Telescope

25¢

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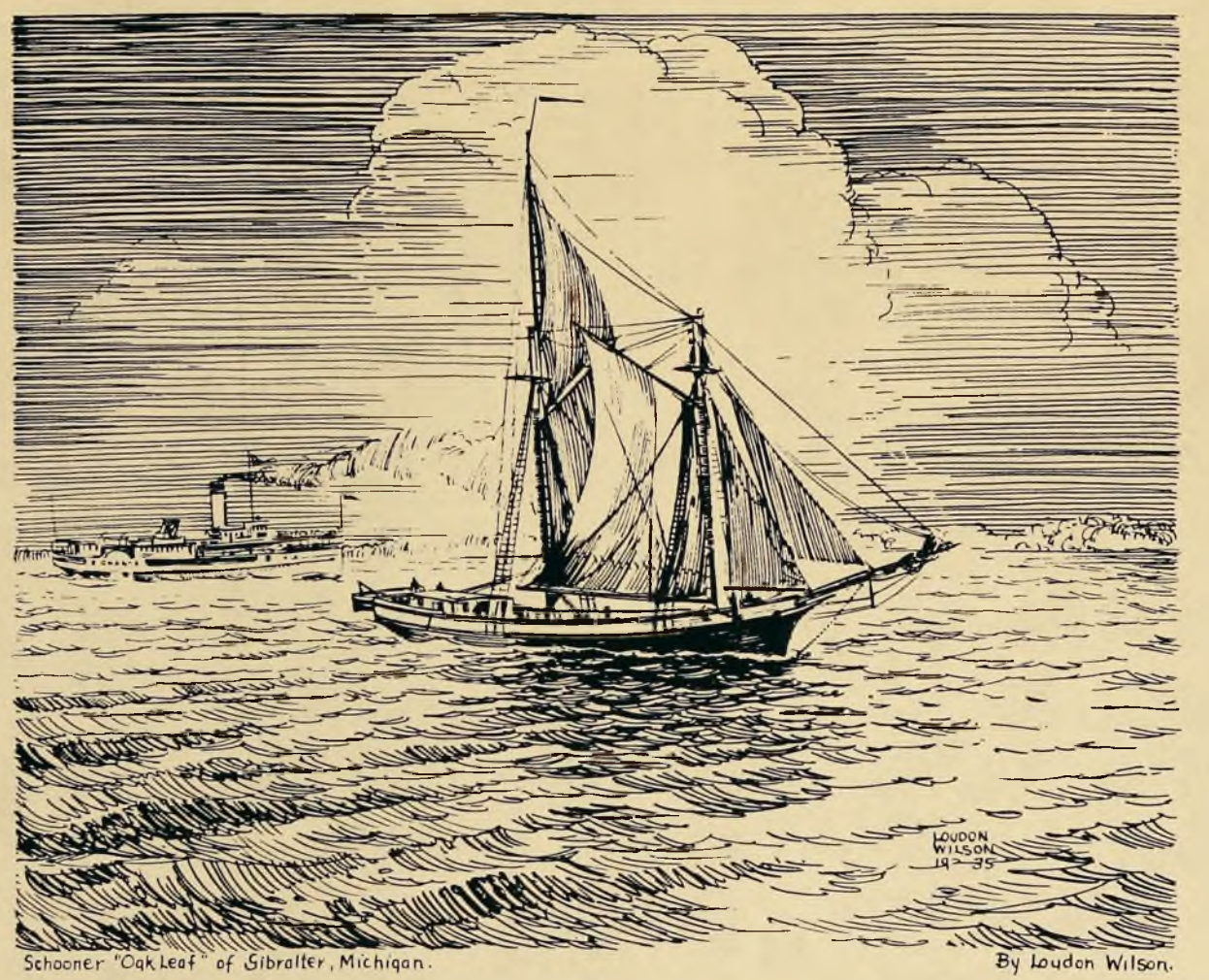

Schooner "Oak Leaf" of Gibralter, Michigan. By Loudon Wilson.

THIS MONTH

J.E. Johnston,
Editor:

Telescope

PUBLISHED BY
GREAT LAKES MODEL SHIPBUILDERS' GUILD
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R. H. Davison,
Associate Editor

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E D I T O R I A L

WE ARE COMMITTED to an enterprise which in the past has commanded the attention of numerous individualsliving within the Great Lakes region,---a creditable museum devoted to the story of Great Lakes Shipping.

Through the generosity of those who, ten years ago,donated to the fund to recondition the schooner "J.T.Wing", and the City of Detroit which saw the project through to fruition,we were able to make a start. Several thousands of objects,all of them, good, and all of them of real historiccal signifi--cance, have come to the Museum of Great Lakes History from a total of 170 donors. Other objects have been purchased with the few small funds at our disposal. Many have been made by members of our staff,and our collection of scaled models of Great Lakes vessels is the work of members of the Guild.

Thus has come into being the largest maritime collection in the region. The growth of this collection now depends on adequate housing. Is this another commitment?

We do not see it as another, but a part of the originalone to build an institution worthy of the cause it serves,-Great Lakes History. No informed person will, in these days, deny that museums are an asset to our educational institutions,if not actually one of them. The museum of Great Lakes History entered an alomost completely neglected field when,six years ago, it opened to the public. Since then 400,000 visitors of all ages have made use of it in one way or another.The Guild has, through its activities, carried the story to more than half of the states in our country, plus several lands beyond the seas. The question now arises: Shall this worth while,--this unique effort, be allowed to come to an abrupt stop,as it surely must, if it is not provided with an adequate home?

The answer to this question will lie in the kind of answer the people of the Great Lakes region give to our campaign to provide that home. The museum is a regional institution,for only by so being can it serve its purpose. It must have wide support because it serves a wide area.

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 ON THE SHORE OF BELLE ISLE, IN DETROIT, 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.

THE SCHOONER "OAK LEAF" OF GIBRALTER

By Loudon G.Wilson

The year might be 1908. You are on the lower Detroit River on a sparkling summer afternoon.A brisk breeze is blowing down river and before it, wing-an'-wing, comes a trim little lady in black and green,with a white belt. She has a bone in her teeth and is no slouch. Overtaking her on her port quarter is the steamer OWANA bound for Sugar Island.

You watch this little schooner,and as she walks away, you read "OAK LEAF", of Gibralter across her transom. Perhaps named in honor of a real old time lake brigantine of that name, built in the sixties and twice her size.

"OAK LEAF", of Gibralter,was built at the once-thriving port by Daniel Munro. She was 93 tons, gross, 82 net. Length 86', Beam 24', Depth 7'.

Built in 1895 she tied with the schooner CHARLES CHAMBERS, built at Grosse Ile, for place as the last trading schooner built on the river.

The CHAMBERS, ten feet shorter,was a problem child from the start.Being a standing keeler, she got stuck in the launching and later proved too small to be profitable in the river trade.

The "OAK LEAF" was a shallow lake-style centerboarder and she joined the "mosquito fleet", carrying sand and gravel for Detroit's rising towers. When about 16 years old she was sold. Sail was giving way to steam, even in this lowly trade.

She was converted into a lumber tug and renamed "DOLPHIN", operating out of Escanaba for B.J.Gallagher, and later was listed as a dredge,and still later,1932 listed as abandoned.

When we went in search of the Munro family in the thirties, I first met Daniel's grandson,Hazen, and my wife and I went for a sail in his pound-boat "Comanche", built according to lake tradition from a former rum runner by his dad, William, and his uncle, Hector. We talked for hours and listened to many yarns told by these two ols lake sailors.

When I took to Bill Munro my drawing of "OAK LEAF" that I had made from several pictures of her sailing in company with other sand hookers but had given her a fore topmast and all the rigging, he ignored my artistic efforts completely and pounced on that fore topmast. "She never had one, Etc.,Etc.,..too much trouble shifting a fore gaff topsail every tack in the river work..."

I said,"Well, she's got cross trees and the stump of a topmast in the photos".

"Never had one! says he.

So, young and proud, I retired with my rejected masterpiece.

Well, time cures these wounds, so when Captain Johnston asked for a cover for Telescope, I dug up my old picture and, in memory of an old lake sailor, I carefully obliterated the offending spar so that we could show "OAK LEAF" as she should be----and as Bill Munro would want her to be for the record.

MUSEUM NOTES

As we go to press this month the question uppermost in the minds of all our members, subscribers, and the general public is, "What is new regarding the proposed building for the maritime Museum?".

On that subject we can report that committees are being formed to undertake raising of the necessary funds. We hope that there is some significance to the fact that interest in the undertaking is increasing throughout the whole Great Lakes region. Not a day goes by without our receiving an inquiry regarding the project and some token of approval of it.

Regarding new exhibits there is not too much to be said, for the simple reason that there is no more space available. We added three large cases late last summer, and two small ones have been just completed and installed where two similar cases were last seasone. Now we have to find a place to put each of the older ones,-If we can.

We have begun our series of exhibits on motive power, and before mid-summer will have added many new and interesting items,----models and drawings of marine engines, past and present.

THE UNIVERSITY OF WESTERN ONTARIO

Summer School of Indian Archaeology

Penetanguishene, Ontario

JULY 4 to 16, 1955

The University of Western Ontario Summer School of Indian Archaeology will be held from July 4 to 16 at Penetanguishene, Ontario, 90 miles north of Toronto, on the southern shores of Georgian Bay. The school will be under the direction of Mr. Wilfrid Jury, Curator of the Museum of Indian Archaeology, University of Western Ontario, London.

This course is designed for any person interested in the historic or prehistoric past of our country and for students of Canadian History who wish to pursue their historical research in the field where actual evidence of earlier habitations may be traced, and where tools, implements, weapons, and ornaments of another age may be examined in position in the soil. Instruction will be given in the techniques of field work and in the identification and classification of specimens.

The major portion of the session is spent in the field, surveying a site, mapping and charting, keeping the field notes and other records, and actual "digging" or trowelling. Study periods each day will be set aside for the identification of the finds, with discussions on the materials from which they were made, method of their manufacturing, and their use.

There will also be lectures and field parties in geology and soil chemistry. The history of the area and of late Indian tribes of Ontario will be studied with seminars on early historical documents and maps. An introduction to anthropology will outline the development of man on the North American continent.

A varied schedule of lectures on related subjects by Canadians well known in their respective fields has been arranged. Special attention will be given to those interested in photography. A craft class in Indian pottery making will be conducted.

The headquarters of the School of Indian Archaeology will be the Officers' Quarters Museum at Penetanguishene, built in 1830.

The fee for the two-week summer course is $10.00. Living accommodation may be arranged in Penetanguishene homes at $15.00 a week, or at the Brulé Hotel. There is also a camping park nearby. The weather is variable. Sport clothes for warm and cool days, and practical shoes are recommended for field work. Students must be over 16 years of age.

Applications should be sent to Mr. Wilfrid Jury, Museum of Indian Archaeology, the University of Western Ontario, London, Ont., and after May 1, at Penetanguishene, Ontario.

EDITOR'S NOTE

The nautically minded will Penetanguishene a fascinating place to visit. There you will find the remains of the first canal locks built in North America, and the hulks of several ships which fought in the War of 1812, all having been lost from sight for from 140 to 340 years until brought to light by Professor Wilfred Jury and his co-workers.

OUR BOAT PLAN FOR THE MONTH

This month we show one sheet of a set of two for a self-bailing, self-righting surf boat such as was used by the old Lifesaving Service which has since been taken over by the U.S. Coast Guard.

This type of boat was adopted back in the nineties and where not superceded by motor-driven craft remained in service well into this century.

The high, round-decked ends were air-tight compartments, so placed that if the boat capsized it would immediately right itself. By the concerted effort of the crew it was possible to roll the craft over and over in the water, as if it were a barrel, and the performance of this feat was a part of their regular drill.

It is doubtful if a better boat was ever built. All frames were of the best grade of white oak and the famous Port Orford cedar from the Pacific North West was used for the planking. All fittings were of bronze or brass, so there was nothing to rot or to rust. The workmanship had to pass the most rigid inspections.

In the Museum of Great Lakes History there is a model of one of these boats, made by a member of the crew of the Thunder Bay Island Station, about 1897, and presented to the son of the officer in charge. It came to the museum after half a century of service as an ornament in private homes with the inevitable result. No equipment remained, and at some time in the past it had been given a coat of gold paint outside, and the seats had black paint over the nice walnut that the builder had left natural.

It was some time before a book of regulations could be found which was old enough to give a clue to what the equipment consisted of, but one was finally located and the model restored. The book was dated about 1907, which left some doubt as to whether the model had been outfitted as was the original boat.

In the fall of 1953 Mr. Henry Barkhausen, of Lake Forrest loaned the museum the plans shown in this issue and it was then learned that the model was not only correct in form, but that its equipment was complete, except for one item, a first aid kit which would not have shown anyway because the regulations stated that it should be stowed below deck in the cockpit.

We publish this set of plans at this time in answer to several requests from members who wish to build small craft. The use of this type of surfboat was not restricted to the Great Lakes, but were standard equipment at all stations along the sea coasts as well. They are complete enough to satisfy the absolute perfectionist since they are reproduced from original government plans which were issued to contractors.

The museum model is carved from one piece of wood, but for those who wish to construct a built-up model there is enough detail to keep them busy for a long time.

Incidently, if any member is having a rough time getting wood down to desired dimensions **mail** your stock to the museum, with specifications, and return postage, and it will be worked up and returned to you. Any thinness can be turned out on the museum precision saw but it is not possible to rip thin stock to less than 1/8" widths.

This offer, of course, is not open to anyone who is engaged in supplying models and model fittings for profit. Sending you specifications prior to shipping your stock will avoid mis-understandings and delay. Stock more than 3/4" thick can not be handled.

The museum staff knows of the exasperation connected with getting small-dimension materials, and is willing to lend a hand in the matter when possible. Maple and similar very hard woods can not be handled, but the softer varieties can be cut to paper thinness.

Since it is not practicable to print plans except as a center spread in Telescope we present only one of the two sheets comprising the set for the surfboat. The other sheet is to be printed later. The full-size plans are to the scale of ¼" to 1'. These plans may be purchased for two dollars, in blue print form. Add 10¢ for postage, mailed folded,--30¢ for mailing in tube.

SCRAPBOOKS CAN BE VALUABLE

Among the various items acquired by historical museums scrapbooks may stand well towards the top, in value to the curator,--if they are properly put together. The notes which are here given are intended as a guide to scrapbook makers to help them in what can be a very worthwhile interest.

The thing to remember is that the clippings you take from publications are likely to be preserved somewhere, in the publisher's files, in some attic, in some basement, or in another scrapbook kept by some other person. Your book may not be unique in content but that need not detract from its future value, if you use good judgement in making it up. Just remember: good organization is the key to success.

Subject Matter

The most valuable scrapbooks are those devoted to one subject. If you wish to collect clippings on more than one subject, use a separate book for each subject, unless you are going in for a general chronology on a place or a period. Let us take the subject which is nearest to our heart,--lakes maritime activity.

Are you interested in preserving information on one port, one lake,or all of the lakes? Are you going to collect clippings on individuals, or on groups; on specific ships, or on fleets as such, or just ships in general? Whatever it is to be, just remember: Like any other book,scrapbooks should be well-planned. Decide what you are going to do, then stick to your plan. If you are going to deal with more than one subject, use a book for each one.

Dates

Never insert a clipping in your book without dating it. If it is a newspaper clipping take the date at the top of the page from which it is clipped and insert it above the clipping. A rubber date stamp can be used, in the interest of uniformity, but a pen or a pencil is better than nothing at all. A clipping without a date is practically worthless.

----Date your clippings----

Since newspapers never print the year with the date of each item, and since you must record the year as day and the month take a spare calendar and cut out the information needed leaving enough space around the figures to make them stand out. Use the names of the months if you like. Take them from the small "last month" and "next month" usually featured on wall calendars. Just be sure you date each clipping.

Clipping Items

When clipping newspaper items take out the lines dividing the columns along with the items. They add to the looks of the finished page.Don't crowd your pages with clippings.

Below each clipping leave enough space for reference notes something like this:

SEE_____
Vol. Page (or date)
" "
" "
" "

This will enable you to tie one clipping in with another, and later, insertion which deals with the same happening. These reference notes may be typed on gummed paper and inserted as needed.Obviously they will not be needed under some insertions, but the space they take will be a small price to pay for the time they will save you in finding related items. All related items should have such reference spaces.

The Books

In these days of small living quarters large scrapbooks tend to take over the place after a time. Loose-leaf books about the size to take a sheet of ordinary typewriter paper make the best covers. There are a number of advantages. They permit a better organization, or reorganization of contents. Too often one finds later, or overlooked,items on a subject, which were not anticipated at the time of the earlier insertion, or insertions. Using the loose-leaf books makes it possible to place the later findings adjacent to the first ones pasted in.

Another advantage of the loose leaves is their availability when

you need just one, or a few pages,to be taken away from home, when you do not wish to be burdened with the entire volume. Before you remove one or more pages be sure you have an "out" sheet to insert in the place of every sheet removed. It will be well to prepare a few of these in advance and insert them in the back of the volume, ready for immediate use when needed. On each "out" sheet make a memorandum of the date and the purpose of the removal, the date of the item, or items, removed, and if they are loaned, to whom loaned. When replacing the sheets in the volumes, be sure to record, on the "out" sheet, "Returned,--(and date).

Paper for Pages

It will pay you to use a good bond paper for your pages,---any paper with a good percentage of rag content will do. Avoid, at all costs cheap paper containing sulphur or clippings will, in time, become very brittle, causing rapid disintegration. This is a detail too often over looked by scrapbook makers.

Clipping Booklets

Clipping booklets, made up of envelope bound together are very helpful to the scrapbook maker. They can be used for temporary storage of your clippings until you decide to paste them into your book.Frequently you do not have time to get out your book, your glue, etc., and decide on the proper place to insert a clipping. You may expect other items on the same subject to be published and will want to collect everything that come to hand, then discard some of them and preserve the rest. Collect them in properly marked envelope in your clipping booklet until you are ready to paste them in.

Back to the Lakes

Remember that you are preparing your scrapbooks for future use. Make them easy to use, by not crowding too much on one page, by labeling each volume, and above all by dating every insertion.

Lets say you are collecting items on maritime activities on the Great Lakes. Have one volume for individual ships. Marine disasters should be recorded in a special volume and so labeled. Should a vessel which is recorded in your volume on individual ships meet with disaster, use the reference-notes space mentioned above, and place the article on the disaster in the "disaster" volume.

Have one volume for information on ports and port facilities. In this volume you may insert data on such things as routine vessel and cargo movements.

Dont overlook maps and charts.They do much to clarify printed text. One volume in which these may be used to advantage is that on disasters. Many hundreds of wrecks have occurred on the Great Lakes in times gone by and only a few of them marked on charts. Let us hope there will be nooccasion to ever again mark another wreck,but if in your researches you find the location of one recorded be sure to enter it on your chart.

Ordinary navigation charts are too big for use in a scrapbook, but the U. S. Lake Survey, Federal Building, Detroit, issues a small sheet which is used to indicate the areas covered by the different navigation charts. Even this small guide may have to be folded, or cut into parts to fit into your books, but in any form they are better than no chart at all.

Label Your Volumes

As soon as you have two or more volumes label them on the front cover and on the back where the label can be read when the volume is stood on a shelf. Labels of different colors, one for each type of information, are desireable.

Stick to It.

Dont start a scrap book unless you are going to stick to it, but if you want to create something which will increase in value with the passing of time, START NOW.

THE GUILD MEETING FOR APRIL

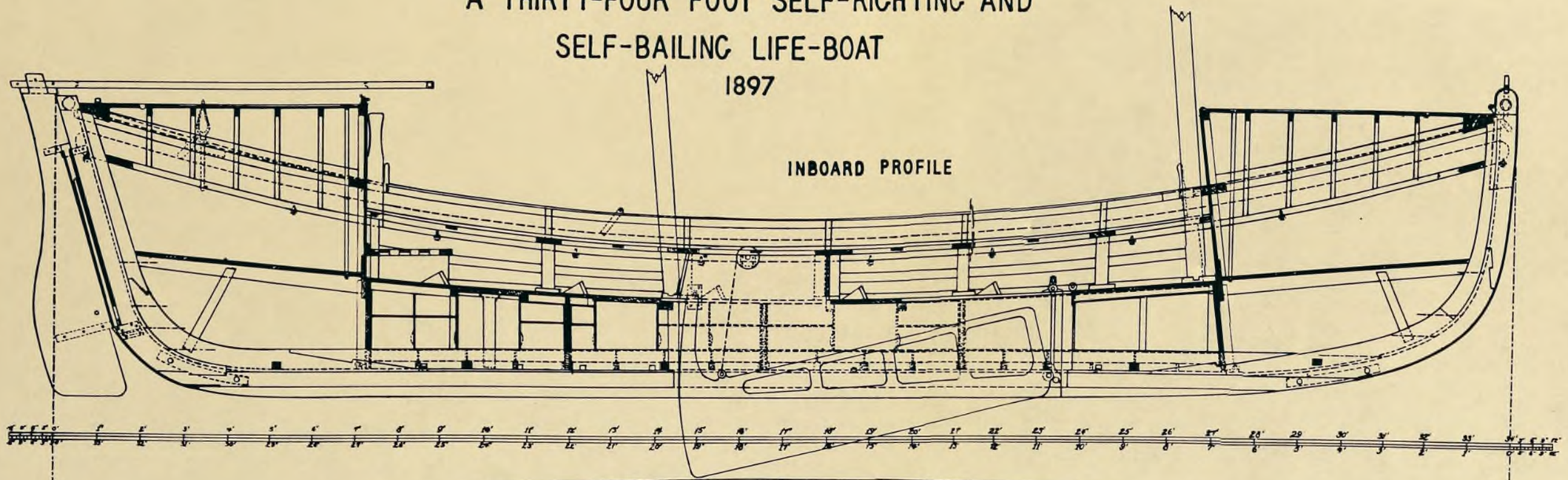
will be held at 7-30 P.M. Friday, April 29, 1955, at the Detroit Historical Museum, Woodward at Kirby in Detroit.

Members are invited to bring their friends.

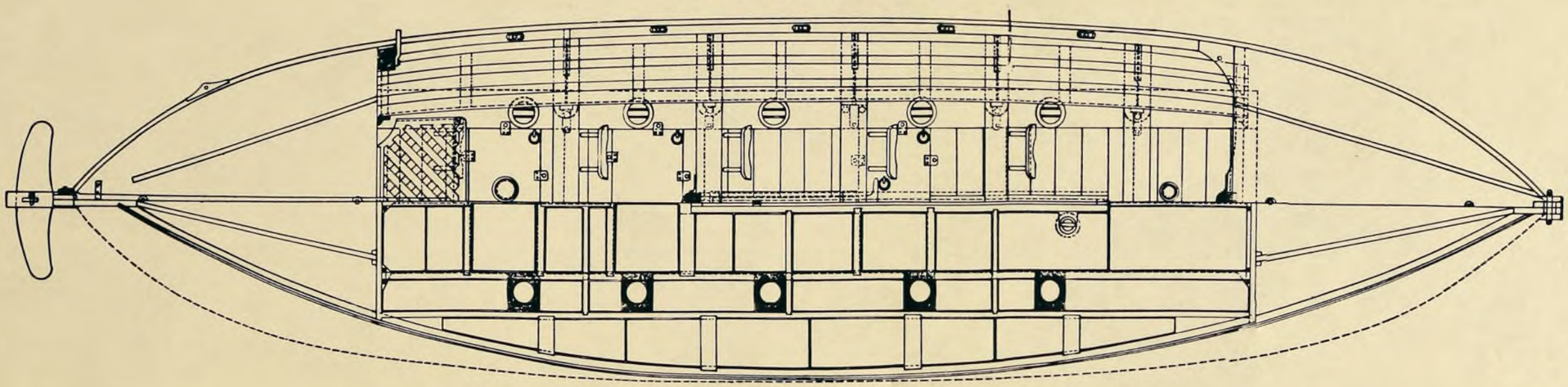
A THIRTY-FOUR FOOT SELF-RIGHTING AND SELF-BAILING LIFE-BOAT

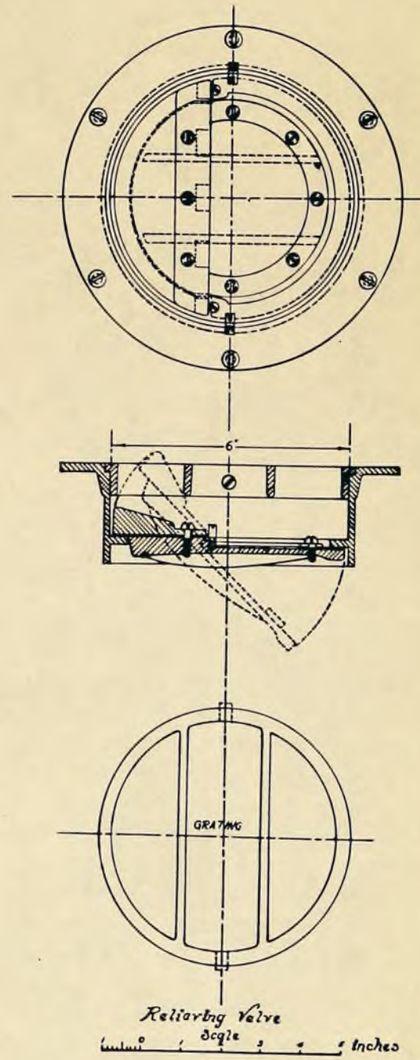
1897

INBOARD PROFILE



HALF BREADTH PLANS





GREAT LAKES MODEL SHIPBUILDERS' GUILD

LAKE MICHIGAN CAR FERRIES

PART II.

BY A.J.ZUEHLKE, N.A.

Since the initial shipment of freight cars across the lake, the service has, by far, grown into the largest car ferrying system in the world. This fact is based not only on the amount of freight carried but also on the number of railways served, the number and size of car ferries operated, and the number of ports served. The present day service is maintained by a fleet of fourteen large vessels operating out of eight ports on Lake Michigan. The total sailing distance for all routes amounts to 628 miles. During the year of 1947 over 260,000 freight cars were transported across the lake. This would amount to approximately 5000 average freight trains or about 14 trains per day. The newer 18 mile an hour car ferries establish a remarkable record of performance by traveling more than 100,000 miles yearly. In addition to the transportation of railway freight cars, approximately 200,000 passengers and 64,000 automobiles were carried by the car ferries during the year of 1947.

Because of year round navigation the Lake Michigan car ferries encounter all types of weather conditions. Ideal weather prevails usually during the summer season, and consequently sailing schedules are kept quite faithfully. The sailing routes of the car ferries intersect the normal up-bound and down-bound shipping lanes and with the advent of "thick" weather in the spring and fall seasons of navigation, constant alertness has to be maintained to prevent collisions. During the winter months the strength and durability of the car ferries and crew is taxed to the utmost, as the hazards of winter gales and ice are often extremely severe. Frequently ice three feet thick and over, may be piled into solid masses and windrows by strong steady winds. Under these conditions ice breaking plays an important role during the winter months of operation. In spite of the icy grip of winter, schedules are met with amazing accuracy and seldom interrupted.

For a voyage in heavy weather, tying down four strings of freight cars has always presented a problem. Car ferry skippers will often alter a course rather than ride the crests and troughs in order to prevent excessive rolling. The train cars are held in place by means of rail clamps set in back of the car wheels to prevent fore and aft movement and screw jacks which are set under the four corners of the cars. These jacks are extended so as to take the weight of the carbody off the springs and give the body rigid support against rolling. In spite of the above precautions, it is not uncommon to roll a car off the tracks during a crossing in bad weather.

Train cars are loaded and unloaded through the stern of the boat. A heavy-hinged sea gate partially closes the stern opening during the voyage. Each car ferry terminal maintains one or more slips or berths wherein the vessel is securely moored against a transfer bridge. The slips are constructed of heavy wood piling and extend the full length of the vessel on one side. A short section of piling, shaped to fit the stern of the boat is located on the opposite side. The piling aids in guiding the stern of the car ferry to the transfer bridge and prevents lateral motion. A transfer bridge or apron is used to join the tracks of the boat to those ashore and is specially designed to take care of the change in draft and trim of the vessel.

In general, the over-all design of a car ferry embodies not only the usual compromise of dimensions, hull form, power and arrangements, but also involves certain characteristics and requirements inherent only to the specialized service of these vessels.

Year around service dictates a well strengthened hull with suitable ice-breaking qualities. The stem is kept well raked at the water line in order that solid ice might be crushed downward by the weight of the vessel, and the propeller shafting outside the hull is protected by sturdily built and well streamlined bossings.

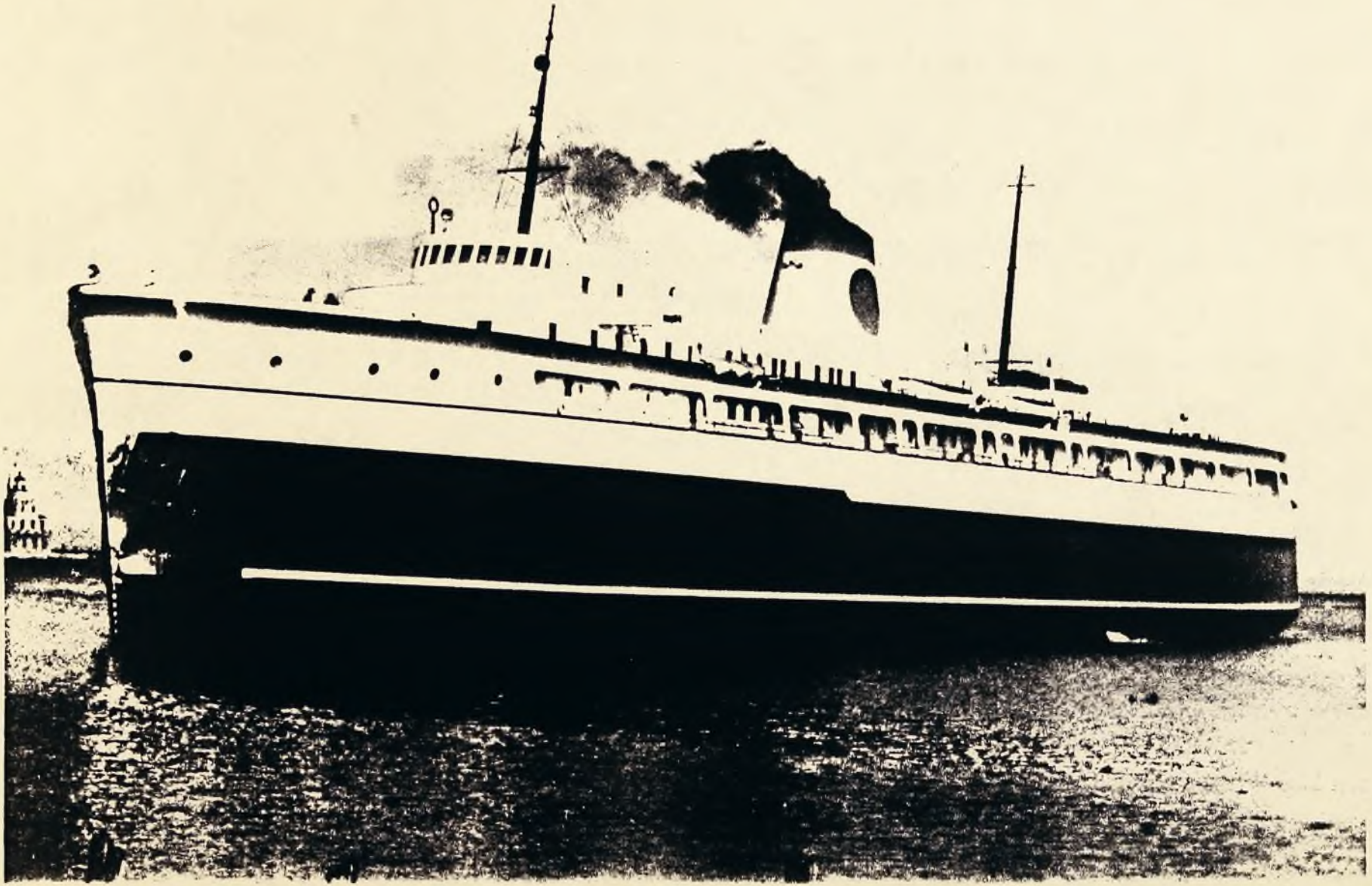


Fig. 7. City of Midland

The shell plating at the load line, particularly at the bow, is of increased thickness; and additional transverse beams and longitudinal stringers provide the necessary strength to combat ice conditions. The reinforcing necessary for ice breaking all tends to add weight to a hull that is already in excess of normal strength standards.

Because of various limiting conditions, the basic hull form of Lake Michigan car ferries has not changed since the time of the first vessels. A full bow is necessary at the car deck in order to accommodate the four tracks as far forward as possible. This feature, in addition to a rising fore foot and raking stem, results in vee sections forward in order to decrease as much as possible the angle of entrance of the water plane. The Optimum midship coefficient for normal operating speed length ratio should perhaps be about .940 for an efficient hull form; however, ice breaking qualities necessary for winter navigation lead to slack bilges; consequently a lower midship coefficient averaging around .860 is usually the case. The shape of the hull at the car deck for the after one third length of the vessel is pre-determinated by the existing car ferry slips and transfer bridges as previously mentioned.

The unusually large amount of transverse stability required for loading and unloading presents a rather vexing problem to the designer. In loading it is desirable to back an entire string of freight cars on one of the four tracks at a time, thus preventing loss of time in switching from one side to the other. Cars loaded in this manner produce heeling moments as high as 3,000 foot tons for the inboard tracks and 7,000 foot tons for the outboard tracks. The maximum angle of heel of the vessel during loading or unloading operations is limited to 9 degrees by the transfer bridge; as a result hight metacentric heights are necessary. As an example, the metacentric height of the later car ferries averages about ten to twelve feet for a light ship and reduces to about four to five feet for the full load condition.

The situation is further aggravated by the ever increasing weights of freight cars and the loads they carry and also the increase of height requirements for certain cars and commodities. The present average loaded freight car is figured to weigh about eighty tons. Comparatively, a loaded car had an average weight of thirty tons during the time of the early car ferries. The molded height of the car deck space is nearly three feet greater on the City of Midland than on the first steel car ferries. The increase in the height of car deck space involves the raising of the center of gravity and a consequent lowering of the metacentric height. In order to compensate for the abnormal requirements of initial stability, the later car ferries have been built with increased beams. The 58 foot beam of the City of Midland is considered a maximum because of the existing car ferry slips, designed originally to accommodate the older and narrower vessels.

Because of the added stiffening necessary for the heavy movable cargo and navigation in ice, the hull strength of car ferries is well above the standards required for vessels of this size. Frames are spaced twenty-four inches apart throughout the vessel except at the bow where eighteen inch spacing is usually used. The design of the car deck structure is based on a weight per freight car of 120 tons, which includes the load carried plus an allowance for impact. A system of heavy beams, girders and stanchions is used to support the large, concentrated loads imposed by moving cars. A series of transverse watertight bulkheads provides further hull stiffening as well as the necessary watertight subdivision.

The car ferry City of Midland (Fig. 7) was completed in the spring of 1941 and embodies the latest and most modern features in design, equipment and appearance of all Great Lakes car ferries.

The principal dimensions of the City of Midland are as follows:

Length over all	406'
Length B. P.	388'
Beam Molded	58'
Depth to main deck	23' 6"
Depth to spar deck	43' 5"
Draft, loaded	17' 6"
Displ. loaded (short tons)	8200
Gross tonnage	3968
Normal shaft horsepower	6000
Service speed, M.P.H.	18
Freight cars, loaded	34
Passengers	150
Block coefficient	0.6585
Midship coefficient	0.8940
Tons per inch	52

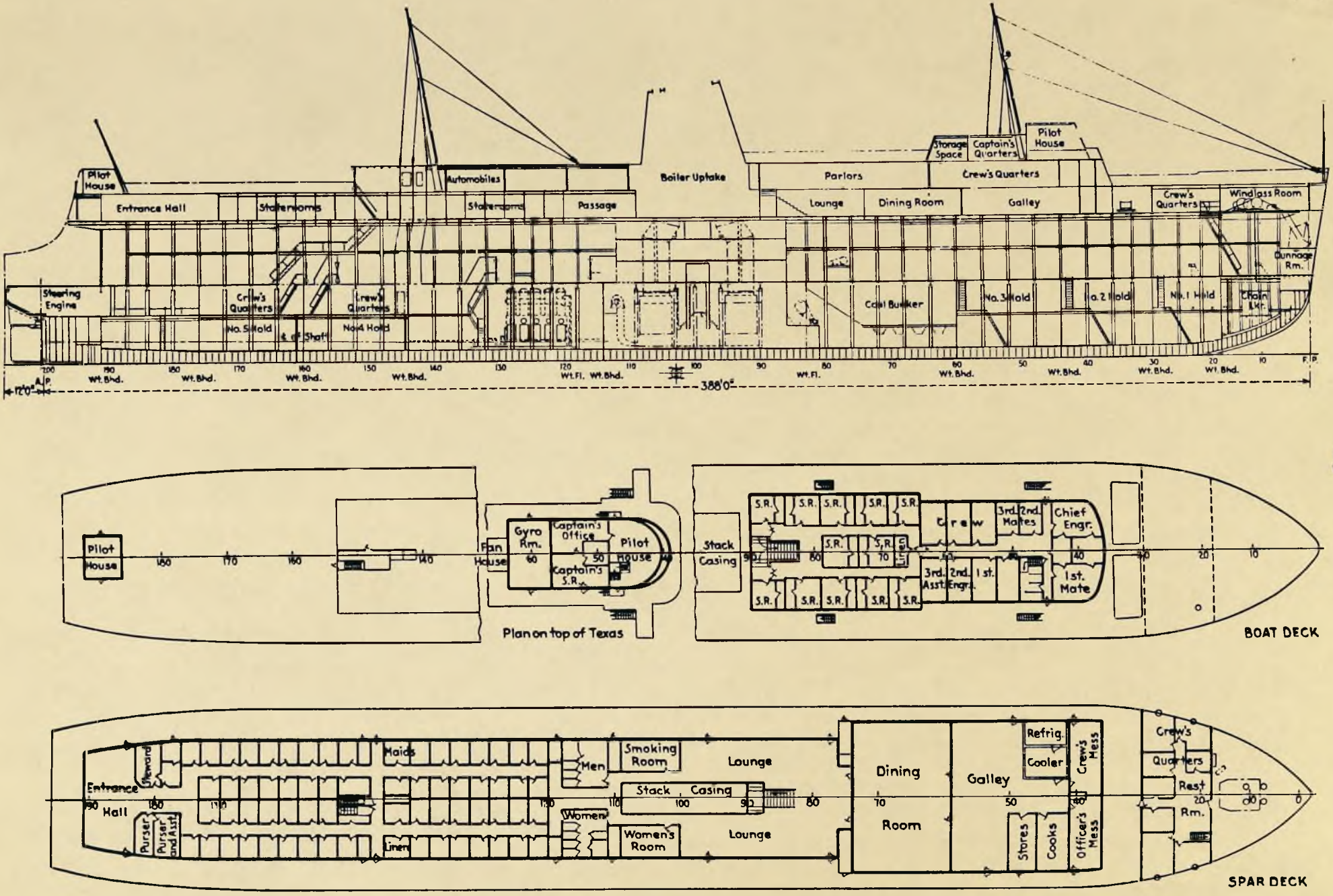
In general the main hull and superstructure of the City of Midland is of riveted construction. Welding was used chiefly for deck beam, frame, and girder attachments and also nonstructural bulkheads and fittings. The hull is divided into ten watertight compartments by transverse bulkheads, and an inner bottom is fitted throughout. Plate floors are spaced every two feet except at the bow where eighteen inch spacing is used. The engine room, boiler room and coal bunkers are located amidship below the main deck. Quarters for the engine room crew are located aft of the engine room on the lower deck, and the steering and sea gate hoist engines are located under the main deck at the stern of the vessel. The remaining hold spaces under the main deck are void.

The watertight hold subdivision extends to the main deck, which is carried continously throughout the length of the vessel. The main deck is constructed with no sheer and is framed with transverse beams and fore and aft girders located under the rails, all supported by columns to the tank top. Four tracks are fitted on the main deck, the rails of which are supported on stools varying in height to compensate for camber. The stack casing, vent trunks and companion ways are located on the centerline of the ship. Copper bearing steel is used for the main deck plating to reduce corrosion caused by the salt brine of refrigerator cars. A ten foot high hinged sea gate provides protection from the sea by partially enclosing the stern opening at the main deck.

The spar deck and boat deck provide accommodations for crew and passengers. All staterooms, public spaces and crew's rooms were constructed and fitted out in a modern manner with special considerations given to comfort, safety and ease of maintenance. Sixty-three passenger staterooms are located at the aft end of the spar deck and twelve parlor suites, each having private shower and toilet facilities, are located on the boat deck. The main dining room on the City of Midland accommodates 60 persons at a time and is served by a modern all-electric galley.

Fireproof materials were used throughout in the construction and equipment of the deckhouse. Fire protection for the vessel consists of steam smothering lines in the holds and fire pumps and an authomatic sprinkler system installed in all crew's quarters, passengers' staterooms, public spaces and lockers. A manual fire-alarm system was installed with stations at various points throughout the ship and alarm bells operating in the pilot house, engine room and crew's quarters. A manually operated sprinkler system was installed above the main deck space. A general alarm switch located in the pilot house, operates the fire alarm bells located in the sleeping quarters throughout the ship.

The City of Midland ventilating system includes fans and ducts for supplying fresh air for all passengers



INBOARD PROFILE AND PLANS OF BOAT AND SPAR DECKS OF THE PERE MARQUETTE CARFERRY CITY OF MIDLAND 41

Fig. 8

cubic feet of air per minute is supplied to the boiler room and about 15,000 cubic feet for engine room ventilation. Small size propeller type fans are installed in trunks above the main deck. These fans provide a minimum air change to prevent condensation in the void hold spaces. The design of future Lake Michigan car ferries is predicated on various factors which tend to establish, within certain limits, the basic overall dimensions. Due to the existing restricted turn around space in various ports, the over all length of these vessels is presently limited to about 400 feet. As before mentioned the existing car ferry slips limit the breadth of the car ferry to about 58 feet; and, although a wider beam vessel would be more desirable, the cost of changing the present car ferry slips would be prohibitive. The minimum depth of water in the car ferry terminals is about 18 feet; consequently, unless extensive dredging operations were performed, 17 feet 6 inches is the maximum allowable draft.

MR. ZUEHLKE GIVES THESE REFERENCES AND ACKNOWLEDGMENTS

Great Lakes Historical Society Bulletin July, 1945.

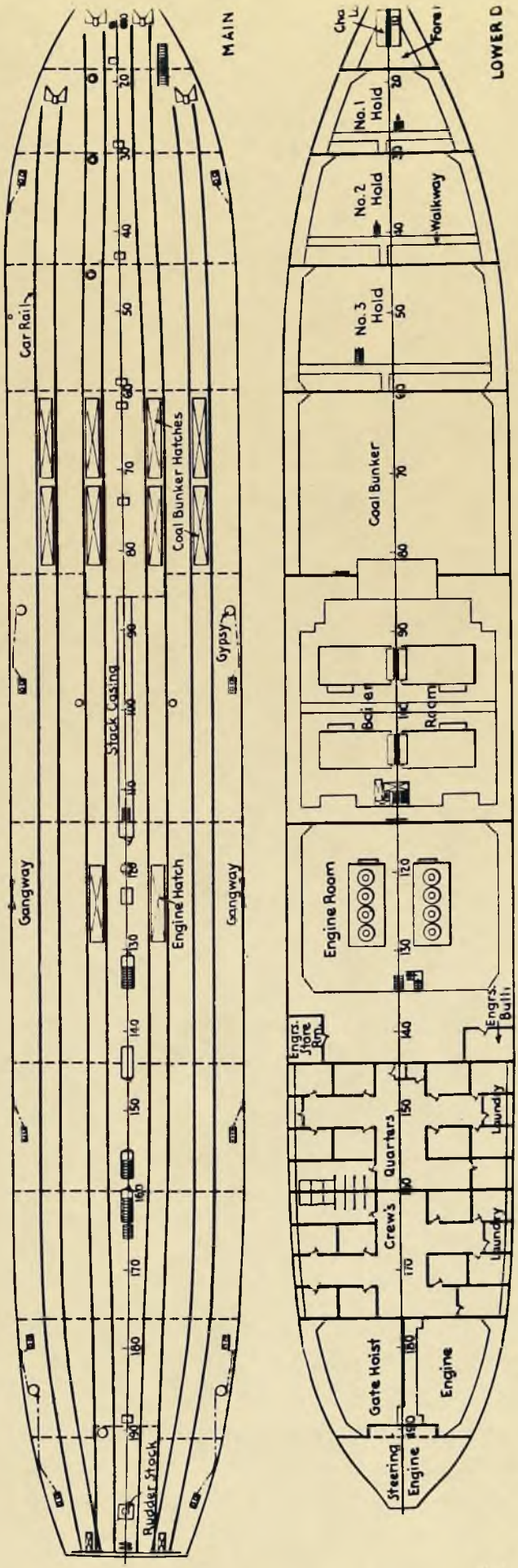
Chesapeake and Ohio Pere Marquette Magazine March, 1938.

L. H. Kent, Supt. of Steamships, Pere Marquette district of Chesapeaker and Ohio Railway Company.

C. L. Herring, Marine Superintendent, Ann Arbor Railway Company.

F. W. McMullen, Superintendent Lake Michigan Car Ferries, Grand Trunk Western Railroad Company

CITY OF MIDLAND PLANS
Will be available in 1/8" scale in a few months through the Great Lakes Model Shipbuilders' Guild.



PLANS OF THE MAIN AND LOWER DECKS OF THE CARFERRY CITY OF MIDLAND 41

Fig. 9

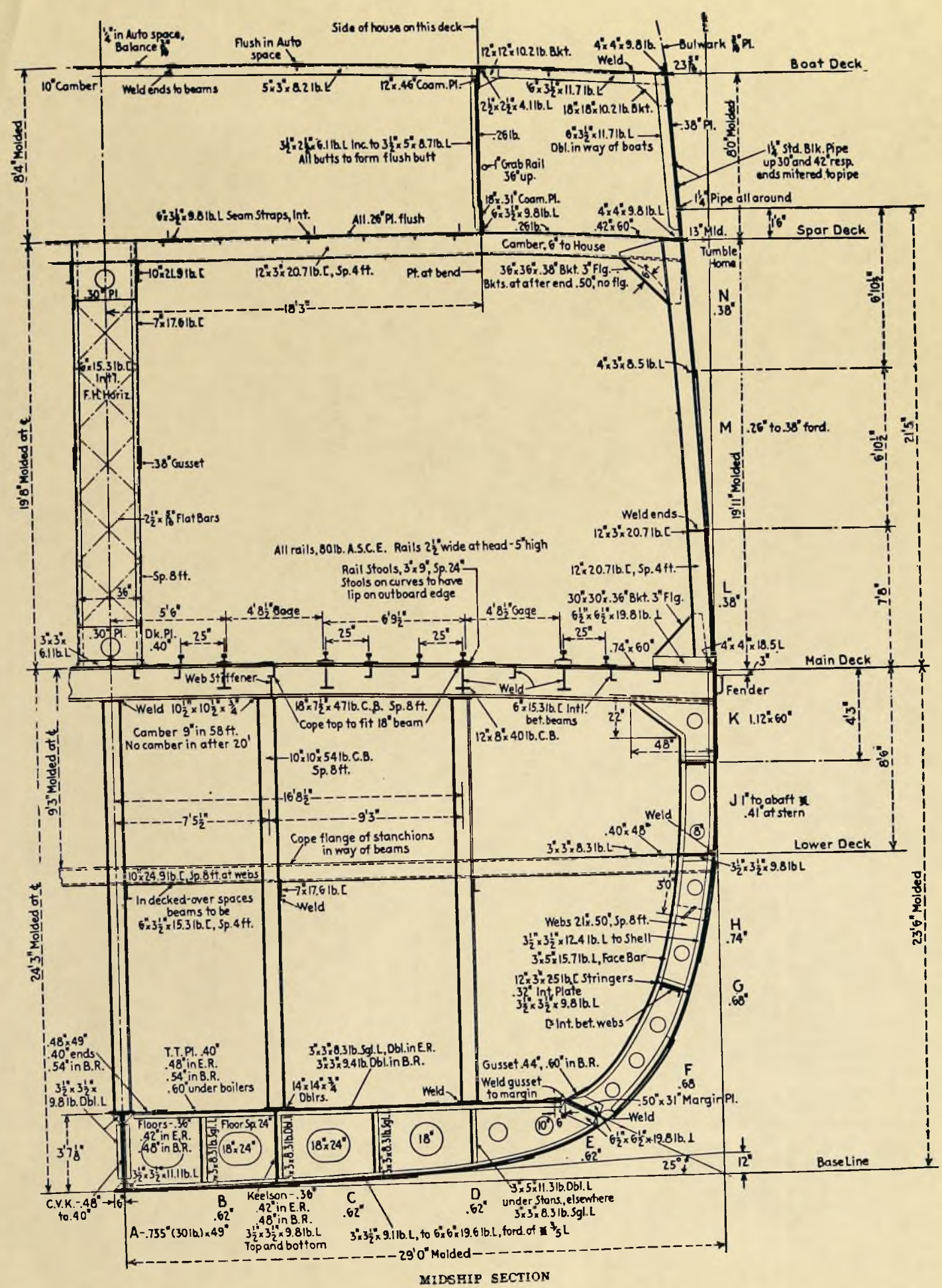

Boat Deck
Spar Deck
Main Deck
Lower Deck
Base Line
Tumble Home
Camber, 6" to House
Side of house on this deck
Flush in Auto space
Weld ends to beams
10" Camber
Bulwark
Weld
Pt. at bend
Weld ends
Rail Stools, 3"x9", Sp. 24"
Stools on curves to have lip on outboard edge
All rails, 80 lb. A.S.C.E. Rails 2½" wide at head - 5" high
Camber 9" in 58 ft.
No camber in after 20'
Cope top to fit 18" beam
Cope flange of stanchions in way of beams
In decked-over spaces beams to be 6"x3½"x15.3 lb. C, Sp. 4 ft.
Webs 21"x.50", Sp. 8 ft.
Gusset .44", .60" in B.R.
Weld gusset to margin
Floors - .36" .42" in E.R. .48" in B.R.
Floor Sp. 24"
Keelson - .36" .42" in E.R. .48" in B.R.
3½"x3½"x9.8 lb. L Top and bottom
3"x3½"x9.1 lb. L, to 6"x6"x19.6 lb. L, ford. of
3"x5"x11.3 lb. Dbl. L under Stans., elsewhere
3"x3"x8.3 lb. Sgl. L
C.V.K. - .48" to .40"
A - .735" (30 lb.) x 49"
B .62"
C .62"
D .62"
E .62"
F .68"
G .68"
H .74"
J 1" to abaft
.41" at stern
K 1.12"x60"
L .38"
M .26" to .38" ford.
N .38"
Fender
Camber
Weld
Web Stiffener
Gusset
Grab Rail 36" up.
All butts to form flush butt
All .26" Pl. flush
Dbl. in way of boats
Dbl. in way of beams
Seam Straps, Int.
Pt. at bend
Bkts. at after end .50", no flg.
Flat Bars
Sp. 8 ft.
Dk. Pl. .40"
Int. bet. webs
Margin Pl.
Weld
Base Line
Molded
MIDSHIP SECTION

Fig. 10