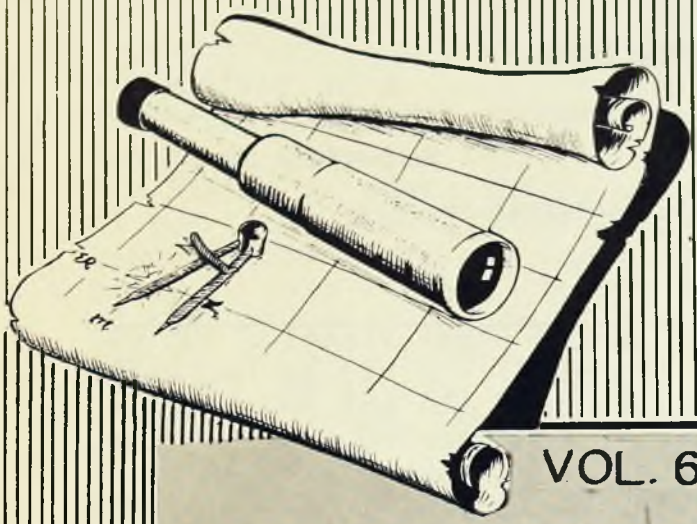

TELESCOPE

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Telescope

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GREAT LAKES MODEL SHIPBUILDERS' GUILD

5401 Woodward Avenue

Detroit 2, Michigan

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Editor:
Membership $4.00

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Associate Editor
Membership $4.00

Supported in part by the Detroit Historical Society

Editorial

We hold no brief for the AQUARAMA, or any other vessel, but we would like to know more about the boats reported capsized by her wake on July 14, in the Detroit River. Newspaper reports did not mention the size or type of the boats that came to grief. One carried four persons and the other five, it is said. One, at least, was powered by an outboard motor, which always adversely affects the stability of what ever it is attached to.

Now, it is possible that an outboard-rigged boat can be big enough to carry four or five people, but from what I saw, from the deck of the schooner J.T. WING, over a period of eight years, the average outboard craft is about 16 feet long, and only upon rare occasions did I see them without one, or more people in them than they could safely carry. Before we condemnthe AQUARAMA and Captain Morgan Howell,her skipper,let us have the facts in the case, from both sides.

We are opposed to undue speed of large vessels in restricted waters, but more opposed to the practice of overloading small boats and venturing out in poorly designed small craft which can not meet the conditions to which they are exposed. As much as we like boating we see no reasons why the legitimate commercial shipping should be penalized by those who insist upon going out in small craft which are not able to meet any possible hazard commonly occurring in a given locality.

Being short of facts regarding the two small boats involved in the incident mentioned above we do not pretend to judge. What we do seek is fair play, and we regret the tendency to place all the blame on the big vessels which are rendering either essential or highly desirable services to the public.

Most of us regretted the suspension of steamer service between Detroit and Cleveland, when the D & C boats went out of business. Now that we have that service restored let's give it a chance to continue. The owners of the big AQUARAMA have risked millions in the venture and they are entitled to fair play. Believe it or not they are just as much entitled to use our waterways as are the little pleasure boats, especially the unseaworthy ones and those that go out overloaded.

Organized in 1952 to locate, acquire, and preserve information and objects related to the history of shipping on the Great Lakes and to make same available to the public through the Museum of Great Lakes History and the columns of Telescope. The construction of authentic scale models of Great Lakes ships is one of the prime objectives of the organization, which has brought into being the largest existing collection of models of these ships. The Museum of Great Lakes History, located at 5401 Woodward Avenue, Detroit 2, Michigan, is official headquarters for the organization and the repository of all of its holdings. The Guild is incorporated as an organization for no profit under the laws of the State of Michigan. No member receives any compensation for his services. Donations to the Guild are Deductible for tax income purposes.

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Aquarama

The time; July 31, 1957, 4:00 P.M. The Place; on board the S.S.AQUARAMA at the foot of West Grand Boulevard, Detroit. The occasion; the presentation, by your editor, to the owners of the ship, of a map of the Great Lakes. It is a unique map, in that it shows the Lakes, in blue, on a cream background. Nothing else. Most maps are so full of detail you have difficulty finding anything.This one is different. All you see on it are the five great Lakes. No roads, no towns, no political subdivisions, no latitude, no longitude.

This is a map of the region as it was when only the Indians lived in the land. The blue represents the vast expanses of water. The cream represents the boundless forests.

Pause for a moment and contemplate this scene. Try to see it as it was in its primeval state,---the blue of the water, walled in almost everywhere by the towering trees which completely obscured the inhabitants of the time, their few primative lodges, and their dim, winding paths leading hither and yon across the land.

It is a map for people with imagination, who can supply their own details,--who can look at it from the east and see what the early French traders saw. To them the system of lakes and streams were long fingers reaching far back into the interior of the continent,--not just a natural barrier between two nations. On this map one may see everything they wish to see,--or nothing, depending upon how much imagination one has.

With the presentation over Captain Morgan Howell betook himself to the bridge and the AQUARAMA swung quietly out into the river and headed for Lake Erie, and as she did we began taking stock of our surroundings.

Mr. Herman Pirshner, now free of pressing duties in the vicinity of the gangway took over and saw us to the guest room assigned to us. Hardly had we gotten freshened up when over the public address system came a call: "Will Captain and Mrs. Johnston come to the ship's office." The Chief Mate, Mr. Shalton wished to entertain us until time for him to go on watch, and this he did so well it occurred to me that he should be invited to present his story on TV. It contained all those things which are so familiar to a ships' officer yet so completely beyond the ken of the average small-boat operator. His way of bringing out the facts is unique, and very clear.

Left to ourselves for a while we set out to explore our beautiful surroundings. By escalator, elevator, and stairways we went from deck to deck. The great picture windows in the sides of the ship made views of the passing scenery available to those who preferred to remain inside the cabin.

Out on the decks or in the lounges there is comfortable seating in a wide variety of chairs, couches, and benches, arranged for enjoying the scenery or shipboard activities.

A play room for tiny tots, in charge of an attendant offered every entertainment a child could desire, and afforded expert care for little people while parents enjoyed themselves elsewhere, and there is so much to see and do.

We counted six places where food, or drinks could be obtained,---soft drinks stands, lunch rooms, cafeteria, and bar, all spacious and comfortable, giving all the thrills one can get on a great ocean liner.

There is a TV room and a movie theater,a gift shop and an amusement area with all kinds of devices for the entertainment of old and young.

There are shuffleboard courts and two dance floors and on one of these we saw as good a floor show as one can see on Broadway, and all of the actresses were Detroit school children,--really talented troupers not one of whom was over fourteen years of age.

Ashore in Detroit the heat was at its worst for the summer, but as the ship glided quietly over Lake Erie her motion created a very pleasant breeze. Night fell as we neared the mid-passage point, and with it came

Capt.Morgan Howell (Left) of the S.S.Aquarama and Capt.J.E.Johnston of the Museum of Great Lakes History inspect map presented to the vessel by the museum.

Detroit News Photo

a haze which reduced visability to little more than a mile, then lifted again as the Ohio shore lights began coming over the horizon.

The lights in the Terminal Tower Building gave the first indication of the direction of Cleveland and as we neared port other shore lights came up to view. The lurid lights from the steel mills around Lorain were the first to break through the low haze. As we approached port more and more lights came into view until the horizon to southware was all a-glitter.

Long before the bow of the ship reached the entrance people had lined the rail to watch the Captain bring the ship in to dock. We went down to be near the gangway and were near the centerline of the vessel, not more than 35 feet from the loading port when we heard the gangplank come aboard. That was the first indication we had of the ship being in her berth, so gently had she come alongside.

The AQUARAMA is a big ship,--being 520 feet long, with a beam of 71 Ft. One may walk 2 miles around her nine decks. She has a displacement of 10,600 tons and can turn up 10,000 horse power on the oil-fired turbine engine. Her cruising speed is 22 mile per hour.

Her all-steel construction, combined with fire-resistant furnishings makes her as safe from fire as

it is possible to make a ship. Her navigation equipment is of the most modern kind, and includes radar, gyro pilot, ratio direction finder, ship to shore telephone, and other improved instruments. She has accomodations for 2,500 passengers, but no passenger staterooms. There are two decks for automobiles. The cost for a car, one way is only $8.74 one way.

Passenger fares, we found, vary in accordance with class of transportation desired and the kind of trip preferred: one way, round trip, continuous travel, etc. Children travel at half fare if between the ages of 5 and 11, and are with full-fare passenger. There are two classes of fare, lounge and club. For the former a round trip with 7-day stopover may be had for only $9.41. The latter costs only $12.59 and is worth the difference. Tax, of course must be added.

What impressed me most about the fares was the consideration shown to groups of 50 or more such as professional, industrial, sales, social, religious and service organizations.

Such groups by getting their tickets in advance can save a lot, have a wonderful time, and even conduct meetings in the ship's theater if arranged for in advance.

Food on board is good, and not expensive. In fact I have gotten less, both in quantity and quality in many places ashore. The cafeteria sytle of service helps keep costs down and give one a chance to see just what they are getting. The entire crew of the AQUARAMA numbers less than would just the stewards department on a ship carrying the same number of passengers and using old-style diningroom methods.

The revival of passenger service between Detroit and Cleveland, coming, as it does, on the heels of the scrapping of the old Detroit and Cleveland Steam Navigation Company's vessels, is a historic event. Just for the record we are publishing the AQUARAMA schedule, and fares. We are a historical society, we in the Guild, and many times we have wished for old schedules and fares for the steamers of bygone days. Some are to be found, it is true, but they are scattered through old newspaper files, scrap books, and collections of old hand bills, and not always readily come by.

Both fares and schedules for the year 1957 are, admittedly, tentative or at least experimental. The President of the Ohio-Michigan Navigation

1957 AQUARAMA SUMMER SCHEDULE

LV. DETROIT EST.	AR. CLEVELAND EDST		LV. CLEVELAND EDST	AR. DETROIT EST
12:01 A.M.	7:00 A.M.	SUN.	8:15 A.M.	1:30 P.M.
4:00 P.M.	11:00 P.M.	"		
4:00 P.M.	11:00 P.M.	MON.	8:15 A.M.	1:30 P.M.
4:00 P.M.	11:00 P.M.	TUES.	8:15 A.M.	1:30 P.M.
8:15 A.M.	3:15 P.M.	WEDS.	12:01 A.M.	5:15 A.M.
			5:45 P.M.	11:00 P.M.
8:15 A.M.	3:15 P.M.	THURS.	5:45 P.M.	11:00 P.M.
8:15 A.M.	3:15 P.M.	FRI.	5:45 P.M.	11:00 P.M.
8:15 A.M.	3:15 P.M.	SAT.	5:45 P.M.	11:00 P.M.

EST denotes Eastern Standard Time EDST-Eastern Daylight Saving Time

Company, Mr. J. Lee Barrett, informs us that about $8,000,000.00 has gone into the venture so far, and that little in the way of financial returns are expected for some time to come, but he admits there are compensations of another kind. He and his associates take great pleasure in knowledge that they have made possible the revival of travel on the old Detroit-Cleveland run. They have provided the facilities. It is now up to the public to prove that they want it.

While the AQUARAMA was built for ocean cargo service she was changed over to her present style in the Michigan port of Muskegon and now offers employment to Michigan workers and to workers from other parts of the Great Lakes region. Any way you look at it this fine vessel and the delightful service she renders is a major contribution to the Great Lakes region.

REGULAR FARE VOYAGES

Saturday, Sunday, and Holiday Sailings.

CLASS OF TRAFFIC	LOUNGE FARE	CLUB FARE
One way passengers (Accompanying auto)	$ 5.23 plus tax	$ 7.00 plus tax
	* 2.62 "	* 3.50 "
One way passengers (Trip passage only)	5.23 "	7.00 "
	* 2.62 "	* 3.50 "
Continuous cruise passengers (2½ Hr. Stop over)	8.64 "	11.82 "
	* 4.32 "	* 3.91 "
Group continuous cruise passengers (50 to 150 advance ticket sales)	7.95 "	10.87 "
	* 3.98 "	* 5.44 "
Group continuous cruise passengers (Over 150 advance ticket sales)	7.60 "	----
	* 3.80 "	----

* Children--age 5 to 11 years inclusive when accompanied by full fare passenger.

Tourist auto rate---one way.....$8.74 plus tax.

BUDGET FARE VOYAGES

Week day sailings Monday through Friday.

Class of traffic	LOUNGE FARE	CLUB FARE
One way passengers (Accompanying autos)	$ 5.23 plus tax	$ 7.00 plus tax
	* 2.62 "	* 3.50 "
One way passengers (Trip passage only)	5.23 "	7.00 "
	* 2.62 "	3.50 "
Round trip passengers (Seven day stop over)	9.41 "	12.59 "
	* 4.71 "	* 6.30 "
Continuous cruise passengers (2½ Hr. Stop over)	7.73 "	10.82 "
	* 3.87 "	* 5.41 "
Group continuous cruise passengers (50 to 150 advance ticket sales)	7.11 "	9.96 "
	* 3.56 "	4.98 "
Group continuous cruise passengers (Over 150 advance ticket sales)	6.80 "	
	3.40 "	

NAVAL CONSTRUCTION ON THE GREAT LAKES

by Captain Marvin H. Gluntz,
U. S. Navy

A Reprint From:

UNITED STATES NAVAL INSTITUTE PROCEEDINGS

Vol. 83, No. 2 - February, 1957

The story of naval construction on the Great Lakes is more than the detailing and interpreting of statistics. It is more than numbers of ships built and their tonnages. It is the story of Presque Isle, of shipbuilding "firsts," of short, narrow locks and shallow channels limiting access to and from the sea. Above all, it is the story of ingenious and able men. It is all of these and much more!

The story started with the sloop DETROIT, which our government bought in 1796 to carry troops and supplies between Presque Isle (Erie, Pennsylvania) and other ports in the Old Northwest. She had been built three years earlier by Jim Connoly and Captain Peter Curry, who were early residents on the River Rouge. The acquisition of the 70-ton DETROIT, the first United States government vessel on the Lakes, brought Captain Curry into government service as her skipper. Although he had three-years' experience in operating the vessel in the fur and general merchandise trade, Curry at times had difficulty in securing enough sailors to man all of the vessel's positions. It seems that sailors were then "...few and in big demand." This shortage was met by detailing soldiers to the unfilled jobs and by paying them an extra $5 per month in addition to their regular $4 monthly salary. Even so, the soldiers could not match the $20 per month paid to sawyers, the $15 paid to teamsters, or the $45 (plus two rations) paid to ship carpenters.

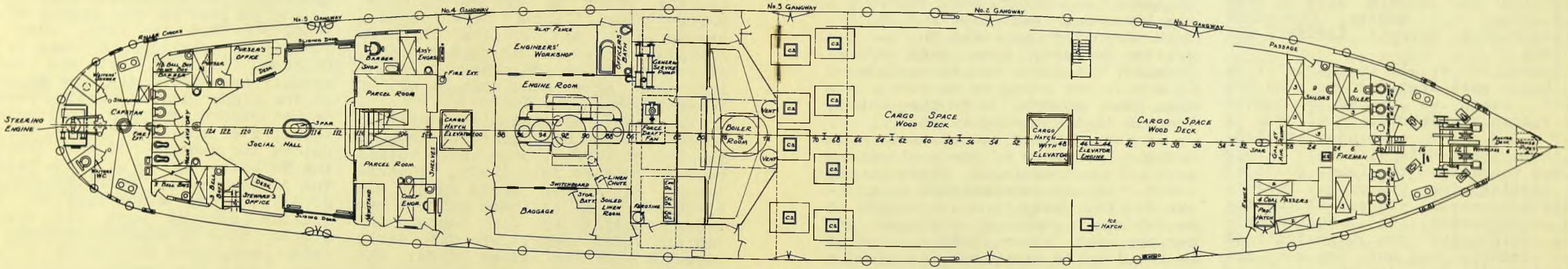
These were the prevailing wages in 1797, when our first shipyard on the Great Lakes was established just below Detroit on the River Rouge. This yard was short lives, but it succeeded in turning out two warships--the 150-ton brig ADAMS in the spring of 1800 and the 70-ton sloop TRACY. Both vessels immediately began carrying supplies and personnel for the government. In keeping with the spirit of the times, they occasionally carried some commercial freight as well. The resulting revenues helped reduce their annual operating costs substantially.

A highlight in the career of the TRACY occurred in 1803, when she carried a garrison to what is now Chicago. By that act she became closely associated with the founding of the Windy City. Existing records do not record further incidents in the life of the TRACY, but they do record the capture of the ADAMS by the British, along with the fall of the settlement at Detroit in August of 1812. They also tell us that British gunfire sank the ADAMS a little later in order to prevent her being recaptured by a group of Americans under the daring leadership of Lieutenant Elliott, a U. S. naval officer.

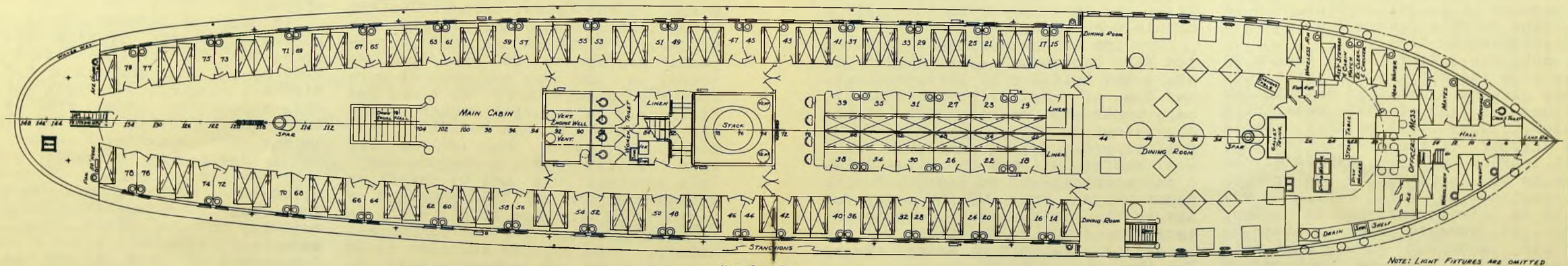
It would be interesting to have a record of all the vessels built and operating on the Lakes during the 1790's, but the sources of information are meager. Our lack of records apparently stems from a fire which took place in several offices in the War Department in the year 1800, destroying valuable papers that covered the period. From other references, however, we know that there was considerable shipbuilding activity on the River Rouge. For example, Captain Hector McLean, Commandant of Fort Malden at Amherstburg, complained by letter, dated July 10, 1799, to his superiors at Quebec that he could not get hull repairs effected on His Majesty's Ship OTTAWA because of the number of vessels being built at the "River Rouge yard where the wages are high."

At the turn of the century there were only two United States naval vessels on the Lakes, but twelve years later the number had grown to 37 built or building, and 34 operating. The majority of these warships

See P.10



MAIN DECK PLAN



MAIN CABIN DECK

NOTE: LIGHT FIXTURES ARE OMITTED EXCEPT OUTSIDE FIXTURES

PASSENGER STR. ALABAMA	
BUILT 1909 BY MANITOWOC DRY DOCK CO.	
GREAT LAKES MODEL SHIPBUILDERS' GUILD	
5401 WOODWARD AVENUE DETROIT 2, MICHIGAN	
DRW'N BY James B. Jones	CHK'D BY J.S. Johnston
TRC'D BY James B. Jones	DATE 7-22-57

Continued from P.7

were schooners mounting less than seven guns and displacing less than a hundred tons apiece. Eleven of the vessels, however, carried batteries in excess of 18 guns and displaced more than 450 tons each. The largest warship operating on the Lakes was the SUPERIOR, 1,580 tons and 62 guns. She was attached to the Lake Ontario fleet and later became Commodore Isaac Chauncey's flagship. The two most famous vessels--and the largest ones on Lake Erie--were, of course, Commodore Oliver Hazard Perry's LAWRENCE and NIAGARA.

Two-thirds of all the warships on the Lakes were stationed on Lake Ontario, since we needed to counter the vigorous shipbuilding efforts of the British commander stationed there. Lake Erie, with only a third of the vessels on the Lakes, provided the setting for Commodore Perry's brilliant naval victory at Put-in-Bay in September, 1813. Most Americans could give the highlights at that victory, but not too many are familiar with the job the people of Presque Isle, under the outstanding leadership of Daniel Dobbins, did in building Perry's fleet in such record-breaking time.

Dobbins's letters and papers on file with the Buffalo Historical Society give us a detailed description of that job and of that remarkable leader. They tell us that Dobbins was skipper of the two-masted topsail trading schooner SALINA at the time he was captured by the British at Mackinac in July, 1812. He was taken to Detroit and then to Malden, where he escaped a month later by paddling a dugout across Lake Erie to Sandusky. There he procured a horse and rode to Cleveland. Proceeding by canoe to Presque Isle, he gave the first news of the fall of Mackinac and of General Hull's surrender of Detroit. At the request of General Mead, the officer in command of Presque Isle, Captain Dobbins at once started for Washington as bearer of dispatches giving details of the important events which he had witnessed. The journey was long and toilsome, through the forests to Pittsburgh, thence by the military road to Baltimore.

Upon reaching Washington, Dobbins hastened to the War Office and laid his dispatches before Secretary Eustis. Up to that time not the slightest intimation of the disaster had been received in the capital. The Secretary of War went at once to the White House to confer with President Madison. The cabinet was hastily summoned, and the news was fully discussed. The intelligence of the double disaster was a crushing blow. It seemed as though our empire in the Northwest was gone and the New York frontier appeared to be in greater jeopardy than ever before. Finally, President Madison exclaimed: "There is one thing to be done. We must gain control of the Lakes. Therein lies our only safety."

It was decided to place Captain Dobbins in charge of the preliminary work of constructing a fleet on the Lakes. He was commissioned an officer in the Navy and authorized to employ men, purchase supplies, and perform such other duties as might be required to carry out his mission. On his return trip to Erie he engaged several ship carpenters in New York, and they provided the nucleus of his working force.

Dobbins was authorized to draw on the Navy Department for $2,000 to start the building of Perry's fleet, and one of his first steps was to make contracts for standing timber convenient to the shipyard. The uniform price was one dollar a tree. Coal was hauled from the pits--location uncertain--at 6¼ cents a bushel. Wages ranged from $2.50 a day for the master shipbuilder down to 62½ cents for axemen. Hauling, with horses or oxes, cost $4 a day. Board for the men was $2.25 per week.

Acting largely on his own responsibility, but as he believed with the approval of the Navy Department, Dobbins hastened the preliminary work. In order to set a good example, he himself on October 24, 1812, felled the first tree, a great oak, and hewed out the trunk. It afterwards formed the keel of the NIAGARA. At the beginning of November, he engaged Ebenezer Crosby of Buffalo as master builder. Their original contract, still preserved, is one of the many interesting documents in

the Dobbins papers.

On December 12, Dobbins wrote a progress report to Secretary of the Navy Paul Hamilton. He told the Secretary that some of the men who were hired in the East had not yet "come on as was expected..." and reported, "i c e was forming in the Lakes and would soon form a complete barrier against the British for this winter." He declared that he was having difficulty in making contracts with the local interests because, "The people of this country are poor and very liable to fail." Nevertheless, Dobbins stated that he had laid down t w o hulls of "50-foot keels 17 foot beams, 5 foot hold and from appearances will be fast sailors if you wish me to go on with this work you will please give me orders to draw, I have expended a considerable sum more than the two thousand dollars on account."

There is nothing among the Dobbins papers which may be regarded as total accounting o f the cost o f building the fleet. From the accounts of Noah Brown, whom Dobbins selected as Superintendent of Construction, we learn that a total of $19,466.42 was spent during the period from November 1, 1812, to March 27, 1813. This amount included the costs of cutting timber, meeting shipyard payrolls, board for the men, and boating and handling from Buffalo. In these old accounts there is also frequent mention of whiskey--a cost of shipbuilding as commonplace i n those days as the weekly board bill.

Dobbins' pleas f o r additional funds must have been granted because we find him starting construction of the LAWRENCE and NIAGARA early in 1813. Designed by Henry Eckford, the most famous American naval architect of his day, they were 110 feet between perpendiculars, brig-rigged and armed with eighteen 32-pound carronades and two 12-pound guns.

Iron had to come from Pittsburgh, fitting-out items from Philadelphia, and guns from Buffalo. But even with those obstacles, by July 2 5-- six months from keel date--both vessels were ready for operations, except that they could be only partially manned. Less than two months later, Perry sent his historic message, "We have met the enemy and they are ours."

Perry's victory exerted a major influence on the outcome of the war and a decisive influence on the course of naval construction on the Lakes. The Rush-Bagot Treaty signed in 1817 stipulated amongst other things that thenceforth neither party could maintain more than one warship on Lake Ontario, nor more than two on the upper Lakes. The vessels could not exceed 100 tons, and they could not be armed with more than one 18-pounder. (1). In keeping with the spirit behind the treaty, a United States Navy inspection party in 1821 condemned all but one of the many warships that we had on the Lakes. As a result, the LADY OF THE LAKE, a schooner of 89 tons, became in 1823 the only armed American ship operating on the Lakes. She brought to a close the earliest and perhaps the most colorful period of naval construction in that area.

In spite of the original 100-ton displacement limitation of the Rush-Bagot Treaty, we managed to launch the 685-ton MICHIGAN at Erie, Pennsylvania, in 1843. S h e was t h e Navy's first iron-hulled warship . Her plates were fabricated in Pittsburgh and hauled to Erie by canal and ox teams. Originally rigged as a bark but l a t e r changed to a schooner, the MICHIGAN also had two inclined, direct-acting, condensing engines which could give her a speed of 10 knots under power. In 1844, she began cruising the Great Lakes, but with only one of the six guns her plans called for. This change was made to meet the ordnance limitation of the Rush-Bagot Treaty and to satisfy the British Minister.

In 1905, the MICHIGAN'S name was changed to WOLVERINE, so that her old name could be given to a new battleship. The venerable ship made

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(1) Since 1939, these stipulations have been revised by a series of notes between the U. S. Government and the Canadian Government.

her last trip under power in 1923 and was finally laid up at Erie. In 1943, 100 years after launching, she was stricken from the Navy list and in 1949 she was scrapped. That long life is characteristic of Great Lakes vessels and creates a problem that will be considered later on in this article.

(To be continued)

SEAWAY REPORT

Latest report from Saint Lawrence Seaway authorities indicate that, on the whole, the project is on schedule and will be completed on July 1,1958, unless unforeseen trouble arises. The magnitude of the undertaking makes this optimistic prediction seem almost impossible, but in these days of marvels we need not be surprised at anything.

BOOKS

ONLY A FEW MORE LEFT.....$1.50

INFORMATION PLEASE

Have you any information on the following schooners: where built, when and by whom? What happened to them?

1. SELKIRK. 2 masts.Straight stem.No yard on foremast.

2. C.H.BURTON. 3 masts,straight stem and no yard on foremast.

Please send information to Erik Heyl at 136 West Oakwood Place, Buffalo, 14, N.Y.

MACKINAW STRAITS BRIDGE

November of this year has been set for the opening of the Mackinaw Straits bridge and a recent visit to the scene of activity makes us confident that the public will not be disappointed. Only a few more sections of the steel supports for the roadway are left to be installed,and they are going into place even a little ahead of schedule. So confident are the builders that the deadline will be met they have suspended overtime work. Only some very adverse weather can alter the outlook at this time.

It appears at this time that the present fleet of ferry boats on the run from Mackinaw to St. Ignace is headed for the salvage yards.According to Captain Nelson of the "Vacationland" they will not fine gainful work after the bridge is opened. There have been rumors to the contrary, but so far nothing definite can be reported.

SAMUEL WARD STANTON DRAWINGS OF GREAT LAKES VESSELS
(Continued)

SAINT IGNACE

Built 1888 at Detroit, Michigan by the Detroit Dry Dock Company. Hull, of wood. Length of keel 198½ feet; over all 251 feet. Breadth of beam 51 feet; depth of hold 15-3/4 feet; moulded depth 24 feet; average draft of water 17 feet.

Engines, two vertical compound, turning a screw on either end. Diameter of cylinders of forward engine 26 and 48 inches by 40 in. stroke. After engine, diameter of cylinders 28 and 58 inches by 48 inches stroke.

Boilers, three, of steel, cylindrical double ended. Wheels, forward 10½ feet in diameter, with 15 feet pitch. After wheel 12 ft. in diameter and 16½ feet pitch. Tonnage 1199.75 gross; 600 net.

A powerful ferry steamer, built to transport railroad cars between Mackinaw City and St. Ignace, in the Straits of Mackinaw, Michigan. The first double screw ferryboat built in America, and used summer and winter. Capacity for 10 freight or 8 passenger cars; speed 15 miles per hour. Owned by the Mackinac Transportation Company.

CITY OF DETROIT

Designed by Frank E. Kirby. Built 1889 at Wyandotte, Michigan, Hull, of steel, built by the Detroit Dry Dock Company. Lenght of keel 285 feet, over all 295 feet, breadth of beam 40½ feet; over guards 71 feet, depth of hold at center 16 feet. Average draft of water 10 feet.

Engine, vertical beam, compound, built by the W & A Fletcher Co. of New York. Diameter of cylinders 48 and 68 inches, by stroke of 8 and 12 feet. Indicated horse power 2200.

Boilers, four cylindrical of steel built by the Lake Erie Boiler Works, Buffalo, N.Y.

Wheels, feathering type, 26 feet in diameter, 24 buckets, length of buckets 10 feet. Mahogany cabins by William Wright & Co., of Detroit.

One of the most elegant sidewheel passenger boats ever turned out for service on the Great Lakes. Cost $250,000.00. Built for the Detroit & Cleveland Steam Navigation Co. for night service between Detroit and Cleveland. Strongest of steel hulls, finest machinery, magnificent saloons, luxurious passenger accommodations; all modern improvements, great speed and large freight capacity---an ideal inland steamboat. Maximum speed 21.42 miles per hour.

LIVINGSTONE

Designed by Frank E. Kirby. Built 1889 at Wyandotte, Michigan. Hull, composite, built by the Detroit Dry Dock Company. Length of keel 280 feet; over all 290 feet; extreme beam 42 feet; depth

Engines, triple expansion, constructed by the Frontier Iron Works, Detroit. Diameter of cylinders 20½, 30 and 55 inches, by 42 inches stroke.

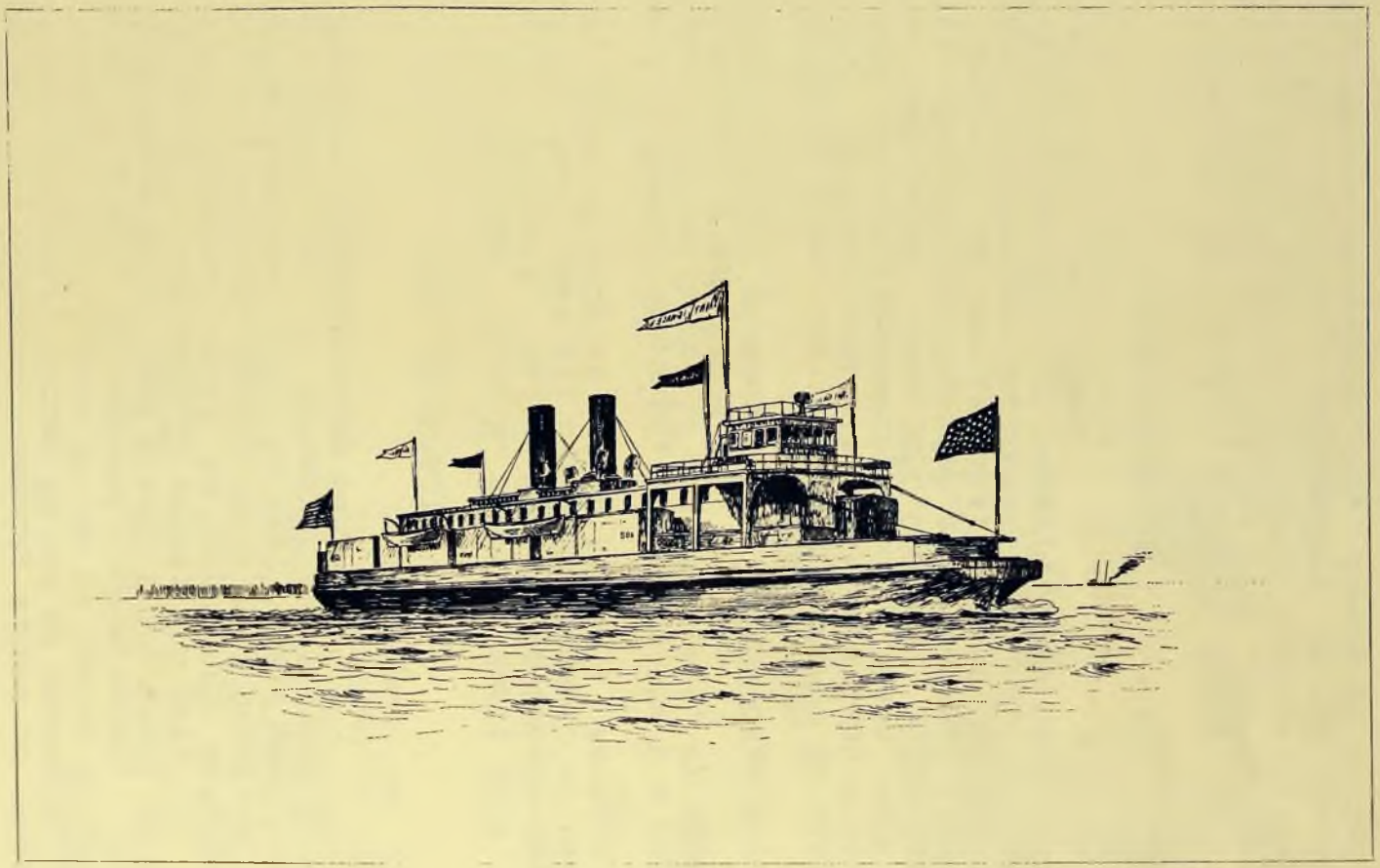
Boilers, two, of steel, built by the Lake Erie Boiler Works, Buffalo, each 12 feet in diameter by 11 feet in length; working pressure up to 160 lbs. per square inch.

Wheel, four blades, 12½ feet in diameter, 14 feet pitch.

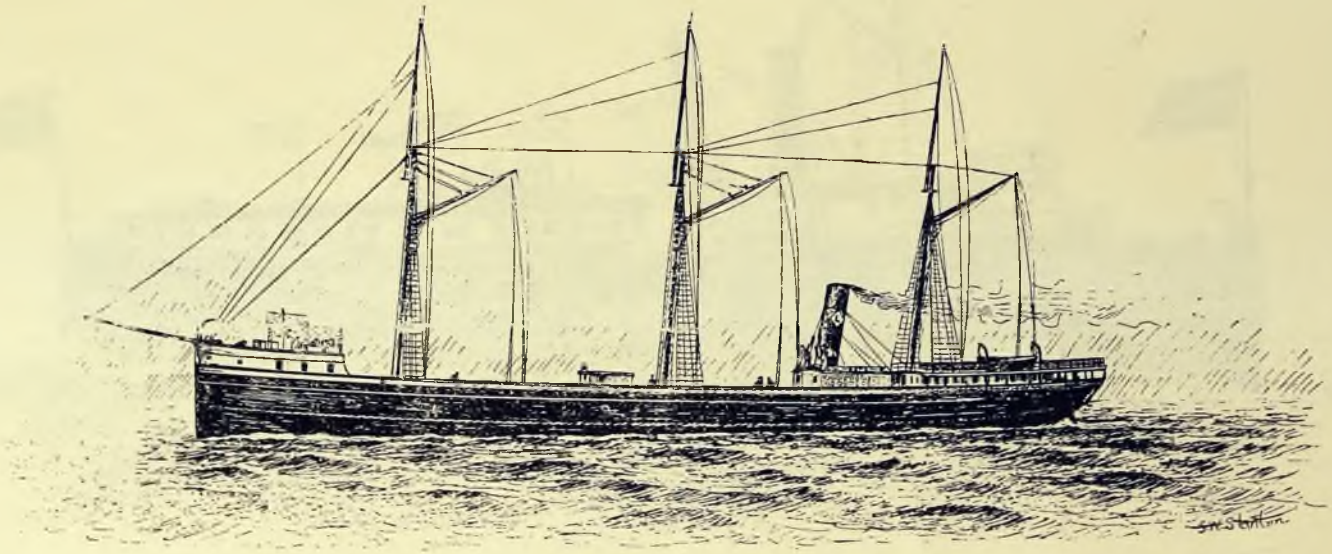
Tonnage 2134.38 gross, 1622.34 net.

A large and substantially built steamer of the Great Lakes. Owned by the Percherson Steam Navigation Company, and used in the ore, coal grain and package freight carrying trade. Capacity 3000 tons.

LAKE ERIE PASSENGER STEAMBOAT CITY OF DETROIT, 1889.



GREAT LAKES CAR FERRY ST. IGNACE, 1888.



GREAT LAKES STEAMSHIP LIVINGSTONE, 1889.