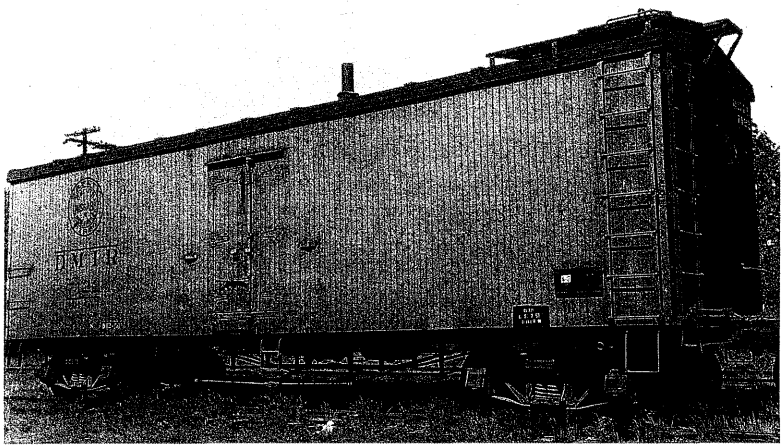


Left: DM&IR Class R1 7122 former D&IR 8022 is at Duluth on July 19, 1957. Originally built in series 8022–8031 by Peteler Car Co. in 1912. Delivered with four Moore Patent ice tanks, car was rebuilt with two Bohn Patent ice tanks in 1940. Note the large hatch platform and Moore heating stack on the roof. Car is preserved at Mid-Continent Railway Historical Society at North Freedom, Wisconsin. (Bob's Photo)

Below: Three years after being repainted at Two Harbors car shop, DM&IR 7138 is at Endion, Minnesota, during July, 1962 (Joe Collias)



ing meat and delivered on Sept 8, 1907. Steel center sills were applied at D&IR Two Harbors Shop in 1914. All ten cars were rebuilt with Murphy roofs and Moore heating systems at Two Harbors during late 1916 under Appropriation 544 for $4,136.40. All were off the roster by 1936.

The board of directors appropriated $12,500 on July 11, 1912, for purchase of 10 40-ton 37-foot 2-inch cars 8022–8031 with 1,995 cu. ft. capacity from Peteler Car Co. After the merger they were renumbered DMIR 7122–7131. All were retired by 1972.

The final group of refrigerator cars were 10 40-ton 37-foot 2-inch cars 8032–8041 with 1995 cu. ft. capacity built by D&IR Two Harbors shops in 1918. Purchase was approved on Appropriation 630 at the Board of Directors meeting on June 11, 1917. for a cost of $35,500. These 40-ton cars were almost identical to the Peteler cars built in 1912 and were equipped with Murphy roofs. After the merger they were renumbered DMIR 7132–7141. All were retired by 1972.

AFE 1781 was begun on January 10, 1926, for the application of racks and meat hooks in all refrigerator cars. This project was completed on March 11, 1926.

All refrigerator cars were placed in Class R starting in 1910. After the D&IR/DM&N merger cars 7122–7131 were placed in Class R and 7132–7141 in Class R1.

On September 29, 1939, AFE 4095 for $150.00 was approved for the purchase and installation of "Frigiwarm" curtains on five refrigerator cars. Cars 8022, 8024, 8025, 8028, 8029 in Two Harbors shop for heavy repairs at the time, had the curtains installed. These

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curtains allowed the icing of one end of the car only to allow merchandise to be loaded in one end and perishable traffic in the other. This project was completed on January 8, 1940.

End and roofs had deteriorated by 1950, and six of the remaining Class R and R-1 refrigerators required rebuilding. AFE 6869 for $3,600 was approved on September 22, 1950, to purchase and apply Murphy steel roofs, ends and Apex Type A running boards to six cars: 7131, 7132, 7133, 7134, 7135 and 7140. Rebuilding of the cars took place at Two Harbors between April 17, 1951 and April 20, 1951.

Declining LCL perishable movements and increased icing cost caused DM&IR in 1964 to look into dry ice for cooling needs on LCL refrigerator cars. AFE 9882 for $3,915 was approved on January 5, 1965, to modify 23 of the remaining 29 refrigerator cars by installing new insulated curtains and dry ice racks. Twenty-two cars would be modified on one end only and seven with both ends. Ten of the cars were former D&IR cars. Modified on one end only were: 7128, 7129, 7132, 7133, 7134, and 7140. Modified on both ends were 7122, 7124, 7135, and 7139. "High Kold Pak" insulated quilts (curtains) for project were supplied by CanPro Corportation of Fond Du Lac, Wisconsin. Rebuilding started on January 26, 1965 with all work completed by June 18, 1965.

D&IR BOX CARS

The first D&IR box cars appear to have been converted from combination flat cars in series 41–70 in 1884 that had originally been built in 1883 by Northwestern Car & Manufacturing. Quickly, after they were delivered, six of the cars were rebuilt to box cars in 1884, another four in 1885, two in 1886 and two more in 1887. No known photographs have been found of this flatcar series. Only one photo of this group of

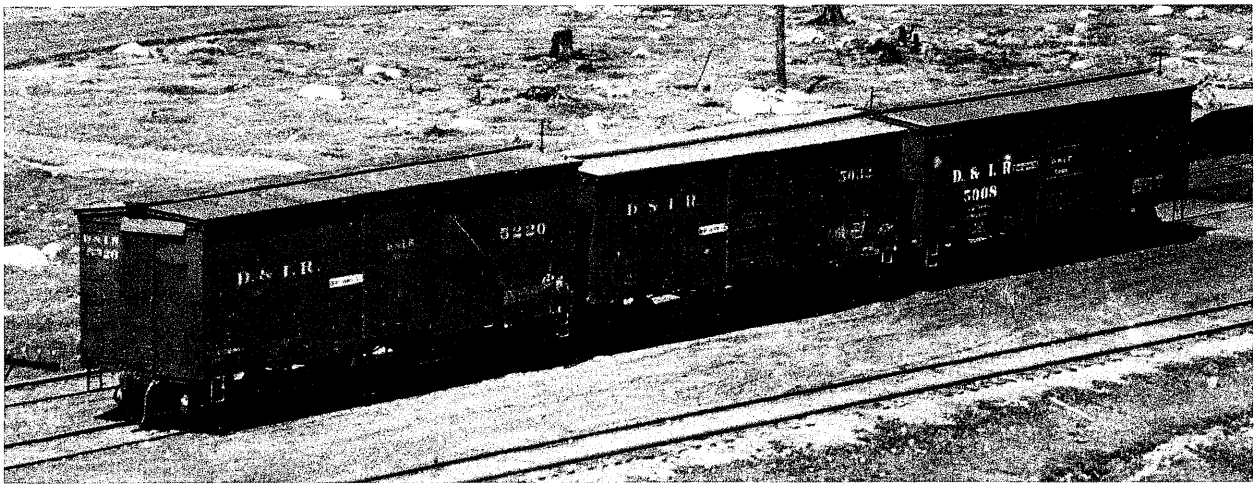


D&IR scene at Tower Jct., Minnesota, circa 1885 showing three box cars, caboose and one ore car. The first boxcar, 68, is the only known photo of a combination flat car converted to box car showing the two-digit numbers. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 7 Folder 20)

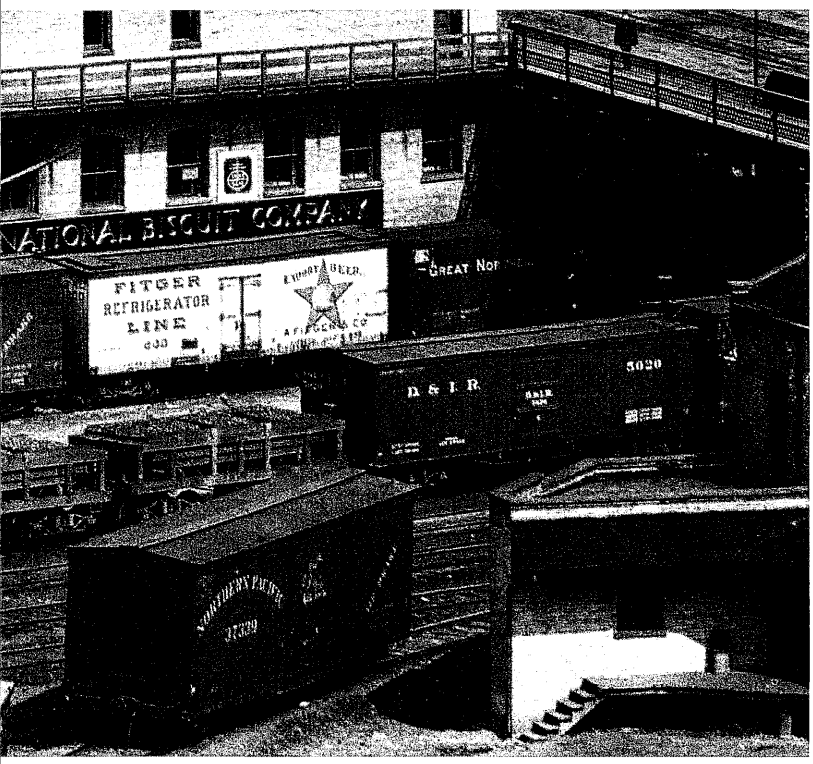


DM&IR 5132(2nd) at Proctor, July 28, 1969 was built at D&IR Two Harbors shops in 1916 and is preserved at Lake Superior Museum of Transportation at Duluth. (Owen Leander)

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Three D&IR boxcars at Virginia, Minnesota, during 1912; left to right, 5220 built by Western Steel Car & Foundry in 1903 and 5032, 5008 built by Duluth Manufacturing in 1895. As built, cars were lettered with D&IR reporting marks to left of door and road number to the right. Around 1910, the road number was shifted to below the reporting marks left of the door. Note the large end door on 5220. Left-mounted grab irons have yet to be installed on 5032, as mandated by Congress under the Safety Appliance Act in 1911. By the end of 1919 all D&IR and DM&N cars would be in compliance with the law. (Minnesota Historical Society)



D&IR 5020, one of 25 25-ton 34-foot box cars 5000–5048, even numbers only, by Duluth Manufacturing Co. in 1895. Outside framed wood doors would be replaced by interior framed doors by 1920. 5020 was retired December 14, 1933. Duluth, circa 1905. Note the Fitger Refrigerator Line refrigerator car FRL 200 in the background. Fitger's brewing company of Duluth was in business from 1881 until 1972. (Shorpy Photo Archives)

box cars is available showing it carrying number 68. It was 24-ton 34-foot car with 1,865 cu. ft. capacity. Doors were inside framed wood with 5-foot wide door opening. It appears that the rebuilt boxcars carried numbers 40–42, even numbers, and 48–70, even numbers, but no confirming documents have been found. These cars were renumbered during the 1888 renumbering to 2200–2226, even numbers only. At the time of the 1895 renumbering all 14 cars on the roster were renumbered to 5122–5132 even numbers only and 5138–5152 even numbers only. During 1910 the D&IR placed these in Class F.

The next group was 38 25-ton 34-foot boxcars numbered with unknown 2 or 3 digit numbers purchased from Wells & French in 1884 as 25-ton cars with 1,865 cu. ft. capacity. They had a 5-foot by 6-foot 6-inch high side door opening and end doors 2-foot wide by 1-foot 4½-inches high on one end of the car. Cars were renumbered during the 1888 renumbering to 2228–2302, even numbers only. At the time of the 1895 renumbering a total of 36 of these cars remained on the roster and where renumbered 5050–5120, even numbers. During 1910 cars were placed in Class F. All were rebuilt with steel center sills at Two Harbors in 1913. Eleven of these cars were rebuilt to vegetable cars, between 1889 and 1918, with the addition of a stove just inside the door

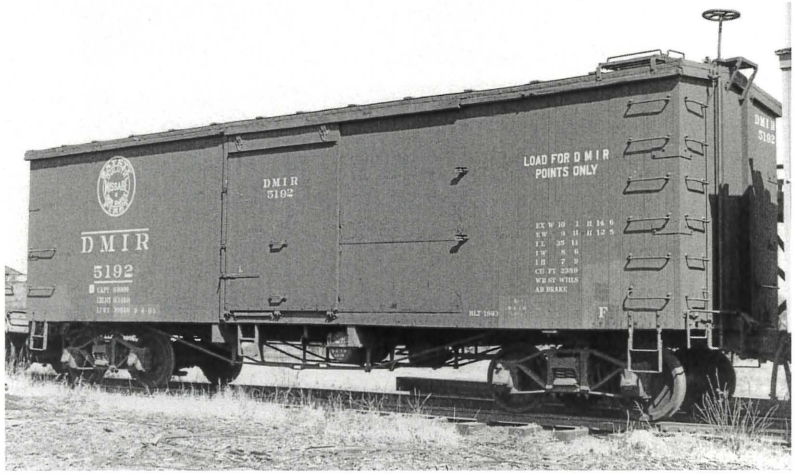
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opening. During 1924 and 1925, car 5084 was in assigned service for hauling cement.

Another 25 25-ton 34-foot boxcars 5000–5048, even numbers only, with 1865 cu. ft. capacity were purchased from Duluth Manufacturing in 1895. Cars had 5-foot wide by 6-foot 6-inches high side door opening and equipped with end doors 2-foot by 1-foot 4½ inches high on one end of the car. Wood doors were an outside-framed, 3-panel design. These doors were replaced with interior framed doors by 1920 because rain water collected around the outside framing causing the doors to rot out. All were placed in Class F in 1910 and rebuilt with steel center sills at Two Harbors in 1913.

D&IR Two Harbors shop built the next 10 20-ton 34-foot box cars 5154–5172 even numbers only. Cars were rebuilt from combination flat cars in the 2361–2409 series with 1490 cu. ft. capacity and 5-foot wide by 6-foot high side door openings. All were placed in Class F in 1910. Nine of these cars were rebuilt into "oil cars" in 1910 at Two Harbors by placing small openings near the top edge of the sides and ends to allow ventilation.

In 1901 the American Railway Association (ARA) recommended a 36-foot boxcar design with 2,442 cu. ft. capacity which was adopted by the Master Car Builders' Association in 1904 as recommended practice. Many railroads and car builders built cars closely following this design. D&IR placed an order in September 1902, with Western Steel Car & Foundry for the purchase of 25 30-ton 36-foot 10-inch boxcars 5174–5222, even numbers only, with 2,448 cu. ft. capacity with truss-rod underframe. All were delivered in 1903 with a 6-foot wide by 7-foot 9-inches high side door opening and end doors



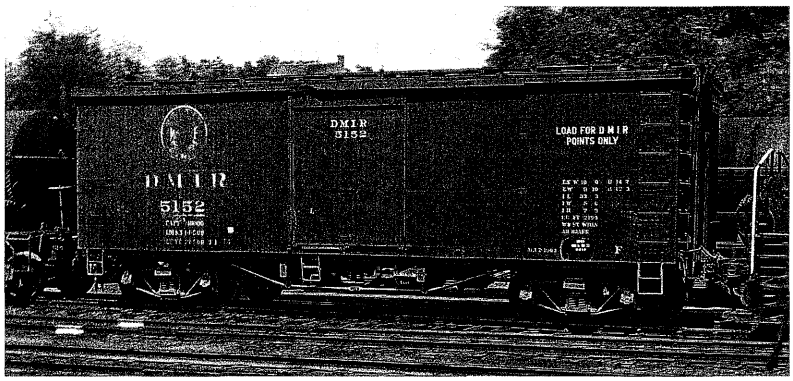
Right: Late in its service life DM&IR 5192 is at Duluth, on March 31, 1963. The notation "LOAD FOR DMIR POINTS ONLY" was stenciled on almost every car when it became overage or restricted to on-line service, account being equipped with arch bar trucks. (D. Repetsky, John C. La Rue, Jr. collection)



DM&IR 5208 at Proctor in July 1956 is one of 25 Class F 5274–5222 even numbers built by Western Steel Car & Foundry in 1903. (D.P. Holbrook collection)

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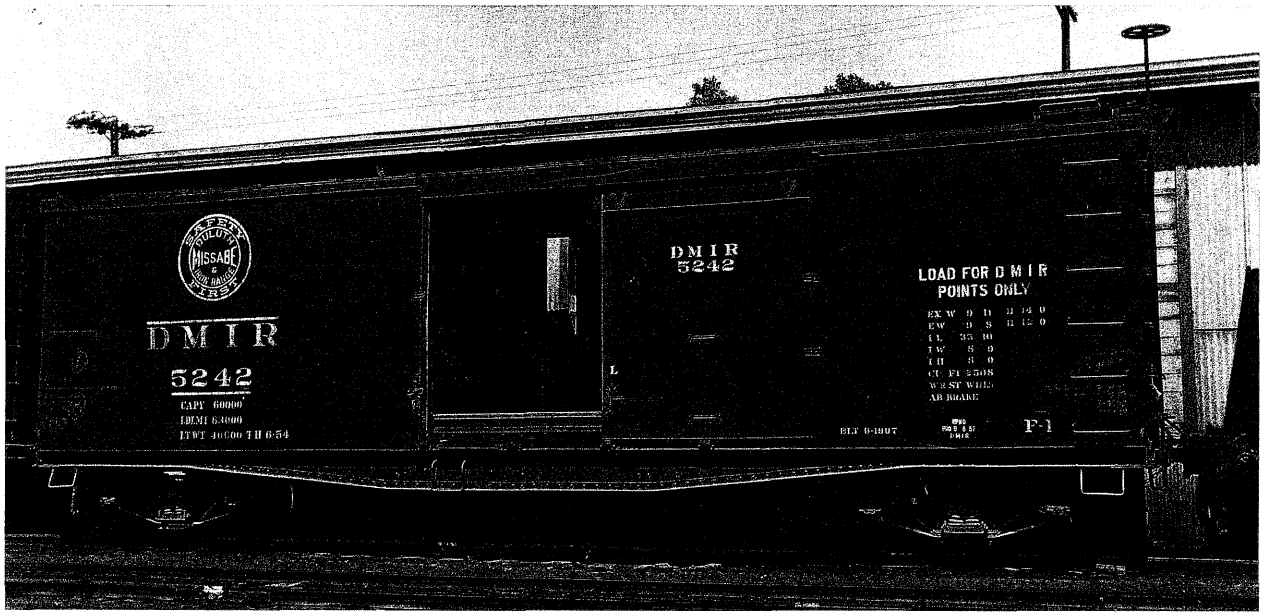
2-feet wide by 3-foot 6-inches high on both ends. They were equipped with Barber trucks, Chicago couplers, Bryan tandem draft rigging, McCord journal boxes, Chicago roofs, Dunham door fixtures and Westinghouse brakes. DM&N received 10 identical cars 3063–3072 at the same time. Car 5214 was wrecked in transit in 1903 before being delivered. The replacement car was not delivered until 1905. All were placed in Class F in 1910. Steel center sills were applied when built and replaced at Two Harbors shops in 1914 with steel underframes. Three of these cars would be rebuilt to automobile cars; 5200 in 1910, 5202 in 1912 and 5216 in 1922.



DM&IR 5152 is one of eight 30-ton Class F boxcars built at Two Harbors shops in 1904 to replace eight cars with identical numbers built by Northwestern Car & Manufacturing in 1884. The NC&M cars had 1,865 cu. ft. capacity but the new cars were built with 2,358 cu .ft. capacity to a D&IR standard boxcar design that was developed by Two Harbors shops. (Bob's Photo collection)

Two Harbors shop built the next eight 20-ton 34-foot box cars 5138–5152, even numbers, only with 1,865 cu. ft. capacity in 1904. Door openings were 6-foot wide by 7-foot 6-inch high. These were the second cars to carry these numbers. Original D&IR 5138-5152(1st) were retired by 1904. Cars were placed in Class F in 1910.

Returning to 2448 cu. ft. capacity box car design, D&IR in 1908 placed an order for 20 30-ton 37-foot 3-inch long, double-sheathed box cars 5224–5262, even numbers only, from Western Steel Car & Foundry. Door openings were 6-foot wide by 7-foot 9-inch high with a small end door 2-foot wide by 2-foot 6-inches high. WSC&F had improved on the 1902 truss-rod underframe by constructing this order with girder underframes consisting of fishbelly side sills and fishbelly center sills. Cars were

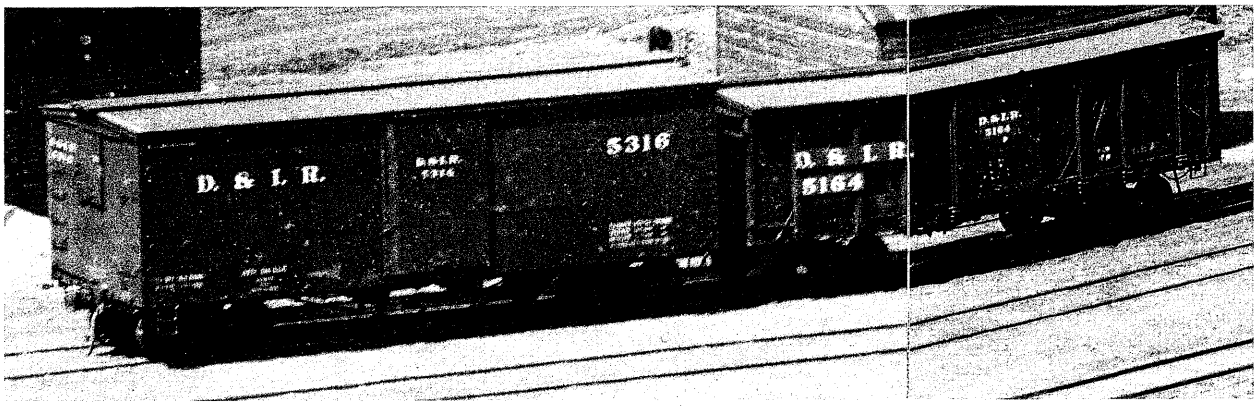


DM&IR 5242, shown at Endion, Minnesota, freight house on July 19, 1957, is one of 20 5224–5262 even numbers only 30-ton Class F1 box cars built by Western Steel Car & Foundry in 1908. The cars were built with girder underframes consisting of two fishbelly side sills and two fishbelly center sills. For the time, the underframes were considered over-designed. (Bob's Photo collection)

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DM&IR 5250 at Virginia, Minnesota, on July 27, 1969. Even at this late date, the outlawed arch bar trucks are still on this car and being used for on-line loading only. Note the sill step below the door applied under AFE 1329 beginning on March 4, 1926, to 250 box cars to allow easier access when unloading LCL. (Owen Leander, John C. La Rue, Jr. collection)



Two Harbors shops rebuilt 37 flat cars to box cars in 5264–5340 series in 1908. These would be the last group of cars lettered with reporting marks to left of door and road number to the right of the door. In the right corner of the photo is D&IR 5164, one of 15 oil cars rebuilt from box cars. Note the small framed openings on the ends and sides of the carbody. The rebuilding from flat cars is obvious with the stake pockets and single sheathing design (Minnesota Historical Society)

placed in Class F in 1910

An additional 37 30-ton 36-foot 2-inch long, double-sheathed truss-rod box cars 5264–5340, even numbers only with 2,358 cu. ft. capacity, were rebuilt at Two Harbors from flat cars in the 5001–5145 series, odd numbers only, during January through April of 1908. Door openings were 6-foot wide by 7-foot 6-inch high, with small end doors 2-feet wide by 1-foot 4½-inches wide on the A-end of car. All were placed in Class F in 1910

Appropriation 630 was approved at the June 11, 1917 Board of Director meeting for $70,625.00 to purchase 25 35-ton, 36-foot 11½-inches long, all-steel box cars 5342–5390, even numbers only, with 2448 cu. ft. capacity. This final D&IR boxcar order was placed with Standard Steel Car Co. and built in March 1918 at their Hammond, IN plant. Door openings were 6-foot wide by 7-foot 9-inches high with a small end door 1-foot 8-inches wide by 1-foot 2-inches high on the A-end of car. Cars were built with fishbelly side sill, riveted plate steel ends and doors. As-built plate steel doors were replaced with Youngstown doors by late 1940s. AFE 3235 was approved February 3, 1932 for reinforcing ends of six cars within the series.

D&IR, like most railroads, had retirements, cars destroyed and others rebuilt. Starting in 1916, retirements and cars placed in company service, caused many renumberings, rebuildings and new construction, which at first glance appear confusing. Not following ARA/MCB recommended practice, D&IR had in 1905 developed a standard plan for a 2358 cu. ft. capacity box car which was used to build replacement cars.

During 1916 the 5122–5136 series cars had

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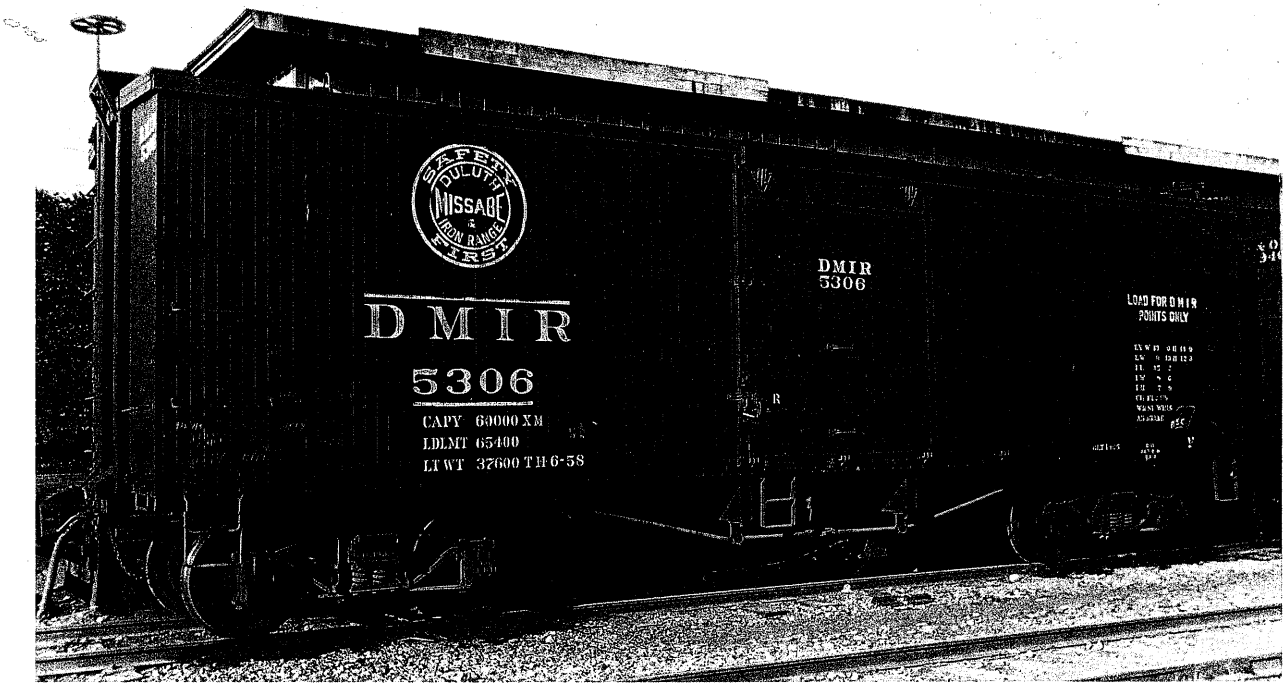
the following changes. Cars 5122 and 5126 were renumbered to shop cars 171 and 172. Cars 5124 and 5132 were retired. From series 5138–5152, cars 5146 was renumbered to the second 5124. A new second 5132 was constructed from D&IR 2358 cu. ft. Standard Boxcars plans at Two Harbors. Series 5138–5152 and 5154–5172 had following re-numberings: 5160 to the new 5150 and car 5150 to the new 5160.

Two cars from series 5174–5222, 5204 and 5214 were retired and new cars with the same number with 2358 cu. ft. capacity were constructed in 1916. At the same time one car from 5000–5124 series, 5024, was retired and a new 5024 was built with 2358 cu. ft. capacity. Two additional cars from this series, 5034 and 5102 were retired and new cars carrying the same numbers with 2,358 cu. ft. capacity were built as replacements. After 1916 the 5000 and 5100 series boxcars consisted of mismatched sizes of cars.

Wooden roofs on box cars began to be replaced with Murphy roofs with 20 cars completed in 1917 and an additional 30 in 1918.



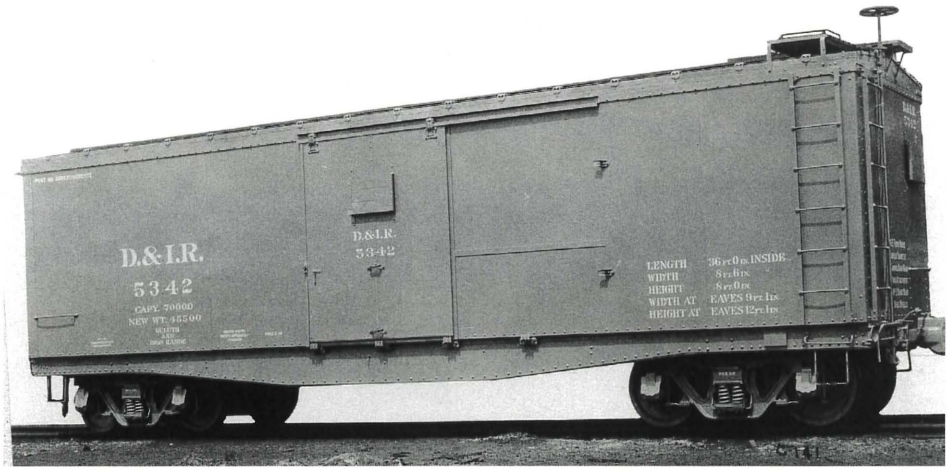
DM&IR 5284, shown at Endion on July 19, 1957 is a Class F 30-ton 36-foot box car, one of 37 rebuilt from Class I flatcars at D&IR Two Harbors shops between January and April 1908. Six were originally built by Northwestern Car & Manufacturing in 1883 and the remainder at D&IR Two Harbors shops in 1887. Diagrams show these cars equipped with steel underframes in 1914. However, Two Harbors reinforced the underframes with 60-lb. salvage rail and declared them as having steel underframes. (Bob's Photo collection)

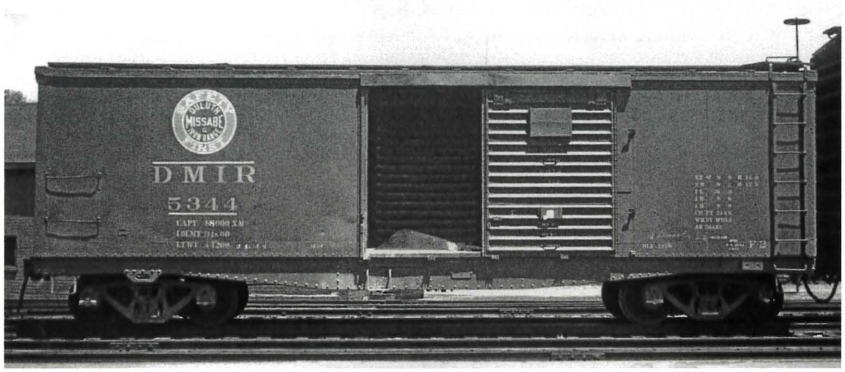


DM&IR 5306 at the Endion in 1961. The car was light weighed and painted at Two Harbors in June, 1958. This was originally flat car 5081 built at Two Harbors in 1887 and rebuilt to this box car in 1908. At 71 years old the car is in excellent shape. (Joe Collias)

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Builders photo of D&IR 5342. Compare this to the photos below and note the as built door tracks, plate steel door, Andrews trucks and the single grab iron on the left corner. (D.P. Holbrook Collection)





Class F2 DM&IR 5344 is shown after 1959 having "Scotchlite" monogram, initials and numbers applied. Note that the as-built Andrews trucks have been replaced, also the bottom of the side sheathing has rusted out and been replaced by new steel along the floor line. (Mainline Photos, J.M. Gruber collection)

The only all-steel box cars purchased by D&IR were 25 Class F 5342–5390, even numbers only, from Standard Steel Car Co. in 1918. 5366 is at Virginia, Minnesota, in the Spring of 1961. (Jim Maki Sr.)





DM&IR 5344 at Biwabik, Minnesota, on July 28, 1975. One of 25 steel 36-foot Class F2 box cars, 5342-5390, it was built by Standard Steel Car in 1918 for D&IR. Note the placard for the Scotchlite monogram with the remaining lettering stenciled on the car. Maroon paint applied during early 1960s has faded to brown. (R.F. Kucaba)

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The development of the automobile caused D&IR like many other railroads to convert box cars with wider doors to allow automobiles to be loaded inside the car. D&IR converted three Class F box cars, 5200 in 1910, 5202 in 1912 and 5216 in 1922 for automobile loading by equipping the cars with a single 12-ft. door and placing them in Class S. Most carriers opted for double doors, but D&IR equipped their auto cars as a single door. DM&IR 5202 is shown at Duluth during May, 1955. (W.C. Whitaker, Arnold Menke collection)

D&IR AUTOMOBILE CARS

The arrival of the Ford Model T in 1908 and initial highway development in Northern Minnesota created the need for box cars suitable to haul automobiles from docks at Duluth and Two Harbors. This need caused D&IR to rebuild box cars for this movement.

One Class F 30-ton 36-foot 10-inch box car in series 5174–5222, even numbers only, built by Western Steel Car & Foundry in 1903 was chosen to be rebuilt at D&IR Two Harbors in 1910 to a large single-side-door automobile car. Car numbered 5200 was placed in Class S after rebuilding. The door opening was enlarged from 6-foot wide by 7-foot 9-inches high side door feet to a 10-foot 11-inches wide by 7-foot 4-inches high single large side door. They also had small end door openings on both ends 2-foot wide by 3-foot 6-inches high.

Two additional cars were rebuilt from the same Class F box car series; 5202 in 1912 and 5216 in 1922. All three cars had steel center-sills applied at Two Harbors in 1914. Both were identical to 5200. Car 5216 was converted back to a single-door box car during the winter shopping season of 1924-25. The remaining two cars were retired by 1972.

D&IR car records show cars 5200 and 5202 being used mostly for on-line movement of automobiles, but 5216 showed being off-line on yearly annual reports and might have been used for the movement of automobiles from Detroit to northern Minnesota.

D&IR VEGETABLE CARS

A total of 11 box cars from Class F box cars in series 5050–5120, even, were rebuilt between 1889 and 1918 for vegetable service. The rebuilding involved placing a stove inside the door opening against the wall to allow cars to be heated in the fall, winter and spring to keep vegetables from spoiling. Initially, box cars 2240, 2256 and 2284 were rebuilt with the addition of the stove inside the right side door opening. These cars were renumbered 5062, 5078 and 5106 in 1896. Two additional cars, 5068 and 5092 were rebuilt in 1916, two more, 5078 and 5084 in 1917 and two additional, 5026, and 5106 in 1918. It is unknown when the stoves were removed, but the cars were no longer shown as individual diagrams by the 1929 D&IR diagram book.

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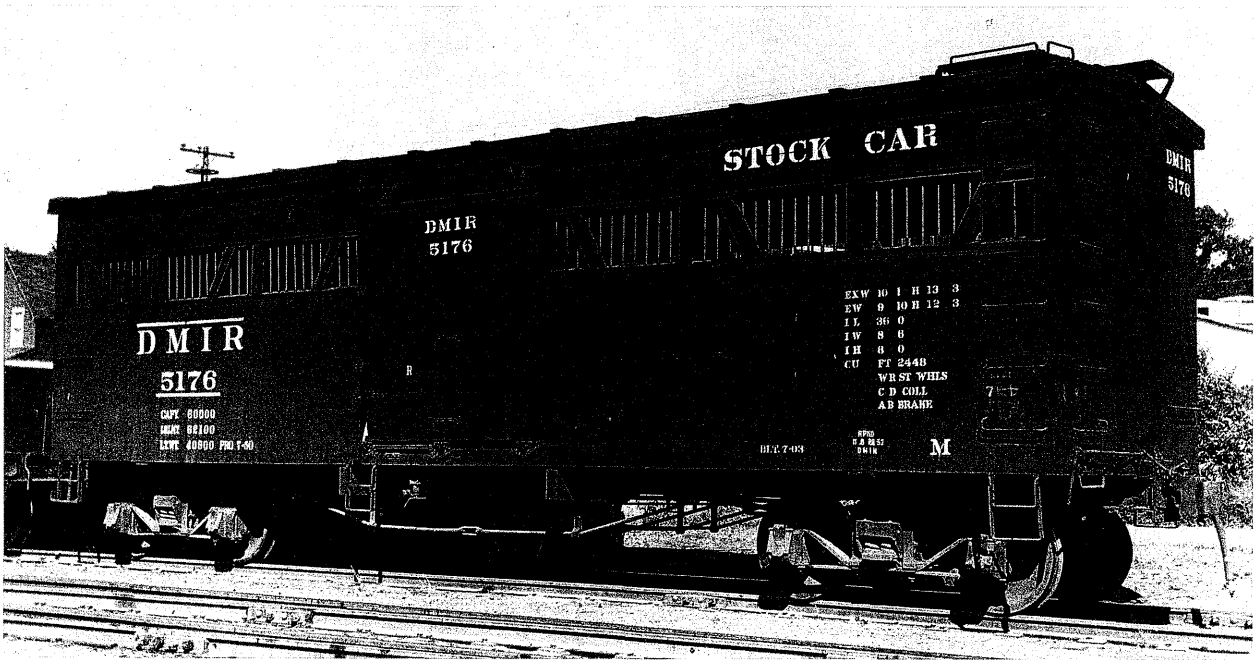
D&IR STOCK CARS

Development of the area along the D&IR included the need to ship livestock, mules and horses, causing the need for stock cars. Mules and horses were used at the mines for movement of ore to the headframes for loading into ore cars. A total of four stock cars were shown on the D&IR roster beginning in 1885, and then reduced to two cars in 1887. Cars appear to have been rebuilt from combination flat cars in series 41–70 and numbered 44–50, even numbers. Two cars, 48 and 50, were renumbered to X2248 and X2250 in 1887. The other two cars, 42 and 46, were off the roster by the 1887 renumbering. They were 25-ton 34-foot cars with an unknown capacity. The X prefix was used account box cars 2228–2302 had been delivered from Wells and French in 1887. From 1887 to 1896, two box cars 2248, 2250 and two stock cars X2248, X2250 were on the roster. Both cars were renumbered during the 1895 renumbering to X5134 and X5136 placing them back in the series of rebuilt combination boxcars built by Northwestern Car & Manufacturing. Both cars were retired by 1905

Two replacement 30-ton 36-foot 2-inch stock cars, 2nd X5134 and X5136, were built at Two Harbors in 1905 based on the D&IR standard 2,358 cu. ft. box car design. The standard box car design was modified by the removal of a horizontal portion of the sides of a box car about 24 inches wide, about 18 inches below the top eave of the car. This left the internal bracing between the double sheathing to be visible. To reinforce the car, vertical steel rods were added about every 8 inches. Cars had 7-foot 6-inch wide by 6-foot high door openings and rode on 5-foot 4-inch archbar trucks. They were also equipped with a lumber type end door opening of 24-inches wide by 40-inches high located on the B-end of the car. D&IR applied Class M to these cars in 1910. Steel underframes were applied in 1914.

Because of confusion with car records, the ARA, in a letter to member railroads on October 21, 1920, advised the D&IR to drop the X prefix from cars 5134 and 5136. It appears that this was accomplished soon after this letter was received. Both cars were retired per AFE 8197 on January 8, 1957.

Class F box car 5132 built by Northwest-



Class M stock car DM&IR 5176 is shown at Duluth July 21, 1954. This was one of four Class F box cars rebuilt to stock cars at Two Harbors in 1921. It was retired in 1961. (Bill Raia collection)

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ern Car & Manufacturing in 1884 was rebuilt as a stock car X5132 in 1901. It was rebuilt back to box car 5132 in 1912.

Class F box car 5182 built by Western Steel Car & Foundry in 1903 was rebuilt as a stock car in 1918 carrying the same number and then rebuilt back to box car in 1919. It was again converted in 1921 to a stock car with the same number and then rebuilt back to a box car in 1927. Per AFE 3380 car was retired on January 18, 1934.

Class F box cars 5174, 5176, 5178, 5180 built by Western Steel Car & Foundry in 1903 were all rebuilt to stock cars in 1921 at D&IR Two Harbors. These cars were 30-ton, 36-foot cars with 2,393 cu.ft. capacity. Door openings were 6-foot wide by 7-foot 6-inches with a small end door 24-inch wide by 16-inch high on the A-end of car. All rode on 5-foot 4-inch archbar trucks. In 1914 all were equipped with steel underframes. After 1931 they were equipped with Murphy steel roofs. Three were rebuilt back to boxcars with same numbers as follows: 5174 on February 16, 1938, 5178 in 1927, and 5180 in 1924. Stock car 5176 was retired in 1961.

Class F boxcar 5184 built by Western Steel Car & Foundry in 1903 was rebuilt as a stock car in 1920 carrying the same number and then rebuilt back to boxcar in 1927.

Class F boxcar 5244 built by Western Steel Car & Foundry in 1908 was rebuilt as a stock car in fall of 1920 carrying the same number and then rebuilt back to boxcar in 1922.

D&IR OIL CARS

A total of 15 double-sheathed box cars were converted to oil cars between 1896 and 1910. Their floors, interior sides and ends were lined with No. 16 gauge steel to allow cars to be used for hauling barrels and drums of oil.

The first cars rebuilt were five combination box cars in series 5122–5130, even numbers, that were originally built by Northwestern Car and Mfg. of Stillwater in 1884. Retaining their boxcar numbers, cars were rebuilt at D&IR Two Harbors shop between 1896 and 1908. When converted from combination flat cars, these had retained stake pockets on the carbody sides to mount vertical boards to hold the carbody. Rebuilt cars retained the distinctive stake pockets with vertical and diagonal bracing applied. Steel rods were used to support the interior sheathing. Cars in this series appeared to look like flat cars with a slatted stock car body applied.

The next ten cars looked more like traditional double-sheathed box cars. The outside sheathing was removed and replaced with stake pockets with vertical bracing and diagonals in between. Unlike the first five cars, these retained the full height interior sheathing and had small rectangular openings cut in sides and ends just below the roof line to provide ventilation.

The first four cars, 5150, 5154, 5156, 5158 were rebuilt in 1910 from box cars in series 2nd 5138–5152, even numbers only, originally built by D&IR Two Harbors in 1904 and box cars from series 5154–5172 that had been rebuilt from flat cars to box cars at Two Harbors in 1897. The last six cars, 5162–5172, even numbers only, were rebuilt in 1910 from box cars with the same numbers that had been rebuilt from flat cars to box cars at D&IR Two Harbors in 1897. All of the cars were placed in Class N in 1910.

The first five cars, 5122–5130, were renumbered to work train service in 1916. The remaining ten cars 5138–5172 were off the roster in late 1934.

D&IR WOOD ORE CARS

The first wood ore cars were ordered from Northwestern Car & Manufacturing Co. of Stillwater, Minnesota in January 1884. A total of 300 22-ton, 28-foot ore cars numbered 251–550. All were delivered by June 13, 1884. Car bodies consisted of a truss design with side sill (lower sill) and rail sill (upper sill) con-

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nected together by eight vertical corner and side post with angular side braces between the posts. A replica ore car to this design, 251, was rebuilt from a retired double spreader built in 1894 and rebuilt in 1899 from 28-foot ore car, for display at Two Harbors in 1934, however it is only an example of typical construction and not a copy of a specific wood ore car.

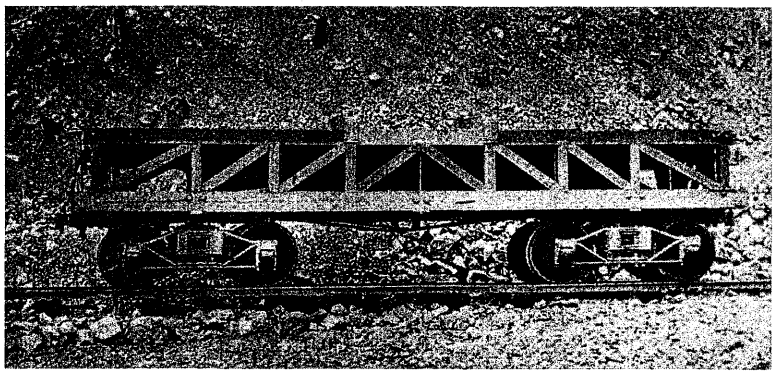
Increasing shipments of ore caused D&IR to order an additional 100 22-ton 28-foot wood ore cars 551–650 from Wells & French of Chicago in 1887. These were quickly followed by 100 more identical wood cars, 651–750, from Haskel & Barker of Michigan City, Indiana, in 1888.

It is unclear why, but the first two orders of ore cars were constructed as 28-foot cars but ore dock chutes and lake boat hatch spacing was 24 foot. To unload the 28-foot ore cars it was necessary to unload part of the car and then re-spot it to unload the remaining ore. Realizing the error in design beginning in 1889 length was standardized to 22 foot on all future ore car orders. Beginning in 1895, 200 of the 28-foot wood ore cars were rebuilt to 22 foot cars with the remainder completed by 1897.

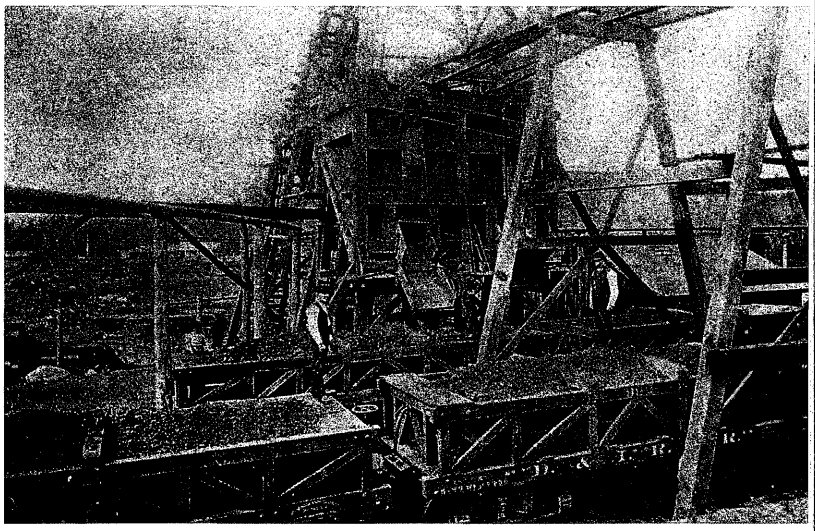
Two hundred seventy 25-ton 22-foot wood ore cars, 751–1020 with 269 cu. ft. capacity, were ordered from Haskell & Barker in 1889. All were delivered that year. These were the first "1889 Standard" design and differed from the earlier 28-foot wood ore cars by having the upper and lower sills connected with six vertical supports with angular side braces. The center support post was replaced with two vertical rod supports.

The next group of 41 27-ton, 22-foot 1889 Standard wood ore cars 1501–1541 with 269 cu. ft. capacity were ordered from LaFayette Car Works in 1890. These were the first 27-ton cars and D&IR started a new number series to allow 24-ton and 27-ton cars to have their own blocks of numbers. Cars were equipped with Westinghouse air brakes.

Two years would elapse before additional 1889 Standard ore cars would be ordered. Built in 1892 by Wells and French Co. of Chicago were, 125 wood 24-ton, 22-foot 1889 Standard ore cars 1021–1145 with 270 cu. ft. capacity. All were equipped with Westinghouse air brakes, National hollow brake beams, and Safford drawbars. These were the first new built cars equipped with air brakes. These would be the last 24-ton cars built for D&IR.

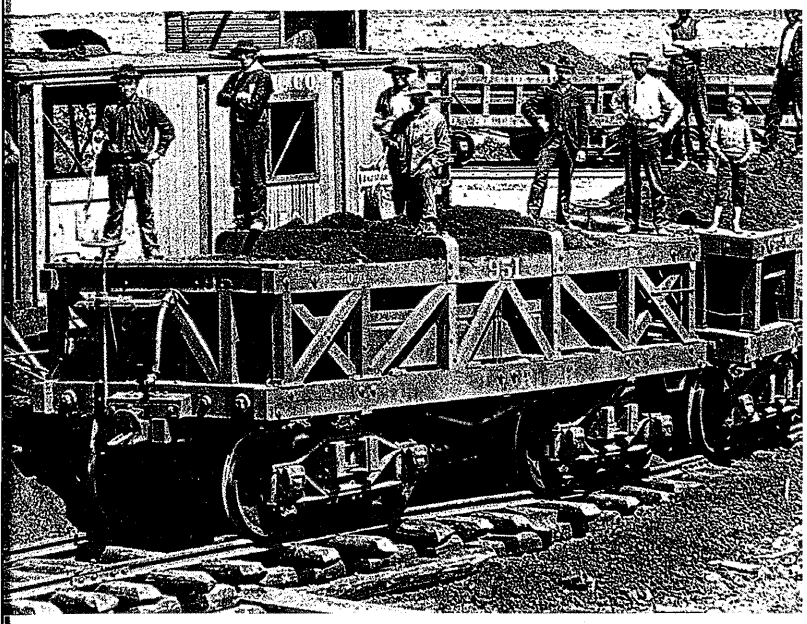


The first ore cars built for D&IR were 350 by Northwestern Car & Manufacturing in 1883. This very early photo shows the 28-foot ore car with link and pin couplers and no air brakes. Development of standardized hatch spacing on lake boats created the need for a 22-foot standard car beginning in 1889. All D&IR 28-foot ore cars would eventually be rebuilt as 22-foot cars. (D.P. Holbrook collection)



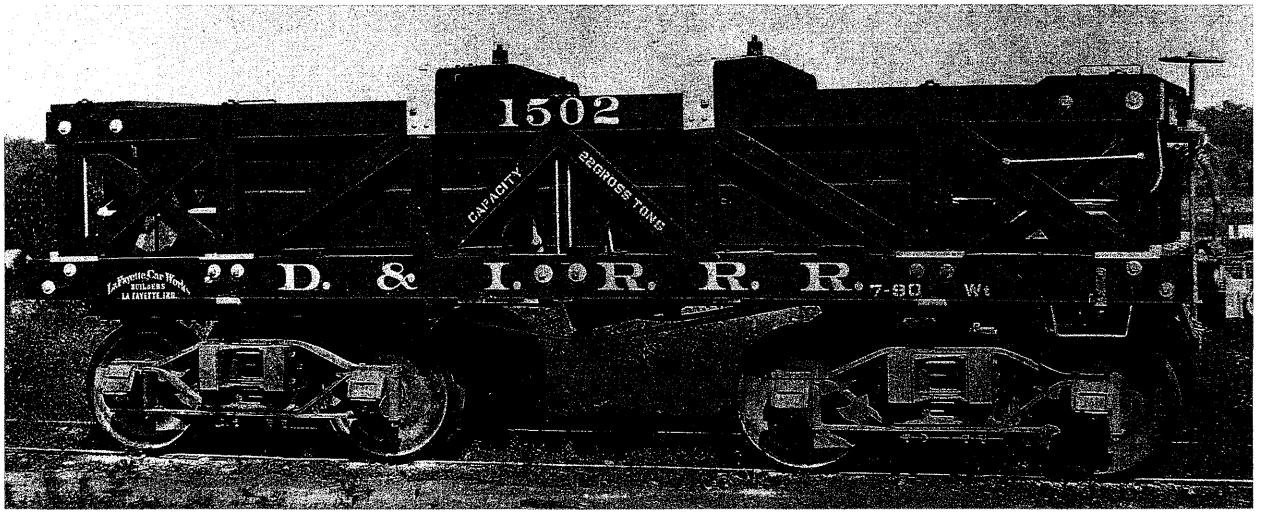
Pre-1900 loading pocket on Vermillion iron range with a 28-foot wood ore car from 201–550 series built Northwestern Car & Manufacturing in 1884 spotted under loading spout. D&IR 992 one of 270 wood ore cars built by Haskell & Barker in 1889 is in the foreground. (D.P. Holbrook collection)

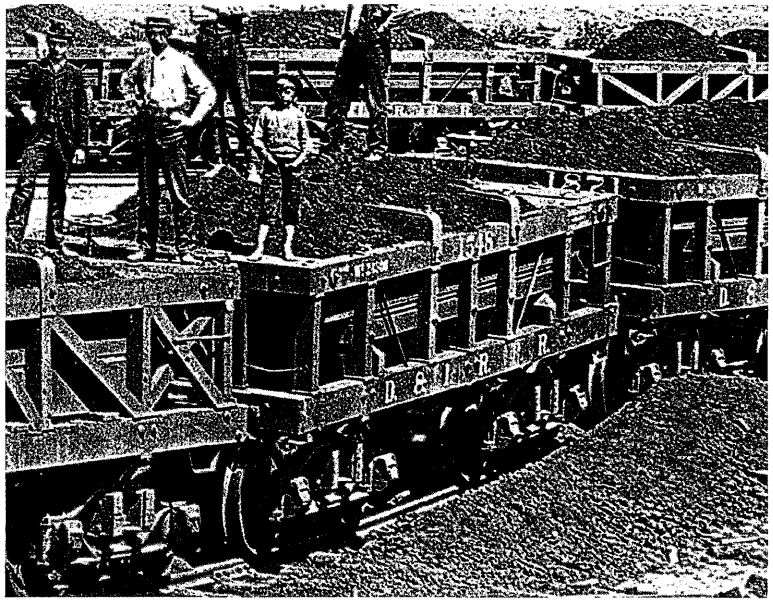
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Left: D&IR 951 one of 270 25-ton 1889 Standard 22-foot wood ore cars 751–1020 built by Haskell & Barker in 1888 is at Canton Mine, Biwabik, Minnesota. Link and pin couplers date this prior to 1896 when D&IR had converted all cars to automatic couplers. Note the upper and lower sills extend beyond the end sills of the car. Later constructed cars had the upper and lower sills end at the end sill as shown D&IR 1548 coupled to the right. (MNHS Collection)

Below: LaFayette Car Works built 41 wood ore cars 1501–1541 in 1890. This builder photo shows the metal carbody details in gray. (University of Minnesota, Duluth, Kathryn A. Martin Library Archives and Special Collections Collection S3742)



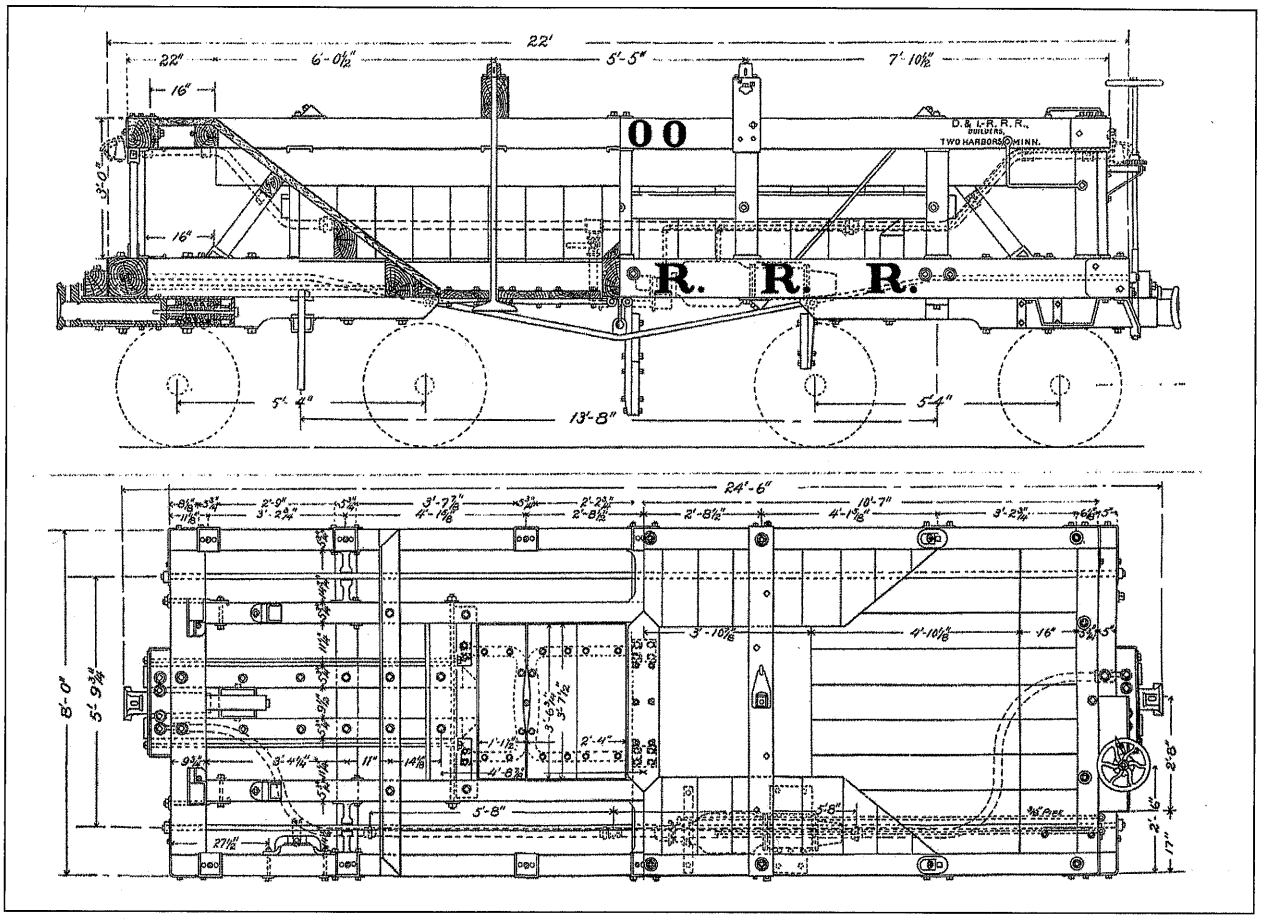


D&IR 1548 one of 125 24-ton 1889 Standard 22-foot wood ore cars 1542–1666 built by Wells & French during 1892 and 1893. Canton Mine, Biwabik, about 1895. (MNHS Collection)

An additional 125 cars were ordered from Wells & French during March, 1892. These were 1889 Standard 27-ton, 22-foot wood ore cars 1542–1666 with 270 cu. ft. capacity. This order was delivered between November 1892 and January 1893. All cars were built with New York air brake equipment.

Railway Age and *Northwestern Railroader* issue of November 25, 1892, reported that Mr. H.S. Bryan, master mechanic of D&IR, had designed a standard ore car which became the D&IR "1892 Standard" wood ore car. Bids were requested for 450 to 500 of these cars with hopper bottom openings of 3-foot 7½ -inches by 7-foot 9¾-inches. The 24 gross ton capacity cars was to be constructed with white oak framing and side sills, side and end rail and deck beams from Norway pine. The four drop doors were each pair locked by a vertical

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Duluth & Iron Range standard wood ore car – DIR 1667-3049. (D.P. Holbrook collection)

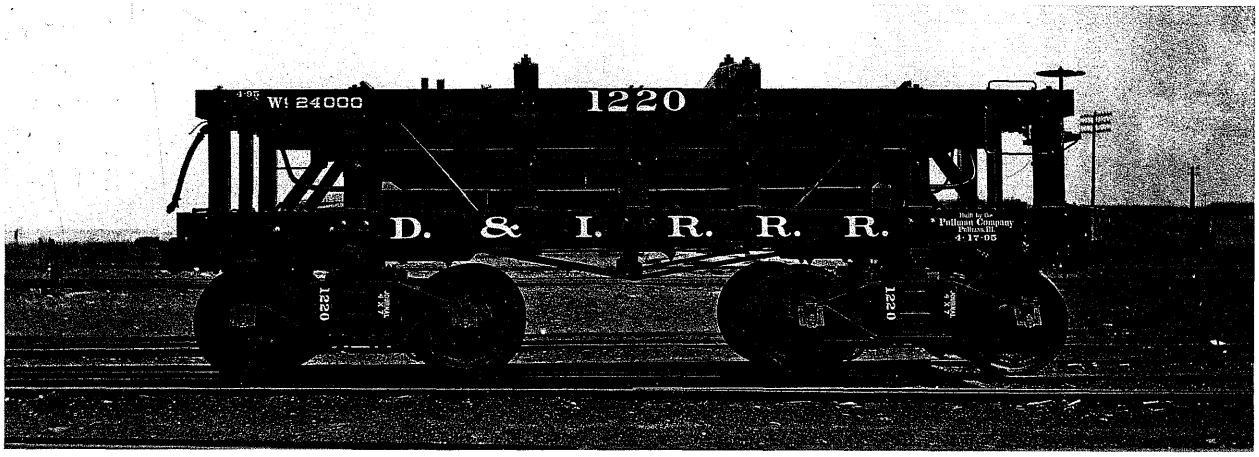
locking bar with a button on the bottom end and were equipped to be operated by a wrench from above. Cars were to be painted with two coats of D&IR standard freight car paint, with the end timbers being painted before car was assembled. This sample car was sent off-line as a demonstration car in an attempt to get orders for cars to be built at Two Harbors. It is unknown if any other railroads ordered cars from Two Harbors, but the design was used from 1892 to 1899 to build replacement cars for cars wrecked on the D&IR. Duluth Manufacturing Co. inspected the car and used the specifications for the 200 cars built in 1895 and 1896. The design was upgraded from a 24-ton to 27-ton car when the first orders were placed.

The first cars built to the new 1892 Standard design were 325 27-ton, 22-foot cars 1667–1991 with 270 cu. ft. capacity were ordered during December 1892 from Wells &



D&IR 1871, one of 325 24-ton 1892 Standard wood ore cars 1667–1991 built by Wells & French during 1893. Note in the upper background is D&IR 737 one of 100 22-ton 28-foot wood ore cars 651–750 built by Haskell & Barker in 1888. Canton Mine about 1895. (MNHS Collection)

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Pullman built 300 22-foot ore cars 1201–1500 in 1895. Not mandated until 1911, there are no left corner grab irons or sill steps. (Pullman Palace Photographs, Archives Center, National Museum of American History, Smithsonian Institution)

French. Delivered in 1893, they were built with New York air brake equipment.

Three years later, 300 27-ton 22-foot 1892 Standard cars 1201–1500 with 270 cu. ft. capacity were ordered from Pullman Standard in February 1895 under Pullman Lot 2095. These cars were built during April and May 1895. Number series 1146–1200 had originally been left vacant to allow for additional 24-ton cars, if any where built, to be grouped with other 24-ton cars in the 201–1145 series. It was apparent in 1895 that this series would not be needed and D&IR started to fill in this gap in the wood ore cars by placing the Pullman 1892 Standard cars in series 1201–1500.

An additional 200 1892 Standard 27-ton 22-foot cars 1992–2191 were ordered from Duluth Manufacturing in May 1895 with 270 cu. ft. capacity. The cars were built in late 1895 and early 1896. While these were being delivered, coal cars 2000–2014 were being renumbered to 236–250 in late 1895.

During 1896, 450 1892 Standard 30-ton 22-foot wood ore cars were ordered from Terra Haute Car & Manufacturing with 454 cu. ft. capacity. A total of 357 cars were numbered 2192–2548 and 55 cars were numbered 1146–1200 filling in the remaining numbers left after the earlier 1895 Pullman order. The remaining 38 cars were used as replacements for cars destroyed in the 751–2136 series. These were the first wood ore cars built with an additional horizontal side extension applied above the rail sill (upper sill), causing the cars to have a larger "heaped capacity" then previous cars. All future wood ore car orders would have these additional extensions, called "side raising timbers by DM&N" applied. Many earlier wood ore cars also had this modification to allow more ore to be loaded in the cars.

An order for 300 1892 Standard 30-ton 22-foot wood ore cars 2549–2848 was placed in December 1897 with Illinois Car & Equipment Co. for $135,000 with 454 cu. ft. capacity. All were delivered in April and May 1898. The cars were equipped with Barber trucks, Westinghouse brakes, National hollow brakebeams, Tower couplers, Bryan tandem spring drawbar attachments, Scott springs, Barber roller side bearings and journal bearings split evenly between Acme and Ajax.

Washington state carrier Spokane Falls & Northern, later part of the Great Northern, thought enough of this design and builder that they ordered 25 identical cars with Barber arch-bar trucks.

D&IR returned again to Illinois Car & Equipment in February 1899 and ordered 200 1892 Standard 30-ton 22-foot wood ore cars 2849–3049 built to the same plans as the 1897 order. All were delivered between May 1899 and July 1899. These would be the last wood

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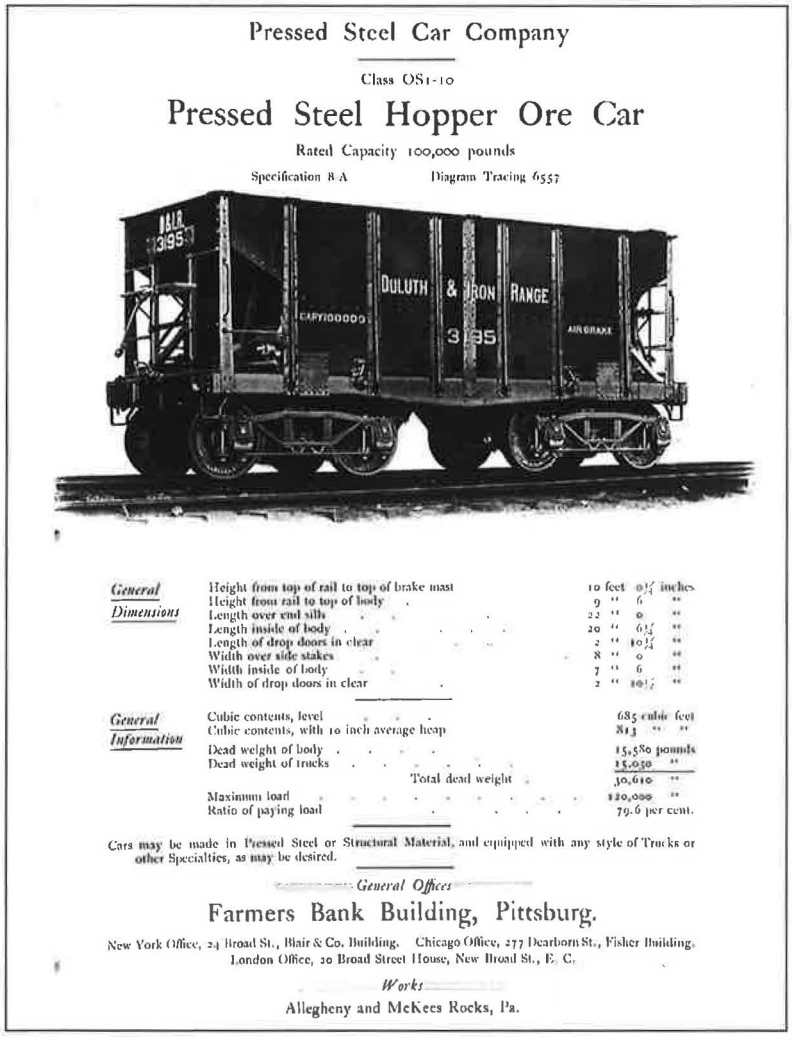
ore cars purchased by the D&IR.

By January 1908, 272 of the wood ore cars had been restricted to coal loading only, this increased to 486 cars in 1909. By 1910, with continued retirements of wood ore cars, only 1,029 wood ore cars remained on the roster, with 344 restricted to coal loading only. During 1911 there were only 329 wood ore cars remaining on the roster, almost all restricted to coal loading. Sixty seven remained in 1917 and all were off the roster before 1918.

D&IR STEEL ORE CARS

The first steel ore cars acquired by D&IR were 350 cars ordered from Pressed Steel Car in September 1899. These 50-ton 22-foot ore cars 3050–3399 were delivered in 1900 with 670 cu. ft. capacity. The cars were a radical design change with the complete hopper and underframe constructed of steel. Design of these cars mimicked Pressed Steel Co. coal hoppers from the era, with eight feet of the middle section of car removed. Hopper doors were wood and equipped with a door trapping mechanism for operating the doors. They had 6 T-section pressed steel side ribs, fishbelly side sills and slope sheet bracing. Unique for ore cars, they had two hopper bottom doors much like coal cars from the era, but these were narrower, dumping only between the rails. Each door was only 2-foot 10½-inches square. The size of the opening would cause these cars to be difficult to unload the lump-type iron ore from the Vermillion iron range. Surprisingly, DM&N received five virtually identical cars numbered 8000–8004 in 1899, but did not order any additional cars of this type. During 1910 the D&IR placed these cars in Class C.

Once D&IR and DM&N came under the same corporate control of U.S. Steel, the economy of joint ordering of equipment was apparent. The next group of cars were ordered in October 1902 from American Car & Foundry under Lot 2517. A total of 100 50-ton cars were ordered with the order split with 50 cars


Pressed Steel Car Company

Class OS1-10

Pressed Steel Hopper Ore Car

Rated Capacity 100,000 pounds

Specification 8-A Diagram Tracing 6557

General Dimensions	Height from top of rail to top of brake mast	10 feet 0½ inches
	Height from rail to top of body	9 " 6 "
	Length over end sills	22 " 0 "
	Length inside of body	20 " 6¾ "
	Length of drop doors in clear	2 " 10¾ "
	Width over side stakes	8 " 0 "
	Width inside of body	7 " 6 "
	Width of drop doors in clear	2 " 10½ "
General Information	Cubic contents, level	685 cubic feet
	Cubic contents, with 10 inch average heap	813 " "
	Dead weight of body	15,580 pounds
	Dead weight of trucks	15,050 "
	Total dead weight	30,630 "
	Maximum load	120,000 "
	Ratio of paying load	79.6 per cent.

Cars may be made in Pressed Steel or Structural Material, and equipped with any style of Trucks or other Specialties, as may be desired.

General Offices

Farmers Bank Building, Pittsburg.

New York Office, 24 Broad St., Blair & Co. Building. Chicago Office, 277 Dearborn St., Fisher Building.
London Office, 20 Broad Street House, New Broad St., E. C.

Works

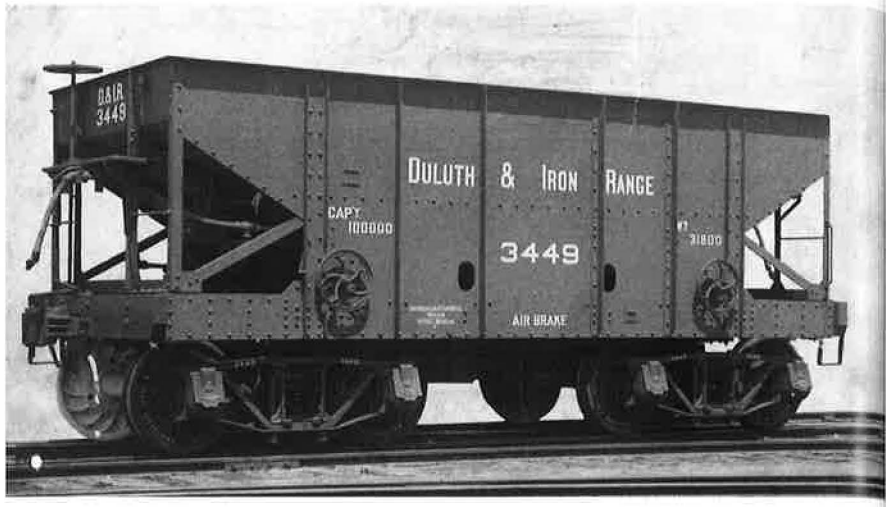
Allegheny and McKees Rocks, Pa.

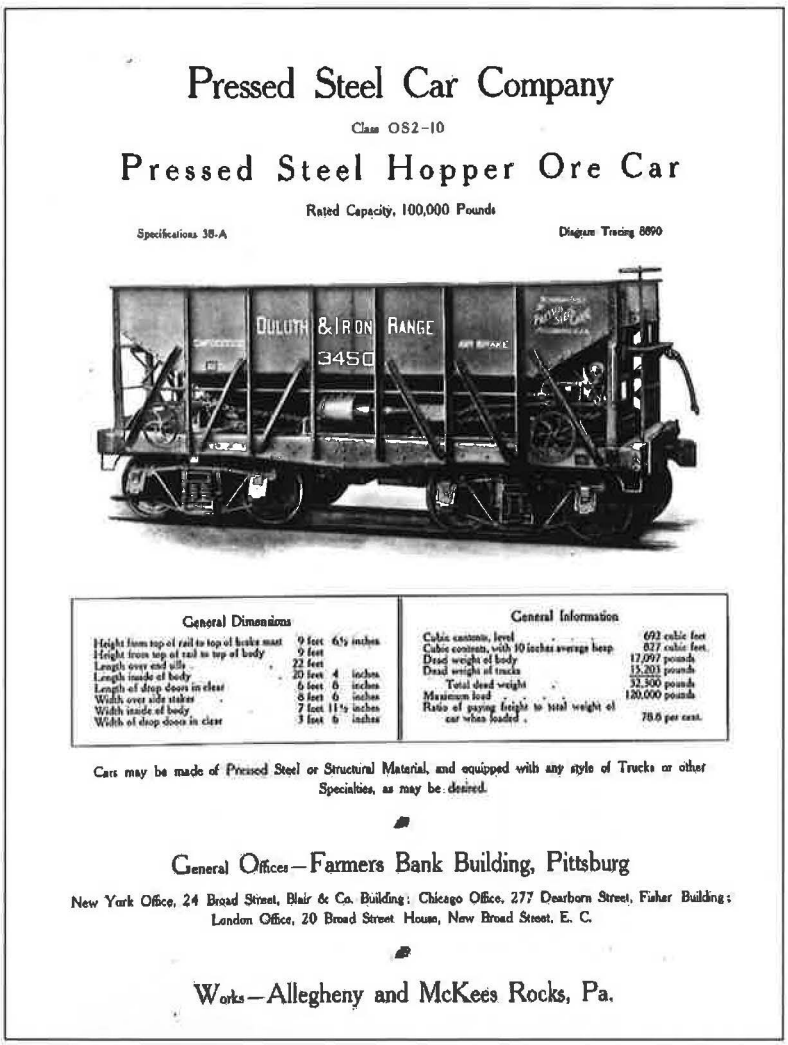
Pressed Steel Car Co. ad for 350 Class C 50 ton steel ore cars 3050–3399 built in 1900. The first ore cars were shortened versions of typical coal hoppers of the era and included, inside the rails, sloped coal hopper bays. This style of unloading bay made it difficult to unload the Vermillion iron range ore which consisted of larger hard chunks of ore. (D.P. Holbrook collection)

going to D&IR and 50 to DM&N. The D&IR cars were delivered in 1903 and numbered 3400–3449. The cars had two pairs of double drop-bottom type dump doors 2-foot 8-inch by 3-foot 5-inch that closely followed those on early wooden ore cars. ACF designed these as a shortened version of a coal hopper replacing the coal hopper bays with 4 drop doors. The car body had two U-section ribs located above the bolsters and four equally spaced T-section ribs all riveted to the carbody. Unique on these all

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Starting in 1899 Duluth & Iron Range began to purchase the first steel ore cars. This second group, 3400–3449 built by American Car & Foundry in 1903 was a single order for 100 cars placed in October 1902. After the order was placed it was split with 50 cars for D&IR and 50 for DM&N. This ACF builders photo shows that early steel ore car mimicked a shortened coal car. (American Car & Foundry Collection, John W. Barriger III National Railroad Library at UMSL)





Pressed Steel Car Company

Class OS2-10

Pressed Steel Hopper Ore Car

Rated Capacity, 100,000 Pounds

Specifications 38-A

Diagram Tracing 8890

General Dimensions		General Information	
Height from top of rail to top of brake mast	9 feet 6½ inches	Cubic contents, level	692 cubic feet
Height from top of rail to top of body	9 feet	Cubic contents, with 10 inches average heap	827 cubic feet
Length over end sills	22 feet	Dead weight of body	17,097 pounds
Length inside of body	20 feet 4 inches	Dead weight of trucks	15,203 pounds
Length of drop doors in clear	6 feet 6 inches	Total dead weight	32,300 pounds
Width over side stakes	8 feet 6 inches	Maximum load	120,000 pounds
Width inside of body	7 feet 11½ inches	Ratio of paying freight to total weight of car when loaded	78.6 per cent.
Width of drop doors in clear	3 feet 6 inches		

Cars may be made of Pressed Steel or Structural Material, and equipped with any style of Trucks or other Specialties, as may be desired.

General Offices—Farmers Bank Building, Pittsburg

New York Office, 24 Broad Street, Blair & Co. Building; Chicago Office, 277 Dearborn Street, Fisher Building; London Office, 20 Broad Street House, New Broad Street, E. C.

Works—Allegheny and McKees Rocks, Pa.

Pressed Steel Car Co. ad for second group of Class D 50 ton steel ore cars 3450–3899, 450 cars built in 1903. Built to modified steel hopper car designs from the era, the diagonal bracing would be eliminated on future cars. (D.P. Holbrook collection)

steel cars was a wooden end sill reinforced with a U-channel. Some of these cars were sold to Malvern Gravel Co. in Arkansas in the 1930s. During 1910 the D&IR placed these cars in Class D.

These cars were quickly followed by 450 50-ton 22-foot ore cars 3450–3899 from Pressed Steel Car Co. in 1903 with 680 cu. ft. capacity. The cars had two pairs of double drop-bottom doors with each having an opening of 3-foot 2-inch by 3-foot 6-inch, creating a larger opening than the 1899-built cars. These doors became the standard ore cars doors until longitudinal doors were developed in 1909.

All were delivered with Barber arch-bar trucks, Westinghouse brakes and drawbar attachments, McCord journal boxes and Chicago and Tower couplers. The cars had six L-section side ribs with 6 half height diagonal L-section ribs. Sides only came half way down the side instead of full height sides of the 1899 order. This allowed easier access to door operating mechanisms. The K-brake equipment was relocated to the side just below the side slope sheet to allow easier maintenance. The cars did retain the fabricated fishbelly side sill from the 1899 order. These were the first cars with door opening and closing mechanisms controlled by brake wheel-type wheels located along the side adjacent to sill steps at a height allowing easy movement by a standing ore dock employee. During 1910 the D&IR placed these cars in Class D.

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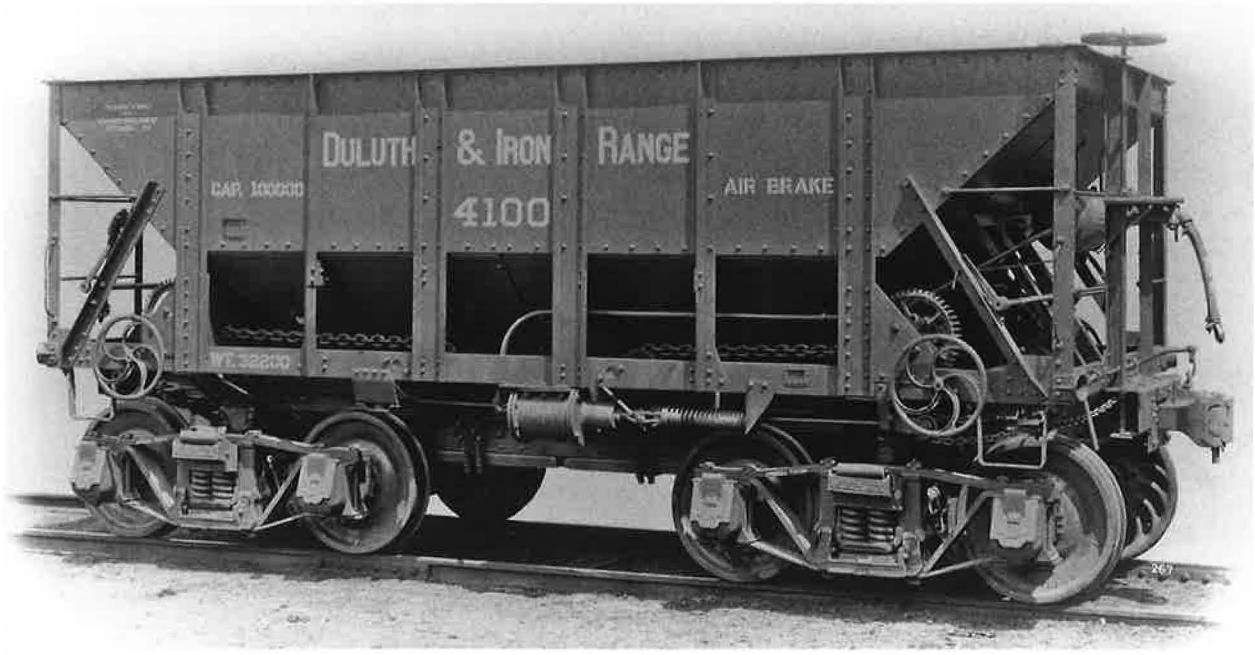


The evolution in 50-ton steel ore car design is illustrated in this view at Pioneer Mine Shaft B, Ely, Minnesota, about 1915. From left to right, are two of 100 ACF-built 1910 cars from 11400–11499 series, the third and seventh car are two of 450 Pressed Steel Car Co.-built 1903 cars from 3450–3899 series and the fourth through sixth car are three of 750 Standard Steel Car Co.-built 1910 cars from 10500–11249 series. (University of Minnesota Duluth, Kathryn A Martin Library Archives and Special Collections, S3742 Box 7 Folder 20398)

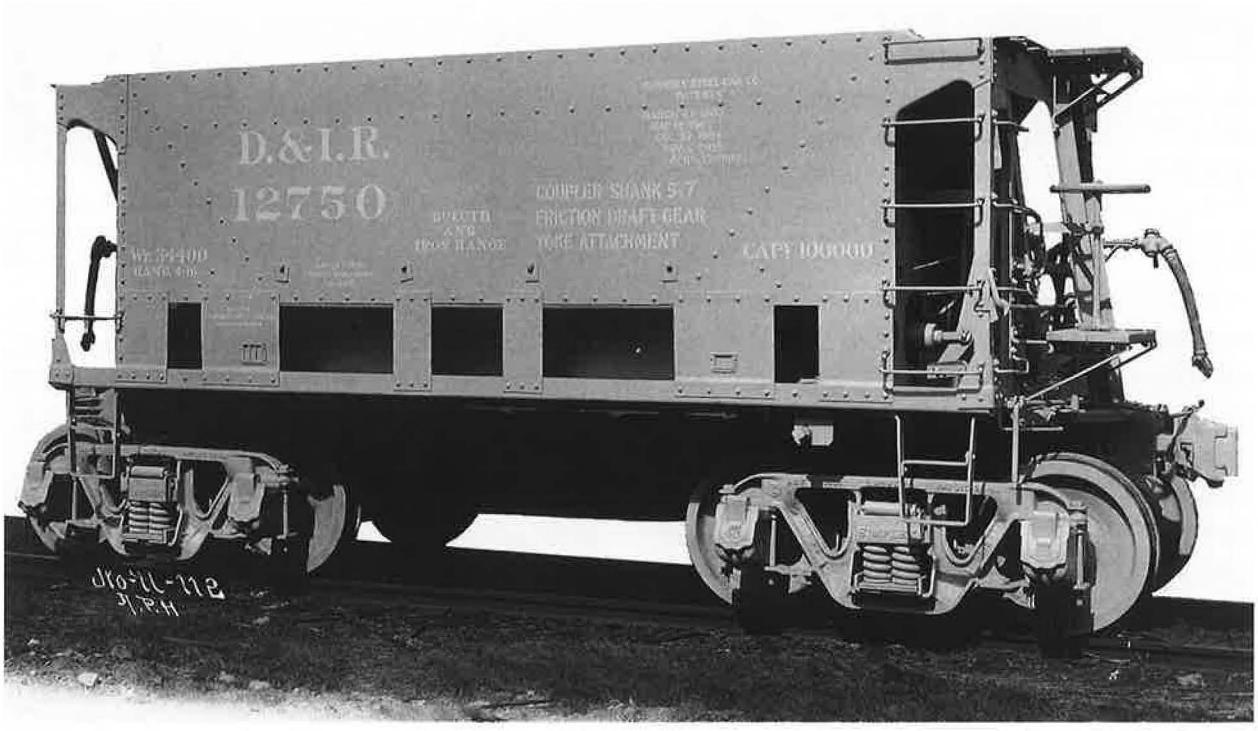
Increased tonnage and a deteriorating wooden ore car fleet caused the D&IR to order additional 50-ton steel ore cars. An order was initially placed in April 1905 for 300 cars; increased in May to 500 cars from Standard Steel Car Co. Numbered 3900–4399, they were 22-foot, 710 cu. ft capacity cars with two pairs of double drop-bottom doors each having an opening of 3-foot 2-inches by 3-foot 6-inches. The carbody was modified from earlier designs and had two U-section ribs located above the bolsters. The remaining rib pattern consisted of two L and two U-section ribs equally spaced between the end ribs. The car had, what would later become standard on all future ore cars, a half-height side sheet carbody with slope sheets intersecting the sides to create a tub.

Between end sills and end slope sheets there was a diagonal L-section rib for additional support. Handbrake-type wheels to operate doors were located adjacent to sill steps on both sides of the car. K-brake equipment was located below the side sill between the trucks allowing for easy maintenance. These cars were built with Barber arch-bar trucks, Westinghouse brakes and drawbar attachments, and a mix of Climax and Chicago couplers. During 1910 the D&IR placed these cars in Class D. Beginning in 1931 a number was added to this class making them Class D3.

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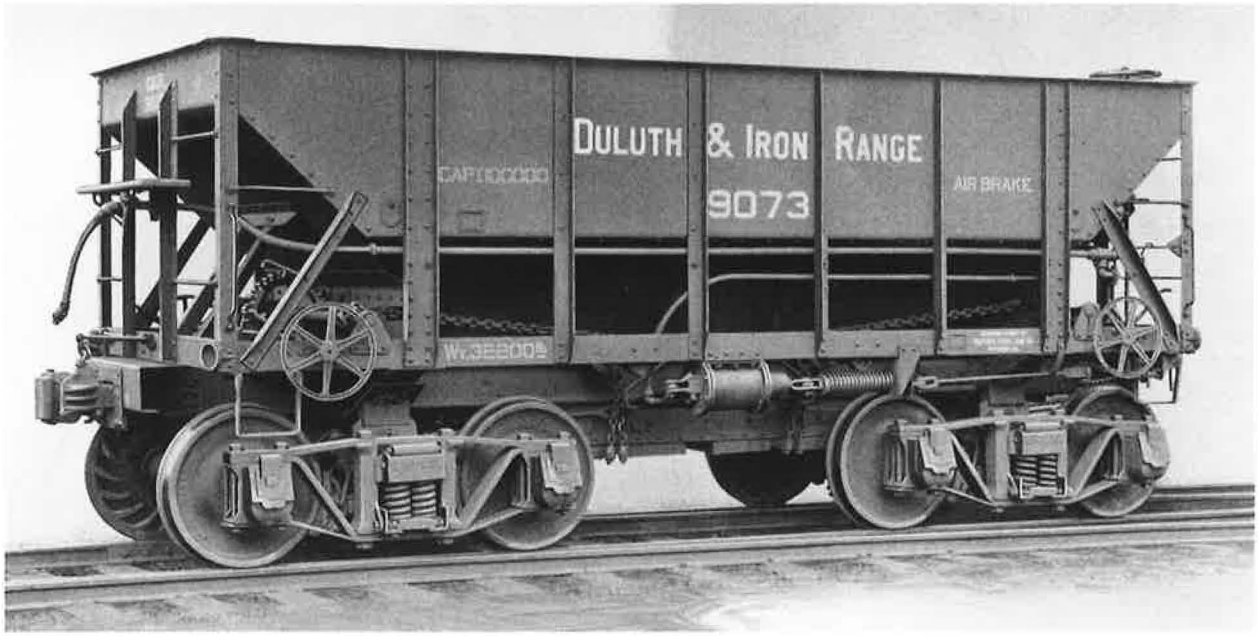


After the first order of ore cars having small coal hopper doors was delivered, the design for bottom-dumping doors was changed to four transverse doors operating as pairs for unloading. Suitable for their time, they did not allow the large chunks of Vermillion Range iron ore to dump easily. Main improvement of these cars was the door operating wheels located on the side of the car making it easier for men standing on the ground to operate the doors. Series 3900–4399 cars were built by Standard Steel Car Co. in 1905. Some would later be modified with longitudinal doors. Note the C and L stock ribs. (Standard Steel Car Co., D.K. Retterer collection)



Standard Steel Car Co. builders photo of D&IR 12750 built in 1916 shows off the evolving design changes. Basic construction remains the same but the lower half of the carbody has been modified to use less steel reducing the tare weight of the car and allowing easier maintenance of mechanical and airbrake components. (Standard Steel Car Co., D.P. Holbrook collection)

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Further improvements in carbody design were made when 700 cars in 9000–9699 were built by Pressed Steel Car Co. in 1907. These cars mimicked the Standard Steel Car Co. design but had a different C and L stock rib arrangement, also, the bottom edge of the carbody side sheet is slightly longer on these cars. (Pressed Steel Car Co., D.K. Retterer collection)

Late in 1905 D&IR returned to Pressed Steel Car for 500 additional 50-ton 22-foot ore cars 4400–4899 with 710 cu. ft. capacity with two pairs of double doors each having an opening of 3-foot 6-inches by 3-foot. Pressed Steel modified the Standard Steel Car order 3900–4399 by changing the rib pattern to two U-section ribs located above the bolsters and four equally spaced L-section ribs between the U-section ribs.

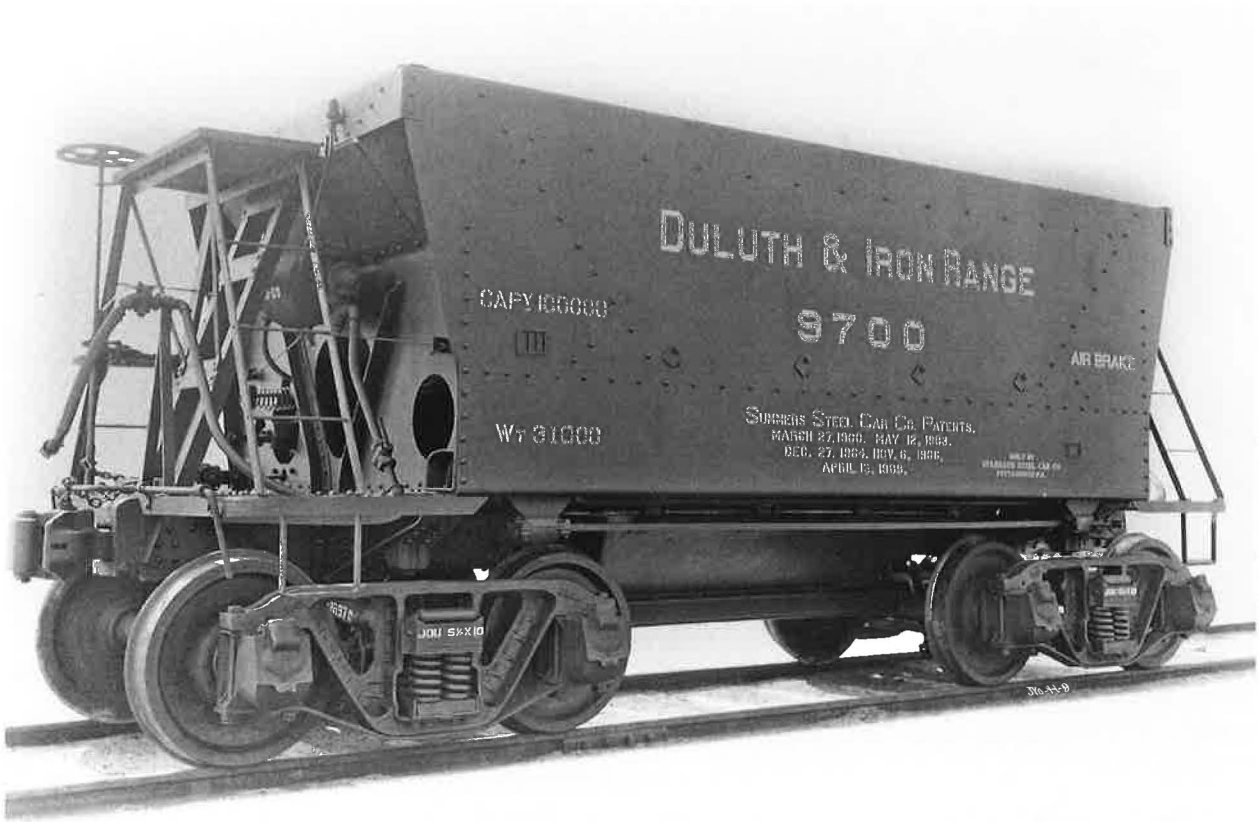
The cars retained the diagonal L-section ribs attached between side sills near the ends and the slope sheets. These acted as slope sheet supports to supplement the two slope sheet supports attached to the top of the draft gear. All were delivered during March 1906 equipped with: Buffalo Car Wheel Works wheels, Simplex bolsters, Westinghouse brakes, Pressed Steel Car brake beams, Westinghouse drawbar attachments, Pittsburg Steel Spring Co. springs, McCord journal boxes, Susemihi side bearings and Franklin dust guards. During 1910 the D&IR placed these cars in Class D and in 1931 reclassed the cars as Class D4.

Satisfied with the 1905 order, the next group of 700 50-ton 22-foot ore cars 9000–9699 were ordered from Pressed Steel Car in 1907 with 710 cu. ft. capacity. These were identical to the 1906 Pressed Steel Cars and in 1910 were also placed in Class D. Beginning in 1931 a number was added to this class letter, making them Class D4.

SUMMERS TEST CAR

Summers Car Co. supplied a 50-ton demonstrator ore car, number 101, in 1909. Its arrival on the iron range would revolutionize future shipments of ore. Unique at the time, it was the first to have longitudinal dump doors consisting of two doors made from pressed steel shapes that extended over a portion of the inner truck wheels. The ends of the doors were flanged upwards which allowed them to open downward without obstructing the wheels. Side and end slope sheets had an inclination of 50 degrees with the doors, when open having the same slope. Doors were 5-foot 6-inch by 8-foot 6-inch, so large,

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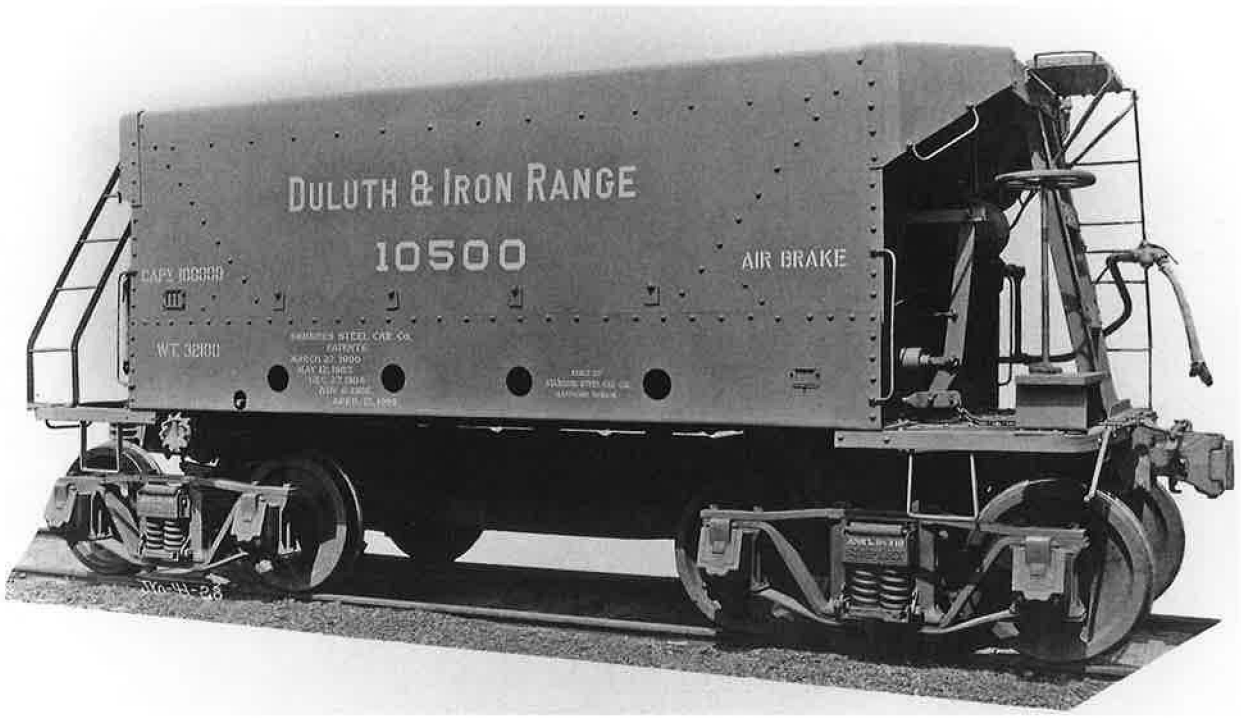
The first orders for cars with the new type doors were 800 Summers-type 50-ton 22-foot ore cars, 9700–10499 ordered from Standard Steel Car Company's Hammond, Indiana, plant in 1909 with 650 cu. ft. capacity for $842,517.67. The Summers Steel Car Co. patents were issued April 13, 1909. (Standard Steel Car. Co., D.K. Retterer collection)

that bridging of ore in the car was eliminated. Four heavy hinges attached to the doors were connected to 2½-inch steel shafts by chains, actuated by worm gears that rotated on a shaft connected to a cross shaft. This allowed the doors to be placed in any position from closed to full open without any additional mechanisms. Older iron ore cars required from six to ten men to unload the car. The new car could be operated by one man and unloaded within two minutes. D&IR Appropriation 486, of July 7, 1915, authorized the purchase of 101 for $300.00. The car had 820 cu. ft. capacity and was equipped with arch-bar trucks. Summers would go on to modify the design and produce many additional "Summers" ore cars for both the D&IR and the DM&N. After retirement of Rakowsky car 3049 in 1914, this car was renumbered second 3049 late in 1915. It was retired in 1928.

MORE 50-TON STEEL CARS

Innovation was needed. The standard 2 paired drop-bottom double doors were very slow dumping and this was causing congestion on the docks while cars were being dumped. Longitudinal dump doors for ore cars had been developed by two of the major builders. Standard Steel Car, with their Summers-type car, and American Car & Foundry with their Clark-type car. The first orders for cars with the new type doors were 800 Summers-type 50 ton 22-foot ore cars 9700–10499 ordered from Standard Steel Car in 1909 for $842,517.67. The new cars had a single door opening of 5-foot 6-inches by 8-foot 2-inches and rode on arch-bar trucks. The carbody was a single riveted plate steel side sheet with wide end platforms, with no corner or end posts, having an interior length of 17-foot 1-inch. End

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Carbody modifications would follow quickly in 1910 when an additional 750 50-ton 22-foot cars in 10500-11249 series were ordered from Standard Steel Car. Note the changes in ladders, staff brake wheel mounting and the addition of small holes in the side sheets for maintenance. The left side of car had four small openings but the right side had five. It is unclear as to why they were different. (Standard Steel Car Co., D.K. Retterer Collection)

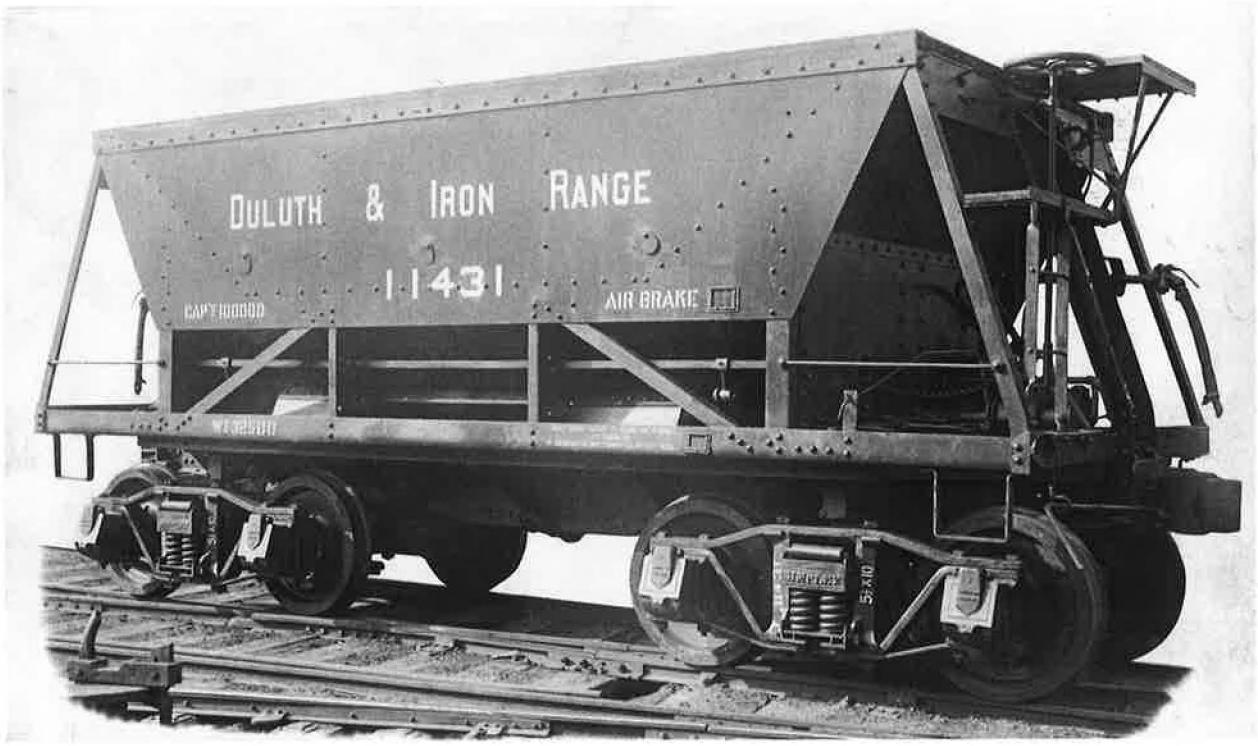
platforms had ladders on both sides leading up to a 4-foot wide poking platform. These would be the only cars built with the wide poking platforms. Cars also had the vertical staff brake wheel mounted at the extreme height of the carbody. The new door type caused these cars to be placed in Class E in 1910. A change in 1931 reclassified these cars as Class E6. Besides using the Class D and Class E for the steel ore car fleet, the D&IR often referred to the Class D cars (transverse doors) as "slow dumping cars" and the Class E cars (longitudinal doors) as "fast dumping cars" based on the their operating abilities. All of these cars were retired per AFE 3412 June 18, 1934.

Even before the new cars saw one year of service the D&IR had determined that they would order 1,000 50-ton ore cars with the new type of doors. An appropriation was approved for $102,433.47 with the order split between three car builders.

Quickly, the D&IR ordered 750 additional 50-ton 22-foot Summers-type cars 10500–11249 from Standard Steel Car in 1910 with 650 cu. ft. capacity. The cars had a single door opening of 5-foot 7-inch by 6-foot 6½-inch and rode on arch bar trucks. They continued the basic carbody style from the 1909 order with some modifications. Side sheets had four round openings on the L-side of the car and five round openings on the R-side for access to brake components. The car still did not have any end or corner posts, but the carbody top had angled metal corners to meet the slope sheet, allowing an interior carbody length of 18-foot 7-inches.

Sill steps were set in from ends to just below the end of side sheets to allow grab iron to be attached to side sheet for employees to get on or off the car. End ladders were modified with only one ladder at each end going up to a 3-foot wide poking platform. The vertical brake wheel staff was lowered to a small wooden end platform allowing easier access. These were placed in Class E in 1910. Beginning in 1931 this class became Class E7. The

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Until 1910, ore car construction consisted of a carbody with exterior post construction. American Car & Foundry built 100 Clark-type 50 ton ore cars, D&IR 11400–11499 in 1910 with specially designed longitudinal rolling doors forming a hopper bottom. (American Car & Foundry Collection, John W. Barriger III National Railroad Library at UMSL)

D&IR/DM&N merger caused these cars to be renumbered to 40500–41249.

Wanting to sample additional builder's cars with longitudinal doors, D&IR ordered 150 50-ton 22-foot ore cars 11250–11399 from Pressed Steel Car in 1910 with 715 cu. ft. capacity. These were built at the Western Steel Car and Foundry plant in Chicago. Cars had a single bottom door opening of 5-inch 7-inch by 6-foot 6½-inches. These cars would be the first development of a standard ore car design with plate steel sides open below the side slope sheet attachment points, having side sill mounted bracing to the slope sheets.

Ladders were created by having corner posts with ladder rungs extending to the side sheets with sill steps inset to half way between the end axles and bolster. Side sills ended at the corner posts and angled end sills extended to the draft gear. These would also be first cars to have the end slope sheets angle from the bottom door opening to the corner posts, allowing easier unloading of the car. These cars also returned to the wide poking platforms. These were placed in Class E in 1910. Beginning in 1931 the classification became Class E6. The D&IR/DM&N merger caused these cars to be renumbered to 41250–41399.

The next order was placed with American Car and Foundry in 1910 for 100 Clark type 50-ton 22-foot ore cars 11400–11499 built under Lot 5809A with 650 cu. ft. capacity. Built to a new design with flat riveted plate steel sides and sloped corner posts supporting the end slope sheets, all bracing was internal to the carbody design. The cars had a special design of longitudinal rolling doors forming the hopper bottom. These were placed in Class E in 1910. A special design of longitudinal rolling doors 6-foot 6½-inches by 5-foot 7-inches formed the hopper bottom. AFE 1259 of March 11, 1924, AFE 1266 of March 27, 1924, and AFE 1273 of April 6, 1924, were approved for the application of extended sides and ends

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Duluth resident and mechanical engineer, Gustav A. Rakowsky, took notice of the Summers and Clark designed ore cars and designed and applied for patents for his Rakowsky 50-ton automatic unloading ore car. This car was unique in having two halves that were attached to a frame body and dumped like two opposing dump truck bodies. Demonstrator car 100 was built by the "Automatic Unloading Car Co., a division of Northwestern Steam Boiler Co." at Duluth in 1908. Doors were operated by air which allowed unloading in ten seconds. D&IR and DM&N would test the car during 1909 and 1910 and then each acquire five cars built to a modified design in 1911. (Minnesota Historical Society collection)

to the 98 remaining cars. Sides and ends were extended 10-inches with $^{3}/_{16}$ plate steel and 3 x 3 angle iron for $7439.01. The modifications were removed per AFE 1884 begun on June 11, 1926, and completed on July 7, 1926. These cars quickly had bulging side sheet problems that caused all the cars to be retired by 1929.

Deliveries of 1,800 50-ton steel ore cars between 1909 and 1910 allowed the retirement of over 700 wooden ore cars. Remaining wood cars were now mostly in coal and gravel service and all wooden ore cars were retired by 1918.

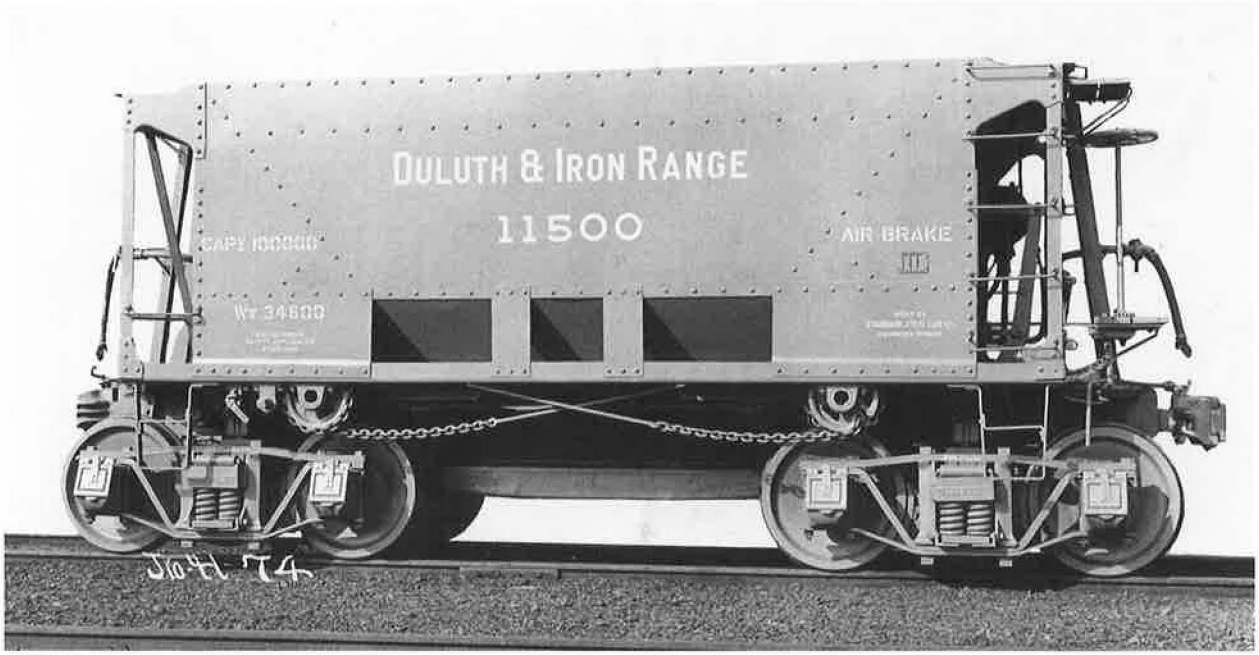
RAKOWSKY ORE CARS

At the D&IR Board of Directors meeting on March 11, 1911, the purchase of five Rakowsky steel ore cars was approved on D&IR Appropriation 326 for $5,390.00. These cars were built by Automatic Car Unloading Co., a division of Northwestern Steam Boiler Co. of Duluth, and numbered 3045–3049. These cars were 22-foot 1-inch 50-ton ore cars with a capacity of 580 cu. ft. All cars were received and placed in service by November 1911. These cars were unique in their clamshell car bodies with each half rotating on pinions to allow dumping of the cars. The rigors of iron ore service caused these cars to suffer door operating problems, with 3049 being retired in 1914. The remaining four cars, 3045–3048 were held on roster out of service from 1914 to 1916. All four cars were written off accounting records in 1916.

MORE STEEL ORE CARS

Increasing ore business caused the D&IR Board of Directors to approve Appropriation

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Standard Steel Car Co. builders photo of D&IR 11500 built in 1913 shows off the shortened carbody and extended draft gear. Ore car construction evolved from the first steel cars being built from foreshortened coal hopper designs, to rib-sided cars with L- and U-section supports, to plate steel riveted sides as depicted here, and then to a final design with plate steel covering only the upper half of the carbody. (Standard Steel Car Co. photo, DP Holbrook collection)

405 on July 11, 1912 for $1,150,000 to purchase an additional 1,000 steel 50-ton ore cars during 1913.

Standard Steel Car received the order for 800 Class E Summers-type 50-ton 22-foot ore cars 11500–12299 to be constructed at their Hammond, Indiana, plant with 695 cu. ft. capacity. The cars had a single door opening of 5-foot 6-inch by 8-foot 2-inch and rode on arch-bar trucks. Sides were constructed of riveted plate steel down to the side slope sheets, with the bottom side of carbody being supported by two large and two small riveted steel plates attached to the side sheets. Beginning in 1931 this class became Class E8. The D&IR/DM&N merger caused these cars to be renumbered to 41500–42299.



DM&IR 41641, one of 800 D&IR 11500–12299 50 ton Class E8 ore cars built by Standard Steel Car Co. in 1913. Cars were renumbered to 41500–42299 series after D&IR and DM&N merger. (D.P. Holbrook collection)

American Car & Foundry received the order for 200 Class E National-type 50-ton 22-foot ore cars 12300–12499 with 685 cu. ft. capacity riding on arch-bar trucks. The cars were unique in having stamped-steel carbody sides and side slope sheets that were riveted to the end slope sheets. Sides were supported by five U-section ribs. Corner posts were inset from the ends and a vertical staff brakewheel was mounted on the ends. These cars had a single longitudinal door opening 7-foot 1-inch by 5-foot 5-inches. Beginning in 1931 this group of cars became Class E9. The D&IR/DM&N

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merger caused these cars to be renumbered to 42300–42499.

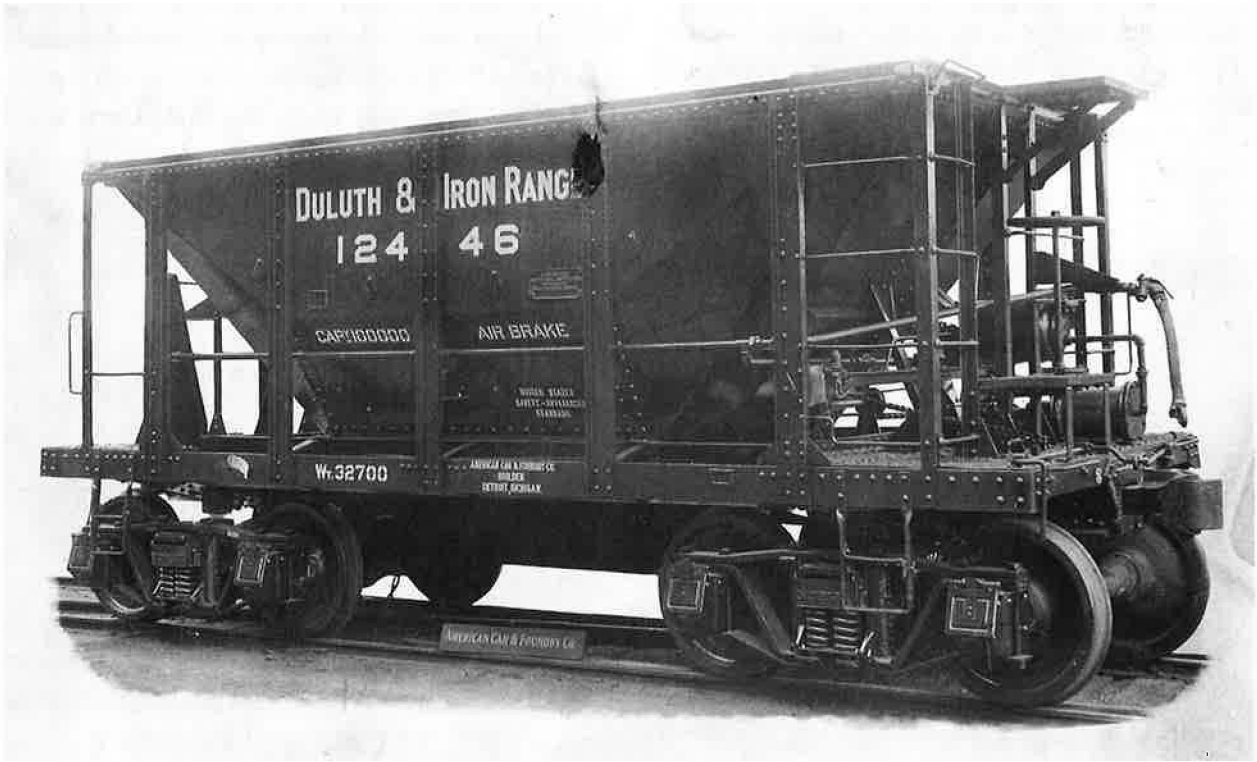
Appropriation 532 was approved at the June 13, 1916 Board of Directors meeting for the purchase of 750 50-ton 22-foot ore cars for $937,500. This order was again split between ACF and Standard Steel Car.

American Car & Foundry built 250 Class E National-type 50-ton ore cars 12500–12749 which were identical to the ACF 1913-built cars. Beginning in 1931 this group of cars received a change to Class E10. The D&IR/DM&N merger caused these cars to be renumbered to 42500–42749.

Standard Steel Car Co. built 500 Class E 50-ton Summers-type 22-foot ore cars 12750–



Class E8 ore car 42178, one of 800 D&IR 11500–12299 built by Standard Steel Car in 1913 is shown at Sellers Mine in June 1939. Note the Duluth, Missabe & Iron Range monogram without the Safety First slogan, used between 1937 and 1942. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S2386 Box 27 Folder 5 detail)



The first 50 all-steel ore cars were supplied by American Car & Foundry in 1903, but D&IR would not return to ACF for additional ore cars until ordering the Clark-type ore cars in 1910. Not satisfied with that design, ACF improved on it with exterior post construction, hoping that it would solve a bulging side problem. D&IR ordered 200 Class E cars, 12300–12499 in 1913 based on this new design. These would be the final ore cars painted with the full "Duluth & Iron Range" name. Future orders would arrive with only D&IR reporting marks. (American Car & Foundry Collection, John W. Barriger III National Railroad Library at UMSL)

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13249 with 695 cu. ft. capacity. The 1913 Standard Steel Car Co. car design was modified by having additional access openings in side slope sheets, and all were equipped with T-section Andrews trucks. Placed in Class E when purchased, the reclassifications of 1931 placing them in Class E11. The D&IR/DM&N merger caused these cars to be renumbered to 42750–43249.



Rib side support of ore car bodies returned to D&IR when 200 cars 12300–12499 were ordered from American Car & Foundry in 1913. Built to a National design, the carbody was supported by five U-sections riveted to the carbody. Renumbered to DM&IR 42300–42499 series, 42421 is shown at Proctor July 17, 1957. (Bob's Photo collection)



The teens would find the D&IR ordering multiple types of cars from American Car & Foundry. D&IR 12748 was part of 250 Class E ore cars 12500–12749 built in 1916. These were virtually identical to the 200 cars 12300–12499 built in 1913, with the main difference being Andrews T-section trucks instead of arch bars. (American Car & Foundry Collection, John W. Barriger III National Railroad Library at UMSL)

D&IR SLOW AND FAST DUMPING ORE CARS

Extremely happy with the longitudinal dump doors on newer 50-ton ore cars, D&IR began to pursue in 1928, a way to modify transverse door cars with longitudinal doors.

One hundred one of the 1905 cars 3900–4397 and 99 of the 1906-1907 built cars 4432–9618 were stenciled "work train cars for track department service only" per a July 13, 1928 letter from R.R. Moore, superintendent motive power, D&IR Two Harbors, and were *not* to be used for moving iron ore. All were transferred to the MofW department in December 1928. Per letter of June 6, 1929, from Thomas Owens, vice president and superintendent, these cars were to be returned to ore service, but stenciling was to remain on the cars. AFE 3123 approved February 4, 1931 transferred all 200 cars back to revenue sèrvice.

(On August 1, 1928 Mr. B.B. Thomas is-



Overhead view of D&IR 163 (actually DM&N 163) at Soudan Mine, August 12, 2014. Note the corner slope sheets attached to the end, side and side slope sheets. As built this car did not have corner slope sheets, and end slope sheet intersected the side sheets. This car matches D&IR 9000–9699 Class D 50-ton ore cars. (D.P. Holbrook)

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sued a lettering advising that 500 of the 1905 and 1906-07 built cars were being sold to Duluth Iron & Metal. At that time it was advised that 341 cars should be retained and used exclusively for Soudan, Mary-Ellen and Siphon mine ore, account these mines being very slow-moving mines and the ores loaded at these mines were better loaded in these cars and this would not tie up fast-dumping cars in this service. The Siphon Mine was expected to close during 1929 and the Mary-Ellen was expected to close very soon. This would leave sufficient slow-dumping cars to protect the movement of Soudan ore.

Evaluation of the 1351 ore cars being considered for retirement in 1929 showed that 1261 were of the early slow-dumping variety.

Cars with longitudinal doors were considered a fast-dumping ore car which dumped contents almost instantaneously and only required one man to release the doors. One minute and one man were employed to clear a fast-dumping car of its contents.

Slow-dumping ore cars took an average of 4 men, 15 minutes each to perform the same service occasioned partly by having to climb the car and push out some of the contents. This was a result of the dump opening in the floor of the car being of much smaller dimensions, and also it had a transom bar across it, which acted as a bridge to hold the load from falling out of the car. The angle of the sides of the hopper were much flatter than in the fast-dumping type, which checked the velocity of the fall of the ore, whereas the type of car that was being retained had no transom, two doors, and a much larger opening. The side slope sheets of the fast-dumping cars were also much steeper.

Slow-dumping hoppers were badly corroded and worn, wood end buffers were decayed, draft channels and body bolsters needed to be reinforced, and the trap doors were badly worn. Cars were deteriorating rapidly.

The cars purchased in 1903 and 1905 were not convertible into fast-dumping type with longitudinal doors. But those built in 1906 and 1907 could be converted. The first two cars converted were 4656 and 9295 under AFE 1664 approved on May 19, 1925 for $1,322.99. Work was begun on September 5, 1925, and completed September 23. Besides replacing the doors, the end slope sheets were improved from 42 degrees to 48 degrees, making the cars easier to dump. Another car, 4596, was completed on November 10, 1925. Thirty-five additional cars were converted at Two Harbors during the 1927-1928 winter shopping season. These cars, 4400–4419, 9156, 9348, 9426,

Slow Dumping Ore Cars 1929			
Class-Built-Builder	**Number series**	**To be Retired**	**To Remain in service**
Class D Built 1903 ACF	3400–3449	50	
Class D Built 1903 PSC	3450–3899	434	
Class D Built 1905 SSC	3900–4399	487	
Class D Built 1906-07 PSC can be converted to fast dump	4400–4899 9000–9699	290	906
Fast Dumping Ore Cars 1929			
Class-Built-Builder	**Number series**	**To be Retired**	**To Remain in service**
Class E Built 1909 Summers	9700–10499		
3049		797	
Class E Built 1910 Summers	10500–11249		895
Class E Built 1910 ACF	11400–11499	90	
Class E Built 1913 SSC	11500–12299		800
Class E Built 1913 ACF	12300–12499		200
Class E Built 1916 ACF	12500–12749		250
Class E Built 1916 SSC	12750–13249		500
Totals		1351	4348

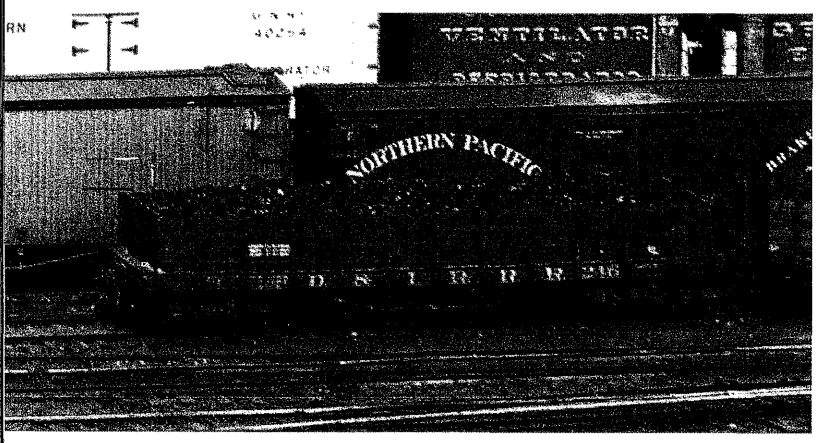
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9566, and 9636 were rebuilt with longitudinal doors and 10-inch side extensions. AFE 1613 July 27, 1927 and AFE 1643 September 6, 1927 provided for the rebuilding of these cars.

There were 906 cars of this series retained for purposes other than hauling of ore, such as coal, gravel and sand, where the dumping apparatus did not materially affect the service of the car. It was furthermore contemplated, when the occasion arose and it was considered expedient, to convert these cars into fast-dumping type, and at that time increase the capacity by from two to three tons per car, strengthen the body, at an estimated cost of between $500 and $600 per car.

The 90 cars, 11400–11499, of 1910 construction remaining to be disposed of, were of the improved type of car, but they were so weak in construction that the body bulges in the center caused the entire car series to be pulled out of service.

It was thought that a very limited number of these cars could be disposed of at a figure somewhere between three and four hundred dollars. Once these retirements took place it left in service 4,348 cars, which was sufficient to take care of all requirements in addition to coal, gravel, and sand. All remaining cars were then of the fast-dumping type excepting 906 slow-dumping cars which were reserved for coal, gravel, and sand, with the possibility of converting them to a fast-dumping type when it was deemed expedient.



D&IR 246 33-foot 4-inch coal car at Duluth circa 1905. The car was originally built as part of 15 coal cars 236–250 by Northwestern Car & Manufacturing in 1884. Renumbered to 2000–2014 series in 1887, the car would again be renumbered to 236–250 in 1895. Beginning in 1901 and completed by 1904 all were rebuilt to 36-foot cars with wooden sides atop a standard D&IR flat car as shown here. (Shorpy Photo Archives)

Over 320 of the 50-ton slow-dumping cars survived into the 1970s in work service. The four transverse doors that caused iron ore to slow dump because of their openings also made them a preferred car for dumping ballast. The dumping mechanism was operated via a chain connected to a shaft that was turned by a hand wheel on the side of the car. Each door had its own mechanism with a ratchet and pawl locking device that allowed the doors to be opened gradually to control the flow of ballast from the car.

D&IR COAL CARS

At the same time as 300 wood ore cars were ordered in 1884, 15 coal cars 236–250 were built by Northwestern Car & Manufacturing. They were 33-foot 4-inch side-dump coal cars with 3-foot 4-inch inside height and 910 cu. ft. capacity. Sides were constructed of four 10-inch planks with 13 oak side stakes installed in stake pockets to support the sides. D&IR listed these as "coal, side dump." The cars were renumbered in 1887 to 2000–2014 and renumbered again in 1895 to 236–250. All were rebuilt to 36-foot cars with solid wooden sides between 1901 and 1904 at Two Harbors. Class H would be applied to these cars in 1911. Steel center sills were applied to car 248 in 1919. It appears that this may have been the only car rebuilt with steel center sills. All were off roster by 1934.

D&IR STEEL GONDOLAS

Prior to 1907, D&IR relied on a roster of solid-bottom wooden gondolas, most rebuilt from flat cars with added sides. Heavy use caused these to require constant repairs.

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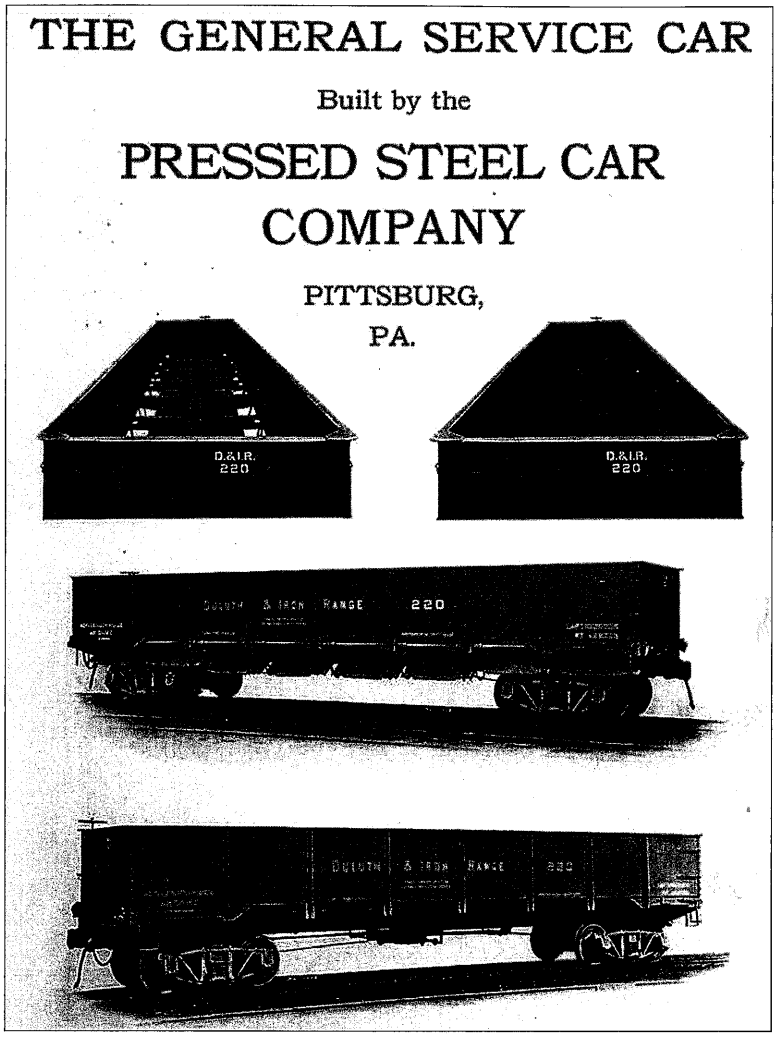
Increasing shipments of coal for mining companies, commercial customers and D&IR company coal created a shortage of gondolas. D&IR ordered three groups of 50-ton 41-foot steel drop-bottom gondolas in 1907 and 1908 from Pressed Steel Car Co. with 1,593 cu. ft. capacity. All were identical steel construction with seven side and three end T-section ribs and rode on arch bar trucks. The cars were equipped with 16 flat steel drop-bottom doors with three hinges per door along the longitudinal center sill and opened to the outside.

The doors were operated by a simple shaft with two chains attached to each door. Winding this mechanism caused the door to open or close. Center sills were of triangular cross section allowing the car to be virtually self-clearing making them suitable for hauling ore, sand, gravel or dirt. Iowa Central, Newburg & South Shore, and other carriers owned identical cars. Once old-growth timber had played out, the cars were used for hauling pulpwood, initially loaded longitudinal and in later years horizontally.

The first group 221–235 was built in 1907. These were numbered directly below wooden gondolas 236–250. All 15 cars were delivered between November and December 1907. At the time of the merger these were renumbered to 4221–4235 series. All were off the roster by 1971

The second group of steel gondolas, 201–220 were built in 1908. All twenty cars were delivered in April, 1908. At the time of the merger these were renumbered to 4201–4220 series. All were off the roster by 1971.

The last group of steel gondolas were built in 1908 and numbered 251–260. All ten were delivered in April, 1908. These were numbered directly above wooden gondolas, 236–250. At the time of the merger these cars were renumbered 4251–4260. All were off the roster by 1971. All three groups were placed in Class H beginning in 1911 when class letters began to be assigned. Car builder's order records from this time do not show D&IR ordering this last



Pressed Steel Car Co. ad for Class H 50 ton 41-foot steel drop-bottom gondolas. D&IR would buy three groups, 201–220, 221–235 and 251–260 in 1907 and 1908. Fifty additional drop-bottom gondolas, 261–310 would arrived from Western Steel Car & Foundry in 1917. (D.P. Holbrook collection)

group of gondolas and it is thought these may have been originally built for Roebling Steel in 1906 who did not take delivery, and cars were purchased by D&IR in 1908

Appropriation 630 was approved at the Board of Director meeting on June 11, 1917, for $129,000 to purchase 50 Class H 50-ton 41-foot 8-inch steel gondolas 261–310 built by Western Steel Car & Foundry with 1,593 cu. ft. capacity. All 50 cars were delivered between February and March of 1918. They were identical to the Pressed Steel Car Co. cars built in 1907 and 1908. The cars were placed

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Two orders were placed in 1907 for 45 steel drop-bottom gondolas from Pressed Steel Car Co. which would allow them to be loaded with coal, aggregates, pulpwood and lumber. Class H DM&IR 4211 is at Proctor, July 17, 1957. Having 1,532 cu. ft. capacity these cars allowed for a two for three replacement of flat car/gondola conversions and the drop bottoms made unloading less labor intensive. (Bob's Photo collection)



Maroon and gold paint and lettering on gondolas was adopted in 1958. Scotchlite monograms, reporting marks and numbers would replace the stencil versions beginning in late 1959. DMIR 4202 and 4282 are at Tower, Minnesota, in the summer of 1960. (Jim Maki Sr.)



An order for 50 additional steel drop-bottom cars was placed with Western Steel Car & Foundry (a Pressed Steel Car subsidiary created in 1902) in 1917 which were identical to the Class H cars built in 1907 and 1908. Early cars were delivered with arch-bar trucks but the 1917 order received Andrews U-section trucks which were replaced in later years. Class H1 DM&IR 4293 is at Proctor in 1957. (Bob's Photo collectioin)

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DM&IR 4290 at Virginia, Minnesota, in the spring of 1962 is former D&IR 290, one of 50 Class H 261–310 acquired in 1918. Repainted into new-image maroon and gold paint at Proctor in September 1960. This car shows how DM&IR applied Scotchlite monograms, reporting marks and numbers to steel placards before application to the carbody. (Jim Maki Sr.)

in Class H in 1911 and in 1931 they received Class H1. At the time of the merger these cars were renumbered 4261–4310. All were off the roster by 1971.

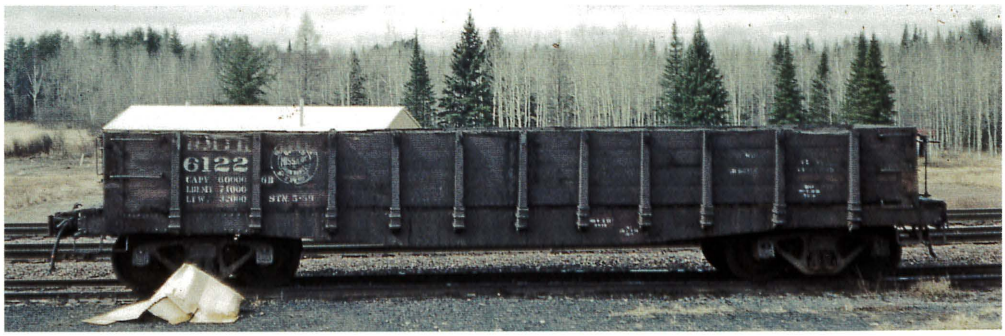
D&IR FLAT CAR GONDOLA CONVERSIONS

By 1900, D&IR had equipped an unknown number of flat cars with gondola sides. Cars were used in general service and hauling coal. Company records are unclear as to the total number of cars converted and it appears that gondola sides were applied and removed from flat cars as needed.

During 1914 under Appropriation 459 for $4,125, flat cars in series 6100–6124 had wood gondola sides and side dump doors applied at the Two Harbors shops. After rebuilding, cars had an inside height of 3-foot 4-inches, an inside length of 34-foot 2-inches with 940 cu. ft. capacity. Sides were constructed of three 9-inch planks, one 13-inch top plank and 9 oak side stakes installed in the flatcar stake pockets. Originally these cars were built by Western Steel Car & Foundry in 1907 as 30-ton 40-foot flat cars. Class G was applied to these cars in 1914.

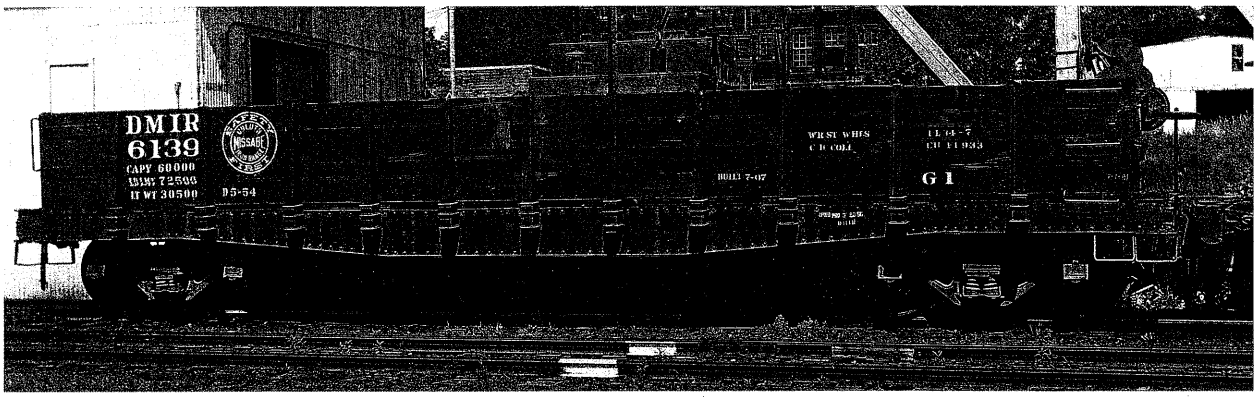
The side dump doors were replaced with solid sides in 1931. When rebuilt the sides were replaced with four 10-inch planks, 11 oak side stakes and corners reinforced with L-section steel. They retained the same numbers after the merger. All were off the roster by 1971.

An additional 55 cars in series 6125–6179 had wood gondola sides applied in 1926 at Two Harbors. Originally these cars were built by Western Steel Car & Foundry in 1907 as 30-ton 40-foot flat cars. Sides and ends consisted of four 10-inch planks with oak side stakes installed in stake pockets, creating a gondola with inside length of 34-foot 2-inches, inside height of 3-foot 4-inches and 934 cu. ft. capac-



Many flat cars were rebuilt with wooden gondola sides and stakes. DM&IR 6122, converted from flat car to gondola in 1914, is at Iron Junction in spring, 1961. (Jim Maki Sr.)

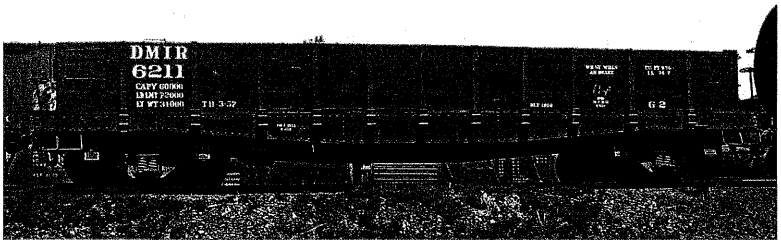
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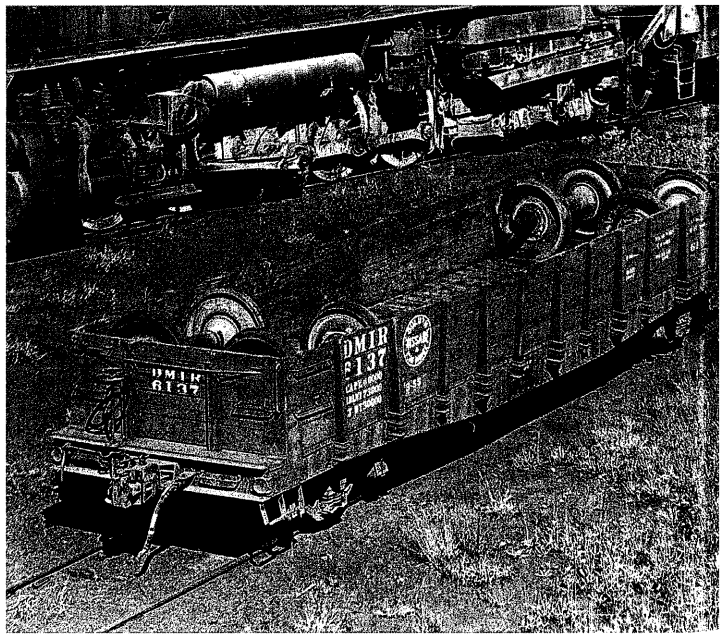
Two groups of Class I flat cars, 6100–6124 and 6125–6179 were received from Western Steel Car & Foundry in 1907. The first group was rebuilt to gondolas with dump doors at Two Harbors in 1914. The second group was rebuilt at Two Harbors with just gondola sides in 1926. All were placed in Class G1 when rebuilt. DM&IR 6139, at Endion on July 19, 1957, was retired on June 20, 1966. (Bob's Photo collection)

ity. The sides and ends were then removed in 1923, except for 6144 which was rebuilt with steel sides and ends in 1922. Fifty two of these cars, 6125–6131, 6134–6153, 6155–6179 were rebuilt again to gondolas with sides and ends consisting of four 10-inch planks with oak stakes between March 11, 1926 and May 11, 1926. Car 6135 was rebuilt in 1930 with steel sides and ends. Steel gondola sides were applied to car 6144 in 1922 and 6135 in 1930. Class G was applied to these cars in 1911. They kept the same numbers after the merger. All were off the roster by 1971.

Seventy seven cars from the 6180–6279 series flat cars built by American Car & Foundry in 1916 were rebuilt with wood gondola sideboards at Two Harbors on arrival from the builder. Sideboards consisted of four 10-inch planks and 13 oak side stakes installed in stake pockets. The cars had inside length of 34-foot 7-inches, inside height of 3-foot 4-inches and 933 cu. ft. capacity. Fourteen of these cars had the wood sideboard replaced with steel sidesheets in 1918. They kept the same numbers after the merger. Class G was applied to these cars in 1911. Fourteen of these had the wood-



One of 100 Class I flatcars 6180–6279 built by American Car & Foundry in 1916. DM&IR 6211 was one of 77 converted to a Class G2 gondola when delivered and is shown at Duluth on July 19, 1957. D&IR had the ability to convert them from flat cars to gondolas and choose to purchase flat cars and convert them at Two Harbors to gondolas. (Mainline Photos, J.M. Gruber collection)



DM&IR 6137 a Class G1 gondola at Proctor, in the late 1950s. Note the DM&IR stencil monogram lacking the "Safety First" wrap-around slogan which was only used from 1937 until 1942. The car was retired August 1, 1968. (D.P. Holbrook collection)

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en gondola sides and ends replaced with steel gondola sides and ends in 1918. See D&IR roster for details on specific car numbers. All were off the roster by 1972.

D&IR FLAT CARS

The first cars purchased by most railroads were flat cars for initial construction. D&IR ordered 30 20-ton 34-foot combination flat cars from Northwestern Car & Manufacturing in 1883. No records have been found, but it appears that these cars may have been numbered 41–70. Combination type freight cars were minimally popular from 1850 until 1900 when railroads were trying to purchase equipment that could be used for multiple purposes by simple conversions. Cars of this type could easily be converted to box cars, stock cars, drop-bottom box cars and gondolas. From 1884 to 1887, 12 box cars and four stock cars were converted from these cars. Reference is made in 1893 D&IR diagrams to flat car 52 being converted to snowplow 52 and an early 1884 photo shows box car 68. When equipped with air brakes these cars were renumbered to odd numbers only 2201–2259 in 1888 and 1889. Because of the possibility of converting box cars back to flat cars, 30 numbers were allocated. Between 1883 and 1895, the odd numbers 2213–2259 were rebuilt to MofW support cars and box cars. When equipped with automatic couplers in 1895 and 1896, the 2201–2211 were renumbered to odd numbers 5001–5011 and rebuilt to 36-foot cars.

By 1887 the D&IR shops at Two Harbors was building equipment. Seventy-five 20-ton 34-foot flat cars 2261–2409, odd numbers only, were built during 1887. When equipped with automatic couplers in 1895 and 1896, the 2261–2359 were renumbered odd numbers 5053–5145. Cars 2361–2409 were renumbered odd numbers 5013–5051.

During 1888, D&IR ordered 200 30-ton 34-foot flat cars 2411–2809, odd numbers only, from LaFayette Car Co. When equipped with automatic couplers in 1895 and 1896, the 2411–2809 were renumbered odd numbers 5147–5541. Only 198 numbers were allocated accounted two cars being retired. Cars were equipped with Thielson trucks and attachments to allow movement of handbrake from B-end of car to side of car on the B-end.

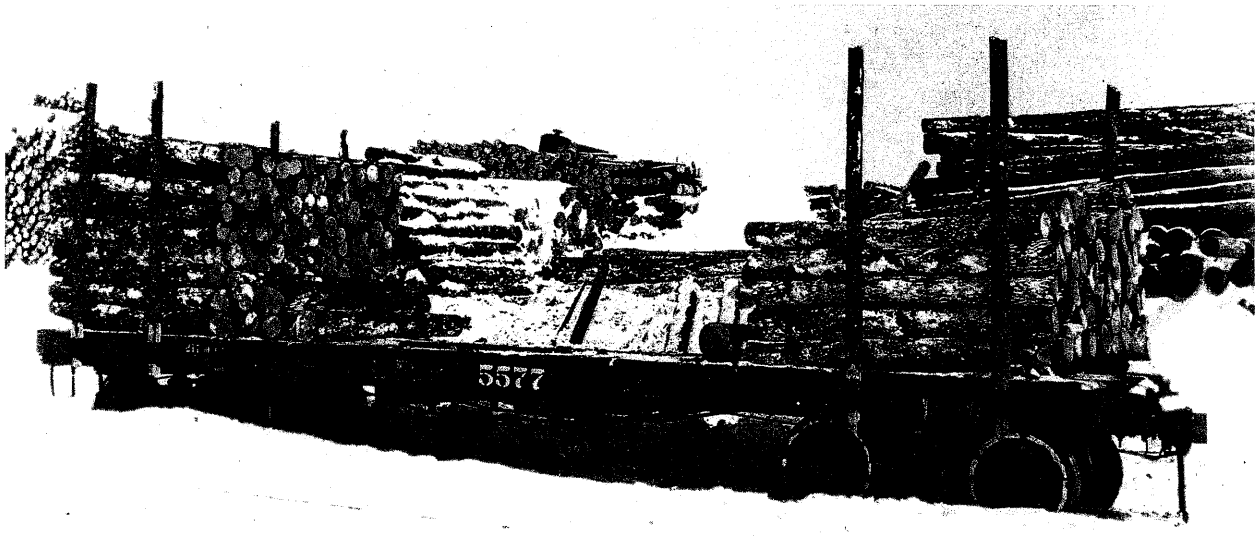


Loading pulpwood and cut timber before pulpwood racks involved having a crosswise timber at the each end of the flat cars and loading the end piles parallel with the sides with side stakes in the stake pockets. The middle of the car was then loaded crosswise as depicted here on Class I flat car D&IR 5385, one of 200 5147–5541 odd number only built in 1888 by LaFayette Car Works. Logging chains would be installed on 5385 in 1927 and pulpwood racks in 1929. It would be retired in December 1933. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 15 Folder 25)

Eleven years later, in 1899, D&IR ordered 50 30-ton 36-foot flat cars 5543–5641 odd numbers only from Illinois Car & Equipment Co. All were placed in Class I in 1911. The D&IR 1929 diagram book lists 40 of these cars, odd numbers 5563–5641, as being built by D&IR Two Harbors in 1899, but no additional supporting documents have been found.

Between 1890 and 1900 all 34-foot flat cars would be rebuilt to 36-foot cars at Two Harbors. All flat cars prior to the 1907 order once rebuilt had the same general appearance of truss-rod underframe with nine stake pockets per side and with the exception of the 1888 order from LaFayette, all rode on arch-bar trucks. Many

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D&IR 5577, one of 50 Class I flatcars 5543–5641 built by Illinois Car & Equipment in 1899. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 15 Folder 25)

of these early cars were rebuilt with steel center sills and changed from 25-ton to 30-ton cars between 1910 and 1920

Continued development of the logging industry and increased shipping of finished product caused the D&IR to place an order in 1902 with Western Steel Car & Foundry. These 50 30-ton 36-foot flat cars 5643–5741, odd numbers only, were delivered in 1903. The specifications included Westinghouse brakes, Tower couplers, Bryan tandem draft rigging, McCord journal boxes, National Railway Specialty Co. journal bearings, and arch-bar trucks. All were built with attachments to allow movement of handbrake staff and brake wheel from end of car to side of car on the B-end.

Shop capacity was available at Two Harbors, and D&IR built 50 30-ton 36-foot flat cars during 1905 and 1906. Forty-two of these cars, 5743–5825, odd numbers only, were built in 1905 and the remaining eight cars, 5827–5841, odd numbers only, built in 1906.

Later lacking shop capacity at Two Harbors, the D&IR ordered in October 1906, 25 Class I 30-ton 40-foot flat cars 6100–6124 from Western Steel Car & Foundry, all delivered in 1907. The cars were built with steel underframes, fishbelly side sills, had 13 stake pockets per side and rode on arch-bar trucks. All were converted to gondolas in 1914. An additional 55 identical cars were added to this order in 1906. Numbered 6125–6179, they were placed in Class I and delivered in 1907. Cars 6132, 6133 and 6154 were destroyed in 1913. The remaining 52 cars were converted with sides and ends to coal cars in 1916. Arch-bar trucks were replaced with Andrews U-section trucks during 1937 to 1939. The first car completed was 6140 on June 11, 1937.

The next group of flat cars were 100 Class I 30-ton 40-foot flat cars 6180–6279, ordered from American Car and Foundry on Lot 7934 on September 22, 1915, at a cost of $1,100 per car. All cars were delivered during 1916, had steel underframes, fishbelly side sills, 13 stake pockets per side and rode on arch-bar trucks. Immediately on delivery, 77 of these cars had wooden gondola sides and ends added at Two Harbors. Arch-bar trucks were replaced with Andrews U-section trucks during 1937 to 1939. All were retired by 1972

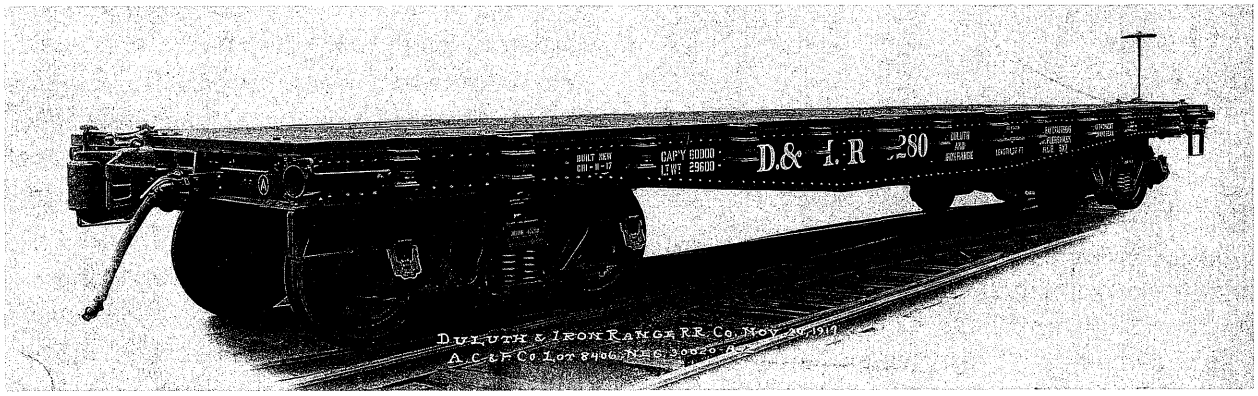
D&IR cars traveled widely. Examples being car 5411 being destroyed on Belt Railway of Chicago in Chicago during June 1921 and 5451 destroyed on Chicago Great Western in November 1921.

Appropriation 630 was approved at the June 11, 1917, Board of Director meeting for

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After two successive orders for steel flatcars from Western Steel Car & Foundry in 1907, D&IR turned to American Car & Foundry in 1915 for additional steel flatcars. One hundred Class I 30-ton cars in 6180-6279 series were delivered in 1916. Seventy seven, before being placed in service, were equipped with sides and ends at D&IR Two Harbors. Additional cars would be rebuilt to gondolas and rack flats in later years. (American Car & Foundry Collection John W. Barriger III National Railroad Library at UMSL)



Satisfied with the first order of 100 steel flat cars built by American Car & Foundry in 1916, D&IR returned to ACF and ordered 25 additional Class I flat cars, 6280–6304 in 1917. Unlike the first order delivered on arch-bar trucks, these arrived with Andrews T-section trucks. (American Car & Foundry Collection, John W. Barriger III National Railroad Library at UMSL)

$43,125 for the purchase of 25 Class I 30-ton 40-foot flat cars 6280–6304 from American Car and Foundry on Lot 8406. The cars were identical to 6180–6279 series. All were delivered by December 1917, except 6301 which was delivered in January 1918. After the DM&IR merger these cars retained their numbers but were changed from Class I to Class K. All were retired by 1972.

A total of 264 flat cars in series 5013–6099 were on the roster on August 9, 1932, 222 of all-wood construction, and 42 with steel underframes. All wooden cars would not be permitted in interchange effective January 1, 1934, per ARA Rule 3, paragraph U2. A decision was made not to rebuild any of the 222 remaining wood-construction cars since most were in on-line service only. The 264 cars also did not meet ARA Rule 3, paragraph F2 that required flat cars to have stake pockets a minimum of 4- x 5-inches, and F1 requiring stake pockets to be spaced between 2- and 4-feet. Class I 6180–6304 (48 cars), Class V 2001–2379 (65 cars) and Class Y 2170–2228(18 cars) also did not meet the requirements of para. F2 or F1.

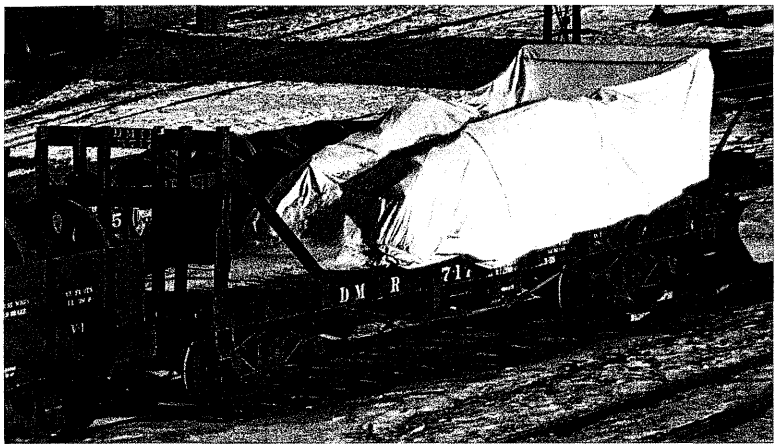
In 1963 AFE 9465 was approved on April 5, 1963, calling for AAR-mandated lading strap anchors to be applied to 6280–6304 and 12 Class V1 2500 series flat cars. By 1965 most remaining 40-foot flat cars had been equipped with pulpwood racks, with remaining plain flats being used for company service.

D&IR PULPWOOD RACK FLAT CONVERSIONS

By 1920 much of the old-growth white

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pine timber in Northern Minnesota had been harvested and lumber harvesting had shifted from cut logs to smaller trees with shorter growing cycles. Initially these were hemlock and spruce which quickly gave way to poplar and aspen type trees. These were harvested for the wood fiber—pulpwood—they contained which was used for paper making. Unlike white pine logs for lumber production, which were easily hauled on logging flats and chain-equipped standard flat cars, the smaller pulpwood required flat cars and gondolas. Flat cars were used for hauling pulpwood that was cut into pieces 100 inches long. Some pieces were as short as 50 inches. Temporary bulkheads began to be applied to flat cars as early as 1915.

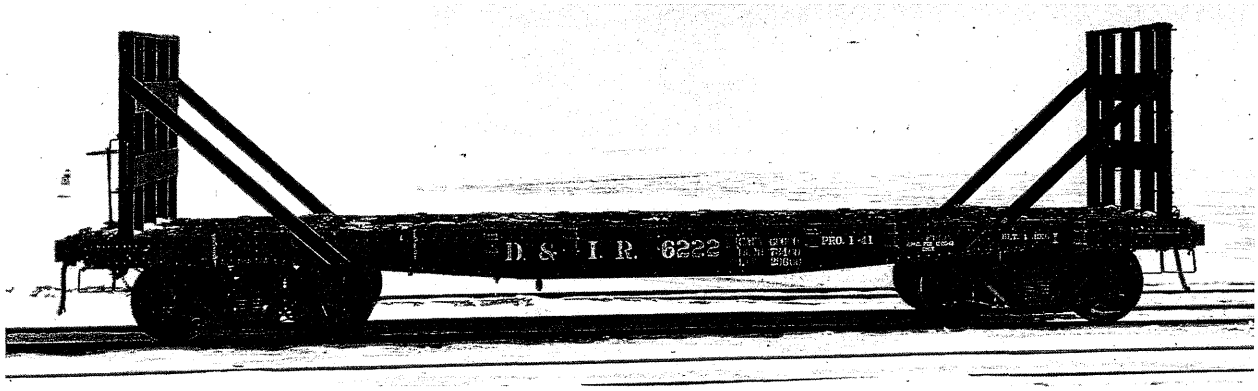


D&IR, DM&N and DM&IR responded to the need for pulpwood cars requested by paper companies by converting large numbers of older flat cars with pulpwood racks. Initially these were temporary installations of loose timber, but by 1910 the first cars were converted with milled lumber and beginning in 1930s, permanent steel pulpwood racks were installed. DMIR 5717 is shown at Two Harbors, in 1959. Note the outside diagonal is a steel C-channel but the remainder of the bulkhead is of wood construction. The far end of the car is equipped with a fabricated sheet metal snowplow for use in plowing yard tracks at Two Harbors. (Basgen photo, D.P. Holbrook collection)

Prior to this time pulpwood was stacked parallel to the side of the car with vertical stakes placed in the end side stake pockets. The piles acted like bulkheads and allowed the remainder of the pulpwood load to be loaded crosswise. These loads were susceptible to shifting and pulpwood falling off the cars.

Appropriation 608 was approved at the June 11, 1917 Board of Directors meeting for the installation of pulpwood racks on 100 flat cars at a cost of $3,151. These conversions began during the winter of 1917 with the application of wood end racks to 5000-series flat cars. A total of 20 were converted during 1918. During various years from 1918 to 1965 the shops at Two Harbors continued to modify flat cars into rack flats. Log shipments had continued to decline during the 1920s, but the need for additional rack flats for loading pulpwood had increased.

AFE 3427 approved May 7, 1934, for 10 cars and AFE 3469 for 40 cars approved January 2, 1934, provided for the conversion of 50 Class G gondolas between numbers 6216–6278 to rack flats. Gondola sides and ends were



Permanent wood and steel pulpwood racks are shown on D&IR 6222 at Endion, Minnesota, in the early 1940s. It was one of 40 cars converted with pulpwood racks in 1935. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 16 Folder 46)

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removed and permanent combination wood and steel pulpwood end racks placed on these cars during winter 1934 and 1935. The sample rack flat, 6275 was released from Proctor rip track on July 20, 1934. All work was done on Proctor rip tracks with AFE 3427 completed between Sept 1934 and December 1934. AFE 3469 was completed between February and June 1935. Racks consisted of five vertical steel pieces creating a frame with header and footer of plate steel attached to deck with diagonal C-section channels attached to the bulkhead and side sill of car. These were the first rack flats equipped with permanent racks.

Declining needs for box cars and need for additional rack flats caused D&IR to start rebuilding Class F box cars into rack flats. AFE IR3506 was approved on April 11, 1935, and box cars 5348 and 5384 were rebuilt to rack flats 6305 and 6306 on May 21, 1935. The economic downturn and the arrival of World War II saw the rebuild program discontinued.

Twenty Class K2 flat cars were rebuilt with steel pulpwood racks per AFE 9867 approved on December 23, 1964. The remaining five cars were converted to rack flats per AFE 9900 on Feb 26, 1965. See roster notes for more details.

D&IR APRON FLAT CONVERSIONS

Prior to 1918, the D&IR began applying aprons to flat cars but did not start recording this information on annual equipment lists until 1919. This appears to be as a result of ICC Valuations of railroads requiring more detailed information on equipment owned. Starting in 1919, D&IR annual equipment lists kept great details on flat cars equipped with sideboards, large stake pockets, logging chains and pulpwood racks. Equipment lists discontinued keeping track of this information in 1923, resumed tracking in 1926 and then discontinued completely in 1930 except for cars equipped with pulpwood racks. Aprons consisted of wood sides, but no ends, applied to flat cars. Only one car, 5555, was converted in 1918, apparently as a test. Starting in 1919 additional cars were rebuilt; 21 in 1919 and 29 in 1920.

Many of these cars had large stake pockets and logging chains; some also were equipped with pulpwood racks. These conversions took place during a time when old-growth timber was playing out and pulpwood loading was increasing. Having this variety of equipment modified allowed D&IR to use cars in whatever service was required without making yearly modifications to each car.

D&IR COAL FLAT CONVERIONS

During 1916, flat car 5505 was converted to a temporary coal car by the addition of sideboards and ends. The car found service from 1916 until 1919 when the temporary sideboards and ends were removed and the flat car converted to a rack flat.

D&IR LOGGING EQUIPMENT

Besides the development of iron ore mining, Northern Minnesota had vast stands of old-growth timber. Logging was the number two industry and the hauling of logs, pulpwood and finished lumber added significantly to the D&IR bottom line. By the summer of 1901, D&IR rostered a total of 321 regular flat cars and 50 bunker flats equipped for log loading. Based on winter 1900-1901 log loadings, D&IR would not have enough equipment to fulfill the needs of the logging companies for the winter of 1901-1902. To fulfill this need D&IR leased 25 flat cars from the Chicago Great Western (CGW) for use during December 1901 through the end of March 1902.

BUNKER FLATS

The first cars purpose-built for logging were 50 30-ton 36-foot flat cars built at D&IR Two Harbors shop in 1900. These were numbered 6000–6049 and placed in Class I. The cars were built in 1900 without trucks and

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used arch-bar trucks from wooden ore cars during the winter month. D&IR called these cars "Bunker Flats." Quickly after construction as wood ore cars were retired, permanent arch-bar trucks were applied.

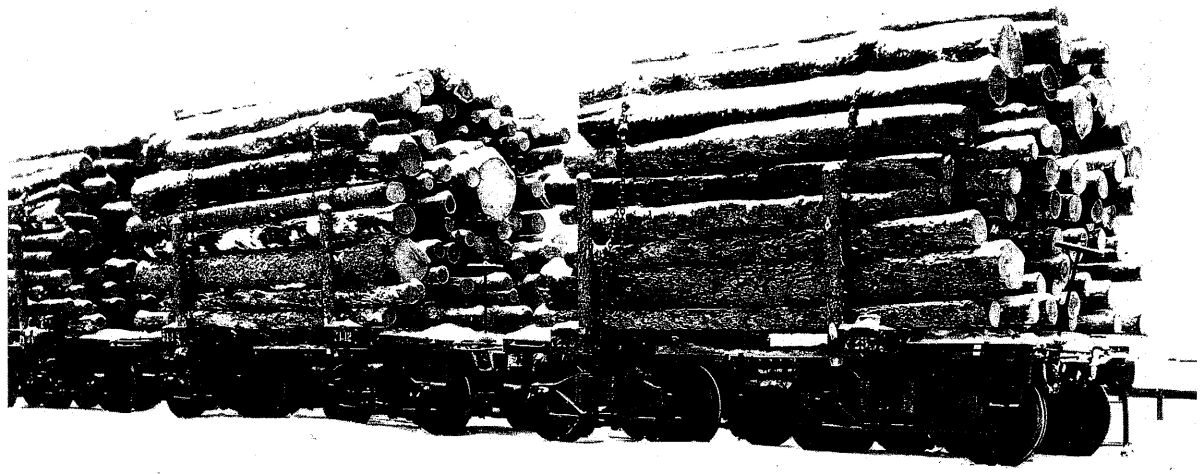
Fifty additional 30-ton 36-foot flat cars were built at Two Harbors during 1910. Numbered 6050–6099 and placed in Class I they were equipped with arch-bar trucks. Both groups of cars were identical to flatcars 5563–5641 built by D&IR in 1899, but all 100 cars were equipped with logging chains for hauling the larger logs that the skeleton log flats could not be used for.

LOG CARS

Seeing the traffic possibilities, D&IR started constructing a fleet of eventually 320 log flats at Two Harbors shops in 1901. All of these cars were constructed based on Russell designs using Russell castings. Numbered from 7000–7319, the cars were all identical. The 75 cars in 7000–7074 series were rebuilt in 1901 from 751–1020 series retired Haskell & Barker 25-ton wood ore cars. The next 50 cars in 7075–7124 series were rebuilt in December 1902 from additional retired wood ore cars. During December 1902 nine ore cars, 817, 934, 992, 1174, 1474, 1523, 1617, 1753, 2528 had their ore car sides removed and cars were used as log flats. All nine of these cars were retired during the summer of 1903.

Expanded logging caused seven cars in 7125–7131 to be built in 1905, 28 cars in 7132–7159 in 1906 and 160 cars in the 7160–7319 series in 1910. Cars 7160–7219 were constructed on Appropriations 288 for $4,872 for 20 cars and Appropriation 289 for $9,744 for 40 cars which were approved at the July 18, 1910, Board of Directors meeting. The remaining 100 cars were constructed under Appropriation 301 for 47,242, which also included 50 skeleton flat cars at the March 11, 1911, Board of Directors meeting. All were 20-ton 20-foot cars, built at a time when the hauling of logs to saw mills was a traffic factor of considerable importance.

Cars 7125–7219 were built at the D&IR Two Harbors shops from second-hand materials on hand. Each car consisted of a three-piece wood center sill with log bunks located between the bolster and ends of car. The log bunks each had an inward facing stake pocket attached to the bolster. Russell-designed cars did not have the stake pockets and it appears this was a D&IR design. The cars had with K-brakes



Before iron ore could be dug out of the ground the vast timberlands of Northern Minnesota had to be cleared of old-growth timber. D&IR built 320 Class K skeleton log flats 7000–7319 between 1901 and 1910 and all would be retired by 1928. Numbers were placed on the ends of logging bunks, 7152 on the left and 7283 on the right. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 15 Folder 25)

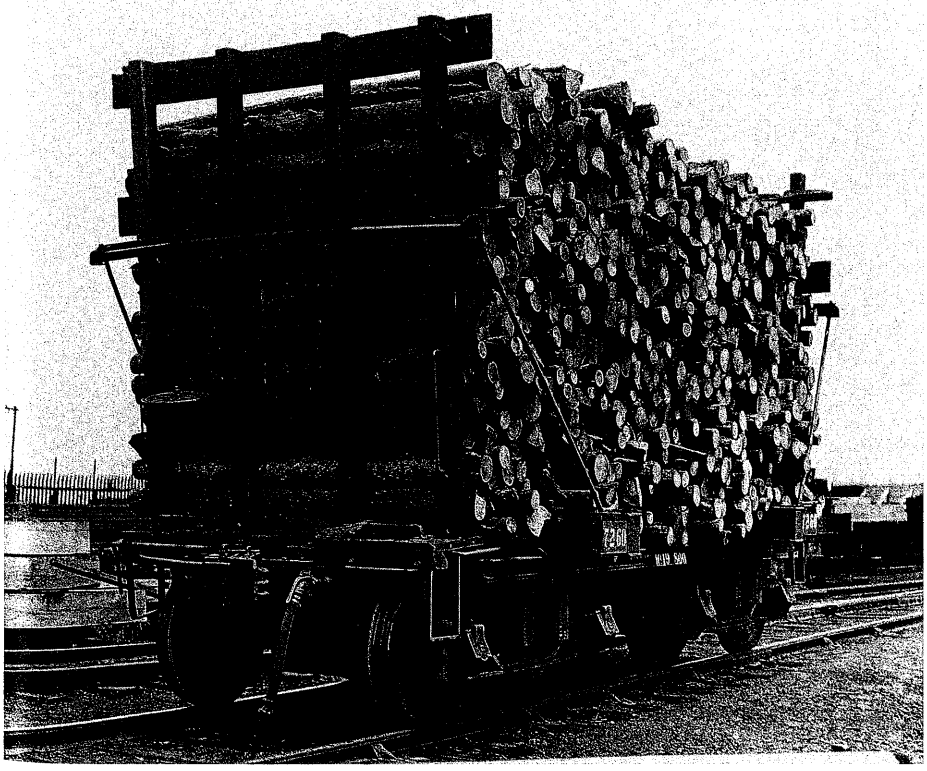
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and D&IR Standard 5-foot 4-inch rigid arch-bar trucks. Grab irons varied over the years as Safety Appliance Laws were revised.

Logging contributed a significant amount of traffic to D&IR yearly totals. During 1900 D&IR hauled 711,708 tons of sawed logs, a total of 12.34 percent of total traffic. Sawed logs were second to iron ore, which contributed 4.8 million tons or 83.23 percent of total traffic. By 1922 this had declined to 267,476 tons of sawed logs and pulpwood, and only 3.65 percent of total traffic. Heavy iron ore traffic in 1901 caused D&IR to embargo the movement of logs north of Two Harbors between May 1st and November 1st.

These cars could only be used for one thing, the hauling of forest products, mostly sawed logs, during the winter months. The apex of sawed log loading was 1915 with a steady decline until 1925 when the last of the lumber mills shut down. In order to get some additional use out of these cars during 1916, 100 cars were rebuilt at Two Harbors with additional side and center sill reinforcement which was constructed of 60 lb. retired rail. Rack ends were constructed so pulpwood could be loaded transversely across the deck of the car. Rack ends consisted of four vertical posts made of 4 x 6-inch lumber, 9-feet tall with three cross pieces on the inside of 2 x 10-inch pine or fir, with an oak 3 x 4-inch cross-piece of at the bottom which was fastened to the deck of the car. Across the back or outside of the rack was a piece of 60 lb. rail about 2/3 up from which two 1¼-inch steel rod braces were fastened through the car bunks. D&IR declared, with the addition of the 60 lb. rail that these were now "steel underframe" equipped. During the last year of operation in 1928 a total of 110 cars were still equipped with rack ends.

Federal inspectors determined in 1928 that to comply with safety regulations end ladders had to be installed. This cost was determined to be between $3000 and $4000 to comply with the required modifications. The depreciated value of these cars on March 1, 1928 was $2,430.64. It was not likely that the scrap value would be more than $60 per car. By 1928 the logging traffic for which the cars had been designed had all but vanished and D&IR had no other use for these cars. Three of the cars, 7071, 7192 and 7209, were sold FOB Duluth, MN to D.M. McCoy Lumber Co.in Rexton, MI at a sale price of $150 per car. No other buyers were found and with sufficient flat and rack cars on hand in 1928 it was determined that these cars could be retired. Most of the remaining cars were sold to Duluth Iron & Metal and off the roster by the end of 1928.



D&IR constructed 320 skeleton log flats from Russell designs at Two Harbors car shop between 1901 and 1910, Declining log loading of old-growth timber caused a little over 100 cars to be converted with pulpwood racks. D&IR 7260 is shown at an unknown location in the late teens or early 1920s. Note the car number applied to the ends of both cross members for identification. Just below this you can see a piece of 60-pound rail that was used beginning in 1916 to reinforce the underframes and support the pulpwood load. (D.P. Holbrook collection)

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D&IR CABOOSES

Caboose information from 1884 to 1886 is sketchy. It appears the D&IR purchased nine 20-foot 4-wheel cabooses from Northwestern Car & Manufacturing numbered 21–29 in late 1884 or early 1885. References to some early equipment being "Stillwater" cars is supported

Duluth & Iron Range Cabooses

Number	Builder	Built	Sold or Retired	Length	Type	To DMIR	Notes
(1st)21	NC&M	1884	1892	20'8"	4W		1
(2nd)21	D&IR TH	1900	to DIR(3rd)21 1909/10	20'8"	4W		
(3rd)21	D&IR TH	1909/10	12/14/1933	31'	8W		
(1st)22	NC&M	1884	By 1887	20'8"	4W		
(2nd)22	D&IR TH	1888	to DIR(3rd)22 1909/10	20'8"	4W		
(3rd)22	D&IR TH	1909/10	12/14/1933	31'	8W		
(1st)23	NC&M	1884	By 1889	20'8"	4W		
(2nd)23	Wells & French	1890	to DIR(3rd)23 1909/10	20'8"	4W		
(3rd)23	D&IR TH	1909/10	8/10/1929	31'	8W		
(1st)24	NC&M	1884	By 1889	20'8"	4W		
(2nd)24	D&IR TH	1890	to DIR(3rd)24 1909/10	20'8"	4W		
(3rd)24	D&IR TH	1909/10	12/14/1933	31'	8W		
(1st)25	NC&M	1884	By 1888	20'8"	4W		
(2nd)25	D&IR TH	1888	By 1892	20'8"	4W		
(3rd)25	DMC	1892	to DIR(4th)25 1909/10	20'8"	4W		
(4th)25	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)26	NC&M	1884	By 1888	20'8"	4W		
(2nd)26	D&IR TH	1888	By 1890	20'8"	4W		
(3rd)26	Wells & French	1890	to DIR (4th)26 1909/10	20'8"	4W		
(4th)26	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)27	NC&M	1884	By 1887	20'8"	4W		
(2nd)27	D&IR TH	1888	to DIR(3rd)27 1909/10	20'8"	4W		
(3rd)27	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)28	NC&M	1884	By 1888	20'8"	4W		
(2nd)28	D&IR TH	1888	By 1892	20'8"	4W		
(3rd)28	DMC	1892	to DIR (4th)28 1909/10	20'8"	4W		
(4th)28	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)29	NC&M	1884	By 1886	20'8"	4W		
(2nd)29	D&IR TH	1886	to DIR (3rd)29 1909/10	22'8"	4W		2
(3rd)29	D&IR TH	1909/10	to DM&IR	31'	8W	C-129	3
(1st)30	NC&M	1887	to DIR 95 by 1900	43'8"	8W		4
(2nd)30	D&IR TH	1900	to DIR (3rd)30 1909/10	22'8"	4W		
(3rd)30	D&IR TH	1909/10	12/14/1933	31'	8W		
(1st)31	NC&M	1887	to DIR 96 by 1900	43'8"	8W		4
(2nd)31	D&IR TH	1900	Burned Hornby 02/13/1902 to DIR(3rd)31 1909/10	22'8"	4W		
(3rd)31	D&IR TH	1909/10	Sold to D&N 06/05/1929	31'	8W		
(1st)32	NC&M	1887	By 1889	43'8"	8W		5
(2nd)32	Wells & French	1890	to DIR(3rd)32 1909/10	20'8"	4W		6
(3rd)32	D&IR TH	1909/10	to DM&IR	31'	8W	C-132	3
(1st)33	NC&M	1887	to DIR 97 1896	43'8"	8W		5
(2nd)33	D&IR TH	1900	to DIR (3rd)33 1909/10	22'8"	4W		
(3rd)33	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)34	NC&M	1887	to DIR 98 by 1900	43'8"	8W		5
(2nd)34	D&IR TH	1900	to DIR (3rd)34 1909/10	22'8"	4W		
(3rd)34	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)35	D&IR TH	1888	to DIR (2nd)35 1909/10	20'8"	4W		
(2nd)35	D&IR TH	1909/10	to DM&IR	31'	8W	C-135	3
(1st)36	D&IR TH	1888	Burned Hornby 02/13/1902 to DIR (2nd)36 1902	22'8"	4W		6
(2nd)36	D&IR TH	1902	to DIR(3rd)36 1909/10	22'8	4W		

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Number	Builder	Built	Sold or Retired	Length	Type	To DMIR	Notes
(3rd)36	D&IR TH	1909/10	to DM&IR	31'	8W	C-136	3
(1st)37	Wells & French	1888	Burned Hornby 02/13/1902 to DIR (2nd)37 1902	20'8"	4W		
(2nd)37	D&IR TH	1902	to DIR(3rd)37 1909/10	20'8"	4W		
(3rd)37	D&IR TH	1909/10	to DM&IR	31'	8W	C-137	7
(1st)38	D&IR TH	1888	to DIR (2nd)38 1909/10	20'8"	4W		
(2nd)38	D&IR TH	1909/10	to DM&IR	31'	8W	C-138	3
(1st)39	PCC Lot #1609	1889	to DIR(2nd)39 1909/10	20'8"	4W		
(2nd)39	D&IR TH	1910	Sold Duluth Iron & Metal Nov. 1935	31'	8W		8
(1st)40	PCC Lot #1609	1889	to DIR(2nd)40 1909/10	20'8"	4W		
(2nd)40	D&IR TH	1910	Sold Duluth Iron & Metal Nov. 1935	31'	8W		8
(1st)41	PCC Lot #1609	1889	to DIR(2nd)41 1909/10	20'8"	4W		
(2nd)41	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)42	PCC Lot #1609	1889	to DIR(2nd)42 by 1907	20'8"	4W		
(2nd)42	D&IR TH	1907	to DIR(3rd)42 1909/10	20'8"	4W		9
(3rd)42	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)43	PCC Lot #1609	1889	to DIR(2nd)43 1909/10	20'8"	4W		
(2nd)43	D&IR TH	1909/10	to DM&IR	31'	8W	C-143	10
(1st)44	PCC Lot #1609	1889	to DIR(2nd)44 1909/10	20'8"	4W		
(2nd)44	D&IR TH	1909/10	to DM&IR	31'	8W	C-144	10
(1st)45	DMC	1892	to DIR(2nd)45 1909/10	20'8"	4W		
(2nd)45	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		
(1st)46	DMC	1892	to DIR(2nd)46 1909/10	20'8"	4W		
(2nd)46	D&IR TH	1909/10	12/14/1933	31'	8W		
(1st)47	DMC	1892	Wrecked 07/19/1901	20'8"	4W		
(2nd)47	D&IR TH	1902	to DIR(3rd)47 1909/10	20'8"	4W		
(3rd)47	D&IR TH	1909/10	to DM&IR	31'	8W	C-147	11
(1st)48	DMC	1892	to DIR (2nd)48 1909/10	20'8"	4W		
(2nd)48	D&IR TH	1909/10	Sold to CGW 1929	31'	8W		11
(1st)49	DMC	1893	to DIR (2nd)49 1909/10	20'8"	4W		
(2nd)49	D&IR TH	1909/10	12/14/1933	31'	8W		11
(1st)50	DMC	1893	to DIR(2nd)50 1909/10	20'8"	4W		
(2nd)50	D&IR TH	1909/10	12/14/1933	31'	8W		11
(1st)51	DMC	1893	to DIR 84 04/05/07	20'8"	4W		
(2nd)51	D&IR TH	1907	to DIR(3rd)51 1909/10	20'8"	4W		
(3rd)51	D&IR TH	1909/10	to DM&IR	31'	8W	C-151	12
(1st)52	DMC	1893	to DIR(2nd)52 1909/10	20'8"	4W		
(2nd)52	D&IR TH	1909/10	8/30/1934	31'	8W		13
(3rd)52	D&IR TH	1934	to DM&IR	31'	8W	C-152	14
(1st)53	DMC	1893	to DIR (2nd)53 1909/10	20'8"	4W		15
(2nd)53	D&IR TH	1909/10	to DM&IR	31'	8W	C-153	16
(1st)54	DMC	1893	to DIR (2nd)54 1909/10	20'8"	4W		
(2nd)54	D&IR TH	1909/10	to DM&IR	31'	8W	C-154	16
(1st)55	DMC	1893	to DIR (2nd)55 1909/10	20'8"	4W		
(2nd)55	D&IR TH	1909/10	12/14/1933	31'	8W		
(1st)56	DMC	1893	to DIR(2nd)56 2/14/07	20'8"	4W		
(2nd)56	D&IR TH	1907	to DIR(3rd)56 1909/10	20'8"	4W		
(3rd)56	D&IR TH	1909/10	to DM&IR	31'	8W	C-156	11
(1st)57	DMC	1893	to DIR (2nd)57 1909/10	20'8"	4W		
(2nd)57	D&IR TH	1909/10	to DM&IR	31'	8W	C-157	11
(1st)58	DMC	1893	to DIR(2nd)58 1909/10	20'8"	4W		
(2nd)58	D&IR TH	1909/10	to DM&IR	31'	8W	C-158	11
(1st)59	D&IR TH	1900	to DIR(2nd)59 1909/10	20'8"	4W		
(2nd)59	D&IR TH	1909/10	to DM&IR	31'	8W	C-159	11
(1st)60	D&IR TH	03/1903	to DIR 80 1906		8W		
(2nd)60	D&IR TH	2/17/1908	to DIR(3rd)60 1909/10	20'8"	4W		
(3rd)60	D&IR TH	1909/10	to DM&IR	31'	8W	C-160	11
(1st)61	D&IR TH	03/1903	to DIR 81 1906		8W		

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Number	Builder	Built	Sold or Retired	Length	Type	To DMIR	Notes
(2nd)61	D&IR TH	2/17/1908	to DIR(3rd)61 1909/10	20'8"	4W		
(3rd)61	D&IR TH	1909/10	to DM&IR	31'	8W	C-161	11
(1st)62	D&IR TH	2/25/1905	to DIR(2nd)62 1909/10	20'8"	4W		17
(2nd)62	D&IR TH	1909/10	to DM&IR	31'	8W	C-162	11
(1st)63	D&IR TH	2/25/1905	to DIR(2nd)63 1909/10	20'8"	4W		18
(2nd)63	D&IR TH	1909/10	to DM&IR	31'	8W	C-163	11
(1st)64	D&IR TH	04/1906	to DIR(2nd)64 1909/10	20'8"	4W		
(2nd)64	D&IR TH	1909/10	to DM&IR	31'	8W	C-164	11
(1st)65	D&IR TH	04/1906	to DIR(2nd)65 1909/10	20'8"	4W		
(2nd)65	D&IR TH	1909/10	to DM&IR	31'	8W	C-165	11
(1st)66	D&IR TH	04/1906	to DIR(2nd)66 1909/10	20'8"	4W		
(2nd)66	D&IR TH	1909/10	to DM&IR	31'	8W	C-166	11
(1st)67	D&IR TH	04/1906	to DIR(2nd)67 1909/10	20'8"	4W		
(2nd)67	D&IR TH	1909/10	to DM&IR	31'	8W	C-167	11
(1st)68	D&IR TH	2/17/1908	to DIR(2nd)68 1909/10	20'8'	4W		
(2nd)68	D&IR TH	1909/10	to DM&IR	31'	8W	C-168	11
(1st)69	D&IR TH	2/17/1908	to DIR(2nd)69 1909/10	20'8"	4W		
(2nd)69	D&IR TH	1909/10	to DM&IR	31'	8W	C-169	11
(1st)70	D&IR TH	2/17/1908	to DIR(2nd)70 1909/10	20'8"	4W		
(2nd)70	D&IR TH	1909/10	to DM&IR	31'	8W	C-170	11
71	D&IR TH	1910	Retired 7/31/1931	31'	8W		19
72	D&IR TH	1910	to DM&IR	31'	8W	C-172	11
73	D&IR TH	1910	to DM&IR	31'	8W	C-173	11
74	D&IR TH	1910	to DM&IR	31'	8W	C-174	11
75	D&IR TH	1910	to DM&IR	31'	8W	C-175	11
76	D&IR TH	1910	to DM&IR	31'	8W	C-176	11
77	D&IR TH	1910	to DM&IR	31'	8W	C-177	11
78	D&IR TH	1910	Retired 1914	31'	8W		
79	D&IR TH	1910	to DM&IR	31'	8W	C-179	11
(1st)80	D&IR TH	1906	to DIR 88 May, 1910	31'	8W		20

by 1893 diagrams showing other builders' cabooses showing on D&IR diagrams as being "Stillwater Cabooses" referring to the design. These 20-foot 4-wheel cabooses would become a standard until 1905. Caboose 21 was used by D&IR President Charlemagne Tower, Jr. as the Tower, MN headquarters from 1884 until 1886. It was replaced by private car "B" in 1886.

The next group of cabooses, referred to as "Waycars" in diagrams, comprised five 43-foot 8-inches 8-wheel cars from Northwestern Car & Manufacturing numbered 30–34 purchased in 1887. The 1893 D&IR diagrams show 30 and 31 without a cupola and 33 and 34 with cupolas. It is unknown if they were built this way or if cupolas were added or removed after delivery. All were equipped with 8 bunks and 2 caboose stoves. Car 32 was retired prior to 1893. Cars 30, 31, 33, 34, were renumbered to 95–98 prior to 1900. This allowed 4-wheel and 8-wheel cabooses to be grouped together in continuous number series of each type.

Caboose 99 shows on roster as built in 1888 but the history of the car is unclear except that it was wrecked in 1903 per D&IR equipment lists.

From 1884 to 1892, when freight cars and cabooses were destroyed, the old number was reused. This caused the caboose roster between these years to become complicated with scattered old and new cars occupying a block of numbers.

By 1886 caboose 29 had been destroyed and a new caboose 29 was built at D&IR Two Harbors shops. Two Harbors shop constructed seven additional 20-foot standard 4-wheel cabooses in 1888. Numbers 22, 24, 27 were replacements to previously destroyed cars with the same numbers. Numbers 35–37 were new cars placed above the 8-wheel cars 30–34. Cabooses 29, 36, 37 are depicted in 1893 diagrams as not having cupolas. It is unknown if

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Number	Builder	Built	Sold or Retired	Length	Type	To DMIR	Notes
(2nd)80	D&IR TH	1911	to DM&IR	31'	8W	C-180	10
(1st)81	D&IR TH	1906	to DIR(2nd)81 1920	31'	8W		21
(2nd)81	Rblt D&IR TH	1920	to DM&IR	40'	8W	C-181	22
(1st)82	D&IR TH	04/1906	to DIR(2nd)82 1910	31'	8W		
(2nd)82	D&IR TH	1910	to DM&IR	34'	8W	C-182	23
(1st)83	D&IR TH	04/1906	to DIR(2nd)83 1910	31'	8W		
(2nd)83	D&IR TH	1910	to DM&IR	34'	8W	C-183	23
(1st)84	D&IR TH	4/5/1907	to DIR(2nd)84 1920	40'	8W		24
(2nd)84	Rblt D&IR TH	1920	to DM&IR	40'	8W	C-184	25
(1st)85	D&IR TH	2/17/1908	to DIR(2nd)85 1920	31'	8W		26
(2nd)85	Rblt D&IR TH	1920	to DM&IR	40'	8W	C-185	27
(1st)86	D&IR TH	2/17/1908	to DIR(2nd)86 1919	31'	8W		
(2nd)86	D&IR TH	1920	to DIR (3rd) 86 1923	34'	8W		28
(3rd)86	Rblt D&IR TH	1923	to DM&IR	40'	8W	C-186	29
(1st)87	D&IR TH	4/21/1908	to DIR(2nd)87 1920	27'	8W		30
(2nd)87	Rblt D&IR TH	1920	to DM&IR	40'	8W	C-187	25
(1st)88	Rblt D&IR TH	1910	to DIR(2nd)88 1920	27'	8W		31
(2nd)88	Rblt D&IR TH	1920	to DM&IR	40'	8W	C-188	32
(1st)89	Rblt D&IR TH	1912	to DIR(2nd)89 1920	27'	8W		33
(2nd)89	Rblt D&IR TH	1920	to DM&IR	40'	8W	C-189	34
95	NC&M	1887	Rblt to DIR 89 07/11/12	43'3"	8W		35
96	NC&M	1887	Rblt to DIR 84 04/05/07	43'3	8W		36
97	NC&M	1887	Rblt to DIR 87 04/21/08	43'3"	8W		37
98	NC&M	1887	12/14/1933	43'3"	8W		38
99	NC&M	1888	Wrecked 1903	43'3"	8W		39
100	D&IR TH	1903	To MofW 100 10/1908	52'6"	8W		40
5232	D&IR TH	1923	To MofW W5232 6/15/44	37'3"	8W		41

1. Rebuilt to 51'1" tool car 21 in 1892 with no cupola. Rebuilt to wrecking train caboose 150 with cupola by 1910

2. No cupola

3. WUSR applied 1934

4. 8-bunks, 2 caboose stoves, no cupola, side door

5. 8-bunks, 2 caboose stoves, side door

6. Wrecked Two Harbors 10/1102 repaired

7. Steel Center Sills applied 1927

8. Used as welders car. Taken over by Track Dept. 1918

9. Rebuilt 2/14/07 from (1st)42 - Rebuilt to 3rd 42 in 1909-10

10. Wood Underframe with steel rails added applied 1921

11. 6-bunks, Steel Underframe applied 1927

12. 6-bunks, Steel Underframe applied 1935

13. Remodeled to 4-wheel caboose and renumbed DIR 22 for display at Two Harbors, MN 8/30/34

14. 6-bunks, Steel Underframe when built

15. 6-bunks, Peteler Steel Center Sills 1935

16. 6-bunks, Steel Underframe applied 1934

17. Built 5/25/05 to replace 99 per D&IR list Jan 1905 - Rebuilt to 2nd 62 in 1909-10

18. Built 5/25/05 to replace 99 per D&IR list Jan 1905 - Rebuilt to 2nd 63 in 1909/10

19. 6-bunks, Steel Center Sills 1927, destroyed 6/13/31 Two Harbors

20. Former caboose 60 rebuilt to caboose 88 May 1910

21. Former caboose 61, rebuilt to 40' (2nd)81 at Two Harbors 1920

22. Steel Center Sills applied 1935

23. Wood Underframe with steel rails added applied 1921, end cupola

24. Rebuilt from 51 per D&IR list Jan 1906, then rebuilt to 40' (2nd) 84 1920 by adding six feet to carbody

25. 6-bunks, Wood Underframe with steel rails added applied 1921, Steel Underframe applied 4/10/36

26. Rebuilt to 40' (2nd)85 at Two Harbors 1920

27. Wood Underframe with steel rails added applied 1921, Steel Underframe applied 1936

28. Burned Babbitt 5/11/23, Rebuilt to (3rd) 86

29. 6-bunks, side doors, Wood Underframe with steel rails added applied 1921, Steel Underframe applied 1936, Center Cupola, rebuilt from (2nd) 86

30. Rebuilt from 97 4/ 21/08, rebuilt to 40' (2nd) 87 at Two Harbors 1920

31. 6-bunks, Rebuilt from 80 May 1910, Rebuilt to 40' (2nd)88 at Two Harbors 1920

32. Steel Underframe applied 1936

33. 6-bunks, rebuilt from 95, rebuilt to 40' (2nd)89 at Two Harbors in 1920

34. Steel Underframe applied 1936

35. Former DIR 30 renumbered 95 in 1890. Rebuilt to 89 7/11/12

36. Former DIR 31 renumbered 96 by 1896. Rebuilt to 84 4/05/07

37. Former DIR 33 renumbered 97 by 1896. Rebuilt to 87 4/21/08

38. Former DIR 34 renumbered 98 in 1890. Rebuilt D&IR Two Harbors 1890. Passenger trucks.

39. Unknown former number. Wrecked per D&IR list Jan. 1904

40. Built March 1903. To MofW service as #100 in Oct. 1908

41. Rebuilt from boxcar 5232 in 1923 at Two Harbors as temporary caboose

Abbreviations:

DMC - Duluth Manufacturing Co. West Duluth, MN
D&IR TH - Duluth & Iron Range Two Harbors, MN Shops
NC&M - Northwestern Car & Manufacturing, Stillwater, MN
PCC - Pullman Car Co.
4W - 4-wheel
8W - 8-wheel
Rblt - rebuilt
LS&M - Lake Superior & Mississippi Railroad, West Duluth, MN
D&NM - Duluth & Northern Minnesota, Knife River, MN
CGW - Chicago Great Western
LSRM - Lake Superior Railroad Museum
MNS - Minneapolis, Northfield & Southern
EJ&E - Elgin, Joliet & Eastern
D&N - Delaware & Northern

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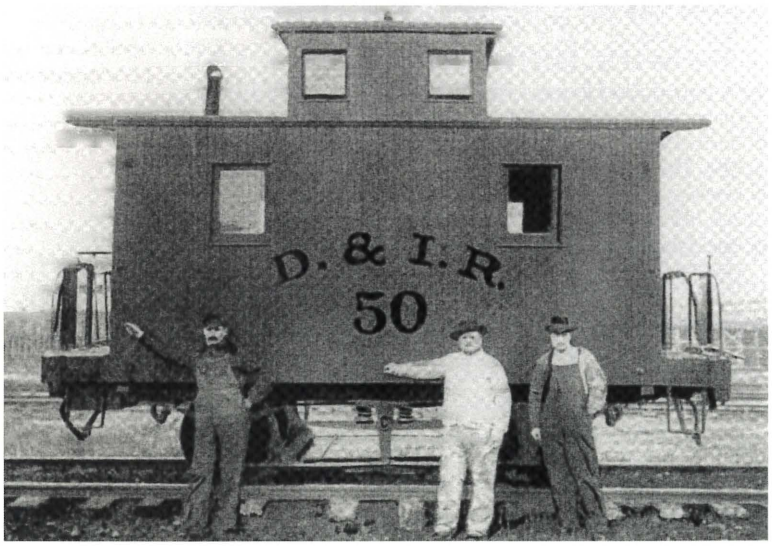
the cupolas were removed of if the cars were built this way.

The next group of 20-foot 4-wheel cabooses were six cars ordered from Pullman in 1889 and numbered 39 to 44. All of these occupied a solid block and were not replacements for any destroyed cars.

D&IR placed an order in 1890 for four additional 20-foot 4-wheel cabooses numbered (2nd)23, (2nd)26, (2nd)32 and (2nd)37 for earlier cabooses with the same number that had been destroyed.



Displayed at the Two Harbors depot on July 18, 1965, is D&IR 22 rebuilt from 8-wheel caboose Second 52 on August 30, 1934. (D.P. Holbrook collection)



D&IR 50 fresh outside the car shops at Two Harbors in spring 1907. Rebuilt to an 8-wheel caboose in February 1911, it would be sold for scrap to Hyman-Michaels on May 28, 1975. (D.P. Holbrook collection)

After this order, D&IR placed two orders with Duluth Manufacturing Co. for 16 additional 20-foot 4-wheel cabooses. The 6 cars built in 1892 were, numbers (2nd)25 and (2nd)28 as replacements for earlier cabooses and 45 to 48 as new numbers. The 10 cars built in 1893 were numbered 49–58 occupying new numbers.

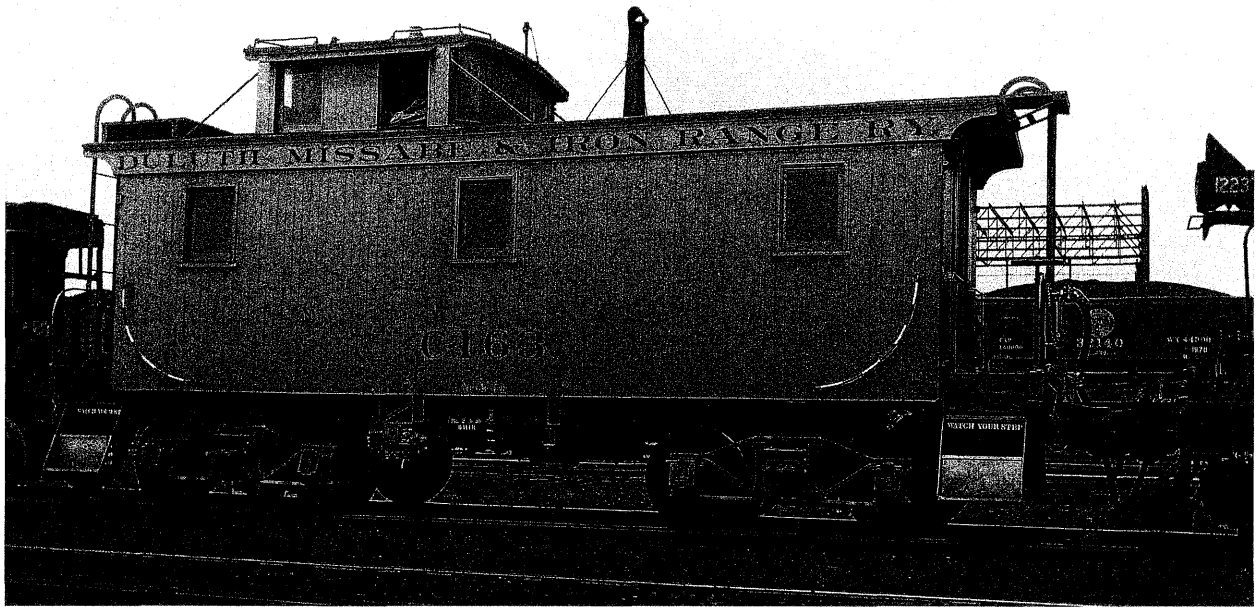
By 1900, D&IR shops at Two Harbors were building more and more equipment for the ever-expanding railroad. Two Harbors built a number of 20-foot 4-wheel cabooses beginning in 1900: numbers (2nd)30, (2nd) 33, (2nd) 34 and (2nd)59 in 1900, (2nd)36, (2nd)47 and 3 (2nd) 7 in 1902. Two new 4-wheel cabooses, 62 and 63, were added to the roster on May 25, 1905, to replace wrecked caboose 99. Nine more were added, 64–67, in April 1906 and (2nd)60, (2nd)61, 68–70 on February 17, 1908. This would conclude 4-wheel caboose construction at Two Harbors and all future cabooses would be 8-wheel.

During 1903, Two Harbors built 52-foot 6-inch long caboose 100 with wooden truss-rod carbody having an offset cupola and 8-foot wheelbase passenger car trucks. The car had a seating area at one end for mixed train service but had no side door for baggage. The car kept the number and was converted to Telephone & Telegraph Department service in 1908. Also added during March 1903 were two 8-wheel cabooses 60 and 61 which were renumbered to 80 and 81 in 1906

Rebuilding of 4-wheel cabooses to 27-foot 8-wheel cabooses at Two Harbors began in 1906 with 51 renumbered and rebuilt to 84.

The first newly constructed 27-foot 8-wheel cabooses were 82 and 83 in 1906. They would be the only D&IR or DM&N cabooses constructed with the cupola located at the very end of the carbody. The next two 8-wheel cabooses 85 and 86 were built in 1908. Built with the cupola off-set from the ends this would become the standard caboose design for future cabooses. Former long caboose 97 was

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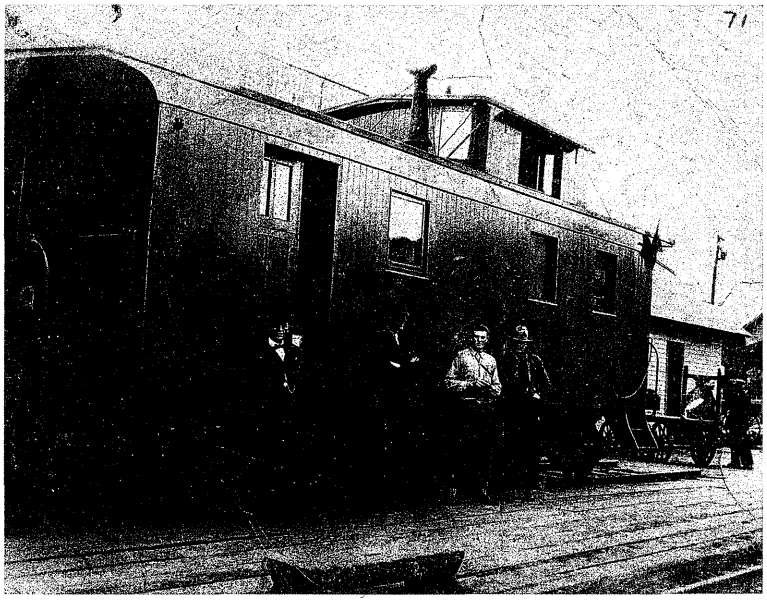


Early D&IR cabooses were 4-wheel 20-foot cars that during 1909 and 1910 were rebuilt to 31-foot 8-wheel cabooses retaining the same numbers. DM&IR caboose C-163 is former D&IR caboose second C-63 and is at Proctor on July 17, 1957. It had 6 bunks for sleeping and was equipped with a steel center sill in 1927. Unseen in this view, it was equipped with a Witte engine for electrical power for VHF radios in 1947. Note the vertical stanchion in the front center of the cupola to support the radio antenna. C-163 was dismantled on February 2, 1961. (Bob's Photo collection)

rebuilt to 27-foot 8-wheel caboose 87 on April 21, 1908. Caboose 80 was rebuilt and renumbered to 88 in 1910. Long caboose 95 was rebuilt to 27-foot 8-wheel caboose 89 in 1912

Appropriation 305 was approved by the D&IR Board of Directors at the July 18, 1910 board meeting for $32,942.50 to dismantle and rebuild 50 4-wheel cabooses to 8-wheel cabooses at Two Harbors. Also approved at the same meeting was Appropriation 234 for $11,860 for the construction of ten new 31-foot cabooses numbered 71–80. Cars 71–79 were built in 1910 and 80 in 1911. Draft sill failures on the 50 rebuilt 4-wheel cabooses caused D&IR to approve Appropriation 670 at the June 10, 1916 Board of Directors meeting for $7,600 to strengthen draft sills.

Beginning August 26, 1920, seven 27-foot cabooses 81, 84–89 were rebuilt to 40-foot cabooses at Two Harbors on AFE 367 with project completed on December 26, 1920, at a cost of $12,691.54. Cars had wood sheathed carbody, off-set cupola and 5-foot 4-inch arch-bar trucks. All seven were rebuilt with a side



First D&IR 84 is pictured in 1910 at what is thought to be the Eveleth depot. It was rebuilt from 4-wheel caboose 51 on April 5, 1907 when the side door was added. Carbody is painted a dark red with yellow lettering. (Minnesota Historical Society)

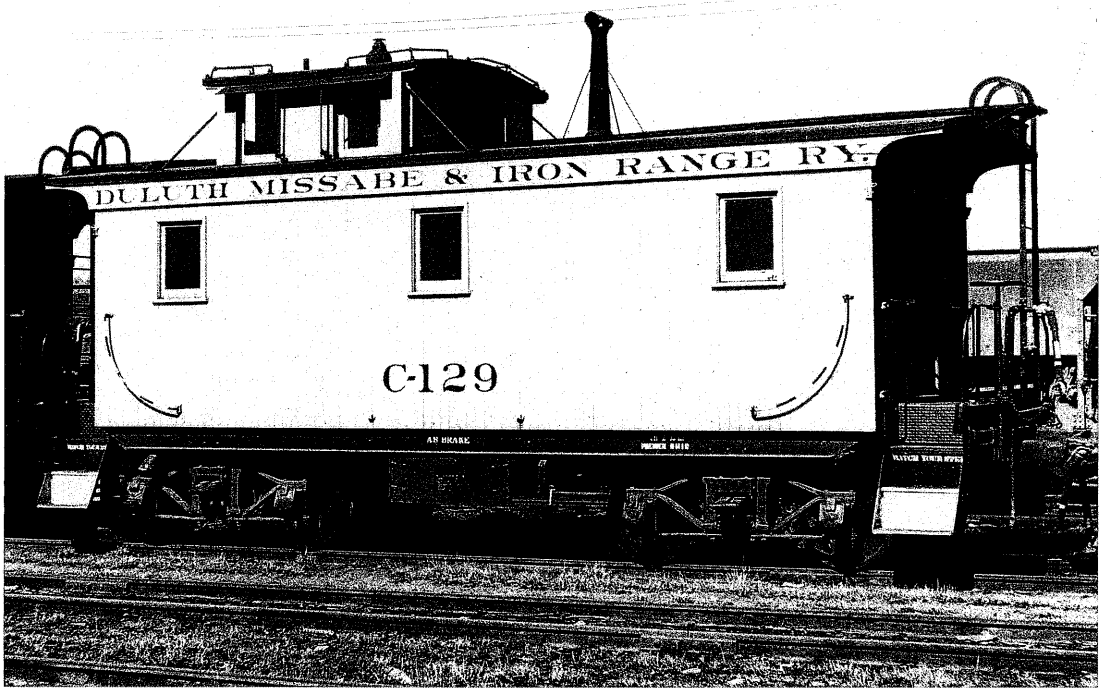
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door and small amount of floor space inside for handling LCL on local trains.

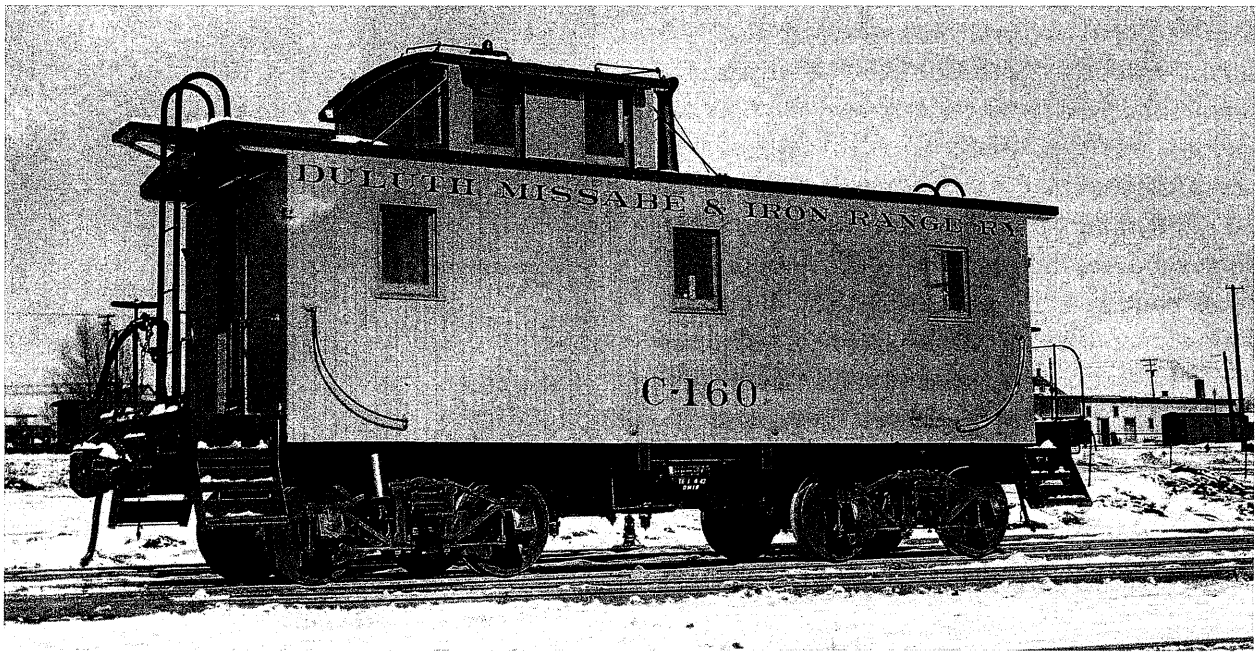
Appropriation 1035 was approved at the July 1923 Board of Director meeting for $2,035 for the construction of one new 36-foot caboose. Second 86 had burned at Babbitt on May 11, 1923, and was rebuilt to Third 86 under this appropriation.

A caboose shortage in 1923 caused at least one box car, 5232, to be rebuilt into a temporary caboose. On June 15, 1944, it was converted to bath and shower car W5232. It is possible other temporary cabooses were rebuilt, but no records have been found to support this.

At the time of the merger D&IR rostered 44 8-wheel wood-sheathed cabooses.



DM&IR C-129, former D&IR C-29 is at Proctor on March 31, 1963. Note the steel underframe which was applied under AFE 4329 during late 1939. This was part of a project to rebuild 20 27-foot cabooses with steel underframes. Once completed, only five cabooses remained with wooden underframes. (D, Repetsky, John C. La Rue, Jr. collection)



Steel center sills were installed on DM&IR C-160, former D&IR C-60 in 1927 seen at Two Harbors during the mid-1940s. Sold to Laona and Northern on April 30, 1965 this car survives today. (W.C .Olsen collection)

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DM&IR C-177, former D&IR 77 at Virginia, Minnesota, June 5, 1959, with a wreck-damaged end platform. Note the black lettering and roof indicating it is assigned to the Iron Range Division of DM&IR. (Joe Douda, D.P. Holbrook collection)



The view of DM&IR C-186 shows the access doors for the Witte engine and exhaust stack for powering radios installed in 1948. The engine and radios were removed from C-186 in 1951, but the exterior modifications were left in place. Note the vertical rod adjacent to the exhaust stack that was the radio antenna. It was converted to work car W-187 on January 29, 1975, and then later donated to Lake Superior and Mississippi tourist operation at West Duluth. (Bruce Meyer)

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PASSENGER CARS

Once industrial development of the Vermillion iron range started the transportation of people became a necessity. The first two passenger cars were ordered from Barney & Smith in 1884. Combination car 2 was delivered in 1884, was 58-foot 8-inches long, had a wooden carbody with open platforms, and rode on two 7-foot wheelbase 2-axle trucks. Trucks were classified as D&IR Type No. 1. Car had a 23-foot baggage area with a centered side door and a 33-foot 6-inch passenger section having nine windows per side with seating for 32 people and one bathroom. Day Coach 1 was delivered in 1885 with the same basic details.

D&IR Passenger Cars

Kind	Trucks	Nos	Length	Builder	Built	Retired/Disposition
Day Coach	4 axle	1	58'8"	Barney & Smith	1885	By 1916
Comb, Baggage and Passenger (open ends)	4 axle	2	58'8"	Barney & Smith	1884	Sold to Bowe-Burke Mining Co 09/02/33 - Retired AFE 3348 09/08/33
Business Car (open platform both ends)	4 axle	(1st)3	56'6"	D&IR T.H	1887	Rebuilt 1895 - Renumbered from 3 to named car Vermillion in 1888
Comb, Baggage and Passenger (open ends)	4 axle	(2nd)3	58'8"	CA&StL	Unk	Purchased from C&A 1900 - Former C&A 34 - Retired AFE 3370 12/14/33
Day Coach (open ends)	4 axle	4	61'	Ohio Falls Car Co	1887	Sold 1917
Day Coach (open ends)	4 axle	(1st)5	61'	Ohio Falls Car Co	1887	Rebuilt by Hicks Loco & Car Works 1903 into Combination car (2nd)5
Comb, Baggage and Passenger (open ends)	4 axle	(2nd)5	60'7"	Ohio Falls Car Co	1887	Retired AFE 3370 12/14/33
Comb, Baggage and Passenger (open ends)	4 axle	6	58'6"	Ohio Falls Car Co	1887	Out of service Nov 1914
Mail/Baggage	4 axle	7	62'	ACF	1908	Retired AFE 3370 12/14/33
Mail/Baggage	4 axle	(1st)8	62'	ACF	1908	Renumbered to Valuation car X7 in 1914
Mail/Baggage	4 axle	X7	62'	ACF	1908	Converted to tool car 801 1929
Baggage/RPO/Express all-steel	6 axle	(2nd)8	70'8"	Barney & Smith	1914	Scrapped ????
Baggage/RPO/Express	4 axle	(1st)9	58'8"	Pullman	Unk	Purchased from C&IC Railway 1888 - Changed to Valuation Car X9 in 1914 then changed to work service car 185 in July 1920
Baggage/RPO/Express	4 axle	X9	58'8"	Pullman	Unk	Valuation car - Retired ????
Baggage/RPO/Express all-steel	6 axle	(2nd)9	70'8"	Barney & Smith	1914	Converted to W9 5/13/65 AFE 9744 9/24/65
Baggage/RPO/Express	4 axle	(1st)10	58'8"	Pullman	Unk	Purchased from C&IC Railway 1888. Changed to X10 in 1914
Baggage/RPO/Express	4 axle	X10	58'8"	Pullman	Unk	Changed to Valuation car X10 in 1914 - Then to work service as X10 in 1931
Baggage/RPO/Express all-steel	6 axle	(2nd)10	70'8"	Barney & Smith	1914	Retired 7/15/61 - Converted to W10
Parlor Car (open ends)	4 axle	11	60'6"	Unknown	Unk	Purchased from C&IC Railway 1888 - Sold Sept 1918
Day Coach (open ends)	4 axle	12	59'3"	Unknown	Unk	Purchased from C&IC Railway 1888 - Rebuilt to wrecking supply car 193 in 1928
Day Coach (open ends)	4 axle	13	59'3"	Unknown	Unk	Purchased from C&IC Railway 1888 - Sold Sept. 1918
Parlor Car (open ends)	4 axle	14	60'6"	Unknown	Unk	Purchased from C&IC Railway 1888 - Sold Sept. 1918
Day Coach	4-axle	15	59'6"	Ohio Falls Car Co	1892	Sold Sept 1918
Day Coach	4-axle	(1st)16	61'8"	Ohio Falls Car Co	1892	Destroyed by fire 7/19/00
Day Coach	6-axle	(2nd)16	61'8"	Ohio Falls Car Co	1882	Rebuilt by Hicks Loco & Car Works in 1903 from ?? Out of service Nov. 1912
Coach	4-axle	17	57'9"	CA&StL	Unk	Purchased from C&A 1900 - Former C&A 43 - Rebuilt to Tool car 140 in 1916
Coach	6-axle	18	57'9"	CA&StL	Unk	Purchased from C&A 1900 - Former C&A 49 - Sold Sept. 1918
Coach (open ends)	4 axle	(1st)19	67'6"	Barney & Smith	1907	Converted to Motor Coach MC-1 in 1926
Combination, Baggage/Passenger (open ends)	4 axle	(2nd)19	67'6"	Rebuilt T.H. 1933	R1933	Converted from Motor Coach MC-1 07/31/33 to combination car (2nd) 19. Converted back to coach and work car W804 on 7/12/43. Donated to LSMT in 1974
Coach (open ends)	4 axle	20	67'6"	Barney & Smith	1907	To Telephone and Telegraph car 192 in 1927 - Then rebuilt to cradle car 196 in 1928
Day Coach (vestibule ends)	4 axle	21	66'10"	ACF	1908	Retired AFE 3370 12/14/33
Day Coach (vestibule ends)	4 axle	22	66'10"	ACF	1908	Retired AFE 3370 12/14/33

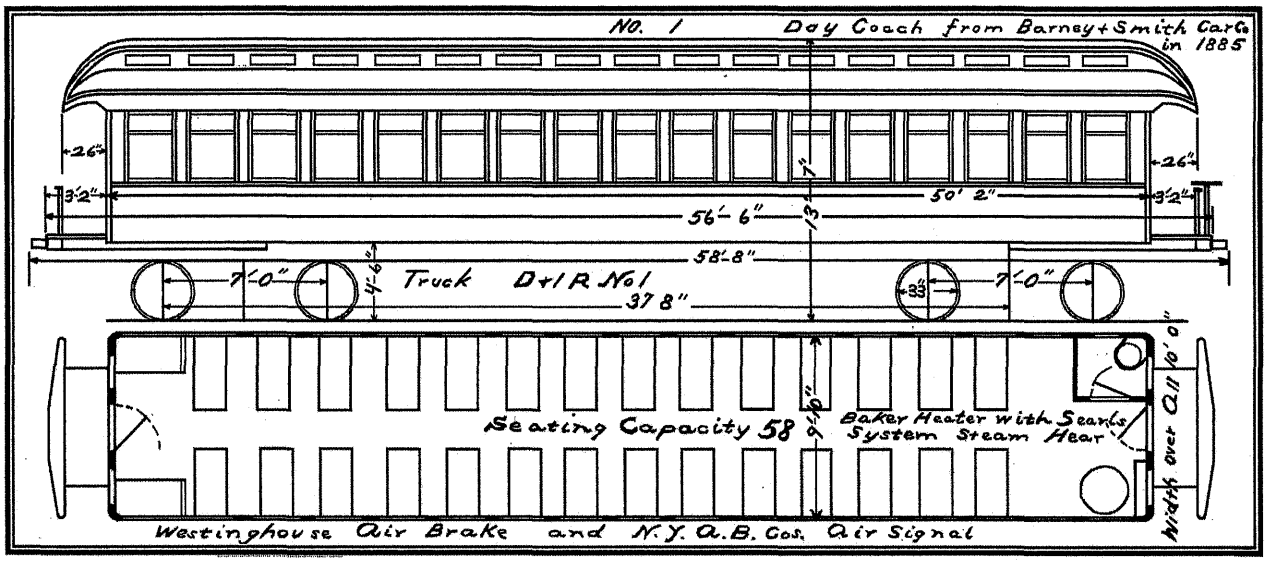
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A special passenger train at Two Harbors in June 1901. The head passenger car is D&IR 3, a combination baggage-smoker built for Chicago, Alton & St. Louis, acquired by D&IR in 1900 and retired on December 14, 1933. The following coach is thought to be D&IR 16 acquired from Ohio Falls Car Co. in 1882 and rebuilt by Hicks Locomotive & Car Co. in 1903. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections)

Kind	Trucks	Nos	Length	Builder	Built	Retired/Disposition
Day Coach (vestibule ends)	4 axle	23	66'10"	ACF	1908	Retired AFE 3370 12/14/33
Day Coach (vestibule ends) all steel	6 axle	24	70'8"	ACF	1912	Conv to Combo Bag/Coach AFE 3482 2/4/35 11/05/34. Renumbered W-24 AFE 6284 05/28/48 - Radio Telephone added 1947. Installed compartments #1 and #2 in 1947, Compartment #3 added in 1948 - Sold LSMT 08/03/03
Café/Observation	6 axle	25	65'6"	Unknown	Unk	Acquired from HL&CW in 1904 - Rebuilt by HL&CW in 1913 - Renumbered to Telephone and Telegraph Car 194 in 1928
Parlor Car	6 axle	26	72'10"	Barney & Smith	1907	Sold to F.H. Keyes 4/10/34 -Retired AFE 3426 06/5/34
Parlor Car	6 axle	27	72'10"	ACF	1908	Sold to Bowe-Burke Mining Co 8/9/33 -Retired AFE 3342 08/11/33
Day Coach (vestibule ends) all steel	6 axle	28	70'8"	ACF	1912	Remodeled 1939 with 12 seat solarium section added - To W28 5/12/65 1965. Donated to LS&M in mid-1980's then to D&NM(WGN) in 1994
Day Coach (vestibule ends) all steel	6 axle	29	70'8"	ACF	1912	Remodeled 1939 with 12 seat solarium section added - to work service W29 5/17/65
Day Coach (vestibule ends) all steel	6 axle	30	70'8"	Pullman	1918	To work service W30 AFE 9286 12/31/62. Then donated to Minn. Transportation Museum St. Paul, MN in 1983
Day Coach (vestibule ends) all steel	6 axle	31	70'8"	Pullman	1918	Sold to Thunder Bay Recreation, Marquette, MI in 1962
Day Coach (vestibule ends) all steel	6 axle	32	70'8"	Pullman	1918	to work service W32 AFE 9286 12/31/62
Day Coach (vestibule ends) all steel	6 axle	33	70'8"	Pullman	1918	Donated to LSMT in 1976
Day Coach (vestibule ends) all steel	6 axle	34	70'8"	Pullman	1918	to work service W34 4/27/65 AFE 9744 9/24/65 Then sold to WGN in 1997
Business	4 axle	Vermillion	55'	D&IR T.H	1887	Former business car (1st) 3 - Rebuilt 1895. SCS added 1912 - Sold AFE 3100 01/02/31
Business (closed end/open platform)	6 axle	Soudan	61'3"	Pullman	1889	Purchased from DM&N March, 1917 - To work service 1920 and renumbered 184
Business (vestibule end/open platform)	4 axle	Minnesota	60'	Barney & Smith	1895	Remodeled in 1909 - SCS added 1916 - Purchased from OIM on Oct 12, 1921. Converted to wrecking car W802 6/29/33 per AFE 3291 10/11/32
Business (open platform both ends)	4-axle	A	61'3"	Pullman Car Co.	1889	Purchased by Minnesota Iron Co. Renamed "Soudan" in unknown year
Business	4-axle	B	60'	Barney & Smith	1895	Changed from "B" to named car Minnesota in December 1901. Car was owned by Minnesota Iron Co but used by D&IR

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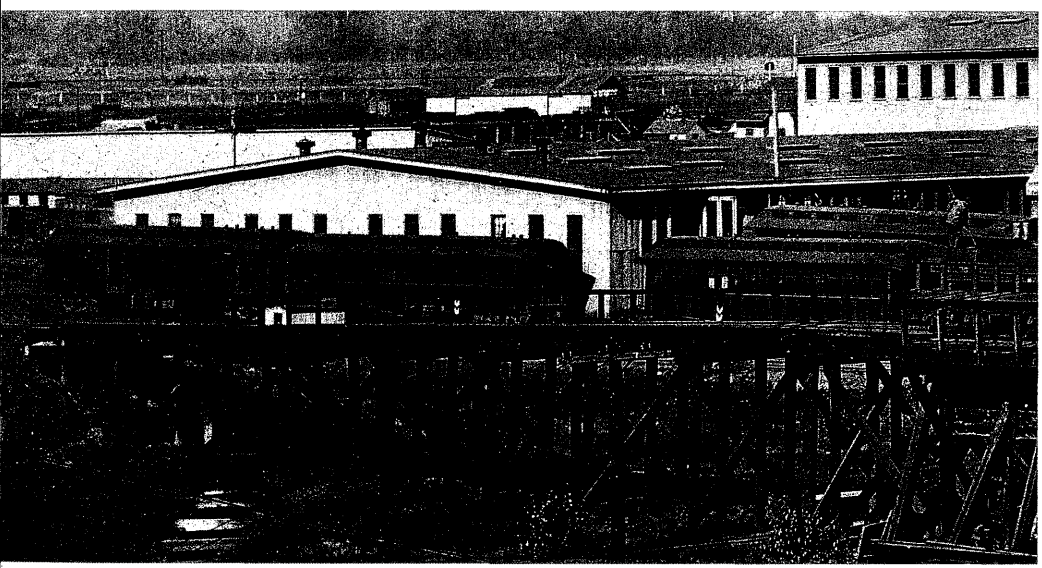
D&IR 1 day coach diagram. (D.P. Holbrook collection)

Car had a 56-foot 6-inch passenger area having 17 windows per side with seating for 58 people. Car 1 was off the roster by 1916 and car 2 in 1933.

Business car 3 was built at Two Harbors shop in 1887. The car was 56-foot 6-inches long, had a wooden carbody with open platforms, and rode on two 8-foot wheelbase 2-axle trucks, classified as D&IR Type No. 2. The car was named *Vermillion* in 1888 and assigned to D&IR President Tower. Tower did not like the paint on the car and had it repainted a "dirty white" in 1892. Rebuilt at Two Harbors in 1895, steel center sills were applied in 1912. The car was sold per AFE 310 January 2, 1931.

Orders were placed in 1887 with Ohio Falls Car Co. for two day coaches 4 and 5 and one combination car 6. All had wooden carbodies with open platforms on both ends and rode on two 8-foot wheelbase D&IR No. 2 2-axle trucks. Coaches had 17 windows per side with a seating capacity of 60 and one bathroom. The combination car had a 12-foot baggage section with a side door on each side and a 38-foot 2-inch passenger section seating 46 people and one bathroom. Coach 5 would be sent to Hicks Locomotive & Car Works in 1903 and rebuilt into a combination car. All were off the roster by 1933.

Between 1887 and 1888 it appears that



This view at Two Harbors circa 1910 shows from left to right: Baggage-Mail Express car either 7 or 8 built by American Car & Foundry in 1908, Combination Baggage-Smoker 5 built by Ohio Falls Car Co. in 1887 retired in 1914, Day Coach 1 built by Barney & Smith in 1885 and retired in 1915. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections)

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passenger car numbers 7 and 8 were not used. No records have been found to determine if in fact there was a 7 and 8 purchased during 1887 or 1888. Numbers 7 and 8 would be used in 1908 for baggage cars.

The main line from Two Harbors to Duluth was completed on December 20, 1886. Duluth was becoming a center of commerce and neighborhoods were expanding eastward along Lake Superior. D&IR introduced passenger service from downtown Duluth to Lakeside, a suburb of Duluth, in 1887. This created a shortage of passenger cars. Needing additional passenger equipment quickly, D&IR purchased Baggage/Mail/Express cars 9–10, Day coaches 12–13 and Parlor cars 11 and 14 second-hand from Chicago & Indiana Coal Railway (C&IC) in 1888. No builder data has been found for these cars.

Baggage/Mail/Express cars 9–10 were 60 feet long. The cars had a 17-foot baggage section and 17-foot express section located on ends of car with a 4-foot wide side door on each side of each section. Centered on the car was a 16-foot mail section with a single window and a 26-inch wide side door. Day coaches 12–13 were 59-foot 3-inches long. The cars had a 51-foot passenger section seating 48 people and two bathrooms. Parlor cars 11 and 14 were 60-foot 6-inches long. All had wooden carbodies, open platforms on both ends and rode on two 8-foot wheelbase Pullman No. 5 2-axle trucks. Cars 9 and 10 would be placed in service for ICC valuations of railroads and renumbered X9 and X10 in 1914. Both were retired shortly after this service was completed.

An additional business car was ordered in 1889 from Pullman Car Co. A letter "A" was chosen to identify the car when delivered, account car being purchased and owned by Minnesota Iron Co., making it easier to distinguish between D&IR owned and numbered passenger cars. The car was 61-foot 3-inches long with wood carbody, open platforms and rode on two 9-foot 6-inch wheelbase 3-axle trucks. The non-observation end of the car had the platform enclosed at an unknown date. By 1900 D&IR had discontinued keeping track of this car on yearly equipment lists. The car was renamed *Soudan* but it is unclear when this took place. It lost its name and was converted to Engineer Car D&IR 184 in 1920 and then purchased by D&IR from Minnesota Steel Co. in November 1921.

A second business car "B" was purchased by Minnesota Iron Co., from Barney & Smith in 1895. It was changed from car "B" to named car *Minnesota* in December 1901. It was 60 feet long with a wood carbody, open platforms and rode on two 8-foot wheel base 2-axle trucks. The car was remodeled in 1909 at Two Harbors and steel underframe was applied in 1916. Sometime during its career the non-observation end acquired a vestibule type end. The name was removed and number 122 was placed on car from 1918 to 1920 when D&IR was under USRA control. Records show this carried as USRA 122 on equipment lists. Predecessor to Minnesota Iron Co., Oliver Iron Mining, sold the car to D&IR on October 12, 1921. It was approved to be converted to wrecking car W802 on AFE 3291 October 11, 1932, with work completed on June 29, 1933. Shop forces at Two Harbors neglected to paint out the word *Minnesota* on the car and a letter was issued July 12, 1933 for shop forces to correct.

Two new coaches, 15 and 16, were built by Ohio Falls Car Co. in 1892. Both were 61-foot wooden cars with 17 windows per side, rode on two Pullman No. 5 2-axle trucks, seating capacity of 64 and one washroom. Car 16 was destroyed by fire on July 19, 1900. Two Harbors shops constructed a new 16 by late 1903. Both were off roster by 1918.

Needing passenger cars quickly to fulfill increasing demands, D&IR found equipment on the used market and purchased one combine and two coaches from the Chicago & Alton Railroad in 1900. All three cars were open-platform wooden carbody cars riding on two 2-axle trucks built by Chicago & Alton

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Business car *Minnesota* is shown with Parlor car 27 in 1922. Originally built by Barney & Smith in 1895, the car was numbered "B" and named *Minnesota* in December 1901. It was owned by Minnesota Iron Co. but used by D&IR. Remodeled in 1909 it acquired steel center sills in 1916. Minnesota Iron Co. became the Oliver Iron Mining division of U.S. Steel and OIM sold car to D&IR on October 12, 1921. It was converted to wrecking car W802 on June 29, 1933. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 35 Folder 43)

on an unknown date. C&A combination car 34 was renumbered D&IR 3. On arrival from C&A it was rebuilt at Two Harbors and had seating capacity reduced to 24 people and baggage section enlarged to 29-foot 4-inches and a single bathroom. Diagrams from the time specify that this was a "Combination Baggage/Smoker" car indicating even at the turn of the century patrons wanted a separate area for smokers. C&A coaches 43 and 49 were renumbered D&IR 17–18. No diagrams or photos of these cars have been found. All were off roster by 1933.

Not much is known about Observation/Café car 25. It was 65-foot 6-inches long with a wooden carbody and first appears on D&IR equipment lists in 1905. Notes in diagrams indicate it was rebuilt by Hicks Locomotive and Car Works in 1913 and then renumbered to Telephone and Telegraph car 194 in 1928.

In 1907, age was catching up with the earliest passenger cars. A decision was made to order two coaches from Barney & Smith for delivery in 1907. Coaches 19–20 were 67-foot 6-inch open platform wooden carbody cars riding on two 8-foot wheelbase 2-axle trucks.

By the mid-1920s D&IR and DM&N were looking for cheaper alternatives to service their passengers. Full crews were required for steam-powered passenger trains and a significant cost savings could be had if passenger trains were replaced with self-propelled motor cars. Coach 19 was converted to motor coach MC1 in April 1926. The carbody was modified to a 28-foot 7-inch baggage compartment with a passenger compartment for 36 people. The car was powered by two 14H 104-horsepower 6-cylinder Red Seal Continental gasoline engines. Motor cars proved unsuccessful and the car had engines removed and was converted to combine (2nd) 19 in 1933. Car 20 was rebuilt to Telephone & Telegraph car 192 in 1927 and

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Parlor car 27 was constructed by AC&F in 1928. Note the various scenes depicted on the window glass. It was rebuilt in 1921 with displays and exhibits of the Superior National Forest including a miniature forest, stuffed animals, birds, fish and other items. Car 27, along with D&IR business car *Minnesota* toured from Ely, Minnestoa, to St. Paul, Omaha, and Kansas City, then returned to Ely during April and May 1922 promoting the tourism potential of the area. (University of Minnesota Duluth, Kathryn A. Martin Library Archives and Special Collections, Collection S3742 Box 16 Folder 50)

further rebuilt to cradle car 196 in 1928.

Extension of the D&IR main line from Biwabik to Virginia took place in 1908. Anticipating additional ridership, D&IR placed an order for six passenger cars from American Car & Foundry in 1907. Two baggage/mail cars, 7–8, three coaches 21–23 and one Observation/Café 27 were ordered October 25, 1907 and delivered in 1908. All cars rode on two Commonwealth 8-foot wheelbase 2-axle trucks and were of wooden construction.

Baggage/Mail cars 7-8 delivered on April 2, 1908, were 62 feet long, having a 20-foot mail compartment and a 39-foot baggage room both with single side doors on each side and the mail section having two windows per side. Between 1915 and 1920 the ICC undertook the large project of documenting almost every aspect of U.S. railroads in an effort to determine their net worth. These valuations, as they were called, created a need for various types of equipment, cabooses and passenger cars mostly, to house the individuals doing the valuation. D&IR elected to provide three different baggage cars for this purpose. Car 8 was renumbered X7 in 1914 and assigned to the "Valuations." Car X7 was retired December 1929, 7 was retired December 14, 1933 per AFE 3370.

Coaches 21–23 delivered in April, 1908 were 68-foot 5-inches long. Car 21 had a seating capacity of 68 and cars 22–23 seating for 70. All three were equipped with two washrooms and 23 was unique in having automatic ventilators. All three were sold in December 1933.

Observation/Café 27 was built by ACF, but an identical twin, 26, was ordered from Barney and Smith in 1908. Both were 72-foot 10-inch cars riding on two Commonwealth 10-foot wheelbase 3-axle trucks. They had a 19-foot 10-inch observation room that seated 14 people, a smoking room that seated 6, a café section that seated 12, two washrooms and a large pantry and kitchen located on the vestibule end. Both would be retired by 1934.

Car 27 was selected during the winter of 1921-22 to promote tourism to the Superior National Forest in the area around Ely, MN. Conceived by Vice President H. Johnson during 1921 the car was outfitted with exhibits inside the car that included a miniature forest, a canoe, snowshoes, and mounted specimens of fishes, birds and animals. Departing Ely, MN on April 21, 1922 with business car *Minnesota* for support personnel, the car was opened

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On a fan trip in the early 1960s. DM&IR 29 is shown at Cloquet, Minnesota. Built by American Car & Foundry as part of a two-car order, cars 28 and 29 were both rebuilt with 12-seat solarium section in 1939. The 29 was placed in work service as W29 in 1965. (W.C .Olsen)



Car W24 was originally built as coach 24 by ACF in 1912 it was converted to a combine in 1935. A secondhand 4-kW 40-volt generator was installed in 1944 for electricity. Renumbered to W24 May 28, 1948, it became the companion support car for use with company business car *Northland*. Superior, Wisconsin, September 23, 1989. (D.P. Holbrook)

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Two all-steel Baggage-RPO-Express cars D&IR 9 and 10 were ordered from Barney & Smith in 1914 to comply with an order from Congress on March 4, 1911 to replace all wooden RPO cars by July 1, 1916. Placed in MofW service as W9 September 24, 1965. (Owen Leander, John C. La Rue, Jr. collection)



Baggage-RPO 9 is at Endion, Minnesota, during the late 1950s. (D.P. Holbrook collection)

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Replacing wooden passenger equipment, D&IR ordered five all-steel coaches 30–34 from Pullman in 1918. 32 would be placed in MofW service as W32 in 1962. (Owen Leander, John C. La Rue, Jr. collection)

to visitors in Tower, Aurora, Biwabik, Eveleth, Virginia and Two Harbors before arriving at the CMSTPM&O depot in Duluth.

It departed Duluth on CMSTPM&O and was displayed at St.Paul and Minneapolis on April 27 and April 28. Departing Minneapolis on MN&S for Northfield on April 29 it was interchanged to Chicago Great Western who handled car from Northfield to Omaha arriving May 10. CB&Q handled it to Kansas City on May 12 where it was displayed on May 13 through 15. The car departed Kansas City on CGW for Minneapolis and was back on the D&IR on May 26. Thousands of people toured the car and once back at Two Harbors the displays were removed and it was returned to regular passenger service.

Seeking to modernize an aging roster of wooden passenger cars, D&IR ordered three all-steel coaches with enclosed vestibules, 24, 28–29 from ACF in 1912. Appropriation 365 was approved at the D&IR Board of Directors meeting on July 11, 1912 for $45,000 for the purchase. They were 70-foot 8-inch long cars with seating capacity of 79, a 4-person men's smoking room with bathroom and a large women's dressing room and bathroom. Car 24 was rebuilt at Two Harbors to combination car 24 on February 4, 1935. Secondhand 4-kW 40-volt generating equipment was installed per AFE 5216 February 3, 1944 with work completed at Two Harbors on June 13, 1944. WPB purchasing restrictions at the time did not allow for new electrical equipment to be installed but no approval was necessary for secondhand purchases. The car was renumbered to work service W-24 on May 28, 1948, serving as a support car for business car *Northland*. It was sold to Lake Superior Museum of Transportation on November 3, 2003. Cars 28–29 were remodeled in 1939 by adding a 12-seat observation section. Both would be retired by the mid 1980s.

Congress would determine the next D&IR purchase of passenger cars. RPO clerks, early in 1911, called a strike for safer working conditions. This was precipitated by the large number of accidents involving wooden RPO cars. Congress reacted on March 4, 1911, and mandated that all future RPO cars must be

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