

Mining in the Adirondacks

Most people today have long forgotten about the history that mining has etched on the sides of mountain ranges, valleys, and forested lands of the Adirondack Park. We also lose sight of a fading mining industry, and with it, the fact that mining was once a common way of life, enormous industrial market, and source of employment for a multitude of men and their families. Small villages today, such as Tahawus and Mineville, were once massive mining towns that bustled and swelled with a great influx of miners.

Adirondack mining gave hope of a new beginning for many immigrants; and thus, hundreds of foreigners flocked directly from the ports to find work in mining towns. "Company employment records document French-Canadian, Spanish, Irish, Lithuanian, Russian, Columbian, German, Argentinean, Welsh, Italian, Norwegian, Hungarian, Syrian, Swiss, Japanese, and Finnish miners working alongside their American-



Miners working with rail cars.

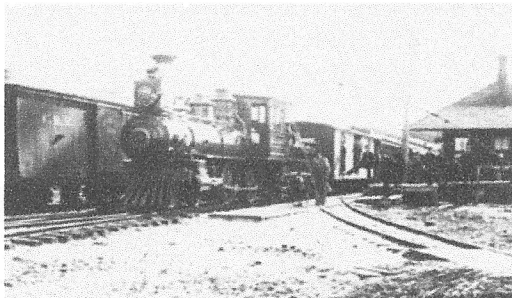
born (white, black, and Native American) counterparts in Adirondack mines."¹ Because they were new and desperately needed work, immigrants were often cheated, mistreated, and given the most dangerous jobs and poorest living conditions. Unknowingly, new miners were sometimes tricked into paying extra money for tools that the companies really provided or being told they had to buy a pew in the local church.

The cramped living quarters often fanned fires of disputes and ethnic discrimination. "To ease tensions and relieve boredom, mining companies sponsored baseball teams, mother-daughter dinners, card parties, dances, and holiday parties. Alice Hooper Tibbets recalled 'hayrides and sleigh rides under the stars, births, Christenings, weddings, funerals, sewing bees, amateur plays, Easter egg hunts,

¹ "Out of the Earth: Mining in the Adirondacks," *Adirondack History Network*, Adirondack Museum, 26 Apr. 2012.

political meetings, morning prayers... war-time speeches, card games, and... musical entertainment, with an organ, a violin, a harmonica, and bone rattling.' Many Adirondack mining towns have disappeared or are greatly diminished, but the ethnic diversity mining brought to the region remains. Names like Calabrese, LaBier, Farrell, Donahue, Emru, Fagerberg, remain part of the Adirondack community. Food traditions, like French-Canadian meat pies and German sauerkraut, are recognized as regional favorites."²

The earliest mines began around the shores of Lake Champlain in the late 1700s, and Adirondack mining expanded until it reached its peak toward the latter 1800s. Eleven minerals have



Railroad systems were vital to mines.

been extracted from the ground over the history of ADK mines including graphite, wollastonite, pyrite, feldspar, talc, and titanium. However, iron and garnet were the primary and most important ores. There was a great demand for iron in making tools, pots, stoves, cookware, horseshoes, and

nails that supplied everyday life in country villages, mining towns, and large cities. The railroad boom required ample amounts of iron as railroad businesses needed it to lay rail tracks and build the great "iron horses" that traveled along the extensive network of railroad tracks. Much of the 250,000 miles of rails covering the United States by 1890 were made from Adirondack iron. As of the 21st century, garnet and wollastonite are the only two remaining minerals that are still being mined in the Adirondacks today.

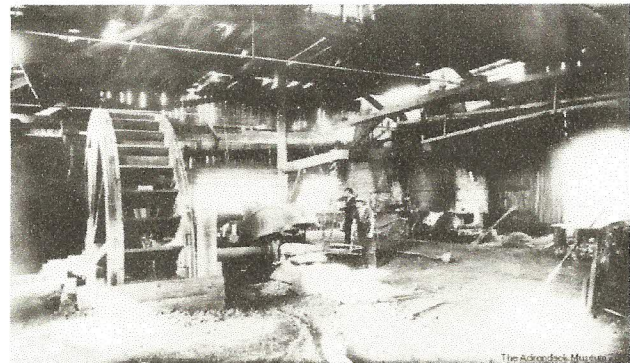
Iron was the most sought after ore in the mineral rich Adirondack mountains. Lake Champlain was in the ideal location for the first iron mining operations to begin since getting the ore out of the earth, drilling, transporting, and refining it all took tremendous amounts of energy. Abundant forests provided wood and charcoal to fuel forges and furnaces while the numerous rivers served as the

² Ibid.

primary power source. In addition, limestone was used as flux, a substance added in the processing of iron ore to remove impurities. Although it is a common mineral, Adirondack iron ore is usually never found in the pure element, but it is often in the form of magnetite. This characteristic of iron has a unique attraction to magnets that was discovered around 1750 by the Swedish scientist, Peter Kalm. On farther experimentation, Kalm noted, “the kinds of sand... found on the Lake Champlain; one is black and the other garnet colored. All of the grains of this sand without exception are attracted to the magnet.”³

Before it could be fashioned into useful goods, the raw iron ore had to be refined with extreme heat in large furnaces in order to remove oxygen and other trace minerals. These furnaces consumed a gigantic amount of energy that came from burning charcoal. Mining companies often hired workers know as “colliers” to tend to the pits where they would stock over 30 cords of wood and maintain it to a slow burning rate necessary to create charcoal.

“From 1850 to 1880, forges and furnaces used 7,000,000 bushels of charcoal a year. Colliers needed 160,000 cords of wood to make that much



Water wheel powering a refining furnace.

charcoal, so up to 7,000 acres of forests were cut each year to feed the iron industry.”⁴

Water was also a vital component in mining iron, and many rivers such as the Saranac, Ausable, and Hudson were dammed. Huge water wheels then harnessed the gushing water to operate heavy machinery. The completion of the Champlain Canal in 1823 also provided a very important water route for miners to transport their goods to cities like Albany, Troy, and New York. Since the new canal connected Lake Champlain with the Hudson and Mohawk rivers, transportation was made so much easier, and a greater market potential was opened. “The 1880 United States Census listed the

³ Ibid.

⁴ Ibid.

northeastern Adirondacks as one of the top ten iron regions in the country. Mines in Clinton and Essex counties produced almost 10% of the nation's iron ore."⁵ Hundreds of mines in the Adirondacks were in operation during the 1890s including Chateaugay Iron Ore Company, Witherbee & Sherman Company, and McIntyre Iron Works. These industries employed thousands of workers to dig in the shaft mines, work the forges and refining furnaces, make charcoal, and operate the transportation equipment. All of the many different tasks had to be performed orderly and carefully for a iron mining operation to be profitable.

Open pit and underground shaft mines were the two primary types of mines used in the



Wooden beams were used to support the shaft mine tunnels.

Adirondacks. The Witherbee & Sherman Company built the Joker Shaft in the 1880s that tunneled hundreds of feet into the ground in search of iron ore. Early miners used hand drills, pick axes, and black powder to break the iron away from the rock, and then workers called "hand

muckers" would shovel the ore into rail carts to be carried

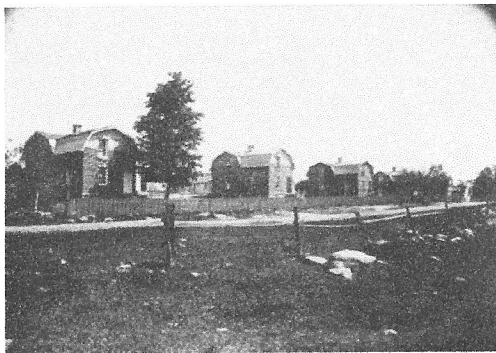
to the surface. Towards the latter era of ADK mining, tools

improved with drills powered by compressed air or water and dynamite replaced black powder.

Mining was by far the most dangerous job in the Adirondacks at the time. Miners were in constant danger of insufficient oxygen, ore carts tipping, blasts going off too soon, ropes breaking, tunnels collapsing, and accidents with tools and equipment. After living for years in such a dirty, dusty environment, many workers later developed symptoms of silicosis and other lung diseases. The food that miners ate was usually not very healthy and did not provide proper nutrition for such hard labor. Combined together, all the dangers and hardships of early mining caused countless injuries and took the lives of many miners. The work day for an Adirondack miner was a long, hard, and tiring shift that

5 Ibid.

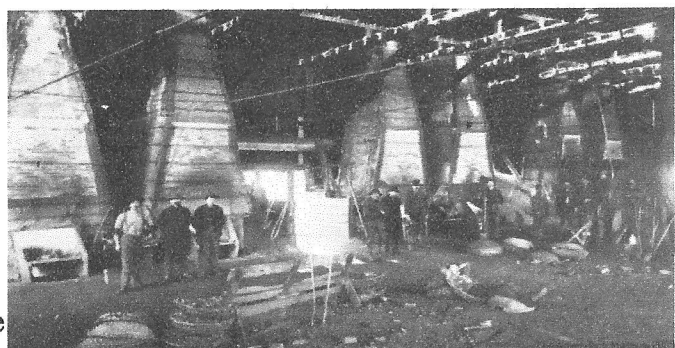
typically lasted for ten to twelve hours. These men worked six days a week and received poor wages for the dangerous conditions they were laboring under. With the rising and falling of the iron industry, workers could suddenly lose their jobs or experience paycheck cuts.



Company housing for miners.

Life in an Adirondack mining town was very community oriented because the mining company that owned the forges, furnaces, and mines would most likely also own the general stores, boarding houses, shops, town services, and homes. The mining company provided housing for its workers and took the rent out of their wages. Usually located close by the workplace, single men would often save money by sharing a bed in a boarding house. One man would sleep during the day and work at night while the other slept during the night and worked by day. Married couples rented a private company house that afforded a safe place for children to play and provided the needs in raising a family. Company stores were common in the mining industry. Workers could buy groceries, dry goods, clothing, dishes and cookware, medicine, and tobacco at the company store. But workers could buy these goods only at the company store because they were usually paid in scrip. The mining companies profited greatly from this system. In the 1870s, J. & J. Rogers Iron Company owned three stores and sold more than \$350,000 in goods.⁶

A type of refining method called the bloomery forge was one of the earliest and most important tools used in Adirondack mining to transform useless iron ore into valuable wrought iron. Highly skilled workers known as “bloomers” operated these forges. The miners shoveled the iron ore into the massive charcoal fire where the

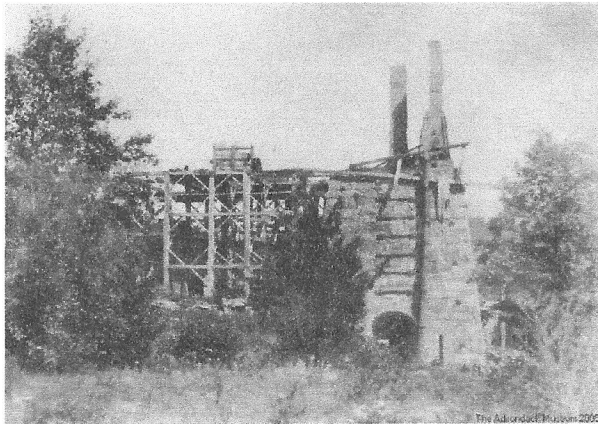


Hand muckers posing in front of bloomery forges.

⁶ Ibid.

iron would soften under the extreme heat, but it never got hot enough to melt. As it heated up, the iron would form into a spongy lump called loop that settled down through the charcoal to the bottom of the hearth. A worker then pulled the loop out of the forge and used a huge triphammer to pound the iron into a bloom. After it was reshaped with the hammering, the bloom was heated again, and other workers finally hammered and fashioned the iron into bars or billets. Using the valuable bloomery forge, skilled miners could produce high quality wrought iron to be sold. The process, however, was very time consuming and several hours of work and hammering yielded only fifty pounds of iron.

Blast furnaces began to replace the bloomery forge because they were more efficient and required less attention and skilled labor. However, the increased production from the blast furnace



Adirondack blast furnace.

came at the cost of quality as the bloomery forge produced much better iron. The furnaces were built near a river to provide power and at the bottom of a hill so that workers could use a bridge to load the iron ore into the top of the furnace. Miners put the raw materials in to the core of the blast furnace which

composed of 1500 pounds of ore, 150 pounds of limestone, and 30 bushels of charcoal. Hot air was then pumped into the base of the structure causing the limestone to mix with the waste materials in the iron and rise to the surface where workers would remove this slag every couple of hours. The iron continued to be heated until the melting point.

Molten iron then sank to the bottom where workers opened a tap and drained the iron every eight to ten hours. Under gravity the liquid iron flowed down a main channel, duped the "sow," into a casting house and poured into smaller rectangular molds called "pigs." After the iron had cooled into a solid, it was removed from the sand molds and readied for shipping.

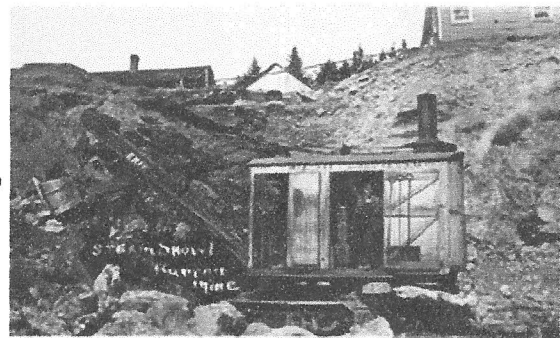
Garnet ranked as the second most important and valuable mineral that was mined out of the

Adirondacks. In Boston in 1846, Henry Hudson Barton apprenticed in a jewelry store where he first discovered the potential for garnet mining. While Barton was working there, a gentleman offered to sell some Adirondack garnet stones, but the jeweler would not buy the poor quality rocks. However, Barton would make these stones very important in a few years when he moved to Philadelphia and began selling woodworking tools and sandpaper. He soon realized that the common sandpaper he was selling was very poor quality and was determined to create a better type. Barton remembered the gentleman from the jewelry store selling the garnet sample, contacted him, and bought some garnet. After successfully grinding the rocks into fine dust, Barton gave his new sandpaper to several different woodworkers to test it, and they said that the new material worked amazingly well. In 1878 Barton founded the first garnet mine in the Adirondacks. When he realized that Gore Mountain had the largest garnet vein in the entire Adirondacks, Barton bought the whole mountain by 1887.

Miners who worked for Barton used mostly hand tools because the garnet was found high up on the side of the mountain. Workers drilled into the rock faces, packed explosives down, and blasted large chunks of rock away from the cliffs. They then used pick axes to chip the valuable garnet away from the larger rocks.

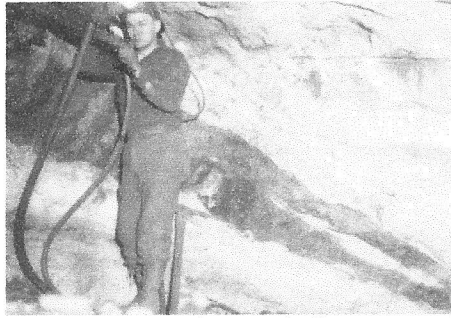
Because the mining locations on the mountainside were hard to reach, the miners worked during the summer on

picking the garnet and stored it in stockpiles. When winter arrived, the garnet was loaded onto snow sleds and sent down the mountain to the railroads. The garnet then traveled by railroad to Philadelphia where it was ground and made into sandpaper. Improving technology replaced sleds and pick axes with hydroelectric tools, steam shovels, roads, and powered trucks. Barton's company built a mill in 1924 at Gore Mountain making it possible to mine, crush, and grind the garnet all in the same place.



Early steam shovel used in mining garnet.

Today, Adirondack garnet mines still produce over 80% of the worlds abrasive garnet. In 1969 garnet was bestowed the title of being the official gem of New York State. The garnet mined from the



A modern hydroelectric drill.

North Creek area is industrial grade, and it is primarily used as abrasives. Sandpaper made with Adirondack garnet is considered some of the highest quality and remains to be the most important garnet product. It is, however, used also in textured paint, emory boards, and grinding wheels among others goods. Local crafts people use garnet to make beautiful Adirondack gems that are quite valuable when the stones are carved, polished, and set in jewelery.

The Adirondack iron industry peaked around 1880, and World War II increased production, but the industry could not last forever. Many factors, including the cost of transporting minerals out of the mountainous region, contributed to the downfall of the Adirondack iron industry. Other mining industries also faded in the 20th century. Graphite was mined in the Ticonderoga area until the 1920s. Feldspar was mined in the eastern Adirondacks until 1950. Three pyrite mines operated in the western section of the region until the 1920s. Zinc was mined in the Balmat zinc mine. Titanium, once considered an impurity in iron ore, was mined at Tahawus by National Lead until the 1980s. Today, only a handful of companies continue to mine within the Blue Line and northern New York. Barton continues to mine and mill garnet at their Adirondack operations. NYCO Minerals Inc. mines wollastonite at their Willsboro operation in Essex County. Talc is mined in the Gouverneur region.⁷

Mining in the Adirondacks is a part of our history and was the livelihood of so many men and their families. The evidence from this long, valuable history is seen through the scars in the land, exhibits in museums, old rusty mining equipment occasionally found in the woods, and the personal stories and accounts that are passed down from generation to generation. Mining has left a priceless

⁷ Ibid.

legacy that so many miners penned in the land with their ground breaking work within the mining industry. We would never have improved or expanded to what the definition of mining holds today without the pioneering work of Adirondack miners.

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