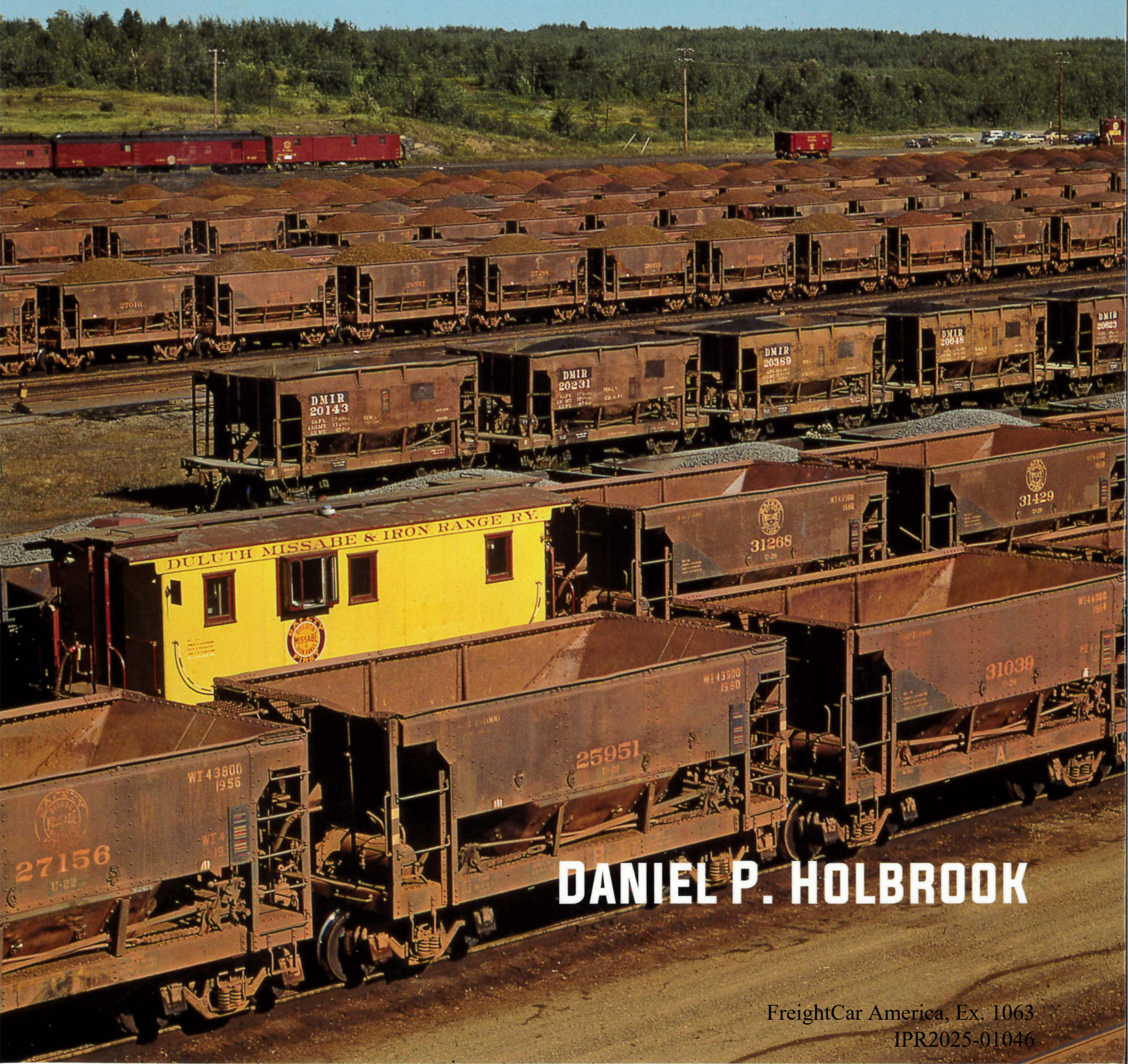
DULUTH, MISSABE & IRON RANGE EQUIPMENT, 1883–2004



DANIEL P. HOLBROOK

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The Duluth, Missabe & Iron Range, formed in 1938 as a merger of the Duluth & Iron Range and the Duluth, Missabe & Northern, was one of the dominant companies serving the Minnesota iron ranges. Its history dates back into the 19th century, in the era of wooden ore cars, and reaches forward to 2004, the year the railroad was acquired by Canadian National.

The history of the equipment of the DM&IR and its predecessors is complex, encompassing as it does the development of many aspects of the modernization of freight cars over 12 decades.

The primary traffic of the railroad, of course, was iron ore, but even this topic is not simple, as the ore changed character from natural ore, to processed taconite. This change required ore cars and ore handling to change in response.

Perhaps the most impressive part of this book is the detailed presentation of the railroad's customers and how their needs impacted the equipment fleet. There are many books about railroad car fleets, but very few have ever attempted to show *why* the fleet was the way it was. This one does so.

The author has done a superb job of digging deep into company records to document the reasons behind many decisions and changes in the car fleet, and organizing that information for readable presentation here. This material includes more than 350 photographs and graphics. The book is sure to appeal to modelers and to many who are interested in railroad history.

Jacket image

Proctor Yard September, 1974. A virtual sea of ore cars. Unusual are caboose C-135, normally assigned to T-Bird service at Virginia, Minnesota, and a string of leased former B&LE ore cars restencilled DM&IR, just above the caboose. (D.P. Holbrook collection)

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Signature Press
Wilton and Berkeley, California

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Duluth, Missabe & Iron Range Equipment, 1883–2004

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Frontispiece: Proctor Yard September, 1974. A virtual sea of ore cars. Unusual is caboose C-135 normally assigned to T-Bird service at Virginia, Minnesota, and a string of leased former B&LE ore cars re-stencilled DM&IR tied on to MofW service passenger cars. (D.P. Holbrook collection)

Opposite: DM&IR Proctor Yard on September 27, 1946. (R.V. Nixon photo, Museum of Rockies collection)

Pages 6-7: It is the twilight of steam on June 16, 1959. DM&IR 502, a Class E 2-10-2 acquired by DM&N in 1919, is at the north end of Proctor Yard working one of many day ore-sorter jobs. Tied on to the drawbar is caboose C-97, one of nine acquired from EJ&E in 1948 during a severe caboose shortage. The first car is a 50-ton ore car, one of 2,985 left on the roster which would all be retired by 1964. All remaining cars in this cut are 70-ton capacity, many of which would soldier on past the year 2000, obtaining FRA exemptions for their continued use. (Bruce Meyer)

Pages 8-9: Extra 234 North, behind a 2-8-8-4 Yellowstone, is trailing an seemingly endless string of 50- and 70-ton ore cars at Kelsey, Minnesota, on June 16, 1959. (Bruce Meyer)

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INTRODUCTION

Iron Ore! Lifeblood of the American industrial revolution was found from coast to coast and border to border. Major deposits were concentrated in northern Wisconsin and the upper peninsulas of Michigan and Minnesota with the largest of these deposits found in the Arrowhead region of Northern Minnesota. First on what would be called the Vermilion iron range in early 1863, and in 1866 on the future Mesabi iron range. Mesabi, a Chippewa Indian word for "sleeping giant" was truly an indication of what had been discovered.

Once the industrial revolution began the demand for high-grade iron ore rapidly increased and so did the need for finding additional deposits of iron ore to feed the steel mills. Exploration and development of the Minnesota iron ranges was at hand. Scotsman



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Andrew Carnegie, who would later head U.S. Steel, constructed the first modern Bessemer process steel mill at Braddock, Pennsylvania, between 1873 and 1875. The steel industry that developed around this process and would consume the iron ore was located predominantly in the Eastern United States involving over a 1,000 mile movement of iron ore from Northern Minnesota. The only transportation solution was to construct railroads from the mines to ports on Lake Superior for boats to forward ore to the mills. Two railroads were built, initially, the Duluth & Iron Range to serve the Vermillion iron range and the Duluth, Missabe & Northern to service the Mesabi iron range. Both, eventually, would extend their railroads into the competitor's territory. Both initially acquired flat cars for early construction and a large fleet of purpose-built, wooden ore cars to service the mines. As Northern Minnesota developed, this car fleet expanded to include all types of equipment. ■



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ACKNOWLEDGEMENTS

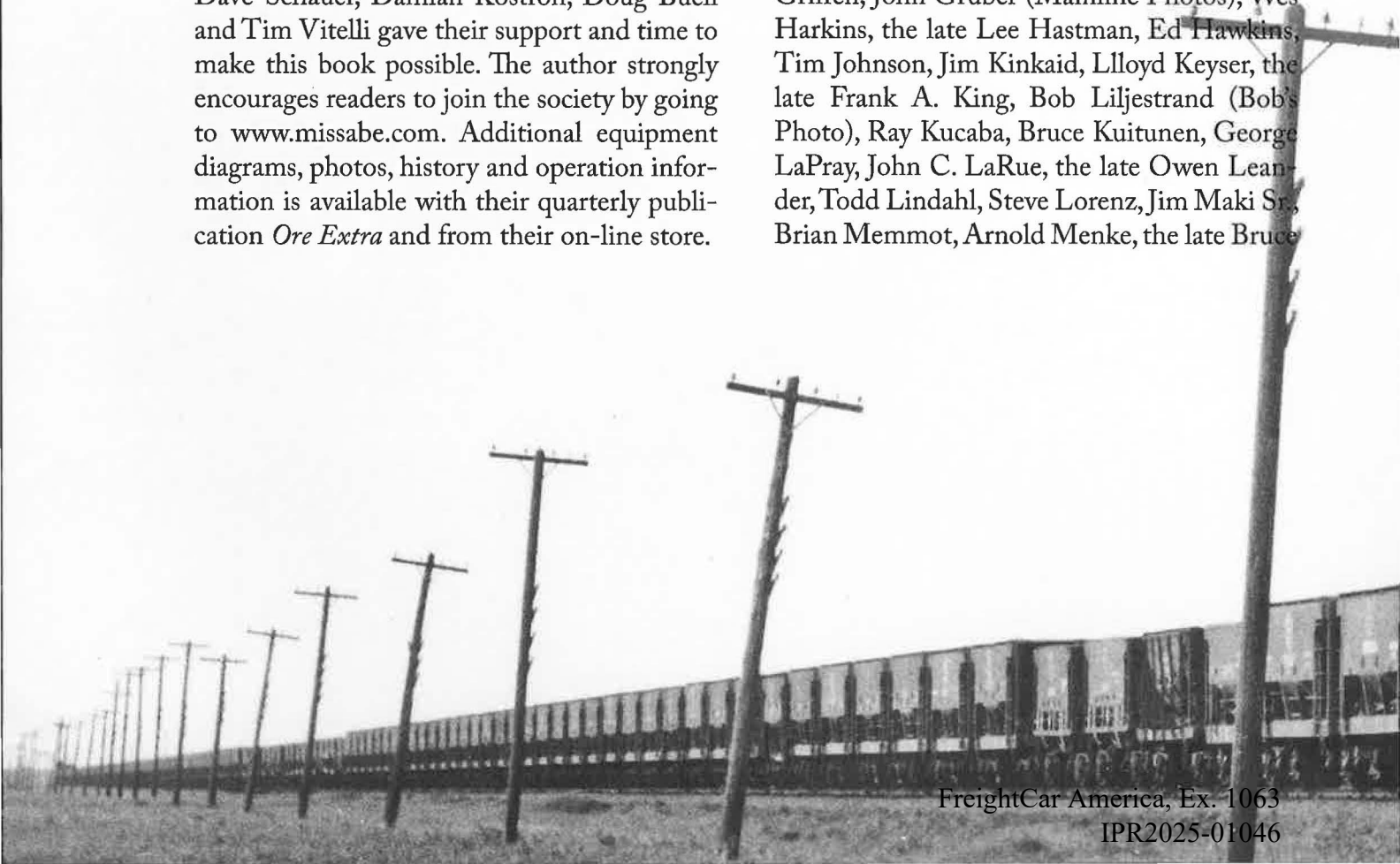
Multiple railroads, heavy industry and marine traffic combined to create a lifelong interest in the Twin Ports of Duluth, Minnesota, and Superior, Wisconsin. The synergy of these created a location with few equals. One of the commodities involving all three was iron ore. This dense, heavy commodity created a need for heavily built railroads, boats and docks, but also the need for specialty type equipment to carry the ore. Starting in 1985, I began a serious quest to research the equipment of the Duluth & Iron Range, Duluth, Missabe & Northern and Duluth, Missabe & Iron Range. A 1975 diagram book and my own equipment photos were the beginnings of what is now in your hands.

This book would not have been possible without the assistance of the following organizations. The Missabe Railroad Historical Society allowed access to their vast collection of AFE (Approved For Expenditure) files, diagrams, maps and photos. The society leadership of Brian Hoag, Tim Schandel, Hans Kremer, Dave Schauer, Damian Kostron, Doug Buell and Tim Vitelli gave their support and time to make this book possible. The author strongly encourages readers to join the society by going to www.missabe.com. Additional equipment diagrams, photos, history and operation information is available with their quarterly publication *Ore Extra* and from their on-line store.

Pat Maus, curator of the Northeast Minnesota Historical Collection at the University of Minnesota Duluth campus, provided advice and direction as I reviewed their collections. Additional sources were: Minnesota Historical Society, Museum of the Rockies, Jim Singer with the Burlington Route Historical Society, Kay Peterson of the Smithsonian Institution Archives Center, Nicholas Fry, curator, John W. Barriger III National Railroad Library, St. Louis Mercantile Library, St. Louis, Missouri (UMSL), and the Transportation Library at Northwestern University in Evanston, Illinois.

I would also like to acknowledge the assistance of freight car experts: the late Richard Hendrickson, Ed Hawkins, Eric Neubauer, Jim Kinkaid, Jim Eager, Keith Jordan, Jerry Stewart, Bill Welch, Ray Kucaba and Dave Lehlbach.

Many other individuals provided photos and documentation. These include: R.C. Anderson, Glen Blomeke, Dick Bradley, the late Hank Brower, Doug Buell, Ron Christensen, Joe Collias, Gene Collora, Chuck Corwin, the late Ed DeRouin, Joe Economy, Jeff Eggert, Martin Fair, Paul Faulk, Larry Goolsby, Art Griffen, John Gruber (Mainline Photos), Wes Harkins, the late Lee Hastman, Ed Hawkins, Tim Johnson, Jim Kinkaid, Llloyd Keyser, the late Frank A. King, Bob Liljestrand (Bob's Photo), Ray Kucaba, Bruce Kuitunen, George LaPray, John C. LaRue, the late Owen Leander, Todd Lindahl, Steve Lorenz, Jim Maki Sr., Brian Memmot, Arnold Menke, the late Bruce



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Meyer, the late Wayne C. Olsen, Bill Polard, the late Bill Raia, D. Repetsky, D.K. Retterer, Dave Schauer, Ted Schnepf, Andy Sharp, Shorpy Photo Archives, the late Mark Simonson, Jim Singer, Perry Sugerman, Johnathan Sugerman, Mike Urie, the late Harold K. Volrath, Duke Wahl, Bill Welch, Wilbur C. Whittaker, and Craig Wilson. Photos from Minnesota Historical Society are identified as MNHS in photo captions. Photos from the Missabe Railroad Historical Society Collection are identified as MRHS in photo captions.

I especially want to thank Guy Wilber for his guidance with ICC, ARA and AAR rules and laws relating to railroad equipment.

A number of people provided inspiration, guidance and research assistance. Special thanks to Perry Sugerman for data processing assistance, Jon Sugerman for guidance with the fine points with Photoshop and Krystal Flowers for photo restoration efforts. Steve Lorenz and the late Lee Hastman accompanied me on multiple trips over the years to the research institutions mentioned above and always found a tidbit I had missed.

One of the shortcomings of smaller, regional, out of the way railroads, like the D&IR and DM&N, is photographic coverage. Up until DM&IR became popular in the late 1950s for operating steam, very few people ventured to the Arrowhead region of northern Minnesota and most did not photograph equipment. Early coverage of equipment is mostly through builder photographs and supplemented with equipment diagrams.

Most books on railroad equipment leave the unanswered question of: What were the cars used for? I've attempted, in Chapter 5 of the book, to give a broad overview of the commodities handled and industries served by the DM&IR and its predecessors in the hopes of filling that void.

Data were compiled from railroad diagrams, railroad AFE (Approved For Expenditure) files, railroad annual reports, auditor's reports, ledgers, Minnesota Warehouse Commission reports, *Poor's*, *Moody's*, *Official Railway Equipment Registers* (*ORER*), and by comparing photos. Sometimes conflicts arose between various sources. Whenever conflicts appeared, railroad documents were used in preference to other sources.

Lastly, none of this would be possible without my wife Linda. We met working for Burlington Northern in 1978, got married shortly after, and worked five years together at the railroad. I'm not aware of too many wives that both understand railroading, can talk about it and can assist with research. She accompanied me on many trips to Duluth, Two Harbors, St. Paul, Minnesota and Evanston, Illinois and assisted in going through company records. My efforts are only reflected in your patience as I pursued this project. Thanks for being my better half.

To those that assisted, thank you. Hopefully I've thoroughly covered the equipment of the DM&IR and any mistakes are entirely mine. ■



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DM&IR Proctor Yard in 1943. On the left is the ore sorting yard and engine terminal. The bottom of the photo is the empty yard for assembling departing trains for the iron range and sandwiched between them is the small commercial yard for merchandise traffic. (D.P. Holbrook collection)

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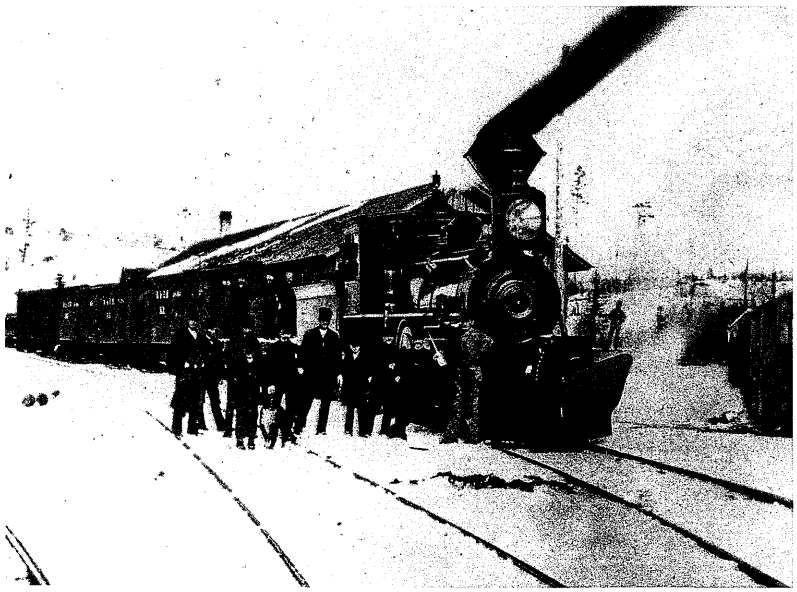
CHAPTER ONE
HISTORY

As with most railroads, the Duluth Missabe & Iron Range Railroad was the product of merger, consolidation and reorganization of a number of component companies over the years.

THE DULUTH & IRON RANGE

The Duluth and Iron Range (D&IR) was incorporated on December 21, 1874, however no track was built until 1883. On March 1, 1882, the original D&IR incorporation was transferred to a group of investors with construction starting on June 20, 1883. Charlemagne Tower incorporated the Minnesota Iron Co. on December 1, 1882, for $10 million dollars to develop mining operations on the Vermillion iron range. He quickly formed the D&IR to transport iron ore to Agate Bay, which was latter platted as Two Harbors in 1885. The first iron ore was shipped from Tower, Minnesota on July 31, 1884, and arrived at Agate Bay at 11:00 p.m. where it was dumped into the pockets of the new 1,200-foot long ore dock. The first train consisted of ten cars including the first car loaded, which was 25-ton capacity wood ore car 406.

The first locomotive arrived in Duluth during July 1883. Orders for equipment were immediately placed with Northwestern Car & Manufacturing of Stillwater, Minnesota, in 1883 for six 34-foot combination flat cars, followed quickly by an additional 24 identical cars for use in the initial construction of the railroad from Two Harbors to Tower, Minnesota. It appears that these cars were possibly numbered 31–80, odd numbers only. Additional orders were placed with Northwestern Car & Manufacturing in January 1884 for 300 24-foot wood ore cars, 251–550, and coal cars



D&IR Engine 1 with train at Tower Jct. Minnesota in 1885. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collection, Collection S3742 Box 71 Folder 20)

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236–250. All of these cars were delivered by June 1, 1884. At the same time, car shops were established at Two Harbors to construct additional equipment

Until December 20, 1886, when the Two Harbors-to-Duluth trackage was completed, all new equipment was delivered by barge from Duluth. After this date, connections at Duluth allowed interchange of equipment between D&IR and other railroads.

Troubled times were ahead. H.H. Porter, head of Illinois Steel Co., took notice. A group of prominent capitalists, including John D. Rockefeller, had acquired a number of mining deposits in the Vermillion Range. They soon made it clear to Charlemagne Tower that they desired to acquire the D&IR or they would build their own railroad to compete with it. Reluctantly Tower sold his railroad and mining interests to Illinois Steel Co. in April 1887 for $6.4 million. Illinois Steel provided the finances to expand the railroad.

The main line was extended from Tower to Winton between 1888 and 1894. Two additional ore docks were built at Two Harbors in the 1890s. The discovery of iron ore on the Mesabi Range in 1890 caused the D&IR to build an 18-mile branch from Wyman to McKinley, and then to Virginia, Minnesota, in 1894 to service the new iron range.

Two Harbors shop was converting combination flat cars to box cars in 1884 and by 1886 they were capable of building their own equipment with flat cars and cabooses being the first cars built in the shops. The shops would go on to build log cars, box cars, ore cars, refrigerator cars, cabooses, and also to rebuild flat cars to box cars, and convert box cars to stock cars, vegetable and oil cars. During the 'teens many cars received steel center sills. The last cars built were refrigerator cars 8032–8041 in 1918.

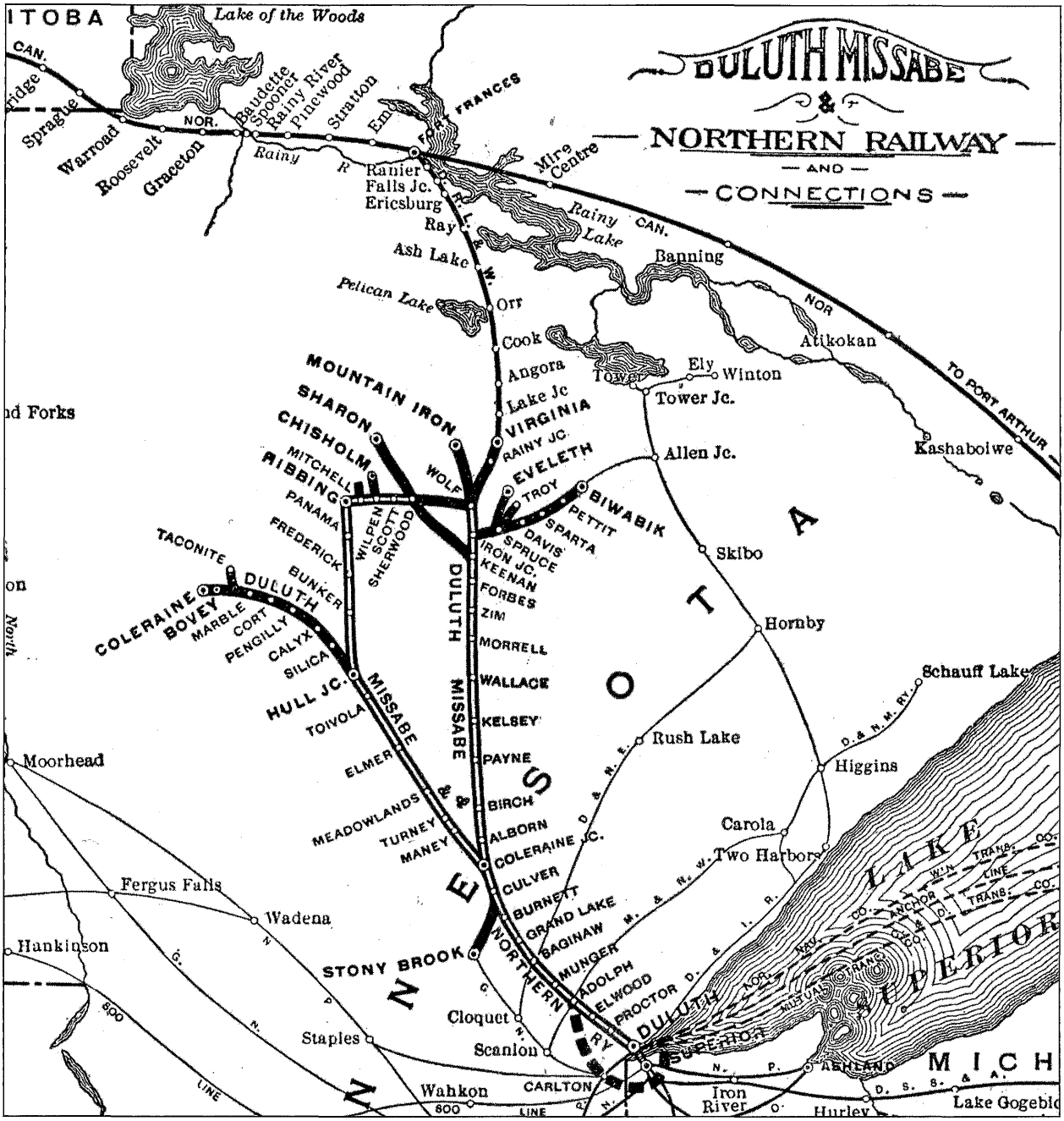
Vermillion iron range tonnage shipped through Two Harbors rose to 10,735,853 tons in 1916 but five years later in 1921 fell to 3,286,338 tons. 1916 saw the last 50-ton steel ore cars purchased. Outside of 10 refrigerator cars constructed at Two Harbors in 1918, no additional equipment would be purchased by D&IR. The underground mines of the Vermillion range were expensive to operate, while the neighboring Mesabi iron range had a combination of underground and cheaper to operate open pit mines. While DM&N tonnages continued to increase, the Vermillion range was falling on hard times. Making matters worse, old-growth timber that had contributed to the bottom line was playing out and the last major lumber mill would close in 1925. U.S. Steel, seeing the writing on the wall, began to make plans to merge the DM&N and D&IR to obtain the economy of operating one railroad.

THE DULUTH, MISSABE & NORTHERN

The Duluth, Missabe and Northern (DM&N) was incorporated on February 11, 1891, using the 1882 charter for the Lake Superior and Northwestern Railway. Prior to this the Merritt brothers of Duluth—Lewis, Leonidas, Alfred, Cassius and Napoleon—had taken notice of the developments on the Vermillion iron range. They discovered even higher grade iron ore south and west of the Vermillion. Quickly they acquired 140 land leases on what was to become the Mesabi iron range. However they lacked the capital to invest in sinking mine pits, constructing a railroad and erecting an ore dock. The brothers found investors in St. Paul, Minnesota, to capitalize their dreams.

Construction of the railroad from the Mountain Iron Mine on the Mesabi iron range to Stony Brook Junction was begun January 28, 1892. Initially the DM&N hauled iron ore to a connection with the Duluth and Winnipeg (D&W) at Stony Brook Junction and the D&W forwarded the ore to docks on Lake Superior at Allouez, Wisconsin. DM&N and D&W had earlier reached an agreement with each supplying ore cars on a 50/50 basis for this new business. D&W never did comply with this agreement.

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DM&N System Map 1911. Note D&IR trackage Duluth to Two Harbors, Hornby, Allen Jct, Biwabik and Winton. (D.P. Holbrook collection)

Needing additional consumers for the ore, the Merritts convinced Henry W. Oliver, a steel mill owner and associate of Andrew Carnegie, to visit the Mesabi iron range in the summer of 1892. Impressed, Oliver committed to delivery of 4,000 tons of ore within two years. The first iron ore was shipped from Mountain Iron Mine on October 17, 1892, in 25-ton capacity ore car 342, arriving Duluth at 11:15 a.m. on October 18th. This car was loaded and run as one car train and proudly displayed in Duluth. The ore was eventually moved to the D&W interchange and Allouez, Wisconsin, for loading on a lake boat. Regular train service was begun on November 1, 1892, with a train of nine cars each carrying 22 tons of ore. Conflicts with D&W not providing their portion of ore cars, and the Merritts wanting to control the entire movement of ore from mine to dock caused DM&N to extend their main line to

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Duluth, with the first train arriving on Saturday, July 22, 1893. Construction of the first ore dock had begun in January, 1893 and the first boat was loaded in October.

The first equipment orders were placed in May 1892 with Duluth Manufacturing Co. for 200 24-foot wood ore cars 200–399, 50 34-foot flat cars 2000–2049 and 10 36-foot box cars 3000–3009 for delivery during 1892. Before the first cars were delivered an additional 16 36-foot box cars, 3010–3035, were added to the order for 1893 delivery. Unlike the D&IR, DM&N did not use odd and even number series to distinguish between house and flat cars.

All cars on DM&N were equipped with air brakes by 1893, except for the 50 Russell-type log flats. Sometime before 1899 these cars disappeared from the roster and all cars on the roster were equipped with air brakes.

The DM&N fell on hard times during the financial panic of 1893. John D. Rockefeller, through investments in American Steel Barge Co., came to agreements with the DM&N for pooling of mine, railroad and ship properties. Rockefeller quickly saw that he would have to invest large sums of money to keep the Merritts from failing. At the DM&N board meeting on February 6, 1894, which included principal mining partners, the Merritts lost voting control of their company and Rockefeller was in full control

During 1894 both railroads were now controlled by "big steel," the D&IR by Illinois Steel Co. and the DM&N by Lake Superior Consolidated Iron Mines, which would later become part of Andrew Carnegie's Carnegie Steel Co. in 1896.

CONSOLIDATION BEGINS

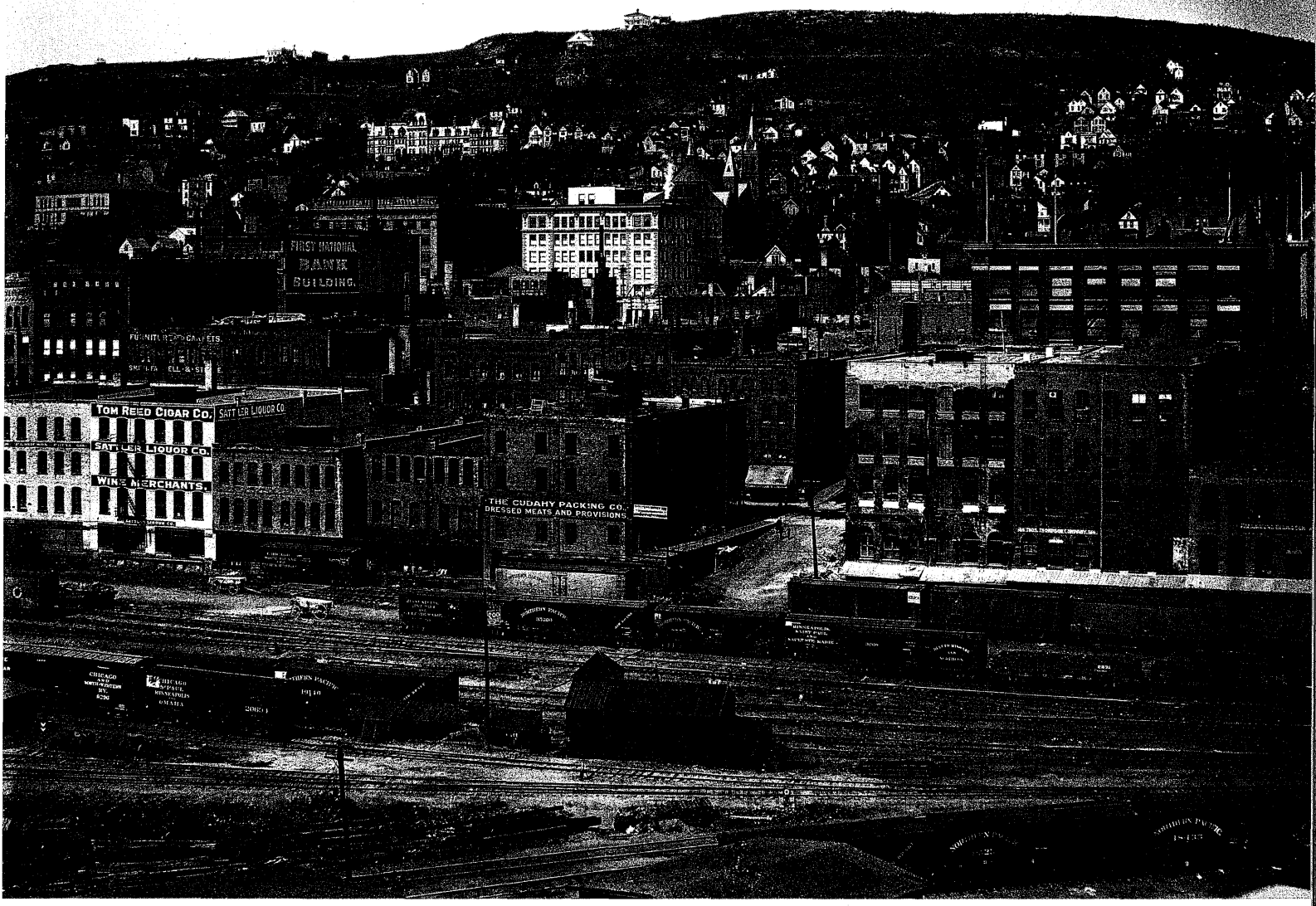
In 1901, Federal Steel, successor to Illinois Steel Co. and Carnegie Steel Co., were the basic components in the consolidation that created United States Steel. This brought both the D&IR and DM&N under U.S. Steel ownership. The 1901 shipping season found D&IR serving 12 Mesabi Range and five Vermillion Range mines and DM&N serving nine Mesabi Range mines. Competitor Eastern Railroad of Minnesota (ERM), later absorbed by Great Northern, was serving 10 Mesabi Range mines. Initially D&IR and DM&N were operated as individual railroads. Slowly, cost savings and efficiencies were realized and operations started to be consolidated. From 1901 to 1914 when World War I began, both railroads continued to grow their traffic base with no financial concerns.

World War I broke out in Europe in 1914 and initially the U.S. maintained neutrality. Finally, in April 1917, the U.S. declared war on Germany. Almost immediately there was a dramatic traffic increase. Ore tonnage surged from 13,358,264 tons in 1914 to 33,334,925 tons in 1916. Nationwide traffic increased by 30 percent in 1916 and 43 percent in 1917, creating a national shortage of freight cars. Railroad labor unions by this time had an established foothold on railroad employment with the assistance of political support in Congress. The traffic increase, congestion and rapid inflation in 1916 and 1917 all contributed to the threat of a nationwide rail strike. Congress reacted quickly and created the United State Railroad Administration (USRA) on December 17, 1917, to operate the nation's railroads. This lasted for 28 months until March 1, 1920.

Major changes to DM&N during this period of time were the construction of all-steel ore Dock No. 6 in Duluth and for D&IR, the construction of the Wales Branch, which tapped rich timber resources north and east of Two Harbors. Under USRA control, D&IR rostered 5,718 steel ore cars during January 1919, of these, 1,698 were being used by sister road DM&N.

The depression of 1921 caused traffic levels to fall by over 50 percent. This rebounded back to normal levels in 1923. The Great Depression began on October 29, 1929 and bottomed out during the spring of 1933. Ore tonnage fell to 1,458,711 tons in 1932 and slowly increased to

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Duluth circa 1905. Visible in the right center foreground is a DM&N box car and a flat car converted to a gondola. (Shorpy Photo Archives)

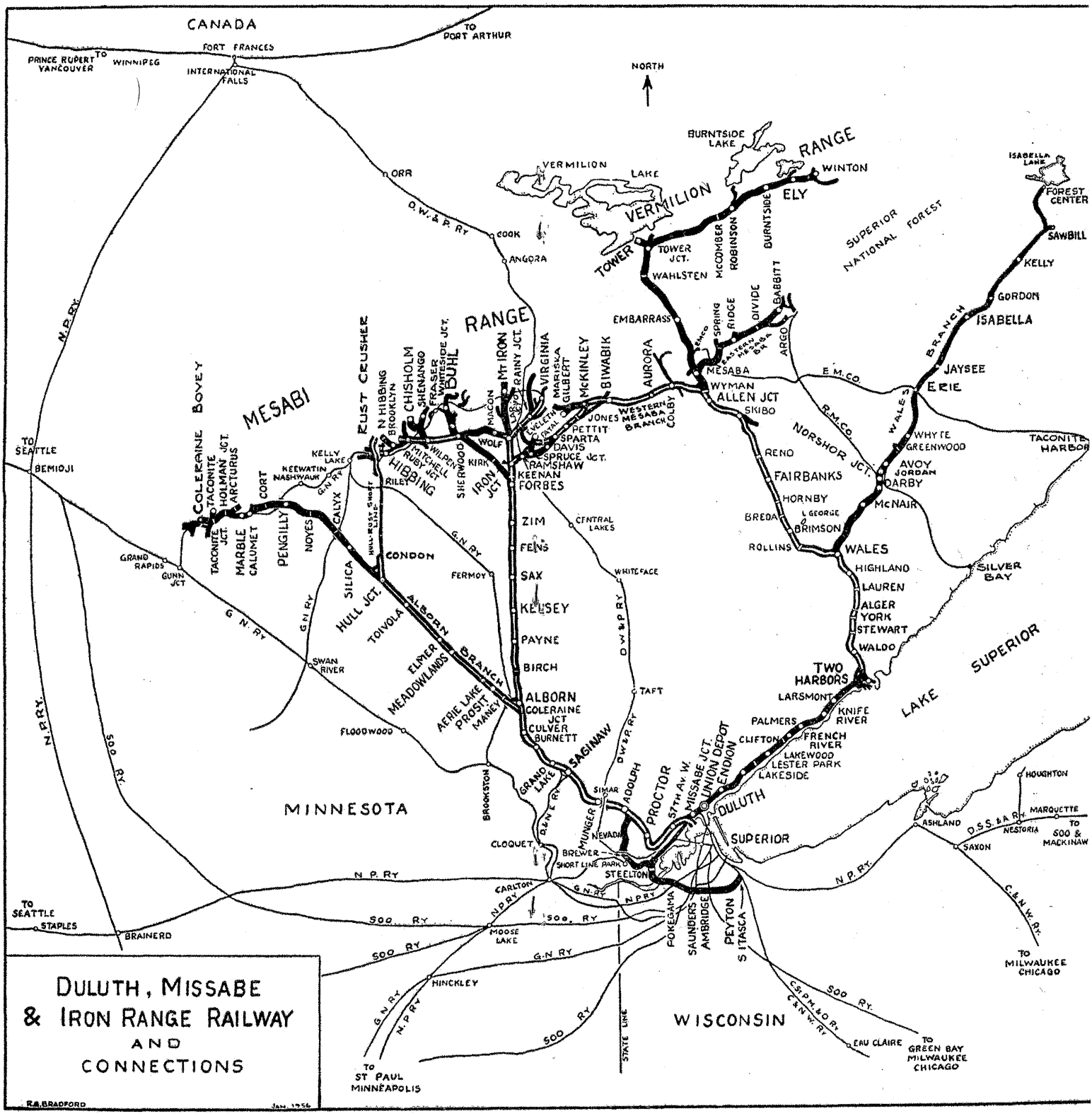
27,764,490 tons in 1937. Traffic levels in 1932 were so bad that no ore trains were operated with all ore traffic moving on local trains. Recovery began in earnest during 1938 and 1939 with ore tonnage reaching pre-Depression levels of 28,005,441 tons in 1940.

Management and operation of the DM&N and D&IR were unified in 1930 as the precursor to the eventual merger, with equipment accounting consolidated on February 1, 1930. The D&IR was a frugal railroad and used its extensive shop capacity at Two Harbors to continually build and rebuild equipment. Two Harbors built 388 cars, rebuilt over 1,500 cars, and purchased 6,220 new cars between 1901 and 1937. The DM&N had the shop capacity to build equipment but only built 153 cars between 1901 and 1937, instead purchasing 12,269 new cars.

Steel 50-ton ore cars had become the standard starting in 1899 on DM&N and 1900 on D&IR. Advances in freight car construction and design saw the introduction of 95- and 81-ton capacity ore cars in 1925 and 1928. Numerous car builders supplied these cars, which were sampled in small orders by DM&N and by 1937 the design had evolved to a 70-ton ore car which would become the standard for all future orders. DM&N would purchase 70-ton cars but D&IR, the weak sister, would not.

The Interstate Commerce Commission D&IR Lease, 158 ICC 373 was decided on

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DM&IR system map July, 1956. (D.P. Holbrook collection)

December 11, 1929. On January 10, 1930, all of the railroad property of the D&IR was leased to the DM&N. The *Official Railway Equipment Register* (ORER) began listing both owners equipment under the DM&N listing after this date.

The DM&N and the Spirit Lake Transfer railroad were merged in July 1, 1937, under DM&N Railway Co. consolidation, 221 ICC 539, to become the Duluth, Missabe & Iron Range (DM&IR).

ICC DMIR Docket 11763 for merger

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DM&IR 503, a Class E 2-10-2, is working an ore "sorter" job on June 16, 1959. Tied to its drawbar is 42758, a Class E11 50-ton ore car built in 1916 by Standard Steel Car as D&IR 12758. In the foreground is 33032 a Class U31 70-ton ore car built by American Car & Foundry in 1957. Note the "stencil group" letters located in the middle of side sills, "X" on 33032 and "D" on 42758. These groups were established in 1952 to allow easier identification of cars for air brake testing. In the background two EMD SD9s are preparing to depart with ore empties for the iron range. In a little over a year the last fires would be dropped on steam. (Bruce Meyer)

of DM&IR, the D&IR, and the Interstate Transfer Railway was submitted on November 30, 1937, and approved on December 28, 1937. On March 21, 1938, the D&IR and DM&IR were consolidated into the DM&IR. At the time of the merger the traffic base was 81 percent iron ore that was produced by Oliver Mining Co., nine percent by independent ore operators, and ten percent general freight. A small amount of ore was going to American Steel & Wire at Steelton, Minnesota. One of the main reasons for the merger was to allow a single line-haul movement of traffic for ore producers which were increasingly mixing ore from different mines on both railroads. Significant economies in operation included the joint use of equipment, ore docks and other facilities.

By 1937, the two carriers were serving four mines on the Vermillion and 36 on the Mesabi iron ranges. Total shipments for 1937 were 16,721,205 tons over the Duluth docks, 9,743,476 tons over the Two Harbors docks, and 40,484 tons all-rail to on-line and off-line customers. Many felt that the Depression was over, but this would prove to be a false recovery. The following year would find ore tonnages fall from 27,764,490 tons in 1937 to 8,265,732 tons in 1938. War fever would start to grip the nation in 1939 and ore tonnages soared through the 1940s.

POST-MERGER YEARS, 1938 UNTIL 1965

The economy continued to improve as the storm clouds in Europe began to affect America's industry. Production of planes, boats, tanks, and other munitions of war required continually increasing steel production. Even without the involvement of the United States, the war in Europe was creating a demand for the munitions of war. The bombing of Pearl Harbor caused the United States to enter World War II on December 8, 1941.

On January 1, 1942, World War II found the newly formed DM&IR with 11856 freight cars. Between 1939 and 1942 ore tonnage shipped more than doubled from 18,489,768 to 44,788,189 tons. DM&IR was not well situated for handling this increase of tonnage and needed additional 70-ton steel ore cars. The transportation of iron ore was declared by the War Production Board (WPB) as a necessity for winning the war. This allowed the DM&IR to receive 1,500 70-ton steel ore cars in 1942 and an additional 500 cars dur-

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Fifteen EMD SW9s were delivered in 1953. Good for switching but too light for road ore trains, they would all be off the roster by 1963. Shown is the Endion Transfer crew at the NP Rice's Point Yard, Duluth, Minnesota, on August 3, 1957 with SW9s 21 and 18, former D&IR caboose C-180 and ore cars loaded with coal. Note the raised brackets supporting early VHF radio antennas on the SW9s. (D.P. Holbrook collection)

ing 1943 to handle the swelling tonnage of ore. On January 1, 1946 a total of 12,088 ore cars were on the roster out of 13,602 total cars. Only 254 ore cars were retired during the war, a testament to the shops at Proctor and Two Harbors.

The war years took their toll on the older 50-ton ore cars and replacements were needed. From 1948 to 1957, 6,000 70-ton ore cars were acquired from four builders. All were identical in construction, with Enterprise bottom doors, and rode on ASF A-3 Ride Control trucks. They would become the standard ore car for the DM&IR. A total of 10,087 50-ton ore cars were on the roster in 1948 declining to 4,037 cars in 1957, a net reduction of almost 60 percent. Reduced ore shipping caused no 50-ton ore cars to be used in ore service during 1958. From 1959 to 1965 50-ton ore cars were stored and only placed in service during traffic surges. Eight years later in 1965 one 50-ton car remained. Except for work service, the 50-ton ore car era was over.

Economic changes on the iron ranges of Northern Minnesota began to have their effect on the DM&IR. The first diesels were delivered in 1956 and complete replacement of steam accomplished in 1960. Ore tonnages declined from 48,799,815 tons in 1951 to 18,418,952 tons in 1961. The DM&IR during 1953 was serving four mines on the Vermillion and 110 mines on the Mesabi iron ranges. This would decline to three mines on the Vermillion and 58 mines on the Mesabi iron ranges in 1963. Notable in 1953 were two plants, Erie Preliminary Plant operated by Pickands Mathers at Aurora, Minnesota and Pilotac operated by U.S. Steel at Virginia, Minnesota shipping taconite which would eventually replace natural ore.

High-grade iron ore was playing out and steel companies began to obtain ore from Canada, Venezuela and other foreign countries. This caused consolidation of all ore shipping at Duluth and the closing of Two Harbors ore docks in the spring of 1963. DM&IR began analyzing every expense and purchase, trying to remain profitable. Cutting costs became a primary management focus. Two Harbors ore docks would reopen in 1966 as taconite plants opened and lake shipping distances were shorter from Two Harbors versus Duluth.

Pulpwood shipments remained high during the 1950s, but the age of equipment was

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DM&IR Proctor Yard in 1959. From right to left we see two tracks containing empty ore cars assembled into departing trains. The third track begins with 21114, a Class U13 ore car built by Pullman Standard in 1925, with cast steel underframes supplied by General Steel Castings. The sixth car from the left is one of two cars, 23176 or 23177. The eighth car from the left is one of five cars, 23171–23175. All seven, with two different side sheet arrangements, were built as demonstrator 70-ton ore cars by Standard Steel Car in 1923 as STDX 171–177. DM&N would purchase and renumber them in 1931. The fifth track from bottom shows the first box car from left being 3151, a Class P1 box car built by Standard Steel car in 1951 as a single-door box car and rebuilt with a 12-foot door opening in 1910 for automobile service. The unique end platform coal hoppers in the background are from 50 Class Q2 cars in 4700–4749 series cars built by The Ryan Car Co. in 1937. (Basgen Photography, D.P. Holbrook collection)

Overleaf: Proctor, Minnesota, Yard on September 3, 1953 finds steam everywhere. 1953 was a watershed year for DM&IR with the first diesels—EMD SW9s—arriving, and the highest ore tonnage ever shipped, 49,317,625 tons, over DM&IR during the shipping season. Noteworthy in this photo is the string of gondolas; PRR, B&O, MILW, EJ&E and others, loaded with iron ore being shipped all-rail to an eastern destination. Note the loaded ore car in the bottom left corner with pooled water from "washed iron ore." (John Szwajkart)

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Caboose C-58 is at Rainy Junction Yard, Virginia, Minnesota, during July 1976 tied on to a string of loaded coal hoppers received from BN for movement to Minnesota Power & Light's Laskin power plant at Aurora, Minnesota. (George LaPray)

causing a rapid retirement of rack flats. No new flat cars or gondolas had been purchased since 1941. DM&IR had, for many years, requested empty cars from connecting carriers at Duluth to assist in car supply for pulpwood and steel loading. This caused the railroad to pay car hire and per-diem to foreign railroads for the use of their equipment, and the division of revenue was not covering the cost of these borrowing habits. A decision was made to purchase second-hand equipment to cover on-line loading that would allow DM&IR to earn per-diem when cars were off-line.

The first proposal in 1965 was to acquire second-hand: 150 rack-end gondolas for pulpwood, 50 billet gondolas for steel billet loading, 10 65-foot gondolas for reinforcing rod loading, two flat cars for moving mining equipment, and 100 open hoppers for coal shipments. All had been acted on by the late 1960s. This was followed in 1966 with purchase of 20 second-hand 50-foot box cars for wood chip and other loading. DM&IR had greatly reduced requests to connecting carriers to supply empties for everyday loading, reducing the daily per diem cost for using foreign-owned equipment.

By the late 1960s, the railroad had stemmed the flow of red ink.

THE TACONITE YEARS, 1964 UNTIL 2004

By the early 1960s, natural ore was beginning to play out. Additional sources of ore were needed to feed America's steel industry. During the 1930s and 1940s the University of Minnesota led efforts to find an economical method to extract iron from lower grade taconite rock. The first large scale efforts to process taconite using this new process were begun in 1949 by newly formed Erie Mining Co. This was a purpose-built plant and railroad between Hoyt Lakes, Minnesota, and docks at Taconite Harbor on Lake Superior. Followed quickly in October 1955, Reserve Mining Co. built a railroad between their mine at Babbitt, Minnesota, and a taconite plant and docks at Silver Bay on Lake Superior.

After two world wars, iron ore reserves in the Vermillion and Mesabi iron ranges, were declining and the Korean conflict would further deplete those reserves. The Vermillion Range ended shipments of ore with the clos-

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Crude taconite was shipped via rail from T-Bird North and T-Bird South loading pockets to the Fairlane pellet plant located at Forbes, Minnesota. Here a T-Bird crude ore train with rebuilt SD-M 310 is unloading at the Eveleth Taconite Plant at Forbes on September 27, 2001. (D.P. Holbrook)

ing of the Soudan Mine in 1962 and the remaining mines at Ely, Minnesota, in 1963. U.S. Steel began testing taconite processing methods during 1953 with the experimental Pilotac plant near Mountain Iron, Minnestoa and companion Extaca plant at Virginia, Minnesota. Pilotac was constructed for the concentration of low-grade taconite. This material was shipped to the Extaca plant at Virigina for additional processing into nodules and sinter.

Construction of a large-scale taconite plant was a huge investment and U.S. Steel was reluctant to invest until voters in Minnesota passed the Taconite Amendment to the state constitution in 1964. This gave critical tax relief to steel companies for taconite mining.

Two taconite plants quickly located on the DM&IR, Eveleth Taconite Co. (EVTAC) at Forbes, Minnesota, which shipped their first taconite pellets in 1965. This was quickly followed by U.S. Steel's Minntac plant at Mountain Iron, which shipped their first pellets in 1967. Ten year later, in 1977, Inland Steel built their Minorca plant near, served by DM&IR via trackage rights on Duluth, Winnipeg and Pacific.

Between 1967 and 1968 taconite shipments surpassed iron ore shipments. December 31, 1978, showed a total of 6,982 ore cars on the roster: 1,560 in mini-quad sets for taconite pellets, 280 assigned to T-Bird crude taconite service, 2,506 in natural ore service, 2,061

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DM&IR would acquire 20 rebuilt SD40-3s between 1996 and 1997 to replace SD9/18s and SDMs. Iron Junction, Minnesota, September 27, 2002, finds the Extra 419 North with Minorca empties meeting the Extra 406 South with Minntac pellets. Note the stylized University of Minnesota style "M" on the 419, introduced in late 1997. (D.P. Holbrook)

stored serviceable, 472 leased to other carriers and the remaining cars out of service for repairs. The natural iron ore era was coming to a close. The last natural ore was shipped in 2002.

Many of the early 70-ton ore cars were sold off to Lake Superior & Ishpeming, C&NW, Birmingham Southern, Bessemer & Lake Erie, U.S. Steel and other industrial concerns. Ownership of 70-ton ore cars went from 8822 in 1953 to 6685 in 1980. The newest ore cars were rebuilt as taconite cars to service the new taconite plants allowing DM&IR to service the taconite plants without spending additional money on new equipment. All-rail ore movements found DM&IR ore cars in Weirton, West Virginia, Birmingham, Alabama, Granite City, Illinois, Gary, Indiana, Pittsburgh, Pennsylvania and a host of other locations. Numerous railroads; PRR, GN, NP, CB&Q, ITC, MON, L&N, C&NW, EJ&E, SOO, MILW, PC, IHB and others hosted these movements. Leasing would find ore cars on RDG, N&W, ACL, NP, PRR, SCL, RI, SOO, MILW, EJ&E, LS&I, C&NW and other roads taking the cars from coast to coast.

U.S. Steel, owner of the DM&IR, changed their name to USX Corporation in 1986. The transportation division of USX was moved to a subsidiary company, Transtar, in early 1988 and in June 1988 the majority share of ownership would be sold to Blackstone Capital Partners who took over on December 28, 1988. Blackstone on March 23, 2001, placed DM&IR in a new company named Great Lakes Transportation that also owned, the B&LE Railroad, boats of the U.S.S. Great Lakes Fleet and the Pittsburgh and Conneaut Dock Co.

Through three major wars, the Great Depression, and the change from natural ore to taconite, the flood of ore would continue until present day, driving the economy of Northern Minnesota and the nation. The economics of size caught up with the DM&IR on May 10, 2004, when the railroad was acquired by the Canadian National. This is the story of the equipment used by the Duluth, Missabe and Iron Range Railroad up to 2004.

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MANUFACTURERS AND CAR SHOPS

NORTHWESTERN CAR & MANUFACTURING

The firm Seymour, Sabin and Co. was merged in February 1882 with the Northwestern Construction Co. and the name was changed in March 1882 to Northwestern Car & Manufacturing Co. A promotional brochure showed the company was incorporated May 1882 with $5,000,000 of capital for the manufacturer of threshers, portable and traction farm engines, freight and passenger cars. Prior to the merger George Seymour had secured contracts to construct buildings for the state prison at Stillwater, Minnesota, in 1861 and 1870 and contracted with prison officials to use prison labor to produce barrels.

In 1882 they constructed 1,500 threshing machines, 350 agricultural engines, 1,493 freight cars, and 51 baggage cars and cabooses. The plant was also manufacturing doors, blinds and office furniture. Twelve hundred men were employeed and sales during that year were $2,272,000. The plant was capable of building per day: 25 freight cars, 8 threshing machines, 4 farm engines and 20 farm wagons. By late 1883 the company ensured a continued supply of lumber for building railroad equipment by purchasing 20,000 acres of hardwood timber in Northern Wisconsin.

A major fire occurred on January 7, 1884, destroying the shops of the Northwestern Car & Manufacturing Co. The main shop—300 feet long, 75 feet wide and four stories high—was destroyed. On January 25, 1884, another fire broke out destroying one of the prison buildings, 350 feet long and 60 feet wide. By January 31st a decision was made to rebuild the shops.

Two million dollars in debt and near bankruptcy, on May 10, 1884, it was announced that E.S. Brown of the firm of Hersey, Bean and Brown had been appointed receiver of Northwestern Car & Manufacturing. Financial troubles continued and the company struggled along until early 1887.

A North-Western district court decided to order the sale of the Northwestern Car & Manufacturing at Stillwater, Minnesota, in August 1887 and gave six weeks notice when entering the order. The plant was to be sold by a referee to be appointed by the court. Price was set at $1 million.

It should be noted that sometime between June 1884 and October 1887 the name of the company was changed from Northwestern Car & Manufacturing to Northwestern Manufacturing & Car.

On November 2, 1887. the assets of the Northwestern Manufacturing & Car Co. were sold to Henry D. Hyde for $1,105,000. The final transfer was made on January 5, 1888, when the sale was confirmed and the company name was changed to Minnesota Thresher Manufacturing Co. The new company discontinued building of railroad equipment and concentrated on farming equipment.

Many D&IR equipment diagrams show builders as "Stillwater" or "Stillwater Manufacturing," the actual builder was Northwestern Car & Manufacturing.

DULUTH MANUFACTURING

The Minnesota Car Co. was organized in Duluth, Minnesota, on August 29, 1888. A freight car shop was constructed between 1888 and 1889 and placed into operation in October 1889. The facility was located in West Duluth at Redruth and 55th Avenue West and consisted of four heating furnaces, five Smith gas producers, one 2,500-pound and one 60,000-pound pad hammer, one 10- and one 18-inch train of rolls. Products produced included bar iron, railroad fasteners, railroad axles and other forgings. Annual capacity of 12,000 tons of rolled iron and 5,000 tons of forgings. The de-

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Duluth Manufacturing Co manufactured railroad equipment at West Duluth, Minnesota, from August 1891 until 1897 when plant was closed. D&IR and DM&N both purchased equipment from this builder. Photo circa mid. 1890s. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S2421 Box 5 Folder 7)

sign of the plant allowed for the construction of 15 standard cars or 18 flats and gondolas per day. The general arrangement of the plant included a 58 x 362-foot paint shop with a capacity of 25 cars, an erecting shop, a planing mill, and a machine shop of 97 x 527 feet, one half of which had a capacity of 20 cars. The plant foundry had a capacity of 100 wheels per day. Power for the plant was furnished by two Corliss engines of 250 and 500 horsepower. When the plant was in full operation it employed 1,000 people. Principal officers of the company were President John F.T. Anderson, Superintendent, George H. White and General Manager, William E. Tanner.

In October 1889 Minnesota Iron Car Co. was incorporated as the successor to Minnesota Car Co. The property of Iron Car Co. failed in May 1890 for non-payment of a note for $50,000 and liabilities of $165,000. The Minnesota Iron Car Co. was also involved in the failure. An amicable agreement was worked out amongst creditors to reorganize the company over three months to a year. *Railway Age* reported on September 26, 1890, that the reorganized shops of Minnesota Iron Car Co. were running by October 1, 1890. At that time it was reported that they would be working on an order for 1,500 cars for the Iron Car Equipment Co. During August 1891 it was reported that the plant was sold to Duluth Manufacturing Co.

Duluth Manufacturing became a very busy car builder by March of 1892. At that time they were employing 450 men and building 25 iron cars for the Knoxville, Cumberland Gap

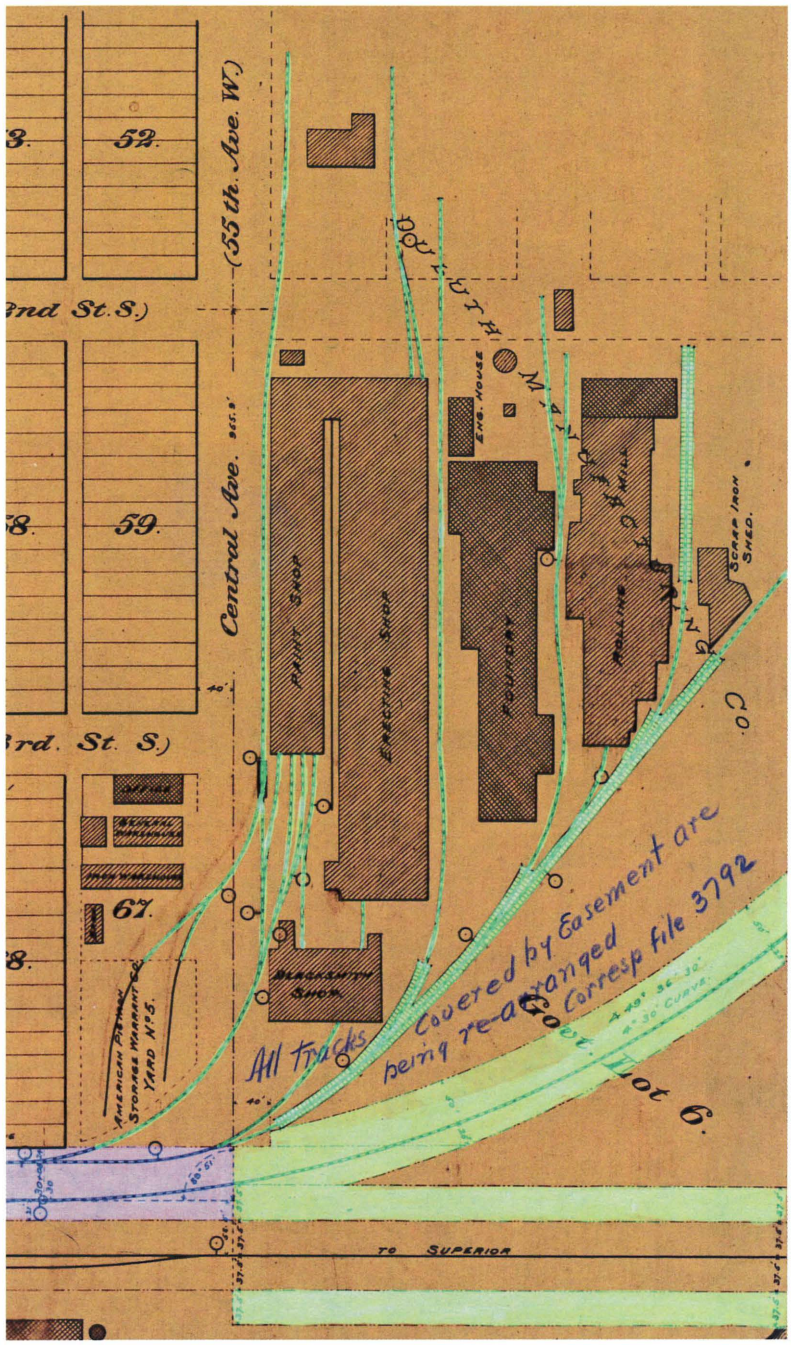
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and Louisville, 300 25-ton 34-foot box cars for the Lake Erie & Western and six cabooses for the Duluth & Iron Range.

By July 1892, 500 men were employed with the following orders being reported: 100 iron box cars for the Chicago, Hamilton & Dayton, 200 ore cars, 50 flat cars, 10 box cars, 50 logging cars and 6 cabooses for the Duluth, Missabe & Northern, 200 ore cars, 50 flat cars, 10 box cars and 6 cabooses for the Duluth and Winnipeg. Orders were also being filled for 50 log cars for Cranberry Lumber Co., 60 log cars for Mitchell & McClure and 22 log cars for Merritt & Ring. They also had contracts for cast and wrought iron work for several bridges and were selling large numbers of wheels. In August 1895 the Minneapolis & St.Louis ordered 200 box cars. Production of freight cars continued until 1897 when the company was closed.

It was reported in *Railway Age* on November 5, 1897, that Duluth, Missabe & Northern was considering purchasing the plant. This never took place.

By 1897, the New Jersey charter for Duluth Manufacturing was void for unpaid back taxes. The property sat idle from 1896 until 1899 when it was purchased by John E. Searles of New York, who was president of American Cotton Co., but he was unsuccessful in reviving steel production. In later years this site was occupied by American Carbolite Co.



Duluth Transfer Co. map of Duluth Manufacturing Co. at West Duluth, Minnesota, (MRHS Collection)

TWO HARBORS SHOPS

Initially, the D&IR, when constructed, had no outside rail connections and all equipment arrived at Two Harbors by barge. This landlocked situation caused D&IR to quickly construct roundhouse and shop facilities at Two Harbors that would allow maintenance, rebuilding and construction of equipment. Two Harbors shop was unique in that cars spotted at the west end of the building could be moved by gravity through the car shop and when completed gravity could be used to allow cars to roll from the shop facility into the empty yard across from Two Harbors depot.

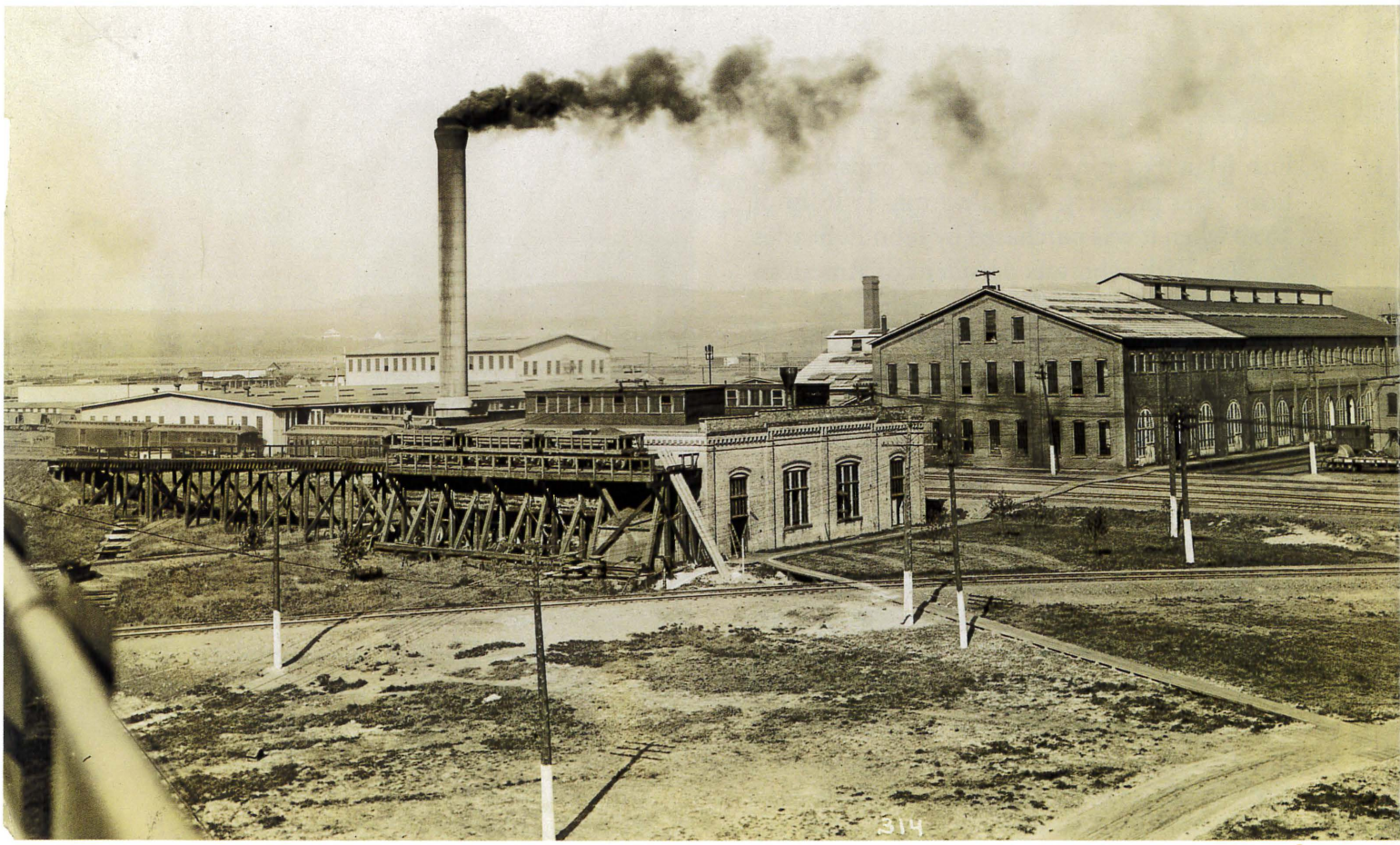
The first rebuilding of equipment took place here in 1884 when six of the combination flat cars delivered in 1883 were rebuilt to boxcars. Additional flat car-to-box car conversions took place with four more rebuilds in 1885, two in 1886 and two more in 1887.

During 1887 Two Harbors constructed five 25-ton 36-foot flat cars, 45 24-ton 36-foot flat cars and 25 20-ton 34-foot flat cars. Traffic continued to increase and Two Harbors built

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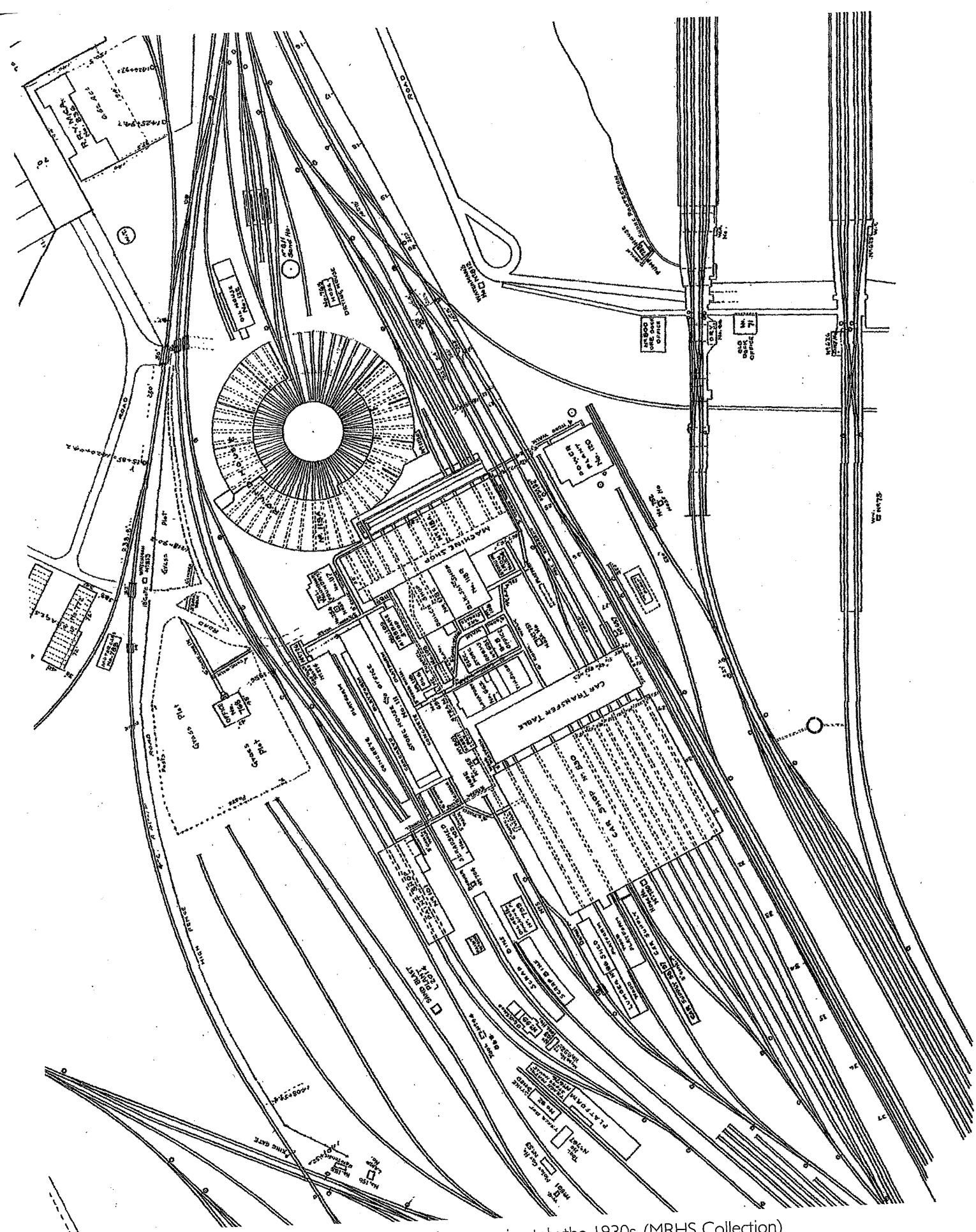


D&IR Two Harbors, Minnesota, roundhouse with car shops at left about 1910. Note the string of early 50-ton steel ore cars. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections)



Two Harbors car shops and power plant about 1910. Note the three wood ore cars loaded with coal at the power plant. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections)

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D&IR Two Harbors Shop map in approximately the 1930s. (MRHS Collection)

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12 4-wheel cabooses C22–C29 and C35–C38 in 1888.

Railway Age announced on September 13, 1895, that D&IR had contracted with Barnett & Record of Minneapolis to add 23 stalls to the 33-stall Two Harbors roundhouse and further enlarge the shop complex at Two Harbors.

The need for additional box cars caused Two Harbors to rebuild, during 1897 and 1898, 12 additional flat cars to box cars. These were followed in 1899 by an additional 40 30-ton 36-foot flat cars

As logging in Minnesota increased, the D&IR found the need for log cars for hauling cut old-growth timber. Initially they built 50 30-ton 36-foot flat cars in 1900 without trucks. These were classified as "bunker flats" on equipment lists and equipped with chains for log loading. During the winter months trucks off stored wood ore cars were used to place these cars in service. Many of the logging railroads in Northern Minnesota had started to use 22-foot Russell-type log cars to haul logs. Taking notice, D&IR between 1901 and 1910 constructed a fleet of eventually 320 of these cars which were based on the Russell design. The first of these cars were rebuilt from retired wooden ore cars.

Between 1901 and 1905 Two Harbors rebuilt five box cars into stock cars. An additional eight 24-ton 34-foot box cars were constructed in 1904 and numbered 5138–5152(2nd). The need for additional flat cars to haul finished lumber created the need to build 50 additional 36-foot flat cars during the winter of 1905-06. Stock cars X5134–X5136 were rebuilt from 34-foot to 36-foot cars with the capacity changed from 1,865 cu. ft. to 2,358 cu. ft.

Additional cabooses 61–63 were built at Two Harbors in 1905, followed quickly by 64–68 and 83–84 built in 1906, and 80–81 rebuilt at Two Harbors in 1907. During 1905 Two Harbors also built for DM&N 4-wheel cabooses 27–41. These were followed in 1907 by cabooses 42–58 for DM&N. Cabooses 68–70 and 86–87 were built in 1908. Also during the 1908 shop program, D&IR rebuilt 39 36-foot flat cars to 36-foot box cars.

The 50 remaining 4-wheel cabooses were rebuilt during 1909 and 1910 to 8-wheel cabooses and the length changed from 20-feet 8-inches to 31-foot. The updating of the caboose fleet was now complete and Two Harbors returned to building and rebuilding in 1910. Ten 32-foot box cars from the 5150–5172 series were rebuilt to oil cars for the transportation of barrels of oil. This conversion created a car very similar to D&IR stock cars with an open area for ventilation at the top of the car. An additional 50 30-ton 36-foot "bunker flats" were constructed in 1910.

No additional cars were built between 1910 and 1918 but numerous rebuilding projects took place. Replacing wooden underframes with new steel center sills became a priority. Steel center sills were applied to automobile cars 5200 in 1910 and 5202 in 1912. Steel center sills were applied to box cars 5000–5120 during 1913, 5124–5220 and 5264–5340 during 1914.

Gondolas 6100–6124 originally built in 1907, were rebuilt with drop-bottom doors in 1914. Deteriorated ends and roofs were replaced by Murphy steel roofs and ends during 1914 on refrigerator cars 8000–8021. Delivered in 1916, 77 flat cars in series 6180–6279 were rebuilt with wooden gondola sides and ends. Two years later 14 of these cars were rebuilt again with steel gondola sides and ends. Two additional gondolas from the 6125–6179 were rebuilt with steel sides and ends during 1922. The remaining 53 cars in the 6125–6179 series were rebuilt in 1929 with wooden gondola sides and ends.

Appropriation 531 for $236,192.70 was approved in 1916 for construction of new shop facilities at Two Harbors. This included a "new" car repair shop and transfer table, new paint shop, converting existing steel car and tank shop into a two-story mill, carpenter, tin and pipe shop.

During 1916 the shops focused on rebuild-

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ing 100 of the 20-foot Russell-type log cars by reinforcing the underframes with pieces of used 60-pound rail and the application of pulpwood racks on all 100 cars. This was caused by the declining logging of old-growth timber and heavier shipping of pulpwood. Beginning in 1914 and completed by 1917, was the rebuilding of 47 flat cars with steel center sills.

Just before USRA took control of D&IR and DM&N, the shops at Two Harbors built ten 40-ton 37-foot refrigerator cars 8032–8041 in 1918. These would be the last "new" built cars at Two Harbors and after USRA control was relinquished, the shops would stick to rebuilding equipment.

Beginning on June 4, 1919, under AFE 54, 73 50-ton ore cars from series 3900–4399, 13 gondolas cars from 201–235 series and 14 from 251–310 series had the common wheel-type hand brake lever replaced with Blackall Ratchet brake levers. The Blackall Ratchet brake levers were unsuccessful and were all removed during June 1926. Also during 1919, Murphy metal roofs began to replace wood roofs on 5000–5340 series box cars. Murphy roofs were applied to 14 box cars in 1923, 15 box cars in 1924 and 10 box cars in 1925.

Experimenting with hand brakes, nine steel ore cars from 3450–9699 series were equipped with Klasing hand brakes during November 1920. Six box cars, one gondola and three flat cars were equipped with Universal hand brakes late in 1922. Between February 20, 1924, and May 31, 1924, 25 gondolas from 201–260 series had the wheel-type handbrakes replaced with Universal hand brakes.

Caboose 89 was rebuilt at Two Harbors in 1920. During 1922 box car 5216 was rebuilt to an automobile car. Wooden brake steps on 4400 and 9000 series 50-ton ore cars had deteriorated and 108 cars had these steps replaced with Irving Subway brake steps during December 1925 and January 1926.

During the winter shopping program of 1927-28, 28 Class E ore cars were rebuilt with longitudinal doors and 10-inch side extensions to increase cubic capacity and unloading speed. This project was not successful enough to be repeated. Previously rebuilt to drop side gondolas, 6100–6124, were converted to solid side gondolas in 1931.

From 1931 until 1964 Two Harbors shop continued to rebuild equipment. After World War II shop functions with Proctor were reorganized. Proctor became the primary ore car facility with remaining merchandise, passenger, and caboose equipment being shopped at Two Harbors. Notably in 1952 the shop rebuilt Class U21 ore car 25600 with new doors with a tire attached on the outside edge to operate the doors. This was the test car for Erie Mining's purposed automated dumping system on their new Taconite Harbor ore dock.

The economies of joint operation and the declining shipments of ore caused the roundhouse, engine terminal and office buildings at Two Harbors to be sold on August 11, 1964, to Universal Fiberglass Corp. for establishment of a plant for the production of fiberglass articles, such as replacement automobile fenders. Final removal of machines from the Two Harbors car shop was started on May 1, 1964 and completed in July. Effective July 10, 1964, the car shop at Two Harbors was closed.

Even with the closing of the shop, DM&IR continued to utilize Two Harbors for rebuilding equipment. The late 1960s found Proctor with a full heavy repair schedule when 200 secondhand gondolas were purchased from EJ&E. Cars required rebuilding and the application of end extensions for pulpwood service. A temporary outdoor production line rebuilding area was established at Two Harbors at the site of the old coal docks adjacent to the Two Harbors depot. The cars had reinforced draft sills and body bolsters applied, drop ends welded in upright position and new end extensions applied. Rebuilding of cars was started in October 1969 and lasted until December 1970. This same location was used starting in 1971 for rebuilding Class Q open hoppers. Offset sides, slope sheets and hopper bottoms

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DM&N Proctor, Minnesota car shop interior in 1918. Note the Whiting overhead crane lifting up an entire 50-ton ore car. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections)

from these cars were removed and loaded as scrap into gondolas. The remaining ends and center sill had new ribbed bodies, slope sheets and hopper bottoms installed.

DM&N PROCTOR SHOPS

Not as prolific as Two Harbors, DM&N, being the stronger of the two carriers, normally purchased new equipment when needed. Initially the shops involved themselves with rebuilding equipment. Beginning in 1903 Proctor started building complete cars.

Three box cars were rebuilt to refrigerator cars in 1894 and one additional in 1895. One was destroyed in 1896 and the other three were rebuilt at Proctor back to box cars in 1905.

Needing an official car for the owners, Proctor rebuilt Class I caboose 13 to an official car 99 in August 1898. Car 99 would have number removed and be named *Olivette* in March 1907.

Strapped for cash, DM&N purchased 20 25-ton 34-foot box cars from Armour Refrigerator Line (ARL) in 1899 and numbered them 3043–3062. Two cars 3046 and 3062 were rebuilt to stock cars at Proctor Shops and given an "S" prefix to identify them as stock cars. Two additional stock cars were purchased from ARL in 1900 and numbered 4000 and 4001.

From 1899 to 1903, nine wooden ore cars of various classes were rebuilt from 25-ton to 35-ton capacity. The expansion of iron ore production on the Mesabi iron range was occurring so quickly DM&N could not order enough 50-ton steel ore cars to keep up with

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Aerial photo of DM&IR car shops at Proctor, MN taken during the 1960s. (D.P. Holbrook collection)

the demand. Unable to purchase new steel ore cars quick enough to fulfill the increasing ore shipments, DM&N rebuilt the newest 1,700 wooden ore cars, 6000–7699 from 1905 to 1907, allowing them to be used for another 10 years, while new 50-ton steel ore cars were acquired.

During 1903 Proctor Shops built 50 30-ton 36-foot flat cars numbered 2229–2279 which were quickly followed by 100 identical flatcars in 1905 numbered 2280–2379.

Two automobile cars numbered 100 and 101 were constructed in 1905 and then quickly renumbered to 3073 and 3074 during the summer of 1905.

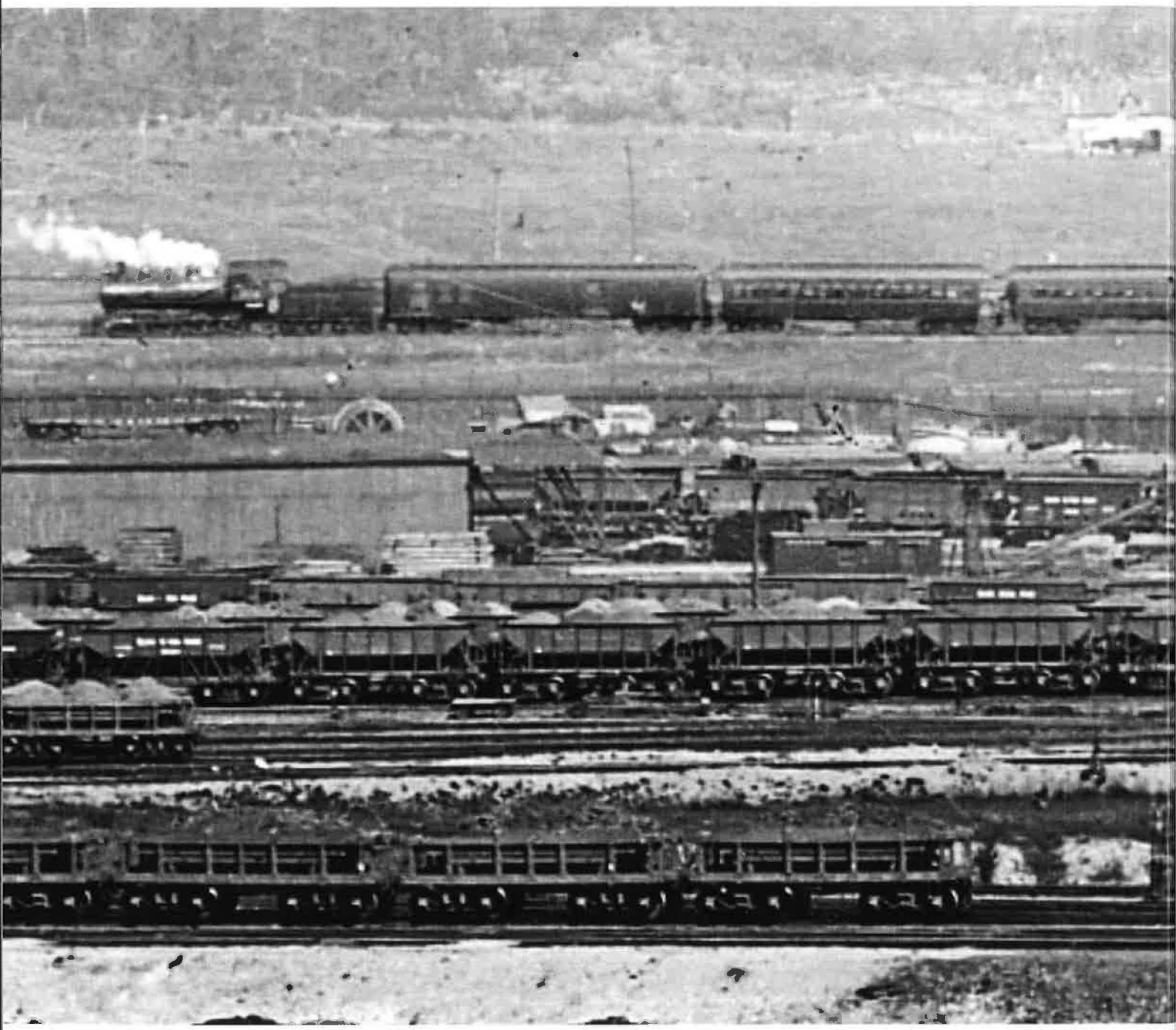
Returning to rebuilding, 12 box cars were rebuilt to oil cars between 1907 and 1908

During 1910 and 1911 all 50 4-wheel cabooses were rebuilt at Proctor to 8-wheel cabooses. Three new 36-foot center cupola side door cabooses were built at Proctor, one each in 1911, 1912 and 1913 numbered 59–61. New cabooses were built at Proctor over many years. Two in August 1918, six in 1923, seven 70-76 in 1924 and one additional identical car 77 built in 1926. This would end new construction of cars at Proctor.

After the merger, Proctor became the primary ore car shop and Two Harbors was used as the merchandise car shop. Proctor continued to rebuild equipment from 1924 until 2004 and became the primary DM&IR shop in 1964 when Two Harbors car shop closed.

The three through tracks in the car shop provided space for repairing 36 cars inside. During fall of 1974 the north end of the car shop had black top installed allowing outdoor space for holding 65 ore cars. ■

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This view of the Duluth & Iron RangeTwo Harbors, Minnesota, yard and shops in 1915 shows a mix of wood and steel ore cars in the foreground. In the background is a passenger train with, from left to right, Baggage-RPO either 2nd 8 or 2nd 9, and two coaches, either 12, 13 or 14. (University of Minnesota Duluth, Kathryn A. Martin Library Archives Special Collection)

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CHAPTER TWO
DULUTH & IRON RANGE
ROLLING STOCK

Before delving into the extensive rosters connected with the Duluth, Missabe & Iron Range, it is necessary to lay a little ground work on car classification, general renumberings, jointly-ordered equipment and the development of the ore car itself, which was at the heart of the fleet.

DULUTH & IRON RANGE CAR CLASSES

The D&IR did not begin to apply car class letters until 1910, when drawings began to show car classes. Starting in January 1911, the Recapitulation of Equipment lists the D&IR compiled each year showed car classes in the summary for ore cars. Class C and D was for "slow-dumping" ore cars and Class E for fast dumping ore cars equipped with newer longitudinal bottom doors. By the time the 1929 D&IR diagram book was issued, car classes started to be applied to most D&IR equipment. By this time, the DM&N, who had started using car classes in the 1895 diagram book—possibly before—and the D&IR, had begun to combine

D&IR Car Classes

Class	*Type of car*
A	
B	
C	Steel slow dump ore cars: 3050–3399
D	Steel slow dump ore cars: 3400–4899 and 9000–9699
E	Steel fast dump ore cars: 9700–12499 and 3049 (former Summers 101)
F	Box Cars
G	Steel underframe Gondolas
H	Gondolas
I	36ft Flat Cars
J	
K	Pulpwood Flat Cars
L	

Class	*Type of car*
M	Stock Cars
N	Oil Cars
O	
P	
Q	
R	Refrigerator Cars
S	Automobile Cars
T	
U	
V	
W	
X	
Y	
X	

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operations and mechanical department functions under the U.S. Steel umbrella.

Starting in 1931, numbers began to be added to the letters to denote specific groups of cars. The 1951 diagram book still shows no car class series assigned to former D&IR cabooses and passenger cars.

DM&N Car Classes

A	Official (Business) Cars
B	Passenger Cars
C	Passenger Cars
D	Combination Passenger Cars
E	Baggage-Mail Cars
F	Baggage Cars
G	Four-wheel wood Caboose
H	Eight-wheel wood Caboose
I	Eight-wheel wood Caboose. After 1899 Class I was assigned to stock cars
J	Refrigerator cars
K	Refrigerator cars. After 1907 Class K was assigned to stock cars. After DM&IR merger Class K assigned to former D&IR cabooses
L	Box Cars
M	Box Cars
N	Box Cars
O	Wood Ore Cars. After 1905 Class O was assigned to vehicle cars 3073, 3074
P	Wood Ore Cars. After 1906 Class P was assigned to 40-foot box cars and also used for stock cars
Q	Hart Convertible and open and covered Hoppers
R	Wood Ore Cars
S	Wood Ore Cars
T	Wood Ore Cars
U	Steel Ore Cars
V	36-foot Flat Cars. Starting in 1941 with Class V2, V was also assigned to gondolas
W	34-foot Flat Cars
X	Phelan Flat cars
Y	Flat cars
Z	

Beginning with 1903 car orders, Class N1 boxcars 3063–3072 and Class U1 steel ore cars 8005–8354, a number started to be added to the Class "letter" so succeeding car orders had distinctive class letter and number.

All DM&N and D&IR equipment retained their car classes when merged into DM&IR, with the following exceptions:

D&IR Car Class to DM&IR Car Class

D&IR Class I flat cars	5543–584 to DM&IR Class K 5543–5841
D&IR Class I flat cars	6000–6099 to DM&IR Class K1 6000–6099
D&IR Class G gondolas	6100–6179 to DM&IR Class G1 6100–6179
D&IR Class I flat cars	6180–6304 to DM&IR Class K2 6180–6304
D&IR Class I flat cars	6305–6306 to DM&IR Class K3 6305–6306

This created a conflict with Class H1 and G1 already being used for cabooses on DM&N and Class K through K3 also being used for former D&IR cabooses, but apparently this was overlooked. Freight cars were stenciled with the Class letter and number but cabooses and passenger cars were not.

DULUTH & IRON RANGE 1887 AND 1896 RENUMBERINGS

Two major re-numberings of early D&IR equipment took place between 1884 and 1896.

The first D&IR equipment delivered was 30 combination flat cars. All were ordered from Northwestern Car & Manufacturing and delivered in 1883. No documents have been found to support the numbering of this equipment when delivered. A photo taken at Ely, Minnesota, in 1884 shows a flat car, three box cars, a combination car and one early ore car, with the box cars having two-digit numbers. The number on the end of one of the box cars is 68. Records indicate that in 1884 six of the 30 combination flat cars had been rebuilt into box cars. This process would continue with four more rebuilds in 1885, two in 1886 and two more in 1887. The first cabooses were delivered in 1884 and numbered from 21 through 38. It appears that revenue freight cars, other than

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ore cars, delivered before 1888 were numbered between 39 and 250, below the 1884-built wood ore cars 251–550.

The first renumbering of this equipment was to place all box cars in a 2200 series with even numbers only and flat cars in the same 2200 series, odd numbers only, and coal cars in a 2000 series. It appears this coincided with the equipping of these cars with air brakes and took place between 1887 and 1888. Ore cars were not renumbered. According to ICC records, the D&IR was the first railroad in the United States to fully equip all of their equipment with air brakes in 1888.

During 1896 and early 1897, another renumbering occurred, possibly as a result of cars having their link and pin couplers replaced with automatic couplers. The 5000-series numbers were chosen to free up the number series from 1999 up for additional ore cars. This placed following orders of ore cars in one continuous number series. Renumbering was as follows:

Coal, side dump	2000–2014 to 236–250
Box cars (even)	2200–2226 to 5122–5132 and 5138–5152 (even)
Stock cars (even)	X2248, X2250 to X5134 and X5136 (even)
Box cars (even)	2228–2302 to 5050–5120 (even)
Flat cars (odd)	2201–2211 to 5001–5011 (odd)
Flat cars (odd)	2213–2259 rebuilt to box cars in 2200–2226 series before 1895
Flat cars (odd)	2261–2269 to 5053–5061 (odd)
Flat cars (odd)	2271–2359 to 5063–5145 (odd)
Flat cars (odd)	2361–2409 to 5013–5051 (odd)
Flat cars (odd)	2411–2809 to 5147–5541 (odd)

This freed up the number series between 2000 and 4999 to number the ore cars.

The renumbering was accomplished during 1896 and early 1897. Both renumberings would have been to make it easier for operating department employees to determine, by car number, if a car had hand brakes only, automatic air brakes, link and pin couplers or automatic couplers. Box cars, flat cars, and coal cars remained in service during winter months making the renumbering necessary for easy identification. Ore cars would not have been renumbered, because the shops at Two Harbors would have concentrated on making these conversions during the winter months when mines were not shipping.

By 1906, the series for ore cars was filled up to 4899 and the next group of ore cars delivered in 1907, 9000–9699 were numbered above the highest-numbered refrigerator cars which occupied the 8000 series.

D&IR AND DM&N RENUMBERING TO DM&IR

The initially application for the consolidation of the D&IR and DM&N was made to the ICC during July 1929. Various conflicts existed between D&IR and DM&N freight car numbers. The first cars renumbered were DM&N refrigerator cars 5034–5058 which were renumbered to 7034–7058 to avoid D&IR boxcars in the 5000 series. This renumbering took place starting in May, 1931 and was completed November, 1931, keeping their DM&N reporting marks.

The lease of the D&IR by the DM&N was approved on January 10, 1930, but the first cars began to be renumbered and receive DMIR reporting marks on August 21, 1937. Recap of equipment reports for both railroads were consolidated by 1934. The actual merger was approved on March 21, 1938.

The merged carriers equipment retained their numbers when re-stenciled DM&IR, but a handful of D&IR cars requiring renumbering. The 8000-series D&IR refrigerator cars were placed in the 7100 series. This placed all refrigerator cars of the combined roads between 7000–7140 numbers. D&IR GS-type gondolas 201–235 and 251–310 were renumbered by placing a "4" in front of the current D&IR numbers. For example, D&IR 201 became DM&IR 4201. All D&IR ore cars conflicted with numbers assigned to DM&N equipment. All D&IR

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ore cars with 4-digit numbers: 3900 to 4399, 4400 to 4899 and 9000 to 9699 were renumbered by placing a "3" in front of their D&IR numbers. For example, D&IR 9000 became DM&IR 39000. All D&IR ore cars with 5-digit numbers: 10500 to 11249, 11250 to 11399, 11500 to 12299, 12300 to 12749 and 12750 to 13249 were renumbered by replacing the "1" with a "4". For example, D&IR 11500 became DM&IR 41500.

As late as 1957, there were still D&IR freight cars that had not been changed to DM&IR. By early 1959 all cars remaining from the merger of the two roads had been restenciled and renumbered.

JOINTLY ORDERED EQUIPMENT

After the 1901 takeover of both properties by U.S. Steel, equipment buying remained the same, with both railroads operating independently based on need except for the purchasing of 50-ton steel ore cars. The economics of scale and the need to replace the large wood ore car fleets caused them to place joint orders for the same type of 50-ton cars from various builders, beginning with 1903 order from Pressed Steel Car for 800 50-ton cars being split 350 to DM&N and 450 to D&IR. These buying practices would continue until 1911 with the purchase of 10 Rakowsky 50-ton ore cars, five for DM&N and five for D&IR. After 1911, with U.S. Steel under much scrutiny by the government as a monopoly, the buying habits returned to more independent and non-joint purchases.

It is interesting to note that with the 1910 orders it appears that U.S. Steel began to set aside blocks of numbers to renumber D&IR equipment with the same type and builder with DM&N equipment. Blocks of numbers were set aside in 1910 for D&IR equipment and any additional equipment orders from the same builders to be grouped in one number series. AC&F equipment was assigned 12000–13999, Western Steel Car and Foundry 14000–15999 and Standard Steel Car 16000–17999. This thought process was short lived and by 1911 individual allocation of numbers without regard to D&IR or DM&N ownership continued. This resulted in the DM&N 13000–13999 and 17000–17999 series never being utilized for equipment numbering. The one exception was the 1913 order for 1500 50-ton ore cars that was placed in the 14500–15499 series grouped with identical cars in the 14000–14149 series, but apparently as an afterthought. This kept the same builder within this series.

Joint ordering of equipment was not restricted to freight cars. Both roads in 1908 jointly ordered baggage cars from ACF.

THE NEED FOR SPEED

Shipments of iron ore increased from 7.5 million tons in 1899 to over 21.5 million tons in 1907. Mines had the ability to ship as fast as headframes and shovels could load. Steel mills could store in stockpiles and use ore at whatever rate was needed. Loading and unloading the lake carriers was the sticking point in the movement of iron ore. Beginning in early 1907 the process became a focal point for improved productivity.

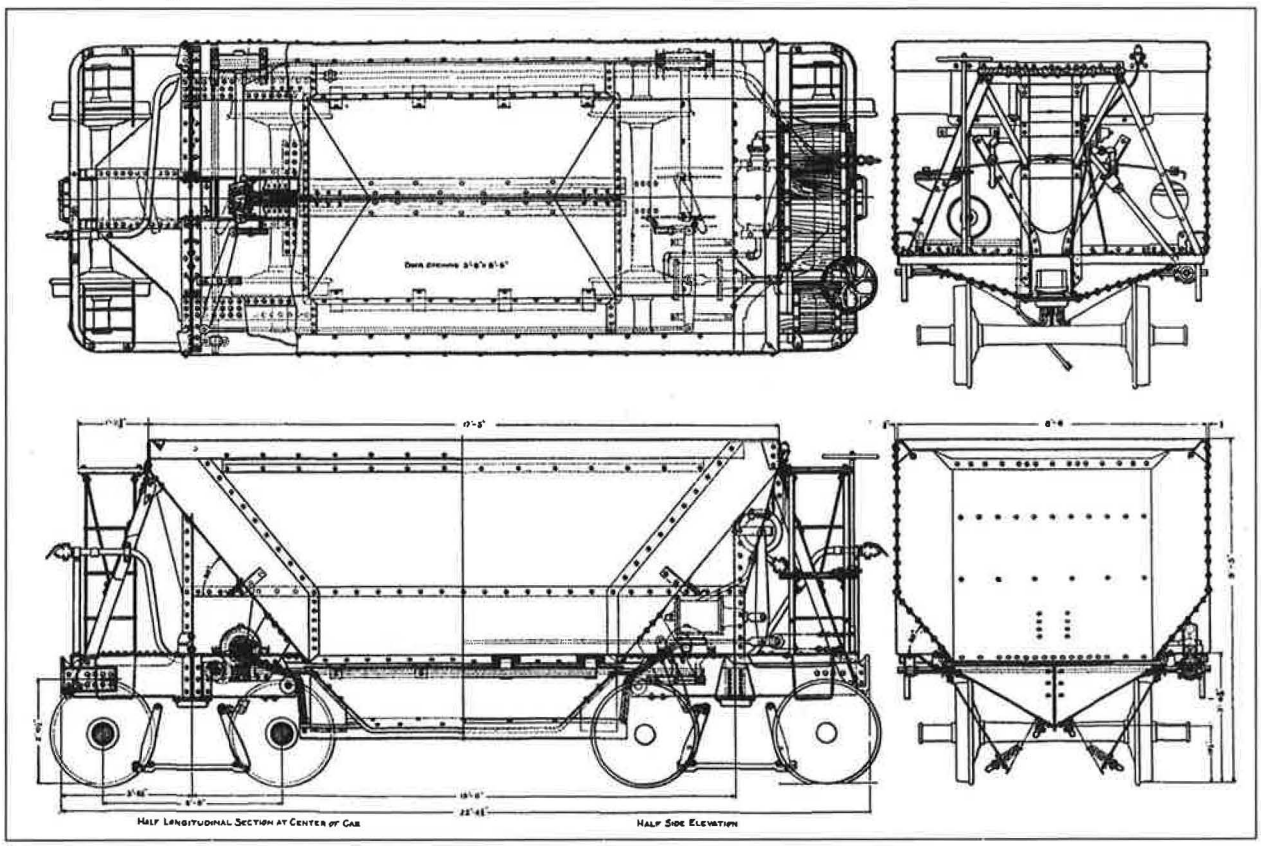
Original wood and steel ore cars had 4 small transverse drop doors, causing iron ore railroads to employ "punchers" to poke the sticky ore by standing on end platforms and poking at the ore with long poles to get the ore to flow out of the car into ore dock pockets. During the summer it took an average of 15 to 20 minutes to empty each car utilizing six men on each carload. Besides being a slow and labor-intensive process it also placed employees in harm's way with the possibility of falling off an ore car or worse yet, into a dock pocket. In the summer the computed cost of labor in unloading was 0.75 cents per ton and during freezing periods it increased to 2 cents or upwards of 5 cents for cars having sticky frozen ore.

The earliest efforts to increase speed were

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the development of large longitudinal door openings. Two of the earliest developers of these doors were the Summers Car Co., which had a drop-bottom which separated longitudinally, and the Clark Car Co., which had a door which would slide on rollers. Charles H. Clark, president of Clark Car Co., developed the Summers type ore car while working as an engineer for the Summers Steel Car Co. He left Summers in 1907 and was involved in organizing Clark Car Co. with his newly developed Clark doors. Both were dropped or raised by hand as in a standard car and took from two to three minutes to open and close.

The first Summers self-clearing ore car, Number 101, was tested beginning in the spring of 1908, when it was placed in experimental service on the Duluth and Iron Range. This car would later be purchased by the D&IR and renumbered 3049 in 1914. Before this car arrived the wooden and steel ore cars had a 45-degree hopper slope and two bottom door openings 42-inch wide by 38-inch long, a total of 11.2 square feet. These small openings prevented the clear, unassisted dumping of ore on the docks. Car No. 101 had a single bottom door opening of 5-foot 6-inch by 8-foot 6-inch square for a total of 40 square feet. When the doors were open they had a 50-degree inclination that matched the 50-degree slope sheet inclination. This large door opening, both transversely and longitudinally had the effect of breaking the bridging effect of the ore causing it to flow easily out of the car. Worm gears on the door opening mechanism allowed the operator to open the doors slowly to any angle desired to prevent the ore from dropping out all at once which might cause damage to the ore dock. The tests proved successful and the D&IR ordered 800 cars numbered 9700–10499 that were placed in service in the spring of 1909. A number of loading records were established with the new cars including the loading of 9,311 tons of ore in 39 minutes into the steamer *William E. Corey* at Two Harbors on October 10, 1909.



Plan and Elevations Summers Ore Car – DIR 9700-10499. (D.P. Holbrook collection)

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The Clark Car Company, which was organized in 1907, developed the first balanced-door ore car and delivered the first of these cars to the DM&N in 1909. As mentioned, the car was developed by Charles H. Clark, while he was an engineer for Summers Steel Car Company.

During the spring of 1909 DM&N President W.A. McGonagle invited various car companies to a competitive test of their respective cars on the DM&N. The following cars were supplied for testing:

Ore Cars Dumping Tests on DM&N: 1909

			Per car avg. time		Per man per car		
Car	No. of tests	Avg. men per car	Min	Sec	Min	Sec	Failure to operate
Summers # 101	12	5.00	4	21	21	43	None
Summers # 9983	14	2.80	2	41	7	54	None
Summers # 10384	12	2.25	1	39	3	43	None
Rakowsky # 100	32	1.47	2	00	2	56	1
Clark # 170	25	4.50	3	18	14	51	2
Clark # 210	5	1.00	1	37	1	37	None

The Clark Car No. 170, the first of its kind built with a 45-degree end slope sheet, compared favorably with the cars entered. The Summers Car No. 101 with a 50-degree end slope was also a sample car. The Clark car 170 was damaged at the mines and withdrawn from further testing on August 1, 1909, and on September 9, 1909, Clark No. 210 was entered in the competition. The Summers Car No. 10384 and the Rakowsky car No. 100 each had doors that were operated by air. The Clark Car No. 210 was hand-operated on two tests and air on the remaining three, with manual and air taking the same amount of time to unload. This proved that the balanced doors on the Clark car required very little effort to close. The doors on the Clark car also locked together in the center and did not gap in the center like other ore cars. All of the newer quick-dumping cars had a hopper bottom opening from 40 to 50 square feet of area.

It was noted that the most time consuming effort in unloading these cars was the unwinding and winding of the doors. A sample car was built by Standard Steel Car, Hammond, Indiana in 1909. This car was extensively tested at the builder's shop while under load and given a series of bumping test from 4 to 18 mph, when two cars were damaged. This car, and one additional Summers car with air-operated doors, one each for service on the D&IR and DM&N, were placed in in service in July 1909.

Dumping of ore using the geared mechanism took from 1 minute 24 seconds to 2 minutes 14 seconds. The air-operated doors allowed dumping of the entire load within 12 to 14 seconds. Cars equipped with the air-operated doors could be unloaded either manually or by air. D&IR equipped an unknown number of additional Summers cars with air-operated doors.

A later advance was the Rakowsky 50-ton automatic unloading ore car manufactured by the Automatic Unloading Car Co., Division of Northwestern Steam Boiler Co. of Duluth. Their plant was located on Garfield Ave. and covered a street frontage of 400 feet. They manufactured boilers, engines, stand pipes, refuse burners, smokestacks and mining equipment. Construction of the first Rakowsky Patent Ore Car was announced in the *Duluth Evening Monogram Magazine* on April 29, 1909. It opened instantly and freely by having two halves (buckets) that when opened struck against the car axles causing the ore to fall out of the halves. This car was developed by Gustav A. Rakowsky, a mechanical engineer, from Duluth, who applied for patents for his unique design in 1910 and was awarded patents 973208, 973209, and 973210.

To open the halves there was a 12-inch vertical air cylinder at each end which, when open, created a 52½-degree slope having an opening of 5 feet to discharge the ore. The buckets rotated on trunions located on the main frame top members. They were set so the weight of the load assisted in the dumping. Total time to unload was about 10 seconds and in most cases did not require any manual labor to finish

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unloading the car. A hand device was available for manual unloading.

The DM&N began testing the prototype Rakowsky car during the summer of 1908. This testing showed various weak points in the car design. A redesigned version of the car was delivered to DM&N in 1909. The 50-ton, 22-foot car had a capacity of 900 cu. ft. with a tare weight of 33, 900 pounds.

Comparison of ore cars				
	Present Type	Summers (SSC)	Clark (ACF)	Rakowsky
Cubic Capacity	689	650	650	700
Weight of Car	32,500	32,500	32,090	33,900
Slope of Surface (dumping) degrees	45	51	50	52½
Center of gravity from rail	6 ft. 7½ in.	6 ft. 9½ in.	6 ft. 9½ in.	6 ft.
Pay-load to total weight	76%	76%		80%

The D&IR purchased five of the Rakowsky type cars in 1911 numbering them 3045 to 3049. DM&N purchased five of the Rakowsky type cars in 1911 numbering them from 18000 to 18004. Loading of iron ore was unforgiving on the Rakowsky cars and they had a short service life.

Until 1940, opening and closing of doors was done mechanically. During 1940, the first of the gasoline-powered trapping machines to open and close doors, was placed in service at Duluth and Two Harbors. This allowed quicker opening and closing of the ore car doors. These greatly assisted with the war effort during World War II.

Starting by 1942, many of the Class U3 8405–10554, U4 10555–11704, and Class D 3900–4399, 4400–4899, 9000–9699 began to have carbody interiors modified by adding a corner slope sheet between the end and side slope sheets. The change is visible in photos, with the end slope sheet ending at the side sheet between the first and second rib on the left and the fifth and sixth rib on the right.

The new slope sheet arrangement eliminated the rivets on the side sheets with all plates being welded together. This made the cars better at self-clearing when being unloaded. No paper documentation has been found for this program but it is supported by photographs from the period and it is unclear how many cars were modified. The War Production Board (WPB) during the war had strict restrictions on use of steel and speculation is that DM&IR hid the rebuilding process from the WPB. Over 150 of the modified cars were retained for company ballast service in later years.

The next speed modification took place in February 1969 when two Class U-30 cars,



Class U3 and U4 ore cars as built had ends of side sheets slope to the first C-channel rib as depicted on the right two cars, W8513 and W39218 (former 9218). Starting in early 1940, an unknown number of Class U3 and U4 ore cars were rebuilt with corner slope sheets and side sheets were modified as depicted on the left hand car, W8993. Proctor, August, 1978. (D.P. Holbrook collection)

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Two Class U30 ore cars were sent to Pullman Standard in February 1969 for rebuilding with air operated bottom dump doors. DMIR 32880 at Michigan City with new doors applied. (Pullman-Standard photo, Jim Kinkaid collection)



Three regular ore cars were rebuilt by Trinity, Miner Industries and Johnstown America in 1999–2000 to test air operation. DMIR 30412 at Proctor on September 30, 1999 was rebuilt by Johnstown America and painted in this gray paint scheme. (D.P. Holbrook)



Miner Industries installed air-operated doors on 31456 in December 1999. It was repainted into this blue paint scheme to identify it as a test car. Proctor, December 26, 1999. (D. Schauer)

32880 and 32675, were returned to Pullman Standard under job order JO 40053 and equipped with Parker-Hannifin air cylinders and hand valves as part of an air-operated bottom dump door arrangement. Both of these cars were rebuilt to taconite cars with 19½ inch-high sides on July 28, 1969, repainted and renumbered 52880 and 52675 and retained the option of air-operated doors.

During 1997 the DM&IR was looking to replace the aging ore car fleet. Various car builders were contacted to design and manufacturer new cars with quicker opening and closing doors. Three manufacturers, Miner, Johnstown America and Trinity Industries assisted DMIR in converting two Class U29 (31056 and 31456) and one Class U-27(30412) cars with air-activated door dumping systems. DMIR 31456 was converted by Miner Industries in 12/99 and painted blue. DMIR 31056 was converted by Trinity Industries in 9/2000 and painted maroon. DMIR 30412 was converted by Johnstown America in 1999 and painted gray with maroon lettering. This car was transported to Johnstown by truck and returned to Proctor on August 16, 1999. All three cars underwent extensive testing in both pellet and natural ore service during 1997 thru 2003. The CN merger would intervene and the new taconite cars would come painted for CN with DMIR reporting marks. ■



Trinity Industries converted DMIR 31056 with air-operated doors in September 2000 as a test car for future ore car orders. Specially painted, it is at Proctor, September 30, 2000. (D.P. Holbrook)

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DULUTH AND IRON RANGE

D&IR Roster: 1883-1886

Number Series	Class	Description	Total	O.L.	Cu.Ft	Lbs.	Builder	Built	Trucks	Notes
31–89o?	–	Combination Flat car	30	34'0"			Northwestern Car & Mfg.	1883	DIR Std	1
40–42e, 48–70e?	–	Combination Box	14	34'0"			Northwestern Car & Mfg.	1883	DIR Std	2
44–50e?	–	Combination Stock Car	4	34'0"			Northwestern Car & Mfg.	1883	DIR Std	3
236–250	–	Coal Car	15	34'6"	1022	50,000	Northwestern Car & Mfg.	1884	DIR Std	4
251–550	–	Wood Ore Car	300	28'0"	259	44,000	Northwestern Car & Mfg.	1884	DIR Std	

1. 30 flat cars delivered in 1883 possibly numbered 31-89 odd. Re-numbered to 2201-2259(odd) in 1887. Rebuilt to box cars; 6 in 1884, 4 in 1885, 2 in 1886, 2 in 1887. Rebuilt to stock cars; 4 in 1885. 2 were numbered 48 and 50 other two had unknown numbers.

2. Re-numbered to 2200–2226 (even) in 1887

3. Re-numbered to 2248–2250 (even)in 1887

4. Re-numbered to 2000–2014 in 1887

D&IR Roster: 1887-1895

Number Series	Class	Description	Total	O.L.	Cu.Ft	Lbs	Builder	Built	Trucks	Notes
251–550	–	Wood Ore Car	300	28'0"	259	44,000	Northwestern Car & Mfg.	1884	DIR Std	1
551–650	–	Wood Ore Car	100	28'0"	259	44,000	Wells & French	1887	DIR Std	1
651–750	–	Wood Ore Car	100	28'0"	250	44,000	Haskell & Barker	1888	DIR Std	1
751–1020	–	Wood Ore Car	270	22'0"	269	50,000	Haskell & Barker	1889	DIR Std	1
1021–1145	–	Wood Ore Car	125	22'0"	270	48,000	Wells & French	1892	DIR Std	1
1201–1500	–	Wood Ore Car	300	22'0"	270	54,000	Pullman Car Co. Lot 2095	1895	DIR Std	1
1501–1541	–	Wood Ore Car	41	22'0"	269	54,000	Lafayette Car Works	1890	DIR Std	1
1542–1666	–	Wood Ore Car	125	22'0"	270	48,000	Wells & French	1892-1893	DIR Std	1
1667–1991	–	Wood Ore Car	325	22'0"	270	48,000	Wells & French	1893	DIR Std	1
1992–2191	–	Wood Ore Car	200	22'0"	305	60,000	Duluth Mfg Co.	1895-1896	DIR Std	1
2000–2014	–	Coal, Side dump	15	34'6"	910	50,000	Northwestern Car & Mfg.	1884	DIR Std	2
2200–2226e	–	Box Car	14	34'0"	1865	48,000	Northwestern Car & Mfg.	1883	DIR Std	3
2228–2302e	–	Box Car	38	34'0"	1865	50,000	Wells & French	1887	DIR Std	4
X2248, X2250	–	Combination Stock car	2	34'0"	–	50,000	Northwestern Car & Mfg.	R1887	DIR Std	
2201–2211o	–	Combination Flat Car	6	34'0"	–	48,000	Northwestern Car & Mfg.	1883	DIR Std	5
2213–2259o	–	Combination Flat Car	24	34'0"	–	50,000	Northwestern Car & Mfg.	1883	DIR Std	6
2261–2269o	–	Flat Car	5	34'0"	–	50,000	D&IR Two Harbors	1887	DIR Std	7
2271–2359o	–	Flat Car	45	34'0"	–	48,000	D&IR Two Harbors	1887	DIR Std	8
2361–2409o	–	Flat Car	25	34'0"	–	40,000	D&IR Two Harbors	1887	DIR Std	9
2411–2809o	–	Flat Car	200	36'0"	–	60,000	Lafayette	1888	Thielson	10

1. Not renumbered in 1896

2. Renumbered to 236–250 in 1896

3. Renumbered to D&IR 5122–5132e and 5138–5152e series in 1896

4. Renumbered to D&IR 5050–5120 series even numbers in 1896.Two cars destroyed by 1896 renumbering

5. Renumbered to 5001–5011o in 1896

6. Entire series rebuilt to box cars 2200–2226 and MofW support cars before 1896 renumbering

7. Renumbered to 5053–5061o in 1896

8. Renumbered to 5063–5145o in 1896

9. Renumbered to 5013–5051o in 1896

10. Renumbered to 5147–5541o in 1896

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D&IR Roster: 1895-1937

Number	Class	Description	Total	O.L	Cu.Ft.	Lbs	Builder	Built	Trucks	Notes
201–220	H	Steel Gondola	20	41'0"	1532	100,000	Pressed Steel Car Co	1908	Arch Bar	
221–235	H	Steel Gondola	15	41'0"	1532	100,000	Pressed Steel Car Co	1907	Arch Bar	
236–250		Coal Car	15	36'0"	906	60,000	Northwestern Car & Mfg.	1884	DIR Std	1
251–260	H	Steel Gondola	10	41'8"	1532	100,000	Pressed Steel Car Co	1908	Arch Bar	
261–310	H	Steel Gondola	50	41'8"	1532	100,000	Western Steel Car & Foundry	1917	A. U-section	2
251–550		Wood Ore Car	300	28'0"	259	44,000	Northwestern Car & Mfg	1884	DIR Std	
551–650		Wood Ore Car	100	28'0"	259	44,000	Wells & French	1887	DIR Std	
651–750		Wood Ore Car	100	28'0"	250	44,000	Haskell & Barker	1888	DIR Std	
751–1020		Wood Ore Car	270	22'0"	269	50,000	Haskell & Barker	1889	DIR Std	
1021–1145		Wood Ore Car	125	22'0"	270	48,000	Wells & French	1892	DIR Std	
1146–1200		Wood Ore Car	55	22'0"	454	60,000	THC&M Co	1895-1896	DIR Std	3
1201–1500		Wood Ore Car	300	22'0"	270	54,000	Pullman Car Co. Lot #2095	1895	DIR Std	
1501–1541		Wood Ore Car	41	22'0"	269	54,000	Lafayette Car Works	1890	DIR Std	
1542–1666		Wood Ore Car	125	22'0"	270	48,000	Wells & French	1892-1893	DIR Std	
1667–1991		Wood Ore Car	325	22'0"	270	48,000	Wells & French	1893	DIR Std	
1992–2191		Wood Ore Car	200	22'0"	305	60,000	Duluth Mfg, Co	1895-1896	DIR Std	
2192–2548		Wood Ore Car	450	22'0"	454	60,000	THC&M Co	1896	DIR Std	3
2549–2848		Wood Ore Car	300	22'0"	454	60,000	Illinois Car & Equipment Co.	1898	DIR Std	
2849–3048		Wood Ore Car	200	22'0"	454	60,000	Illinois Car & Equipment Co.	1899	DIR Std	
3045–3049		Steel Ore Car	5	22'1"	700	100,000	Northwestern Steam Boiler Co	1911	A. L-Section	4
3049		Steel Ore Car	1	22'	580	100,000	Summers Car Co (Std Steel Car)	1908	Arch Bar	5
3050–3399	C	Steel Ore Car	350	22'	670	100,000	Pressed Steel Car Co	1900	PSC Arch Bar	
3400–3449	D	Steel Ore Car	50	22'0"	680	100,000	ACF Lot #2517	1903	Arch Bar	6
3450–3899	D	Steel Ore Car	450	22'0"	680	100,000	Pressed Steel Car Co	1903	Arch Bar	
3900–4399	D	Steel Ore Car	500	22'0"	710	100,000	Standard Steel Car Co	1905	Arch Bar	
4400–4899	D	Steel Ore Car	500	22'0"	710	100,000	Pressed Steel Car Co	1906	Arch Bar	
4400 / 4656	E	Steel Ore Car	22	22'0"	710	100,000	Pressed Steel Car Co	R1926/27	Arch Bar	7
5000–5048e	F	Box Car	25	34'0"	1865	50,000	Duluth Manufacturing Co	1895	DIR Std	8
5050–5120e	F	Box Car	36	34'0"	1865	60,000	Wells & French	1886	DIR Std	9
5050–5120e		Vegetable cars	11	34'0"	1865	60,000	Rebuilt D&IR Two Harbors	1889	DIR Std	10
5122–5132e	F	Combination Box	6	34'0"	1865	48,000	Northwestern Car & Mfg	1884	DIR Std	11
5122–5130e	F	Combination Oil Car	5	34'0"	1865	48,000	Rebuilt D&IR Two Harbors	1896 to 1908	DIR Std	12
X5132		Combination Stock	1	34'0"	1865	48,000	Rebuilt D&IR Two Harbors	R1901	DIR Std	13
X5134–X5136e		Combination Stock	2	34'0"		40,000	Northwestern Car & Mfg	1887	DIR Std	14
X5134–X5136e	M	Stock Car	2	36'2"	2358	60,000	D&IR Two Harbors	1905	DIR Std	15
5138–5152e (1st)		Combination Box	8	34'0"	1865	48,000	Northwestern Car & Mfg	1884	DIR Std	16
5138–5152e(2nd)	F	Box Car	8	36'2"	2358	60,000	D&IR Two Harbors	1904	DIR Std	17
5150	N	Oil Car	1	36'2"	2358	40,000	Rebuilt D&IR Two Harbors	R1910	DIR Std	18
5154–5172e	F	Box Car	10	34'0"	1579	40,000	Rebuilt D&IR Two Harbors	R1896	DIR Std	19
5154	N	Oil Car	1	32'5"	1579	40,000	Rebuilt D&IR Two Harbors	R1910	DIR Std	20
5156	N	Combination Oil Car	1	32'5"	1579	40,000	Rebuilt D&IR Two Harbors	R1910	DIR Std	21
5158	N	Combination Oil Car	1	32'5"	1579	40,000	Rebuilt D&IR Two Harbors	R1910	DIR Std	22
5162–5172e	N	Oil Car	6	32'0"	1579	40,000	Rebuilt D&IR Two Harbors	R1910	DIR Std	23
5174–5222e	F	Box Car	25	36'10"	2448	60,000	Western Steel Car & Foundry	1903	DIR Std	24
5174–5180e	M	Stock Car	4	36'2"	2358	60,000	D&IR Two Harbors	R1921	DIR Std	25
5182		Stock Car	1	36'2"	2358	60,000	D&IR Two Harbors	R1920	Barber	26
5184		Stock Car	1	36'2"	2358	60,000	D&IR Two Harbors	R1920	Barber	27

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Number	Class	Description	Total	O.L	Cu.Ft.	Lbs	Builder	Built	Trucks	Notes
5200	S	Automobile Car	1	36'10"	2448	60,000	Western Steel Car & Foundry	R1910	Barber	28
5202	S	Automobile Car	1	36'10"	2448	60,000	Western Steel Car & Foundry	R1912	Barber	29
5216	S	Automobile Car	1	36'10"	2448	60,000	Western Steel Car & Foundry	R1922	Barber	30
5224–5262e	F	Box Car	20	37'3"	2448	60,000	Western Steel Car & Foundry	1908	Arch Bar	31
5244		Stock Car	1	37'3"	2448	60,000	D&IR Two Harbors	R1920	Arch Bar	32
5264–5340e	F	Box Car	37	36'2"	2358	60,000	D&IR Two Harbors	R1908	DIR Std	33
5342–5390e	F	Box Car	25	36'11"	2448	70,000	Standard Steel Car Co	1918	A. U-section	
5001–5011o	I	Combination Flat	6	36'0"		48,000	Northwestern Car & Mfg.	1883	DIR Std	34
5013–5051o	I	Flat Car	20	36'0"		60,000	D&IR Two Harbors	1887	DIR Std	35, 61
5053–5061o	I	Flat Car	5	36'0"		48,000	D&IR Two Harbors	1887	DIR Std	36, 61
5063–5145o	I	Flat Car	45	36'0"		60,000	D&IR Two Harbors	1887	DIR Std	37, 61
5147–5541o	I	Flat Car	200	36'0"		50,000	Lafayette Car Works	1888	DIR Std	38, 61
5543–5641o	I	Flat Car	50	36'0"		60,000	Illinois Car & Equipment Co	1899	Arch Bar	61
5643–5741o	I	Flat Car	50	36'0"		60,000	Western Steel Car & Foundry	1903	Arch Bar	61
5743–5825o	I	Flat Car	42	36'0"		60,000	D&IR Two Harbors	1905	DIR Std	61
5827–5841o	I	Flat Car	8	36'0"		60,000	D&IR Two Harbors	1906	DIR Std	61
6000–6049	I	Log Car	50	36'0"		60,000	D&IR Two Harbors	1900	DIR Std	39
6050–6099	I	Log Car	50	36'0"		60,000	D&IR Two Harbors	1910	DIR Std	40
6100–6124	I	Flat Car	25	37'3"		60,000	Western Steel Car & Foundry	1907	Arch Bar	41
6125–6179	I	Flat Car	55	37'3"		60,000	Western Steel Car & Foundry	1907	Arch Bar	42
6100–6124	G	Gondola	25	37'3"	940	60,000	Western Steel Car & Foundry	R1914	Arch Bar	
6125–6179	G	Gondola	55	37'3"	934	60,000	Western Steel Car & Foundry	R1929	Arch Bar	
6135	G	Gondola	1	37'3"	1050	60,000	Western Steel Car & Foundry	R1930	Arch Bar	43
6144	G	Gondola	1	37'3"	1050	60,000	Western Steel Car & Foundry	R1922	Arch Bar	44
6180–6279	I	Flat Car	100	36'9"		60,000	ACF Lot #7934	1916	Arch Bar	45
6280–6304	I	Flat Car	25	36'9"		60,000	ACF Lot #8406	1917	A. U-section	46
7000–7074	K	Log Car	75	20'		40,000	D&IR Two Harbors	1901	DIR Std	47
7075–7124	K	Log Car	50	20'		40,000	D&IR Two Harbors	1902	DIR Std	
7125–7131	K	Log Car	7	20'		40,000	D&IR Two Harbors	1905	DIR Std	
7132–7159	K	Log Car	28	20'		40,000	D&IR Two Harbors	1906	DIR Std	
7160–7319	K	Log Car	160	20'		40,000	D&IR Two Harbors	1910	DIR Std	
8000–8007	R	Refrigerator Car	8	34'2"	1500	40,000	Pullman Car Co	1894	Thielson	48
8008–8011	R	Refrigerator Car	4	34'2"	1500	40,000	Pullman Car Co	1894	Thielson	49
8012–8021	R	Refrigerator Car	10	36'2"	1885	50,000	ACF Lot #4653	1907	Arch Bar	50
8022–8031	R	Refrigerator Car	10	37'2"	1995	80,000	Peteler Car Co	1912	Arch Bar	
8032–8041	R	Refrigerator Car	10	37'2"	1995	80,000	D&IR Two Harbors	1918	A. T-Section	51
9000-9699	D	Steel Ore Car	700	22'0"	710	100,000	Pressed Steel Car Co	1907	Arch Bar	
9156/9636	E	Steel Ore Car	6	22'0"	710	100,000	Pressed Steel Car Co	1907	Arch Bar	52
9700–10499	E	Steel Ore Car	800	22'0"	650	100,000	Standard Steel Car Co.	1909	A. L-Section	53
10500–11249	E	Steel Ore Car	750	22'0"	650	100,000	Standard Steel Car Co.	1910	Arch Bar	54
11250–11399	E	Steel Ore Car	150	22'0"	715	100,000	Pressed Steel Car Co	1910	Arch Bar	55
11400–11499	E	Steel Ore Car	100	22'0"	650	100,000	ACF Lot #5809A	1910	Arch Bar	56
11500–12299	E	Steel Ore Car	800	22'0"	695	100,000	Standard Steel Car Co	1913	Arch Bar	57
12300–12499	E	Steel Ore Car	200	21'9"	685	100,000	ACF Lot #7068	1913	Arch Bar	58
12500–12749	E	Steel Ore Car	250	21'9"	685	100,000	ACF Lot #7907	1916	A. T-Section	59
12750–13249	E	Steel Ore Car	500	21'11"	695	100,000	Standard Steel Car Co.	1916	A.T-Section	60

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1. Renumbered from 2000–2014 in 1896. Rebuilt D&IR Two Harbors 1901 to 1904 with new sides and ends
2. Not delivered until 2-3, 1918
3. American Engineer and Railroad Journal announced orders had been received in April 1896 for 450 wood ore cars from Terre Haute Car Co. 55 cars were numbered 1146–1200, 357 cars were numbered 2137–2548 and remaining 38 cars were used to replace wreck and retired cars in 751–2136 series
4. Rakowsky ore cars(Patents 973208,973209,973210 issued to Gustav A. Rakowsky in Oct 1910
5. Received as Summers demo car #101 in 1909, renumbered 3049 in 1914
6. 100 cars ordered by D&IR on 10-15-1902. Order split on delivery in 1903 50 cars to D&IR and 50 cars to DM&N 8355-8404 ACF Detroit plant
7. 4400-4419, 4596, 4656 rebuilt with longitudinal doors and 10" side extensions D&IR Two Harbors during winter 1926-1927
8. Steel Underframes applied Two Harbors 1913
9. Steel Underframes applied Two Harbors 1913, Renumbered from 2228–2302 in 1895-96
10. 5062, 5078, 5106 rebuilt D&IR Two Harbors 1889 by adding interior stove next to door and vent stack to roof 5068 and 5092 in 1916, 5078 and 5084 in 1917, 5078,5026,5068,5106 in 1918 (5026 or 5062 in 1918)?
11. Renumbered from 2200–2210e in 1896
12. Rebuilt D&IR Two Harbors between 1896 and 1908 into oil cars
13. Rebuilt from box car 5132 D&IR Two Harbors in 1901; back to box car in 1912
14. Renumbered 1896 from X2248 and X2250. Retired1905
15. X dropped from reporting marks by Jan 5, 1923
16. Renumbered from 2212–2226e in 1896
17. New cars built 1904 at Two Harbors to replace same numbers
18. Rebuilt D&IR Two Harbors 1910 from box car 5150
19. Rebuilt D&IR Two Harbors from flat cars in 2361–2409 series
20. Rebuilt D&IR Two Harbors 1910 from box car 5154
21. Rebuilt D&IR Two Harbors 1910 from box car 5156
22. Rebuilt D&IR Two Harbors 1910 from box car 5158
23. Rebuilt D&IR Two Harbors 1910 from 5162–5172 series box cars
24. Steel Underframes applied Two Harbors 1914
25. Steel Underframes applied Two Harbors 1914; back to box cars in 1938, 1927, 1924 - 5176 retired in 1961
26. Steel Underframes applied Two Harbors 1914; back to box car 5182 in 1927
27. Steel Underframes applied Two Harbors 1914; back to box car 5184 in 1927
28. Rebuilt from 5200 to double-door auto car in 1910, Steel Underframe applied Two Harbors 1914
29. Rebuilt from 5202 to double-door auto car in 1912, Steel Underframe applied Two Harbors 1914
30. Rebuilt from 5216 to double-door auto car in 1922. Steel underframe applied Two Harbors 1914. Converted back to single-door box car winter 1924/25
31. Built with Steel Underframes
32. Rebuilt D&IR Two Harbors 1920; back to box car 5244 in 1927
33. Rebuilt D&IR Two Harbors 1-4-1908 from flat cars 5001, 5003, 5005, 5007, 5009, 5011, 5015, 5017,5023, 5025, 5029, 5043, 5047, 5049, 5053, 5055, 5057, 5061, 5067, 5069, 5071, 5081, 5093, 5095, 5103, 5107, 5109, 5111, 5115, 5117, 5123, 5125, 5127, 5129, 5133, 5135, 5139, 5141, 5143. Steel underframes applied, Two Harbors 1914
34. Renumbered from D&IR 2201–2211o in 1896
35. Renumbered from D&IR 2361–2409o in 1896
36. Renumbered from D&IR 2261–2269o in 1896
37. Renumbered from D&IR 2271–2359o in 1896
38. Renumbered from D&IR 2411–2809o in 1896
39. Bodies built in 1900 (no trucks) classified as "Bunker Flats" by D&IR.

Abbreviations

/ = non-continuous series
e = even numbers only
o = odd numbers only
R = rebuilt
ACF = American Car & Foundry
THC&M = Terre Haute Car & Manufacturing
A = Andrews trucks

40. Classified as "Bunker Flats" by D&IR
41. Rebuilt D&IR Two Harbors 1914 with dump doors and wood gondola sides; built with steel underframes
42. Rebuilt D&IR Two Harbors 1926 with wood gondola sides (except 6144, see below); built with steel underframes
43. Rebuilt D&IR Two Harbors 1930 with steel gondola sides
44. Rebuilt D&IR Two Harbors 1922 with steel gondola sides
45. Ordered 12-22-1915 - Blt ACF Chicago plant. 77 equipped with sideboards when delivered: 6180-6187, 6189-6198, 6200-6202, 6204-6206, 6208, 6209, 6211, 6212, 6214, 6216, 6217, 6219, 6220, 6222-6226, 6228-6234, 6236, 6237, 6239, 6241, 6242, 6245 to 6250, 6252, 6254, 6256, 6258, 6260, 6261, 6263, 6264, 6266 to 6278. - 14 equipped with steel side boards in 1918: 6231, 6251, 6221, 6228, 6240, 6241, 6243, 6244, 6251, 6255, 6257, 6259, 6265, 6279. 50 cars converted to rack flats: 10 cars 6269-6278 during 1934. 40 cars 6212, 6214, 6216, 6217, 6219, 6220, 6222, 6223, 6224, 6225, 6226, 6228, 6229, 6230, 6231, 6232, 6233, 6234, 6237, 6239, 6241, 6242, 6245, 6246, 6247, 6248, 6249, 6250, 6254, 6256, 6258, 6260, 6261, 6263, 6264, 6266, 6267, 6268 during 1935
46. Ordered 5-3-1917 - All delivered in 12/17 except 6301 delivered in 1/18 - Blt ACF Chicago plant
47. Starting in 1916, 20-ft log cars were rebuilt with six pieces of used 60-lb. rail to reinforce the underframes. A total of 96 cars were completed during 1916: 7005, 7012, 7014, 7015, 7016, 7020, 7026, 7030, 7031, 7035, 7036, 7041, 7055, 7056, 7065,7066, 7076, 7077, 7078, 7080, 7089, 7090, 7106, 7113, 7115, 7116, 7119, 7120, 7124, 7129, 7130, 7140, 7147, 7148, 7151, 7153, 7154, 7156, 7157, 7162, 7166, 7171, 7179, 7181, 7182, 7183, 7184, 7185, 7193, 7196, 7198, 7200, 7203, 7205, 7207, 7215, 7216, 7217, 7220, 7222, 7224, 7228, 7230, 7231, 7232, 7137, 7340, 7241, 7245, 7246, 7250, 7154, 7255, 7258, 7259, 7260, 7265, 7268, 7269, 7270, 7274, 7279, 7280, 7281, 7285, 7288, 7292, 7294, 7299, 7301, 7305, 7309, 7310, 7313, 7315, 7316. All of these cars were also equipped with pulpwood racks when the rail was added to the underframes. An additional 10 cars were completed in 1917: 7006, 7040, 7047, 7052, 7067, 7111, 7133, 7197, 7308, 7319 with all of these also equipped with pulpwood racks at the same time
48. Formerly ATSF 720–969 series refrigerator cars built by Pullman in 1894 - Purchased 2nd hand from ATSF 1901 - Murphy roof, steel underframe, Moore refrig/heating system applied D&IR Two Harbors 1914 - 8005 retired 11/05/29 used to build Steam Shovel car 800
49. Formerly ATSF 720–969 series refrigerator cars built by Pullman in 1894 - Purchased 2nd hand from ATSF 1902 - Murphy roof, steel underframe, Moore refrig/heating system applied D&IR Two Harbors 1914 - Show on equipment lists arriving in 1903 - 8010 and 8011 sold to D&NE 01/04/30
50. Equipped with meat racks - Steel Underframe applied D&IR Two Harbors 1914 - ACF Lot Number 4653 Ordered 1907 - Delivered Sept 8, 1907 -
51. Equipped with meat racks - Murphy roofs
52. 9156, 9195, 9348, 9426, 9566, 9636 rebuilt with longitudinal doors and 10" side extentions D&IR Two Harbors during winter 1926-1927
53. Summers type car
54. Summers type car
55. Built at Western Steel Car and Foundry plant at Chicago, IL
56. Clark type ore car
57. Summers type car
58. National type car - Built at ACF Peninsular shop Detroit, MI
59. National type car
60. Summers type car
61: Starting in 1914, steel center sills began to be applied to the fleet of flatcars Converted in 1914: 5161,5163,5507. Converted in 1915: 5089, 5137, 5163, 5165, 5169, 5183, 5199, 5201, 5317, 5447, 5459, 5463, 5537, 5615, 5649, 5667, 5671, 5717, 5725, 5737, 5789, 5825, 5833, 5835, 6001, 6002, 6007, 6009, 6011, 6016, 6021, 6022, 6023, 6026, 6027, 6028, 6037, 6038, 6039, 6047. Converted in 1916: 5633, 6042. Converted in 1917: 6041.

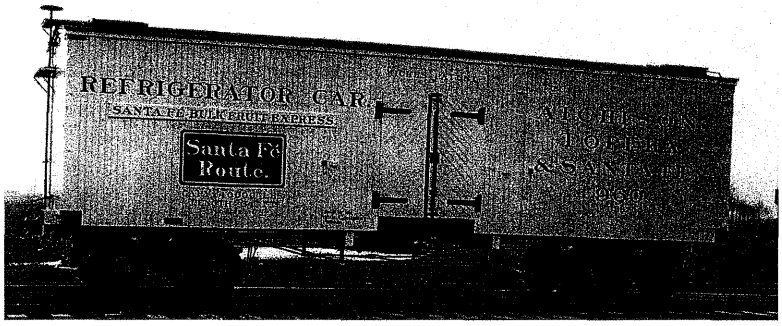
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D&IR REFRIGERATOR CARS

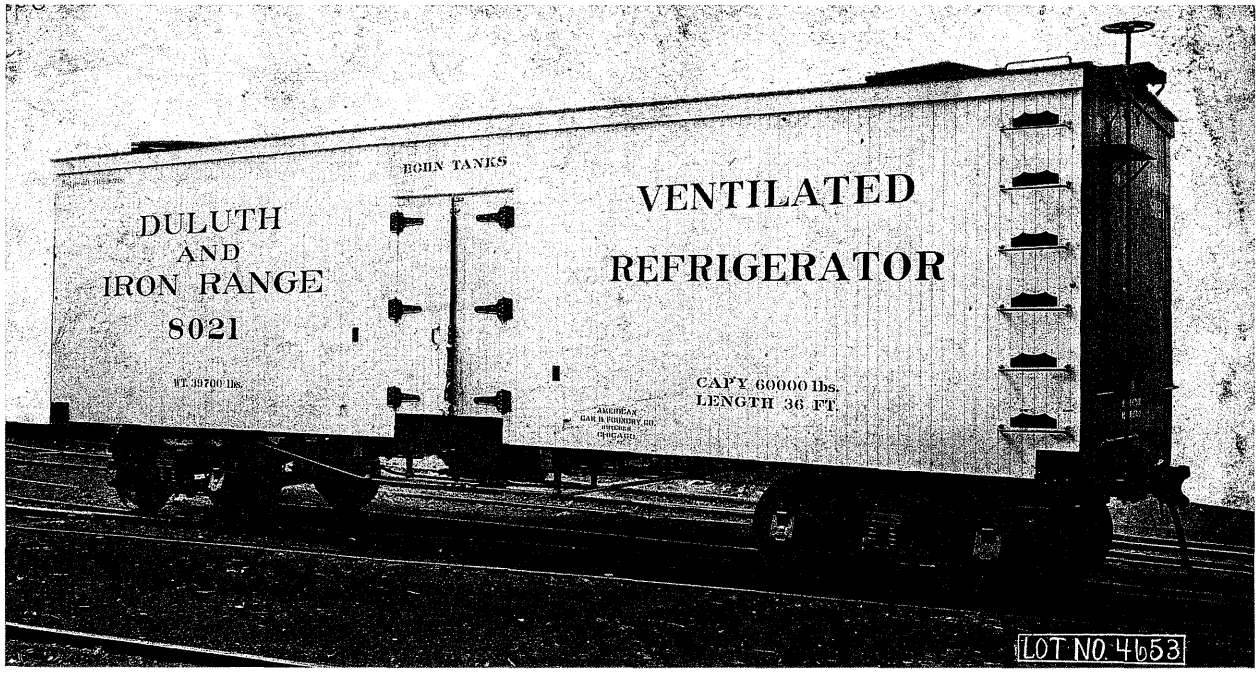
The first refrigerator cars were eight cars leased in 1896. These were leased through 1898 and reduced to seven cars in 1899. In 1900 and 1901, a total of 12 refrigerator cars were on lease. Four cars were still on lease in 1902 when the leasing contract was terminated. Photos from this period indicate that cars were leased from Armour Refrigerator Lines.

During 1901 eight 20-ton 34-foot refrigerator cars with 1500 cu. ft. capacity were acquired from ATSF. These were former ATSF 720–969 series cars built by Pullman in 1894 and D&IR numbered them 8000–8007. They had Murphy roofs and truss-rod underframes. Four additional identical cars, 8008–8011 were acquired from ATSF in 1902. D&IR Two Harbors shop applied Murphy steel roofs, steel underframes and Moore refrigeration and heating systems in 1914. Two of these cars, 8010 and 8011, were sold to the Duluth & Northeastern Railroad on January 4, 1930. All remaining cars were off the roster by 1934.

The first new built refrigerator cars were 10 25-ton 36-foot 2-inch cars 8012–8021 with 1,885 cu.ft. capacity ordered from American Car & Foundry under Lot 4653 in 1907. Cars were ordered with meat rails for hauling hang-



Starting by 1895 D&IR leased reefers from Armour and ATSF, then purchased in 1901-1902 12 cars from ATSF 720–969 series and numbering them D&IR 8000–8011. A growing population and related traffic growth caused D&IR to eventually acquire a fleet of 42 refrigerator cars between 1894 and 1918. Builders photo of ATSF 960 represents the appearance of this group of cars before purchase by D&IR. (ACF builder photo, Art Griffen collection)



Satisfied with performance of second-hand ATSF reefers and expanding traffic base caused D&IR to purchase its first reefers in 1907 from American Car & Foundry in 1907. Ten cars D&IR 8012–8021 were built with meat racks and received on September 8, 1907. Renumbered to DM&IR 7112–7121, steel center sills would be applied in 1914 and Murphy roofs and Moore heating equipment during late 1916. (American Car & Foundry Collection, John W. Barriger III National Railroad Library at UMSL)

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