquemine against caving was completed in 1894. Work consisted of five submerged spur dikes, placed at intervals of 900 feet, with intervals protected by revetment, all of which are in good condition. The lock was completed in 1909; approaches, fill, and dredging were completed in 1911, which completed the existing project. The lock is equipped with a power house, office building,

¹ Not deducting receipts from sales, etc.

² Exclusive of available funds.

two lockmaster's dwellings, and several out houses, all in good condition. The United States reservation comprises 19 acres. There was expended for operating and care of Plaquemine Lock \$182,592.90.

Proposed operations.—The lock will be operated and maintained under allotments from the permanent indefinite appropriation provided by section 6 of the river and harbor act of March 3, 1909.

Commercial statistics.—A comparative statement of shipments and receipts passing through the lock during the last five calendar years is as follows:

Comparative statement.

Calendar year.	Short tons.	Value.	Passengers.	Calendar year.	Short tons.	Value.	Passengers.
1913.....	81,966	\$3,947,427	504	1916.....	156,885	\$2,878,731	294
1914.....	55,095	2,802,100	582	1917.....	205,741	5,122,398	406
1915.....	99,746	2,424,441	789				

The tonnage for the calendar year 1917 consisted principally of coal, sugar, fuel oil, timber, and miscellaneous merchandise. Timber comprises about 45 per cent, fuel oil about 27 per cent, and coal about 14 per cent of the total tonnage.

The draft of vessels using the lock varies from 3 feet 6 inches to 7 feet.

15. OPERATING AND CARE OF KEYSTONE LOCK, BAYOU TECHE, LA.

The improvement for which report is made under this caption forms part of the project for Bayou Teche, La. (C5). See pages 948 to 952, where general information can be found. The completed lock and dam has been operated and maintained under the permanent indefinite appropriation since July 1, 1913.

Operations and results during fiscal year.—The operating and care of lock, grounds, dam, controlling gates in the feeder from Spanish Lake, and the dam in Bayou Vermilion were carried on, which includes minor repairs to top of dam and painting same with tar, re-vetting with stone to prevent wave wash, and moving hyacinths; renewing fender piling; painting iron work on gates, tarring gates and fender piling; repairing gear to gate spars and gate-operating mechanism; and repairing walks, mowing and draining reservation. Construction of U. S. fuel barges Nos. 7 and 8 by hired labor was begun. Ordinary repairs were made to fuel barge No. 5 and U. S. barge *Chene*. There was expended during the fiscal year for operating and care \$5,596.48.

Condition at end of fiscal year.—The lock and dam were completed in 1913 and are in good condition. The dredging and snagging which were done in 1916 completed the existing project. The lock is equipped with two lock-master's dwellings and several out-houses, all in good condition. The United States reservation comprises 12.27 acres. There was expended for operation and care of lock, dam, and grounds \$20,595.88.

Proposed operations.—The lock and dam will be operated and maintained under allotment from the permanent indefinite appropri-

COMMERCIAL STATISTICS.

Season of navigation, year 1916. Opened January 1; closed December 31.

Vessel classification.

Classes.	Number on stream.	Number of trips.	Net registered tonnage.	Passengers.
AMERICAN.				
Registered:				
Steamers.....	21	681	51,562	1,500
Gasboats.....	9	785	10,014	
Unregistered:				
Gasboats.....	25			
Unrigged barges.....	75			
Total.....	130	1,466	61,576	1,500

Freight traffic.

Article.	Amount in customary units.	Amount in short tons.	Value.	Average haul or distance freight was carried.	Ton-mile statistics.
				Miles.	
Brick.....	15,000	38	\$114	18	684
Cane, sugar.....	38,627 tons	38,627	153,508	20	772,540
Cement.....	2,000 barrels	400	4,800	20	8,000
Coal.....	1,001 tons	1,000	4,000	40	40,000
Corn.....	20,000 bushels	500	19,000	40	22,400
Farm and dairy products..	50 tons	50	15,000	40	2,000
Feed, ground.....	800 tons	800	24,000	40	32,000
Fertilizer.....	7,000 tons	7,000	238,000	40	280,000
Grain and products.....	500 tons	500	17,500	40	20,000
Gravel.....	6,350 tons	6,350	6,350	40	254,000
Hay.....	140 tons	140	1,680	40	5,600
All animals.....	50 head	13	2,600	30	390
Logs.....	104,435,742 feet b. m.	417,742	1,305,444	40	16,709,680
Lumber.....	1,255,965 feet b. m.	2,532	31,650	40	101,280
Machinery.....	950 tons	950	95,000	40	38,000
Iron and steel.....	303 tons	303	18,180	40	12,120
Miscellaneous merchandise.	30,000 tons	30,000	3,000,000	40	1,200,000
Molasses.....	8,000 barrels	2,000	130,000	30	78,000
Oats.....	6,000 bushels	90	2,970	40	3,600
Oil, fuel.....	131,942 barrels	20,451	163,608	50	1,022,550
Oil, refined.....	2,005 barrels	311	10,203	50	15,550
Oysters.....	134 tons	134	3,350	75	10,050
Potatoes.....	5,050 barrels	442	22,100	40	17,680
Rice.....	78,807 sacks	7,093	567,440	40	283,720
Salt.....	300 tons	300	900	40	12,000
Shingles.....	500,000	250	6,250	40	10,000
Sugar.....	38,000 barrels	7,600	608,000	40	304,000
Wood, cord.....	9,500 cords	9,500	38,000	40	380,000
Total.....		555,776	6,490,307		21,635,844

It was impracticable to procure rate per ton-mile.

14. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

This work is under the charge of Mr. T. E. L. Lipsey, assistant engineer, with Mr. A. E. Fugler, jr., inspector, in local charge.

The operation of the lock throughout the year has been satisfactory.

Lock and grounds.—Placed extension irons on miter posts of gates Nos. 1, 2, 3, and 4 to overcome derangement of gates due to settlement of lock walls, painted inside and outside of eight lock gates,

repaired anchors to gates Nos. 1 and 2, inspected boilers Nos. 1 and 2, calked boiler No. 1, repaired and replaced 7 sets of gratings over valve openings, made minor repairs to emptying lock valves, constructed fence around reservation on north side of lock, made minor repairs to gate operating machinery, completed raising of reservation fence and placed fill in lock reservation, placed searchlights at each end of lock, and installed gasoline storage tank at lower end of reservation.

Lock buildings.—Completed construction of storehouse, made and placed screens for doors and windows of office, made general repairs to power house, made repairs to water-service lines, renewed lattice work under lockmaster's house and renewed fence around same, removed old blacksmith shop, removed old water tank from power house, painted new cistern, installed new tank in power house, constructed small outhouse, connected up water service to tank in power house, made plan and estimate for new blacksmith shop.

Repairs to floating plant.—Repaired and painted quarter boat *Intracoastal* and U. S. launch *Salvador*.

Construction by hired labor.—Constructed U. S. fuel barge *No. 4*, cost \$969.07; constructed U. S. launch *Balize*, cost \$4,320.25; installed new engine in launch *Salvador*, cost of engine \$1,496.35, installation \$655.62, total \$2,151.97; constructed United States storehouse, cost \$1,785.35; and began construction of U. S. launch *Vermilion*, about 90 per cent completed, cost \$4,456.73.

Dredging.—The U. S. dredge *Delatour* worked on dredging in lock chamber and approaches from July 1, 1916, to July 5, 1916, when river rose and work was stopped. This same dredge worked as above from August 23, 1916, to September 18, 1916, and removed 47,073 cubic yards of material, at a total cost of \$2,507.90, or 5.3 cents per cubic yard. This price includes the cost of moving dredging plant to site of work, about 117.5 miles. This same dredge worked as above from June 11, 1917, to June 30, 1917, and removed 16,200 cubic yards of material at a total cost of \$1,568.43, or 9.6 cents per cubic yard, this amount being carried as an outstanding liability at the end of the year. This price includes the cost of moving dredging plant to site of work, about 187 miles, and delays on account of high water.

Gauge records.—The maximum and minimum difference of level between the Mississippi River and Bayou Plaquemine at the lock for each month of the fiscal year are shown in the following table:

Date.	Maximum.			Minimum.		
	River gauge.	Bayou gauge.	Difference.	River gauge.	Bayou gauge.	Difference.
1916.						
July.....	35.3	18.5	16.8	29.7	17.8	11.9
August.....	29.4	17.7	11.7	16.9	14.3	2.6
September.....	20.3	14.4	5.9	13.0	12.0	1.0
October.....	14.7	12.9	1.8	12.2	11.5	.7
November.....	14.2	12.6	1.6	12.2	11.4	.8
December.....	14.3	13.6	.7	12.3	11.5	.8
1917.						
January.....	32.0	18.3	13.7	12.4	12.3	.1
February.....	32.2	18.2	14.0	22.0	17.7	4.3
March.....	37.2	18.3	18.9	21.8	17.0	4.8
April.....	44.0	19.2	24.8	37.5	18.4	19.1
May.....	44.0	19.5	24.5	29.3	17.0	12.3
June.....	36.6	17.9	18.7	24.2	16.4	7.8

RIVERS AND HARBORS—NEW ORLEANS, LA., DISTRICT. 2545

EXPENDITURES.

During the fiscal year there was expended \$21,259.03 for operating and care, as follows:

(a) Salaries and wages for regular hired force.....	\$7,721.51
(b) Miscellaneous supplies and services.....	3,623.79
(c) Miscellaneous repairs to lock, buildings, etc.....	4,030.42
(d) Dredging approaches to and inside of lock.....	2,507.90
(e) Contingencies (\$271.19 of this was spent on construction of storehouse at lock, and \$405.34 for fuel barge No. 4).....	3,375.41
Total	21,259.03

Amounts expended under allotments, act March 3, 1909:

Fiscal year 1910.....	\$18,730.28
Fiscal year 1911.....	23,471.31
Fiscal year 1912.....	14,706.75
Fiscal year 1913.....	27,043.83
Fiscal year 1914.....	13,461.80
Fiscal year 1915.....	23,092.12
Fiscal year 1916.....	17,528.80
Fiscal year 1917.....	21,259.03
Total	159,302.92

CONTRACT IN FORCE.

I.

Name and address of contractor: New Orleans Coal Co., of New Orleans, La.
Work: Furnishing and delivering coal in bunkers of dredges at New Orleans and on barge or boat belonging to contractor at Port Ends of Burrwood, La., or in Bayou Plaquemine.

See VI of abstract of contracts for Southwest Pass, Mississippi River.

COMMERCIAL STATISTICS.

Lockages made and traffic passed at Plaquemine Lock during the calendar year ended Dec. 31, 1916.

Lockages.....	1,192	Barges.....	608
Steamboats.....	518	Other crafts.....	506
Gasboats.....	659	Passengers.....	294

Freight traffic.

Articles.	Tons.	Value.
Brick.....	116	\$348
Cement.....	103	1,236
Coal.....	31,000	124,240
Farm and dairy products.....	2,524	757,200
Gravel.....	19,051	19,051
Iron and steel products.....	1,080	64,800
All animals.....	74	14,800
Lumber.....	425	5,312
Miscellaneous.....	921	138,150
Miscellaneous merchandise.....	6,580	658,000
Molasses.....	910	45,500
Oil, fuel.....	30,857	246,856
Oysters.....	210	5,250
Rice.....	3,975	318,000
Sand.....	300	300
Sugar.....	3,853	308,240
Ties.....	14	98
Timber, logs.....	54,832	171,350
Total.....	150,885	2,878,731

July 1, 1916, balance unexpended	\$52,148.10
Amount appropriated by river and harbor act approved July 27, 1916	38,000.00
Receipts from sales, etc., fiscal year 1917	883.55
	91,031.65
June 30, 1917, amount expended during fiscal year for maintenance	60,932.59
July 1, 1917, balance unexpended	30,099.06
July 1, 1917, outstanding liabilities	3,158.95
July 1, 1917, balance available	26,940.11
Amount appropriated by river and harbor act approved Aug. 8, 1917	64,000.00
Amount available for fiscal year ending June 30, 1918	90,940.11

14. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

The improvement for which report is made under this caption forms part of the project for Bayou Plaquemine, Grand River and Pigeon Bayous, La., for which report is made on pages 906 to 909 of this report, where general information regarding the improvement can be found. The work carried on is the operation and maintenance of the lock reported on page 908 as completed. This lock has been operated and maintained under the permanent indefinite appropriation since July 1, 1909.

Operations and results during the fiscal year.—The care of lock and grounds was carried on, which included placing of extension irons on posts of gates 1 to 4, the painting of inside and outside of eight lock gates, repaired anchors to gates, repaired and replaced seven sets of gratings over valve openings and made other minor repairs, constructed fence around reservation on north side of lock, completed raising of reservation fence and placed sill on lock reservation; construction of storehouse was completed, power house, lockmaster's house, etc., were kept in good repair. The dredge *Delatour* dredged in lock chamber and approaches from July 1 to July 5, 1916, and August 23 to September 18, 1916, removing 47,073 cubic yards of material, at a cost of \$2,507.90, and from June 11 to June 30, 1917, removing 16,200 cubic yards of material, at a cost of \$1,568.43, the amount being carried as an outstanding liability at end of the year. There was constructed by hired labor at this lock fuel barge *No. 4*, launch *Balize*, installed new engine in launch *Salvador*, and began construction of launch *Vermilion*. The quarter boat *Intracoastal* and launch *Salvador* were repaired and painted.

There was expended during the fiscal year \$21,259.03 for operating and care.

Condition at the end of fiscal year.—The work of securing the mouth of Bayou Plaquemine against caving was completed in 1894. Work consisted of five submerged spur dikes placed at intervals of 900 feet, with intervals protected by revetment. The lock was completed at a cost of \$1,302,006.38, and placed in operation July 1, 1909; approaches and fill were completed in 1911. The lock is equipped with a power house and office building, two lockmasters' dwellings, and several outhouses. The United States reservation comprising 19 acres. There was expended to June 30, 1917, for operating and care of Plaquemine Lock, \$159,302.92.

Proposed operations.—The lock will be operated and maintained under allotments from the permanent indefinite appropriations provided by section 6 of the river and harbor act of March 3, 1909.

Commercial statistics.—A comparative statement of shipments and receipts passing through the lock during the last five calendar years is as follows:

Comparative statement.

Calendar year.	Short tons.	Value.	Calendar year.	Short tons.	Value.
1912.....	113,409	\$4,764,187	1915.....	99,746	\$2,424,441
1913.....	81,966	3,947,427	1916.....	156,835	2,878,731
1914.....	55,095	2,802,100			

The tonnage for the calendar year 1915 consisted principally of coal, sugar, fuel oil, logs, and miscellaneous merchandise.

The draft of vessels using the lock varies from 3 feet 6 inches to 7 feet.

15. OPERATING AND CARE OF KEYSTONE LOCK, BAYOU TECHE, LA.

The improvement for which report is made under this caption forms part of the project for Bayou Teche, La., for which report is made on pages 912 to 915 of this report where general information regarding the improvement can be found. The work carried on is operation and maintenance of the lock and dam, reported on page 913 as completed. This lock and dam has been operated and maintained under the permanent indefinite appropriation since July 1, 1913.

Operations and results during the fiscal year.—The care of lock, grounds, dam, controlling gates in the feeder from Spanish Lake, and the dam in Bayou Fusilier was carried on, which includes painting ironwork of gates and gate-operating mechanism; made minor repairs to crest of dam; installed gasoline storage tank; made minor repairs to the lockmaster and laborer's quarters; constructed oil house. There was constructed at lock fuel barges Nos. 5 and 6, and remodeled fuel barge No. 1; made minor repairs to snag boat *Pigeon*, barge *Chene*, launch *Amite*, fuel barge No. 1 and shipways at lock. Cleaned flood gates of Spanish Lake Canal and repaired weir in canal. There was expended during the fiscal year for operating and care, \$4,343.36.

Condition at the end of fiscal year.—Under various appropriations since 1871, the stream has been snagged and dredged from mouth to head. The existing project is considered completed. Keystone Lock and Dam were completed June 30, 1913, at a cost of \$257,720.48. Controlling gates have been placed in the canal feeder from Spanish Lake, and a small dam has been constructed across Bayou Vermilion at its junction with Bayou Fusilier. The United States property in the vicinity of the lock comprises 12.27 acres. The lock is equipped with two lockmasters' dwellings and several outhouses. To June 30, 1917, there was expended for operating and care of lock, dam, and grounds, \$14,999.40.

Proposed operations.—The lock and dam will be operated and maintained under allotment from the permanent indefinite appropri-

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Present project—Continued.

Mar. 3, 1899	\$10,000.00
June 13, 1902	7,500.00
Mar. 3, 1905	7,500.00
Mar. 2, 1907	130,000.00
June 25, 1910	50,000.00
Feb. 27, 1911	60,000.00
Mar. 2, 1907 (allotted Jan. 11, 1908)	500.00
Mar. 3, 1909 (allotted Mar. 26, 1909)	5,000.00
July 25, 1912	60,000.00
Mar. 4, 1913	40,000.00
Oct. 2, 1914 (allotted Oct. 7, 1914)	30,000.00
Mar. 4, 1915 (allotted Apr. 2, 1915)	10,000.00
July 27, 1916	10,000.00
Aug. 8, 1917 (allotted Sept. 10, 1917)	40,000.00
	<hr/> \$481,500.00
Total of appropriations	532,200.00
Amounts reverted to surplus fund of the Treasury	5,022.48
	<hr/> 527,177.52
Net total of appropriations	
Receipts from sales, etc.	\$1,446.86.

14. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

This work is under the charge of Mr. W. B. Smith, jr., assistant engineer, and under the local charge of Mr. A. E. Fugler, jr., inspector.

OPERATIONS DURING THE FISCAL YEAR.

The operation of the lock throughout the year has been satisfactory.

Lock and grounds.—Packed valves of controlling mechanism of filling valves at gates Nos. 1, 3, and 4 on north side and gate No. 1 on south side; painted lock gates and handrail on same; renewed gate anchor brace block; repaired hydraulic capstan; soldered gas-line storage tank and painted same; and repaired steps on lower end of north wall. Boilers Nos. 1 and 2 were inspected; repaired dynamo engine, injector, steam line, and renewed gauge cocks and asbestos covering on front of boiler No. 1; boilers were washed monthly. Placed water line for fire protection to shop and warehouse; built roadway from street to lockmaster's dwelling and walk from dwelling to lock; built ramp on north side of bayou below lock for unloading and storing lumber for barge construction; repaired walk at power house; hauled a barge of sand from island above lock to power plant; unloaded 11 cars of coal and loaded 50.19 tons on U. S. dredge *Grossetete*.

Lock buildings.—Made doors to office and dwelling water-tight. Built new blacksmith shop.

Repairs to floating plant.—Docked and repaired launches *Vermilion*, *Salvador*, and *Maurepas*; repaired boathouse.

Construction by hired labor.—Completed construction of U. S. launch *Vermilion* at a cost of \$5,248.09, of which \$4,284.40 was paid for in the fiscal year 1917; constructed U. S. launch *Mermentau*, at a cost of \$5,567.56; built blacksmith shop at a cost of \$2,074.65; con-

struction of U. S. barges Nos. 38, 39, 40, 41, and 42 was carried on, as follows:

Number.	Percent- age of com- pletion.	Amount paid in fiscal year.
38.....	100	\$2,099.16
39.....	65	1,162.76
40.....	80	1,782.26
41.....	15	188.97
42.....	15	123.36

Construction of U. S. launch *Nezpique* was continued; this launch is 97 per cent completed and cost to date \$5,638.94; total estimated cost is \$7,500.

Dredging.—The U. S. dredge *Delatour* dredged in lock chamber and approaches from August 2, 1917, to August 8, 1917, and August 27, 1917, to September 15, 1917, and removed 31,508 cubic yards of material, as follows: 25,629 cubic yards from river approach for a distance of 508 linear feet; 2,195 cubic yards from lock chamber, for a distance of 545 linear feet; and 3,684 cubic yards from bayou approach for a distance of 320 linear feet. The operating expenses of the U. S. dredge *Delatour* during the above periods were \$3,195.15, or 10.14 cents per cubic yard. This price includes cost of moving dredging plant to site of work, 224 miles.

Gauge records.—The maximum and minimum difference of level between the Mississippi River and Bayou Plaquemine at the lock for each month of the fiscal year are shown in the following table:

Date.	Maximum.			Minimum.		
	River gauge.	Bayou gauge.	Differ- ence.	River gauge.	Bayou gauge.	Differ- ence.
1917.						
July.....	37.2	18.1	19.1	21.0	15.7	5.3
August.....	23.3	15.5	7.8	14.8	13.2	1.6
September.....	15.6	13.5	2.1	13.4	12.4	1.0
October.....	13.4	12.4	1.0	11.8	11.0	.8
November.....	15.5	12.8	2.7	12.0	11.0	1.0
December.....	13.0	12.0	1.0	11.4	10.5	.9
1918.						
January.....	13.8	12.3	1.5	10.5	10.7	-.2
February.....	31.7	16.7	15.0	14.0	12.7	1.3
March.....	33.4	17.7	15.7	27.8	16.8	9.0
April.....	32.0	17.2	14.8	26.6	16.4	10.2
May.....	33.4	19.0	15.4	31.1	17.2	13.9
June.....	32.4	17.6	14.8	21.9	16.4	5.5

CONTRACTS IN FORCE.

None.

COMMERCIAL STATISTICS.

Lockages made and traffic passed at Plaquemine Lock during the calendar year ended Dec. 31, 1917.

Lockages.....	1,466	Barges.....	500
Steamboats.....	563	Other craft.....	361
Gas boats.....	902	Passengers.....	406

Freight traffic.

Articles.	Tons.	Value.
All animals.....	93	\$27,900
Brick.....	46	276
Cement.....	125	1,875
Coal.....	29,322	161,271
Farm and dairy products.....	2,938	1,322,100
Gravel.....	5,025	6,281
Iron and steel products.....	1,563	156,300
Lumber.....	226	3,955
Miscellaneous.....	839	146,825
Miscellaneous merchandise.....	8,644	1,296,600
Molasses.....	1,703	119,210
Oysters.....	216	6,480
Oil, fuel.....	55,169	551,690
Rice.....	1,063	132,875
Sand.....	676	845
Sugar.....	4,810	721,500
Timber.....	93,283	466,415
Total.....	205,741	5,122,398

EXPENDITURES.

During the fiscal year there were expended \$23,289.98 for operating and care, as follows:

(a) Salaries and wages for regular hired force.....	\$8,584.45
(b) Miscellaneous supplies and services.....	3,444.69
(c) Miscellaneous repairs to lock, lock gates, buildings, etc.....	2,742.47
(d) Dredging approaches and inside of lock.....	3,401.46
(e) New blacksmith shop.....	2,074.65
(f) Contingencies.....	3,042.26

Total..... 23,289.98

Amounts expended under allotments, act March 3, 1909:

Fiscal year 1910.....	\$18,739.28
Fiscal year 1911.....	23,471.31
Fiscal year 1912.....	14,706.75
Fiscal year 1913.....	27,043.83
Fiscal year 1914.....	13,461.80
Fiscal year 1915.....	23,002.12
Fiscal year 1916.....	17,528.80
Fiscal year 1917.....	21,259.03
Fiscal year 1918.....	23,289.98

Total..... 182,592.90

15. OPERATING AND CARE OF KEYSTONE LOCK, BAYOU TECHE, LA.

This work is under the charge of Mr. W. B. Smith, jr., assistant engineer.

OPERATIONS DURING THE FISCAL YEAR.

The operation of the lock has been satisfactory throughout the year.

Spanish Lake Canal.—Removed deposit from canal for linear distance of 4,050 feet, as follows: 3,300 feet from floodgates toward lake, and 750 feet from weir to bayou; also set posts for fence at head of canal and stretched cables across mouth of canal to keep out hyacinths; cut 35 overhanging trees.

Present project—Continued.

Mar. 4, 1913	\$40,000.00
Oct. 2, 1914 (allotted Oct. 7, 1914)	30,000.00
Mar. 4, 1915 (allotted Apr. 2, 1915)	10,000.00
July 27, 1916	10,000.00
Aug. 8, 1917 (allotted Sept. 10, 1917)	40,000.00
Mar. 2, 1919	100,000.00
	<hr/> \$581,500.00
Total of appropriations	632,200.00
Amounts reverted to surplus fund of the Treasury	5,022.48
	<hr/> 627,177.52
Receipts from sales, etc., \$1,745.01.	

15. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

This work is under the charge of Mr. W. B. Smith, jr., assistant engineer, and under the local charge of Mr. A. E. Fugler, jr., inspector.

OPERATIONS DURING THE FISCAL YEAR.

The operation of the lock throughout the year has been satisfactory. There were 1,194 lockages.

Lock and grounds.—Machinery and grounds were maintained in good condition. No extensive repairs or changes were made.

Lock buildings.—Completed work shed for barge construction at a cost of \$1,141.24 and installed thread-cutting machine, bolt machine, power blower, shear-punch machine, hack-saw machine, and made bench for cut-off saw, all of which was done by hired labor.

Repairs to floating plant.—Oiled machinery, washed boilers, repaired roof and pilot house on U. S. snag boat *Denison*. Hauled out, painted, and repaired U. S. launch *Salvador*. Repaired, calked, pitched, and painted four pontoons for dredge *Delatour*. Repaired, calked, and painted hull of U. S. quarter boat *Intracoastal*. All work was done by hired labor.

Construction by hired labor.—Completed construction of U. S. launch *Nezpieque* at a cost of \$7,641.26, of which \$5,638.94 was paid in the fiscal year 1918. Completed construction of barges Nos. 38, 39, 40, 41, and 42 for South and Southwest Passes at a cost of \$21,151.48, of which \$5,356.51 was paid in the fiscal year 1918.

Construction of barges Nos. 43, 44, 45, 46, 47, 48, 49, and 50 for Southwest Pass was commenced and there has been expended during the fiscal year the sum of \$28,267.61. Barge No. 43 is 90 per cent completed. No work has been done on the other barges with the exception of making bolts, cutting timbers, and purchasing material.

Dredging.—The U. S. dredge *Delatour* dredged in lock chamber and approaches from July 25, 1918, to August 21, 1918, and removed 25,800 cubic yards of material, as follows: 16,800 cubic yards from river approach for a distance of 500 linear feet; 400 cubic yards from lock chamber for a distance of 545 linear feet; and 5,000 cubic yards from bayou approach for a distance of 320 linear feet. The operating expenses of the U. S. dredge *Delatour* during the above periods were \$5,434.29, or 21.06 cents per cubic yard. This price includes cost of moving dredging plant to site of work, 224 miles.

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Gage records.—The maximum and minimum difference of level between the Mississippi River and Bayou Plaquemine at the lock for each month of the fiscal year are shown in the following table:

Dates.	Maximum.			Minimum.		
	River gage.	Bayou gage.	Difference.	River gage.	Bayou gage.	Difference.
1918.						
July.....	20.9	16.2	4.7	13.8	13.3	0.5
August.....	13.5	13.2	.3	12.5	11.7	.8
September.....	14.8	13.0	1.8	12.2	11.8	.4
October.....	13.7	12.8	.9	12.1	11.5	.6
November.....	19.3	15.3	4.0	13.2	12.5	.7
December.....	25.8	15.8	10.0	15.1	13.6	1.5
1919.						
January.....	36.5	19.0	17.5	20.4	15.8	10.6
February.....	33.9	18.9	15.0	21.8	17.5	4.3
March.....	36.7	18.2	18.5	22.2	16.8	5.4
April.....	40.8	19.3	21.5	37.0	18.2	18.8
May.....	37.2	19.0	18.2	33.5	18.2	15.3
June.....	38.1	19.0	19.1	32.4	18.6	13.8

CONTRACTS IN FORCE.

None.

COMMERCIAL STATISTICS.

Lockages made and traffic passed at Plaquemine Lock during the calendar year ended Dec. 31, 1918.

Lockages.....	1,102	Barges.....	459
Steamers.....	276	Other crafts.....	440
Gas boats.....	820	Passengers.....	27

Freight traffic.

Article.	Tons.	Value.	Article.	Tons.	Value.
Brick.....	4	\$24	Molasses.....	2,054	\$154,050
Cement.....	8	100	Miscellaneous.....	563	168,900
Coal.....	485	2,910	Miscellaneous merchandise.....	240	48,000
Farm and dairy products.....	36	10,200	Oil, fuel.....	64,319	803,988
Gravel.....	45	56	Oysters.....	150	5,250
Iron and steel products.....	327	39,240	Sand.....	109	136
Logs.....	51,851	324,089			
Lumber.....	103	2,575	Total.....	120,294	1,565,558

EXPENDITURES.

During the fiscal year there were expended \$29,104.55 for operating and care, as follows:

(a) Salaries and wages for regular hired force.....	\$9,394.02
(b) Miscellaneous supplies and services.....	4,490.36
(c) Miscellaneous repairs to lock, lock gates, buildings, etc.....	930.39
(d) Dredging approaches and inside of lock.....	11,155.58
(e) Contingencies.....	3,134.20
Total.....	29,104.51

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Amounts expended under allotments, act March 3, 1909:

Fiscal year—	\$18,739.28
1910.....	23,471.31
1911.....	14,706.75
1912.....	27,043.83
1913.....	13,461.80
1914.....	23,092.12
1915.....	17,528.80
1916.....	21,259.03
1917.....	23,289.98
1918.....	29,104.55
1919.....	
Total.....	211,697.45

16. OPERATING AND CARE OF KEYSTONE LOCK, BAYOU TECHE, LA.

This work is under the charge of Mr. W. B. Smith, jr., assistant engineer, and under the local charge of Mr. William J. Kimber, lockmaster.

OPERATIONS DURING THE FISCAL YEAR.

The operation of the lock has been satisfactory throughout the year. There were 246 lockages.

Lock, dam, and grounds.—The grounds and machinery were maintained in good condition.

Lock buildings.—Completed partition in hall of lockmaster's house, placed concrete ratproof base under cistern, screened porch, kalsomined walls, painted floors and varnished woodwork, and placed railing around back porch.

Repairs to floating plant.—Made ordinary repairs to barge *Chene*.

Construction by hired labor.—Completed fuel barges Nos. 7 and 8 at a cost of \$5,985.14, or \$2,992.57 each, of which \$1,163.79 was paid in 1918.

Gauge records.—The maximum and minimum difference of level between upper and lower pools at the lock for each month for the fiscal year is shown in the following table:

Dates.	Maximum.			Minimum.		
	Upper pool.	Lower pool.	Difference.	Upper pool.	Lower pool.	Difference.
1918.						
July.....	2.60	1.50	1.30	0.80	0.40	0.40
August.....	8.45	3.30	5.15	1.15	1.00	.15
September.....	8.45	2.70	5.75	7.75	.90	6.85
October.....	8.95	5.45	3.50	7.90	1.35	6.55
November.....	9.35	7.40	1.95	8.40	2.19	6.30
December.....	9.10	7.50	1.60	8.35	1.90	6.45
1919.						
January.....	10.00	9.80	.20	8.70	3.40	5.30
February.....	9.70	8.90	.80	8.80	3.90	4.90
March.....	9.60	8.80	.80	8.55	2.95	5.60
April.....	9.30	7.45	1.85	8.55	2.89	5.75
May.....	9.55	8.85	.70	8.40	2.25	6.15
June.....	9.35	8.05	1.30	8.55	3.00	5.55

1919
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CONSOLIDATED FINANCIAL SUMMARY FOR GROUP C.

Amount expended on all projects to June 30, 1919, after deducting receipts from sales, etc., amounting to \$3,375.15:

New work.....	\$2,664,339.10
Maintenance.....	296,079.45
Net total expended.....	2,960,418.55
Total appropriations to date of this report.....	3,143,157.39

Fiscal year ending June 30.	1915	1916	1917	1918	1919
Expended for new work ¹	\$43,018.12	\$45,505.45			
Expended for maintenance ¹	21,467.01	20,273.77	\$60,931.76	\$27,598.37	\$37,214.16
Total expended ¹	64,485.13	65,779.22	60,931.76	27,598.37	37,214.16
Appropriated or allotted.....	122,000.00		38,000.00	64,000.00	152,000.00

¹ Not deducting receipts from sales, etc.

July 1, 1918, balance unexpended.....	\$67,346.13
Amount appropriated by river and harbor act approved Mar. 2, 1919.....	152,000.00
Receipts from sales, etc., during fiscal year 1919.....	606.87
June 30, 1919, amount expended during fiscal year, ¹ for maintenance.....	219,953.00
	37,214.16
July 1, 1919, balance unexpended.....	182,738.84
July 1, 1919, outstanding liabilities.....	\$3,598.64
July 1, 1919, amount covered by uncompleted contracts.....	4,592.06
	8,190.70
July 1, 1919, balance available, including \$12,380.04 available only for maintenance.....	174,548.14
Amount (estimated) required to be appropriated for completion of existing project.....	² 244,700.00
Amount that can be profitably expended in fiscal year ending June 30, 1921, for maintenance.....	² 25,000.00

15. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

The improvement for which report is made under this caption forms part of the project for Bayou Plaquemine, Grand River and Pigeon Bayous, La. (C4). See pages 994 to 998 of this report, where general information can be found. The completed lock has been operated and maintained under the permanent indefinite appropriation since July 1, 1909.

Operations and results during fiscal year.—The operating and care of lock and grounds were carried on, which included repairs to controlling mechanism of filling valves and painting of inside and outside of lock gates; securing anchor rod cover plates at gates; repairing ramps on north and south sides of lock; painting coal cars; repairing water line and plumbing to lockmaster's dwelling; building chimney to servant's quarters of lockmaster's house; the machinery and boilers in power house were kept in good condition by minor

¹ Not deducting receipts from sales, etc.

² Exclusive of available funds.

repairs; walks and roadways on the reservation and connecting with adjacent streets were kept in good condition; power house, lockmaster's house, etc., were kept in good repair. The U. S. dredge *Delatour* dredged in lock chamber and in the approaches, removing a total of 27,800 cubic yards of material, at a cost of \$6,067.46, as follows: 16,800 cubic yards from river approach, 4,000 cubic yards from lock chamber, and 5,000 cubic yards from bayou approach. There were constructed by hired labor U. S. launch *Nezpieque* and U. S. barges Nos. 38, 39, 40, 41, and 42. Drove piles for shipways and partly constructed barges Nos. 43, 44, 45, 46, 47, 48, 49, and 50. The U. S. launch *Salvador* was docked and repaired. Repaired hull of quarterboat *Intracoastal*; roof and pilot house on snag boat *Denison*. Removed tanks and repaired bulkhead and railing on steamer *Hycinth*. Built work shed and installed shear punch machine, hacksaw machine, band saws, and planers for work on barges. Repaired, calked, pitched, and painted four pontoons for dredge *Delatour*. There was expended \$29,104.55 for operating and care.

Condition at end of fiscal year.—The work of securing the mouth of Bayou Plaquemine against caving was completed in 1894. Work consisted of five submerged spur dikes, placed at intervals of 900 feet, with intervals protected by revetment, all of which are in good condition. The lock was completed in 1909; approaches, fill, and dredging were completed in 1911, which completed the existing project. The lock is equipped with a power house, office building, two lockmaster's dwellings, blacksmith shop, storehouse, workshop, and several outhouses, all in good condition. The United States reservation comprises 19 acres. There was expended for operating and care of Plaquemine Lock \$211,697.45.

Proposed operations.—The lock will be operated and maintained under allotments from the permanent indefinite appropriation provided by section 6 of the river and harbor act of March 3, 1909.

Commercial statistics.—A comparative statement of shipments and receipts passing through the lock during the last five calendar years is as follows:

Comparative statement.

Calendar year.	Short tons.	Value.	Passengers.	Calendar year.	Short tons.	Value.	Passengers.
1914.....	55,095	\$2,802,100	582	1917.....	205,741	\$5,122,398	406
1915.....	99,746	2,424,441	789	1918.....	120,294	1,565,558	27
1916.....	156,885	2,878,731	294				

The tonnage for the calendar year 1918 consisted principally of sugar, fuel oil, logs, molasses, and miscellaneous merchandise. Logs comprise about 43 per cent, fuel oil about 53 per cent of the total tonnage.

The draft of vessels using the lock varies from 3 feet 6 inches to 7 feet.

The decline in commerce for the calendar year 1918 is due to a number of mills being closed down on account of lack of help due to war conditions.

CONSOLIDATED FINANCIAL SUMMARY FOR GROUP C.

Amount expended on all projects to June 30, 1920, after deducting receipts from sales, etc., amounting to \$4,520.12:

New work..... \$2,683,069.39
Maintenance..... 334,245.85

Net total expended..... 3,017,315.24

Total appropriations to date of this report..... 3,143,157.39

Fiscal year ending June 30.	1916	1917	1918	1919	1920
Expended for new work ¹	\$45,505.45	\$63,931.76	\$27,598.37	\$37,214.16	\$18,730.29
Expended for maintenance ¹	20,273.77	63,931.76	27,598.37	37,214.16	39,311.37
Total expended ¹	65,779.22	63,931.76	27,598.37	37,214.16	58,041.66
Appropriated or allotted.....		38,000.00	54,000.00	152,000.00	

July 1, 1919, balance unexpended..... \$182,738.84
Receipts from sales, etc., during fiscal year 1920..... 1,144.97

June 30, 1920, amount expended during fiscal year: ¹..... 183,883.81

For new work..... \$18,730.29
For maintenance..... 39,311.37
..... ² 58,041.66

July 1, 1920, balance unexpended..... 125,842.15
July 1, 1920, outstanding liabilities..... 25,516.09

July 1, 1920, balance available, including \$9,369.05 available only for maintenance..... 100,326.06

Amount (estimated) required to be appropriated for completion of existing project..... ³ 244,700.00

Amount that can be profitably expended in fiscal year ending June 30, 1922:
For new work..... ¹ 107,500.00
For maintenance..... ² 25,000.00
Total..... ³ 132,500.00

15. OPERATING AND CARE OF PLAQUEMINE LOCK, LA.

The improvement for which report is made under this caption forms part of the project for Bayou Plaquemine, Grand River and Pigeon Bayous, La. (C4). See pages 967 to 971 of this report, where general information can be found. The completed lock has been operated and maintained under the permanent indefinite appropriation since July 1, 1909.

Operations and results during fiscal year.—The operating and care of lock and grounds were carried on, which included repairs to controlling mechanism of filling valves; painting of inside and outside of lock gates; renewing the tubes in both boilers and installing fuel oil burning system in them. The lockmaster's dwelling was

¹ Not deducting receipts from sales, etc.
² Exclusive of reimbursements amounting to \$4,994.75.
³ Exclusive of available funds.