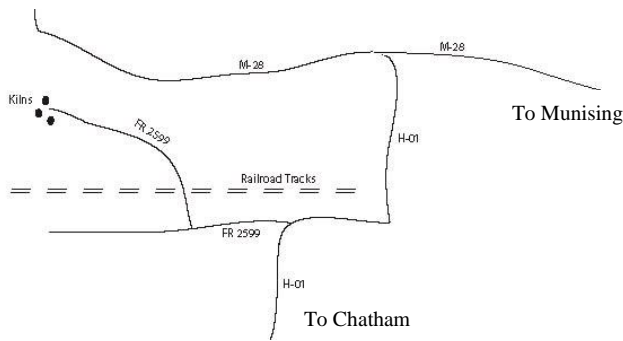


Rock Kilns closed in 1896 because of an industry-wide decline and a local shortage of hardwood. Over the years, the iron industry gradually switched from wood to coal for heating blast furnaces. When in operation the Rock Kilns and the adjacent worker's village were usually covered with a smoky haze. A tar-like smell and the sounds of chopping and splitting cordwood filled the air. Today the ruins of 12 stone kilns silently testify to the labors of immigrants and the charcoal industry's devastating impact on the area's forests.



Rock Kilns, 1954. Large portions of these walls have now fallen and some kiln ruins are barely visible. Photo courtesy Braamse Family

To Visit the Kilns:



Rock Kilns is located at the end of a one-lane dirt woods road. Take M-28 west 15 miles from Munising to H-01 or 2279. H-01 goes south one

mile then turns right for ¼ mile before turning south again. FR 2599 connects with H-01 before it turns south. Follow the signs on FR 2599. At the first fork be sure to turn right and go over the railroad tracks. The Kilns are a little over a mile down FR 2599. Be alert for on-coming traffic! It is about a 300 foot walk from where the road is blocked to the Kilns. Once you get to the kilns, the ground is rocky and uneven, and kilns are unstable. Stay a safe distance away from them.

Walk-in Access Only - Rustic and Natural Setting (No Developed Visitor Facilities)
Warning: Do not climb on or walk near ruins.

This brochure is based on research conducted in by Daniel O'Rourke, Industrial Archaeology Program, Michigan Technological University, Houghton, MI, 1997

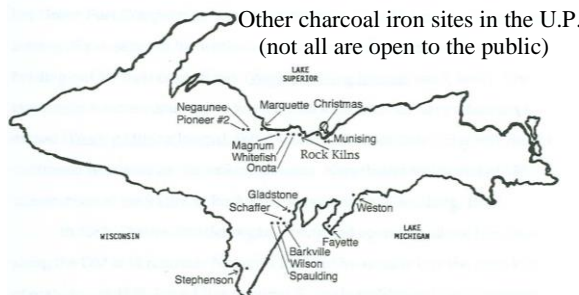
For More Information Contact:

Munising Ranger District
 400 East Munising Avenue
 Munising, Michigan 49862
 (906) 387-2512
 TDD (906) 387-3371

"The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (Voice and TDD). USDA is an equal employment opportunity provider and employer."

USDA Forest Service, Hiawatha National Forest
 Enjoy but do not Destroy

It is illegal to disturb or remove historic features or artifacts on federal land.



HIAWATHA NATIONAL FOREST



ROCK KILNS HISTORIC SITE



Munising Ranger District

Ruins of Michigan's Charcoal Iron Industry

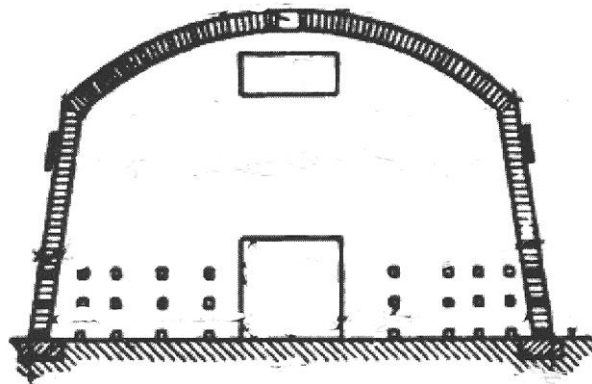
The Rock Kilns in Alger County are the remains of sandstone masonry structures that produced charcoal from 1879 to 1896. Iron furnaces used charcoal as fuel because when burned, it reaches a higher temperature than wood. Blast furnaces used charcoal, limestone, and iron ore to make pig iron. A single furnace consumed thousands of bushels of charcoal every year. During the late 19th century, 23 blast furnaces operated in the U.P. An entire industry developed to supply these furnaces with charcoal. Kilns were designed to control the burning process to char wood but not reduce it to ashes.

Rock Kilns, one of three facilities built by the Union Fuel Company along the Detroit, Marquette, and Mackinac Railroad, originally included 9 stone kilns. They made charcoal from maple and beech trees cut in the surrounding forest. In 1889, Charles Schaeffer, the "Charcoal King," added 3 additional stone kilns to the

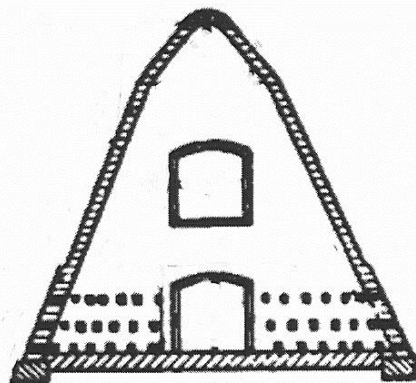


Most Charcoal Kilns were built on slopes so they would be easier to load from the top. Whitewash and mortar were used to help seal air leaks. (Photo from Keewenaw Area)

facility. He employed 200 workers at the Rock Kilns, mainly recent immigrants from Finland, Sweden, and French-Canada.



Drawing of Tub-Type Kiln. (from Egleston 1880) Shows air vents and doors for loading and unloading))



Drawing of Beehive Type Kiln. (from Egleston 1880) Shows air vents and doors for loading and unloading.

Rock Kilns used two types of kilns: the tub type and the beehive type. Archaeological studies here in 1996 revealed differences in how they were constructed. Tub kilns had vertical walls at the bottom and domed brick roofs. Three rows of vents near their bases let workers control the amount of air feeding the combustion within. Metal bands around tub kilns prevented them from expanding too much at high temperatures.

Tub Kilns held 45 cords of wood and required 25 days for a single burn. Their large capacity made them popular during the mid 19th century. The cone-shaped beehive kilns were smaller than the tub kilns. Beehive kilns held 35 cords of wood and required a 13 day burn. Due to their superior structural stability, beehive kilns replaced the tub-style kilns in the late 1800s.

Workers loaded kilns through two openings: one low in front and one high in the back or on top. They tightly stacked wood through the front door and used the upper door to finish filling it. Master charcoal burners (called "colliers") filled the hollow center of the stack with kindling and lit it with a long pole. Colliers watched the kilns 24 hours a day and judged the progress of the burn from the color of the smoke. They constantly adjusted air intake holes to make sure the wood kept burning but did not burst into open flames. At the end of the charring process, they checked for glowing embers during the night before unloading the kilns using rakes and baskets. Most of the charcoal produced here was transported by rail west to blast furnaces in Marquette County. Manufacturers of railroad cars and locomotives were the main market for the iron from these charcoal-fueled furnaces.

Iron production required a tremendous amount of charcoal. It took about 170 - 180 bushels to produce one ton of iron. The Upper Peninsula's iron industry produced nearly 2 million tons of iron between 1870 and 1945. This required the wood cut from about 285,860 acres to produce 343,031,940 bushels of charcoal. The charcoal industry's woods workers in the U.P. cut over roughly 447 square miles of forest by hand in about 75 years.