Great Lakes Rail Marine Interface:
Part 1: Lake Michigan Car Ferries
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My model railroad is set in Milwaukee in the fall of 1957. At this time, Milwaukee was a major Great Lakes port with substantial railroad car ferry, interlake, and overseas traffic. As the rail/marine interface is critical to the scenic setting and operations of my layout, understanding how a Great Lakes port appeared and worked has been a focus of my railroad research. In this talk, I'm going to focus on railroad car ferry operations with an emphasis on design elements and operational aspects.

Design Elements: There are five design elements that are necessary to support car ferry operations on the prototype that need to be part of the model setting. These are the boat itself (and in particular the car deck), the slip the boat resides in, the ramp connecting the boat to the tracks on shore, the approach track, and the loading yard. All of the Great Lakes ferry operations exhibited these five essential design elements. In addition, if the ferry handled passenger and vehicle traffic (as the Milwaukee operation did) then facilities must be provided for servicing this traffic.

All of the Great Lakes car ferries had a similar design for their car decks, which consisted of four parallel tracks. Each track could handle between 8 and 10 standard forty-foot cars. The boats were loaded at the stern, and the track arrangement was identical at the stern so that any boat could dock at any slip. The main design feature is that in the turnout ladder at the stern, the last two frogs are on the boat itself, while the turnout points are on the ramp.

Operational Aspects: The loading sequence was complicated by the necessity to keep the freight car weight on the car deck as evenly distributed as possible. In addition, there was the need to be mindful of the distribution of loaded and empty cars. The need to have the "push" go quickly and smoothly is the reason that each ferry operation had a loading yard that was dedicated to ferry operations and separate from the nearest classification yard. The final complication was that the switching locomotive used for the push could not venture onto the ramp because of its weight relative to the design parameters of the ramp and the stability of the boat. So empty cars, called idlers, were used in front of the switching locomotive during push and pull operations. These were usually dedicated MOW flat cars to promote visibility and communications with the boat crew.

After the boat was emptied and loaded, vehicles and passengers were allowed to embark. In 1957, vehicles were parked in 4 lanes near the ramp and were driven onto the boat deck by boat personnel. The passengers climbed a wooden stairstep outside the boat to enter through a door to the cabin deck above the car deck. Food and other supplies were loaded on the car deck and there was a freight elevator on the boat to lift them up to the cabin deck.

There were two routes from Milwaukee in 1957. The C&O operated 4 scheduled round trips each day on a regular schedule between Milwaukee and Ludington, Michigan. The GTW usually operated one unscheduled round trip between Milwaukee and Muskegon, Michigan. The tables below show the top ten commodity flows in terms of freight cars carried per year.

C&O Eastbound Traffic to Ludington (32, 918 carloads/year):

Commodity	Carloads/Year
Motor Vehicle Parts	7315
Miscellaneous, not elsewhere classified	2779
Animal Feed	2613
Other Grain	2512
Wheat Flour	2071
Lumber & Shingles	2012
Construction & Mining Machinery & Parts	1878
Liquor, Wine, & Beer	1422
Meat and Packing House Products	791
Motor Vehicles	752

C&O Westbound Traffic from Ludington (21,313 carloads/year):

Commodity	Carloads/Year
Salt	3195
Miscellaneous, not elsewhere classified	3069
Chemicals	2521
Bituminous Coal	1767
Anthracite Coal	1262
Iron Ore	1011
Building Cement	857
Newsprint	758
Paper and Paper Products	741
Brick & Tile	677

GTW Eastbound Traffic to Muskegon (17,768 carloads/year):

Commodity	Carloads/Year
Motor Vehicles	3442
Lumber & Shingles	1739
Animal Feed	1174
Motor Vehicle Parts	1089
Miscellaneous, not elsewhere classified	1008
Liquor Wine & Beer	869
Cereals and Grain Preparations	804
Wheat Flour	730
Dairy Products	634

Paper & Paper Products	

GTW Westbound Traffic from Muskegon (9,202 carloads/year):

Commodity	Carloads/Year
Newsprint	2179
Miscellaneous, not elsewhere classified	1480
Bituminous Coal	655
Salt	604
Sand Gravel & Crushed Rock	411
Lumber & Shingles	394
Iron & Steel Semifinished Products	386
Glass & Glass Products	317
Rolled Finished Steel Mill Products	299
Anthracite Coal	286

Traffic Management: Eastbound, about 60 percent of the traffic originated in Milwaukee, about 25 percent in the rest of Wisconsin, and about 15 percent from outside Wisconsin. Most of that traffic was destined for Michigan, Ontario, New York, and New England. About 60 percent of the eastbound traffic originated on the Milwaukee Road (and Soo) and about 40 percent originated on the Chicago & Northwestern. At the time, the C&NW switched all of Jones Island including the Municipal Ferry Terminal where the C&O ferries docked. The GTW had its own terminal facilities which it operated. Transfer runs from the Milwaukee (and Soo) and the C&NW brought traffic into the Jones Island classification yard, where the ferry traffic was separated from other Jones Island traffic and brought to the loading yard. There, a dedicated C&NW switching crew consulted with a C&O crew to organize the loads and empties into the loading sequence.

Westbound, about 60 percent of the traffic originated in Michigan, and the remainder was from New York, Pennsylvania, and West Virginia. Again, about 60 percent of that traffic was destined for Milwaukee, but most of the remainder was interchanged with the CGW, UP, NP, and GN for the Pacific Northwest. Westbound traffic was pulled from the ferries and classified in the Jones Island classification yard, and brought by transfer runs to other classification yards on the Milwaukee, C&NW, and Soo where the line haul trains were assembled.

The prototype used waybills on their transfer runs and the C&O boat crews used waybills to create their loading sequences, and I'm following that procedure as well.

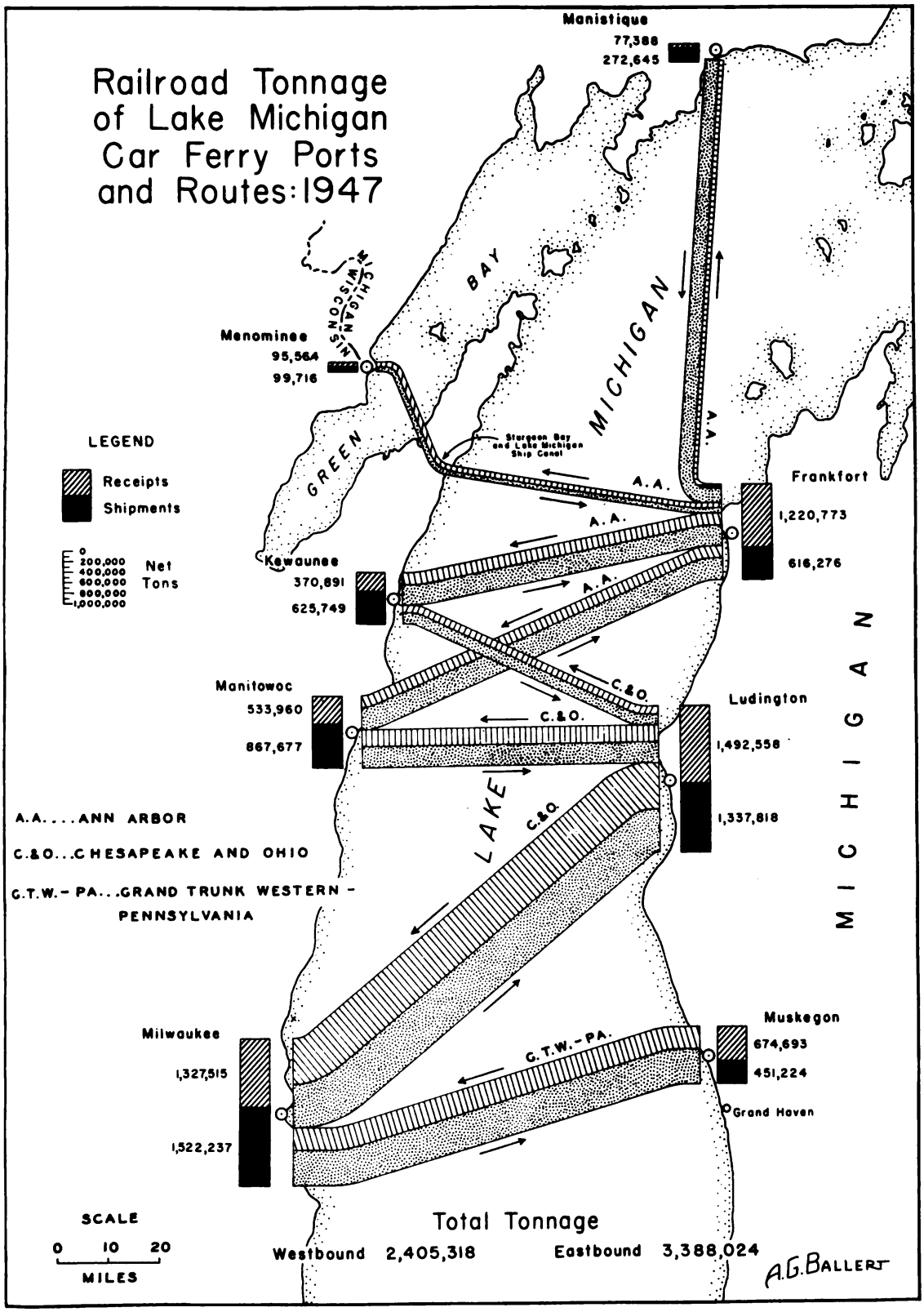

Fig. 23

PLACE SPECIAL SERVICE PASTERS HERE

Form 477 1MM 3-63

131 Chicago and North Western Railway Co. 131

FREIGHT WAYBILL

TO BE USED FOR SINGLE CONSIGNMENTS, CARLOAD AND LESS CARLOAD

STOP THIS CAR AT

FOR

WEIGHT IN TONS			LENGTH AND CAPACITY OF CAR		FREIGHT BILL	
GROSS	TARE	NET	ORDERED	FURNISHED	DATE	NUMBER

CAR INITIALS AND NUMBER: NYC 168372 | KIND | C.L. Transferred to or L.C.L. Loading No. | DATE | WAYBILL No.

TO STATION STATE: CINCINNATI OHIO

FROM No. STATION STATE: MILWAUKEE WISC

ROUTE (Show each Junction and Carrier in route order to destination of waybill). ROUTE CODE No.: CNW-CO

Full Name of Shipper, and, for C.O.D. Shipments, Street, Post Office Address, and Invoice Number. CODE No.: FROEDTERT MALT CORP

Show "A" if Agent's Routing or "S" if Shipper's Routing

RECONSIGNED TO STATION STATE OR PROV.

Origin and Date, Original Car, Transfer Freight Bill and Previous Waybill Reference and Routing when Rebilled.

AUTHORITY

CONSIGNEE AND ADDRESS: HUDEPOHL BREWING CO — CODE No.

FINAL DESTINATION AND ADDITIONAL ROUTING.

AMOUNT
C. $ FEE
O. $
D. TOTAL $

WEIGHED
AT
GROSS
TARE
ALLOWANCE
NET

WHEN SHIPPER IN THE UNITED STATES EXECUTES THE NO-RECOURSE CLAUSE OF SECTION 7 OF THE BILL OF LADING, INSERT "YES."

PICKUP SERVICE YES NO

DELIVERY SERVICE REQUESTED YES NO

Indicate by symbol in Column provided ★ how weights were obtained for L.C.L. Shipments only. R—Railroad Scale. S—Shipper's Tested Weights. E—Estimated—Weigh and Correct. T—Tariff, Classification or Minimum.

ON C. L. TRAFFIC—INSTRUCTIONS (Regarding Icing, Ventilation, heating, Milling, Weighing, etc. If Iced, Specify to Whom Icing Should be Charged.)

ON L. C. L. TRAFFIC TRANSFER STAMPS TO BE SHOWN IN THESE SPACES.

No. PKGS.	Description of Articles, Special Marks and Exceptions.	Commodity Code No.	★	WEIGHT	RATE	FREIGHT	ADVANCES	PREPAID
	500 BAGS MALT			50000				

Outbound Junction Agent Will Show Junction Stamps in Space and Order Provided. Additional Junction Stamps and All Yard Stamps to be placed on Back Hereof.

FIRST JUNCTION | SECOND JUNCTION | THIRD JUNCTION | FOURTH JUNCTION

DESTINATION AGENT WILL STAMP HEREIN STATION NAME AND DATE REPORTED

PRINTED IN U. S. A.

131—CHICAGO AND NORTH WESTERN RAILWAY CO.—131

PLACE SPECIAL SERVICE PASTERS HERE

Form 477 1MM 3-63

131 Chicago and North Western Railway Co. 131

FREIGHT WAYBILL

TO BE USED FOR SINGLE CONSIGNMENTS, CARLOAD AND LESS CARLOAD

STOP THIS CAR AT

FOR

WEIGHT IN TONS: GROSS | TARE | NET
LENGTH AND CAPACITY OF CAR: ORDERED | FURNISHED
FREIGHT BILL: DATE | NUMBER

CAR INITIALS AND NUMBER: CNW 85970 | KIND | C.L. Transferred to or L.C.L. Loading No. | DATE | WAYBILL No.

TO STATION STATE: BUFFALO NY

FROM No. STATION STATE: MARSHALLTOWN IOWA

ROUTE (Show each Junction and Carrier in route order to destination of waybill). ROUTE CODE No.: CNW-CO-SBR-DH DELY

Full Name of Shipper, and, for C.O.D. Shipments, Street, Post Office Address, and Invoice Number. CODE No.: MARSHALL ELEVATOR CO

Show "A" if Agent's Routing or "S" if Shipper's Routing

RECONSIGNED TO STATION STATE OR PROV.

Origin and Date, Original Car, Transfer Freight Bill and Previous Waybill Reference and Routing when Rebilled.

AUTHORITY

CONSIGNEE AND ADDRESS: CORN PRODUCTS SALES CO — CODE No.

FINAL DESTINATION AND ADDITIONAL ROUTING.

AMOUNT
C. $ FEE
O. $
D. TOTAL $

WEIGHED
AT
GROSS
TARE
ALLOWANCE
NET

WHEN SHIPPER IN THE UNITED STATES EXECUTES THE NO-RECOURSE CLAUSE OF SECTION 7 OF THE BILL OF LADING, INSERT "YES."

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ON L. C. L. TRAFFIC TRANSFER STAMPS TO BE SHOWN IN THESE SPACES.

No. PKGS.	Description of Articles, Special Marks and Exceptions.	Commodity Code No.	★	WEIGHT	RATE	FREIGHT	ADVANCES	PREPAID
	CORN LFVC							

Outbound Junction Agent Will Show Junction Stamps in Space and Order Provided. Additional Junction Stamps and All Yard Stamps to be placed on Back Hereof.

FIRST JUNCTION | SECOND JUNCTION | THIRD JUNCTION | FOURTH JUNCTION

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