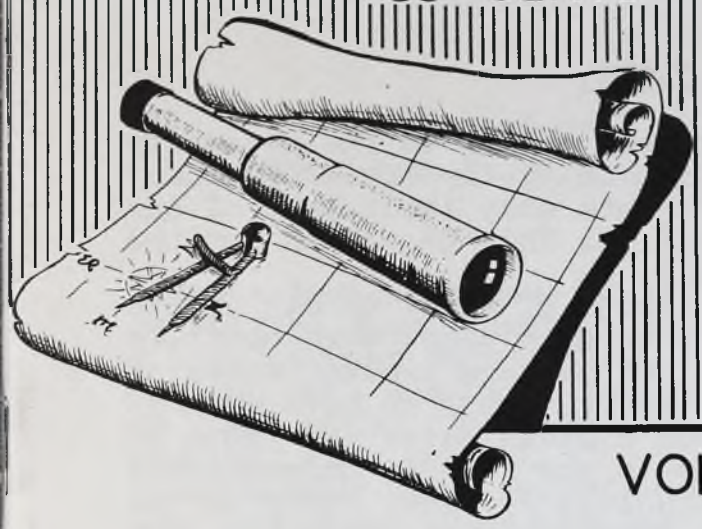
35 CENTS



TELESCOPE

VOL. 8 – MARCH 1959 – NO. 3

EARLY MAPS OF THE GREAT LAKES REGION

Earliest map showing portion of five Great Lakes, N. Sanson, 1650

Telescope

PUBLISHED BY

GREAT LAKES MODEL SHIPBUILDERS' GUILD

5401 Woodward Avenue

Detroit 2, Michigan

THE GUILD

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 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.

Supported in part by
THE
DETROIT HISTORICAL
SOCIETY

****

Joseph E.Johnston,
Editor

MEETINGS

March 27,1959
April 24,1959

7-30 PM.
Detroit
Historical Museum
5401 Woodward Ave.

Editorial

LET'S FACE THE FACTS.

Attention has been called to the necessity of having all dues in by the end of February each year but to date only about half of our members have paid up. This placed us on the spot, financially.

With a given amount of money we can create a publication of so many pages each month.We propose to give our members twelve issues of TELESCOPE. For several years we have,including covers, given sixteen pages and hope to be able to do so in the future. However,this can not be done unless we know, early in the year, just what funds will be available.

Unless all dues are in by the time we put together the April issue we will have to reduce TELESCOPE to eight pages until we have assurance that we can pay for the sixteen we wish to give our readers.

So far our history has been one of steady growth. Let's continue the trend. This issue is the last we can mail out to anyone who is not paid up. Please send in your dues at once and better still, get one or more members on our roster who has not previously been with us.

Certain funds which have been available in the pas t are no longer so. Let's face the facts, and do something about it. Let's all get in and push.

NEW MARINE EXHIBITS

Several major exhibits are under construction at the laboratory at Fort Wayne in anticipation of the new building on Belle Isle. This operation is a show in itself.

WINKY THE SHIP'S CAT SAYS,

Recognize handicaps. They are challenges to the brave.

GUILD MEMBERSHIP runs by calendar year. Dues $4.00

SCHOONER ALVIN CLARK

By Joseph E.Johnston

In the vast literature of the oceans, one may find records covering every phase of life on those waters. Food, clothing, quarters, pay, discipline, weather, ports, are just a few of the things which writers have dealt with in detail.

On the Great Lakes, records seem to have been considered unimportant and the few that were made have mostly been destroyed. By reading between the lines in old account books, one may arrive at some sort of dim picture of life on our sailing vessels of the past century.

As for food, much depended upon the way it was prepared in the galley. Frequent entries indicate that fresh meat was no rarity, and the same is true regarding vegetables, though there is nothing in the account books to indicate quantity or quality. Salt pork is mentioned now and then, as is salt beef, but this need not be any indication of poor food. Before the days of refrigeration on board ships, salt meat could be an item to be wished for by seamen, for there is nothing better than a good cut of beef, or pork, properly salted. Today only the poorest cuts are salted, and from these one can get no idea of what good salt meat was like even fifty years ago when the whole beef, or hog went into the pickle barrel, or the salt box if dry salted. As late as 1906, dry-salt pork retailed at 10¢ to 12½¢ a pound and there was nothing more tasty than a loin cut from a large hog. Boiled, and allowed to become chilled, the fat could be scraped off and used as a spread, in place of butter during cold weather. Fried in thick slices, it was equal to, and sometimes superior to some of the bacon then on the market - bacon which was called "liquid smoked," but which simply had been dipped in a creosote, and often tasted like it.

In those days, "Sow bosom" was the name given to the flabby stuff which now goes for salt pork and only the poorest folks would buy it. The price for this, in 1902 dropped to 4½¢ a pound and never sold for more than 8¢ or more until refrigeration and the demands of World War I changed things.

Among other things which affected the food of seamen in the old days, were skippers and owners. Some skippers tried to feed their men well, but sometimes the owners were too parsimonious. Even in 1916, our first year in World War I, a ship could feed the best, and plenty of it, for from 95¢ to $1.05 per day. One West Coast steamer, at the latter figure, fed meals in which there were always two kinds of meat on the table, plenty of fresh vegetables, and usually two kinds of desserts, one of which was always pie. This was after the "coffee and overtime" strike of the coastwise seamen when breakfast was served at 5:30 a.m., Luncheon at noon, and dinner at 6:00 p.m., with between-meal snacks at 9:00 a.m. and 3:00 p.m., and the snacks were meals in themselves.

That, of course, was a long time after 1853, but pretty much the same foods were available in both periods.

Presented here are some entries taken from the account book from the schooner ALVIN CLARK, of Detroit, for the years 1850-52-53-54 and 57.

This will serve to illustrate costs of labor and materials during those years and show that although wages were low, commodity prices were too.

Schooner ALVIN CLARK, 1850

Damages done to "Superior"	$ 2.50
Sixteen pounds of tallow	1.25
One barrel sugar (141 lbs.)	11.32
One bale oakum (50 lbs. @9½¢)	4.75
Twenty pounds pitch @5¢	1.00
One Tri Polin (tarpaulin)	4.37
One-half barrel, whitefish	4.00
One hog	3.00
Cholera medicine	.50
Broom and mop stick	.25
One brass kittle (kettle)	.87
One wash bole (bowl)	.25
Soap, drayage, and washing	.82
Three bushels of potatoes	1.31
Drayage on sails	.12
Fifty-two pounds beef, and salt	1.94
One barrel apples	1.25
One barrel flour	3.50
Ten Pounds butter	1.50
Oats for horse at Toledo	.25
One-half quire paper	.13

1852

The unusual grouping of commodities on one line is amusing:

Paid canal toles (tolls) $98.50
Curtin binding 18¢.....$98.68
Curtin rings 13¢, towing bill $15.00,
Fresh meat $2.37..... 17.50

One entry at later date...
Paid horse, unloading 2 cargoes... 8.00

Then, Cream of tartar 20¢, milk 8¢
medicine 37¢..... .65
Six doz., eggs..... .88

1853

March: Six loaves bread..... .25
Four meals for men..... 1.00
April: Washing bedding..... 4.62
Straw for beds..... 1.20
Yeast..... .08
One Peck of salt..... .75
Clearance..... .13½

In April of 1853, the vessel was charged $15.00 a barrel for pork, $4.00 for a barrel of flour and the same for a barrel of bread. In May, the price of flour was $4.50 and in November, of the same year, flour had risen to $6.50 per barrel.

It is from the 1853 crew list of the Sch. ALVIN CLARK that the name Charles Noble Cook, is taken. In the parlance of salt water seamen, the charlie noble is the smoke stack for the galley stove. It would be interesting to know if this came from some association with the man who served as cook on the Sch. ALVIN CLARK, of Detroit, in the year 1853.

1854

Charles Philbrick, seaman, at $12.50 per month for the season.
John Fly, seaman, at $18.00 a month.
One cord of wood $1.00
One barrel of flour, $4.00
One bushel of potatoes, $1.00 (May)
Extra labor, one man 5 days, $5.00
Two table cloths, 87¢
One cord of wood, $1.50 (August)
One bushel of potatoes, 50¢ (July)
One bushel of cranberries, $3.87

Canal tolls appear out of line with other charges. For instance:
Paid for 400 brls. salt @$1.27.....$509.09
Canal tolls on salt..... 57.00

Salt was a frequent cargo, loaded at Oswego, N. Y., and since it was paid for by the skipper, it may be surmised that it was for the vessel's owner, J. P. Clark, of Detroit.

Clark was a big operator in fish so would need considerable salt during a year. The irony in this connection is that Detroit, Clark's headquarters, is built over one of the world's large salt deposits. Its exploiting had to await the modern methods of mining which came later.

The entries always mentioned that the tolls were on the cargo and vessel. One interesting fact is that salt moved at a cost of from 11¢ to 15¢ a barrel. Where these rates are given the consignee was one of the Clarks so it may have been a special rate to one of the owner's relatives.

Balancing the Books

Vessel expenses, 1852.....$5142.03
Total freights earned..... 6841.15
Net Profit $1699.12

Seamen who were accustomed to those far-away places with strange sounding names were hard to entice up into these fresh-water seas where the ports were frontier villages. Once in a while, some curious soul would take a fling at the Lakes, and if he was ambitious he quickly rose to a command, and shortly after became an owner or at least part owner, and in some well-known instances, head of a great shipping company.

The rapidly-developing region did not, and could not, wait. Ships were built by men who were not shipbuilders by profession, sailed by others who were not seamen. The captain of today may have been a farmer of yesterday, with family and friends for a crew. Among neighbors and friends, the caste system of the sea could not develop. In the early days of small vessels, it was not unusual to find captain and crew eating at the same table and perhaps all hands sleeping aft.

It was a good system in that it was based upon ability to get the job done, and in a land of pioneers, it was perhaps the only one that would work. No one cared whether a man was able to do a job or not, just so long as he got it done.

Quarters varied from ship to ship, with less distinction regarding rank than was customary on salt water vessels though, in general, the crew slept and ate forward. Coarse ticking stuffed with straw served as mattresses and it was a wise seaman who brought on board a blanket of his own to supplement the scanty cover provided by the ship.

At first, wood-burning stoves were used for warmth. Later, coal replaced wood as fuel, but there was never any to spare of either kind. Sanitation was what the men made it with water drawn up from the Lakes in buckets. Often the ship supplied only one of these for the entire crew, so they had to take turns at washing their faces and their clothes. Germs were unheard of so did not matter.

There was no plumbing forward so when necessary, the head rails, if any, served the Lakes seaman as they did his brother on ocean vessels, and it is from this practice that we get the term "head" to indicate toilet.

The pay of Lakes seamen varied to a greater degree than on salt water. Two pounds, ten shillings was for 50 years standard monthly wages for the men who sailed on long foreign voyages. In 1853, Lakes seamen received about $12.50, or about the same, but shortly thereafter Lakes wages began going up and have consistently remained higher than those paid on ocean vessels to this day. In examining old pay records, we find much to indicate that men in equal ratings were not always paid equal wages. This may be taken to mean that some seamen had established records of good and efficient service so that in the opinion of the skippers they were worth more. On the Sch. ALVIN CLARK, during the season of 1884, one Charles Philbrick was paid $12.00 per month while his shipmate, John Fly, received $18.00. There was no strong union to enforce demands for equal pay, so the man with lesser experience or skill had to accept a lesser rate of pay.

By 1881, minimum wages for seamen had risen to $1.25 per day and in the last months of a season the maximum went as high as $2.75 per day.

Discipline never became as strict upon Lakes vessels as it was on the high seas. Several factors contributed to this difference. On long sea voyages, sometimes lasting for years and always for months, when the vessel was out of touch with law-enforcement agencies of the nation under whose flag it sailed, it was necessary that the law be delegated to the master. With this practice established, familiarity between crew and officers vanished and rigid rules of conduct were set up. One of the marks of good seaman was the manner in which he approached the master, or an officer of a vessel. He was not subservient, for in the long years of his training, he acquired a certain air of self-confidence. He knew his trade and was proud of it. Perhaps he had come up in square-rigged ships wherein the pieces of running gear outnumbered the keys and stops of a great cathedral organ and had to be known so well that they could be unfailingly found in the blackest of nights and handled with unerring skill by touch and not by sight. If he presumed upon an officer and did not "know his place," it was an indication that he was not officer material and consequently he would never receive the letter of recommendation necessary when applying for an officer's license.

Shipping on the Great Lakes was a different thing. Vessels increased in number faster than crews could be recruited and trained after the manner of the sea.

LOOKING AHEAD

On hand as we go to press are some interesting materials which will appear a little later on in TELESCOPE.

We have just received two more articles on Lake Erie treasure hunting which I am sure our readers are going to like very much. Ted King is very popular and rightly so. Our readers are asking for more--so will get it.

Francis J. Slyker has sent in one more of his illustrated articles, this time on steamboat "styling" during the past century. Don't miss it.

We have also received more of Robert Radunz's "Marine News of 1958," to be published as soon as possible. We are going to need those sixteen pages. Only prompt receipt of this year's dues will make them possible.

GREAT LAKES SHIPS AND SHIPPING - CURRENT SOURCES OF INFORMATION

A BIBLIOGRAPHY OF SOURCE MATERIALS

by

John Orville Greenwood

Editor's Note:-----

We are greatly indebted to Mr. John Orville Greenwood, of St. Paul, Minnesota, for permission to publish his bibliography of source material on the subject "GREAT LAKES SHIPS AND SHIPPING."

The compiler does not claim that this work is all-inclusive and will appreciate additional information to be included in future printings. During the next six months, such contributions from our readers should be mailed to TELESCOPE magazine. They should include the title of the publication, the name and address of the publisher, date of publication, number of pages, and a paragraph on the purposes it serves. Mr. Greenwood has grouped his listings as follows:

1. Annuals and Handbooks
2. Special Reports and Compilations
3. Unpublished Sources
4. Directories
5. General Texts
6. Newspapers
7. Periodicals

These are all classified as current sources. In a footnote under (5), he states: "In order to keep current and up-to-date texts before the reader, only those books printed since January 1, 1940, have been included in this listing."

To make this bibliography even more valuable to the student of Great Lakes history, we are suggesting that members and friends of the Guild send in information on at least two additional classifications; history, and fiction. In recognition of Mr. Greenwood's having taken the initiative in this work, it is our intention to publish both his original list and our contributions under the heading, GREENWOOD'S BIBLIOGRAPHY. In due time, we should be able to assemble all of this material and publish it in one volume. It is further suggested that in cases where the titles are rare, or at least comparatively so, that their location be mentioned, i.e., the name of the library, or private collection where they may be found.

In the Burton Historical Collection of the Detroit Public Library, and other repositories in the Lakes region, there may be found the posthumous papers of many persons whose careers greatly influenced Great Lakes history. Some of these collections have been edited and organized. Others have not. All should be listed.

It is within our province to undertake such projects, and unless we do so, we shall not justify our existence as an organization. Any organization is no better than its members make it, and one of the distinguishing features of the Guild is its cooperative membership. Send in your contributions now!

I. ANNUALS AND HANDBOOKS

1. Chicago Regional Port District, Interstate Port Handbook, 360 North Michigan Avenue, Chicago, Illinois. (Handbook)
   A discussion of port traffic on the Great Lakes and inland waterways.

2. Hurd, Sir Archibald, "The Shipping World"Yearbook. "The Shiping World" Offices, London W. C. 2, England. (Annual)
   General maritime information plus a classified world directory of shipowners, builders, and repairers.

3. Lake Carriers' Association, Annual Report, 614 Superior Avenue N. W., Cleveland 13, Ohio. (Annual)
   Report by the Great Lakes' Trade Association covering vessel movement of iron ore, coal, limestone, grain, and petroleum during the year.

4. Propeller Club of America, American Merchant Marine Conference Proceedings, 17 Battery Place, New York, N. Y. (Annual)
   Reports, lectures, and papers presented before various conferences of the port chapters throughout the year.

5. U.S. Army, Report of Chief of Engineers, U.S. Engineer Department, Government Printing Office, Washington, D. C. (Annual)
   Reports of projects underway, completed, or proposed at year-end by the Corps of Engineers. Issued in two volumes.

6. U. S. Army, Water Borne Commerce of the United States, Parts 3, 5, Board of Engineers for Rivers and Harbors, Government Printing Office, Washington, D. C. (Annual)
   Statistical compilation of tonnages passing through Great Lakes ports is provided in Part 3. Part 5 shows similar data for all U. S. water borne commerce.

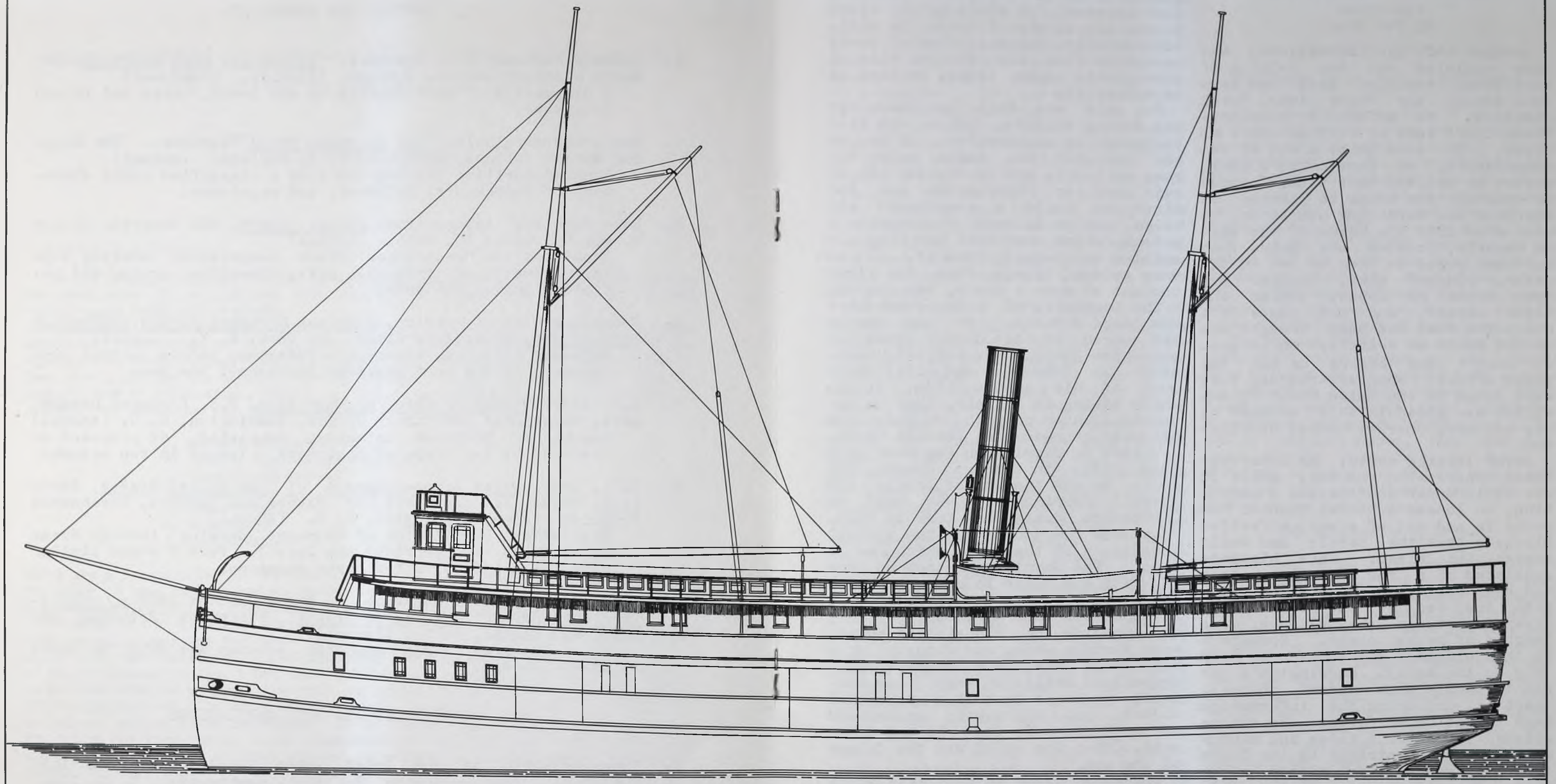
7. U. S. Department of Commerce - Bureau of the Census, Statistical Abstract of the United States, Government Printing Office, Washington, D. C. (Annual)
   Noted in water borne commerce section are data for Great Lakes traffic.

II. SPECIAL REPORTS AND COMPILATIONS

1. Transportation on the Great Lakes, Association of American Railroads, Transportation Building, Washington, D. C. 1946.
   A special study based upon a report to the Subcommittee on Water Transport, made during 1946.

2. Deep Water, New York Marine News Company, 26 Water Street, New York, N. Y., 1940.
   Special compilation of selected articles of past, present, and probable future significance written by men in various managerial positions in the nation's maritime industries.

Continued on P.12



SHEET No. OF SHEETS

SCALE IN FEET

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OUTBOARD PROFILE

FLINT & PERE MARQUETTE R.R. STEAMERS No. 59 & 60	
BUILT 1882 BY DETROIT DRY DOCK CO.	
GREAT LAKES MODEL SHIPBUILDERS' GUILD	
5401 WOODWARD AVENUE	
DETROIT 2, MICHIGAN	
DRAWN BY James B. Jones	CHK'D BY J. E. Johnston
TRC'D BY James B. Jones	DATE 1-20-59

THE LOOTED TREASURE SHIP
Continued
By Ted King

Another of his sensational war time exploits was the raising of nine Rebel vessels, that had been sunk across the Neuse River, North Carolina, to effect a blockade. These craft were of various sizes and types. It took quite a bit of reconnoitering on Harrington's part, before he decided on a plan. Instead of blasting the ships to pieces, as everyone was expecting him to do, he went down into the holds of the sunken vessels, located the holes that had been bored in them to let in the water, plugged them, caulked any open seams he found, sealed the hatch covers, and put pumps into operation that had been brought out to the scene of activity on barges. It wasn't long before he had the ships afloat. Soon afterwards, they were added to the Union Naval forces. Elliot was aided in this venture by his brother, Charles Murray Harrington.

Never lacking nerve, he later entered Charleston Harbor, while it was still under Confederate domination, to locate a hidden channel that wound in and out of a very effective blockade that the Rebels had built across the river. This blockade consisted of a row of piles, that had been staggered and driven deep into the bed of the river mouth. Woven in between the pilings, were lengths of heavy chain. Somewhere in this blockade was a channel, known only to the enemy. Harrington's job was to locate this secret channel, chart it, and bring the information back to the Union forces. He accomplished it, after a close and extended search. The entrance by the Union gunboats, was an easy matter after that. The attempt at locating this hidden channel, was strictly voluntary on the part of Harrington, for at the time of this undertaking, there was a $5,000 reward out for him, dead or alive. The Confederate government had put up the reward, in a desperate effort, to extract this thorn from its now very sore side.

After the Civil War ended, Harrington returned to the Great Lakes and the salvage field, where he dived to further fame and fortune. Always a free spender, he could never stand to see any of his friends in want. Consequently, the huge sums of money he earned from his diving, slipped through his hands, almost as fast as he earned it.

Not only was this man known for his diving ability, but he was also respected as an inventor. It was he who invented the three valve air pump to supply air to divers. It is said that Mr. Harrington was the first to build a compressed air brake, but he delayed in securing a patent, which prevented him from obtaining any royalty from it. It is very evident though, that the first thought of such a brake, was his own.

The ingenuity of this submariner was never dormant. He had, during the course of his diving career on the upper lakes, established residence in Detroit, and lived there most of his active life. It was while living in Detroit, that he invented a water bicycle, on which his daughter crossed the Detroit River.

Elliot P. Harrington was born April 19th, 1824, in Otsego County, New York. He was the son of Larkin and Abigail Harrington, who went to Chautauqua County, New York in 1825. They made the journey by the typical propulsion of the day, which was ox cart. The Harringtons took up land in Westfield, near Volusia. Elliot had three brothers and three sisters. His brothers were Lewis T., Bert L., and Charles M. His sisters names were Taricy, Jane, and Fanny. At a very early age, his extraordinary mechanical abilities were very evident. He could look at a mechanical object, and thoroughly understand the workings of it. It was often said, "That the child was the father of the man."

Living as close to Lake Erie as he did, young Harrington soon became interested in what was called submarine work in those days. In a comparatively short time he had mastered this trade. And it wasn't long before his services and ability were being bid for, among marine circles, the length and breadth of the Great Lakes area.

So great was the demand for his services in the upper lakes, that he

moved to Detroit, in order to be closer to his working locations. It was while living in Detroit, and working on a wreck in Lake Huron, that the master submariner had the nearest brush with death, that he was ever to encounter, in the entire length of his diving career.

While working on the above mentioned wreck, which was in exceedingly strong current, his safety line became fouled with his air line, and shut off his supply of precious oxygen. When he was finally brought to the surface, his face was black beyond recognition. But the men working on him, and his seemingly iron constitution, brought him back from the gates of death.

In the year of 1879, at the age of fifty five, Elliot P. Harrington felt that the sands of life were running out for him. The years of strenuous underwater activity had taken their toll. Though not so very old in years, his body was worn well beyond his actual age. Which is understandable, in view of the work he had done. Realizing that his days on earth were numbered, Elliot asked to be taken back to the family home in Chautaugua, the scene of his childhood and youth. Here among familiar surroundings and friends, Elliot P. Harrington took his last breath of life. Local tales still in circulation, say that Mr. Harrington passed from this mortal coil, with a smile and an expression of contentment on his face. From the information I have in my files and records on this man of extraordinary ability in many fields, I have no reason to doubt these stories. He was born a hundred years before his time!

He was survived at the time of his death, by two sons, Wilbur and Forrest Harrington both of Detroit, and his daughter Mrs. Alice Hartigan of Chicago.

Today buried in Holcomb Cemetery, Westfield, N. Y. are the mortal remains of Elliot P. Harrington. A tombstone, not too elaborate, marks the grave of the man, who over one hundred years ago, turned the steamer ATLANTIC into what she is today, "THE LOOTED TREASURE SHIP."

CURRENT COVERS

EARLY MAPS OF THE GREAT LAKES REGION

In presenting this series of early maps, we feel that we are giving our readers what is, in effect, a graphic history of the penetration of the region by the white man. While early cartographers were not adverse to filling in a few details in accordance with what they had learned from Indians, these old maps tell us quite a lot. If a part of a map is fairly accurate, we can assume that the area had been visited by Europeans. Where the details bear little or no resemblance to those shown on a modern map of the sea terrain, it is pretty certain that it was still unexplored.

The Abraham Ortelius map on our February cover practically ceases at the present site of Montreal, but between there and the open Atlantic, it gives evidence of being based upon considerable local knowledge. Hudson's Bay was known to exist, so it was put in - top left corner. First hand knowledge of the Great Lakes, if known to Frenchmen in New France had not been passed along to the professional map makers in Europe so was not included.

THE 1650 MAP by N. SANSON

This map, on the March cover is said to show at least a part of each of the five lakes but Lake Ontario is badly misplaced, and is very much undersize. All students of Great Lakes history know that this lack of knowledge of Lake Ontario was due to the hostility of the Iroquois Indians who kept the French out of that area for many years. On the other hand, the Ottawa River route to Lake Huron is shown with reasonable accuracy though Lake Michigan is hardly indicated. No settlement is shown west of Montreal, not even the first Mission St. Marie near the shores of Lake Huron.

WANTED

Drawings of early Great Lakes marine steam emgines, especially those with unusual features. These are needed as guides in making engine models to be exhibited in the museum. Either sidewheel or propeller. Editor.

3. Journal of the Society of Naval Architects and Marine Engineers, Society of Naval Architects and Marine Engineers, 74 Trinity Place, New York, N. Y.
Special reports prepared for various chapter conferences, technical in nature, are bound on occasion in the Journal.

4. Great Lakes Shipping, Lake Carriers' Association, 614 Superior Avenue, N. W., Cleveland 13, Ohio, November 1957. 17 p.
Pamphlet study of recent shipbuilding programs on the Great Lakes.

5. Schwietert, A. H., and L. S. Lyon, The Great Lakes - St. Lawrence Seaway and Power Project, Chicago Association of Commerce and Industry, 1 No. La Salle Street, Chicago, Illinois, 1952.
An analysis of the testimony presented before the Committee on Public Works of the House of Representatives, 82nd Congress, Washington, D. C.

6. Ships That Never Die, Marine Historical Society of Detroit, 5201 Woodward Avenue, Detroit, Michigan, 1952. 46 p.
Pamphlet covers the histories of forty-five well-known Lakes ships primarily active between 40 and 60 years ago.

III. SOURCES OF UNPUBLISHED INFORMATION

1. American Bureau of Shipping, 45 Broadway, New York, N. Y.
Complete files are maintained on vessels under the Bureau's classification.

2. American Iron Ore Association, Hanna Building, Cleveland 15, Ohio.
Statistics are maintained on iron ore shipments on the Great Lakes.

3. Chicago Association of Commerce and Industry, Inland Steel Building, Monroe and Dearborn Streets, Chicago, Illinois.
Information and data on the Port of Chicago and potential Calumet Area development projects are maintained.

4. Great Lakes Commission, Rackham Building, Ann Arbor, Michigan.
Information of a general nature regarding Great Lakes marine activities.

5. Great Lakes Historical Society, Republic Building, Cleveland 13, Ohio.
Various historical files are maintained dealing with Great Lakes events.

6. Lake Carriers' Association, 641 Superior Avenue, N. W., Cleveland 13, Ohio
This trade association maintained complete data on all aspects of Great Lakes shipping.

7. Marine Historical Society of Detroit, 5201 Woodward Avenue, Detroit, Michigan.
   Various historical files are maintained dealing with Great Lakes events.

8. Ore and Coal Exchange, Terminal Tower, Cleveland 13, Ohio.
   Statistics are maintained on coal shipments and iron ore shipments of the Great Lakes.

9. Shipbuilders Council of America, 21 West Street, New York, N.Y.
   Complete records are maintained of hulls under contract or building in American shipyards.

10. U. S. Federal Maritime Board, Division of Research, Washington, D. C.
    Various regulatory data and files are maintained covering all U. S. shipping.

    In addition to the above, much information can be obtained by writing directly to the various shipping and shipbuilding companies of the Great Lakes.

IV. DIRECTORIES

1. Canadian Marine Officers' Blue Book, Capt. J. A. Felker, P. O. Box 25, Port Arthur, Ontario. Each Spring.
   A list of all Canadian Great Lakes vessels with supplemental statistical data.

2. Great Lakes Red Book, Penton Publishing Co., 1213 W. Third Street, Cleveland 13, Ohio.
   A list of over 1,550 Great Lakes vessels with personnel appointments and statistical data for each member of the various fleets. Each May.

3. Green's Great Lakes Directory, F. W. Green Company, North Olmsted, Ohio. Each April.
   Contains dimensions and capacities of Great Lakes vessels together with lists of ore and coal docks and grain elevators on the Great Lakes.

4. International Ship Masters' Association Directory, Capt. J. C. Murray, International Shipmasters Association, 1515 Euclid Avenue, Cleveland 15, Ohio. Each Spring.
   A list of names, pennant numbers and addresses of all members of the Association together with a list of Great Lakes freight and passenger vessels.

5. Lloyd's Register Book, Lloyd's Register of Shipping, 71 Fenchurch St., London E. C. 3, England. Each Winter, supplements each month.
   Includes statistical data of all world merchant ships classed by the organization together with complete list and data on world shipyards and ship repairers.

6. Mac Quown's Directory of Coal Docks on the Great Lakes. National Coal Publications, Glenshaw, Pennsylvania. Each Fall.
   Lists all coal docks on the Great Lakes and St. Lawrence River in both United States and Canada and contains data on all self-unloading vessels on the Great Lakes.

7. Marine News Directory. The Marine News Company, 26 Water Street, New York, New York. Each January.
   Names and addresses of all shipping companies in United States and Canada with an indication of the types of equipment operated by each firm.

8. Mercantile Navy List and Maritime Directory. Her Majesty's Stationery Office, London, England. Each Spring.
   Classed are all British and Canadian vessels with special attention given to the types of trade each are engaged in.

9. Merchant Vessels of the United States. U. S. Dept. of the Treasury - Bureau of Customs, U.S. Government Printing Office, Washington, D. C. Each February.
   All vessels of the United States belonging to the commercial marine are listed by official number, signal letters, name, registered length, rig, place and date of building and names and addresses of owners.

10. Official Guide of the Railways. National Railway Publications Co., 424 W. 33rd Street, New York, N. Y. Monthly.
    Includes maps, timetables, and a list of stations for railroads and steam navigation lines of the United States, Canada, and Central America.

11. Official Steamships and Airways Guide. Transportation Guides, Inc., 19 W. 44th Street, New York, N.Y. Monthly.
    Index to steamship and airway lines along with fares and sailing times.

12. Record of American Bureau of Shipping. American Bureau of Shipping, 45 Broadway, New York, N.Y. Each January, with supplements each month.
    Complete listing of all vessels registered by the Bureau, together with statistical data on Canadian and American vessels.

13. Register of Tank Vessels of the World. Esso Shipping Company, 30 Rockefeller Plaza, New York, N. Y.
    This register is in the nature of a special compilation but is in form, presented as a directory. Classed and listed are vessels in bulk tanker operations in the world.

14. Transportation Lines on the Great Lakes, Series No. 3. U. S. Army, Corps of Engineers, U. S. Government Printing Office, Washington, D. C. Each Spring.
    Describes operations of all Great Lakes vessels and includes statistics.

Cont'd. from P.7

V. GENERAL TEXTS

1. Barger, Harold, The Transportation Industries 1889-1946. New York: National Bureau of Economic Research, Inc., 1951.
A study of output, employment, and productivity in the transportation industries.

2. Bigham. T. C., and M. J. Roberts. Transportation: Principles and Problems. New York: McGraw-Hill Book Company, 1952. 710 p.
Covers the ecomonics of all varieties of commercial transporation in the U. S.

3. Bowan, D. T., Lore of the Lakes. Cleveland: Lakeside Printing Co., 1940. 220 p.
A chronological setting of the development of the modern bulk freighter and allied ships and industries.

4. Buehr, W., and L. B. Line. Ships of the Great Lakes. New York: G. P. Putnams' Sons. 1956. 40 p.
A brief description of the several main types of freight vessels on the Great Lakes.

5. Dagett, Stuart. Principles of Inland Transportation. 4th ed. New York: Harper & Brothers, 1955. 808 p.
A discussion of the various forms of transportation and the development and regulation of each.

6. Hutchins, John G. B. The American Maritime Industry and Public Policy, 1789-1914. An Economic History. Cambridge: Harvard University Press, 1941.
A history of the American Merchant Marine.

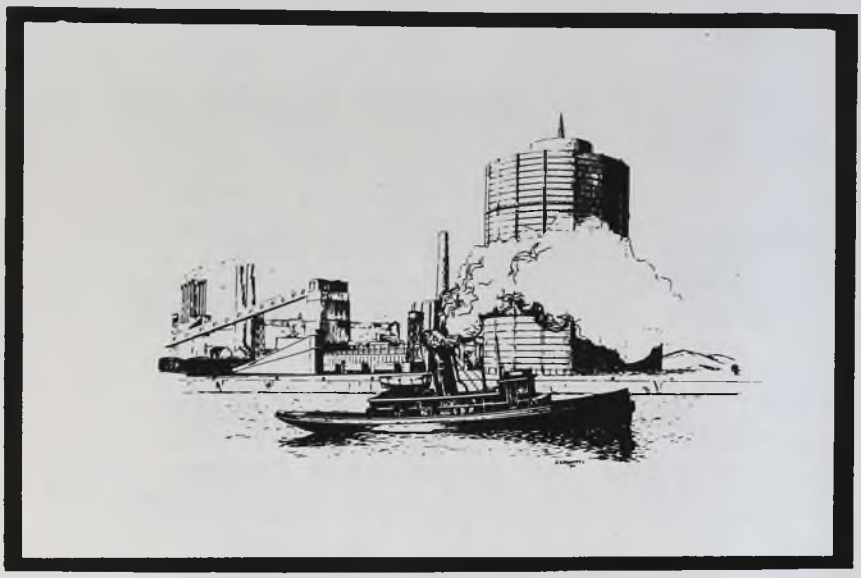
7. Lederer, E. H. Port Terminal Operation. New York: Cornell Maritime Press, 1945. 110 p.
Discussion of the various aspects of the handling of cargo at ports on the Great Lakes and the Oceans.

8. Locklin, D. Philip. Economics of Transportation. 4th ed. Homewood, Illinois: Richard D. Irwin, Inc., 1954. 916 p.
A complete study to the transportation industries in the U. S. in turn, rail, air, pipeline, highway, and water carriers are discussed in detail.

9. Van Metre, T. W. Transportation in the U.S. Brooklyn, New York: Foundation Press, 1950. 401 p.
A discussion of the transportation systems in the United States.

10. Westmeyer, R. E. Economics of Transportation. New York: Prentice Hall, Inc., 1952. 741 p.
Detailed discussion of railroad, highway, air, water, and pipeline is provided.

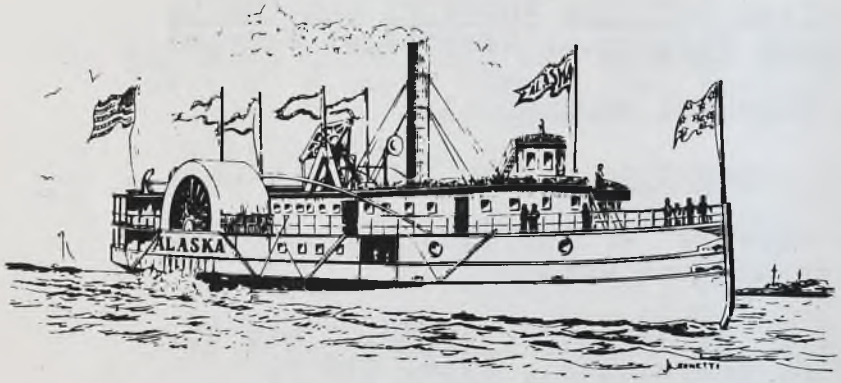
To be continued.



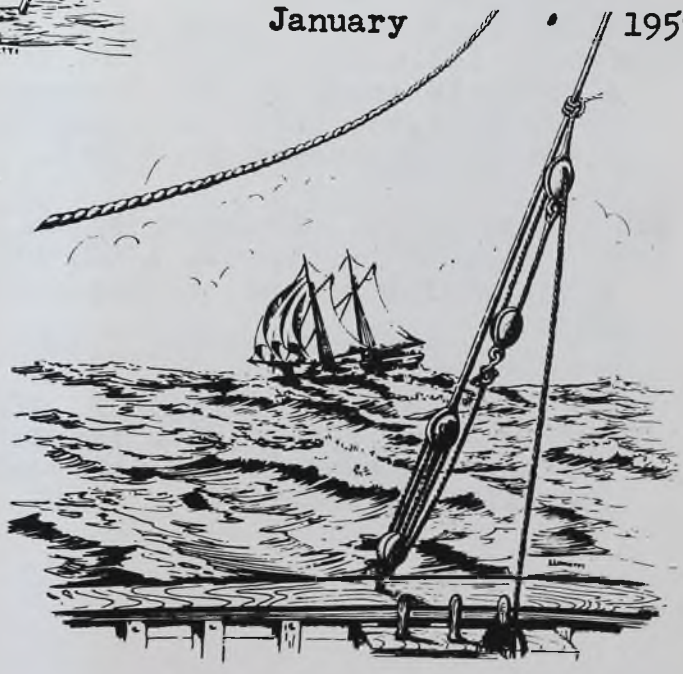
Steam tug on the River Rouge.
October 1958.

U.S.S. "Yantic"
November 1958.

A favorite of the old days.
December 1956.



Wind and Canvas on the Lakes.
January 1957



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Fine for wall decorations.