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THESES . . .

A HISTORY OF THE
DULUTH, MISSABE AND IRON RANGE RAILROAD

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PREFACE

I hope that in writing this brief history of a small but significant Minnesota railroad, none of the essentials have been neglected. There will be errors as well as omissions, for much of the story has not survived the reorganizations, the consolidations, and the changes that have plagued this railroad in its earlier days. Newspaper accounts had to be relied upon. Old articles published by the various owners of the railroad. Pamphlets, documents and other forms of publication involving both the Company and individuals. Fortunately these and other early documents have been saved by the St. Louis County Historical Society, the Lake County Historical Society, the Minnesota State Historical Society as well as the Company. I am deeply indebted to the personnel of these four preservers of Minnesota's past for their many courtesies.

I would like to thank Mr. Arthur C. (Neil) Hanson who provided me with materials and gave freely of his time throughout this project.

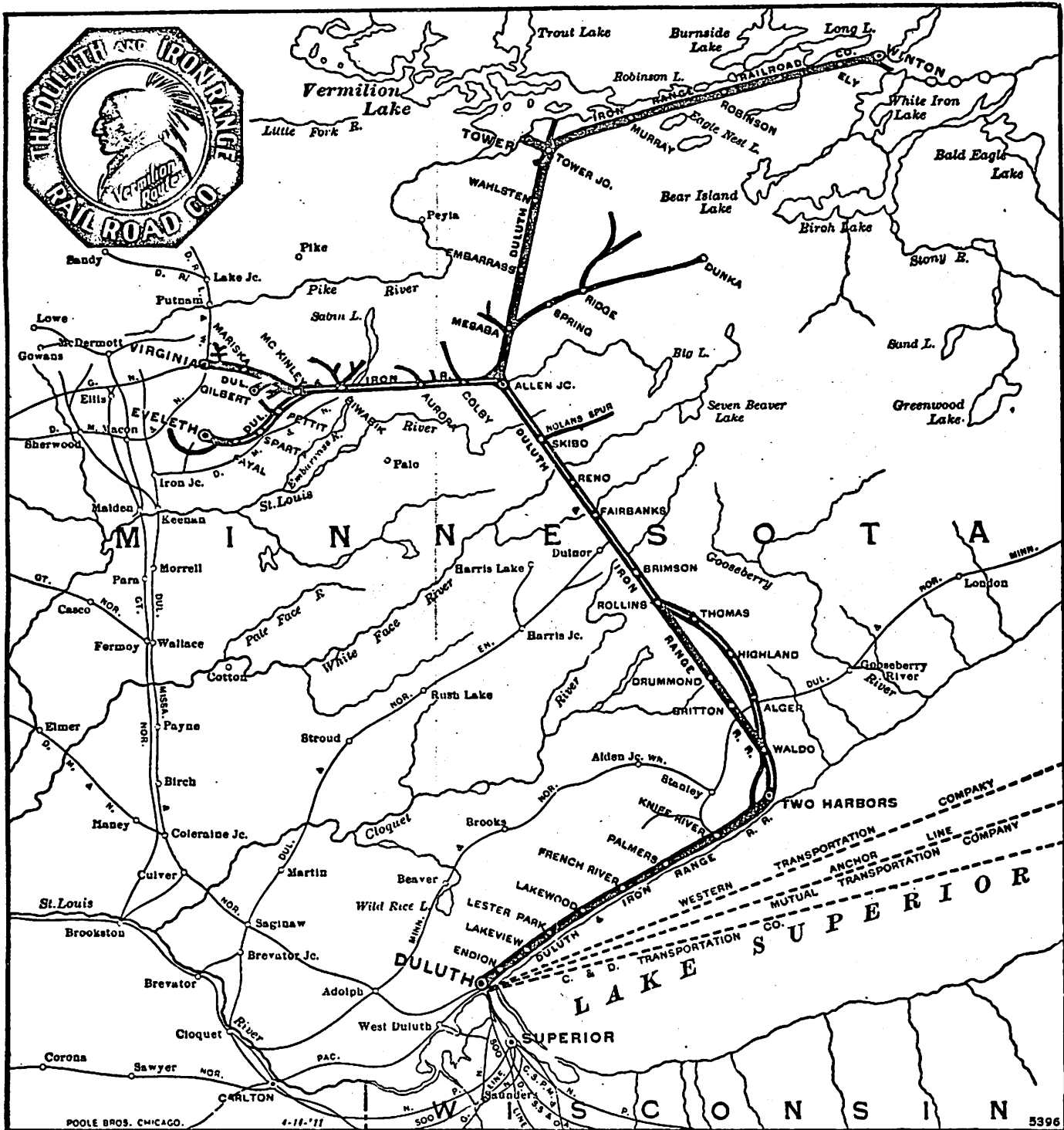
I would also like to thank Mr. Neil L. Hessen for his encouragement and for our many fruitful talks.

Mr. Franklin A. King for his assistance.

All the railroad men who aided me in countless

ways. This is, indeed, a brotherhood of railway men intensely interested in their daily occupation and knowledgeable about it. I am grateful to them for our countless number of conversations over the years in which we have been associated through our employment on the "Missabe".

I could not possibly name all who helped this writer, but their contributions are in no small way appreciated.



I.

EARLY HISTORY OF THE DULUTH AND IRON RANGE RAILROAD

The story of the Duluth, Missabe and Iron Range Railroad is the story of two independent railroads, the Duluth, Missabe and Northern and the Duluth and Iron Range, both directly associated with the development of the Mesabi and Vermilion Iron Ranges in Northern Minnesota. It is the story of the towns and villages of the Iron Range whose growth was made possible only through the development of the railroads and the mining industry of Northern Minnesota. It is also the story of men of courage who contributed in some way to this development. Men who invested their lives in search of the "Mesabi", the "Sleeping Giant".

The amazing growth in population of America, from 1870 to 1890, was setting the stage for a greater steel production and therefore, greater demand for iron ore than the limited capacity of the older ore Ranges could supply. The perfecting of the Bessemer and open-hearth processes furnished the necessary facilities for the processing of iron ore into steel. Railroad expansion needed steel for rails and bridges. Because of the rate

at which the prairies were being broken up, there was a need for steel wire in fencing. The era of the sky scraper was beginning to unfold with its demand for steel with which to make the skeletons. Just around the corner was the enormous growth in the use of steel for electric power plants, the steel freight car and the automobile. The demand for steel was entering a new era which called for a rapid expansion of the iron ore fields.¹

In 1826, Lewis Cass, the governor of Michigan, negotiated a treaty with the Chippewa Indians of the Lake Superior Region, at Fond du Lac, Minnesota, whereby the Indians ceded "the right to search for and carry away, any metals or minerals from any part of their country".² In 1854, another treaty was negotiated with the same Chippewa Indians, this time at La Pointe, Wisconsin, which became known as the "miner's treaty".³ By this treaty, the Indians "ceded to the United States the 'triangle' north of Lake Superior, with its apex at

¹Henry Oliver Evans, Iron Pioneer: Henry W. Oliver, 1840-1904. E. P. Dutton and Co., Inc., New York, 1942, p. 189.

²William Watts Folwell, A History of Minnesota, (Vol. I, Minnesota Historical Society, St. Paul, Minnesota, 1930) p. 306.

³Ibid., Folwell, Vol. I, p. 307.

the Pigeon River and its base on the line of the Vermilion, East Swan and St. Louis Rivers and a southwestern arm reaching down to the northern boundary of the cession of 1837."⁴

In the late 1840's a geological survey had been made by David Dale Owen in the Arrowhead Country of Minnesota, but his report seems to indicate that neither copper nor iron ore existed in the area.⁵ However, by 1860, there seemed to be indications strong enough to warrant the state legislature sending out a geological survey team. This report, while it did not contain too much information as to the presence of iron ore, stressed the importance of making further geological surveys.⁶ In 1864, the state legislature again made provisions for a geological survey of the area and sent two men, Dr. Augustus H. Hanchett and Thomas Clark, to make the survey. In their report, they indicated copper, iron and slate existed on the north shore of Lake Superior, but the appropriation had been too meager to permit a very extensive examination of the area.⁷ In 1865, Henry H. Eames was commis-

⁴Ibid., Folwell, Vol. I, p. 307.

⁵Ibid., Folwell, Vol. I, p. 306.

⁶Ibid., Folwell, Vol. IV, p. 2.

⁷Ibid., Folwell, Vol. IV, p. 3.

sioned to continue the survey of the Minnesota Arrowhead Country. He went to the Vermilion Lake Region where he found iron ore exposed from fifty to sixty feet in thickness, but he paid little attention to this discovery, as he was looking for more precious metals.⁸

One man, however, became interested in the Eames report of 1865, which also mentioned gold in the Vermilion Lake Region. That man was George R. Stuntz, who was an explorer and government surveyor. In the spring of 1865, Stuntz and Captain Pratt set out for the Vermilion area and after much searching Stuntz came upon a chunk of rock that was five times the weight of any ordinary rock. It was hematite--as near as one could get pure hematite, which later became known as "Minnesota, No. 1, Bessemer." Stuntz had "discovered the Vermilion Iron Range -- twenty years before it was needed."⁹

Stuntz came to the head of the Lakes in 1852, "I saw the advantages of Minnesota Point as clearly then as I do now. I went away to make a report and returned next spring and came for good. I saw clearly then as I do now that this was the heart of the continent com-

⁸Ibid., Folwell, Vol. IV, p. 3-4.

⁹Paul de Kruif, Seven Iron Men, (Harcourt, Brace and Co., New York, 1929) pp. 22, 23, 24.

mercially and so I drove my stakes."¹⁰

In 1868, Stuntz was entrusted with the construction of a state road from Duluth to Vermilion Lake. Federal appropriations were confirmed in 1869 and in June of 1869 he received a letter from General Warren of the Department of Engineers of the U. S. A. offering the rank of Captain. He was to spend \$10,000 to open, build and improve a road to Vermilion Lake. From July 1st to December 10th Stuntz worked with fifteen to eighteen men, two ox teams and wagons. He completed the road to haul supplies in the summer. Thus the eighty-four mile distance from Duluth to Lake Vermilion was now accessible by team both winter and summer and years later helped greatly to develop the iron mines of that region.¹¹

While the Vermilion Lake Region was experiencing this gold rush, the United States was experiencing a rush by the Railroad companies to reach the Mississippi River. However, the necessary capital for this expansion was not to be found in the mid-west but in the east. One factor which helped stimulate the interest was that both the federal and state land grants made railroad building

¹⁰William E. Culkin, "George Riley Stuntz and His Times," ms, dated May 3, 1904. St. Louis County Historical Society, Duluth, Minn.

¹¹Dwight E. Woodbridge and John S. Pardee, History of Duluth and St. Louis County. (Chicago, 1910), pp. 229, 235.

more inviting to investors. Chicago had now become the western terminus of the eastern railroads, and the people of Minnesota began acquiring the urge to build railroads to link their cities with Chicago. Many Minnesota investors wanted railroad charters only to acquire the land grants with no intent of building a railroad. However, this was not true in the case of Senator Ramsey. In 1869, Senator Ramsey introduced a bill in the United States Senate whereby Congress would make a grant of public lands to Minnesota to aid in the construction of a railroad from Lake Superior to Lake Vermilion. During this same time Ignatius Donnelly also made an effort to have the bill passed. On March 2, 1870, the bill was reported from the Committee on Public Lands with amendments and on April 25, it was up on general orders. However, the bill was passed over and no vote was reached.¹²

This was the last effort made to charter a railroad in this area until after the Panic of 1873. Between the end of the Civil War and 1873, many railroads were chartered in the state of Minnesota. However, because of the financial conditions of 1873 they could not continue. This same panic also discouraged people

¹²William W. Folwell, A History of Minnesota, Vol. IV, p. 8.

from investing in the exploration of the Minnesota iron ore fields. However, there were a few people who had settled in Duluth who saw the potentialities which the iron ore of Minnesota offered. As mentioned earlier, one of these men was George R. Stuntz. After his explorations of the ore fields, Stuntz was convinced of the wealth which lay in the undisturbed ground of northern Minnesota.¹³ Stuntz, himself, did not have the necessary capital to begin such a development and consequently, he was looking for someone whom he could interest in the venture. As it turned out George C. Stone was that man.

George Calvin Stone was born in Shrewsbury, Massachusetts, 1822. In 1869, a year before Duluth was incorporated as a city, he got the opportunity to come here as the assistant of General George B. Sargent, a banking agent of Jay Cooke, who opened its first bank. Stone was elected Duluth City Treasurer in 1870. After the panic of 1873, he began to think about iron ore in the district north of Duluth and of the reports of Stuntz and others on the existence of iron ore forma-

¹³William W. Folwell, A History of Minnesota, Vol. IV, pp. 8-9; Transportation of Iron Ore, published by the Duluth and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota (c. 1927).

tions around Vermilion Lake.¹⁴ As Stone became better acquainted with Stuntz a strong friendship grew between them. In 1874, Stuntz delivered a fifty pound chunk of iron ore from the Vermilion Range to George Stone, Stone immediately went to the state legislature where he was able to have a bill passed on December 24, 1874, incorporating the Duluth and Iron Range Railroad Company.¹⁵ Among the incorporators of the Railroad were two men of Ontonagon, Michigan, Peter Mitchell and Lewis Dickens, who had located iron ore on what is now approximately the site of the present Reserve Mining Company taconite plant at Babbitt.¹⁶

According to the terms of the bill the original line of the railroad was "to procede from a point in the City of Duluth in the State of Minnesota to the north-east corner of Township 60, North of Range 12 west on the Missabe Iron Range."¹⁷ On March 6, 1883, the Articles of Incorporation were amended and changed to read

¹⁴General C. C. Andrews, Ed., History of St. Paul, Minnesota, (Syracuse, N. Y., 1890), pp. 123-125.

¹⁵William W. Folwell, A History of Minnesota, Vol. IV, p. 11; Transportation of Iron Ore, D. M. & I. R. Ry. Co., Wolvin Building, Duluth, Minnesota, (c. 1927).

¹⁶Walter Van Brunt, Duluth & St. Louis County, Vol. 1, p. 359. (The American Historical Society, 1921.)

¹⁷Special Laws, 1875, p. 286; Walter Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 350, 359, 361, 393; Wm. W. Folwell, A History of Minnesota, Vol. IV, pp. 11-12.

"to commence within the corporate limits of the City of Duluth in the State of Minnesota, and to extend to Two Harbors on Agate Bay, in the County of Lake, and thence to the Village of Tower and the iron mines in surveyed Township 62, North of Range 15, West of the Fourth Principal Meridian of Minnesota, thence in a northeasterly direction to the boundary line between the said State of Minnesota and the Province of Ontario, Canada."¹⁸ In this same Bill of 1875, there was "to be a grant of 600,000 acres of swamp land for the railroad company that would be built to the mines."¹⁹

The interests held by the Ontonagon syndicate of Peter Mitchell and Lewis Dickens at Babbitt were incorporated into the Mesabi Iron Company in 1874, along with the charter of the Duluth and Iron Range Railroad Company. Alexander Ramsey was president of this same Mesabi Iron Company for a number of years.²⁰ The men who first incorporated the Duluth and Iron Range Railroad Company in 1874, along with the first Board of Directors are as follows:

¹⁸Special Laws, 1883, p. 203; William W. Folwell, A History of Minnesota, Vol. IV, p. 12.

¹⁹Special Laws, 1875, p. 286; Walter Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 350, 359, 361, 393.

²⁰Walter Van Brunt, Duluth and St. Louis County, Vol. 1, p. 361.

Incorporators: Peter Mitchell, Lewis M. Dickens, Ontonagon, Michigan. From Duluth, Minnesota: William W. Spalding, Joshua B. Culver, George C. Stone, William R. Stone, Clinton Markell, Calvin P. Bailey, John D. Howard, John C. Hunter, Luther Mendenhall, Josiah D. Ensign.

Board of Directors: William W. Spalding, Peter Mitchell, Lewis M. Dickens, Joshua B. Culver, John C. Hunter, George C. Stone, Clinton Markell, Calvin P. Bailey, Josiah D. Ensign.²¹

The Articles of Incorporation also provided that "the capital stock of said Corporation shall be 30,000 shares of \$100 each."²²

In 1876, George C. Stone moved to Philadelphia to recoup his losses in real estate after the panic of 1873. While in Philadelphia he engaged in the manufacture of stratina, a cement for mending china and glassware. It was a very small affair and he was impatient to get out of it as soon as he could. The monotony of a small manufacturing business forced his mind back to the Vermilion Lake iron. He commenced gathering data

²¹Transportation of Iron Ore, published by the Duluth and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota, (c. 1927).

²²Ibid., (c. 1927).

on the subject in earnest, leaving the china cement business to an assistant. After gathering a thorough knowledge of the resources of the iron field and much technical information about iron ores, he finally set out to enlist the serious attention of capitalists in his scheme. He went to one man after another, Captain Eber B. Ward, steel king of Detroit, Orrin W. Potter of Chicago, and Amasa Stone of Cleveland, but failed in every effort. Among the men approached was Charlemagne Tower of Philadelphia.²³

One circumstance favored Stone. Tower was eager to talk about the Mesabi, having already heard of it from Samuel Wilkeson, a publicity man in the New York office of the Northern Pacific Railroad whose work kept him abreast of events throughout the Northwest. In a letter of October 12, 1874, Wilkeson had written Tower about the rumored iron mountain, stating that it was eight miles long. Tower was impressed.

He listened now with keen interest to what Stone had to say and then sent him to Utica, New York to see Samuel Munson, his law partner.²⁴

²³J. H. Gruber, The Soudan Mine in Minnesota, Duluth & Iron Range Railroad file of St. Louis County Historical Society, Duluth.

²⁴Hal Bridges, Iron Millionaire, (University of Pennsylvania Press, 1952) pp. 141-142.

When three different men, whom Tower had in mind, proved to be unavailable, Munson suggested that they employ Professor Albert H. Chester of Hamilton college, New York. Chester, a mineralogist as well as a chemist and an experienced explorer, was familiar not only with the Peter Mitchell iron samples from the Mesabi that he had analyzed for Munson, but also with Vermilion ore. He had helped arrange mineral specimens for the Paris Exposition of 1867 and among the specimens were hard iron ore samples brought out of the Vermilion Lake region by George R. Stuntz.²⁵

The exploration was set and Chester's guide for the trip was George R. Stuntz. In 1875 explorations were made on the eastern Missabe Range in township 29, range 14 west and in townships 60, ranges 12 and 13 west, along with township 62, range 15 west, in the Vermilion lake region. In his report, Chester did not speak highly of the Mesabi findings, but he felt the Vermilion ore "deserved further most careful and exhaustive examination."²⁶

In 1878, Newton H. Winchell began explorations in townships 59 and 60, range 14 west of the fourth principal meridian. This was the same area which Professor

²⁵Ibid., Bridges, p. 144.

²⁶Ibid., Folwell, Vol. IV., p. 9.

Chester had explored just a few years before. In his report of 1881, Winchell urged the regents of the University of Minnesota to begin development of this area as he felt the revenue of the iron ore would greatly aid the state. But neither the regents nor the state authorities took much interest in this report which was supported only by field notes and hand specimens.²⁷

In the summer of 1880, Tower sent Professor Chester on a second trip to the Vermilion Lake region to make another, more careful, examination of the area. Chester's discoveries convinced Tower that the development of this area would be of great value.²⁸ However, Tower showed no indication that he would be in a hurry to invest large amounts of money until he was assured that this mining area would not be unreasonably taxed. Through the efforts of George C. Stone, the Minnesota Legislature of 1881 passed a bill whereby it imposed a tax of one cent a long ton on all iron ore mined, shipped or disposed of, one-half of the revenue going to the state and the other one-half going to the county or counties in which the mines were located. Each mining company was also required to submit an annual report

²⁷Ibid., Vol. IV, p. 10.

²⁸Ibid., Vol. IV, p. 10.

to the state auditor verifying the amount of ore mined, shipped or disposed of.²⁹

With the assurances that the Vermilion Lake region was rich in iron ore and the state would not tax a mining development to death, Charlemagne Tower now began to move. On December 1, 1882, the Minnesota Iron Company was incorporated, with the charter members being Charlemagne Tower, president, George C. Stone, general manager, Charlemagne Tower, Jr., treasurer, George R. Stuntz and Edward Breitung of Negaunee, Michigan, vice presidents, Thomas L. Blood, Stone's son-in-law, secretary. Tower, along with the other members of this newly-formed company, knew that a railroad was an absolute necessity in connecting their iron mines with Lake Superior for transportation of this ore to the steel mills on the lower lakes.

The fight between Tower and the Duluth and Winnipeg Railroad Company began on March 1, 1882, and reached a climax a year later on the floor of the Minnesota Senate. Tower needed a land grant to build a railroad in order to haul his Vermilion ore to market.

Minnesota had obtained its land under the federal

²⁹Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 355-358; Folwell, A History of Minnesota, Vol. IV, p. 11; General Laws of Minnesota, 1881, Extra Session, p. 55; Minnesota House Journal, 1881, Extra Session, pp. 29, 283; Senate Journal, p. 260.

Swamp Land Grant of March 12, 1860, one of a series of similar acts dating back to 1849. Tower's first try for a land grant proved unsuccessful. On January 29, 1881, he incorporated the Duluth and Iron Mountain Railroad Company. Stone then introduced into the Minnesota legislature a bill to provide the corporation with a swamp land grant. This bill failed also.

Tower now reasoned that if he could not get a new land grant then he should take over an old one. The old one he was thinking about was in the possession of the Duluth and Iron Range Railroad Company. William W. Spalding, George C. Stone and ten other members of the Ontonagon syndicate had organized this corporation in 1874. With the help of Senator Charles H. Graves the Minnesota legislature of 1875 passed a special act granting it ten sections of state swamp land for each mile of road it completed.

Under the Land Grant Act of 1875 as amended by a time extension act of 1876 the Duluth and Iron Range had until February 17, 1879, to complete its road. It built no track at all and in 1877 its own president, William W. Spalding, organized another corporation to take over its land grant. His new corporation was the Duluth and Winnipeg Railroad Company. Tower now had to find out if the act of March 9, 1878, which was

passed before the expiration of the time limit on the Duluth and Iron Range Land Grant, actually transferred that grant to the Duluth and Winnipeg, or if it was just a declaration of intent that required further legislation. He found through St. Paul Representative James Smith Jr. that the act was only a declaration of intent.³⁰

On March 1, 1882, an informal meeting was held in a law office in Duluth with the incorporators of the Duluth and Iron Range Railroad Company. At this meeting George Stone managed to get control of the stocks of the Duluth and Iron Range Railroad and in December, 1882, the Minnesota Iron Company purchased control of the Duluth and Iron Range Railroad Company from the Mesabi Iron Company.³¹

Charlemagne Tower was interested in building the railroad to Lake Superior from his mine holdings at Tower Junction via the shortest route. Thus, the railroad was constructed to Two Harbors instead of Duluth as the bill passed by the state legislature required. George R. Stuntz and Richard H. Lee, the son-in-law of Charlemagne Tower, made the first rough survey of the railroad

³⁰Hal Bridges, Iron Millionaire, pp. 172, 173, 174.

³¹Folwell, A History of Minnesota, Vol. IV, pp. 11, 12. Van Brunt, Duluth and St. Louis County, Vol. I, p. 360.

in 1880 and 1881. In 1882, about the same time the first crew was sent to begin preliminary work at the mines, the locating and surveying of the railroad had begun. On December 6, 1882, an engineering party in charge of William A. McGonagle, who later became president of the Duluth and Iron Range Railroad, assembled in Duluth to travel by sled to Two Harbors to begin work on the railroad.³² At one point Mr. McGonagle lists Dwight E. Woodbridge, a member of the party, as a leveler.

On the seventh of December, 1882, McGonagle and his party left Duluth for Agate Bay, about twenty-seven miles down the North Shore of Lake Superior. When they reached Knife River about twenty miles away, they were forced to land because of open water in the lake. They continued on and arrived at Agate Bay late in the afternoon. That evening they pitched their tents. The next morning it was snowing and continued until there was at least four feet of snow on the level. However they began laying out the line of the Duluth and Iron Range Railroad. They moved their camp every few days until

³²Transportation of Iron Ore, published by the Duluth and Iron Range Railroad Company, Wolvin Building, Duluth. (c. 1927); McGonagle, Early Recollections of the Duluth and Iron Range Railroad, in file of D. and I. R. at St. Louis County Historical Society.

they finally connected the line with what was known as Case's line near the Whiteface River; this gave them a connected line all the way to Tower. Several changes were decided upon to reduce cost and from August, 1883, to October, 1883, they worked until the line was completed.³³

The contract was granted to John S. Wolf of Ottumwa, Iowa. Wolf and his crew worked through the winter of 1883 and they hurried the construction work as fast as possible for the company had offered a bonus of fifty thousand dollars if the railroad was completed before August 1, 1884. They completed the work, however, the most troublesome error was a faulty bridge across the Whiteface River. After the bridge had been built exactly as the engineers designed it, and all the construction crews and machinery had moved up the line for a distance of some forty miles, the river bank on both sides began to settle. The bridge ends had not been extended far enough to reach solid ground. The crew had to return and lengthen both ends 95 feet each way, making the bridge 460 feet long instead of 270 feet as calculated in the first plans. The work was completed ahead of schedule and the first iron ore shipment was

³³William A. McGonagle, Early Recollections of the Duluth and Iron Range Railroad, in the file of the Duluth and Iron Range Railroad at St. Louis County Historical Society.

dumped into the ore dock at eleven p.m. on July 31, 1884, and thus the Railroad Company paid the bonus.³⁴

The first ore transported from the Vermilion Range was loaded at the Breitung Mine and was loaded on the steamer "Helca" and the schooner "Iron-ton" on August 18-19, with the ore being consigned to George H. and Samuel P. Ely of Cleveland, Ohio. The ore docks, the first constructed at Two Harbors, were made of wood, contained forty-six pockets, were forty-four feet in height, twenty feet from the waterline and had a storage capacity of about 3,000 tons. Approximately 62,000 tons of iron ore were shipped over this dock from the Vermilion Range in '84.³⁵

In later years the dock was completed and then enlarged and four other wooden docks constructed. In 1907-08 the first steel and concrete ore dock anywhere in the country was erected, becoming Dock No. 6. This dock, too, required enlargement in 1923-24. The wooden docks finally had to give way to steel and two new ones were built. The present Ore Docks No. 2 replaced the

³⁴Ibid., McGonagle, Early Recollections of the D. & I. R. Ry. Co. Hal Bridges, Iron Millionaire, p. 215.

³⁵Transportation of Iron Ore, published by the Duluth and Iron Range Railroad Company, Wolvin Building, Duluth, Minn., (c. 1927); Folwell, A History of Minnesota, Vol. IV, p. 15.

original wooden dock in 1916.³⁶

After completion of the Duluth and Iron Range Railroad from Tower Junction to Two Harbors in 1884, many other extensions were made in subsequent years.

The following table shows these extensions after 1884.

| | |
|---|--------------------|
| Two Harbors to Duluth - - - - - | 1886 |
| Tower Junction to Tower - - - - - | 1886 |
| Chandler Extension, Tower Junction to Ely - - - - - | 1888 |
| Western Mesaba Branch, To Biwabik, Eveleth and eventually to Virginia - - | 1893 |
| Eastern Mesaba Branch, from a point on the mail line designated "Mesaba", easterly to the Dunka River - - - - | 1910 |
| Wales Branch from Wales, a point on the main line, northeasterly to Whyte - - - - - | 1917 ³⁷ |

In 1947, a twenty-eight mile extension was added to the Wales Branch from Whyte into the Superior National Forest. This was the first major railroad construction project by this railroad into northeastern Minnesota since 1917 and was built at the request of the Federal Government so that the virgin timber in the National Forest could be cut before deterioration.³⁸

It was not long after constructing the Duluth and Iron Range Railroad for the purpose of transporting iron

³⁶Missabe Iron Ranger, published by the Duluth Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minn., April 1961. (p. 31-32).

³⁷Transportation of Iron Ore, published by the Duluth and Iron Range Railroad Company, Wolvin Building, Duluth (c. 1927).

³⁸Duluth News Tribune, March 18, 1947.

ore to Two Harbors that the first passenger train was commuting between Duluth and Tower area. The following article appeared in the August 13, 1929 edition of the Duluth News Tribune, telling of the first train schedule which was issued by the railroad.

"Forty-five years ago Monday, the Duluth and Iron Range Railroad's first time table was issued and runs made according to the adopted schedule.

"A copy of the timetable circulated Monday, August 11, 1884, hangs on the wall of the St. Louis County Historical Society, a gift of Horace Johnson, President of the road.

"When the first schedule was published, the road had not been extended to Duluth and operated only from Two Harbors to Tower. The run in 1884 required 5 hours and 10 minutes on passenger trains. Today the same distance, 68 miles, is covered in 3 hours and 25 minutes.

"The train made 14 stops before reaching Tower. These stations, bearing Indian names, do not exist today. The stations were: Wabegan, Sibiwissa, Gakadina, Matawan, Cloquet River, Wissakode, Bassett Lake, White Face River, St. Louis River, Binisibi, Okwanim, Mesaba Heights and Embarrass River.

"R. H. Lee was superintendent of the road when the first train schedule was adopted. G. H. White was assistant superintendent and train dispatcher. The only rule of the road 45 years ago was that all trainmen must compare their time daily at the dock offices before leaving on their run.

"The first time table included schedules for freight and ore cars as well as passenger trains. There was one passenger, freight, and ore train daily leaving each end of the line. The freight train left Two Harbors at 6:45 a.m. daily and completed the run at 12:58 p.m. The ore train started at 5:05 a.m. and reached Tower at 11:30 a.m."³⁹

Under the younger Charlemagne Tower's management

³⁹Duluth News Tribune, August 13, 1929, "Duluth and Iron Range Issued First Schedule 45 Years Ago."

the Minnesota Iron Company, in the latter part of 1886, extended its railroad from Two Harbors to Duluth. With this extension the new "Lake division" fulfilled the conditions under which the six hundred thousand acres of swamp land had been granted. Now with his mining properties on the Vermilion Range in full operation and the Duluth and Iron Range Railroad a success, Tower was able finally to realize a profit on his investments. He had spent a great deal of money, time and anxiety before he reached this position. He and Tower Jr. had formulated plans for retaining permanent ownership of the Duluth and Iron Range.⁴⁰

The ownership of the Duluth and Iron Range Railroad by the Towers, however, was short-lived. A Chicago syndicate led by Henry H. Porter had the land near Vermilion Lake examined and discovered that ore existed beyond the limits of Tower's holdings. Then he and his associates quietly got possession of a block of land northeast of the lake, encompassing rich iron deposits that were later developed as the Chandler mine, and set about forming a mining syndicate.

Porter had made money in various ways, but chiefly by purchasing railroads bankrupt in the Panic of 1873

⁴⁰ Van Brunt, Duluth and St. Louis County, Vol. 1, p. 362.

and consolidating them into the Chicago, St. Paul, Minneapolis and Omaha Railway. After selling out to the Chicago and North Western Railway Company in 1882 he bought the Union Steel Company and consolidated it with two other firms to form the Illinois Steel Company of Chicago. It was this undertaking that brought Vermilion ore to his attention and led him to meditate on the Vermilion Range as a source of profit.

Porter and his associates were determined to have a railroad of their own and they made it clear to Tower that they were prepared to bring a competing trunk line road into the iron region and also to attack his Vermilion land titles. Porter's lawyers told Tower Jr. that they had accumulated evidence to show that Breitung and Stone had acquired the lands for the iron company by fraud and they also pointed out that they did not want to fight Tower but to persuade him to sell his railroad to the Porter syndicate.⁴¹

Samuel Ely, acting as the intermediary, began negotiations with the Porter syndicate. Many proposals were made and refused until finally an agreement was reached whereby Tower sold all his holdings including the Duluth and Iron Range Railroad and Minnesota Iron Company. The sale was finally consummated on June 14, 1887 and

⁴¹Hal Bridges, Iron Millionaire, pp. 265, 266, 267.

the price was about \$6,400,000.⁴²

In 1898, the holdings of the Porter syndicate, which included the Minnesota Iron Company, of which the Duluth and Iron Range Railroad Company was an integral part, passed into the hands of the Federal Steel Company, which had been organized as a holding company for the various phases of the steel industry in the same year. Upon its organization the Federal Steel Company took over all the ore lands of the Minnesota Iron Company, the Duluth and Iron Range Railroad Company, and a fleet of lake vessels and barges. When the United States Steel Corporation was organized in 1901, all these properties were absorbed by the giant corporation. The Corporation then proceeded to merge the Federal Steel Company, the Lake Superior Consolidated Iron Mines Company and the Carnegie-Oliver Company into one subsidiary, which was called the Oliver Iron Mining Company.⁴³

⁴²Ibid., p. 273.

⁴³Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 362, 363.

II.

EARLY HISTORY OF THE DULUTH, MISSABE AND NORTHERN RAILROAD

The Duluth, Missabe and Iron Range Railway Company has its roots originating from two beginnings, separated in time and distance. The Duluth and Iron Range Railroad, developed by the Charlemagne Towers, Senior and Junior, was formed in 1882 for the purpose of hauling iron ore from the Vermilion Range to Two Harbors for shipment and is now known as the Iron Range Division of the Duluth, Missabe and Iron Range Railway Company. The Duluth, Missabe and Northern Railway, organized by the Merrit Brothers in 1891, was intended for transportation of iron ore from the Mesabi Range to the lake ports of Duluth and Superior and has come to be called the Missabe Division of the Duluth, Missabe and Iron Range Railway Company.⁴⁴

There is a similarity in the formation of the Duluth, Missabe and Northern and the Duluth and Iron Range Railroad Companies. In each case a railroad company had been chartered several years prior to the

⁴⁴Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minn., April, 1961.

actual construction of the roads, but until the necessary capital could be found to invest in the Vermilion and Mesabi Ranges, the railroad charters remained dormant.

In the case of the Duluth, Missabe and Northern Railroad Company, its predecessor had been the Lake Superior and Northwestern Railroad Company which had been chartered in 1883. According to its charter, the line was to run "from the tip of Minnesota Point to Duluth, over Rice's Point and northwest to the Red River near the state boundary, with branches to reach the Mississippi River at Brainerd, another to the Canadian border north of Red Lake and another to Rainy River, by way of Vermilion." The Lake Superior and Northwestern Railroad was incorporated by James Bardon, John H. Upham, George R. Stuntz, Joseph A. Mannheim, William C. Sargent, Araspas C. Jones, John McGuire, Herman Burg and Leonidas Merritt. The authorized capital of this railroad was to be \$5,000,000. After the railroad was incorporated very little was done even to survey the railroad right-of-way. It was not until the Merritts obtained the charter of the dormant railroad in 1891 and changed its name to the Duluth, Missabe and Northern that construction got underway.⁴⁵

⁴⁵Van Brunt, Duluth and St. Louis County, Vol. 1, p. 362.

In considering the development of the Mesabi Range and subsequently the building of the Duluth, Missabe and Northern Railroad the credit for that development must be given to the Merritt brothers. In his Report on the Mesabi Iron Range, Winchell stated this fact: "The Merritt brothers of Duluth and Oneota, were not to be discouraged by reports of explorers and miners added to those of experts and geologists who had condemned the range ever since 1875. To these Duluth pioneers the Mesabi was an attractive and promising district and their faith in it was never shaken. To them belongs the credit for persisting in the hunt for ore and the final discovery of it..."⁴⁶

Lewis H. Merritt came to the Head of the Lakes on the side wheel steamer, "North Star," on the third of July, 1855. This was the first trip through the locks at Sault St. Marie for the steamer. The "North Star" came through what is now known as the Superior Entry, between Minnesota Point and Boland's Point, the latter now being called Wisconsin Point. Merritt came to erect a saw mill on Connor's Point for Newell S. Ryder.

In the fall of 1854 at La Pointe, Wisconsin, the Indian treaty had been made ceding the entire north-

⁴⁶Horace V. Winchell and John T. Jones, The Mesabi Iron Range, 20th Annual Report, Minn., Geology Survey, St. Paul, (no publisher) 1894.

eastern part of Minnesota to the Government and was opened for homesteading. Lewis Merritt took a squatter's right on a piece of land, which after the survey was made, proved to be a part of what is now West Duluth. The survey was made during the winter of 1856.⁴⁷ The family came from Chautauqua County, New York, to Warren County, Pennsylvania; then to Ashtabula, Ohio, and finally on the 28th of October, 1856, they arrived at the Head of the Lakes. The father, Lewis Merritt, was a millwright and sawmill man. His sons Alfred and Leonidas were born in Chautauqua County, New York; by a strange whimsical fate, they were born in a county not far from the place where, in 1839, John D. Rockefeller was born.⁴⁸

The Merritts were met at George R. Stuntz' dock by Napoleon, the oldest of the boys who had come to the Head of the Lakes a year earlier with his father. From the dock they rowed up to Oneota and landed on the shore between what is now 44th and 45th Avenues West, at the foot of a saw mill. The house in which they lived was built here on Block 29, Oneota. The boys, clothed by

⁴⁷Alfred Merritt, Reminiscences, February 8, 1925.

⁴⁸Nathan Cohen, a paper presented at Mountain Iron, Minnesota, August 10, 1940.

their mother in homespun cloth, were warm and strong, living an outdoor life, learning woodcraft from the Indians and their early book knowledge from mother and father alike. Four of the eight sons, Napoleon, Alfred, Leonidas and Cassius, became estimators and timber cruisers, amassing great fortunes for those days.⁴⁹

During the winter of 1865 and 1866 there was a gold excitement at Vermilion Lake. Lewis Merritt made the trip, though he was not excited about the gold fields, and while out there North Albert Posey, an Indian blacksmith, showed Merritt a chunk of iron ore. Later, when he returned to his home, Lewis Merritt told his boys that some day there would be great mines there, worth more than all the gold of California. He told them that if any of them ever were on the Mesaba, it would pay them to be on the lookout for ore. These words perhaps influenced the boys in later years to discover the Mesaba Range.⁵⁰

During the winter of 1867 and 1868 the survey of the Lake Superior and Mississippi Railroad was being

⁴⁹Russell Gordon Merritt, The Romance of the Range. A paper presented on January 14, 1931, Denfeld High School, Duluth, Minnesota.

⁵⁰Alfred Merritt, Reminiscences, Feb. 8, 1925.

made from Carlton to Duluth. The line came along the Dalles to Fond-du-Lac and then along the present line to Duluth. Leonidas Merritt and Alfred were chainmen on this survey. The road was finished in the summer of 1870 and was the first railroad to the Head of the Lakes.⁵¹

In 1887 Matthew B. Harrison conceived the idea of a railroad to Winnipeg, Manitoba. He undertook to make a preliminary survey of a road running from Duluth in a northwesterly direction in as nearly an air line as the topography of the country would permit from Duluth to Winnipeg; this line would naturally touch the southwest extremity of the Lake of the Woods, near the line between Canada and the United States and would cross the Mesaba Range very near where he fully believed the richest deposits of iron on the Mesaba would be found. This seemed to be the opportunity for the Merritts and they immediately arranged their matters to make a thorough exploration of the Range. Their business matters were arranged so that it would be carried on successfully amongst the brothers and nephews, and certain parties who had the most experience were detailed to the woods while the rest stayed at home pushing their

⁵¹Ibid., Alfred Merritt, Reminiscences.

local interests and furnishing thereby the sinews of war. Cassius Merritt was given charge of the preliminary survey with instructions to look out for iron and other minerals. Others of the brothers and nephews undertook and speedily accomplished a survey of the lines of attraction along the Missabe from Birch Lake to the Mississippi. Cassius Merritt discovered and reported iron ore on Sec. 6-58-18, and although the discovery made at that time has never since been developed beyond a few test pits, he is clearly the discoverer of the Missabe Range and should have the honor.⁵²

The search for iron was no easy task. For months they worked at timber cruising and purchasing, always looking for iron and thinking what it would mean to Minnesota, Duluth, and to themselves. Their tasks called for superhuman efforts because travel by foot or canoe with goods and blankets on their back, or by toboggan was the only way to get back and forth from the trackless Messabe to Duluth. John E. Merritt often said that a mile and a half with snow shoes and toboggan dragging through swamp and forest, over windfall and through brush, was a wonderful day's work, without trail

⁵²Andrus Merritt, Outline History of the Discovery and Development of the Missabe Iron Range and The Merritts Connection With the Same. Duluth, Minnesota, June 7, 1894.

or blaze but only a compass to guide them on their way.⁵³

The Merritts kept on exploring and digging, mapping the magnetic attractions; buying land, leasing state lands under a law framed by themselves, giving to the school fund of Minnesota a perpetual fund of nearly sixty million dollars with more than this to be added in the future.⁵⁴ They could have bought these state lands outright at a dollar and a quarter an acre.

The State of Minnesota held in trust for the schools much land which the Merritts believed to be mineral land. Having worked for the state as explorers estimating timber, they were well acquainted with State Auditor Braden. The Merritts told Braden what they believed to be true about the value of some of these lands to the school children of Minnesota. Auditor Braden thereupon had a bill prepared and the legislature passed it, preserving these lands to the school fund. Auditor Braden appointed a committee of three to determine the price to be paid as a royalty on ore lands leased by the state. The committee consisted of Alfred and Leonidas Merritt, and George C. Stone. There was great pressure to place a royalty of ten cents per ton. It was then raised to

⁵³Russell Gordon Merritt, Romance of the Range.
Jan. 14, 1931.

⁵⁴Ibid., Russell Gordon Merritt, Romance of the Range.

fifteen cents then to twenty. However, the committee decided unanimously to recommend twenty-five cents per gross ton.⁵⁵

By this law, which was passed in 1889, the Minnesota State Legislature had authorized the State Auditor to lease mineral lands belonging to the state. This made prospecting more feasible, as it did not require the person to now purchase the land. Also, for the payment of twenty-five dollars, a person could obtain the right to prospect for minerals for one year on the leased land, which was not to exceed a quarter section, or 160 acres. At any time before the expiration of the year he could, upon payment of one hundred dollars, lease the land for fifty years for the purpose of mining ore. For each ton of ore mined and shipped from these leased lands, the lessee was obligated to pay the state the above mentioned royalty of twenty-five cents per ton.⁵⁶

The year 1889 the first work was done on what is now the Mountain Iron Mine. Alfred took a crew of six men in by the way of Tower on March 17th. They started from Tower with three dog trains, "and we were the dogs." They went in by the way of Pike River and then to Rice

⁵⁵Alfred Merritt, Reminiscences. Feb. 8, 1925.

⁵⁶Folwell, A History of Minnesota, Vol. IV, pp. 18-19; General Laws, 1889, pp. 68-73.

Lake and to Mountain Iron. Here they dug test pits and finally drilled. All work was done on $S\frac{1}{2}$ of $S\frac{1}{2}$ of Section 34 Township 59 North of Range 18 West. They found that they were too far north for ore and on going south found the ore on Section 4, directly south of their first work.⁵⁷

On the sixteenth day of November, 1890, workmen under the direction of Captain James A. Nicols of Duluth, encountered soft hematite in a test-pit. This mine, now called the Mountain Iron Mine, was the first body of soft ore discovered on the Mesabi Iron Range.

The next day Captain Nicols came back to Duluth and presented Alfred and Leonidas with fifty pounds of rich, 64 percent iron ore in his pack-sack.⁵⁸

Other discoveries were made in quick succession by the Merritt brothers, and the now famous Mountain Iron, Biwabik and Missabe Mountain locations were so far developed as to clearly demonstrate that a traffic for a first class railroad could be assured. The Merritts then went to the Northern Pacific railroad and also to the St. Paul and Duluth railroad, the two roads being separate at this time. Their officials did not realize the value of the Mesabe Range and of the great traffic

⁵⁷ Alfred Merritt, Reminiscences. Feb. 8, 1925.

⁵⁸ Paul DeKruif, Seven Iron Men, pp. 106.

which was to originate from the many mines. After many other contacts with local bankers, small capitalists, and businessmen and friends, they finally contacted the Duluth and Winnipeg Railroad Company.⁵⁹

The Duluth and Winnipeg Railroad Company agreed to transport the ore to the Head of the Lakes if the Merritts would build a line from their mines to Stony Brook Junction, a distance of forty-eight miles, which was a division point of the Duluth and Winnipeg Railroad. With this outlet for their iron ore, the Merritts obtained the charter of the Lake Superior and Northwestern Railroad Company. They renamed the railroad the Duluth, Missabe and Northern Railroad Company. It received its charter from the State of Minnesota on the 11th day of June, 1891. It was incorporated with an authorized capital stock of five million dollars by a number of well known Minnesota men, comprising what was called the Grant-Chase and Merritt Syndicate.

Interested in this corporation were five members of the Merritt family, along with James T. Hale, Kelsey D. Chase, Roswell H. Palmer and S. Richard Payne.

The first incorporators' meeting was held on the 23rd day of June, 1891. The incorporators formed the

⁵⁹Andrus Merritt, Outline History of Discovery and Development of Miss. I. R.

first board of directors and the officers of the company were: Kelsey D. Chase, President, Leonidas Merritt, Vice-President, S. Richard Payne, Secretary, Cassius C. Merritt, Treasurer, Hon. Moses E. Clapp, Counsel.⁶⁰

On August 6th, 1891, the directors authorized the survey and location of a line of railroad from Stony Brook Junction on the line of the old Duluth and Winnipeg Railway, north to what is now the village of Mountain Iron. Between then and December, the preliminary and permanent survey of the line were made. The directors, in January, 1892, adopted a permanent survey of the line from Stony Brook Junction to Mountain Iron, a distance of about forty-eight miles and on the 28th day of January, 1892, a construction contract was made between the Railway Company and Donald Grant, a well known railway contractor from Faribault, Minnesota, for the construction of the line between Stony Brook Junction and Mountain Iron. This contract was ratified by the stockholders early in February, 1892, and during the summer of that year, the main line was constructed and completed about the middle of October, 1892. The first shipment of ore from what is now known as the Missabe

⁶⁰Van Brunt, Duluth and St. Louis County, Vol. 1, p. 286; Folwell, A History of Minnesota, Vol. IV, p. 20; The Missabe Road, Duluth, Minnesota, (c. 1927).

Range was made late in October, 1892, from the Mountain Iron Mine. It consisted of about five thousand tons and was shipped over the Main Line of the Missabe Railway to Stony Brook Junction and from there to the Alouez Bay Dock over the old Duluth and Winnipeg Railway, now a part of the Great Northern System. The shipment marked the beginning of what was to develop in later years to be the greatest iron ore producing range in the United States - the Mesabi Range.⁶¹

In 1893, the Merritts decided to extend the Duluth, Missabe and Northern Railroad from Stony Brook Junction directly into Duluth. This action was the result of the Duluth and Winnipeg not fulfilling its contract to furnish a number of ore cars agreed upon in the traffic contract. It did, however, build the ore docks at Alouez bay. As a result of this action the Duluth, Missabe and Northern built, in the winter of 1891 and 1892, a total of 750 ore cars. The next year the railroad built 750 more ore cars for a total of 1500 in the two years.

⁶¹The Missabe Road, published by the Duluth, Missabe and Northern Railroad Company, Wolvin Building, Duluth, Minnesota, (c. 1927). Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 286-288; Folwell, A History of Minnesota, Vol. IV, p. 20.

There were two other reasons for the Merritts' decision to build into Duluth. The Merritts always had very close ties with Duluth and at this time there was a great rivalry between Duluth and Superior.⁶² The other reason for their move was an offer by St. Louis County of \$250,000 worth of bonds if the Merritts would build into Duluth. On October 25, 1893, Alfred Merritt presented to the county officials the affidavits of himself, President, Donald M. Philbin, General manager, Charles H. Martz, Chief engineer, and the "certificate of the State Railroad and Warehouse Commission that the terms had been fulfilled; docks and terminals on the bay front at Duluth, main line to the range, connection with Mountain Iron, Virginia, Biwabik and Hibbing; equipment and regular service had been established." The county bonds therefore were demanded and duly delivered.⁶³

As president of the road, Alfred Merritt received the bonds from the St. Louis County Commissioners and the County Auditor. At that time he made a verbal agreement that if the County would let the Duluth, Missabe and Northern Railroad have the county bonds without

⁶²Nathan Cohen, A paper 1940; Alfred Merritt, Reminiscences; Russell Merritt, Romance of the Range.

⁶³Van Brunt, Duluth and St. Louis County, Vol. 1, p. 287; Folwell, A History of Minnesota, Vol. IV, pp. 28-29; The Missabe Road, published Duluth, by D. M. I. R. Railway Co. (c. 1927).

giving up an equal amount of stock in the railroad, the railroad would pay its taxes to the county the same as an individual. This would have paid back the county the amount of the bonds and interest in less than twenty years. On the 4th of February, 1894, Alfred had passed, by the Board of Directors and stock-holders of the Duluth, Missabe and Northern Railroad, a resolution ratifying and confirming all of his contracts both written and oral. The intent of this was to cover this oral contract which he had made with the County Commissioners of St. Louis County at the time the bonds were delivered and also other oral contracts which were made by Alfred as president of the railroad.⁶⁴ During this period when the Merritts were expanding the Duluth, Missabe and Northern Railroad into Duluth they were beset with problems both financial and legal.

Before any effort was made by the Merritts to finance this extension, Captain Alexander McDougall, the builder of the whaleback ore carriers, and Adam D. Thomson recommended Charles W. Wetmore and his New York associates to the Merritts. Later a meeting was brought about in Duluth with Alfred and Leonidas Merritt, and Charles W. Wetmore and some of his associates. As a result of this meeting a contract with the representatives of the majority stockholders and Wetmore and his

⁶⁴Alfred Merritt, Reminiscences.

associates was entered into. They then decided on the sale of two million dollars in bonds at 80% face value and the work was commenced at once.

The work continued and the money continued to come from New York. However, sometime after the first of June, 1893 the Wetmore Syndicate showed signs of weakening and money was not furnished on time. This, however, caused no alarm for the country was undergoing a serious financial panic. The work was rushed to completion and shipments were commenced over the new line about August 1, 1893. At this time Wetmore was considerably behind on his contract and debts continued to mount. It, therefore became necessary for the Merritts to look elsewhere for the needed finances.⁶⁵

The Merritts were now forced to turn to John D. Rockefeller for financial help. Rockefeller had already invested in the Merritt enterprise in January, 1893, when Wetmore sold him a quarter of the \$1,600,000 in bonds he was selling to finance the railroad.

Rockefeller was represented by Frederick T. Gates, a Baptist minister from Minneapolis. According to Gates on July 1, 1893, the Merritts owned about forty per cent of the stock of the five Missabe mining companies, the ore bodies of which there were then known to contain

⁶⁵Andrus Merritt, History and Discovery, Development of I. R. and Merritts. June 7, 1894.

from twenty-five to fifty million tons of ore. In that year, 1893, the great panic struck the country. The iron industry suffered worst of all. Everything fell to half its value. By July, 1893, the Merritts could not have sold their stocks in the open market at Duluth, which had a small Wall Street of its own, for more than one-half of their debts. The stocks were quoted or sold nowhere else. The Merritts weathered the storm of 1893, but in January, 1894, their Minnesota creditors...forced the Merritts to sell their holdings to whomsoever would pay the most money for them.⁶⁶

Once again the Merritts conferred with Rockefeller through his representative, Mr. Gates. The result of this conference was the organization of the Lake Superior Consolidated Iron Mines Company in August, 1893. The Merritts put their railroad stock and all their mining stocks, the "Mountain Iron," "Biwabik," "Missabe Mountain," "Rathburn," "Shaw," into the company. This company was to buy from Mr. Rockefeller all his mining stocks, including the Adams and Lone Jack, paying for these stocks in debenture bonds of the Consolidated Company. Rockefeller further agreed to finance the

⁶⁶Frederick T. Gates, The Truth About Mr. Rockefeller and the Merritts. A pamphlet published about 1911, pp. 3-4. Files of St. Louis County Historical Society.

railroad to the amount of \$500,000 and to buy all the iron ore which the Mountain Iron Mine produced that fall. The Merritts took the stocks of the company and Leonidas Merritt was to be president and the Merritts to control the company. For his interest in the company Mr. Rockefeller took company bonds.⁶⁷

At the close of 1893 the Merritts once again were beset with financial problems and again turned to Rockefeller for help. In January of 1894, they offered to sell 90,000 shares of their Consolidated Stock to Rockefeller. They would accept \$10 a share, for a total of \$900,000. This proposition was accepted by Rockefeller, who then paid them in stocks and bonds of two companies in which he was interested and granted them an option to recover fifty-five thousand shares of these shares at any time within a year at the same price with six percent interest. Instead of redeeming the fifty-five thousand shares of stock, the Merritts, feeling that Rockefeller had short-changed them by giving them securities in companies which he knew to be insolvent, brought a suit against him, charging him with fraud and misrepresentation. The result of the long and tedious litigation was a settlement for the Merritts, but by the time they had paid their attorney's fees and court costs,

⁶⁷Ibid., Frederick T. Gates. Folwell, A History of Minnesota, Vol. IV, p. 29.

there was little, if any, left for the Merritts to share between them. As a result of this litigation, the Merritts lost control of the Lake Superior Consolidated Iron Mines Company, of which the Duluth, Missabe and Northern Railroad was a part, and John D. Rockefeller gained control of the Company in 1894.⁶⁸

In the above account, according to Mr. Frederick T. Gates, the Merritts had falsely sworn before the Stanley Committee that Mr. Rockefeller compelled them to sell by calling a loan of over \$400,000 and giving them twenty-four hours in which to pay. The Merritts owed Rockefeller, at that time, only \$150,000 and five-sixths of that had a long time to run.

The important feature of the stock purchases was the option, given the Merritts for one year, to buy back 55,000 shares at the same price, with interest. By that option, Rockefeller intended to secure for the Merritts a year's time and in fact all the time they should ever need. The Merritts had only, at the end of the year, to ask a renewal of the option for another year on the same terms and the same interest rate and it would have been granted for indefinite years. Mr. Rockefeller carried

⁶⁸Folwell, A History of Minnesota, Vol. IV, pp. 29-30; Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 287, 399-408. F. T. Gates, The Truth About Rockefeller, 1911.

Lewis J. Merritt and his son, Hulett, for more than seven years to the sale of the stock to the United States Steel Corporation in 1901. These two Merritts have been millionaires ever since. If the Merritts had pursued this same course and on the day of delivery of that block of 55,000 shares to the Steel Corporation in April, 1901, the Merritts could have sold it for \$9,190,500.⁶⁹

From the time Rockefeller took over the Lake Superior Consolidated Company, the mines yielded greater and greater quantities of ore and the Duluth, Missabe and Northern Railroad increased its revenue in transporting that ore to Duluth. As a result of the over capitalization of the stock at the time of Rockefeller's takeover, the company never paid a dividend. However, in 1901, when the United States Steel Corporation absorbed the company, it paid \$79,417,542 in equal amounts of common and preferred 'United States Steel' stocks in exchange for its \$29,424,594 in shares of stock.⁷⁰

The Mesabi ore first discovered was like soft sand. All iron ores used at this time were "hard" ore, granular and in heavy chunks and the shape and construction

⁶⁹Frederick T. Gates, The Truth About Rockefeller. 1911, p. 15.

⁷⁰Folwell, A History of Minnesota, Vol. IV, p. 30; Van Brunt, Duluth and St. Louis County, Vol. 1, pp. 405-412.

of all furnaces was designed with that fact in mind. Events, therefore, called for a pioneer in methods. A promoter and developer of the full use of Mesabi ore was necessary, one whose mind was open to new methods and facts and bent on beating down the prejudice against it and pushing the use of Mesabi ore. Henry W. Oliver was that pioneer.⁷¹

Oliver's first visit to the head of the lakes took him to the Vermilion Range from Two Harbors; however, he was not greatly impressed with the ore nor the situation on the Vermilion. But then an assay card of a specimen of soft iron ore, labeled "P-Violet", was presented to him. This sample coming from the Missabe Mountain mine, having been mined with a steam-shovel. Oliver was impressed.⁷²

A meeting was held between Oliver, his associates and the members of the Missabe Mountain Iron Company. When all the terms of the lease were accepted, Oliver agreed to a 200,000 ton minimum production for 1893 and 400,000 tons yearly thereafter, with a payment of \$75,000 as royalty in advance.

Oliver closed the lease August 3, 1892, the first of the Oliver leases, signed by Leonidas Merritt, as

⁷¹Henry Oliver Evens, Iron Pioneer, Henry W. Oliver, 1840-1904, pp. 202-203.

⁷²Paul DeKruif, Seven Iron Men, p. 171.

President of the Missabe Mountain Iron Company and Lewis J. Merritt, as Secretary and witnessed by Moses E. Clapp. On December 20, 1892, Oliver assigned the lease to Oliver Iron Mining Company, which was organized September 18, 1892, with Henry W. Oliver, his son-in-law Henry R. Rea, George E. Tener, Edwin D. Reis, his furnace manager, and Claymore D. Fraser, his secretary and Captain Edward Florada, as stockholders, with a capital of \$1,200,000. On January 31, 1898, the corporate title was changed to Oliver Iron Mining Company.

The Missabe Mountain mine became, later, the largest producer, over 60,000,000 tons to 1941, of all the mines discovered by the Merritts. Oliver had taken his first step, a long one, towards leadership in Mesabi.⁷³

Oliver's original intent had been to obtain iron ore for his own blast furnaces. But in order to enlarge his holdings and develop his iron ore holdings, he needed more capital. Oliver, therefore, contacted Henry Clay Frick, Andrew Carnegie's close associate. He explained to Frick about his forming the Oliver Mining Company and of the leasing of the Missabe Mountain mine. Oliver knew Carnegie's need for iron ore and at a rate which would make steel production profitable. Carnegie

⁷³Henry Oliver Evans, Iron Pioneer, pp. 202, 203.

also knew the precariousness of the American supply of iron ore, its annoying variations in price and above all its absolute, its fundamental necessity.

The deal was quickly arranged: Oliver would turn over to the Carnegie Company one-half of the stock of the Oliver Mining Company, in return for a loan of a half-million dollars, to be secured by a mortgage on the ore properties. Although Carnegie rejected the offer, Frick disobeyed and sealed the bargain with Oliver.⁷⁴

Oliver had made his first step towards leadership in Mesabi iron ore when he leased the Missabe Mountain mine. But signing a lease was an easy step; opening and equipping the mine and paying royalties were not so easy.

Not only was he handicapped by the receivership of the Oliver Iron and Steel Company, his first business, but he was forced to engage in a long, hard battle to overcome universal prejudice against the use of the "soft" ore; they said using it would blow up their furnaces; they were afraid to use it.⁷⁵

This was the same attitude held by Frederick T. Gates, Rockefeller's assistant: The Mesabi ores were

⁷⁴Paul DeKruif, Seven Iron Men, pp. 177, 178, 179, 180, 181.

⁷⁵Henry Oliver Evans, Iron Pioneer, p. 204.

not unlike a heavy soil or, when dry, a powdered dust, easily handled by a steam shovel with little or no blasting. They differed wholly from the ores previously used. These were rock-like in texture, quarried out by drill and by dynamite and going into the blast furnace like coarse gravel and small stones. For such ores, all furnaces then existing had been constructed, the temperature and force of the blast had been regulated, the mixture of coke and limestone had been adjusted. Attempts to put the dust-like Missabe ores into this mixture resulted in irregularities, chief among which was that much of the dust was blown out of the top of the furnace by the terrific force of the blast. If, on the other hand, the ores were too closely confined the furnaces would occasionally explode and be wrecked.⁷⁶

In view of this pessimism, the discoveries of the Merritts had brought on a wild mining boom. Mining companies with capital of \$202,000,000 were organized between December 1, 1890, and September 1, 1892. The Duluth Stock Exchange, opened April 7, 1892, had a blackboard 100 feet long quoting Mesabi iron ore and Michigan copper stocks.

On August 13, 1894, Oliver leased his second mine,

⁷⁶Frederick T. Gates, The Truth About M. Rockefeller, 1911, p. 4-5.

the Lone Jack, from the Lake Superior Consolidated Iron Mines, the Rockefeller ore concern. The Lone Jack lease was one of the properties which had been turned in by the Merritts to Lake Superior Consolidated Iron Mines at \$500,000, when the merger with Rockefeller was made in September, 1893. There were five transfers as to the Lone Jack in two and a half months. Oliver agreed to pay an over-riding royalty of 25 cents on a minimum of 100,000 tons a year. The Lake Superior Consolidated Company was represented by Rev. Frederick T. Gates, his first contact of many such with Oliver.

Because of Oliver's reputation for driving production, Adams and the other fee owners reduced their royalty of 50 cents to 25 cents, the modifying agreement being witnessed by Chester A. Congdon, Oliver's attorney, and Captain Edward Florada, his mining foreman.

In 1895, Oliver shipped one-half of all ore mined from Mesabi. Oliver was the leader in Mesabi ore, with Rockefeller following.

Once again, Oliver's campaign for bargaining position and a lease ended when the principals announced on December 9, 1896, from Cleveland that a contract had been made by Oliver to take 600,000 tons of ore from Rockefeller's Lake Superior Consolidated Iron Mines at the royalty of 25 cents a ton, a royalty made low in

consideration of Oliver's agreement to give this tonnage and shipment of 600,000 tons of Oliver iron ore, 1,200,000 tons in all, to Rockefeller's railroad, The Duluth, Missabe and Northern and to his steamships as well.⁷⁷

To increase his capital and credit, Oliver sold one-third of his mining stock to the Carnegie Steel Company and, consequently, control of the Oliver Iron Mining Company passed to the Carnegie Steel Company. When the Carnegie Steel Company became part of the United States Steel Corporation all its ore lands were included.

While the Carnegie Steel Company, with the aid of Henry W. Oliver, was accumulating iron ore holdings on the Mesabi Range, John D. Rockefeller still retained control of the Duluth, Missabe and Northern Railroad Company. Prior to becoming absorbed by the United States Steel Corporation, the Lake Superior Consolidated Iron Mines Company, the Carnegie-Oliver Iron Mining Company and the Federal Steel Company (which was the holding company of the Minnesota Iron Company, which, in turn, included the Duluth and Iron Range Railroad Company) formed the Oliver Iron Mining Company. This company, in turn, was incorporated as a subsidiary of the United

⁷⁷Henry Oliver Evans, Iron Pioneer, pp. 206-207, 211, 213, 217.

States Steel Corporation in 1901. During these mergers and consolidations which formed the Steel Corporation, the Duluth, Missabe and Northern Railroad Company became a direct subsidiary of the Steel Corporation, while the Duluth and Iron Range Railroad Company was part of the Oliver Iron Mining Company. This came about when Charlemagne Tower's property was incorporated into the Federal Steel Company and then became part of the Steel Corporation. This was the situation until 1930 when the Duluth, Missabe and Northern leased the Duluth and Iron Range Railroad for a period of 99 years and finally in 1937 and 1938 with a combination of mergers and consolidations, the two railroads became known as the Duluth, Missabe and Iron Range Railway Company.⁷⁸

The events leading to the organization of the United States Steel Company began with one man. He was Elbert H. Gary, president of the Federal Steel Company, a New Jersey corporation. Gary sought to make the steel industry owned by the people and particularly by the workers. He wanted to establish a world-wide and permanent market for the products of the furnaces and rolling mills of the United States. The history of the United States Steel Corporation is the story of how Gary carried out

⁷⁸Folwell, A History of Minnesota, Vol. IV, p. 32; Van Brunt, Duluth and St. Louis County, Vol. 1, p. 412.

his plans. There was one man who could provide the finances necessary for such an expansion. This was John Pierpont Morgan.

At the time Gary was attempting to persuade Morgan about the consolidation, Andrew Carnegie was in the process of selling his steel company. After many attempts to conclude a satisfactory deal with different syndicates, Carnegie arrived at the conclusion that Morgan was the only man able to buy his properties. Morgan listened but each time decided not to act.

At first Carnegie tried ordinary tactics, then he resorted to coercion. Morgan was heavily interested in the National Tube Company. Carnegie made no tubes. Now Carnegie announced his plans for the proposed tube mill publicly and bought a site for it at Conneaut. Morgan gave no sign of changing his mind.

Carnegie's next step was more important and serious. He threatened to build a railroad paralleling the Pennsylvania Railroad throughout its entire length, a project which would have materially damaged the earning power of the great railroad system and would have been a heavier blow to the Morgan interests than the erection of the tube mill. But Morgan again paid no attention.

Finally on the night of December 12, 1900, Carnegie gave a party at which Morgan was invited. Among those at the party was a young partner of Carnegie, Charles M.

Schwab. Schwab not only represented the top notch of efficiency as a steel maker, a salesman and an executive, but he had a veritable tongue of gold.

Schwab chose the steel company of the future for his topic. He drew word pictures of a future of wonderful brilliance for the steel industry; a picture of a company big enough to insure the greatest economies in securing and distribution of its raw materials, but highly specialized by departments, each and every plant confining its attention to one particular product to secure the highest degree of efficiency.

Schwab's oratory completely captivated Morgan. The United States Steel Corporation was not actually incorporated for some months, but in the half hour of Schwab's speech, the United States Steel Corporation, to all intents and purposes, became an actual fact.

At the conclusion of the speech, Schwab had a discussion with Morgan and further interested the financier in his scheme of a complete steel corporation. Finally Morgan asked Schwab if he thought Carnegie would sell and upon receiving an affirmative reply, Morgan asked on what terms they would negotiate. A few days later Schwab reported that Carnegie wanted \$303,450,000 in bonds and \$188,556,160 in stock of the suggested new company. After some consultation, Morgan accepted the

terms. The new corporation would have an authorized capitalization of \$1,100,000,000 in stock and \$304,000,000 in bonds, a total of \$1,404,000,000.

By the early part of February, 1901, the negotiations were concluded and the plans for the organization of the United States Steel Corporation were announced. They provided for the amalgamation of eight companies, two of which, the Federal Steel Company, and the Lake Superior Iron Mines, also included those properties of the Duluth, Missabe and Northern Railroad and the Duluth and Iron Range Railroad. The Federal Steel Company was chartered late in 1898, as a merger of the Illinois Steel Company, Minnesota Iron Company, Lorain Steel Company, Elgin, Joliet and Eastern Railway Company, and the Johnson Company of Pennsylvania. It now brought under its control a number of ore vessels and the Duluth and Iron Range Railroad. The Lake Superior Iron Mines, dominated by Rockefeller and Standard Oil Company, was formed in 1893. It was an ore company and had ore reserves owned or leased, estimated at nearly 400,000,000 tons. The company also owned the Duluth, Missabe and Northern Railroad.⁷⁹

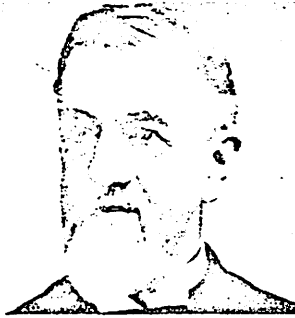
⁷⁹Arundel Cotter, The United States Steel Corporation, (Moody Magazine and Book Co., New York, 1916.) pp. 10, 11, 12, 13, 14, 15, 17, 20, 24.

Missabe Presidents - 1874 - 1967

Duluth and Iron Range Railroad



William W. Spalding



George C. Stone



Charlemagne Tower, Jr.



M. J. Carpenter



J. L. Greatsinger



Francis E. House

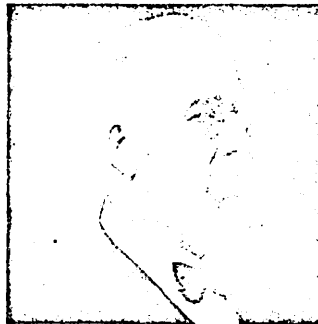


Horace Johnson

Duluth Missabe and Northern Railway



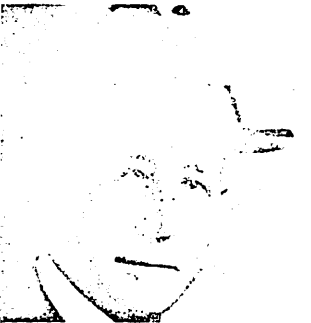
Kelsey Chase



Alfred Merritt



Fred T. Gates



William J. Olcott

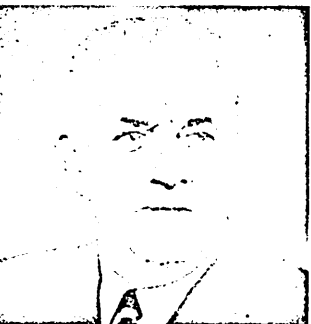


William A. McGonagle

Duluth Missabe and Iron Range Railway



Charles E. Carlson



Paul H. Van Hoven



Fred J. Voss



Daniel J. Smith



Fred W. Okie

III.

THE PRESIDENTS

The Duluth and Iron Range Railroad Company was incorporated on December 21, 1874 by a group of individuals from Ontonagon, Michigan, headed by Peter Mitchell and Lewis M. Dickens. Mr. Mitchell and his associates had located iron ore deposits at the approximate present location of Babbitt, and had formed the Mesabi Iron Company, of which former Minnesota Governor Alexander Ramsey was president.

The Board of Directors, the original incorporators of the Duluth and Iron Range Railroad, elected William W. Spalding, president, and Calvin P. Bailey, secretary and treasurer. However, the incorporation was dormant until February, 1882, and the interim had seen the so-called "Jay Cooke panic" alter many of the country's large financial holdings. As a result of this panic the stockholders of record on March 1, 1882, were Charlemagne Tower, Charlemagne Tower, Jr., Richard H. Lee, Calvin P. Bailey, Joshua B. Culver, Josiah D. Ensign, George C. Stone, Henry F. Thompson and Thomas L. Blood. A Board of Directors meeting this same date resulted in George Stone being elected President, Richard Lee,

Chief Engineer and Henry Thompson, Secretary and Treasurer. This executive organization was not to last, however, and on April 26, 1883, the elected officials were President Charlemagne Tower, Jr., and Vice President-Treasurer George C. Stone.¹

William Witter Spalding came to Duluth in 1870 where he built his home. Not satisfied with its location, Spalding moved his house and re-built it on the south-west corner of Second Street and Fifth Avenue West. In the fall of 1870, Spalding was elected Alderman and served in that capacity during the building of the Duluth Canal and dykes.

Having been one of the original incorporators of the Duluth and Iron Range Railroad, he was elected its first president and remained in that capacity until 1883 when George C. Stone, working for the Charlemagne Tower interests, held a meeting of the members of the corporation and through some shrewd maneuvers managed to wrest the company away from Spalding. Spalding and the Ontonagon Syndicate had obtained large tracts of land on the Missabe Range in Township 60, Range 12-13, for the purpose of locating and mining ore. In 1876, the Duluth and Winnipeg Railroad was incorporated.

¹The Missabe Iron Ranger, July 1959, pp. 5, 7, 10, 11. Published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota.

Spalding was elected president of this railroad also and remained in office until it was absorbed by the Tower interests along with the Duluth and Iron Range Railroad in 1883.²

George Calvin Stone, the second president of the Duluth and Iron Range Railroad, came to Duluth in 1869 as an assistant to General George B. Sargent, who opened its first bank. Stone was elected Duluth City Treasurer in 1870. After the panic of 1873, he began to think about iron ore in the district north of Duluth. After his inspection of the Vermilion Range he went East with ore samples and told the story about the rich iron ore deposits of the Minnesota area. Many industrialists turned him down because they thought if iron ore was really there, it would take a fortune to build a railroad over the swamps to haul the ore to the lake.

Having been turned down by the many industrialists, Stone then visited Charlemagne Tower of Philadelphia. He then became identified with the plans to organize the Duluth and Iron Range Railroad, participating in its legal battles and becoming its second president. A fight for control of the railroad devel-

²Warren Upham and Rose Barteau Dunlap, William W. Spalding (Minnesota Biographies, 1655-1912, St. Paul, 1912), p. 726.

oped between Stone and Charlemagne Tower, Jr., which Tower, with the help of his father, won. Stone stayed with the railroad until the stock was sold to a syndicate on May 2, 1887. His life came to a tragic end on October 25, 1900, when he was accidentally asphyxiated by gas in his room at the old Kitchi Gammi Club in Duluth.³

In 1883, Charlemagne Tower, Jr., became the third president of the Duluth and Iron Range Railroad. Tower, Jr., was born in Philadelphia, April 17, 1845. He was educated at the Russell Military Academy, New Haven, and the Phillips Exeter Academy, New Hampshire and entered Harvard University in 1869. After graduating in 1872, he was admitted to the bar and practiced law in Philadelphia. He came to Tower in 1882 as treasurer of the Minnesota Iron Company which Tower Senior controlled at that time. After becoming president he let the contract for construction of the Duluth and Iron Range Railroad from Tower-Sudan to Lake Superior to the John C. Wolf Company from Ottumwa, Iowa. Tower, Jr., worked hard to have the road built by the prescribed time of July, 1884. He continued his association with the Railroad until it was sold to the Henry H. Porter interests

³General C. C. Andrews, Ed., History of St. Paul, Minnesota, (Syracuse, N.Y., 1890), pp. 123-125; The Missabe Iron Ranger, July 1954. Published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota.

of Chicago in 1886.⁴

With the success of the Duluth and Iron Range Railroad, it was natural that others would become interested in the Arrowhead Country's potential. Henry H. Porter of Chicago, head of the Illinois Steel Company, felt that his concern was entitled to access to the ore deposits of the Vermilion Range and announced his intention to obtain such access, even at the expense of constructing another railroad. President Tower, evidently lacking the fighting instinct he had shown in earlier years, sold his interests to Mr. Porter in 1886 rather than face the competition of a second railroad.

While the Porter era lasted twelve years, it is notably lacking in distinction. With the exception of beginning construction of the Western Mesaba Branch, recorded history reveals no other progress or change during this period. Two men held the office of president during the Porter era. They were Jacob H. Greatsinger and Myron J. Carpenter. The Company-owned and operated tug, "The Edna G.," employed at Two Harbors, is named after Mrs. Greatsinger.

⁴Hal Bridges, Iron Millionaire, (University of Pennsylvania Press, 1952), pp. 115-122, 125, 126, 133, 134, 176, 177, 210, 212-223, 282, 285-286. The Missabe Iron Ranger, July, 1954, pp. 5, 7, 9, 11, 13, 15, 17, 19, 21; 1959, pp. 5, 7, 10, 11. Published by Duluth, Missabe Iron Range Railway Company, Wolvin Building, Duluth, Minnesota.

In 1889 Mr. Porter's holdings in the Illinois Steel Company were sold to the Federal Steel Company. This corporation, along with several others, became the nucleus, in 1901, in the formation of the United States Steel Corporation. That same year Francis E. House arrived to assume the mantle of leadership for the Duluth and Iron Range Railroad as president. His administration was to last for twenty-five years. Born in Houseville, New York, Mr. House was well qualified in railroad operation, having many years of experience on several different roads throughout the country.

Mr. House's administration was responsible for many improvements on the property. Track extensions, steel dock construction, the purchase of larger, more modern equipment all were designed to enable the company to keep pace with the times. This progress paid off with the onset of the First World War as the demand for steel grew.

The railroad was called upon to ship higher tonnages of iron ore than ever before and performed this demand creditably. The United States Government assumed control of all U. S. railroads for the duration of the war, and President House remained as Federal Administrator. At the end of hostilities the government relinquished its control and Mr. House resumed his office as president. In April, 1926, death took President House,

thus ending the longest tenure of office of any president to date.

Following a short career of newspaper work on his arrival from his London, England, birthplace, Horace Johnson was employed on a succession of various railroads before entering the employ of the Duluth and Iron Range Railroad in 1888 as general bookkeeper. Working his way upward through the years, Mr. Johnson was elected president in 1926 to succeed the late President House. He led the way to further progress in equipment and facilities until 1930 when a far-reaching change in operation was effected. This change of operation was effected on January 10, 1930, whereby the Duluth, Missabe and Northern Railway Company leased the Duluth and Iron Range Railway for a period of ninety-nine years.⁵

The Duluth, Missabe and Northern Railway Company was incorporated on June 11, 1891. The first incorporators meeting was held on June 23, 1891, and the first officers of the company were elected. The president elected at this meeting and the first president of the Duluth, Missabe and Northern Railway Company was Kelsey D. Chase. The town of Kelsey was named for Chase.

President Chase was succeeded by Alfred Merritt,

⁵The Missabe Iron Ranger, July, 1954, pp. 5, 7, 9, 11, 13, 15, 17, 19, 21; 1959, pp. 5, 7, 10, 11. Published by the D.M. & I.R. Railway Company, Wolvin Building, Duluth, Minnesota.

and under Merritt in the winter of 1893, the company concluded to construct its own line of railroad from Columbia Junction near Stony Brook Junction into the City of Duluth, and build its own ore docks. The construction was started in the winter of 1893 and the road and first ore dock were completed about the 10th of July, 1893. Shipments of ore from Mountain Iron, Biwabik and Virginia commenced quite actively in the spring of 1893 and until the completion of its own ore dock, the ore went by way of Stony Brook over the Duluth and Winnipeg Railway to Superior, Wisconsin. Thereafter, the ore was handled over the Missabe's own line and ore docks in Duluth.⁶

As mentioned in the foregoing chapter, within months of completion of the Duluth extension and ore dock, the Merritts found themselves on the brink of financial ruin; and in 1894, they lost control of the Duluth, Missabe and Northern Railroad to John D. Rockefeller.

The period of Rockefeller control saw upgrading of mainline trackage, and during 1895, the Proctor Yard was completed consisting of 36 tracks with a capacity of 2,000 cars. By 1896 ore shipments totaled almost two

⁶The Missabe Story--1892-1967. A pamphlet published by the Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota, 1967, the 75th anniversary. pp. 3-9.

million tons, necessitating construction of a second ore dock in Duluth. Other improvements were made under Rockefeller until 1901 when the Duluth, Missabe and Northern, along with various mining, railroading and steel-making interests, were combined in the formation of the United States Steel Corporation.⁷

With the merger of the Duluth, Missabe and Northern Railroad a new president was appointed. He was William J. Olcott, a University of Michigan graduate, who served at the Chapin Mine in Menominee, Wisconsin and later on the Gogebic Range of Upper Michigan where he became the general superintendent. In 1894 he came to Duluth as superintendent of the Consolidated Mines. Olcott became president in 1901 and in 1909 he became president of the Oliver Iron Mining Company and held that post until 1928.⁸

Olcott was succeeded by his Vice President William A. McGonagle. McGonagle first came to Minnesota as a draftsman in the Northern Pacific Railroad Brainerd shops in 1881. In the fall of 1882, he was prevailed upon to accept an engineering post with the Duluth and Iron Range Railway in order to help with construction of that road.

⁷The Missabe Road, published by Duluth, Missabe and Northern Railroad Company, Wolvin Building, Duluth, Minnesota, (c. 1927). pp. 3, 4, 5.

⁸Woodbridge, History of Duluth and St. Louis County. (Chicago, 1910), p. 861.

He served the Duluth and Iron Range for the next twenty years, finally achieving the position of Assistant Chief Engineer. He was appointed to the post of Assistant to the President of the Duluth, Missabe and Northern Railway Company in 1902 and held that position until his appointment to the presidency in 1909. McGonagle served in this capacity until his death in August, 1930, shortly after accomplishing the leasing of the Duluth and Iron Range Railroad.

His successor to the office of the Duluth, Missabe and Northern was Charles E. Carlson, whose railroad background began at the age of eight by becoming a waterboy in 1882 for his two uncles, John and Charles Carlson, who had contracted to build the Soudan Hill track for the Minnesota Iron Company. A native of Orebro, Sweden, Mr. Carlson advanced through the clerical ranks to become secretary of the Duluth, Missabe and Northern in 1912 and first vice president in 1920. Two events of the utmost importance occurred during President Carlson's reign. In 1937, preparatory steps were taken to merge the two sister roads. Three separate measures were necessary in the transaction: The merging of the Spirit Lake Transfer Company into the Duluth, Missabe and Northern; the merging of the Interstate Transfer Company into the Duluth, Missabe and Northern; and the third

and final step in 1938, the purchase of the Duluth and Iron Range Railroad and consolidation of the roads into the Duluth, Missabe and Iron Range Railway Company.⁹

The Spirit Lake Branch is a remarkable railroad which conquers some difficult terrain. It takes off from the main line near Adolph, cuts through some hilly country, drops down Nevada hill, circles Bardon's Peak and through a series of cuts and fills winds up at Steelton in far western Duluth. It was constructed primarily to serve the then-building American Steel and Wire plant in Gary and connects with the Interstate Branch which crosses the St. Louis River over the Oliver bridge into Wisconsin where it connects with all major railroads serving Duluth-Superior.

At one time, there were some grand plans for extensions of this track system to Wisconsin point where coal and limestone docks were to be built. The road on Wisconsin point leading to the lighthouse is built on a grade which was never finished.

Part of the Spirit Lake Branch is constructed on the grade of the old Duluth and Winnipeg railroad which abandoned this portion after it came under ownership of the Great Northern. The latter built a new line with a

⁹Missabe Iron Ranger. Published by Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota. July, 1959, pp. 5, 7, 10, 11.

lesser grade to Boylston Junction and a connection at Cloquet. The construction of the Spirit Lake Branch began in 1910. Records are not clear as to the completion of the project, however the line apparently was finished in 1916 in time to serve the new Minnesota Steel Company Plant. Today the Spirit Lake Branch is an important link with the Duluth works of the United States Steel Corporation and in conjunction with the Interstate Branch gives the Duluth, Missabe and Iron Range Railroad added flexibility in meeting customer demands.¹⁰

Consolidation of the roads into a single company was deemed advisable so in 1937, President Carlson authorized the necessary legal and administrative preparations. Thus, the Spirit Lake Transfer Company became merged into the Duluth, Missabe and Northern, which thus obtained ownership of the line connecting the yard at Proctor with the Steelton yard at the western end of Duluth. Incorporation was effected July 1, 1937, when charter papers were granted under the laws of Minnesota forming the Duluth, Missabe and Iron Range Railway.

The last acts necessary to complete the consolidation came during January, 1938. Purchase was made of the Interstate Transfer Company, thereby gaining a link

¹⁰Interviews, Joseph E. Daoust, retired Conductor, and Harry A. Smith, retired Chief Engineer, Duluth, Missabe and Iron Range Railroad Company.

between the Spirit Lake Branch at Steelton and points of connection with other railroads in Wisconsin. Completion of the transition to a single railroad occurred with the purchase of all the capital stock of the Duluth and Iron Range Railroad. The Duluth, Missabe and Iron Range Railway then became a reality.¹¹

With the final step completed, Mr. Carlson thus became the first president of the Duluth, Missabe and Iron Range Railroad.

The other important event under President Carlson was the Second World War when the railroad was once again called upon for optimum performance in the face of extreme emergency. With the aid of the new Mallets another crisis was overcome in good fashion.

Mr. Carlson retired in June, 1944, and was succeeded by Paul H. Van Hoven. Mr. Van Hoven's railroad career began with the Great Northern Railway, then continued with the Northern Pacific and the Chicago, St. Paul, Minneapolis and Omaha prior to his entering the service of the Duluth, Missabe and Northern in 1911 as Chief Clerk to the Auditor. Advancements over the years brought him to be Executive Assistant to the President in 1930, First Vice President in 1934 and election to the Presidency in 1944.

¹¹The Missabe Ranger, published by the D.M. & I.R. Ry. Co., Wolvin Building, Duluth, Minnesota, April 1961. pp. 26, 27.

The nearly ten years in which President Van Hoven served as chief executive were beset by international strife at both the beginning and the end. Assuming the office while World War II still was in progress, Mr. Van Hoven closed his railroad career at the end of the Korean War in 1953, a year which saw the Duluth, Missabe and Iron Range Railroad haul the greatest tonnage in its history--some 50 million tons.

Following Mr. Van Hoven, Fred J. Voss became the eleventh head of the D. & I. R.-D. M. & I. R.'s succession on January 1, 1954. The only native-born Duluthian thus far to attain this office. Mr. Voss was the son-in-law of Charles E. Carlson, the former president, and had many connections in his family who were associated with the railroad. Mr. Voss began his railroad service in the Engineering Department of the Duluth, Missabe and Northern in 1926. An absence of eight years, during which he performed engineering services for the Portland Cement Association, terminated with his return in 1936. In 1940, he was appointed assistant to the vice president, then elected vice president in 1944 and vice president and chief engineer in 1951.¹²

Daniel J. Smith was elected president of the Duluth, Missabe and Iron Range Railway Company on July 18,

¹²Missabe Iron Ranger, July, 1954, p. 9; July, 1959, p. 11. Duluth, Minnesota.

1961 at a special meeting of the railway directors held in Duluth, Minnesota and assumed his new duties on August 1, 1961. In this position Mr. Smith succeeded the late Fred J. Voss who served as DM&IR President from 1954 until his death on July 3rd, 1961. A native of Pittsburgh, Pennsylvania, Mr. Smith has devoted his entire business career to the transportation industry. He started railroading with the B&O Railroad in 1915. He was subsequently employed by the Universal Atlas Cement Company and the United States Steel Corporation in traffic and transportation work from 1916 to 1945.¹³ Mr. Smith continued as president until January 31, 1964, when he retired. On February 1, 1964, Fred W. Okie was named president of the railroad.

Mr. Okie began his career with the Southern Railroad in Birmingham, Alabama, shortly after his graduation from the Virginia Military Institute in 1929. In 1946 he was made Superintendent of that railroad and in August, 1946, President of the Union Railroad of Pittsburgh, Pennsylvania. In 1949, Mr. Okie became President of the Bessemer and Lake Erie Railroad and in 1961 President of the Lake Terminal Railroad. In 1964 he was appointed President of the Elgin, Joliet and Eastern Railroad, thus becoming the president and

¹³Missabe Iron Ranger, October, 1961, p. 16.
Duluth, Minnesota.

head of all the railroads belonging to the United States Steel Corporation.

Mr. Okie's offices are located in Pittsburgh, Pennsylvania.¹⁴

¹⁴Interview, Arthur C. (Neil) Hanson--Editor of Publications, Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota.

IV.

TOWNS AND VILLAGES

Tower, "First City of the Iron Ranges", in the vicinity of Jasper Peak and Lake Vermilion and close to the historic Soudan Mine, to which it primarily owes its existence, is the Minnesota Arrowhead's oldest incorporated municipality north of Duluth. It is one of five towns named for Charlemagne Tower.

Over inland waterways as early as 1778, a military trail was operated by British soldiers from Grand Portage to this site, the only such trail in what is now the State of Minnesota. It was visited by adventurous early fur traders who came to nearby Lake Vermilion.

In 1854, rumors of gold were rampant, so many prospectors rushed here, accessible only by complicated and difficult water and land routes. The Vermilion Trail from Duluth to Tower was cut and this is now known as County Highway Number Four.

George R. Stuntz (after whom the Hibbing Township is named) discovered iron ore that year at the site of the present Soudan Mine. Large deposits of iron ore were also found here by two state of Minnesota geologists, Henry H. and Richard Eames. Later in 1875,

Professor Albert H. Chester with Stuntz as his guide led an expedition here in search of iron ore. (see Chapter 1).

A sawmill and planing mill were built in 1882 to saw logs which were floated down the East Two River. This site was selected as a business section to serve the Soudan location where the Minnesota Iron Company already had built houses. The village was organized in 1883 and was named in honor of the Philadelphia financier Charlemagne Tower. Mr. Tower with Breitung, Lee, Stuntz and Stone had organized the Minnesota Iron Company in December of the previous year.

The Duluth and Iron Range Railroad, running from Two Harbors to Soudan was extended to Tower in 1884. Lumbering was then a thriving industry. Along with the hauling of logs, the first shipment of iron ore from the Soudan Mine at Tower to Agate Bay (now Two Harbors) over the Duluth and Iron Range Railroad was shipped on July 31, 1884.

On October 31, 1884, notices to incorporate the Village of Tower were sent out calling for election of officers on November 11th. The election was held and John Owens was elected the first Village President. The first council meeting was held on November 26th. Subsequent presidents were: John G. Brown, William H.

Bassett and William N. Shephard. Tower became a city in April, 1889, with William N. Shephard, former Village President, being elected to first mayor. In 1890, a streetcar carried the miners to and from the Soudan Mine. It was drawn by an engine over a narrow gage track. This car made ten trips each day. It was abandoned in 1899.¹

Soudan received its name from Don H. Bacon, then president of the Minnesota Iron Company. The name was suggested because of publicity then being given to the African Soudan. John Owens owned the sawmill which then produced the timber for the first houses. The first to be built was the Frank St. Vincent house. The first church, still standing, was the Methodist Church. It was decided, very early, that Soudan should be erected there. In 1886, the first Post Office was started, and in 1891 a hospital was built; it was badly needed. The Fire Hall and Oliver barn were built in 1899. Electricity was installed in the mine in 1924, and construction of the water system was begun.²

¹Missabe Iron Ranger, published by D. M. & I. R. Ry. Co., Wolvin Building, Duluth, Minnesota, July, 1959. pp. 20, 30. (Tower) Woodbridge, Vol. II, pp. 728-731.

²Missabe Iron Ranger, published by D. M. & I. R. Ry. Co., Wolvin Building, Duluth, Minnesota, July, 1954. pp. 5, 11.

Sam H. Owens, brother of John and Thomas, came to Tower from Oshkosh, Wisconsin, on January 6, 1883. Owens was a fireman and came to Tower with a boiler to be used for the sawmill to be erected here for the purpose of building homes for the miners. Owens lived in Tower for seventeen years before moving to Eveleth to begin work as a yardmaster for the Duluth, Missabe and Northern Railroad. After retiring he returned to Oshkosh where he died in July, 1941.³

Biwabik, the oldest village of the Mesabi Range, means "Valuable" in the Ojibway language as applied to iron ore by the Indians when the mining industry developed. It lies in the valley of the historic Embarrass River named by French fur traders because of the difficulty presented to canoeists and known as the Arrowhead's Finland. The site of the village evidently was an Indian camping ground for many years as there are several burial mounds near there. The famous "Vermilion Trail" passed through the village. This trail was named in 1865 by prospectors rushing to the reputed gold field of the Lake Vermilion district. This naturally brought many people here and although gold was not discovered in merchantable quantities, it is still believed to be here.

³ Interview, Sam M. Owens, St. Louis County Sheriff, Duluth, Minnesota.

The "Gold Rush" was followed by the search for iron ore and the development of the mines of the Vermilion Range. Explorations for iron ore, however, did not extend to the eastern end of the Mesabi Range until many years later, so the deposits around Biwabik lay dormant for a few more years.

In 1891, Leonidas Merritt and one of his test pitting crews combed the Biwabik district. The Indians still encamped about the location, watched the proceedings with interest, and a thrill of excitement spread when the prospectors turned up high grade blue ore clinging to the roots of an overturned tree, at the spot where the Biwabik Mine is now located. Samples of the ore were immediately sent to Duluth by sleds for tests.

Mining developed and other townsites in the vicinity were platted, one just south of the Biwabik Mine, which eventually became the Village of Biwabik. First supplies were carried from the Mesabi Station, ten miles away and up the Mesabi Trail, along which the Mesabi Range towns were eventually strung.

Biwabik grew slowly. In September, 1892, it was incorporated as a village. The first election was held November 10th; 116 voted and Alfred P. Dodge was elected its first president. In 1893, Merritt, a neighboring community, was almost destroyed by fire and the residents

moved into Biwabik.

Also, as in other Iron Range towns, men came from many nations to work in the mines. A jail was built, and the first telephone system was established. That year the Duluth and Iron Range Railroad ran its Mesabi Branch into Biwabik. Pipe and hose for the first water supply was purchased. The financial panic of 1894 affected this area and some of the ore companies were forced to discontinue operations.

Biwabik was not only the first of the new existing towns to be incorporated into a village, but was the first to be served by two railroads--the Duluth and Iron Range and the Duluth, Missabe and Northern.

Frank S. Colvin, one of the early pioneers of the Mesabi Range, came to Biwabik in 1892. He organized the Colvin-Robb Lumber Company, one of the first lumber yards on the Range. The first freight over the Duluth, Missabe and Northern Railway made up of lumber was shipped to him.⁴

Another of the mining towns is Aurora which got its name from the Latin meaning morning, and is among the early Eastern Mesabi Range mining communities. It was

⁴The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota, December, 1953, pp. 5, 7, 8, 10, 11, 12. Biwabik, Woodbridge, Vol. II, pp. 731-735.

moved from its original location in the nineties so as to give it railroad facilities. Iron ore had been found in paying quantities in the region during that period, but most of the development of the industry was done on the western end of the Mesabi Range. In 1898, before Aurora was born, the Meadow Mine (now exhausted) was the first in the vicinity. A settlement was started near the mine, but it became evident immediately that this location, one mile north of the present Aurora, was too far from the Duluth and Iron Range Railroad, which at that time served what is known as the Vermilion Range, and the eastern end of the Mesabi.

Edmund J. Longyear, the Mesabi Pioneer, was responsible for Aurora's first platted townsite. This was in 1905. After moving to its new location on the railroad, a period of building and rapid development followed. For many years the mines in the Aurora district have not been operated as extensively as those on other parts of the Mesabi Range, but vast reserves underlie the district in low grade ore, which, when beneficiation has been accomplished, will be used. The first village election was held April 16, 1904; twenty-seven votes were cast and John M. Haig was elected its first president. Development of the taconite low grade industry in Aurora will increase its prosperity. The Erie Mining

Company has a pilot plant and mine already in operation with 200,000 tons annual capacity. Contract has been let by this company for a plant costing \$300,000,000. This will eventually have a capacity of 10,000,000 tons a year. The Reserve Mining Company operating at nearby Babbitt, has a preliminary plant and mine operating with 300,000 tons annual capacity. Aurora today is probably the fastest growing community on the Mesabi Range, brought about of course by the Taconite development, which having been dormant since 1922, seems now to make this village the Taconite Capital.⁵

Bovey, another of the villages in the Canisteo District, received its name from Colonel Charles A. Bovey, a Minneapolis lumberman who was interested in the area for its lumber. It is in a region of sandy ore on the Western Mesabi Range. When the village was settled, lumbering activities had cut down a large part of the forest wilderness. The Bovey-DeLaittre Lumber Company had been logging in this area for fifteen years.

Mining operations had been extended as far west as

⁵Missabe Iron Ranger, published by C. M. & I. R. Ry. Co., Wolvin Building, Duluth, Minnesota. December, 1953, pp. 5, 7, 8, 10, 11, 12; "New Industry for the Mesabi Range," Excavating Engineer, Ll, No. 5; May, 1957; Erie Taconite, Hoyt Lakes, Minn.; Erie Mining Company. Aurora - Woodbridge, Vol. II., pp. 738, 739. Aurora - Van Brunt, Vol. I., pp. 485-495.

Hibbing. In 1902, the Hartley and Congdon interests of Duluth sent Ole and Ed Reien here from Nashwauk, where they owned certain ore bearing lands. Exploration continued and the community started to grow. The officers of the village in 1903 were Ole Reien, Mayor; Dr. Sowell, Wesley N. Westerway, Ed Reien, Treasurer; and William W. Ballinger, Recorder. On May 17, 1904, Bovey issued a petition for incorporation to the County Board. An election was held July 12, 1904. A detaching election was held March 12, 1906, which resulted in Bovey losing valuable mineral lands to Coleraine amounting to 1840 acres. That year the first schoolhouse was built, a small belfry-topped frame building.

The nearest railroad station to Bovey at that time was Grand Rapids, which became the County seat of Itasca County after it had been moved from La Prairie in 1892. Teams were used by exploration parties between Grand Rapids and Bovey, and the region between was rich in ore. Business men realized the importance of the new iron ore development, and eager for new business enterprise moved in. In 1907, the Oliver Iron Mining Company having proved their ore washing experiments successful, opened the Canisteo Mine, named after the district. Also in 1907 the Duluth, Missabe and Northern

Railway was extended to the Village of Bovey, which now had Felix Hill as the appointed agent for the Duluth, Missabe and Northern Railroad.⁶

Coleraine is known as the "model village" whereat timber cruisers and loggers worked during the early days, although lumbering was not responsible for its development. Prospectors located iron ore deposits here at the beginning of the century, but because of the sandy mixture they were left undeveloped until the Oliver Iron Mining Company successfully experimented with their concentration of iron ores. John Greenway, after whom the high school was named, was at that time District Superintendent of the Oliver Iron Mining Company. He made the original survey and planned the village, naming it Coleraine, after Thomas F. Cole, the Company President. In 1906, the Duluth, Missabe and Northern Railway was extended to Coleraine and the first shipment of iron ore was made from the local mines in 1907 over the tracks of the Duluth, Missabe and Northern Railway. Coleraine was incorporated as a village the same year. The Trout Lake Washer, a huge iron ore concentrator commenced operations in 1910. Other plants were built,

⁶The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota, December 1954. pp. 9, 11, 13, 16, 17. Bovey - Woodbridge, Vol. II, pp. 749-751.

and with these improvements the region began a rapid development. The Greenway School, the first public building erected, was built in 1907. Since 1922 it has housed the Itasca Junior College. The Village Hall was built in 1910. The Carnegie Library was endowed when the Village was started.⁷

Hibbing is known as the Iron Ore Capital of the world because over 26% of all the iron ore produced in the United States comes from the Hibbing district of the Mesabi Iron Range. In 1949, the Hull-Rust, Mahoning Open Pit Iron Ore Mine shipped 11,714,000 tons of iron ore. To January 1, 1950, some 486,840,000 tons had been contributed to the economy of the United States. Adding to this the 373,834,000 tons of waste material removed from the Hull-Rust, Mahoning, Sellers, Susquehanna, Webb, Agnew, Kerr, Scranton and Wiggum makes a total material removal of 860,674,000 gross tons. It is small wonder that the "Big Pit" is often called the eighth wonder of the world or Minnesota's "Grand Canyon".

Frank Hibbing (after whom Hibbing was named) came to the Mesabi Range in 1891 as an iron ore prospector. Important discoveries had been made in other towns such as Mountain Iron and Virginia on the East Mesabi and

⁷Ibid., Missabe Iron Ranger, December 1954; Henry W. Oliver, Iron Pioneer, 1840-1904, N. Y. 1942, p. 198-299. Coleraine - Woodbridge Vol. II, pp. 739-749.

Frank Hibbing was convinced that similar deposits existed on the West Range. He was right and so iron-rich Hibbing, Minnesota, was born.

After mining operations began, construction was also begun in the spring of 1893 on sixteen miles of trackage between Wolf and Hibbing and was completed in October, 1893. Thus the Duluth, Missabe and Northern Railroad reached Hibbing and began transporting iron ore from the world's largest open pit mine.

Frank Hibbing was not fated to achieve a ripe old age. He died in Duluth at the age of forty, on July 30, 1897. A decade after his death, first settlers of Hibbing started a movement for a monument in his memory but it was not until 1937 that any real action was taken and finally in 1941 a life-size bronze figure was erected.

Hibbing is often referred to as a "Tale of two Cities." Organized as a village in 1893 as a boomer lumberjack town, it took the first World War demands for iron ore and technological development in earth removal to make Hibbing the city that moved. With the increased demand for iron ore, it became necessary to move the homes already situated on land that was to become part of the large Hull-Rust, Mahoning open pit mine. The moving of the city two miles from its original location did many things for Hibbing. Flexible transportation

for people between towns in 1914 gave Hibbing claim to the "Birthplace of the Greyhound Bus Industry." Hibbing is known as the "Heart of the Arrowhead Country," the hub to all diversified recreational areas and a "must" on every visitor's tour.⁸

Chisholm, the "Iron Bowl City," center of the Mesabi Range in the heart of the Arrowhead Country, is a prosperous mining city. In 1892, iron ore deposits were found and the site took on dramatic significance. It changed almost overnight into an unorganized mining community, and remained in this status for almost ten years. During this period explorers of iron ore were attracted to the area. They bought neighboring sections. One of the principal investors in this property was the late Archibald M. Chisholm of Duluth, after whom the town was named. Mr. Chisholm had great faith in the future of this area. In 1901, the Chisholm Herald was established by William E. Talboys who became Chisholm's first Mayor and Postmaster. This paper is now published as the Chisholm Tribune Herald.

Iron mining is Chisholm's principal industry. There are forty-five mines in the vicinity, with five

⁸The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota, December 1950, pp. 5, 7; Missabe Old Timer, a pamphlet of historic interest also published by the D. M. & I. R. Ry. Co., Duluth, Minnesota. Hibbing-Woodbridge, Vol. II, pp. 694-702.

now active. The principal operators are the Oliver Iron Mining Company and the Snyder Iron Mining Company. The largest underground mine is the Sherman-Fraser. The Godfrey Mine, a quarter of a mile south, is named after the late Michael Godfrey, former Oliver Iron Mining Company District Manager. The Shenango owned by the Snyder Iron Mining Company, with a maximum depth of 415 feet, is the deepest open pit mine in the world. There are many underdeveloped iron ore deposits here; in fact, Chisholm has the largest reserve of iron ore in the area. Chisholm is serviced by the Duluth, Missabe and Iron Range Railway as it was in its beginning by the Duluth, Missabe and Northern Railway.⁹

Virginia, known as the "Queen City of the Iron Range," as a corporate community dates back to November 12, 1892, when an election was held to ascertain the wishes of the people in connection with a proposal to institute village government. That the town had progressed is revealed in the ballot total, 64 favoring incorporation as a village and only one vote being cast in opposition. The first meeting of the appointed Virginia village officials was held on December 10, 1892,

⁹The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota, July 1953. pp. 5, 7, 10. Chisholm-Woodbridge, Vol. II., pp. 718-725. Chisholm-Van Brunt, Vol. I., pp. 496-510.

according to Albert E. Brickford. They held office until April 1, 1893, when a new administration assumed office. The Virginia Improvement Company was organized and the plat offered for sale to any and all involved 160 acres. This was the beginning of Virginia. Lots went on sale soon after the county board approved the plat in July of 1892.

By 1895, or some time in that year, Virginia had become a "city," the largest on the Mesabi Range. It must be recognized that the principal prop in the civilization here reared is rooted in iron ore and its transportation. This observation does not overlook the great contribution made to Virginia's well-being by timber. As a matter of fact, Virginia was for many years supported by an all-season economy in which the harvest of trees and their manufacture into lumber played an important part. Here at one time in local history was the largest white pine sawmill in the world, owned and operated by the Virginia and Rainy Lake Company. However, shipments of iron ore from Virginia commenced in the spring of 1893, over the "Missabe." The Iron Range finished its "Western Mesaba Branch to Biwabik, Eveleth, and eventually to Virginia" in 1893.

Records reveal that the first shipment of iron ore from Mountain Iron, and thus the first from the Mesabi

Range, went out in late October of 1892. This shipment may have involved as much as 5,000 tons. In any event, it was the first of the many millions which have since been mined and shipped from the great Mountain Iron Mine, a property still active, still sending its millions of tons of an indispensable resource to the nation's steel mills.

Discoveries of iron ore in Virginia followed hard on the Mountain Iron find, and to serve these new mines a line from Wolf to Virginia had been built by the "Missabe" in 1893.

Employees of the "Missabe" system are an essential part of the population of Virginia. They have constructed fine school facilities including the Virginia Junior College.

The mining of iron ore as we have known it omens a change in the foreseeable future, with an emphasis on exploiting the low grade taconite materials in iron ore. This presents a bright hope for a greatly expanded prosperity for all of Northern Minnesota. Virginia appears to be well located to make the most of the coming era. This is going to require a new kind of challenge to the Virginia and Range employees of the "Missabe" and these employees and the people of Virginia will meet whatever

test the future shall present.¹⁰

Of all the Range towns associated with the Duluth, Missabe and Iron Range Railroad or its predecessor the Duluth, Missabe and Northern, Mountain Iron's association is the most intimate.

As the first train of ore ever to be shipped from the Mesabi Range departed with the accompanying cheers of onlookers, on the morning of October 17, 1892, those hardy and begrimed bystanders went into immediate action to commemorate the event by incorporating their village. On that same day, a petition for the incorporation, bearing the signatures of thirty-eight inhabitants, was sent to the County Commissioners of St. Louis County, who a few days later voted their approval of the petition. Thus the Village of Mountain Iron was born.

Several years of exploration, prospecting, test-drilling and unremitting hard work, as well as doubt and uncertainty mingled with hopefulness and expectation, had preceded that historic event.

A townsite of eighty acres had been platted under the direction of Eugene T. Merritt, and named Grant, in

¹⁰The Mesabi Daily News, Virginia, Minnesota; The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota, December 1951, pp. 5, 7, 11, 16. Virginia, Woodbridge Vol. II., pp. 686-694; Van Brunt, Vol. I., pp. 574-607.

honor of the railroad contractor. Soon thereafter the first postoffice was opened, and called Marfield after an official of the postoffice department, with Roscoe Merritt as the first postmaster, his wife also having the distinction of being the first white woman on the Missabe Range. The names of Grant and Marfield were both subsequently dropped, and merged into the corporate name of Mountain Iron, after the great pioneer iron mine on which its existence depended.

The name derives from the historic Chippewa Indian word "Missabay," as related by the French explorer, Nicollet, who spoke of "Missabay Wachu," meaning Big Man Hills, or Giant's Range, or "Mountains of Iron."¹¹

Soon after incorporation, a village election was called, and on December 13, 1892, the villagers chose George S. Brown to be their first president; Albert L. Culbertson, recorder; John Brennick, Herbert L. Chapin and James W. Laut, trustees; and Albert Free, marshal.

An influx of prospectors, miners, tradesmen and settlers gave the community a boom-town character. Stores came into existence, offering their wares to the residents. The first church was built in 1892, and

¹¹The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota, December 1956, pp. 5-13. Mountain Iron-Woodbridge, Vol. II., pp. 735-737; Van Brunt, Vol. I, pp. 417-430.

services held until the destructive forest fire of the following June leveled the structure. School was established in a small frame building, with twenty children sitting on the rough-hewn benches, and Miss Carrie Wheeler doing double duty as teacher and janitor.

At the height of prosperity in these early days, the town boasted three hotels, and six saloons. Even a newspaper came into being for a short-lived existence of about one year, the Mountain Iron Manitou, whose founder and editor was the late J. Adam Bede. Of interest also was the coming of Dr. Allan Jeness in 1891, accompanied by his wife and two daughters, to be company doctor, and shortly thereafter the arrival of Charles F. Joyce as the first chemist on the range.

The Mountain Iron mine began operations auspiciously under the control of the Mountain Iron Mining Company, with four steam shovels in use during the first summer. The town prospered, and hopes ran high.¹²

Fortunes of the town fluctuated, however, after the forest fire of June, 1893, and the widespread panic of the same year. Operations of the Mountain Iron mine were hampered by water from rains and seepage, requiring costly and time-consuming pumping. Equipment was moved

¹²The Missabe Road, Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, (c. 1927). Ibid., The Missabe Iron Ranger, December 1956. Pp. 5-13.

to other locations, and many houses transported out of the village. Livelihood and employment became precarious, although sporadic help was given at various later periods through mining operations at the Iroquois, Brunt, Prindle and Wacootah mines.

The town, however, managed to survive these troublesome times, and never wavered in its belief that operations would be resumed on a big scale. Although mining ceased at the Mountain Iron mine in 1908, and the pit filled with water and the buildings were moved away, the inhabitants continued optimistic. Their faith was brought to fruition in 1942, when the mine once again began to contribute its mighty wealth to the needs of the nation now engaged in a world conflict, producing in excess of two millions of tons of iron ore each year since that time.

The original townsite of eighty acres was expanded in 1909 to include an immense additional acreage, bringing the total area to 7368 acres within the village limits.

Today Mountain Iron is a thriving community of energetic civic, social and fraternal conscious people displaying the same desire to help in the growth and prosperity of their community.¹³

¹³Op. Cit., The Missabe Iron Ranger, Duluth, Minnesota, December 1956. Pp. 5-13.

Two Harbors, the Lake County seat, on Lake Superior is located on Agate and Burlington Bays from whose harbors it received its name. The Chippewa Tribe called the spot Wass-We-Wining, "place to spear by moonlight." All the north shore of Lake Superior, including the site of Two Harbors, was Indian territory until 1855. The first white settler on Agate Bay was Thomas Sexton who arrived in 1856. A townsite was platted, named for him. In 1857, James J. Hibbard, with his brother and brother-in-law, built a sawmill at Burlington Bay which had been platted in 1856. These townsites succumbed during the financial panic of 1857.¹⁴

Two Harbors, then called Agate Bay, was made the Lake Superior terminus of the Duluth and Iron Range Railroad, now a division of the Duluth, Missabe and Iron Range Railway, in July, 1884. This was done soon after iron ore was first discovered on the Vermilion Range.¹⁵

Two Harbors became the Lake County seat when it was moved from Beaver Bay in 1888. The village was immediately incorporated; then began to grow.

As the railroad and shipping facilities improved, Two Harbors continued to thrive and began to develop

¹⁴The Missabe Iron Ranger, published by Duluth, Missabe and Iron Range Railway Co., Wolvin Building, Duluth, Minnesota, July 1952. Pp. 5, 7, 14, 15, 16, 17.

¹⁵Hal Bridges, Iron Millionaire, University of Pennsylvania, Press., Philadelphia, 1952. Pp. 194-195.

its forest industry. The Duluth, Missabe and Northern Railway Company operated the Duluth and Iron Range Railroad Company under lease effective midnight January 10th, 1930, until property and assets of the Duluth and Iron Range Railroad Company were merged with the Duluth, Missabe and Northern on March 21, 1938. The Duluth, Missabe and Iron Range Railway operates the three concrete and steel iron ore docks which have replaced the original wooden docks. At one time Dock No. 1 was the largest iron ore dock in the world. Nineteen million tons of ore have been shipped in one season. A record was made at Two Harbors when a ship loaded more than 12,000 tons in sixteen minutes. In addition to the ore docks, the Missabe Railway owns one lumber or merchandise dock and one coal dock. These docks give the Harbors a combined frontage of 6,000 feet. Coal is received here for the Vermilion and Mesabi Ranges. Lumber is still shipped from Two Harbors, but in smaller quantities than formerly.¹⁶

Currently, adjoining the Duluth, Missabe and Iron Range Railway station at Two Harbors is the "Three Spot," the first locomotive used on the Duluth and Iron Range. The coming of the first locomotive was an event long to be remembered and this locomotive, the "Three Spot" had

¹⁶Op. Cit., The Missabe Ranger, July 1952. Pp. 5, 7, 14, 15, 16, 17.

been brought on a scow from the Stone-Ordean Dock at Duluth to Agate Bay, on July 18, 1883. The trip was made with the company tug, "Ella G. Stone" named after the daughter of George C. Stone, the real founder of the Minnesota Iron Company and of the Duluth and Iron Range Railroad Company. The tug was in command of Captain Cornelius O. Flynn and much care was exercised in having the locomotive properly placed and braced on the scow. The crew started out of the Duluth Harbor with the cargo on a day when the water was still and scarcely a sign of a breeze. Everything went well until they reached Knife River where a moderate North Easter began to blow and increased to such an extent that Captain Flynn gave each of the men on the scow an ax and ordered them to stand by the lines that fastened the tug to the scow, with instructions to cut the lines and abandon the scow whenever he gave the command, it being necessary to do so to save their own lives, but the excellent seamanship of Captain Flynn saved the crew from the necessity of sending the "Three Spot" to "Davy Jones' Locker" and instead they sailed into the peaceful waters of Agate Bay and delivered the cargo safely on the rails of the Duluth and Iron Range Railroad.¹⁷

¹⁷William A. McGonagle, Early Recollections of the Duluth & Iron Range Railroad. Thomas Owens, Three Spot Incident, "An Interview with a Pioneer." U. S. Steel News, III, February 1938, p. 16-19.

It would be remiss of this writer if he were not to include probably the most important of the towns and villages associated with the Duluth, Missabe and Iron Range Railroad.

That town is Proctor. Proctor's history is so snugly interwoven with that of the Duluth, Missabe and Iron Range Railway that it is difficult to make distinction. What is now the Missabe Division of the Duluth, Missabe and Iron Range Railway had its origin as the Duluth, Missabe and Northern Railway in 1891; but the history of one is the history of the other.

Proctor has an identity and spirit all its own, which reflects the character of its people. In Proctor are located the yards of the Duluth, Missabe and Iron Range Railway Company, the largest ore marshaling yards in the world, where each year millions of tons of iron ore are readied and delivered to the ore docks in Duluth. The pride of the residents in their tremendous job of supplying the steel furnaces would be hard to equal.

Proctor was born an ideal spot for an ore hauling railroad terminal. Prior to 1893 iron ore from the Mountain Iron Mine was handled by the old Duluth and Winnipeg Railway to the Allouez Bay docks in Superior.

This arrangement did not long satisfy the visionary men who founded Minnesota's Missabe Range mining

industry, and they soon made plans to extend their main line into Duluth and build their own docks. The construction, which included the Proctor Yard, was completed in the summer of 1893.

The village which grew around the main terminal of the railroad was organized on December 4, 1894, with William S. Doyle as Mayor; Peter F. Keating, Recorder; and Rice Harper and Martin H. Padden, board members.

The story of Proctor's beginnings parallel that of the mining communities of the north. Construction workers, craftsmen, railroad workers, professional men, clergymen and tradespeople arrived faster than the village could accommodate them. Many lived in tents as construction of homes, shops and stores was rushed to contain the birth of a new and important settlement where nothing but ideal terrain, necessary to build a railroad terminal capable of handling huge tonnages, had existed before.

That brisk day of October, 1893, when the first train of iron ore left the yards for the docks in Duluth, was quite a day for the youthful village. As near as one can determine, the population had grown to 500 and it seemed that everyone turned out to witness the exciting event which climaxed months of preparation.

Industry is centered about the yards and shops of

the Duluth, Missabe and Iron Range Railway in which residents take personal interest. From a bridge which spans the center of the yard, one can observe the important work of these villagers who go out and get the iron ore, bring it into town, weigh it precisely without stopping the train and then sort it according to scientific analysis so it will be dumped in the holds of giant lake freighters in the precise mixture requested by the steel mills at the lower lakes.

The Proctor yard is over two and one half miles in length and contains over 75 miles of the toughest type of steel rails made. They have six tracks with a total capacity of 360 cars which are equipped with a permanent system of underground piping to permit steaming of frozen iron ore in the early spring or late fall months.

The people of Proctor proudly display their safety achievements which have brought them national awards and recognition. Such pride in the village and its industry had its beginnings under William A. McGonagle who served the D. M. & N. as President from July 23, 1902, to August 30, 1930. He was among the first of industry's leaders to recognize the importance of employee safety and welfare. During his administration, the railroad sponsored contests for the best kept homes, lawns and gardens. Proctor is well serviced by the

Duluth, Missabe and Iron Range Railway which offers efficient daily freight service to Range points over their own lines and elsewhere throughout the nation by connections with all railroads that serve Duluth and Superior. Proctor is more than a railroad town. It's an alert, friendly, smiling community, happy in its work and confident in its future.¹⁸

¹⁸The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota, July 1956. Pp. 5, 7, 9, 10, 11, 15.

V.

THE MISSABE'S NAVY

The Duluth, Missabe and Iron Range Railroad and its predecessors the Duluth and Iron Range and the Duluth, Missabe and Northern has owned and operated four tugs at various times and leased a fifth for a short period. With one exception, all have been used at Two Harbors. By its very nature, the Duluth harbor does not require too many turns or cramped maneuvering, therefore a company operated tug is not maintained there. Commercial tug service is available and used when necessary.

The history of the "Company" tugs go back as far as the beginning of the railroad. Realizing the probable need for tug service to assist the ore carriers of the day, President Charlemagne Tower, Jr., purchased a small, wooden-hulled harbor tug and named her the "Ella G. Stone," after Vice President George C. Stone's wife. Skippered by Captain Con Flynn and later by Captain John McEachern, she performed her assigned tasks ably and efficiently from the start of the ore shipping era in 1884 until she was replaced by a larger, more powerful ship in 1896. One of the "Ella G. Stone's"

more notable and probably best remembered performances came even before the start of ore shipping. As was related earlier in his Early Recollections, William A. McGonagle told of the experience with the "Ella G.", and the "Three Spot."

In 1896, an order was placed with the Cleveland Shipbuilding Company of Cleveland to construct a tug specifically for use in the bay at Two Harbors. She was to have an over all length of 102 feet, a beam of 23 feet, a maximum draft of $15\frac{1}{2}$ feet and a gross tonnage of 154 tons. These specifications have not changed to this day. Upon completion of her building and outfitting, the tug was sailed to Duluth with a crew headed by Captain Joseph Cox and Chief Engineer George DaMoore.¹⁹ There she was christened the "Edna G." in honor of the daughter of the Duluth and Iron Range Railroad President, J. L. Greatsinger. Sixty-six years of continuous service have not impaired the condition or capability of the tug, for the "Edna G." is in as fine shape today as she was the day of her launching.

At a time of international defense, when the whole nation girded for war, the "Edna G." also contributed her efforts, for in 1917, at the outset of America's

¹⁹The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railway Co., Wolvin Building, Duluth, Minnesota, April 1962. Pp. 5, 7, 10.

entry into World War I, the tug was sailed through the Great Lakes to Norfolk, Virginia, and there turned over to the U. S. Navy. She spent the ensuing two years in the Norfolk area towing coal barges and other types of ships up and down the Atlantic Coast. Following the end of the war, the "Edna G." received her honorable discharge and in 1919 returned to Two Harbors to resume her duties.

The wooden ore docks which lined the bayfronts of Two Harbors and Duluth presented something of a problem in fire prevention. Around 1912, two new tugs were built to order for the purpose of fire protection at the docks of both cities. The "McGonagle," named for the then president of the Duluth, Missabe and Northern Railway, William A. McGonagle, served as fireboat for the DM&N docks in Duluth until the wooden docks were replaced with the present steel and concrete ones, at which time she was sold. The "Torrent" served the same purpose around the Two Harbors Docks. Captain Joseph Cox, the man who had brought the "Edna G." from Cleveland, switched from the "Edna" to the "Torrent", remaining with her the entire time she was employed in the harbor area. When Dock No. 2 was rebuilt of concrete and steel in 1925, the "Torrent" was sold to the Milwaukee Fire Department.²⁰

²⁰Ibid., The Missabe Ranger, April 1962. Pp. 5, 7, 10.

In spite of her age and many years of service, the "Edna" is in the best of condition and sports the most modern equipment. Regular maintenance is done by the shop crafts in Two Harbors with the only scheduled shipyard work done by Coast Guard requirements for inspection every five years. The steel docks have greatly reduced the possibility of fire, but to safeguard against any outbreak of fire the Edna is completely outfitted with a fire gun and hoses. For instant communication with land or sea, the tug carries ship-to-shore telephone and two radio sets, FM channel 1 and AM channel 51, which in addition to all regular calls also monitors for distress calls.

The steam-driven, coal powered tug picks up her load of fuel from a gravity-fed hopper at the Two Harbors Coal Dock several times weekly. However, with the general advent of diesel locomotives there has been a decrease in coal consumption, thus the Edna now gets her coal from one of the "ore" chutes reinstalled in a pocket of one of the ore docks.

As the Duluth, Missabe and Iron Range, in line with railroading in general, has progressed through the years with the addition of modern equipment and improved technologies, it seems incredible that the "Edna G." is able to perform in the fashion in which she operated over

half a century ago. Until the day arrives in favor of some other system of vessel handling, the flagship of the Missabe's Navy stands ready to give assistance to any and all who request it.²¹

²¹Ibid., The Missabe Iron Ranger, April 1962.
Pp. 5, 7, 10.

VI.

MISSABE THE LOGGING RAILROAD

When people think of the Missabe Road they usually associate it with the transportation of iron ore. This is quite natural as the handling of iron ore is of prime importance to the Missabe.

However, besides transporting iron ore, other trains are regularly operated to serve the traveling and shipping public and the handling of forest products is very important. In recent years this has consisted mostly of pulpwood destined for paper making companies. Most of the pulpwood is handled over the Wales Branch by special logging trains which are operated twice weekly. A considerable amount is also handled through the connection with the Duluth and Northeastern Railroad at Saginaw. Much has been written about transportation of iron ore on the Missabe Road, but a great deal of history has been forgotten about the Missabe's interest in logging operations.

A booklet which was published in 1883 by the Duluth and Iron Range Railroad Company, now known as the Iron Range Division, included among other things, its objectives: "In addition to the transportation of iron

ore, this railroad, when built, will have a large business in the transportation of men and supplies for distribution to lumber camps on the waters of the St. Louis, Whiteface and Cloquet rivers; and Tower, Minnesota, will be the best point for distribution for men and supplies to the whole immense lumber region north of Vermilion Lake and tributary to Rainy Lake River. There is a large amount of valuable pine timber which is tributary to Vermilion Lake and which will probably be concentrated and manufactured there and its products transported over this road; and in all probability, mills can be successfully operated at several intermediate points between Tower and Duluth. An abundance of timber for telegraph poles and railroad ties is in immediate proximity to the line of this road for its whole length, which will also add to its business in the future."

As it turned out in the ensuing years, the prediction of potential logging and lumber business for the D&IR proved to be ultra-conservative. For, in the boom that followed construction of the D&IR railroad from Duluth, Two Harbors, Tower and Ely, the logging industry grew beyond the scope imagined, reaching a peak in 1902 when 435 million board feet of lumber was the total production in the Duluth port area alone. This was equal to 14,000 box car loads of lumber.

Following the peak year of 1902, logging and lumber production continued at a high rate until about 1915 when a sharp decline began. This was attributed to the fact that loggers had cleaned out most of the merchantable saw timber. By 1924 and 1925, the last of the big lumber mills had closed down. It was felt that the forest industry was gone forever, however, increased development of the pulp and paper industry created new demands for second growth timber. This was further accelerated to fill demands created by World War II.¹

Logging in Northern Minnesota began as early as 1856 or 1857 when the first sawmill was built in Duluth on the St. Louis River. The mill was built for Newell S. Ryder by Lewis H. Merritt, father of the Merritt boys who later were to discover and develop the Missabe Iron Range.² However, it wasn't until the Duluth and Iron Range Railroad penetrated the then wilderness in the late 1880's that the industry began to gain momentum and to flourish. Before the D&IR offered transportation to the industry, logging camps were located on navigable streams and rivers such as the St. Louis River, Whiteface and Cloquet.

¹The Missabe Iron Ranger, published by the Traffic Department, Duluth, Missabe and Iron Range Railway Company, Wolvin Building, Duluth, Minnesota, December 1951, pp. 30-31; January 1962, pp. 5, 6, 7, 8, 9, 10, 11, 13.

²The Romance of the Range, a paper by Russell Gordon Merritt, January 14, 1931. Pp. 1-7.

Using primitive methods and equipment, mainly manpower and horses, forests adjacent to the streams were logged first. The logs were dumped into the streams and floated to the mills, thus taking advantage of cheap water transportation. But, as shorelines were stripped of timber, the distance between water transportation and timber supply lengthened to the point where it became too expensive to move the logs via the waterways.

In those early days, the Duluth and Iron Range Railroad and the Duluth, Missabe and Northern Railway had no intention of getting into the log transportation business. Transportation of iron ore utilized all facilities. But loggers' demands for rail freight service became more pressing each year. In 1900, the two railroads, acceding to the demands of the logging industry, obtained facilities and gave the required freight service. This was especially beneficial to the railroads during the winter months when ore shipping was at a standstill.

Many of the logging companies constructed their own short-line railroads. In many cases these rails connected with either the D&IR or DM&N lines.

Among the more important of these logging railroads was the Duluth and Northern Minnesota Railway which connected with the Duluth and Iron Range Railroad at Knife

River. Construction of this line was begun by Alger Smith & Company in 1898, and by 1917 the line extended some 99 miles to Cascade. This railroad passed under the D. & I. R. tracks at Alger.

During its existence, train loads of logs, loaded on 20 foot Russell logging cars, with the logs held in place by heavy steel chains, were delivered mostly to the Alger Smith Lumber Company at the foot of Garfield Avenue in Duluth with D. & I. R. trains making direct delivery to the sawmill over Northern Pacific Railway tracks. The Duluth and Northern Minnesota Railroad in 1909 carried passengers as far as Finland, Minnesota, and at the peak of its operation shipped six to eight trainloads of logs daily. All of the loads were turned over to the D. & I. R. railroad at Knife River. The D. & N. M. at one time planned a rail extension to Port Arthur, Canada. This railroad was discontinued in 1921 at which time the entire line was sold to the General Logging Company of Cloquet. In 1923, the General Logging Company took up all D&NM rail from Knife River to Milepost 69 $\frac{1}{2}$. In 1927-28, General Logging built 51 miles of new line from Cascade Junction into Lake and Cook Counties and an additional 36 miles of track from Cascade to Rose Lake on the Canadian border. Most of this track was removed in 1938.

The Duluth and Northeastern Railroad, now operating

between Cloquet and Saginaw, was originally built to Hornby, where much timber originating on the Duluth and Iron Range Railroad was delivered to the D&NE for movement to the lumber mills at Cloquet. Organized in 1898, the D&NE was originally owned by the Duluth Logging and Contracting Company and extended from Hornby on the Duluth and Iron Range Railroad to Island Lake, a distance of 271 miles, with an additional ten miles of branch lines.³

Saw logs were the biggest commodity which were hauled by the D&NE to Island Lake where they were dumped and floated down the Cloquet and St. Louis Rivers, to the mills at Cloquet. In 1910, twenty miles of new main line were constructed to get timber out of burned over lands, and the old D&NE line via Sullivan Lake was abandoned.

By 1938, timber adjacent to the railroad was removed leaving the D&NE no choice but to abandon 46 miles of railroad, keeping only 11.4 miles of road between Saginaw, on the DM&IR line and Cloquet.

The D&NE, today is primarily a terminal switching line with approximately eight miles of yard tracks at Cloquet. Through its connection with the DM&IR Ry., at Saginaw, the D&NE enjoys a joint line haul between

³Op. Cit., The Missabe Iron Ranger, December 1951, pp. 30, 31; January 1962, pp. 5-11, 13.

industries in Cloquet and industries in Duluth and points beyond. The D&NE connects at Cloquet with the Chicago, Milwaukee, St. Paul and Pacific Railroad, the Northern Pacific and Great Northern Railroads. The D&NE owns five locomotives, and has the distinction of being one of the very few railroads in the United States powered entirely with coal-burning steam locomotives. It is now controlled through stock ownership by the Northwest Paper Company.

Iron ore prospectors and timber cruisers opened up the Ely-Tower-Winton areas of northeastern Minnesota in the 1880's. First timber operator in the Ely-Winton area was George W. Knox, Knox Mill, Wisconsin, who moved into the Fall Lake area at Winton in 1892. He built a railroad to move heavy machinery to the mill. In 1900, Martin, Ernest and Burt Torinus, Stillwater, Minnesota, purchased the Knox Lumber Co., interest and organized the St. Croix Lumber Company.⁴

Swallow-Hopkins Lumber Company operated four or five lumber camps in the Winton area, employing 750 to 800 men. Gerald H. Goop, Duluth, was General Manager. This firm also operated a sawmill at Winton and built and operated 14 miles of railroad, connecting with the D&IR at Winton. It ceased operations in 1915. Its

⁴Ibid., The Missabe Iron Ranger, December 1951, pp. 30, 31; January 1962, pp. 5-11, 13.

14 mile railroad is referred to as the "Cloquet Line." The Northern Lumber Company resumed operations of the Swallow-Hopkins operation at Winton in 1923.

The Tower-Lake Vermilion and Rainy Lake areas saw the rise and fall of the logging industry as well. In this area, the Tower Lumber Company built and operated a 15-mile railroad which connected with the Duluth and Iron Range at Murray. Another short-line railroad was built and operated between Pine Lake and Lake Vermilion at the mouth of Bear Creek. Duluth, Missabe and Western Railroad, built and operated by the Powers and Simpson Lumber Company, a 22-mile main line starting west of Hibbing to Crooked Lake with twelve miles of branch connecting lines. The Northern Lumber Company, Cloquet, constructed a short line connecting at Hull Junction with the Duluth, Missabe and Northern Railway. The North Star Lumber Company operated a rail connection with the Duluth and Iron Range Railway at Whyte.

The Scott and Holstein Lumber Company built and operated a system of logging lines in 1900 to Twp. 54-12 from Drummond on the now-abandoned Duluth and Iron Range original main line between Waldo and Rollins.

The N. B. Shank Logging Co. built and operated rail connections on now abandoned line near Biwabik. These lines connected the company with the Duluth and Iron

Range Railway at Milepost X-14 and another at Milepost 68.⁵ (It should be noted here that N. B. Shank was the father of Donald B. Shank, present Vice President and General Manager of the Duluth, Missabe and Iron Range Railroad Company.)

The Duluth and Iron Range Railroad, in 1910, built the Eastern Mesaba Branch from the Mesaba Station, easterly to the Dunka River primarily to service the logging industry. This extension also serviced Argo Township wherein is located the present day taconite operations of the Reserve Mining Company at Babbitt.

World War II increased the demand for paper products. The chemical industry was also using derivatives from forest products to meet new demands. With this increased demand for forest products--particularly pulpwood--came increased demand for rail freight service. It was therefore decided by Mr. Paul H. Van Hoven, President of the Duluth, Missabe and Iron Range Railroad, to extend the line of the DM&IR into this new region.

The engineering department determined the cost of extending the Wales Spur into the area. The traffic department furnished estimates of the revenue which could be anticipated over a period of years. Based upon

⁵Ibid., The Missabe Iron Ranger, December 1951, pp. 30, 31; January 1962, pp. 5-11, 13.

these studies, an application was filed with the Interstate Commerce Commission in January, 1947, for a certificate of Public Convenience and Necessity authorizing the extension of the Wales Branch approximately 28 miles to a location known as Sawbill Landing, Minnesota. The matter was assigned finance Docket No. 15587 and came before the Commission on March 3, 1947. The certificate authorizing the construction was issued on March 14, 1947 and construction began on March 28, 1947.⁶

Built at a cost of approximately \$1,600,000 the branch included 90 and 100 pound rail on treated ties and gravel ballast. The line is a well built railroad branch line extending 23.5 miles from Whyte to Sawbill Landing with an eight mile extension from Sawbill Junction to Forest Center. A large number of loading spurs varying from 500 to nearly 4,000 feet in length have also been built.

Since the opening of the line on December 8, 1947, through August, 1951, about 20,000 carloads of forest products have been shipped from the area with future average shipments estimated at between 8,000 and 8,500

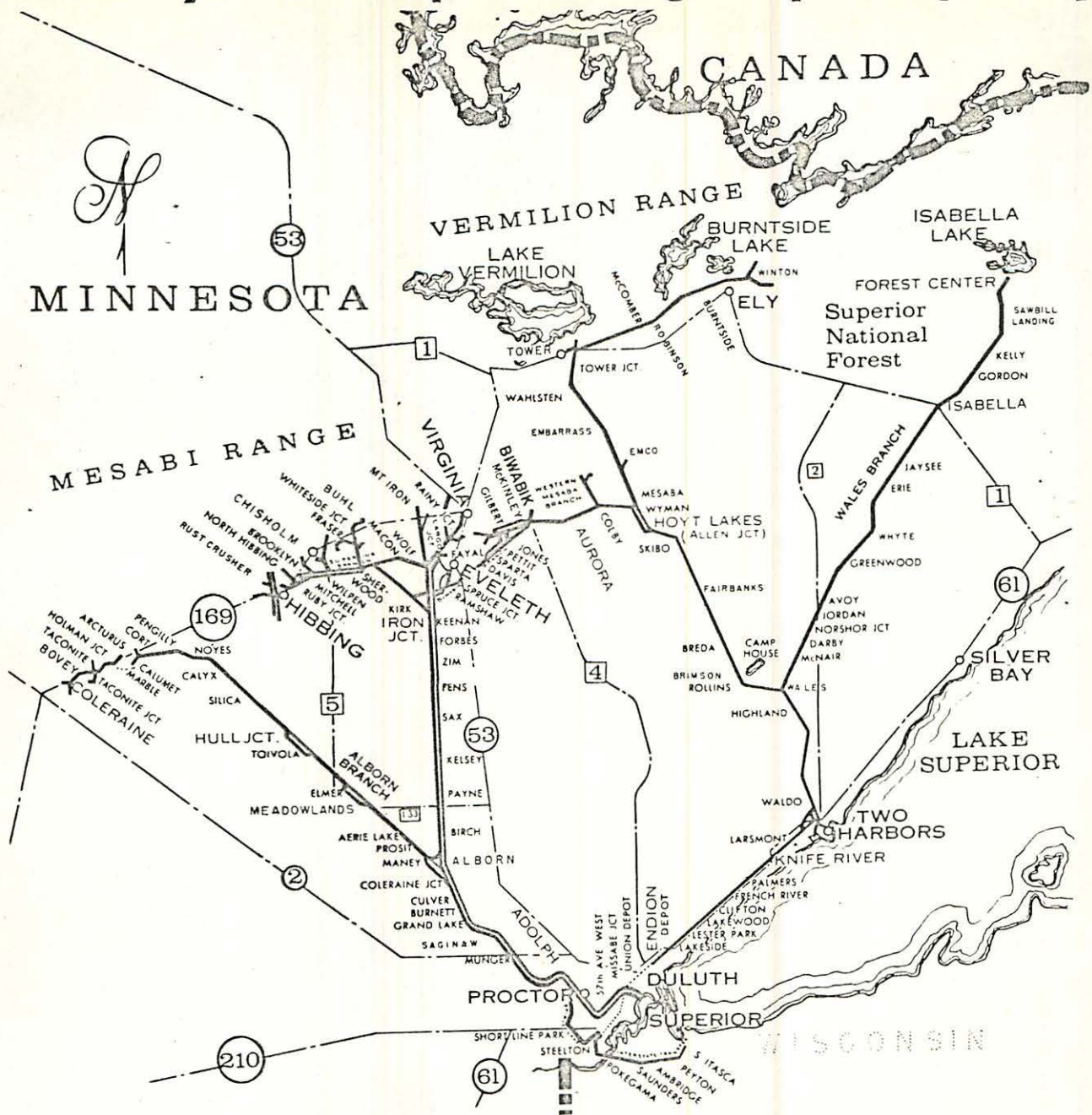
⁶Ibid., The Missabe Iron Ranger, December, 1951, pp. 30, 31; January, 1962, pp. 5-11, 13.

carloads per year.⁷

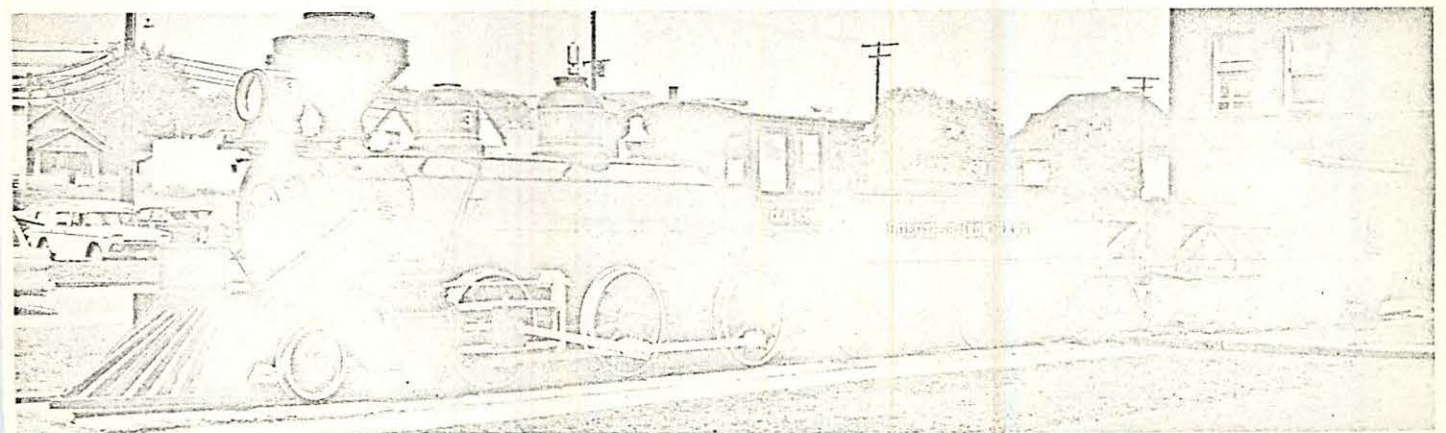
The Duluth, Missabe and Iron Range Railroad has played an impressive part in the history of the logging industry in Minnesota and the future of the logging industry is bright.

⁷Ibid., The Missabe Iron Ranger, December, 1951, pp. 30, 31; January, 1962, pp. 5-11, 13.

DM&IR System Map Showing Major Highways



The Three Spot -- First Locomotive of the DM&IR



"The Three Spot" on permanent display at Two Harbors. Arrived at Two Harbors by scow in 1883 and was used in building of railroad. Rescued from scrap yard by Veterans' Association and restored in 1923.

VII.

THE MISSABE LOOKS TO THE FUTURE

In 1938, a recession year, ore tonnages dropped to slightly over eight million tons. Unfortunately, the gathering storm clouds of World War II were on the horizon. The flow of war material from the United States to the Allies was beginning to mount, resulting in ore tonnages for 1939 to climb to well over 18 million.

It became apparent that new locomotives and additional ore cars would be required to handle the anticipated immense increase in tonnage. During 1941, eight huge Mallet Locomotives arrived from the Baldwin Works none too soon for the tremendous job at hand, for by the end of the year the United States was again involved in a global conflict.

These powerful locomotives had a personality exclusively theirs--they were of the 2-8-8-4 type. This designation means the engine has two riders, 16 drivers and 4 riders, the drivers being the driving wheels or power wheels. These engines were placed in ore service where they were capable of handling 25 percent greater tonnage per train than the simplified 2-8-8-2's. The

2-8-8-4's often hauled trains up to 10,000 tons over the rails whereas their predecessors were capable of handling only 3,600 tons over the same line.

With the country engaged in World War II the demand for steel was at an all time high and during 1942 an order was placed with Baldwin for ten additional locomotives of the 2-8-8-4 type. These engines were received in 1943 and were placed in road service immediately where they easily handled trains of 180 loaded 70-ton capacity ore cars.¹

The demands of war pushed the ore tonnages to a new peak, exceeding 37 million during 1942; this record was to be broken only by the World War II high of almost 45 million tons in 1943. There was no rest for these engines for during the winter months with the end of the ore season, they were pressed into winter service in the West--many going to the Denver and Rio Grand Western Railroad.

To expedite war-time traffic, centralized traffic control was installed on five miles of double track and 6.5 miles of single track, including junctions at Keenan, Iron Junction, Wolf, Spruce and Sparta. During 1944, approximately 90 train movements were handled

¹The Missabe Iron Ranger, Our Story of Steam, Franklin A. King, Industrial Engineer, Wolvin Building, Duluth, Minnesota, April 1961, pp. 5-7, 9-12, 15, 19.

through this territory on an average day.

Peace did not ease the load on the Missabe. Post-war tonnages remained at a high level as the economy now shifted from war-goods to domestic consumer goods demanded by the war-starved people.

In 1950, the United States, just now catching up to some of the demands of the consumer, was once again involved in armed conflict--this time in the far off country of Korea. Once more the Missabe was called upon to help provide the sinews of war as well as those demands of the public. At the height of the Korean conflict in 1953, the D. M. & I. R. Ry. experienced an all-time peak ore tonnage, totaling just short of 50 million tons. The previous year marked the beginning of the end for steam with the arrival of 15 diesel switchers.²

The demand for more efficient locomotive power with a minimal maintenance cost and effort was being studied. Since 1937 the first diesel demonstrator locomotives were conducted at Proctor with a 900 horse power diesel electric switch locomotive furnished by the Electro-Motive Division of General Motors Corporation. This Diesel electric locomotive was powered by a 12 cylinder, V-type Winto Diesel engine and had a rated starting

²The Missabe Iron Ranger, published by the Duluth, Missabe and Iron Range Railroad Company, Wolvin Building, Duluth, Minnesota, July 1952, pp. 30, 33.

effort of 62,500 lbs. This Diesel locomotive was assigned to work which was being handled by Class C-3 locomotives 2-8-0 type. It demonstrated a switching capacity superior to the Class C-3 locomotive, but had a definite inferiority on the Proctor Hill (that portion of track that leads from Proctor to the Duluth Ore Docks.)

A 2000 h. p. Diesel electric locomotive was demonstrated by the Baldwin Locomotive Works during May, 1948. This Diesel Electric locomotive was originally built for the Elgin, Joliet and Eastern Railway, another subsidiary railroad of the United States Steel Corporation, and was powered with two 1000 h. p., six in a line, turbo-supercharged Diesel engines. With six traction motors this locomotive had a starting tractive effort of 108,000 lbs. at 30% adhesion.

This Baldwin 2000 h. p. Diesel electric locomotive was demonstrated in Two Harbors Yard, on the Wales Branch, and made a round trip between Proctor and Hibbing with road ore trains. This demonstration indicated that this size of Diesel would meet the requirements of service in the Missabe yards and transfer movements as well. However, it was not large enough to handle full tonnage ore trains.

During May, 1950, a 1500 h. p. Diesel electric

locomotive built by Baldwin having six traction motors was demonstrated on various assignments on the Missabe Division. This Diesel electric locomotive was powered by an 8 cylinder in line turbo-supercharged, 4 cycle, Diesel engine direct connected to a Westinghouse generator. This locomotive developed a starting tractive effort of 97,500 lbs. at 30% adhesion. This 1500 h.p. Diesel electric locomotive worked on an ore sorting and switching assignment and handled the work of Class E-E1, 2-10-2 type, and S6, 0-10-0 type.³

On eleven trips on Proctor Hill this locomotive handled regular trains down the hill, but handled smaller trains up the hill than could be handled with a Class M Compound Mallet Steam locomotive, 2-8-8-2 type. On the Proctor-Hibbing local this 1500 h.p. Diesel electric did a satisfactory job with a normal train, but did not attain speeds as high as the Class E-E1 Santa Fe type which were regularly used in this service.

A 6400 h. p. 4 unit Diesel electric locomotive built jointly by the American Locomotive Company and the General Electric Company was tested during the summer of 1951. Each unit of this locomotive was powered by an Alco 1600 h. p. V-type, four cycle, 12 cylinder turbo-supercharged Diesel engine direct connected to a

³Ibid., The Missabe Iron Ranger, July 1952, pp. 30, 33; October, 1960, pp. 5, 7, 30.

General Electric main generator. Each unit was equipped with four traction motors and developed a starting tractive effort of 62,500 lbs.

This Alco-General Electric locomotive was used in road ore service on both the Iron Range and Missabe Range Divisions as 4800 h. p. and 6400 h. p. locomotives. On the Iron Range Division trains of 150 cars were handled over the road and down the hill with the aid of dynamic brakes on four units and air brakes. As a two-unit 3200 h. p. locomotive, normal trains were handled on Proctor and Steelton Hills and the Mitchell-Biwabik cross-country runs. As a one-unit 1600 h. p. locomotive, passenger trains were handled over both divisions.

During the year 1951 the Mechanical Department made a very thorough economic study covering the application of Diesel-electric motive power to all operations. This study required approximately one year to complete. During January, 1951, four builders were requested to analyze the DM&IR operation and submit a report covering complete Dieselization of the property. The American Locomotive Company, General Electric Company, the Baldwin-Lima-Hamilton Corporation and the Fairbanks-Morse Company all submitted reports.⁴

The Missabe operation is unique in that it furnishes

⁴Ibid., The Missabe Iron Ranger, October, 1960, pp. 5, 7, 30; July, 1952, pp. 30, 33.

a service fitted to the needs of the iron ore mines on the Ranges and the boats at the Missabe ore docks and it is mandatory that failures to locomotives, cars and facilities be kept to an absolute minimum during the shipping season. The management has been alert and progressive in establishing modernization programs for locomotives, cars and facilities to attain maximum efficiency of all operations and services.

The excellent water conditions prevailing in the territory over which the steam locomotives operate tends in a large part to increase availability of the steam power, which condition does not prevail on other railroads.

However, the Missabe operation differs from the normal trunk line operation in that it hauls ore only seven to eight months of each year and during this period of operation practically all the road trains are "extras." The arrivals of lake ore carriers are irregular, sometimes creating a higher demand for ore than at other times, and this condition becomes immediately evident in the number of trains operated making the scheduling of locomotive and car servicing very complex.

Practically all railroads have an eight hour work day in effect in yards. The Missabe Division yard crew has a work day of 9 hours 20 minutes for train and

engine crews. In assignments requiring 24 hour service the over-lap of train and engine crew assignments demands that a second locomotive be available for use each 24 hours; therefore, higher savings can be made by "triple-crewing" a locomotive on most roads but this cannot be done on the Missabe Division under existing labor contract.⁵

In 1953 the D.M.&I.R. Ry. purchased fifteen 1200 horsepower switcher type diesel electric locomotives from the Electro-Motive Division of General Motors Corporation. Only 7 of these locomotives were kept in service, 8 of them having been returned to the builder for application against the purchase of larger road switcher type diesel locomotives.

In 1956, ten 1750 horsepower units were purchased from the Electro-Motive Division. These locomotives are identified as the DM&IR class RS-1 road numbers 101 through 110, builder's type SD-9. Subsequent purchases of this same size and make of locomotive in the years 1957, 1958 and 1959 have brought the total ownership of type SD-9 locomotives to 74.

The last lot of 19 diesel electric locomotives, purchased in the spring of 1960 from Electro-Motive Division, are essentially the same as the 74 type SD-9

⁵Ibid., The Missabe Iron Ranger, October 1960, pp. 5, 7, 30; July 1952, pp. 30, 33.

locomotives mentioned with exception of the diesel engine proper. Several improvements have been incorporated in the engines of this lot of locomotives which have increased the horsepower rating from 1750 to 1800 horsepower. These 19 locomotives are identified as D.M.& I.R. class RS-6 road numbers 175 through 193, builder's type SD-18.

The transition from steam locomotive operation to diesel electric locomotive operation has brought many changes in the Mechanical Department of the D.M.&I.R.⁶ The present steam locomotive repair shops do not adequately serve as diesel locomotive repair terminals because of the lack of upper level service platforms, elevated tracks for underneath inspection of the locomotives, inadequate drop-pit facilities, and other minor details. Consequently new diesel locomotive inspection and repair facilities must be provided, such as the modern four track facility recently constructed at the Proctor North Roundhouse Terminal.

The introduction of the diesel-electric locomotive brought about numerous, but challenging, new problems in motive power maintenance and shop operation. The maintenance work of a diesel locomotive is radically

⁶Ibid., The Missabe Iron Ranger, October, 1960, pp. 5, 7, 30; July, 1952, pp. 30, 33.

different from that required on steam locomotives and necessitates entirely different repair facilities and changes in shop procedures.⁷

The construction of the Proctor Diesel Facility in 1958 provides a means of efficiently maintaining diesel locomotives on its property. This facility is the headquarters for the maintenance of all Missabe Division locomotives which under complete dieselization is expected to involve all 85 units. The character of maintenance and repair work can be classified as inspections required by the Interstate Commerce Commission and running repairs and progressive maintenance as recommended by the locomotive builder or Railroad Company standard practice based on experience. Since locomotives are brought into the diesel house for I.C.C. inspection, the service facilities, including fueling, sanding, and washing are provided on those tracks over which locomotives must pass prior to housing for this inspection. The building contains fueling and sanding facilities which consist of two fueling stations and three fifty-five foot high, ten-ton sand towers located on a concrete slab 150 feet long by 50 feet wide.⁸

⁷Ibid., The Missabe Iron Ranger, October, 1960, pp. 5, 7, 30; July, 1952, pp. 30, 33.

⁸The Missabe Iron Ranger, published by the D.M.&I.R. Ry. Co., Wolvin Building, Duluth, Minnesota, December, 1957, pp. 24, 25, 49; April, 1958, pp. 5, 6, 7.

Fuel oil is received in 8,000, 10,000 or 12,000 gallon capacity tank cars which are top unloaded at the rate of 90 gallons per minute.

The wash rack equipment consists of two pressure tanks, a high pressure rinse pump and spray stands along with the necessary piping, valving and spray nozzles.

The two through service tracks in the building will each accommodate four class RS units, each of which are 60'8" in length. These tracks are of conventional diesel house design having rails mounted on pedestals, a platform 5'4" above the top of the rail.

The building has two crane bays which form the letter "T". A 30-ton crane with a 5-ton auxiliary and approximately a 90'0" span is located on the extreme south end of the building and runs east and west across the width of the building, forming what would be the horizontal part of the "T".

Under the 30-ton crane on tracks No. 1 and No. 2 and truck track No. 3 is a 100-ton capacity, $26\frac{1}{2}$ feet wide by 89 feet long by 20 feet deep drop pit which is used for changing out locomotive trucks.

Repair rooms, storerooms, lunch and locker room, electrical distribution center, oil room, tool room and

foreman's office are located in the east bay, making up what is called the supporting facilities.⁹

This facility is only another part of the needs demanded of the Missabe in order to continue to service and compete with other roads for the service of its old customers and the need for new customers.

This Diesel area has cost the D.M.&I.R. Ry. Company approximately \$1,610,000.00, an indication of the Missabe's desire to progress.

Since 1950 the Missabe Range has witnessed a severe decline in ore shipments. By 1959, the Missabe was fighting for its very existence; ore tonnages plunged to less than 19 million and the worst was yet to come. However, the D.M.&I.R. was determined and began giving the strictest attention to the improvement of every facet of its operation, regardless of size. In January of 1962 the Duluth, Missabe and Iron Range announced it would discontinue shipping iron ore through the port of Two Harbors because of declining tonnage. Tonnage at Two Harbors had declined from 49 million tons in 1953 to 18 million in 1962. This is only another in a succession of events that indicate the rapid deterioration of Minnesota's iron ore industry.¹⁰

⁹Ibid., The Missabe Iron Ranger, December, 1957, pp. 24, 25, 49; April, 1958, pp. 5, 6, 7.

¹⁰Austin Daily Herald, Frank C. Miles publisher, January, 1963, p. 4.

With the announcement of the closing of the ore docks in Two Harbors, officials of the DM&IR said also that they would make every effort to obtain any other industry for the community. They said railroad facilities, buildings, equipment and trackage, would be available to any prospective industry.

The closing of the Two Harbors facility resulted from curtailment of Oliver Iron Mining Company operations on the Vermilion Range. The Oliver closed its underground Soudan mine at Tower, Minnesota, on December 15, 1962. Christian F. Beukema, Oliver President, said that changes in steelmaking had reduced demand for the natural ores mined at Soudan. Natural ores which require little processing and contain up to 51% of iron content, have been replaced by taconite ores, which originally are low grade but can be made into concentrates measuring up to 65% iron. In 1962 the United States Steel Corporation trimmed the price of its Mesabi Range natural ores by 80 cents a ton, other ore producers followed suit.

In November, 1962, Oliver Mining gave up a lease on an 80-acre natural ore reserve on which it had spent \$4 million in fees and taxes over many years without ever having mined the property.¹¹

¹¹The Wall Street Journal, January, 1963, p. 27.

Since 1884 the Duluth, Missabe and Iron Range and its predecessors, the Duluth and Iron Range and the Duluth, Missabe and Northern, have shipped over one and one-half billion tons of iron ore from the Vermilion and Missabe Iron Ranges. A statistical explanation has been worked out to give the reader some idea as to what a staggering figure $1\frac{1}{2}$ billion is.

Loaded into 70-ton ore cars, each car loaded to capacity, this ore would require 21,428, 571 ore cars.

Handled in trains of 180 ore cars, it would require some 119,048 trains.

These cars would occupy 97,402 miles of track for storage.

If run at the average speed of all freight trains in the United States during 1958 (19.2 mph, a/c 1959 edition of Railroad Facts, A.W.R.) these cars would take, if run continuously 24 hours per day past a given point, 2783 hours or 116 days.

Weighed on the ore scales at 3 mph, they would require running continuously 24 hours per day, 7 days per week, for 32,467 hours, or 1353 days, or 3.71 years. Stated in another way, if this weighing were started on April 1, 1959, at 7:00 a.m., November 15, and the same done each year, the final weighing of this ore would be completed when the last car passed over the scales at 7:00 p.m. on October 30, 1964, almost six complete seasons of $7\frac{1}{2}$ months each season, of continuous day and night weighing.

The 21,428,571 cars would encircle the earth at the equator four times, with no allowance for locomotives, cabooses or slack. 12

Beset with problems of declining ore tonnages, the Missabe continued its program of improving its facilities. It also began planning for a new future in tacomite.

¹²The Missabe Iron Ranger, July, 1959, p. 30.

The Mesabi Range is probably one of the most favorable sources of low grade iron ore in North America. In addition to the approximately one billion tons of high grade ore remaining, which will be largely depleted within the next twenty years, the Biwabik iron formation contains billions of tons of usable taconite ores.

The Biwabik iron formation outcrops along a belt 100 miles long, the direction of the outcrop roughly paralleling the north shore of Lake Superior. The formation is from 400 to 750 feet thick and dips from five to twelve degrees in a southerly direction. The dip determines the width of the outcrop under the capping of glacial overburden. The maximum width of the outcrop is about $3\frac{1}{2}$ miles. The formation ranges from about 15 to 40% iron content, the average iron content being approximately 22%.¹³

Taconite first achieved prominence during World War II when Edward W. Davis, head of the Mines Experimental Station of the University of Minnesota, publicized the rapid depletion of high grade ore reserves and called attention to taconite as a possible commercial source of iron ore. The methods of mining and beneficiating the taconite ores differ from those of natural ores.

¹³Havighurst, Walter, Vein of Iron, The Pickands Mather Story. World Publishing Co., Cleveland and New York, 1958, p. 204.

After the glacial overburden has been removed from the taconite deposits, the mining of taconite begins. The mining cycle includes drilling, blasting, loading and the hauling of the broken taconite to the processing facilities.

Because taconite is so hard and brittle, conventional drilling equipment is not adequate for drilling in taconite. A special process, jet piercing, was developed. The jet piercing process utilizes a mixture of oxygen and kerosene to produce a flame of from 4,300 to 4,500 degrees Fahrenheit to pierce the taconite rock. A spray of water embrittles the fine particles of rock generated by the jet piercing action and helps to carry them away.¹⁴

Pilot plants were set up for the purpose of testing the methods of beneficiating various types of taconite and semi-taconite.

One of these pilot plants was begun by the Oliver Iron Mining Company, a subsidiary of the U. S. Steel Corporation, in 1949. The Oliver drilled test holes until a mine site was chosen near Mountain Iron. In 1951, the company began development of a taconite mine

¹⁴The Taconite Project of Erie Mining Company. Reprinted from Excavating Engineering Magazine, May, 1957. Pp. 7-8.

and the construction of a pilot concentration plant near Mountain Iron. This plant was to have a capacity of 500,000 tons of pellets per year. The concentrate was to be shipped to the agglomerating plant located at Virginia. This plant the company called "Extaca."¹⁵

By the very nature of the taconite itself the cost of mining and processing is very high. However, there is another area of high cost that must be considered in the development of the taconite industry of Minnesota. That area is Taxes.

In 1941, the state legislature passed the first Taconite Tax Law. This law provides that all plants, equipment and active taconite mines are subject to a tonnage tax instead of property taxes. The tonnage tax rate is five cents per ton of taconite concentrate produced with an iron content of 55% or below. One-tenth of one cent of tax is added for each one percent of iron above 55%. Thus, a ton of taconite containing 60% iron would pay a tax of 5.5% per ton.

In 1959 the Minnesota Legislature passed the Semi-Taconite Tax Law, which provides for a tonnage tax in lieu of the general property tax on semi-taconite operations. The rate at which this tax is applied is the same as the tonnage tax on taconite operations.

¹⁵This is Pilotac. Oliver Iron Mining Division, U. S. Steel Corporation, 1955. Pp. 3, 5, 7, 8, 9.

Semi-taconite operations are taxed at the 14.25% rate for royalty and occupation tax purposes and the deductions allowed for labor credits in semi-taconite operations are the same as for natural ore operations.

As a result of the existing tax structure on taconite and its processing, many companies were reluctant to make any capital investments necessary to initiate taconite operations in Minnesota.¹⁶

In 1964 the state of Minnesota passed a taconite amendment to the state constitution. This amendment provides that the policy of taxation on taconite and semi-taconite, shall not be repealed, modified or amended, nor shall any law in conflict therewith, be valid for a period of 25 years after its adoption.¹⁷

In other words, the Legislature for a period of 25 years, will not be able to repeal, amend or modify the tax policy set forth in the statute, thus assuring the taconite industry that if it will establish and build plants in Minnesota, that it will not be compelled to carry a greater burden of taxes than other manufacturing corporations in Minnesota.

With the passing of the Taconite Amendment in 1964,

¹⁶McComb, James B., Iron Mining and Taxes in Minnesota. Macalaster College; St. Paul, Minnesota, 1963, pp. 12, 13, 14, 15-17.

¹⁷Laws of the State of Minnesota, 1963 Legislature.

other companies have become interested in the vast taconite deposits of the Minnesota Iron Range.

Since November 4, 1964, the United States Steel Corporation has been constructing a $4\frac{1}{2}$ million-ton capacity taconite plant near Mountain Iron, Minnesota. The plant was designed by Swindell-Dressler Corporation of Pittsburgh and Abe W. Mathews Engineering Company of Hibbing, Minnesota.

Crude taconite will be mined from U. S. Steel's present taconite mine two miles north of the Village of Mountain Iron. This mine includes properties owned by U. S. Steel plus those leased, principally from the State of Minnesota and Great Northern Iron Ore Properties. Development work to expand the mine to produce the 13,000,000 annual tons of crude taconite required by the new facility is under way.

Iron content of the crude taconite will run about 30%, generally in the form of the mineral magnetite.

The plant's production will be loaded in 100-car unitized trains and hauled by the Duluth, Missabe and Iron Range Railway to its Duluth ore loading docks. Facilities for stockpiling of pellets during the winter months when weather conditions make lake transportation impossible have been completed by the Missabe Railroad.¹⁸

¹⁸Fact Sheet, published by the U. S. Steel Corporation, Wolvin Building, Duluth, Minnesota, 1966, p. 1.

When the announcement was made that the U. S. Steel Corporation was to build the Minntac Plant, the D.M.&I.R. immediately began planning a storage facility to be located at the Duluth Ore Dock area.

The facility, called the Lakehead Storage Facility, is located on the east side of dock No. 6. It has a storage capacity of $2\frac{1}{4}$ million tons of taconite pellets. Conveyors can transfer pellets from dock pockets to a stacker boom which will distribute the pellets into stockpiles. During the navigation season, a bucket wheel will reclaim the pellets and conveyors will move the material to dock No. 6 for gravity loading into the ore carriers.

Further development of the facility awaits construction of other new taconite plants. However, in the storage facility area there is space to stockpile the winter production of 20 million tons a year.

This facility won a "Seven Wonders of Engineering" award from the Minnesota Society of Professional Engineers in 1966, recognizing outstanding engineering projects.¹⁹

Along with the shipping and stockpiling of the taconite pellets from the Mintac Plant at Mountain Iron,

¹⁹The Missabe Story, anniversary booklet published by DM&IR, Wolvin Building, Duluth, Minnesota, April, 1967, pp. 8, 9.

the Missabe will be handling the pellets of the Eveleth Taconite Plant "Etco".

The DM&IR has worked out detailed plans both for handling crude ore from the mine to the plant and for line haul of pellets to our docks in Duluth.

In its first stages, the plant will produce 1.6 million tons of pellets yearly, requiring delivery of some 4.8 million tons of crude ore from the mine site.

Handling the ten mile haul from the Thunderbird mine to the Fairlane plant will be two DM&IR crews going on and off duty at the mine site, handling 60 to 70 cars of crude ore from mine to plant twice each shift. Cars will be dumped into pockets without uncoupling and the train returned empty for reloading.

Meanwhile, unit trains of 100 cars, originating at the Duluth Docks, will proceed to the Fairlane plant and by means of loop track move under the pocket and load pellets, without uncoupling for return to the docks.

Such an agreement provides for an efficient operation both for Eveleth Taconite and the DM&IR.

There is no need for Etco to stockpile pellets during the off-season, because a spot is reserved for their wintertime production at the Lakehead Storage Facility along with those of the Minntac plant. Plans call

for winter storage of 660,000 tons of Etco production annually.²⁰

At the beginning of the 1960 ore season a new concept in traffic control was placed in service on the DM&IR at Iron Junction. The new Traffic Control Center affords a better control of the expanding Centralized Traffic Control System.

With this installation the DM&IR now enjoys one of the most modern installations in the entire United States covering a complete network of trackage extending from Wilpen on the Western end of Allen Junction and Mesaba on the Eastern end.

The Centralized Traffic Control System is divided into a number of control points or junctions and may consist of a single hold-out signal or a group of switches and signals, each assigned a number as well as a name.

To take control of a given location, the Dispatcher merely presses buttons in the location panel corresponding to the station number to be controlled and a light behind the station number on the track module lights up verifying his request. The various controls at the location can now be selected.

²⁰The Missabe Iron Ranger, published by DM&IR, Wolvin Building, Duluth, Minnesota, December, 1964, pp. 2-3.

Track indication lamps located in track diagram are normally dark but light up progressively as sections of track are occupied by trains. Switch and signal indication lamps are located on the track modules adjacent to the portion they control. They too, are normally dark. As a request is made for a switch or signal, an appropriate lamp on the module flashes and continues to do so, until the request is fulfilled. Field conditions permitting, the indication will become steady.

By means of automatic coding, actuated by pressing the "ST" or start button, the Dispatcher's requests are changed to a series of pulses which are transmitted to the desired field location over a single pair of conductors. Track side equipment automatically decodes the pulses and if conditions permit, the requested functions are carried out.

Numerous safety features are built into the new TCC machine. Along with the safety circuits built in at the field locations, machine circuit design also prevents a request or line-up if it is in conflict with one already set up. Portions of track can be protected by inserting blocking plugs in jacks provided on the indication panel. If, for example, the Dispatcher desires to provide protection for a motor car or maintenance personnel

performing work between tow control points, he can insert a blocking plug which prevents the clearing of signals over that portion of track. In like manner, a switch can be blocked to prevent inadvertant operation while being adjusted or repaired.²¹

One of the CTC's greatest advantages is the flexibility it affords the Dispatcher in his dispatching of trains. The Dispatcher's control is direct, without relying on other means of communications and each order is delivered to the train by signal indication at the point it is to be executed. It is a system in which train crews receive no written orders, but operate the train in accordance with signal indications. Signals may be considered as train orders since the Dispatcher is given remote control of the signals and switches.²²

This new Centralized Traffic Control System will greatly increase the efficiency and safety in the dispatching of ore trains, thus improving the movement of iron ore or taconite being expedited from the iron range to our docks in Duluth.

Another step in the improvement of transportation

²¹The Missabe Iron Ranger, The New Traffic Control Center, an article by S. Colpaert, Signal Engineer. Wolvin Building, Duluth, Minnesota, January, 1961, pp. 15, 16, 17.

²²Ibid., The Missabe Iron Ranger, January, 1961, pp. 15, 16, 17.

and transportation facilities on the DM&IR was taken when a high speed electronic recognition system capable of identifying railroad cars traveling at 100 miles an hour, day or night, in fog, blizzards and blinding rainstorms, was put into use for the first time in the United States by the Duluth, Missabe and Iron Range Railway, November 11, 1964.

The automatic car identification system (ACI) will identify and record data on 9,700 cars that haul iron ore and taconite agglomerates from the Iron Range to the Duluth ore docks.

Designed and built by the Sylvania Electronics System, the ACI will greatly increase the speed and efficiency of recording important data on all cars.

The relevant data is recorded on the sides of rolling stock by Scotchlite tape, manufactured by Minnesota Mining and Manufacturing Co. The tape is arranged in a variety of color combinations, each of which transmits certain information to an unmanned, weatherproof track-side scanner.

The scanner then transmits such information as the serial number of the car and its empty weight to data processing equipment in a scale house. As a loaded rail car passes over scales, the computer records the serial number of the car and by subtracting the empty weight

of the car from the loaded weight, automatically records the weight of iron ore in the car.

Special markings are used to identify locomotives and cabooses.

The system has been field tested for three years on the DM&IR and the Boston & Main Railroads, and is considered effective even when ice, snow or dirt on the reflectorized tape make the markings "unreadable" to the human eye.

The computer system transmits the data obtained from the ACI system to the shippers, Proctor sorting yards and the Duluth ore docks. At the sorting yards, cars are switched into trains, according to the grade and weight of ore, before being hauled to the ore docks.²³

It is hoped by the officials of the DM&IR that the system eventually will be used nationwide so that data on all cars can be sent to a central bureau which would be able to let a railroad know where all of its cars were located throughout the United States at any time.

In 1966 the DM&IR began a program of replacing existing rail on the Missabe Division southbound main line with heavier welded rail. Welded rail, with joints

²³Duluth Herald, Duluth News Tribune, November 12, 1964, pp. 1, 2, 3.

every quarter of a mile or 1320 feet, instead of every 39 feet, permits higher train speeds and causes less wear to both track and cars.

The members of the track department have indicated that they will be able to lay as much as 6,000 to 7,000 linear feet per day as compared to approximately 2,000 feet of bolted rail.

This "ribbon rail" will accomodate the faster train operation necessary to serve taconite plants on a scheduled, punctual basis.²⁴

With the opening of Minnesota Ore Operations' Minntac Plant at Mountain Iron, the Duluth, Missabe and Iron Range Railroad has come full-cycle from the Missabe's birth. On October 25, 1967, the first cars of pellets from the Minntac plant were moved over the Missabe - 75 years from the day car No. 342, loaded with iron ore, was spotted at Duluth's Union Depot.

This is where the DM&IR stands today, just entering the taconite era.

People of the DM&IR have transported more than 1.6 billion tons of iron ore from the Ranges since 1884, providing the essential link between the mines and the Great Lakes. They are proud of this history and these accomplishments, and, like their fathers and grandfathers, are excited by the new challenge of the future in Taconite.

²⁴The Missabe Iron Ranger, DM&IR, Wolvin Building, Duluth, Minnesota, October, 1966, p. 4.

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- Mr. Harry A. Smith, retired Chief Engineer, Duluth,
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- Mr. Joseph E. Daoust, retired Conductor, Duluth,
Missabe and Iron Range Railroad Company.
- Mr. Neil, A. C. Hanson, Editor, Missabe Iron Ranger,
Duluth, Missabe and Iron Range Railroad Company.
- Mr. Neil L. Hessen, Superintendent of Agencies, Duluth,
Missabe and Iron Range Railroad Company.
- Mrs. Mark H. Tibbetts, 1814 Lakeview Drive, Duluth,
Minnesota. Mrs. Tibbetts is the daughter
of Wm. A. McGonagle.
- Mr. Sam Owens, former Sheriff of St. Louis County.

DEPOSITORIES

- St. Louis County Historical Society, Duluth, Minnesota.
- Lake County Historical Society, Two Harbors, Minnesota.
- Minnesota State Historical Society, St. Paul, Minnesota.
- Duluth Public Library, Duluth, Minnesota.
- Library of the University of Minnesota, Duluth.
- The DM&IR Ry. Company files, Wolvin Building, Duluth,
Minnesota.
- The Law Office of Milan S. Balach, 628 1st American Bank
Building, Duluth, Minnesota.
- The St. Louis County Court House, Duluth, Minnesota.