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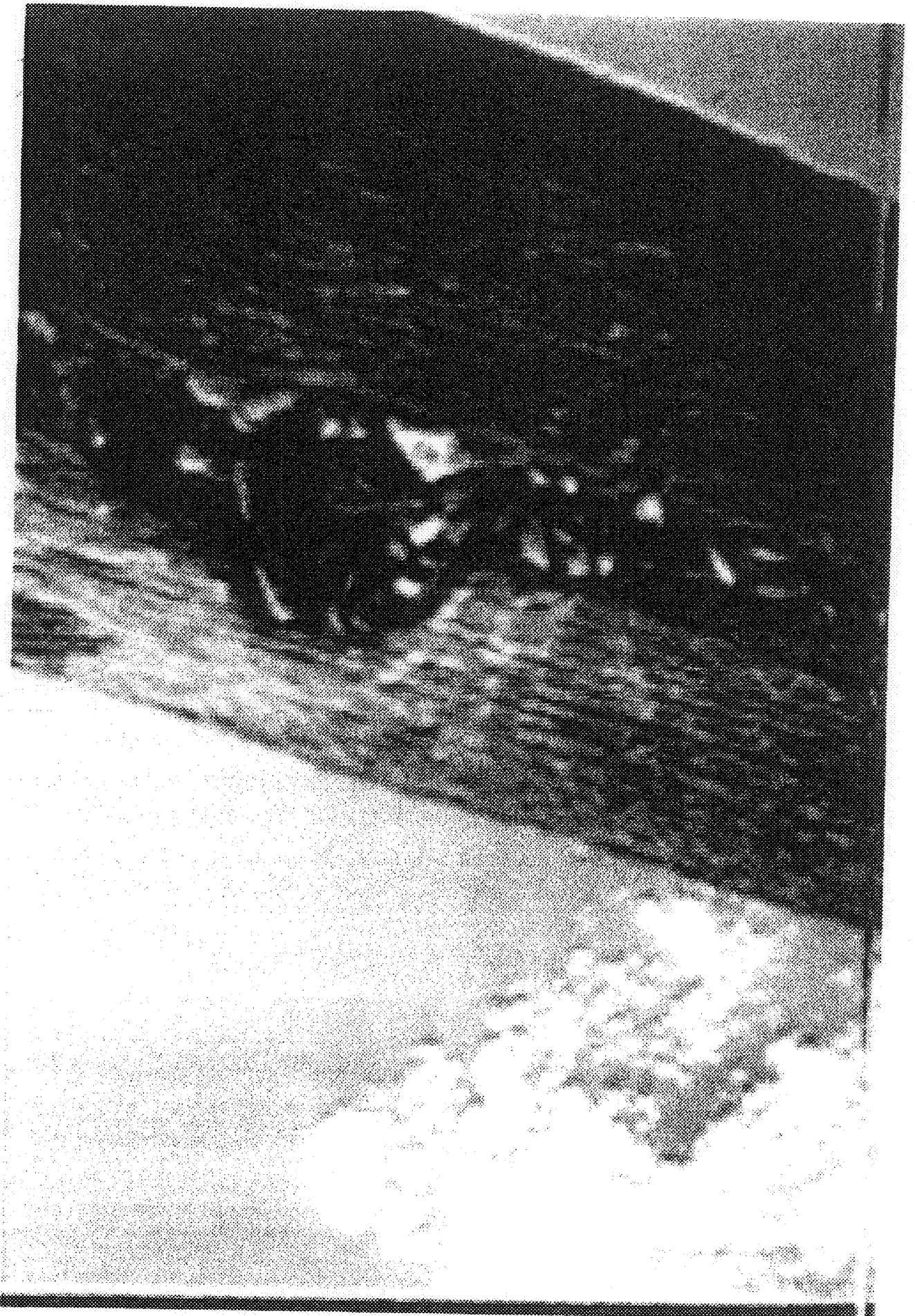
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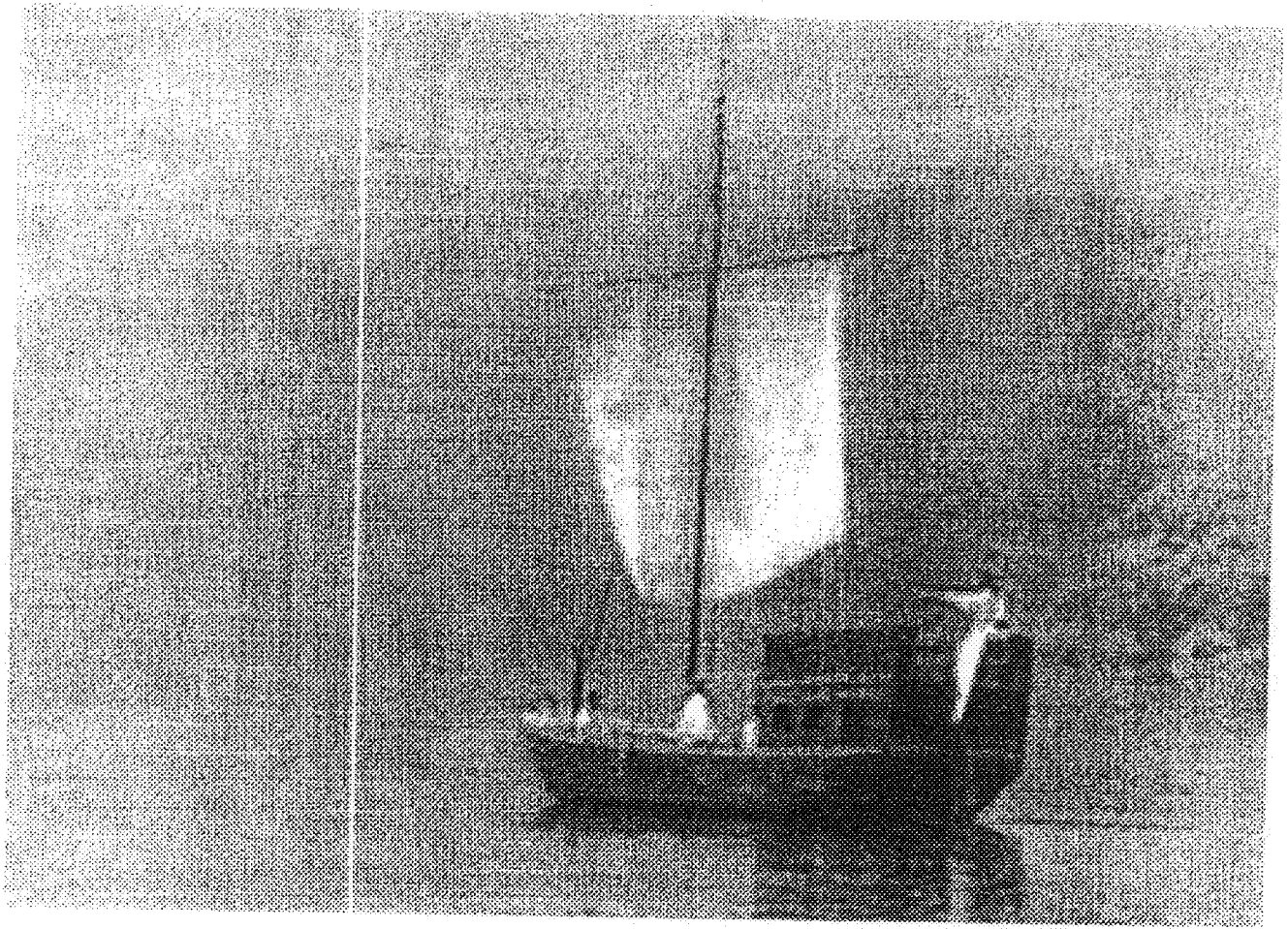


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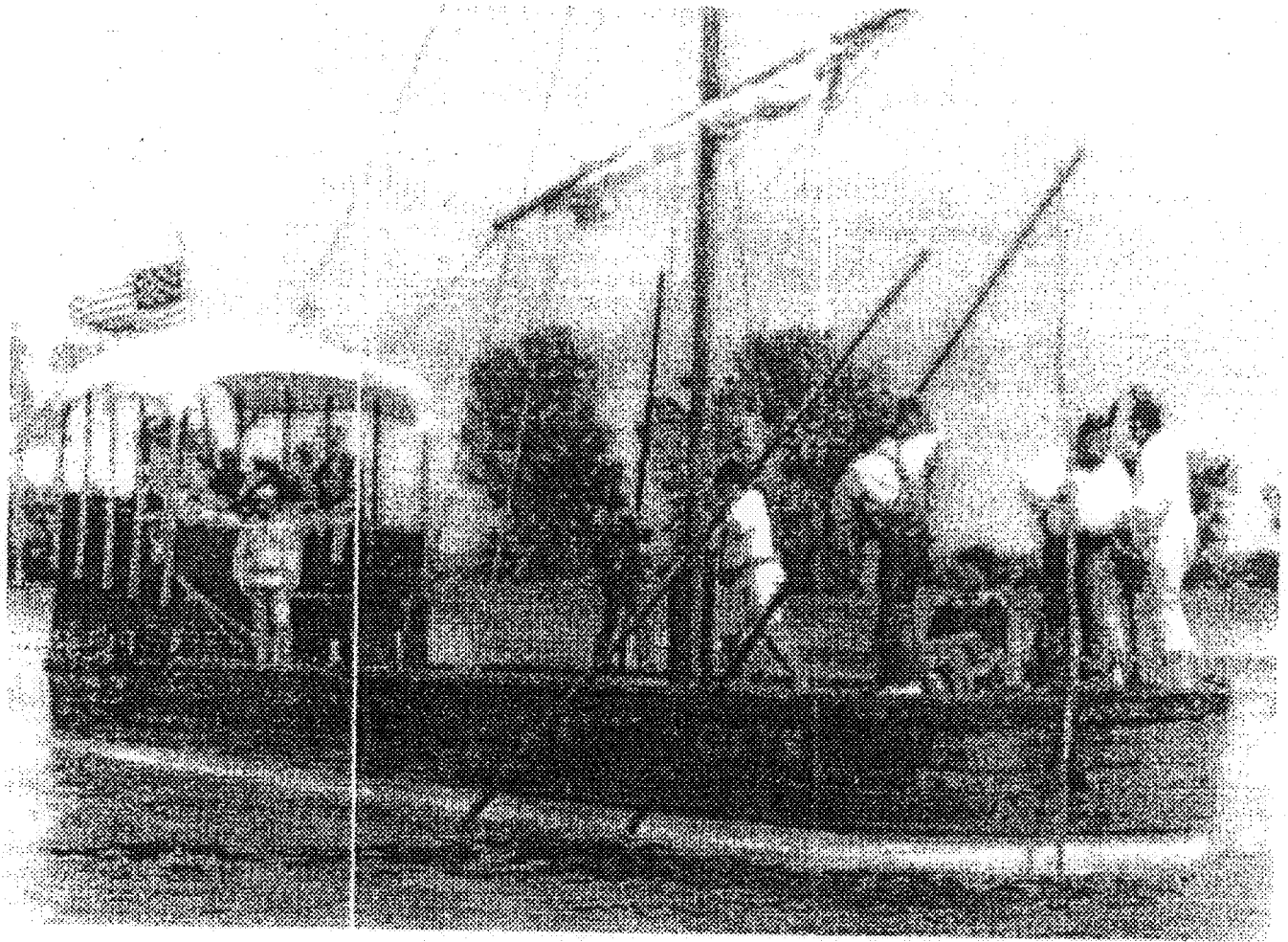


Lewis & Clark

Gaiffon? or something to the like!

Gaiffon may look similar!!

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Lewis & Clark

Griffon?

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# A Chronology of Lake Navigation

Date	Event
1535	Jacques Cartier sails up the St. Lawrence River.
1615	Champlain discovers the Great Lakes.
1634	Nicolet discovers Lake Michigan.
1668	Father Marquette founds mission at Sault Ste. Marie.
1669	Lake Erie discovered.
1679	Sieur Du Lhut lands at present day Duluth. La Salle sails in Griffon. Griffon lost on return trip.
1701	Cadillac at Detroit.
1763-1796	British dominate the lake trade after defeating French in Canada until 1796, when they begin the withdrawal of their troops from American shores of Lake Ontario.
1790	Revenue-Marine formed.
1797	Americans launch their first lake schooner, the <i>Washington</i> , on Lake Erie near Presque Isle.
1798	Northwest Fur Company build lock at Sault Ste. Marie, Canada. Lock is 38 ft x 8 3/4 ft with 30 inch depth over sills.
1800-1817	Lake trade expands until by 1817 there are some 20 merchant vessels on Lake Erie.
1807	Fulton sails Hudson River in first steamboat.
1813	Perry's victory on Lake Erie gives US rights to all Great Lakes.
1814	Lock and canal at Sault Ste. Marie destroyed by US troops.
1816	Work on Erie Canal starts.
1816	Sault Ste. Marie canal rebuilt.
1816-1817	First two lake steamers, <i>Frontenac</i> and <i>Ontario</i> , are launched on Lake Ontario.
1818	American launch their first steamer, <i>Walk-in-the-Water</i> , on Lake Erie. First American lighthouse on the lakes completed at Erie, Pennsylvania.
1818	Local citizens begin one of the first harbor improvements on the lakes at the mouth of the Grand River, later Fairport, Ohio.
1820	Citizens of Buffalo, New York, commence improvement of their harbor at the mouth of Buffalo Creek. Fifth Auditor of Treasure Department assumes responsibility for light operation.
1821	Arrivals and departures of vessels at Buffalo Harbor total
1824	First federal harbor improvement on the lakes begins at Erie, Pennsylvania. Federal appropriations continue almost every year until 1839.
1825	Erie Canal completed by the State of New York providing waterway between Buffalo on Lake Erie and Albany on the Hudson River, the greatest single transportation factor in early settlement of the like region and growth of lake navigation Work on Welland Canal starts. Fort Gratiot Light, first on Lake Huron.
1825-1829	President John Quincy Adams pursues active policy favoring federal internal improvements. As a result numerous harbors on Lake Erie and Lake Ontario are improved
1826	Arrivals and departures of vessels at Buffalo Harbor total 240.
1828	Oswego Canal completed by the State of New York provides water connection between Lakes

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- Ontario and the Erie Canal.
- 1829 Welland Canal completed by Canadian interests provides navigable route between Lake Erie and Lake Ontario.
- 1829-1837 During administrations of President Andrew Jackson, federal work on lake harbors continues and is expanded to sites on Lake Michigan.
- 1832 State of Ohio completes Ohio Canal connecting Cleveland Harbor on Lake Erie with Portsmouth on the Ohio River thereby opening up a vast agricultural hinterland and stimulating an extraordinary expansion of lake commerce. Chicago Harbor and St. Joseph River lights, first on Lake Michigan.
- 1835 Arrivals and departures of vessels at Buffalo Harbor total 3,280.
- 1836 45 steam vessels on Great Lakes and 217 sail craft.
- 1837 Sixteen lake harbors are now equipped with federally constructed beacons or lighthouses. Michigan Legislature passes act authorizing canal to be built at Sault Ste. Marie
- 1838 Combined value of Cleveland's imports and exports is \$20 million. Arrivals at Cleveland Harbor include 1,095 sail and 1,318 steam vessels. Screw propeller patented.
- 1839 After 2 years of the administration of President Martin Van Buren (1837-1839) regular annual appropriations for lake harbors cease until after the Civil War because of opposition of the Democratic party to internal improvements. Thus far, federal efforts have improved seven harbors on Lake Ontario, 15 on Lake Erie, and three on Lake Michigan. 43 lights on lakes, 17 Lake Erie, 11 Lake Michigan, 9 Lake Ontario, 4 Lake Huron, 1 each St. Clair and Detroit Rivers
- 1841 Congress provides first funds to begin survey of the northwestern lakes. First screw-propeller steamer on the lakes, the *Vandalia*, built at Oswego. Steamer Erie burns off Silver Creek, NY, Lake Erie with loss of 100-175 lives.
- 1843 Whig President John Tyler (1841-1845) approves bill for improving harbors at Milwaukee, Chicago, and St. Joseph on Lake Michigan.
- 1844 President Tyler approves bill appropriating si,mg ranging from \$40,000 to \$5,000 for federal work on 20 Great Lakes harbors, the first general rivers and harbors bill in 6 years, and the last until 1852. *Michigan* and *Surveyor*, first iron-hulled steamers on lakes.
- 1844 Marquette iron range discovered.
- 1846 When the federal government fails to take action, a steamboat association unsuccessfully attempts to deepen the channel at the St. Clair Flats, a troublesome shallow area on the connecting channel between Lake Huron and Lake Erie.
- 1847 A River and Harbor convention at Chicago calls for federal improvement at the St. Clair Flats. Steamer *Phoenix* burns on Lake Michigan with loss of 190-250 lives. St. Lawrence River canal system is finished, allowing ocean to lakes connection.
- 1848 The Illinois River-Lake Michigan Canal completed by the State of Michigan provides water route between Chicago Harbor on the lake and the Mississippi River.
- 1849 First Lake Superior lights (US) at Copper Harbor and Whitefish Point.
- 1850 Second Welland Canal completed by the government of Upper Canada has 9 feet of water on lock sills but soon thereafter is deepened to 10 feet. Transportation boom starts on lakes.
- Steamer *G.P. Griffith* burns on Lake Erie with loss of 250-295 lives.
- 1852 Whig President: Millard Fillmore signs largest river and harbor bill in antebellum history appropriating \$2.25 million for some 100 works including a number of new harbors and \$20,000 to initiate a project at the St. Clair Flats. The latter sum barely covers the cost of a dredge to begin the work. First iron ore from Lake Superior arrives at Cleveland Harbor on Lake Erie. Steamer *Atlantic*

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- sunk by collision on Lake Erie with loss of 150-250 lives. Lighthouse Board assumes responsibility for light operation.
- 1854 President Franklin Pierce (1853-1857), a Democrat, vetoes a comprehensive Rivers and Harbors Bill which includes funds for work on the St. Clair Flats. Chicago has first railroad connection with Mississippi River, at Galena, Illinois. Congress funds life-saving equipment for 25 locations on lakes
- 1854-1857 Fresnel lens replaces Lewis devices on Great Lakes
- 1855 The State of Michigan completes a canal at Sault Ste. Marie, thereby opening traffic to lake vessels moving between Lake Huron and Lake Superior. The improvement includes two tandem locks each 350 feet long, 70 feet wide, and with about 11 1/2 feet of water over their sills. Railroad extensions completed westward to the Mississippi River, expanding the hinterland tributary to such Lake Michigan harbors at Chicago and Milwaukee increase the eastward shipment of grain and westward shipment of manufactured items. Steamer *Illinois* is first vessel through. Canal cost state \$100,000. Schooner *Columbia* brings first Marquette Range ore through locks.
- 1856 In May, President Pierce vetoes bills for federal work at the Flats and for improvement of Lake George in the St. Marys River; in July, both bills are passed over the presidential veto. As a result the first federal work on the Great Lakes' connecting channels begins in October.
- 1857 All federal funds for lake harbor work are exhausted and remnants of movable federal property at harbor sites are sold to make needed repairs. Steamer *Montreal* burns on St. Lawrence River with loss of 250 lives.
- 1858 Federal project at St. Clair Flats stops when funds are exhausted.
- 1859 Federal project is completed at Lake George, a shallow area in the lower St. Marys River. Republican dominated State legislature of Michigan adopts a resolution in favor of further federal work at St. Clair Flats. Later in the year Congress passes a bill appropriating additional funds for the improvement
- 1860 In February, President James Buchanan (1857-1861), a Democrat, vetoes the Flats appropriation saying such improvements are State, not federal responsibilities. In May the Republican Party at its second national convention adopts a platform which speaks out in favor of federal river and harbor improvements. Great Lakes fleet, 369 steamers and 1,207 sail, less than one tenth of all registered shipping in US. Steamer *Lady Elgin* sinks after collision with schooner *Augusta* in Lake Michigan, 300 lives lost.
- 1860-1865 The 1860 Republican platform promises federal river and harbor improvement but the Civil War delays implementation. Lake commerce flourishes throughout the war and many new harbors, particularly for shipping lumber are improved on private initiative.
- 1864 Era of sailing vessels on lakes.
- 1865 Steamer *Pewabic* sunk by collision on Lake Erie with loss of 125 lives.
- 1866 Federal improvement of Great Lakes connecting channels and harbors is resumed on a regular basis. Michigan lumber shipping era begins.
- 1867 First Canadian light on Lake Superior at St. Ignace Island (Talbot Isld).
- 1868 Peak of sailing ship era on Great Lakes. Steamer *Seabird* burns on Lake Michigan with loss of 68-100 lives.
- 1867 First appropriations for federal harbor improvement on Lake Superior

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Completion of federal project providing a 15-foot-deep, 300-foot-wide channel over the St. Clair Flats. Construction begins on a federal lock beside the now overtaxed State lock at Sault Ste. Marie

- 1870 and improvement of channels in the St. Marys River. Over 2,000 sailing ships in use on the upper lakes. US Weather Bureau established. During winter of 1870-1871, 214 sailors die on lakes in shipwreck.
- 1872 Iron ore development at Menominee Range.
- 1875 Federal project is completed for deepening the St. Clair Flats to 16 feet.
- 1876 First US Life-Saving Service stations operational on lake, 4 each on Lakes Ontario, Huron and Superior, 5 on Lake Erie and 10 on Lake Michigan.
- 1881 Federal lock, the Weitzel, opened at Sault Ste. Marie is 515 feet long, 80 feet wide, and has 17 feet of water over its sills. Ownership of the old State lock passes to the federal government. Weitzel cost federal government \$2,200,000.
- 1882 The Welland Canal is deepened to 12 feet. Steam tonnage on lakes equal to sailing tonnage. Steamer *Asia* sunk on Georgian Bay with loss of 123 people. Stannard's Rock Light built.
- 1883 Some 4,000 vessels carrying 1.8 million tons of freight pass through the canal at Sault Ste. Marie. Second federal channel is completed at the St. Clair Flats and the first 600-foot lake vessels appear.
- 1886 First steel vessel, the *Spokane*, is put to use on lakes.
- 1887 The Welland Canal is deepened to 14 feet.
- 1888 Port of Chicago has 20,000 vessel arrivals and departures over 8 month season vs New York's 23,000 over 12 months. 8,832 vessels pass through Soo Canal
- 1889 First whaleback ships appear on the lakes.
- 1892 Federal project is completed for deepening the St. Clair Flats to 20 feet. Work begins in December to deepen eight additional sections of the connecting channels between Lake Superior and Lake Huron and between Lake Huron and Lake Erie to 20 feet. First lake shipments of Mesabi iron ore. Steel Steamer *Western Reserve* sinks on Lake Superior with all hands as result of believed brittle steel fracture. 219 lights on lakes.
- 1893 12,000 vessels pass through the locks at Sault Ste. Marie carrying over 10 million tons of coal, copper, flour, grain, lumber, and salt; nearly half of the freight, 4.6 million tons, is iron ore.
- 1894 Hay Lake channel 300 feet wide and 17 feet deep is completed on the St. Marys River below the falls
- 1895 At Sault Ste. Marie, Weitzel Lock is overtaxed by the increased trade. Vessels wait an average of 5 hours to lock through; in all, 83,000 hours lost to vessels. Conditions improve in September when Canadians complete a canal with a lock 900 feet long, 60 feet wide, and with 22 feet of water over its sills. The *Victory*, first 400-foot bulk carrier, appears on lakes.
- 1896 Second federal lock, the Poe, is completed at Sault Ste. Marie. The Poe Lock is 800 feet long, 100 feet wide, and has 21 feet of water over its sills.
- 1897 Federal projects to deepen connecting channels to 20 feet based on depths at mean level of Lake Erie in 1877 are completed; because of low lake levels, actual depths range between 17 and 19 feet.
- 1900 First 500-foot vessels on the lakes are launched.
- 1902-1904 Work continues in connecting channels to achieve actual minimum navigational depths of 20 feet. Second federal channel is completed at the St. Clair Flats and the first 600-foot lake vessels appear.
- 1905 November storm wrecks 11 steel vessels.

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- 1907 Congress authorizes a 12-mile-long second channel 300 feet wide and 22 feet deep, later called the Livingston Channel, on the lower reaches of the Detroit River; also authorizes construction of a third lock, later called the Davis Lock, at Sault Ste. Marie.
- 1909 Carferry *Marquette and Bessemer No. 2* disappears on Lake Michigan with all hands.
- 1910 Carferry *Pere Marquette No. 18* founders on Lake Michigan with all hands Great Lakes fleet equals one third of all American vessel tonnage. 88% of Great Lakes fleet is steel vs wood. Bureau of Lighthouse replaces Lighthouse Board.
- 1912 Congress authorizes funds for the fourth or Sabin Lock at Sault Ste. Marie, as the Davis Lock is being completed. Both locks are 1,350 feet long, 80 feet wide, and are 24.5 feet deep at the miter sills.
- 1913 November storm sinks a 11 steel steames with loss of over 250 sailors.
- 1915 Federal work completed to provide a depth of 22 to 23 feet throughout the Detroit River portion of the Lake Erie-Lake Huron connecting channels. US Coast Guard formed from US Life-Saving Service and US Revenue-Marine Service. Steamer *Eastland* capsizes at Chicago pier with loss of 835 people.
- 1916 92 million tons of freight traffic pass through the locks at Sault Ste. Marie; 34 vessels are of the 600-foot class. Duluth-Superior Harbor is first in lake tonnage handled, with iron ore, coal, and grain making up 97 percent of 52 million tons shipped and received. Buffalo is the second busiest harbor on the lakes, Ashtabula third, Cleveland fourth. There are 1,837 steam and 162 sailing vessels operating on the lakes.
- 1918 *Inkerman* and *Cerisoles*, French Navy minesweepers, disappear on Lake Superior with all hands (72).
- 1919 Sabin Lock is completed.
- 1920-1924 Years of low lake levels.
- 1920-1929 Relatively few new federal projects authorized; emphasis is on maintenance and upgrading existing projects.
- 1925 Lakes system has 433 major lights, including 10 lightships.
- 1929 Lake commerce reaches a record 92.6 million tons; largely iron ore, coal, grain, and limestone. Lake Erie leads the lakes in tonnage handled. Carferry *Milwaukee* sinks on Lake Michigan with loss of 46-52 lives.
- 1930 Depression-inspired legislation authorizes deepening downbound sections of connecting channels to 24 feet. Schooner *Our Son*, last commercial sailing vessel on lakes, sinks in storm on Lake Michigan.
- 1932 Under depressed economic conditions bulk lake freight falls to 41.6 million tons. Canadians open fourth Welland Canal which can accommodate vessels 600 feet long with 22-foot drafts.
- 1933 Legislation establishing Public Works Administration also provides funds for further connecting channel improvement and deepening of major lake harbors.
- 1936 Most depression-inspired federal lake improvements completed.
- 1939 US Coast Guard absorbs duties of Lighthouse Service. 000079
- 1940 Bulk freight lake traffic sets new record of 145.2 million tons of iron ore, coal, grain, and limestone; 213 lake vessels now have full load drafts, of 23 feet or more; some of them fully loaded cannot pass the locks at Sault Ste. Marie. November storm causes three steel freighters to founder on Lake Michigan, two disappear with all hands

- 1942 Congress authorizes new lock, the MacArthur, to replace the Weitzel Lock at Sault Ste. Marie.
- 1943 MacArthur Lock, 800 feet long, 80 feet wide, 30 feet deep, is opened to traffic.
- 1946 Another new federal lock authorized at Sault Ste. Marie but construction is delayed.
- 1948 Freight tonnage moved on the lakes reaches record 217 million tons, 86 percent of which is iron ore, coal, limestone, and grain.
- 1949 Bulk freighter *Wilfred Sykes* is launched at Lorain, Ohio; it is 678 feet long, and the first lake ship to burn oil. Canadian passenger steamer *Noronic* burns at Toronto with loss of 118 lives.
- 1952 First oil-fired turbine lake vessels are built.
- 1953 Record lake shipments of iron ore reach 95.8 million tons. Steamer *Henry Steinbrenner* sinks on Lake Superior with loss of 17 men.
- 1954 President Eisenhower signs St. Lawrence Seaway Act allowing United States to participate with Canada in seaway construction; the first 710-foot-long freighter appears; first shipments of iron ore mined in Quebec-Labrador are sent westward through Welland Canal to Lake Erie and Lake Michigan points.
- 1956 United States legislation provides authorization and funds to improve connecting channels and harbors above Niagara Falls to allow for vessels of 27-foot draft. First shipment of taconite pellets comes down the lakes.
- 1957 Vessels are beginning to exceed maximum dimensions of MacArthur Lock. Special locking procedures are developed so that vessels up to 730 feet long can be locked through.
- 1958 *Edmund Fitzgerald* is launched, first lake freighter 729 feet long. Steamer *Carl D. Bradley* founders in Lake Michigan with loss of 33 men
- 1959 St. Lawrence Seaway is put into operation.
- 1962 Work is completed on Great Lakes connecting channels above Niagara.
- 1965 So far, 15 Great Lakes harbors deepened to handle larger vessels now plying lakes due to St. Lawrence Seaway and connecting channel improvements.
- 1966 Steamer *Daniel J. Morrell* founders in Lake Huron with loss of 28 of 29 men.
- 1968 New Poe Lock, 1,200 feet long, 100 feet wide, and 32 feet deep, is opened to traffic at Sault Ste. Marie.
- 1972 First 1,000-foot lake vessel, the *Stewart J. Cort*, passes through Poe Lock carrying a record load of 51,000 tons of taconite. Duluth-Superior Harbor receives record low of coal for the century, only 447,000 tons.
- 1973 First lake shipments eastward of low sulphur western coal begin at Duluth-Superior Harbor.
- 1975 *Edmund Fitzgerald* sinks with loss of 29 men.
- 1979 92 million tons of iron ore shipped on the lakes this year exceeds all previous years except 1953.
- 1980 Great Lakes shipments of grain reach a record 1 billion, 149 million bushels.

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- 1981               Thirteen 1,000-foot bulk cargo vessels are now operating on the lakes.
- 1983               Last manned lighthouse on lakes automated.

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