

from a careful survey. It should be connected with the present system of pipes only on Capitol Hill and other points of Washington of equal or higher altitude. It would convey to Capitol Hill, at an elevation of 115 feet above datum, 12,000,000 gallons in 24 hours.

The furnishing of the additional quantity of water in the manner herein recommended would render the completion of the Potomac dam a necessity. The dam is built only across the Maryland channel of the Potomac River, and for several years past the consumption of water has exceeded the minimum flow of the Maryland channel.

During the season of drought, when the river is at its lowest stage, the supply of water to Washington cannot be materially increased until the Potomac dam is completed or extended so as to raise the surface of water at the head of the aqueduct.

The conduit of the Washington Aqueduct from Great Falls to the distributing reservoir is 60,922 feet long and 9 feet diameter. The intrados of the conduit in the gate-house at Great Falls is 151 feet above datum; in the influent gate-house at the distributing reservoir it is 141.87 feet above datum, making the total fall of the conduit 9.13 feet; but as the flow-line of the distributing reservoir is generally kept at from 144 to 145 feet above datum, this total fall is consequently reduced to about 6 feet. Its maximum discharge when running full with the surface of water in the distributing reservoir drawn down to the level of the intrados, or to + 141.87, is 67,259,800 gallons in 24 hours. Its minimum discharge when running full and with the surface of the water in the distributing reservoir raised to + 144.75, is 54,832,464 gallons in 24 hours.

In practice, the actual discharge into the distributing reservoir is equal to the quantity drawn from the reservoir by the iron mains, except during the season of drought, when the discharge is less than the consumption, and the water-surface of the reservoir lowers.

The present elevation of the crest of the dam is 148 feet above datum, and when the water in the river falls to this level the depth of water in the head of the conduit is 6 feet. It can then discharge into the distributing reservoir at + 145 27,113,616 gallons and at + 144 31,608,144 gallons in 24 hours.

The discharge of the conduit might be increased to 80,000,000 gallons in 24 hours by completing the Potomac dam to the level of + 154, or 6 feet above its present height, and lowering the surface of the water in the distributing reservoir to + 141.87.

The total fall would then be about 12 feet, but the conduit would be run under a head at its upper end, and would, it is feared, render the strengthening of its embankments and a modification of its waste-weirs and bridges a necessity.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,  
*Lieutenant-Colonel of Engineers.*

Brig. Gen. H. G. WRIGHT,  
*Chief of Engineers, U. S. A.*

## INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
<b>A.</b>			
Accotink Creek, Va., improvement of .....	83	601	
Ahnepee Harbor, Wis., improvement of .....	153		1505
Alabama River, improvement of .....	103	827	
Alexandria, Mo., examination of Mississippi River at ..	133		1150
Allegheny River, Pa., improvement of .....	144		
Allegheny River, survey of, to mouth of French Creek ..	147		1371
Allegheny River, to Olean, N. Y., examination and survey of .....	147		
Alsea Harbor, Oreg., and bar in front of it, examination and survey of .....	183		
Alsea River and Bay, Oreg., examination of .....	183		1810
Alton Harbor, Ill., examination and survey of .....	120		
Anguille River, Ark., improvement of .....	115		969
Annapolis Harbor, Md., survey of bars at entrance to ..	81	574	
Apalachicola Bay, Fla., examination of .....	106	823	
Apalachicola River, improvement of .....	103	821	
Appomattox River, Va., improvement of .....	78	521	
Approaches from Lake Superior to Saint Mary's Falls Ship Canal, examination and survey of, for a 16-foot channel .....	168		
Aquia Creek, Va., improvement of .....	84	603	
Aransas Pass and Bay, Tex., improvement of .....	111	928	
Aransas Pass and Bay, Tex., examination of .....	112	928	
Archer's Hope River, Va., examination and survey of ..	95		
Arkansas, Missouri, and Mississippi Rivers, operations of snagboats on .....	120		1049
Arkansas River, at Fort Smith, Ark., improvement of ..	126		1081
Arkansas River, at Pine Bluff, examination and survey of .....	127		
Arkansas River, improvement of, above Fort Smith, Ark.	125		1081
Arkansas River, from Fort Smith to mouth of Little Arkansas, examination of .....	127		1085
Aroostook River, Me., examination and survey of .....	52		
Ashland Harbor, Wis., examination and survey of .....	155		
Ashtabula Harbor, Ohio, improvement of .....	173		1700
Atchison, Kans., improvement of Missouri River at .....	123		1063
Au Sable River Harbor, Mich., improvement of .....	169		1657
<b>B.</b>			
Baltimore Harbor, pier and bulkhead lines, report on ..	76	497	
Baltimore Harbor, improvement of entrance to .....	76	492	
Barren River, Ky., examination and survey of .....	147		
Bath, Me., improvement at the gut opposite .....	45	252	
Battalion of Engineers .....	39		
Bar at mouth of Bell River, Mich., examination and resurvey of .....	170		
Bay of Superior, improvement of natural entrance to .....	150		1468
Bayfield Harbor, Wis., examination and survey of .....	155		
Bayou Bartholomew, Ark., examination of .....	118		997
Bayou Courtableau, La., examination and survey of .....	112		
Bayou Deglaize, La., examination and survey of .....	112		
Bayou La Fourche, La., improvement of .....	107	900	
Bayou Pierre, La., examination of .....	118		991
Bayou Teche, La., examination and survey of .....	112		



INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Bayou Terrebonne, La., examination and survey of	112		
Bayou Vermillion, La., examination and survey of	112		
Bayou Wincey, La., examination of	118	991	
Bell River, Mich., bar at mouth of, resurvey of	170		
Belfast Harbor, Me., improvement of	45	250	
Benton Harbor Channel of Saint Joseph River, Mich., examination and survey of	167		
Bergen Neck, N. J., survey for ship canal across	66		
Big Sandy River, W. Va. and Ky., improvement of	145	1353	
Big Sunflower River, Miss., examination of	117	982	
Big Sunflower River, Miss., improvement of	116	970	
Black Lake Harbor, Mich., improvement of	164	1622	
Black River Harbor, Ohio, improvement of	172	1674, 1689	
Black River, Ark., examination and survey of	118		
Black Warrior River, Ala., improvement of	104	830	
Blackwater River, Va., improvement of	90, 620, 682		
Block Island, R. I., construction of harbor at	55	311	
Bloody Island, examination of Mississippi River at	120	1024, 1045	
Board of engineers for fortifications	33		
Board of engineers, on improvement of low-water navigation of the Mississippi and Missouri rivers	43	1007	
Boston Harbor, Mass., improvement of	49	267	
Breton Bay, Md., improvement of	83	600	
Brazos River and Bar, Tex., examination of	111	938	
Brazos Santiago, Tex., removing obstructions at	111	919	
Breakwater at Mackinac, Mich., examination and survey of	170		
Breakwater at Cleveland, Ohio, construction of	172	1691	
Breakwater, near New Orleans, La., estimate for, and survey of	112		
Broadkilm River, Del., improvement of	73	445	
Bridge over the Mississippi River at Rock Island, sheer-booms for piers of	132	1144	
Bridges over the Ohio River	149	1463	
Bridging navigable waters of the United States	149	1461	
Bridgeport Harbor, Conn., improvement of	58	349	
Broad River, S. C., examination and survey of	100		
Broad Creek, examination and survey of	81		
Broad Bay, Va., examination and survey of	95		
Brunswick Harbor, Ga., improvement of	98	765	
Buffalo Harbor, N. Y., improvement of	174	1717	
Bulkhead Rock, Providence River, R. I., removal of	54	307	
Burlington, Iowa, improvement of harbor at	131	1138	
Burlington Harbor, Vt., improvement of	65	395	
<b>C.</b>			
Cabin Creek, Md., examination of channel to	81		
Cahokia Chute, Mississippi River, opposite Saint Louis, closing of	118	1027	
Calumet Harbor, Ills., improvement of	158	1567	
Caloosahatchie River, Fla., examination of	106	863	
Cambridge Harbor, Md., improvement of	76	500	
Campaigns and battle-fields, preparation of maps of	185		
Canal, Louisville and Portland, superintendence and management of	143	1284	
Canal at Des Moines Rapids, Mississippi River	133	1151	
Canal, Saint Mary's River, Fla., and Gulf of Mexico, survey for	99		
Canal, Saint Mary's Falls, Mich., construction of	167	1641	
Canal at the Cascades, Columbia River, Oreg., construction of	181	1790, 1843	
Canal around the Dalles, Columbia River, Oreg., examination and survey for	183		
Canal to connect Delaware and Chesapeake Bays, survey for	81	587	

INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Canal connecting Galveston and Brazos River, Tex., survey for	112		
Canarsie Bay, N. Y., examination of	66	400	
Caney Fork, Tenn., examination of	142		1275
Caney Fork, Tenn., examination and survey of	142		
Cape Fear River, N. C., improvement of entrance to	80	556	
Cape Foulweather, Oreg., examination of, for harbor of refuge	183		1796
Cathans, Maine, examination and survey of	52		
Catawba River, N. C. and S. C., for survey of	95		
Cedar City, Mo., examination of Missouri River at	121		1053
Cedar Keys Harbor, Fla., improvement of	101	812	
Channel between Staten Island and New Jersey, improvement of	64	392	
Charles River, Mass., survey of	52	290	
Charleston Harbor, S. C., improvement of	95	731	
Charlevoix Harbor, Mich., improvement of	161		1595
Charenton Canal, Saint Mary's Parish, La., survey for	112		
Charlotte Harbor, N. Y., improvement of	175		1727
Charlotte Harbor and Peas Creek, Fla., examination and survey of	106		
Chattahoochie River, Ga., above Columbus, survey of	142		
Chattahoochie River, Ala. and Ga., improvement of	101	814	
Cheboygan Harbor, Mich., improvement of	169		1666
Cheesequakes Creek, N. J., examination and survey of	66		
Chester Harbor, Pa., ice-harbor at	72	443	
Chester River, Md., improvement of, at Kent Island Narrows	75	489	
Cheyenne River, Dak., examination and survey of	128		
Chicago Harbor, Ill., improvement of	157		1555
Chickahominy River, Va., improvement of	86	619	
Chicasaha River, Miss., examination of	105	841	
Chincoteague Inlet, Va., examination and survey of	81		
Chippewa River, Wis., improvement of	135		1168
Choctawhatchie River, Ala., examination and survey of	106		
Choctawhatchie River, Fla. and Ala., improvement of	103	824	
Choptank River, Md., examination and survey of	81		
Chowan River, N. C., survey of	95	726	
Cincinnati, Ohio, ice-harbor at	146		1355
Clearwater River, Idaho, examination and improvement of	182		1855
Cleveland Harbor, Ohio, improvement of	172		1691
Clinton River, Mich., resurvey of	170		
Cochecho River, N. H., improvement of	47	260	
Cohansey Creek, N. J., improvement of	68	414	
Cold Water River, Miss., improvement of	116		970
Cold Water River, Miss., examination of	118		984
Colorado of the West, survey of	180		1773
Columbia River, Oreg., improvement of mouth of	182		1791, 1853
Columbia River, Lower, Oreg., improvement of	180		1787, 1825
Columbia River at the Dalles, Oreg., &c., examination and survey of	183		
Columbia River, Upper, and Snake River, Oreg., improvement of	181		1789, 1839
Columbia River, Oreg., canal at Cascades	181		1790, 1843
Columbia River, survey of bar at mouth of	183		1863
Conecuh River, Ala., examination of	106	843	
Conemaugh River, Pa., examination of	147		1388
Conneaut Harbor, Ohio, improvement of	173		1705
Connecticut River, above Hartford, Conn., improvement of	56	319	
Connecticut River, below Hartford, Conn., improvement of	55	316	
Coos Bay, Oreg., improvement of	182		1791, 1854



INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Coos Bay, Oreg., examination of.....	182	1791	
Coosa River, Ga. and Ala., improvement of.....	140	1269	
Coosa River to Wetumpka, Ala., examination and survey of.....	106		
Coosawattee River, Ga., improvement of.....	141	1271	
Coquille River, Oreg., survey of.....	183	1806	
Council Bluffs, Iowa, improvement of Missouri River at.....	124	1076	
Corpus Christi Pass and Channel, Tex., examination of.....	112	928	
Cowlitz River, Wash., &c., examination and survey of.....	183		
Crescent City Harbor, Cal., examination of.....	180	1785	
Cuivre River, Mo., examination and survey of.....	133		
Cumberland River, Ky., survey of falls of.....	142	1279	
Cumberland River, Tenn., improvement of.....	138	1264	
Cumberland Sound, Fla. and Ga., entrance to, improvement of.....	99	792	
Currituck Sound, improvement of.....	90	693	
Cypress Bayou, Tex., improvement of.....	113	957	
<b>D.</b>			
Dan River, Va., examination of.....	88	652	
Dan River, Va., from Clarksville, Va., to Danbury, N. C., examination and survey of.....	88		
Darien Harbor, Ga., improvement of.....	97	763	
Davis' Island, Ohio River, movable dam at.....	143	1299	
Defenses, sea-coast and lake-frontier.....	4		
Deglaize Bayou, La., examination and survey of.....	112		
Delaware Breakwater Harbor.....	74	453	
Delaware River:			
at Cherry Island Flats, improvement of.....	71	436	
at Chester and Marcus Hook, Pa., examination and survey of.....	75		
at Schooner Ledge, improvement of.....	71	433	
below Bridesburg, Pa., improvement of.....	70	423	
below League Island, survey of.....	75	485	
between Trenton and White Hill, N. J., improvement of.....	69	420	
Des Moines Rapids Canal, Mississippi River.....	133	1151	
Detroit River, Mich., improvement of.....	168	1650	
Dubuque, Iowa, improvement of harbor at.....	132	1140	
Duck Creek, Del., examination of.....	75	470	
Duck River to Centreville, Tenn., examination and survey of.....	142		
Duluth Harbor, Minn., improvement of.....	149	1465	
Dunkirk Harbor, N. Y., improvement of.....	174	1715	
Duties and rank of officers of the Corps of Engineers.....	191		
<b>E.</b>			
Eagle Harbor, Mich., improvement of.....	151	1480	
East Chester Creek, N. Y., improvement of.....	63	388	
East River, N. Y., removal of obstructions from.....	61	375	
Echo Harbor, New Rochelle, N. Y., improvement of.....	63	389	
Edenton Harbor, N. C., improvement of.....	91	696	
Elk River, W. Va., improvement of.....	80	555	
Elizabeth River, N. J., examination of.....	75	481	
Elizabeth River, N. J., improvement of.....	67		
Elizabeth River, Va., improvement of south branch of.....	89	679	
Engineer-depots.....	39		
Entrance to Cumberland Sound, Fla. and Ga., improvement of.....	99	792	
Erie Harbor, Pa., improvement of.....	173	1707	
Escambia River, Ala. and Fla., examination of.....	106	852	
Etowah River, Ga., improvement of.....	141	1272	
Etowah River, Ga., examination of.....	142		

INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Explorations, geological, &c., 40th parallel, completion of.....	186		
Explorations, geographical, &c., west of 100th meridian.....	186		1977
Explorations and reconnaissances.....	188		
Explorations and surveys in Division of the Missouri.....	188		2315
Explorations and surveys in Department of the Platte.....	188		2319
Explorations and surveys in Department of the Missouri.....	189		2329
Explorations and surveys in Department of Dakota.....	189		2359
Explorations and surveys in Division of the Pacific.....	189		2397
Explorations and reconnaissances, estimates for.....	190		
<b>F.</b>			
Fairport Harbor (Grand River), Ohio, improvement of.....	173	1698	
Falls of the Cumberland River, Ky., survey of.....	142	1279	
Falls of Saint Anthony, Minn., preservation of.....	134	1159	
Falls of the Ohio River, improvement of navigation at.....	143	1283	
Feather and Sacramento rivers, Cal., improvement of.....	178	1749	
Flint River, Ga., improvement of.....	102	817	
Flint River, Ga., survey of Upper.....	105	818	
Flushing Bay, N. Y., examination of.....	66	387	
Flushing Bay, N. Y., improvement of.....	62	385	
Fort Columbus, New York Harbor, sea-wall at Governor's Island.....	15	233	
Fort Delaware, damage by storms at.....	19	241	
Fort Leavenworth, Kans., improvement of Missouri River at.....	122	1063	
Fort Madison, Iowa, improvement of harbor at.....	132	1139	
Fort Mifflin, Delaware River, damage by storms at.....	19	237	
Fort Smith, Ark., improvement of Arkansas River at.....	126	1081	
Fortifications.....	8	233	
Fourche la Pève, Ark., examination of.....	118	971	
Fourche la Pève, Ark., improvement of.....	116	971	
Fox and Wisconsin rivers, improvement of.....	156	1531	
Frankfort Harbor, Mich., improvement of.....	161	1601	
French Broad River, N. C., improvement of.....	87	648	
<b>G.</b>			
Galena River and Harbor, Ill., improvement of.....	132	1146	
Galveston Bay, ship-channel in, improvement of.....	110	912	
Galveston Harbor, Tex., improvement of entrance to.....	109	909	
Gasconade River, Mo., examination and survey of.....	127		
Geographical explorations and surveys west of 100th meridian.....	186		1977
Geological exploration 40th parallel, completion of.....	186		
Georgetown and Washington Harbors, D. C., improvement of.....	82	591	
Glasgow, Mo., improvement of Missouri River at.....	121	1055	
Grand Haven Harbor, Mich., improvement of.....	164	1618	
Grand Marias, Minn., improvement of harbor at.....	150	1475	
Grand River (Fairport) Harbor, Ohio, improvement of.....	173	1698	
Great Kanawha River, W. Va., improvement of.....	79	545	
Great Sodus Harbor, N. Y., improvement of.....	176	1729	
Green Bay Harbor, Wis., improvement of.....	152	1486	
Green River, Ky., examination and survey of.....	147		
Guyandotte River, W. Va., improvement of.....	145	1347	
<b>H.</b>			
Hampton River, Va., improvement of.....	85	617	
Harbor of refuge at Portage Lake, survey and improvement of.....	166	1634	
Harbor of refuge, Lake Huron.....	167	1645	



INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Harbor of refuge near Cincinnati, Ohio, construction of.....	146	1355	
Harbor of refuge entrance to Portage Lake, and Lake Superior ship-canal, examination and survey of.....	155		
Harbor of refuge, Sturgeon Bay Canal, Wis., construction of.....	152	1488	
Harlem River, N. Y., improvement of.....	62	385	
Hell Gate, N. Y., improvement of navigation at.....	61	375	
Hiawasse River, Tenn., improvement of.....	140	1268	
Hillsborough River, Fla., examination of mouth of.....	106	870	
Housatonic River, Conn., improvement of.....	58	344	
Hudson River, N. Y., improvement of.....	60	367	
Humboldt River, Cal., examination of.....	180		1785
Huron Harbor, Ohio, improvement of.....	171	1673, 1686	
Hyannis Harbor, Mass., improvement of.....	52	295	
<b>I.</b>			
Ice harbor at Cincinnati, Ohio, construction of.....	146	1355	
Ice harbor at mouth of Muskingum River.....	146	1364	
Illinois River, improvement of.....	158	1569	
Illinois River, examination and survey of.....	160		
Inside passage between Fernandina and Saint John's River, Fla., improvement of.....	98	765	
<b>J.</b>			
James River, Va., improvement of.....	77	512	
Jonesport, Me., examination of Moosebeck Bar at.....	52		
Jetties at mouth of Saint John's River, Fla., project for.....	98	767	
<b>K.</b>			
Kanawha River, Great, improvement of.....	79	545	
Kanawha River, Little, improvement of.....	145	1346	
Kankakee River, Ill. and Ind., survey of.....	148	1455	
Kansas River, examination of Missouri River at mouth of.....	122	1059	
Kansas River, Kans., examination of.....	127	1089	
Kansas City, Mo., improvement of Missouri River at.....	122	1059	
Kennebunk River, Me., improvement of.....	47	259	
Kenosha Harbor, Wis., improvement of.....	156	1529	
Kent Island Narrows, Md., improvement of.....	75	489	
Kentucky River, Ky., survey of.....	147	1398	
Kentucky River, Ky., improvement of.....	146		
Kiskiminetas River, Pa., examination of.....	147	1388	
<b>L.</b>			
La Crosse, Wis., improvement of Mississippi River at.....	130	1127	
Lake Bayou Pierre, La., examination of.....	118	991	
Lake Cannasanier, La., examination of.....	118	991	
Lake harbors and rivers.....	149	1465	
Lakes, Northern and Northwestern, survey of.....	194		1891
L'Anguille River, Ark., improvement of.....	115	969	
Laws of Forty-fifth Congress, third session, and of Forty-sixth Congress, first session, affecting Corps of Engineers.....	209		
Levees on the Mississippi River, report on the effect of a continuous system for.....	43	1015	
Leonardtown Harbor, Md., improvement of.....	83	600	
Lewes, Del., construction of piers at.....	73	445	
Licking River, Ky., examination of.....	147	1422	
Lincolnville Harbor, Me., survey of.....	52	275	
Lin Haven Bay, Va., examination and survey of.....	95		

INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Link Horn Bay, Va., examination and survey of.....	95		
Little Kanawha River, W. Va., improvement of.....	145	1346	
Little Kanawha River, mouth of, for ice harbor, examination and survey of.....	147		
Little Narragansett Bay, R. I. and Conn., improvement of.....	55	313	
Little River, Ark., examination of.....	118	990	
Little Sodus Harbor, N. Y., improvement of.....	176	1731	
Lockwood's Folly River, N. C., examination and survey of.....	95		
Long Island coast, N. Y., examination of, between Rockaway and Coney Island.....	66	399	
Louisville and Portland Canal, superintendence and management of.....	143	1284	
Lower Willamette and Columbia rivers, Oreg., improvement of.....	180	1787, 1825	
Lubec Channel, Me., improvement of.....	44	246	
Lubec Channel, Me., survey of.....	52	279	
Ludington Harbor, Mich., improvement of.....	162	1606	
<b>M.</b>			
Manasquan River, N. J., examination of.....	74	463	
Manasquan River, N. J., improvement of.....	68		
Manistee Harbor, Wis., improvement of.....	162		
Manitowoc Harbor, Wis., improvement of.....	154	1603	
Maps, military, geographical, and lake survey, preparation of.....	185	1516	
Maps of campaigns and battle-fields, report on.....	185		1973
Mackinac Breakwater, Mich., examination and survey of.....	170		
Marcus Hook Harbor, Pa., improvement of.....	73	444	
Marquette Harbor, Mich., improvement of.....	151	1482	
Matagorda Bay, Tex., improvement of entrance to.....	111	921	
Meeker's Island, Minn., lock and dam at.....	134	1168	
Memphis, Tenn., protection of water front of.....	117	979	
Menomonee Harbor, Mich. and Wis., improvement of.....	152	1484	
Merrimac River, Mass., improvement of.....	48	264	
Michigan City Harbor, Ind., improvement of.....	160	1587	
Milford Harbor, Conn., improvement of.....	58	341	
Milwaukee Harbor, Wis., improvement of.....	155	1523	
Minnesota River, improvement of.....	135	1182	
Mispillion Creek, Del., examination of.....	75	467	
Mississippi, Missouri, and Arkansas Rivers, operations of snagboats on.....	120	1049	
Mississippi River:			
above the Falls of Saint Anthony, improvement of.....	134	1165	
at Alexandria, Mo., examination of.....	133	1150	
at Bloody Island, examination of.....	120	1045	
at Burlington, Iowa, improvement of.....	131	1138	
at Des Moines Rapids, improvement of.....	133	1151	
at Dubuque, Iowa, improvement of.....	132	1140	
at Falls of Saint Anthony, improvement of.....	134	1159	
at Fort Madison, Iowa, improvement of.....	132	1139	
at La Crosse, Wis., improvement of.....	130	1127	
at Meeker's Island, improvement of.....	134	1168	
at Muscatine, Iowa, improvement of.....	131	1136	
at Quincy, Ill., examination of.....	133	1130	
at Quincy, Ill., improvement of.....	130	1130	
at Rock Island Rapids, improvement of.....	131	1132	
at Venice, Ill., examination of.....	120		
between the mouths of the Illinois and Ohio Rivers, improvement of.....	118	1023	
from Des Moines Rapids to the mouth of Illinois River, deepening channel of.....	130	1122	



INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
Mississippi River:			
from Saint Paul to Des Moines Rapids, deepening channel of .....	129	1111	
from Saint Paul to Falls of Saint Anthony, examination and survey of .....	136		
opposite mouth of Missouri, examination and survey of .....	120		
reservoirs at sources of, survey for .....	136	1193	
improvement of low-water navigation of, below Cairo .....	43	1007	
report on continuous levee system for .....	43	1015	
survey of .....	184		1891
Upper, improvement of, operations of snagboat .....	128	1103	
Missouri, Mississippi, and Arkansas Rivers, operations of snagboats on .....	120	1050	
Missouri River:			
above the mouth of the Yellowstone, improvement of .....	127	1094	
at Atchison, Kans., improvement of .....	123	1063	
at Cedar City, Mo., examination of .....	127	1054	
at Cedar City, Mo., improvement of .....	121	1053	
at Fort Leavenworth, Kans., improvement of .....	122	1063	
at Glasgow, Mo., improvement of .....	121	1055	
at junction of Kansas River, examination of .....	127	1059	
at Kansas City, Mo., improvement of .....	122	1059	
at Nebraska City, Nebr., improvement of .....	124	1066	
at Omaha, Nebr., improvement of .....	124	1076	
at Saint Charles, Mo., examination for improvement .....	127	1083	
at Saint Joseph, Mo., improvement of .....	123	1065	
at Sioux City, Iowa, improvement of .....	124	1078	
at Vermillion, Dak., improvement of .....	125	1079	
survey of, from its mouth to Sioux City, Iowa .....	126	1082	
remarks on improvement of .....		1051	
Mobile Harbor, Ala., improvement of .....	100	799	
Monongahela River, improvement of .....	144	1344	
Mount Vernon, Va., improvement of channel at .....	83	598	
Monroe Harbor, Mich., improvement of .....	170	1669, 1675	
Moosebec Bar, Jonesport, Me., examination and survey of .....	52		
Morristique River, Mich., examination and survey of .....	155		
Movable dam at Davis Island, Ohio River .....	143	1299	
Movable dam, Upper Fox River, Wis., project for .....		1547	
Muddy River, Ky., examination and survey of .....	147		
Muskegon Harbor, Mich., improvement of .....	163	1615	
Muskingum River, Ohio, examination of .....	147	1364	
Muscatine, Iowa, improvement of harbor at .....	131	1136	
<b>N.</b>			
Nansemond River, Va., improvement of .....	89	681	
Nantucket Harbor, Mass., examination and survey of .....	56		
Narragansett Bay, R. I., improvement of .....	54	306	
Nanticoke River, Del. and Md., examination and survey of .....	81		
Nebraska City, Nebr., improvement of Missouri River at .....	124	1066	
Natchez, Miss., protection of harbor at .....	118		
Neches River, Tex., improvement of .....	109	905	
Neches River, Tex., examination and resurvey of .....	112		
Neuse River, N. C., examination of .....	95	708	
Neuse River, N. C., improvement of .....	93	704	
New Bedford Harbor, Mass., improvement of .....	53	303	
New Buffalo Harbor, Mich., improvement of .....	161	1596	
Newburyport Harbor, Mass., improvement of .....	48	264	

INDEX.

SUBJECT.	Page.		
	Part I.	Part II.	Part III.
New Castle, Del., ice-harbor at .....	71	439	
New Haven Harbor, Conn., improvement of .....	57	335	
New Orleans, La., improvement of harbor at .....	106	876	
New River, Va. and West Va., improvement of .....	79	530	
New River, Va. and West Va., survey of .....	81	538	
New Rochelle, N. Y., improvement at .....	63	389	
Newtown Creek, N. Y., examination of, at junction with East River .....	66		
Nomini Creek, Va., improvement of .....	84	605	
Norfolk Harbor, Va., improvement of .....	88	673	
Northeast River, Md., examination and survey of .....	81		
North Landing River, Va., examination of .....	95	686	
North Landing River, Va. and N. C., improvement of .....	90	683	
Norwalk Harbor, Conn., improvement of .....	59	363	
North River Bar, Currituck Sound, N. C., improvement of .....	90	693	
Nottoway River, Va., examination and survey of .....	95	719	
Noxubee River, Miss., examination and survey of .....	106		
<b>O.</b>			
Oakland Harbor, San Francisco Bay, Cal., improvement of .....	177	1742	
Oak Orchard Harbor, N. Y., improvement of .....	175	1727	
Obey's River, Tenn., examination of .....	142	1277	
Ocoquan River, Va., improvement of .....	83	601	
Ocmulgee River, Ga., improvement of .....	141	1272	
Oconee River, Ga., improvement of .....	142	1274	
Oconto River, Wis., examination and survey of .....	157		
Office of the Chief of Engineers .....	190		
Officers of the Corps of Engineers, number of, duties of .....	3	191	
Ogdensburg Harbor, N. Y., resurvey of .....	177		
Ogdensburg Harbor, N. Y., improvement of .....	177	1737	
Ohio River and mouth of Little Kanawha River, W. Va., for ice-harbor, &c., examination and survey of .....	147		
Ohio River, improvement of .....	143	1299	
Ohio River, improvement of Falls of .....	143	1283	
Oleott Harbor, N. Y., improvement of .....	175	1726	
Omaha, Nebr., improvement of Missouri River at .....	124	1076	
Onancock Harbor, Va., improvement of .....	77	510	
Onancock Harbor, Va., examination of .....	95	716	
Ontonagon Harbor, Mich., improvement of .....	151	1477	
Oostenaula River, Ga., improvement of .....	141	1271	
Osage River, Mo. and Kans., improvement of .....	119	1044	
Oswego Harbor, N. Y., improvement of .....	176	1732	
Otter Creek, Vt., improvement of .....	65	398	
Ouachita River, Ark. and La., improvement of .....	114	965	
Outlet of Lake Winnepesaukee, N. H., examination and survey of .....	52		
Outlet to Wolf Lake, Ind., examination and resurvey of .....	160		
<b>P.</b>			
Pamlico River, N. C., improvement of .....	92, 649, 703		
Pamunkey River, Va., examination and survey of .....	95		
Pascagoula River, Miss., examination of .....	105	835	
Pascagoula River, Miss., improvement of .....	105	834	
Passaic River, N. J., improvement of .....	63	391	
Pass Cavallo, Tex., improvement of .....	111	921	
Patapsco River, Md., improvement of .....	76	492	
Patapsco River, Md., West Branch, survey for improvement of .....	81	579	
Patsaligo River, Ala., examination of .....	106	850	
Pawtucket River, R. I., improvement of .....	54	305	
Pea River, Ala., examination and survey of .....	106		