

*Atlantic Mine stamp mill at Redridge, 1890's.*

[A second view of the mill](#)

**Supplemental pages & images referenced in this chapter:**

[Site map from Stockholder report 1908 Sanborn representation](#)

Taken from the web.

## Atlantic Stamp Mill Operation

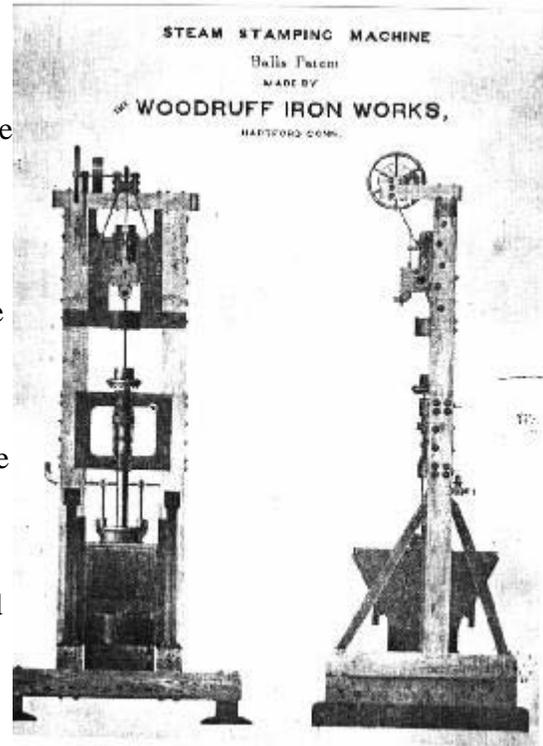
The Atlantic Mining Company had already been in operation for 23 years before it built its mill at Redridge. They operated a stamp mill on the shores of Portage Lake near Cole's Creek for years beforehand. Problems arose when the War Department of the federal government told the company that they must either stop dumping the tailings from the stamping process into the Portage, or erect bulkheads to prevent the tailings from filling in the shipping channel. The company estimated that a new mill along Lake Superior would cost up to \$100,000 (1), but decided that the increased output they would get out of the new mill, and elimination of the legal hassles associated with the Portage site that the expense would be worth it.

Work on the Atlantic Mill was begun as early as 1892 when the land was purchased and a path for a railroad to the [site \(6\)](#) from the mine was mapped out. (Another diagram of the site derived from a 1908 Sanborn map may be seen [here](#).) In 1893 Atlantic finished the railroad to the site (the covered drive is this Atlantic and Lake Superior Railroad), cleared and prepared the area for construction, put up 4 log houses, a barn, rock bins and started the timber dam which will be discussed in another chapter. It is interesting to note that a telephone line was run from one of the new houses back to the mine office at this time for a cost of \$413.44 (2). This seems to indicate very progressive thinking on the part of the company since the telephone had been invented only about 5 years earlier. In 1894 the mill was almost completely finished and most of its equipment installed. In the report to the stockholders for 1894, the directors included this statement:

*It will be remembered that this heavy expenditure has been forced upon us by the action of the United States Government in forbidding further deposits of stamp sand in Portage Lake, and could not be avoided if the mine is to be worked.(3)*

Why did they feel the need to reiterate this point? The reason is that in 1894 copper prices had plummeted to an all time low of nine cents per pound.<sup>(4)</sup> No doubt the directors were worried that the stockholders would think they were being wasteful in such a poor market. When the Atlantic Mill complex was finally completed in 1895, the total amount spent on the mill and all the supporting structures up to this point came out to \$324,319.69. The equipment in the stamp mill included 6 "Ball" Stamps; one 14"x 42"

"Reynolds-Corliss" engine; one 14"x7"x12" "Garner" fire pump; 54 iron "Collum" jigs; one 50" "Prentice" drill press; one 18" "Prentice" lathe; one "Jarecki" pipe bolt and nut cutting machine; one "Daniels" planer, capacity 24"x24"x25"; jig countershafts for half the mill, complete, with couplings, pulleys and hangers, and the main line of steam pipe tapering from 14" in the boiler house to 6" at the far end of the mill.<sup>(5)</sup> The boiler house that supplied power to the mill contained five 16'X6' "Evans" fire box boilers which were fired by cordwood. An interesting feature of the mill was the design of the smokestack, which can be seen in the illustration at the beginning of this chapter. Instead of going straight up off of the ground next to the boiler house, the stack (measuring 30' tall, 6' in diameter) was placed on the top of the bluff behind the mill, and a large smoke main 175' long, 7' in diameter was run up the hill to it. The reports do not state why this was done, but one theory would be that it was more cost effective than trying to raise a stack of similar height directly over the boiler house. The mill increased stamping capacity significantly, but it took quite a while for the company to take advantage of this due to inadequate hoisting capabilities back at the mine. At right is an illustration of the "Ball" Stamp used in the Atlantic Mill.



The Ball Stamp (circa 1875)

In the years that followed the opening of the mill, several modifications were made to improve performance, but no major structural changes were made to the mill building itself. Three more boilers were added to the boiler house to bring the total number to eight, the original number called for in building specifications. A turntable was placed near the entrance to the boiler house to help facilitate unloading of fuel. The rock bin trestle at the terminus of the railroad was lengthened 100 feet to facilitate longer trains. An electric light plant was added in 1896 which supplied illumination to the mill, shops, store, and location with 250 incandescent lamps and 6 arc lamps.<sup>(7)</sup> In 1897 solid iron foundations were added to 2 of the 6 stamps to improve their performance. This was later repeated in 1898 for three other stamps and over the years, the foundations were replaced again, this time with concrete. A device called a "Green Fuel Economizer" was added to the boiler plant to increase its efficiency in 1899. Also that year a line of 3 inch shafting 200 feet long with friction clutches was put in the mill to operate the valve gears of the stamps.<sup>(8)</sup> In 1902 the mill began experiencing problems in disposing of it's tailings because the launders were no longer high enough. To remedy the problem the launders were raised and a 5" centrifugal pump was installed on each head to lift the tailings to the new launder

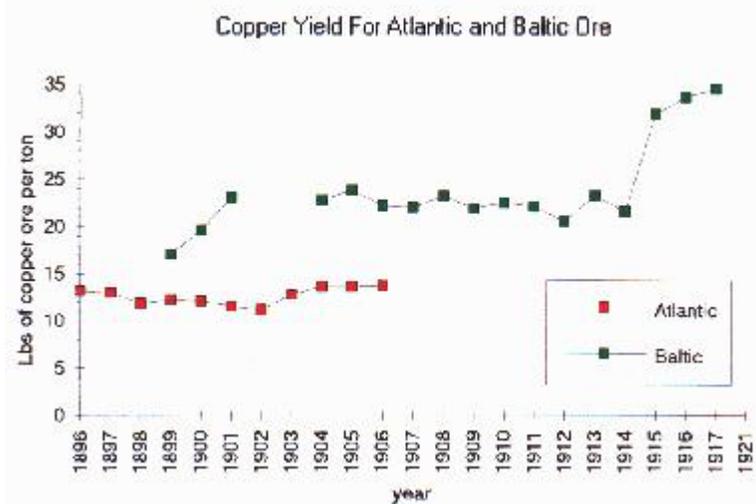
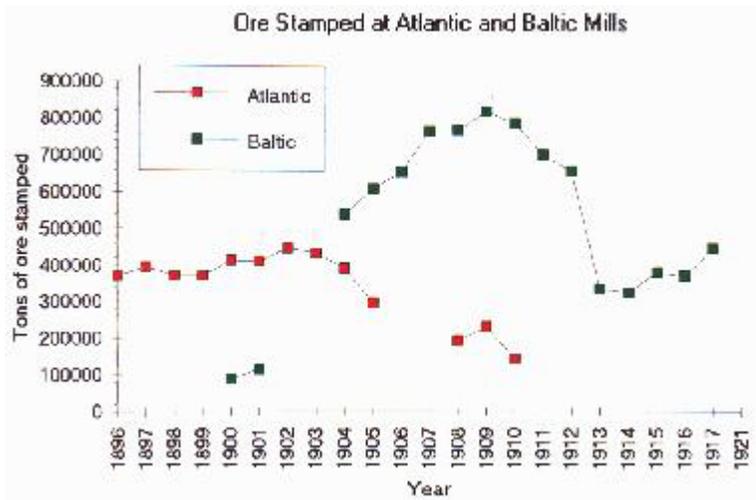
level. At this time a new heating system was installed and an electrolytic assay laboratory was installed to determine if they could get further extraction values from their ore.(9)

The year 1903 saw the start of more drastic changes to the way ore was processed in the mill. Over the course of the next several years the finisher jigs, slime tables, and round tables were replaced with "Overstrom" Tables. A Nordberg Corliss engine was also ordered for the purpose of taking the electric lighting load off of the mill engines.(10) Later on the perforations in the mortar screens were reduced in order to save more copper. In 1904, the building was not quite a decade old, but was already showing it's age. The main flue leading up to the stack needed to be completely replaced and the lower ends of the wooden posts supporting the structure needed to be replaced with concrete piers(11), presumably due to the vibrations of the machinery in the building.

1906 marked the beginning of the end for Atlantic Mill. The mill stack collapsed in April of that year, necessitating replacement.(12) This perhaps was an omen for the company because in late May the shafts of the Atlantic mine began to collapse, effectively closing the mine permanently. The mill remained somewhat busy for the rest of it's lifetime, it was contracted to stamp ore for the Michigan Copper Mining Company until it could complete it's new mill. It was also used for Superior ore and test stamping ore taken from a new shaft being explored by the company. The shipments of Michigan rock were discontinued in late 1909. The 1909 and 1910 reports state that the roof of the mill had been in bad repair and much work was done to correct this.(13) In 1911 Atlantic Mining Company became a subsidiary of the Copper Range Consolidated company. The mill continued it's role of stamping Superior rock until February of 1912. At that time the mill was shut down, and some cleanup done of the site before it was abandoned.

(Barb Koski adds information from interview: Don Heikkila says the rail road grade thru the covered drive was the Atlantic and Lake Superior narrow gauge railroad. When one travels the Liminga/Freda Road and looks North at the intersection of the Covered Drive one can see where the "track" used to be. Don shares that this takes you to "Rock Bin Hill". This(at the stamp mill) is where the railroad ended. )

It may seem that the Atlantic mill had a short lifespan, but when one takes a look at the ore that it was given, it is a wonder that the company lasted as long as it did. The charts below illustrate the Atlantic's plight relative to the Baltic Mill.(14) The yield on the ore that Atlantic was bringing up was very poor in relation to most mines of the era. During the mill's lifetime, the yield on a ton of ore reached a high of only 13.69 pounds per ton for the year 1906, and a low of 11.095 pounds per ton in 1902, although there were some individual weeks where the yield would drop to as low as 6.54 pounds per ton.(15) The fact that this company was able to make a profit on such poor quality ore is a testament to efficient management.(16)



The stories found on this page are reprints from old issues of the Copper Range Newsletter from the early 1960's to early 1970's. A special thank you to Chuck Bennett, Manager of

**Industrial Relations for the Copper Range Company for providing me with all these wonderful CR News Issues, which I now pass on to you. (KEMusser)**

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## Old Atlantic Sands yield again.



*Shown here is the dragline hoisting stamp sands from the old Atlantic Mill site on Portage Lake to Copper Range Railroad cars for haulage to Freda Mill. In the background is the U.S. Park Service boat, Ranger III, on a trip to Isle Royale National Park.*

**H**istorically the unique properties of Lake Copper have given it a rather special position in the world copper markets. In recent years this unique properties, combined with continual research for new uses for the red metal, have created an increased demand for Lake Copper. In its search for new ways to supply this demand, the Copper Range Company is experimenting with the reclamation of copper from the stamp sands left from operations at the old Atlantic Mill site on Portage Lake,

The old Atlantic Mill, built early in the 1860's and ceased operations completely in 1895. As might be expected, this mill used primitive tools and processes; mine rock was processed by the old stamp, jig and table methods. Through considerable copper extracted from the rock, much remained that left the mill through the lake launder. Now, however, the modern flotation process makes it possible for these stamp sands to yield copper economically,



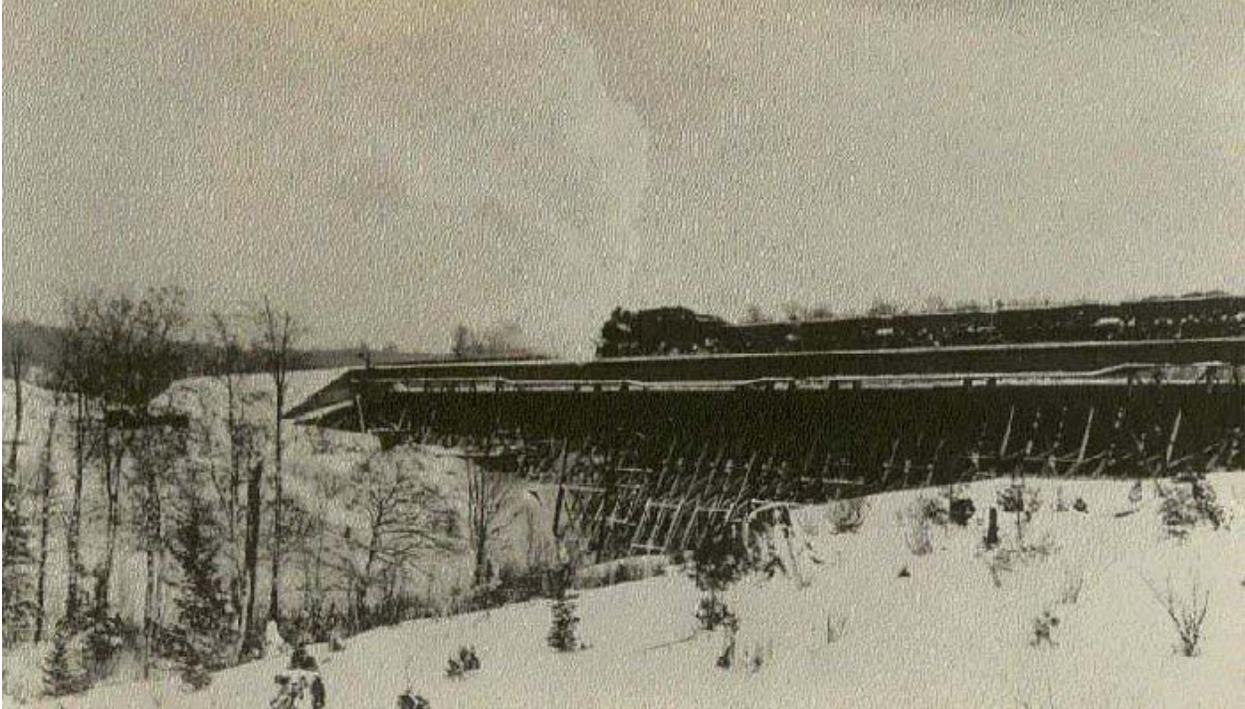
*A trainload of Atlantic sands on their way to Freda Mill via the Copper Range Railroad. Conductor Harold Eilola sees where he's been from the platform, and Nels Swanson keeps track of the scenery from the caboose roof.*

For several years sands from the Atlantic and Baltic Mills at Redridge supplied a sufficient amount of copper to justify their being transported to Freda for processing. Lately, however, tests by CR assayer Richard Benbow show that these sands can no longer provide enough return for the effort necessary to extract the copper. For this reason the company has turned to the sands left at the original Atlantic Mill site on the banks of Portage Lake, west of the Bosch Brewery.

The Gregoire Construction Company of Lake Linden has contracted to load the Atlantic sands into railroad cars for shipment by rail to Freda Mill. About twenty rail cars are shipped daily, seven days a week. The mill is now operating on a 50-50 basis, half mine rock from Painesdale and half sands from the old mill sites.

The reclaiming of these sands from the old Atlantic Mill site has a two-fold benefit. Primarily, of course, it gives the company a chance to continue full operations at Freda Mill. This helps meet the increasing demand for Lake Copper. Secondly, but still important, the reclamation of these sands aids in the deepening and widening of the lake channel, which means easier navigation from the larger ships using it.

Company officials keep a watchful eye on sampling results to determine whether or not the reclamation of Atlantic Mill site stamp sands is paying. Thus far, results look encouraging. This is evident throughout the mill and diggings as the men go about their work with zest in the hope that the mill will continue profitably for all concerned for many years.



A rare photo of a Atlantic & Lake Superior RR rock train over the Redridge steel dam in the early 1900's.

Baltic Stamp Sand Train (Wm. Brinkman)

The train is on the shore off Baltic Stamp Mill (Redridge) in August 1924 (2 years after the closing). It shows the Baltic Coal Docks and the Carpenter Shop mid picture. A blacksmiths shop was under the carpenter shop.

Carpenter bosses were Fred Mehring, Jack Jacobs, and Godfrey Kenel.

Blacksmiths were Thomas Kneebone, Jack Gabe, and Hillary Gabe.

The photo was taken from the trestle of the mill facing north over the sands and lake. The train was then hauling scooped up sand from the lakeshore and taking it to the Baltic Mine in Baltic. Mr. Blackmere, husband of Clara Kopp, was operator of the steam shovel that filled the cars.

That summer the company built a new concrete rock bin in anticipation of re-opening the mill for operations. It never reopened.

The mill and dock were dismantled by the Klatzky Salvage firm in the summer of 1946 and 1947.