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# A study of the “Iron Ridge” Mine: an excerpt from When Iron Was King in Dodge County, Wisconsin

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**A Study of the "Iron Ridge" Mine**  
**An Excerpt from**  
***When Iron Was King in Dodge County, Wisconsin***  
**(Frederick, 1993)**

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**601 River Court**  
**Theresa, Wisconsin 53091**

*Abstract:* Mining began at the Iron Ridge Mine (now commonly called Neda Mine) in 1849. The ore is relatively concentrated (nearly 55% iron by weight) and was easily mined initially because some deposits were surficial and of a loosely-cemented granular structure. In the 1850's Byron H. Kilbourn (twice mayor of Milwaukee) purchased most of the land surrounding a competitor's open pit mine, and in 1864 his own Swedes Iron Co. began underground mining. The period from 1850 to 1890 was a period of intense railroad construction in the United States, so there was a high demand for iron from this mine. Because of its hardness, this iron made some of the best rail in the country. Operating until 1914, the mine produced over 685,000 gross tons of ore. The primary reason that the mine closed, and never reopened, is that the ore has a high phosphorus content which renders it unsuitable in the production of steel. The abandoned Neda Mine, owned by the University of Wisconsin-Milwaukee since 1976, has become one of the largest bat hibernacula in Wisconsin.

### **Introduction**

The iron-producing region of eastern Dodge County, Wisconsin, was called the Mayville District by Crowell and Murray, in their various editions of *The Iron Ores of Lake Superior*, while the Lake Superior Iron Ore Association referred to it as the Mayville Range. The two major mines were the "Iron Ridge Mine" and the "Mayville Mine," but the *Mayville* combined two distinctly separate mine locations and types under one name. Two other sites of more limited mining activity were the "Paint Pit," and an unnamed mine which was located in Town Williamstown.

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## Iron Ridge Mine

The Iron Ridge Mine is located in the E ½ of the NW ¼, Section 13, T. 11N., R. 16E., (Town Hubbard), Dodge County, Wisconsin, just east of the village of Neda. It is sometimes called the "Oliver" Mine, because it was operated by the Oliver Iron Mining Company from 1902 to 1914.

This locality was originally known as Sterling's Mill, because of a steam saw mill and spring owned by Theodore B. Sterling at this site, as early as 1849. The Iron Ridge post office was established in 1849, and the site for Iron Ridge was platted here in 1853. In 1880, the growing village changed its name to Iron Mountain, though the railroad depot continued to be known as Nye Station. Neda, the current name for the village, was first used in 1911. The location should not be confused with present village of Iron Ridge which is about 1½ miles south of the original Iron Ridge.

The elevation at the highest point of the escarpment at the Iron Ridge Mine is approximately 1,070 feet (Mikulic, 1983, p. 8). Charles Whittlesey (1849, p. 449) was the first geologist to visit the area in 1849, and illustrated a section of the ore and cliff near Mr. Sterling's saw mill.

The Iron Ridge Mine consists of an open pit and an underground mine. Mining began here in 1849, when the Wisconsin Iron Co. [Mayville] opened an open pit on the NE ¼ of SW ¼ in Section 13: Town Hubbard, south of the present mine. The extent of their mining activity remains unknown, but the parcel was sold to Byron Kilbourn in 1853. Byron Kilbourn purchased the NE ¼ of NW ¼: Section 13 from Theodore Sterling in 1853, and in 1854 purchased the SE ¼ of NW ¼: Section 13 from Charles Woolson. The Swedes Iron Co., incorporated in 1854 by Kilbourn and others, did not begin operations at the Iron Ridge Mine until 1864, however. It is not known with any certainty if they opened the underground mine at this time, or were just engaged in open pit mining. Some evidence indicates that the underground mine may have been opened in 1869, when a new Wisconsin Iron Co. [Milwaukee] purchased the property from the Swedes Iron Co.

By 1885 the mine was under the control of the North Chicago Rolling Mill Co., and in 1889 this company became part of the new Illinois Steel Co. The Illinois Steel Co. continued to operate the Iron Ridge Mine,

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but in 1902, they contracted with the Oliver Iron Mining Co. from Minnesota, to assume operations at the mine. Oliver operated the Iron Ridge Mine until 1914, when it was closed for the last time. During Oliver's period of operation, ore was shipped via the C.M. & St. P. Railroad to Escanaba, Michigan, where it was loaded on boats for shipment to lower lake ports. Records of ore production from 1849 to 1914 are not complete, but an output of at least 684,734 gross tons can be documented. (See Table 1) There were many periods of inactivity at the Iron Ridge Mine, including closures in 1883, 1890-1893, and 1908. The entire thickness of the soft ore was mined in both operations. Rosenzweig (1951, p. 29) described the open pit at the foot of the Niagara escarpment, immediately east of the railroad track. Though now filled with dumps and mining waste, he determined that the pit measured about 600 feet long and 200 feet wide.

Underground mining was done here by a series of drifts, driven eastward from the east face of the open pit. The drifts were ten to fifteen feet wide, and as high as the thickness of the ore. Since the mine has not been used since 1914, many of the adits (horizontal entry tunnels from the surface into a mine) have either partially or totally collapsed. [There were at least eight adits at the Iron Ridge Mine.] The oldest adit is the southernmost exposure (Rosenzweig, 1951, p. 29). It lies in a deep valley, where the escarpment takes a sharp bend to the east. The newest adit, some 400 feet north of the open pit, became the new main entry to the Iron Ridge Mine in 1904.

The drifts in the Iron Ridge Mine are 60 to 100 feet apart, and crosscuts were worked perpendicular to the drifts about every 50 feet. The main tunnel extends some 750 feet east from the face of the cliff, and the last working area of the mine extends some 900 feet north of that point. The total extent of the mine, north to south, extends some 1,900 feet (Rosenzweig, 1951, p. 29). Some of the drifts in the mine still have their rails in place (see Figure 2).

Ore faces of up to twenty feet are visible underground in the Iron Ridge Mine. The upper two feet is thinner bedded than the remainder (Rosenzweig, 1951, p. 23). At the southernmost mine entrance, a layer of hard angular and subangular hematite pebbles, one millimeter to two centimeters in diameter, was found in a hematitic matrix. This hard ore layer is lenticular, varying from three inches to one foot in thickness.

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Figure 1 reproduces the earliest known map of the Iron Ridge Mine found by this researcher. It was prepared by the Oliver Iron Mining Co. in either January 1906 or 1908. [The date was too blurred on the copy which was found to permit a precise determination of the date.] Compare this map with Figure 2, which is a map of the Iron Ridge Mine made by a group of private individuals in 1968-1969. A look at either map shows the difference in underground mining techniques used at Iron Ridge. In the older [southern] part of the mine, tunnels meander haphazardly, probably having followed the softer and larger pockets of ore. In the newer [northern] half of the mine, a more defined system of drifts and crosscuts, laid out perpendicular to each other, was employed. This dramatic variation between the southern part of the mine and the northern part reflects the difference in then-current mining technologies being used by two different mining companies. The south part was developed between 1864 and the 1890's, while the north part was drifted after 1900. The Iron Company's map (Figure 1) did not include any detail in the oldest part of the mining area, but simply denotes the area as "mined out." The cartographers who made the 1968-1969 map (Figure 2) included tunnels in even the oldest part of the mine. On the old map, two cross-sections were drawn through the Iron Ridge Mine. Notice a line marked A - A' which runs from west to east, and B - B' which runs from south to north. Figure 3, also prepared by the Oliver Iron Mining Co. in either 1906 or 1908, shows these two cross-sections in profile. The second profile even shows the location of the air ventilation shaft. Its location can be found on the map shown in Figure 2.

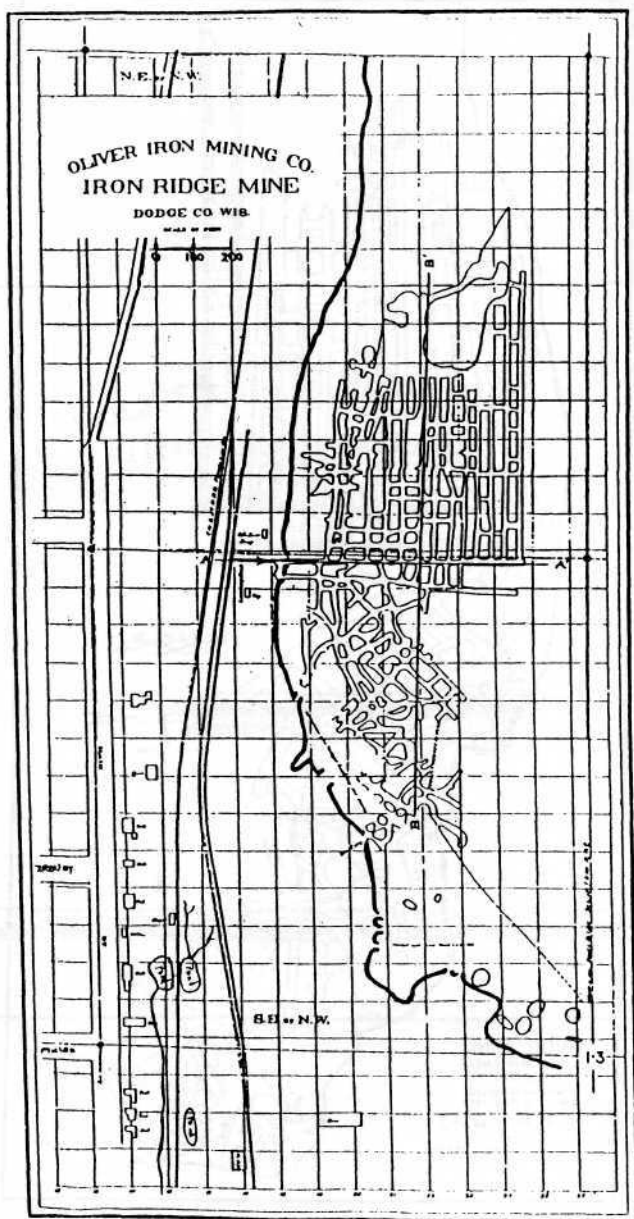


Figure 1. Map of the Iron Ridge Mine from Oliver Iron Mining Co.  
 (Based on the Oliver Company map prepared in 1906 or 1908, with some additions from  
 a 1918 C. M. & St. P. RR map).

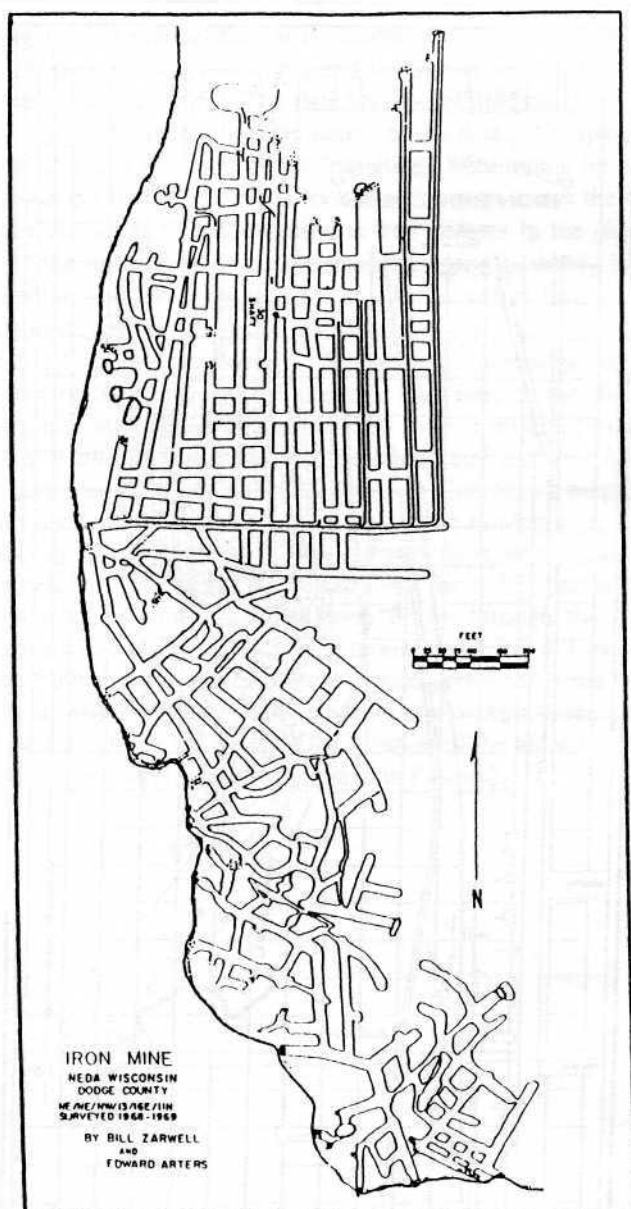


Figure 2. Map of the Iron Ridge Mine prepared in 1968-1969.

Note: The face of the escarpment on this map is only approximated. (Reprinted with minor changes by permission from Bill Zarwell and Edward Arters.)

Table 2. The following table shows the results of the analysis of the iron ore from the Iron Ridge Mine, Dodge Co., Wis. The analysis was made by the U. S. Geological Survey, Washington, D. C., in 1906 or 1908.

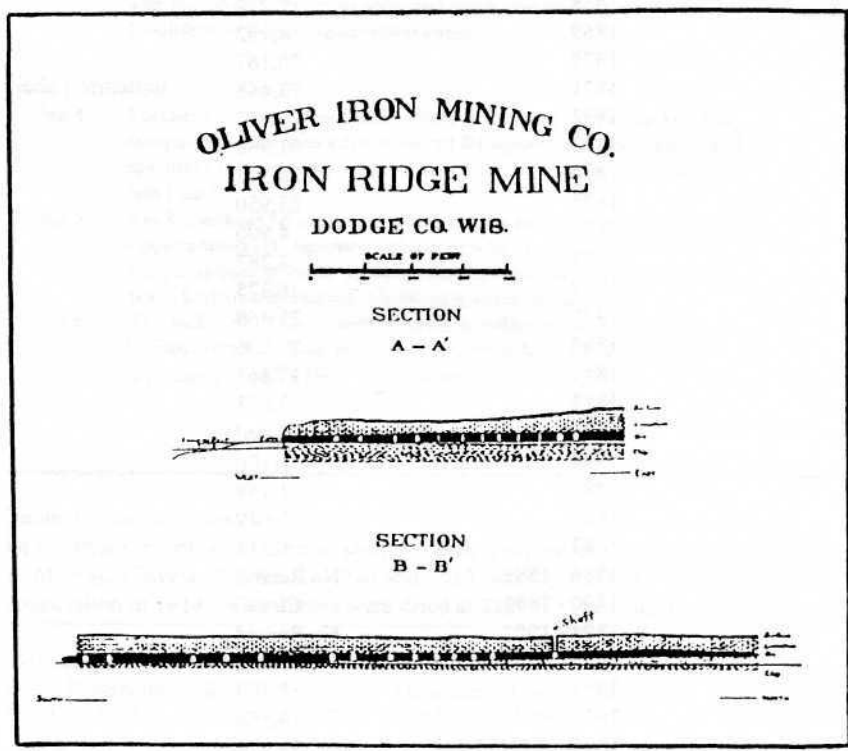


Figure 3. Cross-section Profiles of the Iron Ridge Mine  
(Based on a copy of the Company map prepared in 1906 or 1908).



Table 1. Iron Ore Production at Iron Ridge Mine.

Data Sources: 1864-1887 from Milwaukee Chamber of Commerce "*Trade & Commerce Reports*" [converted to gross tons]; 1902-1914 from Lake Superior Iron Ore Association (1938 edition) p. 280 "*Mine Shipments*"

<u>Year</u>	<u>Gross Tons</u>
1849 - 1863	No Record
1864	2,314
1865 - 1867	No Record
1868	2,312
1869	4,192
1870	70,167
1871	73,468
1872	76,112
1873	61,980
1874	28,512
1875	23,950
1876	4,900
1877	4,287
1878	6,375
1879	25,468
1880	20,836
1881	17,663
1882	7,603
1883	Closed
1884	3,100
1885	1,759
1886	5,649
1887	8,214
1888 - 1889	No Record
1890 - 1893	Closed
1894 - 1901	No Record
1902	6,881
1903	8,709
1904	19,558
1905	39,978
1906	61,624
1907	3,966
1908	Closed
1909	15,955
1910	14,487
1911	17,002
1912	19,284
1913	26,213
1914	2,216
<u>Total</u>	<u>684,734</u>

Table 2. The following section (from Mikulic, 1983, p. 12) was measured at one tunnel entrance to the Iron Ridge Mine.

### Mayville Dolomite

- Unit 1 10.5 feet (3.2 m) Vuggy, fine crystalline, grayish orange dolomite, weathering, granular texture.
- Unit 2 6 feet (1.8 m) Thin-bedded, rubbly-textured, fine crystalline, grayish orange dolomite with thin clay layers, patches of white chert at the top.
- Unit 3 15.5 feet (4.7 m) Very dense, fine crystalline, grayish orange dolomite with reworked ferruginous ooids and much iron staining at the base, fossiliferous. Very irregular lower contact.

### Neda Formation

- Unit 4 3 inches (7.6 cm) "Blue Band". Very dense, nonporous, blackish red, compact hematite with a few scattered ferruginous ooids and patches of specular hematite. Very irregular lower contacts which cuts down well into Unit 5.
- Unit 5 3 to 8.5 inches (7.6 to 21.6 cm) Dark reddish brown hematitic oolite. Upper portion is conglomeratic looking with clasts of hematite, oolite, and phosphatic nodules. Lower portion is oolitic hematite with some shale, horizontally bedded. Undulating lower contact.
- Unit 6 20.5 inches (0.52 m) Moderate brown hematitic oolite, well indurated, bedded, very little shale present. Base covered. Upper surface forms depression in which Unit 5 is deposited.

Table 3. Ore Analyses

Ore analyses reports were done on samples taken from the Iron Ridge Mine by Crowell & Murray, Cleveland, Ohio, in 1910 and 1913, and by the Lake Superior Iron Ore Association in 1914. All samples were dried at 212° F. The results were as follows:

#### 1910 Report: IOLS [1911]: p. 131

Iron	Phosphorus	Silica	Manganese	Aluminum	Lime	Magnesium	Sulfur	Loss
44.95%	1.68%	5.75%	0.17%	4.35%	7.48%	2.51%	0.062%	11.40%

#### 1913 Report: IOLS [1914]: p. 253

Iron	Phosphorus	Silica	Manganese	Aluminum	Lime	Magnesium	Sulfur	Loss
45.64%	1.62%	5.57%	NR	NR	NR	NR	NR	NR

NR = Not Recorded

#### 1914 Report: LSIO: p. 278

Condition	Iron	Phosphorus	Silica	Moisture
Dry	46.62%	1.40%	5.36%	-----
Natural	40.71%	1.22%	4.68%	12.67%

(Note: Since this mine closed in 1914, this was probably the last iron analyses done on ore from the Iron Ridge Mine.)

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## A Chronology of Events Relating to the Iron Ridge Mine

Compiled from selected entries in Part III: "Mining District News" from *When Iron was King in Dodge County, Wisconsin*.

1846 - 1847

Asahel Loop, Eli P. May, and Charles Woolson filed government entry claims for parcels of land which would become the Iron Ridge Mine. *ABS: #96653, #96648, #96649*

1848 - March 29

The iron ore in Dodge County was found to yield from 50 to 60% of pure iron, while Pennsylvania ore yielded only 30 to 40%. *FLJ 3/29/1848*

1848 - May 22

The Dodge County iron ore was reported to be hematite, of the variety known as granular brown oxide. Its appearance was that of very small flax seed agglutinated by a calcareous greasy paste of a deep brownish red color. There was a slight intermixture of hard concretionary hematite and also of "elites" [sic, for oolites] or "eagle stones." Professor Niles of Laporte, Indiana, had analyzed the ore at 55% of iron. *MS 5/24/1848*

1853 - May 27

Byron H. Kilbourn purchased 80 acres of mining land [E ½ of SW ¼] in Section 13 of Town Hubbard from the Wisconsin Iron Co. for the sum of \$5,000. *DEEDS Vol. O: #214* [Compiler's Note: This property had been the original land claim made by Eli May in 1847. It is assumed that this land now was sold because the surficial pocket of ore which was found to be lying against the escarpment there had been used up. Another reason may have been that because the Wisconsin Iron Co. furnace had not been operating for a period of two years, the Company had no need for the property. This author has found no conclusive proof for either assumption.]

1853 - May 31

Byron Kilbourn purchased 40 acres [NE ¼ of NW ¼] in Section 13 of Town Hubbard from Theodore B. Sterling for the sum of \$1,100. The deed was recorded on November 26, 1853. *DEEDS Vol. Q: #164* [CN: This land had been the claim of Asahel Loop made in 1846.]

1854 - March 30

The Swedes Iron Company was incorporated by Byron Kilbourn, along with Edward Hunter, Samuel L. Rose, James D. Reymert, and Charles E. Jenkins.

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Capital stock was set at \$600,000 divided into shares of \$100 each. The office or place of business was to be located in Iron Ridge, Wisconsin. The Company had the powers to prospect for iron ore; to mine, raise, and smelt iron ore; to cast, puddle, roll, and manufacture all kinds of iron and iron products. It could also construct any dams, canals, or waterways as would be required in the operation of an iron company, and could erect buildings, structures, and machinery necessary for operations. *P & L Laws 1854: CHP 249* [CN: The choice of *Swedes* for the Iron Company name may have had something to do with the fact that one of the founders and investors, James Reymert (1821-1896), was from Norway.]

#### 1854 - April 13

Negotiations were concluded for Byron Kilbourn's purchase of forty acres of land at Iron Ridge, for the sum of \$25,000. The seller was C. J. Woolson, of Cleveland, Ohio, who entered the land, at the government price of \$1.25 per acre, some eight or ten years ago. The sale was considered "a fair and handsome profit." The iron ore on the property was said to be so plentiful that it could be loaded into wagons "as easily as common earth." *MS 4/14/1854*

[CN: Charles Woolson must have been aware of the potential value of this piece of property to realize a sales price of \$25,000 for just forty acres. This land would be developed into the heart of the Iron Ridge Mine by the Swedes Iron Co. in the 1860's.]

#### 1857 - Fall

The Swedes Iron Company had made arrangements for the erection of furnaces and works for the manufacture of railroad iron [at Iron Ridge], "but the revulsion which took place in the fall of that year [Panic of 1857] deranged their plans, and the subsequent prostration of the iron interest throughout the whole country for several years, prevented their renewal." *HC:7*

#### 1863 - July 30

The Swedes Iron Company proposed to renew operations, to enlarge the number of stockholders, and "to take hold of its work with earnestness." The expense of mining the iron ore was estimated at 12.5¢ per ton. At this auspicious time, there was "an abundance of money, the prosperous condition of our iron manufacturing interests everywhere, and the obvious advantage of location" for the Swedes Iron Co. to do well. *MS 7/30/1863*

#### 1864 - [May 16 to June 25]

The Iron Ridge Mine was opened by the Swedes Iron Company during this six-week period. Employee rosters swelled from the original 16 men to 94 men. (See Figure 4.) *SWTB:2-8*

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1864 - [June to August]

The Swedes Iron Co. built four [sic: two] miles of railroad during the year, connecting the La Crosse & Milwaukee Railroad with their ore bed. "The only labor required in getting the ore, is that of loading it upon the cars, just as sand would be shoveled out of a sand heap. It is in fine particles like sand, and can be elevated by machinery and loaded into vessels in the same manner as grain." L. J. Higby & Son erected an elevator at the terminus of the La Crosse & Milwaukee Railroad, expressly for the purpose of transferring this ore from the cars into vessels, and had a contract with Swedes Iron Co. for transferring whatever ore they wanted to ship for a period of ten years. *T & C [1864]: p.36*

1864 - August 20

The Swedes Iron Co. shipped its first iron ore, loaded for transport to the port of Milwaukee. Some 620.35 net tons, equal to 553.4375 gross tons, valued at \$6.00 per gross ton, was destined for loading aboard the Schooner "*Wm. Young*." The total bill to H. B. Tuttle & Sons of Milwaukee was \$3,320.62. *SWJ:3*

1864 - Late Fall

By the close of navigation in the fall of 1864, 2,592 tons of ore had been transported by rail from Iron Ridge to Milwaukee, and 2,370 tons was then shipped to Cleveland and other lower lake ports by schooner. The ore was valued at \$6.00 to \$7.00 per ton. The Swedes Iron Co. had a contract with the La Crosse & Milwaukee Railroad to transport their ore, on terms they asserted, "that would enable them to make pig iron cheaper than could be made anywhere else in the United States. The chief characteristic of this iron, is its great hardness, giving it to some extent the qualities of steel, and when mixed in the proportion of three to one with the fibrous iron of Lake Superior, it makes an excellent quality of railroad iron." *T & C [1864]: p.36*

1864 - Summary

The Swedes Iron Co. paid a total of \$9,505.71 in wages to the employees listed in the Company's *Time Record & Payroll Book* for this first year of operations. *SWTB:1-26*

1864 - 1868

Between 1864 and 1868 the Swedes Iron Co. paid a total of \$51,258.15 in wages. The per day wages during the period ranged from 50¢ to \$5.25. Number of workers while the mine was open ranged from 12 to 96. *SWTB:1-138*

1869 - June 29

The Swedes Iron Co. of Iron Ridge sold all its real estate [about 1,100 acres] in Sections 1, 12, 13, and 16 in Town Hubbard and Section 36 in Town Williamstown, and all its improvements including the Iron Ridge Furnace and

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other buildings to the Milwaukee Iron Co., the North Chicago Rolling Mill Co. of Illinois, and the Wyandotte Rolling Mill Co. of Michigan, for the sum of \$500,000. Also transferred was all interest, estate, and property in and to the right-of-way of the railroad bed and track from the point of connection to the Milwaukee & St. Paul Railroad in the SW ¼ of Sec. 24 in Town Hubbard to the lands of the former Swedes Iron Co. The deed, signed by Cornelius S. Bushnell, president of Swedes Iron Co., was recorded on July 27, 1869.

*DEEDS Vol. 41:#848*

“The Iron Ridge iron mine was purchased, at what then appeared to be a fabulous price, being the largest real estate transfer every recorded in Dodge County.” *DCC 11/25/1869*

The quantity of iron ore in the beds purchased by the Milwaukee Iron Co., et. al., was estimated at 32,000,000 tons. *T & C [1869]:p.11*

1869 - July 1

The Wisconsin Iron Company was formed by the consolidation of the Milwaukee Iron Co., the North Chicago Rolling Mill Co. of Illinois, and the Wyandotte Rolling Mill Co. of Michigan, which companies had just purchased the former Swedes Iron Co., its property and blast furnace at Iron Ridge, and also an extensive tract of land in the city of Milwaukee. *DCG:93 & HDC:566*

When the Wisconsin Iron Co. obtained possession of the land at Iron Ridge, extensive mining was resorted to almost immediately, and the ore beds were developed to a considerable extent. *HDC:200*

1869 - November 15

It was reported that the Milwaukee Iron Co. had discovered a lode of solid iron ore on their property at Iron Ridge. “Before this stroke of fortune, the iron taken from their mines had been of the ‘flaxseed’ variety, which, in smelting, required a mixture of an ore of the quality just discovered.” *MS 11/15/1869*

1869 - November 25

“The new owners have discovered a load of solid iron, of most excellent quality. There is found beneath the shelving of thirty-four feet thick of solid limestone, an immense vein of iron ore in all its virgin purity, which covers at least four hundred acres, and from the edge of the ridge grows thicker as it goes in. In some places it was found to be sixteen and a half feet thick. Several assays made show that the ore as taken out contains *fifty-six per cent* of pure iron. The rock above covers the vein like a shelf, so that it is easy to drift in and remove the ore; and the grade is such that the drift will drain itself - making the work comparatively easy . . . This discovery is a ‘TEN STRIKE’ which the Milwaukee

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Iron Co. scarcely expected to make, but increases very much the value of their purchase, and gives them, without questions, the most valuable bed of iron ore in the world." *DCC 11/25/1869*

#### 1869 - Ore Production

A total of 4,695 tons of iron ore from Iron Ridge was received at Milwaukee during 1869, and 2,059 tons was shipped to Chicago, and Wyandotte, Michigan, by year's end. *T & C [1869]:p.72*

#### 1870 - May 12

The mines of the new Wisconsin Iron Co. were being worked vigorously with 200 tons of ore being taken out daily. "This amount could easily be increased to 1,000 tons per day, if the business demands it." The vein being worked was sixteen feet thick, and yielded 50,000 tons of ore per acre, or 40,000 tons of metallic iron. The Wisconsin Iron Company owned between 400 to 500 acres of ore land. "This bed of ore is worth millions to the city of Milwaukee and should add 30,000 people to the population in the next ten years." *MS 5/12/1870*

#### 1870 - Summary

The Milwaukee Iron Co. paid the sum of \$144,900 for labor at their mine at Iron Ridge. *MS 5/06/1871*

#### 1871 - Summary

The Wisconsin Iron Co., though composed, in part, of the same capitalists, was a separate organization from the Milwaukee Iron Co. The Wisconsin Iron Co. owned 140 railroad cars which were wholly employed in transporting iron ore from their mine at Iron Ridge to their ore-dock in Milwaukee. They also owned "one of the finest and most powerful locomotives in the state," which was used at the dock for running the cars up the trestle-work to unload into the ore pockets, of which there were twenty-six, each capable of holding 100 tons of ore. The ore was then run from the pockets to a vessel's hold by means of chutes. "The ore from the mine is very *cold short* and was used for neutralizing *red short* ore. The fine ore is especially adapted, and used to a great extent, for fixing of puddling furnaces. The pig iron made from this ore is also used as a neutralizer, and makes a very valuable mixture for railheads."

*T & C [1871]:p.22; MS 2/14/1872*

#### 1873 - Summary

"Old Iron Ridge, at that time [1870's] was a village that had about fifty houses, with a little pond in the center of town. There was a branch of the Chicago, Milwaukee, & St. Paul Railroad built to old Iron Ridge, from Iron Ridge Station which is about two miles southeast. Old Iron Ridge had two iron ore beds, one iron mine, one furnace, one paint mill, one lime kiln, one blacksmith shop, two



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stores, one tannery, five coal kills [sic], one boarding house and saloon, and one red school house. This was about half the town. The houses were one-story high and about eighteen by twenty-four foot floor, with no porch, and not painted. The inside was nearly all in one or two rooms. A house of this kind and one acre of land was worth about \$140. *OTM: 1,2*

“The upper ore bed was about a half mile [north] from town. This ore was [being] shipped to Milwaukee to the rolling mills and was made into railroad rails. The rails were small then; two men could carry a rail. This was hard cast iron and could not be used for welding. The two iron ore beds were a little above the level of the town and the ore was in a long ridge running from southwest to northeast for many miles. The top was level and the lower side was level land. There was about twelve feet of gravel on top, then came a layer of iron ore about twelve feet thick. The top gravel was loaded in wheelbarrows and wheeled to the dump on planks by men. In this way the ore was laid bare and then was blasted and put on railroad cars by little dump cars which were hauled by a mule on a wooden track. The kernels of this ore were nearly all the size of No. 6 shot pressed flat and then cemented together with the iron oxide which was nearly half of the ore. In the upper ore bed there were about twelve men at work. *OTM:2,3*

“The lower ore bed was about the same, and was worked the same, but this ore was dumped in the smelting oven [the Iron Ridge Furnace] together with about six parts of charcoal which was made in the coal kills [sic]. The iron ore when melted was drawn out of the bottom pot into sand molds of about four inches square and then cut into three-foot lengths while [still] soft. This was called pig iron. It was also shipped to Milwaukee. The wood for the charcoal was cut in the winter when the ore beds could not be worked. At the lower ore bed and furnace there were about twenty men at work. The furnace was about in the center of town. *OTM:3*

“The iron ore [Iron Ridge] mine (see Figure 4) was not far from the furnace. Mining was done here because the top covering was limestone. This mine employed about ten men and one mule to pull the small dump cars out of the shaft which ran about level into the ridge. This mine was timbered out as fast as the ore was taken away, but, about forty rods from the mouth, it had caved in. While father worked at the lower ore bed, in about the year 1869, he had the misfortune to break his leg [while] blasting the ore with [blasting] powder. Dynamite was not made in those days. A piece of ore hit his leg below the knee and broke it. Part of the time he worked at the upper ore bed and part of the time at the lower ore bed. At other times, he did the lime burning.” *OTM:3,4*



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[CN: These paragraphs were excerpts from the personal memoirs of Charles Menzel who was born November 16, 1865. His parents lived in Iron Ridge (later called Iron Mountain and Neda) for a quite a number of years.]

The cost of mining ore in 1873 was from 50¢ to 75¢ per ton, but this was decreasing as the iron company improved its machinery. The value of the ore, delivered on railroad cars, was from \$1.50 to \$2.00 per ton. The average cost of charcoal for fuel was 11.5¢ per bushel. The average furnace yield of metal from the iron ore was 45%. *GW[II]:332 & HDC:314*

1873 - September

The Panic of 1873 began to prostrate the iron industry, and the Wisconsin Iron Co. did little for a period of six years. *HDC:567*

1879 - Fall

Active operations were resumed by Wisconsin Iron Co. on a large scale. Payroll for help amounted to over \$3,000 per month, and the Company paid upward of \$30,000 per year for wood. *HDC: 567*

1880 - May 31

The Wisconsin Iron Co. reported the Iron Ridge Mine and Iron Ridge Furnace were operating with an average of 100 employees, although a maximum of 200 workers had been employed at some point during the past year [June 1, 1879 - May 31, 1880]. Employees labored for a ten-hour day with the average worker receiving \$1.00 per day and skilled laborers receiving \$2.75 per day. During the last twelve months of operation, \$30,000 had been paid in total wages. The iron ore produced by the Iron Ridge Mine [tonnage not reported] was valued at \$80,000 and the pig iron produced by the furnace [tonnage not reported] was valued at \$120,000. The furnace was now powered with two boilers and three steam engines, with a total of 500 HP. *CEN:1880 - Schedule 3*

1892 - Summary

The Iron Ridge Mine was closed. *WBB [1964]: p.200* [CN: George F. Hanson, state geologist, stated in his 1964 report that the Iron Ridge Mine was closed from 1892 until 1896. Analysis of tax assessment rolls, particularly personal property inventories, suggest that the Iron Ridge Mine may have closed as early as 1890.]

1893 - August 10

A part of the iron mine at Iron Mountain collapsed, dropping a twenty-foot by forty-foot section. Fortunately no one was in the mine at the time.

*DCP 8/10/1893* [CN: This probably happened at the Iron Ridge Mine. It gives the impression that a part of a tunnel collapsed, and the Mayville Mine, being an

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open pit mine, did not have tunnels. Also, since the Iron Ridge Mine was closed anyway, it explains why no one was in the mine at the time.]

1894 - March 29

The iron mine at Iron Mountain was again in full operation. *DCP 3/29/1894*

1894 - December 13

Many miners were said to be leaving Iron Mountain due to lack of work.

*DCP 12/13/1894* [CN: The mining boom must have faded rather quickly.]

1897 - December 7

William Meyer, age 51, was fatally injured while working in the Illinois Steel Co. iron mine at Iron Mountain where he had been employed for the last sixteen years. *DCP 12/07/1897* [CN: This is the earliest known fatality to have occurred in the local iron mines, at least that this researcher has been able to discover.]

1898 - June 31

Because of a strike at the Bay View steel mill, the iron mine at Iron Mountain was idled until further notice. *DCP 6/31/1898*

1898 - July 29

The mine at Iron Mountain was again in operation with twenty miners employed. *DCP 7/29/1898*

1900 - February 2

The Illinois Steel Co. mine at Iron Mountain was closed temporarily while repairs were being made to the blast furnaces at the Bay View steel mill.

*DCP 2/02/1900*

1900 - March 19

Work was resumed in the ore mine of the Illinois Steel Co. at Iron Mountain. *DCP 3/20/1900*

1900 - April 6

Robert Pupahl, age 27, died of injuries he received while working in the Illinois Steel Co. mine at Iron Mountain. *DCP 4/13/1900*

1900 - May 18

The mines at Iron Mountain were working only about half of the time, and it looked like they might shut down soon. *HR 5/18/1900*

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1900 - July 13

Twenty iron miners and twenty-five limestone quarry workers of the Illinois Steel Co. went on strike, partly due to some mistreatment by Capt. Cundy. The men were asking for better lighting conditions, improved removal of water seepage, and a reduction in the number of dumps of ore they must provide daily. At the time, miners were paid \$1.50 per day. Every four men were required to complete nineteen dumps per day, and the men wanted this cut to seventeen dumps for the same pay. Since the nineteen dumps were equal to 40 tons of ore, each worker had to produce ten tons for his \$1.50. *DCP 7/17/1900*

[CN: A "dump" meant an ore car loaded full of iron ore. Each carload held about two tons.]

"The miners did not gain their point! The boys got a little unruly and marched up and down the streets with guns on their shoulders and a red flag at the head." The consequence of the demonstration was that the mine and the ore beds were all shut down. *HR 7/20/1900*

1900 - November 16

The Illinois Steel Co. mine at Iron Mountain opened up again with about twenty men working. *HR 11/16/1900*

1900 - December 12

There was "quite a little excitement" in Iron Mountain. The trouble was over the cutting of wages of the men working in the mines from \$1.50 to \$1.25 per day. The men refused to work for less than \$1.50, and the company was forced to give in to them. They all went back to work the next day. *HR 12/14/1900 & DCP 12/14/1900*

1901 - February 15

Last week the roof of one of the mines [one of the drifts in the Iron Ridge Mine] caved in burying Albert Fuhrman. He was not seriously injured, however. *HR 2/15/1901*

1902 - April 11

A special train brought the executives of the Oliver Iron Mining Company from Duluth, Minnesota, to Iron Mountain, Wisconsin, where they inspected the Company's iron ore mine. *DCP 4/11/1902* [CN: At an unknown date, obviously prior to April 11, 1902, the Illinois Steel Co. contracted with the Oliver Iron Mining Co. of Minnesota, for Oliver to assume operating control of the Iron Ridge Mine. If the Town Hubbard tax rolls can be considered accurate (noting some past errors), then the Oliver Iron Mining Co. held such contract from 1902 through 1935. According to those Hubbard tax rolls, the land ownership reverted to the Illinois Steel Co. in 1936.]

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1902 - July 28

The Iron Mountain ore mines opened up with ten men, after laying idle for four months. *HR 8/01/1902* [CN: It is presumed that with this announcement the Oliver Iron Mining Co. began operation of the Iron Ridge Mine.]

1902 - November

A record high number of fifty miners were employed at the Iron Ridge Mine, twenty-nine workdays were recorded, and the total monthly payroll was \$1,534.65. Wages for the miners averaged \$1.65 per day, but the mule boy got only 30¢ per day. Foreman Cundy received \$80 for the month. *OPB: 15, 16*

1903 - [May-August]

The Iron Ridge Mine was closed during this four-month period. *OPB:27-30*

1903 - September 25

Miners resumed their work in the Iron Mountain mine. *HR 9/25/1903*

1903 - December 16

The ore mine at Iron Mountain closed down. *HR 12/18/1903*

1904 - [January-June]

The Iron Ridge Mine was closed during this six-month period. *OPB:35-40*

1904 - July

The Iron Ridge Mine reopened [after a shut-down of 6.5 months] with a work force of nine men. *OPB:41*

1904 - September

The Oliver Iron Mining Co. opened a new main entry for the Iron Ridge Mine. It was located farther north along the west face of the ledge, close to the north spring, and thus, closer to the railroad tracks. (See Figures 6 and 7.)

*OIMC MAP: 1/07/1913*

1904 - November 18

There was a mining "boom" in Iron Mountain! The mines were flourishing as shipments had increased to fifteen carloads of ore per day. Good wages were being paid, averaging \$3.00 per day. *HR 11/18/1904* [CN: The local press had inflated the wage rate to \$3.00 per day, when actually the highest wage paid at the Iron Ridge Mine during November was \$2.75 per day.]

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1905 - February 24

The *Oliver Mine* was "running at full blast." Superintendent Hiram J. Cundy said more men were wanted as laborers and more material was required. Shipments were amounting to 5,000 tons per month.

*HR 2/24/1905 & DCP 2/28/1905* [CN: After 1902, the name *Oliver* was often used in place of *Iron Ridge* when referring to the mine at Iron Mountain since the Oliver Iron Mining Co. was operating the local mine.]

1905 - May 8

The Illinois Steel Co., a corporation under the laws of Illinois, purchased all the remaining rights, title, and interest in certain real estate located in Sections 1, 12, 13, and 16 of Town Hubbard and Section 36 of Town Williamstown from John H. Tweedy, Jr. and Howard Greene, trustees, for the sum of \$50,000. The trustees and the parties represented under agreements of January 21, 1881, and March 31, 1881, hereby surrendered all claims forever. Also purchased was a certain mining contract, dated March 8, 1881, between the North Chicago Rolling Milling Co. and Charles F. Ilsley and Henry H. Button. It was agreed that all lands, iron ore, and tenements and appurtenances conveyed by the contract were free and clear of all encumbrances made by them or by their predecessors in the trust. The deed was recorded on May 10, 1905. *DEEDS Vol. 134: p. 543*

[CN: With this purchase the Illinois Steel Company secured for itself 100% ownership and control of all real estate, the Iron Ridge Mine, and the Iron Mountain (formerly Iron Ridge) Furnace.]

1905 - May 9

Only eight miners were still working at the mines in Iron Mountain due to the drop in demand for iron ore. *DCP 5/09/1905*

1905 - December 11

A fire broke out on the property of the Oliver Iron Mining Co. at Iron Mountain. Fifty sticks of exploding dynamite made things quite lively at the mine, totally destroying the dry shed. The origin of the blaze was unknown, but it was discovered by one of the men who escaped just in time as the dynamite exploded. Dynamite was regularly kept in the dry shed where it was ready for use in the mine. The local fire department seemed rather slow; and although the loss was not very great, the men would miss their coats and caps in the winter weather. *HR 12/15/1905*

1905 - December 15

A "race war" broke out in Iron Mountain. Croat miners celebrated pay day in a free-for-all fight with a crowd of Germans. It seemed that the Croats "started to get a corner on all the bug juice in town" and attacked a crowd of Germans who were singing patriotic songs. Warrants were sworn out against Janko Dyekish

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and L. Leulish who were sentenced to sixty days in jail to sober up. After a week in jail, they paid fines of \$27 each as "the price for breathing free air once more." *HR 12/22/1905*

1906 - February 9

The *Oliver Mine* was beating all previous records in shipping ore; and wages were high under the management of superintendent Hiram J. Cundy.

*HR 2/09/1906*

1906 - April 27

Thirty employees of the *Oliver Iron Mining Co.* went on strike for higher wages. They were receiving 35¢ for a "dump" of iron ore and the men wanted 40¢.

*DCP 4/27/1906*

1906 - Summary

The *Oliver Iron Mining Co.* topped all previous production records when the *Iron Ridge Mine* produced 61,624 gross tons of iron ore during the year. *LSIO:280*

1907 - January

Twenty-six miners worked only four days before the *Iron Ridge Mine* was closed down. *OPB:74* [CN: This shut-down lasted until March 1909 when mining resumed, after twenty-five months of inactivity. It is assumed that the mine closed because there was little demand for iron ore, due to low prices in the pig iron market.]

1908 - Summary

The *Iron Ridge Mine* of *Oliver Iron Mining Co.* remained closed during the year, with no production of iron ore. *LSIO:280*

1909 - March 2

After being closed down for just over two years, work was resumed in the *Iron Ridge Mine*. *MN 3/09/1909 & HR 3/12/1909*

1909 - May

After just seventeen workdays during the month, the *Iron Ridge Mine* closed down once again. The monthly payroll for the six men employed was \$179.94. Wages ranged from \$2.00 to \$2.48 per day. *OPB:88* [CN: The *Iron Ridge Mine* remained closed during June, July, and August 1909.]

1909 - September 3

The *Oliver Iron Mining Co.* opened up the *Iron Ridge Mine* in *Iron Mountain* after having been idle [during summer months]. *HR 9/03/1909*

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1909 - Summary

The Iron Ridge Mine, reopened after a two-year shut-down, produced 15,955 gross tons of iron ore. *LSIO:280*

1910 - [January - March]

The Iron Ridge Mine was closed down during this three-month period.  
(See Figure 11.) *OPB:96*

1910 - October 6

The Oliver Iron Mining Co. boarding house in Iron Mountain burned to the ground. It was empty at the time since Ed Wendorf and his family had just moved out the previous day. *MN 10/06/1910*

1910 - [November - December]

After working steadily for seven months, the Iron Ridge Mine closed down again. *OPB:103,104* [CN: This shut-down would continue for five months.]

1911 - [January - March]

The Iron Ridge Mine remained closed. *OPB:103,104*

1911 - April 1

Hiram J. Cundy, supt. of the Iron Ridge Mine, received orders to resume operations at the mine and to ship 100 tons daily to the Illinois Steel Company's Bay View works at Milwaukee. *MN 4/06/1911*

1911 - [November - December]

The Iron Ridge Mine closed down once again after having been in operation for seven months. *OPB:111,112*

1912 - May

A crew of ten men reopened the Iron Ridge Mine, logging nineteen workdays. *OPB:113*

1913 - December

The Iron Ridge Mine closed down again, after operating for nineteen consecutive months. *OPB:131* [CN: This shut-down would last four months.]

1914 - April

Work was resumed at the Iron Ridge Mine by a work force of only eight men, who logged a total of twelve workdays during the month. *OPB:132*



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#### 1914 - June

This was the last month for any mining activity at the Iron Ridge Mine by the Oliver Iron Mining Co. A work force of only seven men [Harry Cundy, William Brandenburg, William Treloar, Paul Kodai, Ed Wendorf, Mike Pokrajac, and William Treloar, Jr.] logged eighteen workdays during the month. The monthly payroll amounted to \$208.00, with wages ranging from \$2.00 to \$2.50 per day. There were seven doctor calls during the month, costing \$6.30. *OPB:134*

[CN: There was no report of the mine's closing in local newspapers at this time.]

#### 1914 - October 8

"The iron mines of the Oliver Iron Mining Co. at Neda are closed down for the time being." *MN 10/08/1914* [CN: The mine had been closed since June (without newspaper coverage), and never did reopen again. The era of iron mining at Iron Ridge (aka Iron Mountain, Nye, and Neda), had come to an end! The Iron Ridge Mine had been first opened in 1864 by the Swedes Iron Co. Subsequently, the mine was operated by the Wisconsin Iron Co., the North Chicago Rolling Mill Co., the Illinois Steel Co., and finally, under operating contract, by the Oliver Iron Mining Co.]

#### 1914 - Summary

The Iron Ridge Mine produced only 2,216 gross tons of iron ore, during its final year of operation. *LSIO:280*

#### 1902-1915

Under operation of the Oliver Iron Mining Co. during this 159 month period, the Iron Ridge Mine was open during 85 months and closed during the other 74 months. The per day wages during this time ranged from \$1.65 to \$3.77. The company's total payroll exceeded \$63,000. *OPB:1-134*

#### 1938 - October 20

The Illinois Steel Co. sold all of its mining land holdings in Dodge County, Wisconsin, to the Oliver Iron Mining Company, a Minnesota corporation, for the sum of \$10.00 and other good and valuable considerations. A total of 1,069.1 acres of land was transferred to the Oliver Co., subject to paying the taxes for 1938. The warranty deed was signed by G.C. Kimball, president of the Illinois Steel Co., and E.B. Harkness, secretary. This deed was issued to confirm a deed of February 1, 1938, between the same parties [but apparently never recorded]. The new document was recorded in Dodge County, Wisconsin on December 9, 1938. *DEEDS Vol. 213:p.577* [CN: The Illinois Steel Co. was owner of this mining land from its incorporation in 1889, and operated the Iron Ridge Mine until 1902. At that time it turned over operating control to the Oliver Iron Mining Co. (under a contract which lasted through 1935). Tax liability for the property reverted to the Illinois Co. beginning in 1936.]



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1951 - December 31

The agreement of merger between the Oliver Iron Mining Co. and the United States Steel Co., dated December 7, 1951, was filed in Wisconsin. It transferred all property, rights, privileges, powers, and franchises in Dodge County to the United States Steel Co. by quit-claim deed. The document was signed by R.T. Elstad, president of the Oliver Iron Mining Co., and A.R. Morton, secretary. It was recorded in Dodge County, on April 16, 1952. *DEEDS Vol. 275:p.495*

1952 - December 31

A quit-claim deed transferred all of the mining land property in Dodge County, Wisconsin, from the United State Steel Company to the United State Steel Corporation. The deed was signed by W.A. Walker, vice president of the United States Steel Co., and N. Mulling, assistant secretary. It was recorded in Dodge County, Wisconsin, on February 24, 1953. *DEEDS Vol. 280:p.51*

1966 - January 1

The joint agreement of merger of the United States Steel Corporation [the New Jersey corporation], with and into the United States Steel Company [the Delaware corporation], and the surviving corporation to be known as the United States Steel Corporation became official, as the document was received and filed in the office of the Secretary of State in Delaware. The document was recorded in Dodge County, Wisconsin, on February 24, 1966, in *O & C Vol. 15: p.34. FILE: U378* [CN: All of the mining land of the former Oliver Iron Mining Co. in Dodge County, located in towns Hubbard and Williamstown, now had been legally transferred to the United States Steel Corporation of Delaware.]

1976 - May 19

The United States Steel Corporation of Pittsburgh, Pennsylvania, granted three parcels of land as a gift and donation to the Board of Regents of the University of Wisconsin-Milwaukee: Parcel 1 - 30.15 acres [part of the SW ¼ of SW ¼] in Section 36 of Town Williamstown; Parcel 2 - 36.75 acres [part of the NW ¼ of NW ¼] in Section 1 of Town Hubbard; and Parcel 3 - 47 acres [part of the E ½ of NW ¼ and NE ¼ of SW ¼] in Section 13 of Town Hubbard. The deed of transfer was signed by W.H. Lang, vice president of United States Steel Corp., and Dorothy A. Servis, assistant secretary. It was recorded in Dodge County, on June 22, 1976. *DEEDS Vol. 464:p.150*. [CN: The third parcel in this donation included the old Iron Ridge Mine. Effective this day, the Iron Ridge mining district was no longer owned by a mining company or a steel company! The other last remaining piece of land owned by the U.S. Steel Corp. was also sold on this same date to a private individual.]

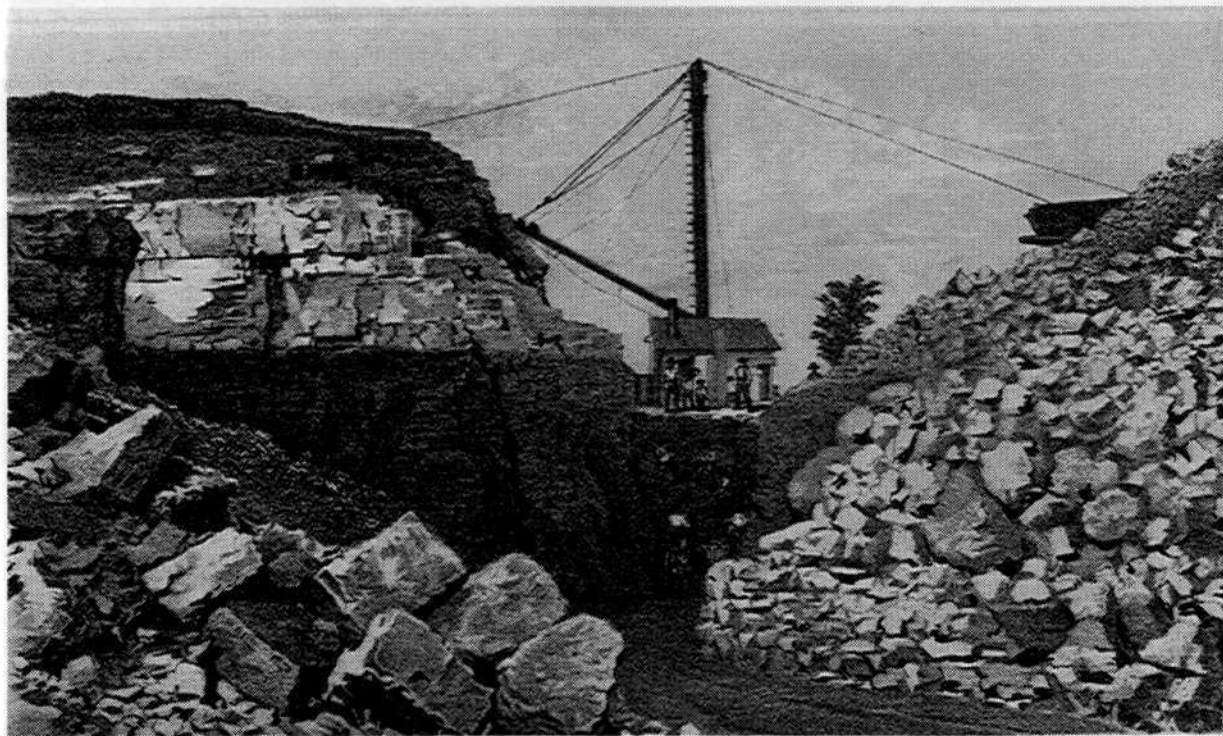


Figure 4. The Iron Ridge Mine - Circa 1873.

This mine was located at [Old] Iron Ridge, now Neda, Wisconsin. In 1849, mining began here as an open pit operation as this old sketch shows. A total of at least 684,734 tons of ore was removed from the Iron Ridge Mine between 1849 and 1914.



Figure 5. Old Entry to the Iron Ridge Mine - Circa 1904.

This was the main entry to the mine up to September 1904, when the new entry (Figure 7) was opened.



Figure 6. Oliver Iron Co. Miners Dig New Entry - 1904.

The Iron Company decided that a new entry was needed for the Iron Ridge Mine in 1904. It would be located north of the old entry, and on the west face of the ledge which was much closer to the railroad track than the old entry.

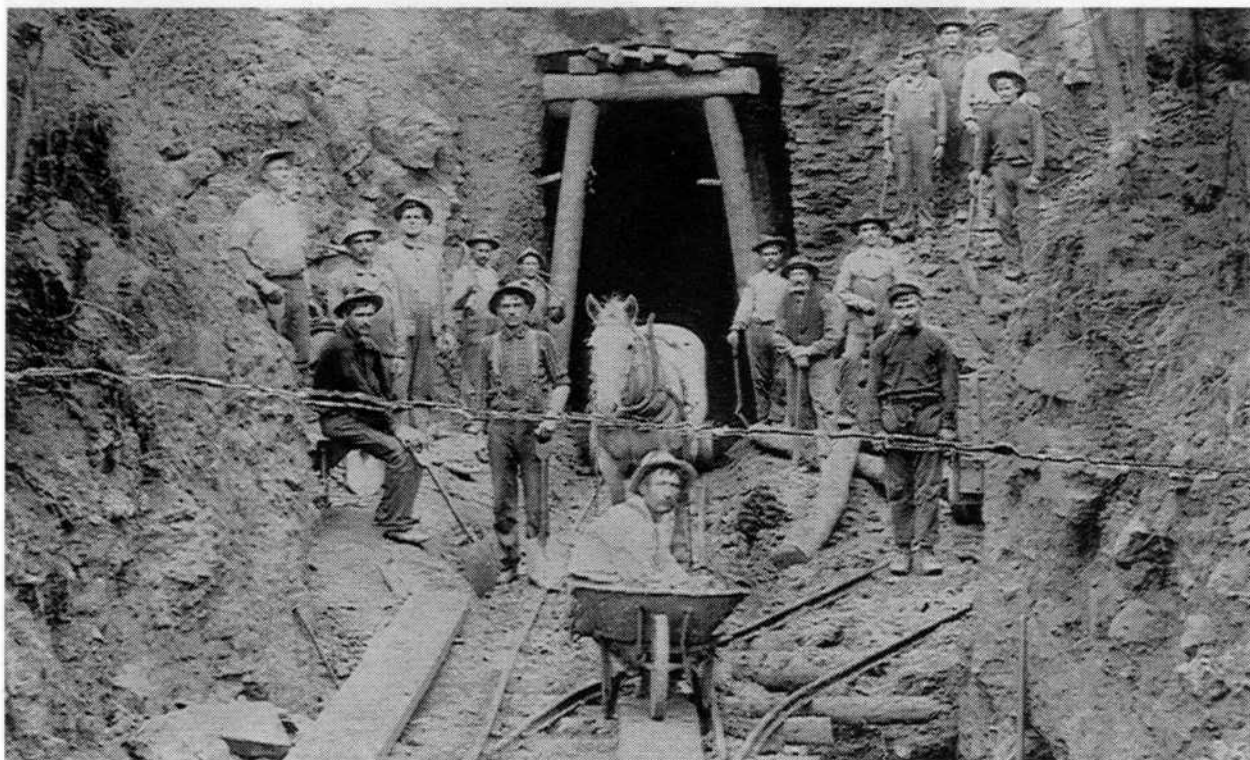


Figure 7. New Main Entry to Iron Ridge Mine - After September 1904.  
This was the new main entry completed by September 1904, and used until the mine closed in 1914.



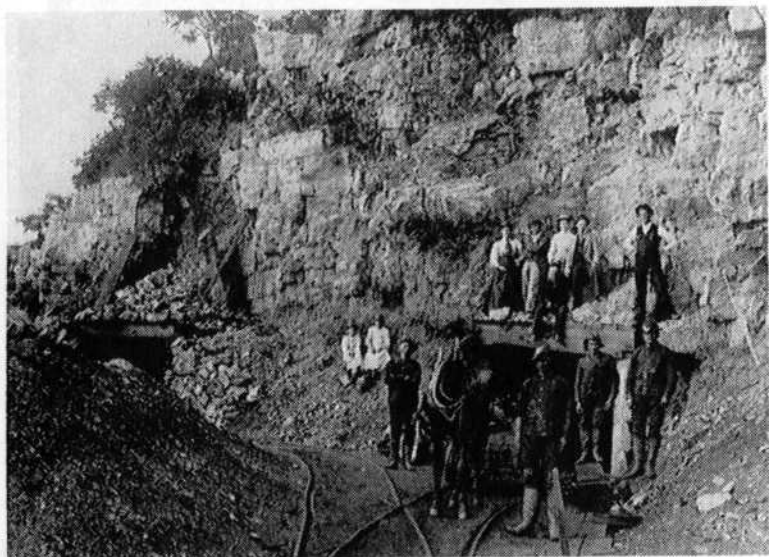


Figure 8. Visiting Day at the Iron Ridge Mine - Circa 1904.  
Visitors, dressed in their Sunday best, contrast with the rough garb of the miners.

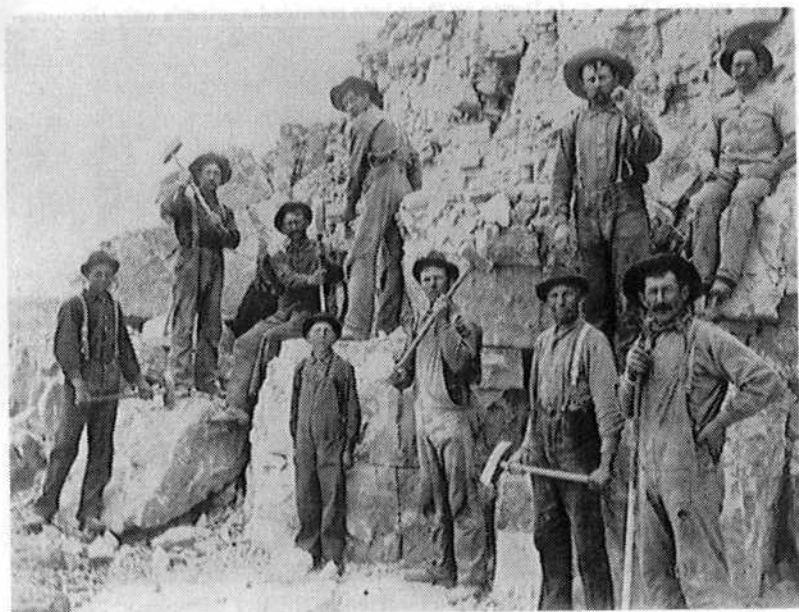


Figure 9. Miners with their Hammers and Rock Drills - Circa 1910.

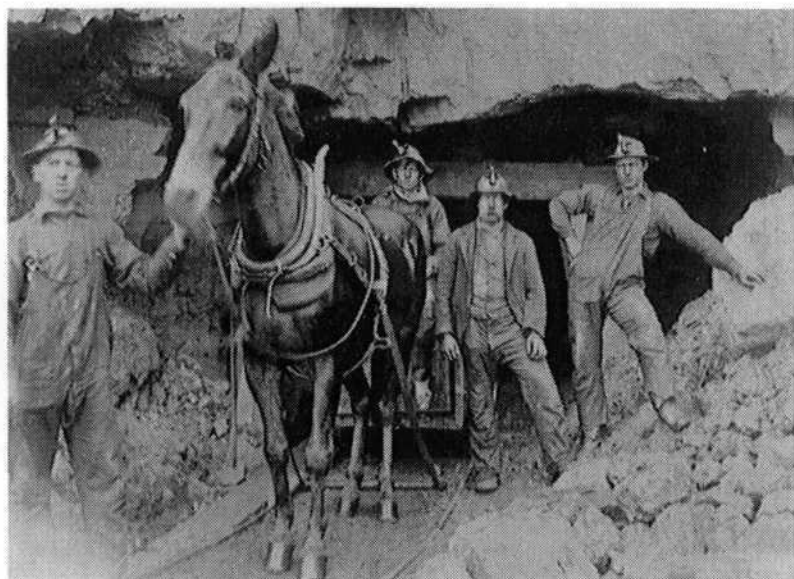


Figure 10. Four Miners Emerge from the Iron Ridge Mine - Circa 1910. Miners walk along side of their trustworthy mule as he pulls a carload of iron ore out of the mine. The carbide lamps on their hats provided a miner's only illumination while he worked in the mine.



Figure 11. Iron Ridge Mine - Circa 1910. This is the limestone escarpment that forms the west face of the Iron Ridge Mine, at Iron Ridge [Neda], Wisconsin.

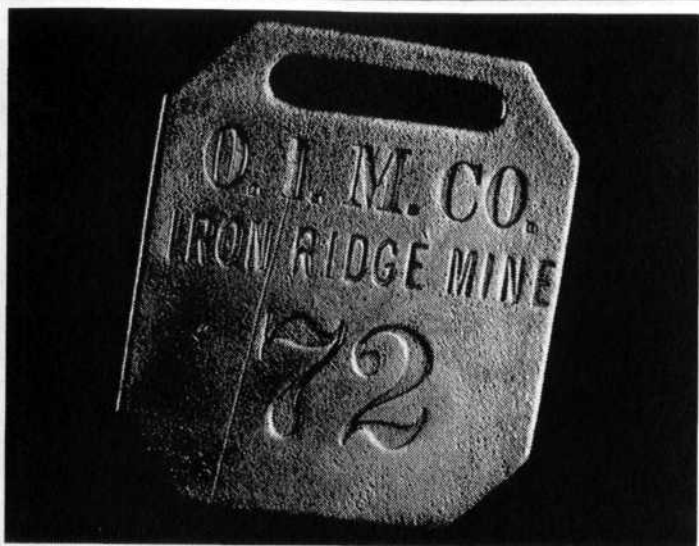


Figure 12. An Oliver Iron Mining Co. miner's ID tag. - 1990.  
Each mine worker carried his own numbered brass tag, much like today's employee identification badges.

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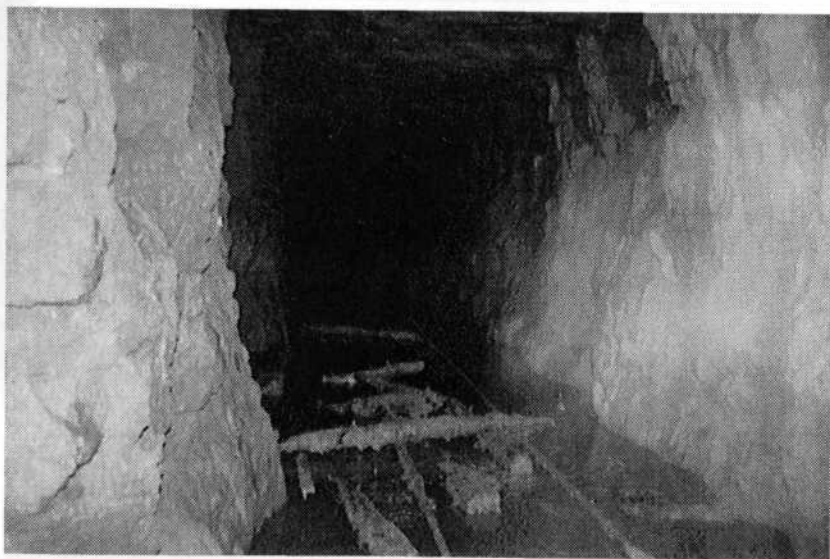


Figure 13. Inside the Iron Ridge Mine - Late 1960's.  
One of the many drifts in the mine, this one still has rails in place.

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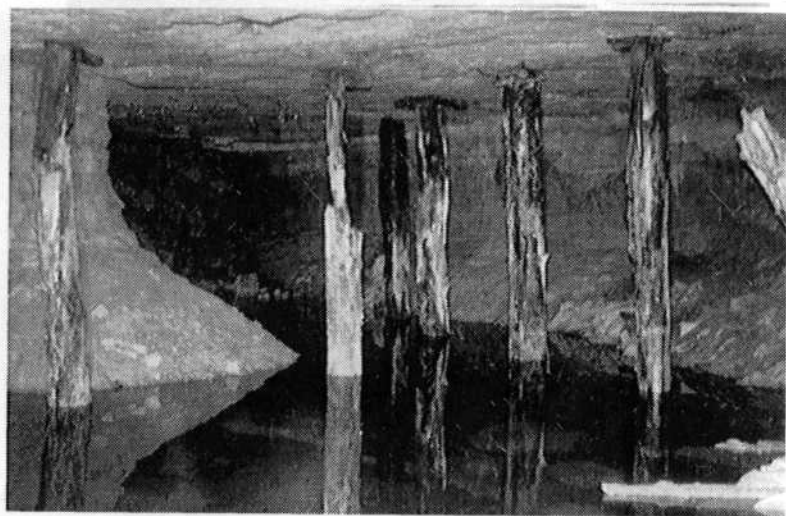


Figure 14. Inside the Iron Ridge Mine - Late 1960's.  
This drift, partly filled with water, is typical of the southeastern part of the mine. Timbers are badly decaying, after being in place for over ninety years without replacement.



Figure 15. Old Main Entry to the Iron Ridge Mine - 1990.  
The abandoned mine entry as it appears today. Compare with Figure 5. Blocks of limestone are breaking loose from the ceiling now that the supporting timbers have rotted away.



Figure 16. Old Adit - 1990. Located at the extreme south-eastern part of the ledge, this may be the oldest mine tunnel at the Iron Ridge Mine.



Figure 17. Old Adit - 1990. Located at the SW corner of the ledge, limestone has fallen from this adit's ceiling, enlarging its opening.

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