The Iron Riches of Michigan's Upper Peninsula – Background reading

By Donna L. Stiffler

Of the six principal iron ranges, or areas, in the United States, three are located primarily in Michigan: the Marquette Range, all of which is found within the state, and the Menominee and Gogebic ranges which are located in both Michigan and Wisconsin. Approximately forty miles long and three to ten miles wide, the Marquette Range stretches across the Upper Peninsula from the city of Marquette to a few miles south of L'Anse on the Keweenaw Bay. The Gogebic Range lies partly in Michigan and partly in Wisconsin. It is divided by the Montreal River, a short stream that flows into Lake Superior about twenty-five miles east of Ashland, Wisconsin. This range extends almost eighty miles between Atkins Lake in Wisconsin and Lake Gogebic in Michigan; the Michigan section is approximately twenty-five miles long and stretches from the state boundary at Ironwood to a point slightly west of Lake Gogebic. The greater portion of the Menominee Range lies in the state of Michigan and includes the towns of Iron Mountain, Norway, and Vulcan. Main iron deposits in this range extend in an east and west direction, north of Iron Mountain.

The Marquette Range

First to be discovered, the Marquette Range had been of interest to geologists since the early 1840s when Douglass Houghton, Michigan's first State Geologist, conducted a systematic scientific analysis and exploration of Michigan's Upper Peninsula. He published his findings in a lengthy report, detailing the locations of minerals in the Lake Superior area. Although he was not aware of the quantity of iron ore deposits in the area, Houghton did state that iron deposits were to be found on or near the south shore of the lake. Houghton's findings were substantiated and enlarged by the activities of William A. Burt, a United States Deputy Surveyor. Burt, in attempting to establish the east-west line between townships 47 North and 48 North, approximately one mile south of Teal Lake, noted strange variations in his magnetic compass needle. When using Burt's own invention, the solar compass, no variations were observed. Searching for the cause of this disturbance, the surveying party discovered deposits of iron ore, or hematite, but this discovery was not mentioned in the official report. In 1845, the search for iron ore began in earnest, and the first major discovery was made near the present site of Negaunee. The men of the search party formed the Jackson Mining Company on July 23, 1845, and iron mining in Michigan officially began. A Catalan forge, producing wrought iron from ore, was erected on the Carp River (now the site of the Michigan Iron Industry Museum), and it was there that the first metallic iron was made. A. N. Barney forged, by hammer, a bloom (a rectangular block of iron) that measured four inches by four inches by twenty-four inches in size. In 1849 a forge was built at Marquette, and another was erected at Collinsville in 1855. The first blast furnace, built near the Jackson Mine, went into operation in April of 1849.

On July 7, 1852, the Marquette Iron Company shipped six barrels of ore to New Castle, Pennsylvania, the first shipment of Lake Superior ore via the lakes. However, shipping was constantly hampered by the rapids on the St. Mary's River at Sault Ste. Marie. Governor Stevens T. Mason had proposed a canal around this natural obstacle as early as 1837; however, no action was taken until 1852 when Congress officially authorized the construction of the vitally important canal. Initial work began June 4, 1853, and the canal was completed in April of 1855, thus removing one of the major deterrents to successful mining in the Lake Superior region. The development of roads and railroads in the Marquette Range also spurred mining activity and speculation.

An accurate accounting of production was not kept prior to 1854. The first regular shipments of iron ore, totaling 12,422 tons, were made by the Jackson Mine in 1856. A statistical table included in the reports of the Michigan Commissioner of Mineral Statistics for the years 1877-78 indicates
that the Jackson Mine shipped 25,000 gross tons of ore prior to 1856. Until 1864, the Jackson, the Cleveland, and the Lake Superior companies were the only shippers of iron in the district. The Civil War increased the need for Lake Superior iron, and the volume of shipment began a steady increase, with additional mines opening on the range. In 1861, the output for the Marquette Range was 120,000 tons; by 1868, annual figures had reached a half million tons; and, by 1873, the range produced over one million tons of ore, a figure that steadily increased through the turn of the century.

**The Menominee Range**

In 1846, William A. Burt, in the process of his linear land survey, noted signs of iron ore in the Crystal Falls area. In May of 1849, J. W. Foster was sent by Dr. Charles T. Jackson to investigate the reports of iron ore on the Menominee River, and Foster's subsequent report listed large beds of specular ore in Section 30, Township 40 North, Range 30 West, near Lake Antoine. Foster was later joined by J. D. Whitney in a geological survey of the Crystal Falls region, to substantiate Burt's earlier claims of iron deposits.

In 1866, Thomas and Bartley Breen, timber speculators from Menominee, located iron deposits near present Waucedah, Michigan. Although the Breen brothers had discovered what later became the very profitable Breen Mine, actual mining operations on this location did not commence until 1870 when several test pits were sunk, and two exploratory trenches were cut along the formation. Dr. Nelson P. Hulst, geologist and chemist for the Milwaukee Iron Company, began conducting extensive prospecting on the Breen property and on property that later became the Vulcan Mine.

In the fall of 1873, the full effect of the national economic panic hit the Menominee Range, and all preparations for mining ceased, but by 1874 the previous years of prospecting had produced sufficient evidence to warrant mining. Shipping was delayed until 1877 when the Chicago and Northwestern Railway Company built a line from Escanaba to Quinnesec; the railroad was later extended from Quinnesec to Iron Mountain and later to Iron River. In 1878 five mines were actively engaged in shipping from the Menominee Range: the Breen, Cyclops, Norway, Quinnesec, and the Vulcan. One year later there were eight shippers, with a total tonnage of over 200,000 tons. Production increased, and in 1882 the Menominee Range passed the one million mark in shipment. The range reached its peak in 1920 when it shipped almost seven million tons of iron ore. Decline began in the 1930s, and today crumbling ruins are almost all that remain of most of the Menominee mines, once bustling centers of activity and production.

**The Gogebic Range**

The first official recorded notice of the presence of iron ore on the Gogebic Range was included in the 1848 report of Dr. A. Randall, who saw exposures of iron ore on the Fourth Principal Meridian which crosses the range approximately halfway between Hurley and Mellen, in Wisconsin. Attention was drawn in Michigan to the possibilities of the Gogebic (or Agogebic) Range by the report of the Geological Survey for the State of Michigan, published in 1872. Professor Raphael Pumpelly and Major T. B. Brooks traced the iron formation across the Montreal River into Michigan and, in later years, mapped the range extending eastward toward Lake Gogebic. Professor Pumpelly had, several years before, selected this same area as part of a land grant to be received by the Lake Superior Ship Canal Company as compensation for a canal dug on Keweenaw Point.

Although F. H. Brotherton, representing the Canal Company, began systematic exploration on the eastern end of the range, credit for the discovery of iron is given to Richard Langford, a trapper and hunter, who claimed to have seen red ore outcropping from the roots of an overturned tree south of the present city of Bessemer in 1879 or 1880. Langford presented samples of ore to
Captain N. D. Moore who formed a mining company and began extensive exploratory work. By 1884, this ore location, known as the Colby Mine, began to produce commercial iron ore. In May, 1882, iron was discovered near Wakefield by George A. Fay, who had been prospecting between Ramsey and Lake Gogebic in 1881 and 1882, and the discovery became the famous Sunday Lake Mine. During that same year, A. L. Norrie began exploring land which was later known as the Norrie Mine in the city of Ironwood. The Norrie formed the nucleus of the large group of mines which later was operated by the Oliver Mining Company under the collective title of the Norrie-Aurora Mines.

The early explorers and prospectors on the Gogebic Range experienced the particular hardships of a land devoid of roads or even passable trails. Supplies had to be packed overland from Ontonagon or were brought by boat from Ontonagon to Ashland to the mouths of the Montreal and Black rivers. However, soon after the opening of the range for mining, the railroad made its initial entrance. The Milwaukee, Lake Shore and Western Railroad had begun a line that was to run from Milwaukee to Ontonagon, and by 1883 the railroad had reached Watersmeet, a few miles across the Wisconsin line into Michigan. With the fabulous riches of the Gogebic Range becoming more well-known, the company diverted its attention and extended the railway line into the new mining district during the summer of 1884. The first ore from the range came out of the Colby, and 1,022 tons were loaded onto flat cars in October of 1884, sent to Milwaukee, and then transshipped by barge to Erie, Pennsylvania. By 1910, three separate railway lines served the Gogebic Range, and approximately four million tons of iron ore were being shipped annually.

The range became the center of frenzied economic speculation during the late 1880s, and the total capitalization for the companies formed in the year 1886 reached a total of over one billion dollars. Over-speculation naturally brought a resultant crash, and most of the smaller investing companies were eliminated. The larger workings held their ground, however, and production rose steadily from 1884, reaching a high water mark in 1892. From 1893 through the first decade of the twentieth century, production levels ranged from approximately three million tons of ore to four million tons shipped, and the Gogebic continued to be a productive iron range.

**Michigan Iron in the Twentieth Century**

During the twentieth century, high grade ore, originally so plentiful on all three iron ranges, became less available and less profitable to mine. The cost of underground mining became more prohibitive, and the owners of Michigan’s mines began to search for other methods of tapping the iron riches of Lake Superior. Many of the mining operations, such as the Lake Superior Iron Company, were absorbed by larger corporations. Between World War I and World War 11, the total tonnage of iron ore shipped fluctuated drastically: in 1920, Michigan shipped over eighteen million tons of ore. In 1921, 1931, 1932, 1933, and 1934 Michigan shipped less than half that amount.

Extensive development of low grade ores and open pit mining began after World War 11, and a relatively new process, agglomeration, then began to yield an iron ore concentrate that contained about sixty-five per cent iron compared with fifty-six to sixty per cent from the average underground workings of the high grade ore. The first commercial agglomeration plant began operation in 1952. By 1964, four plants had been opened, and by 1969 only three underground mines were still in operation. Agglomeration, a process that separates iron ore and waste rock and then roasts the particles until they form small pellets or balls, kept Michigan’s iron industry in a strong competitive position and is contributing another chapter in the seemingly endless history of Michigan’s iron ranges.
Selected Bibliography


Many articles relating to mining in the Upper Peninsula may be found in *Michigan History Magazine*, [formerly published by] the Michigan Historical Center, Department of State.

"The Iron Riches of Michigan's Upper Peninsula" was originally published as a *Great Lakes Informant* (Series 3, Number 3, Michigan Industries). It is no longer available in print. © Michigan Historical Center.