Mine Hill

A National Historic Landmark

ROXBURY LAND TRUST

Since 1970

TIMELINE

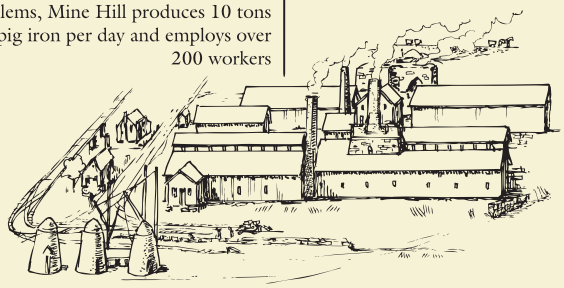
1765 Colonists search for silver, employing 17 miners, 13 laborers, 1 blacksmith and 2 slaves

1792 A small furnace is built on top of hill near present-day shafts

1831 Another small furnace is built closer to the river

1865 Mines expand; furnace and oven facilities are completed

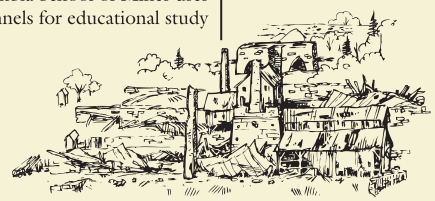
1867-1872 Despite furnace and steam engine problems, Mine Hill produces 10 tons of pig iron per day and employs over 200 workers



1871 Shepaug Valley Railroad arrives

1872 Furnace fails for final time

1915-1925 Columbia School of Mines uses tunnels for educational study



1938 Hurricane destroys remaining wood structures at Mine Hill.

1948 Train service ends. Some of the remaining granite will later be used to build Roxbury's Hodge Library

1978 Roxbury Land Trust purchases Mine Hill property from Matthews family

1979 Mine Hill is enrolled on National Register of Historic Places

1983 Restoration of historic structures at Mine Hill begins

Present Nearly four miles of hiking trails offer glimpses of Roxbury's industrial past and breathtaking natural beauty today

Once known as Spruce Hill and set aside as "common land" because it was too steep and rocky even for hardscrabble Yankee farmers, Mine Hill gave rise to a thriving industrial center in the late 1860s. Fortunes were made and lost on the rich veins of quartz, siderite and granite that cut through the wooded slope. The mines spawned a bustling boom town called Chalybes and employed hundreds of immigrant workers.

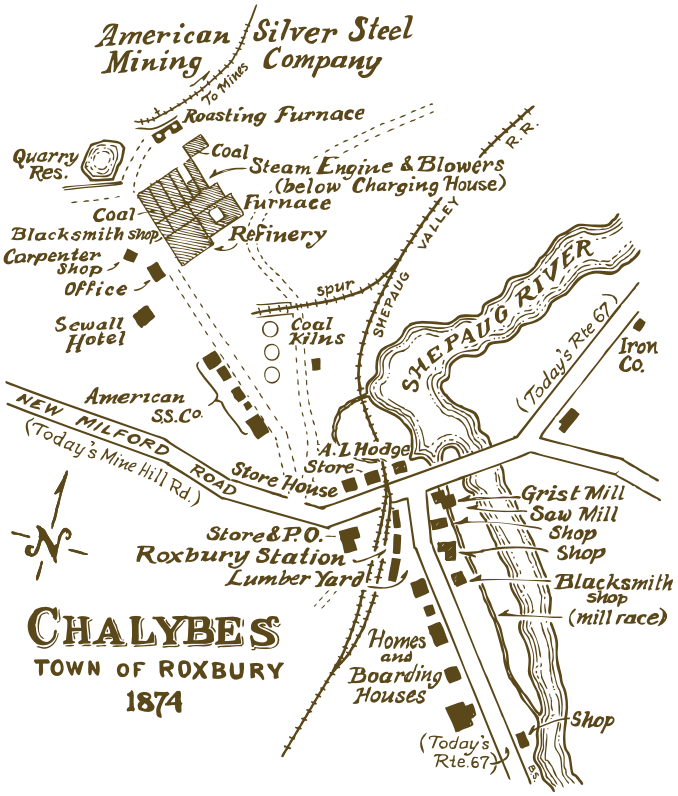
At their height, the iron mines produced 10 tons of pig iron per day. Whole forests were cut down to make into charcoal to fuel the furnaces at the mines. Despite substantial initial investment and elaborate planning, the steel-making operation was plagued by problems from the outset. Just five years after the enterprise began, the furnaces shut down. The granite quarries, however, continue to flourish to this day.

Purchased by the Roxbury Land Trust in 1978, Mine Hill became a National Historic Landmark a year later. Today, the forest has reclaimed the land and healed most of the scars on the 360-acre preserve, but the remnants of the mine and furnaces stand as a reminder of our industrial heritage.

Roxbury's experiment with the iron and steel industry was short, but intense. A testament to American ingenuity and back-breaking manual labor, the Mine Hill venture began in earnest in 1865 with workers constructing a labyrinth of iron mines, a mile-long Donkey Trail to transport the ore, a pair of roasting ovens, a blast furnace, a steel puddling furnace, a rolling mill and several other buildings.

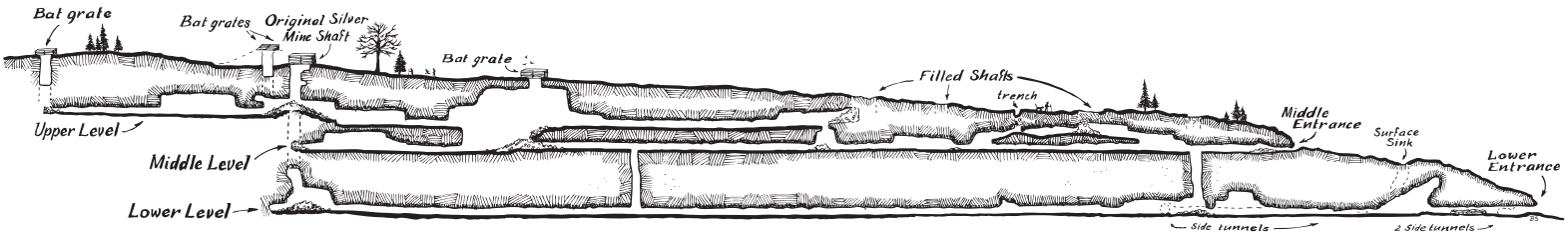
With the iron mines and granite quarries bustling, hundreds of miners, stone cutters, masons and other laborers from Europe settled in Chalybes, which grew quickly at the base of the hill along the Shepaug

Working by candlelight, miners dug more than a half-mile of tunnels beneath Mine Hill using only hand tools and black blasting powder. The three main tunnels had rails laid inside them, with the bottom tunnel connected to the Donkey Trail for transporting the ore to the roasting ovens.



River. A grist mill, creamery, general store, lumber yard, boarding houses, hotel and tavern were among dozens of buildings in the enclave by the time the railroad arrived in 1871.

The smelting furnace, however, failed at its first firing in 1867 and never functioned to its full potential. Using production techniques that were a decade behind the times and competing with vast reserves of iron ore opening up in the West, the Roxbury operation ceased making steel in 1868. The steel mill at this site was dismantled and moved to Bridgeport. Oxcarts then carried the pig iron to New Milford, where it was transported by rail to the mill. By 1872, Mine Hill's iron-making days were done.

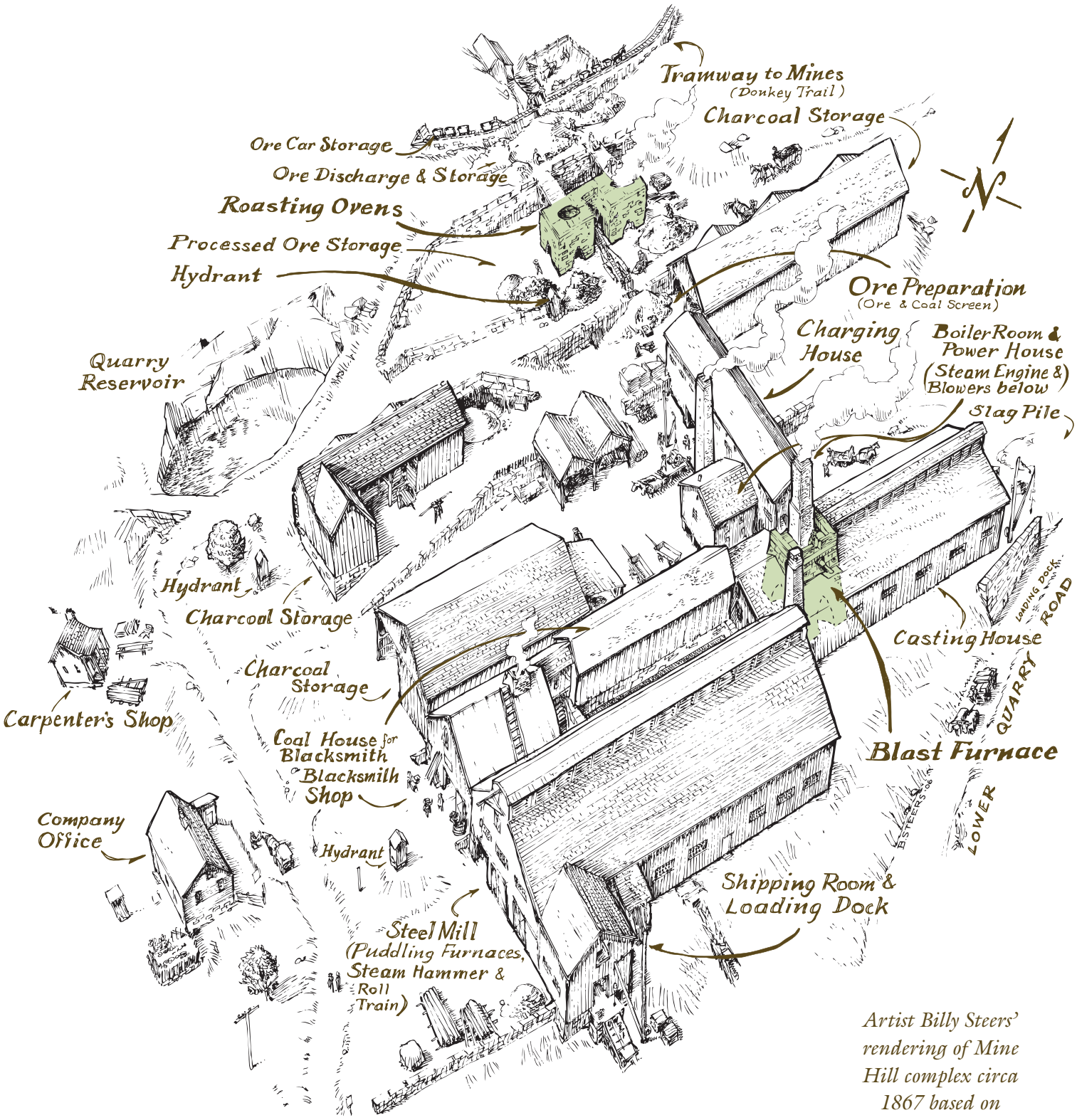


The Mines

Three main tunnels still exist beneath the wooded slope of Mine Hill. They are connected by multiple interior vertical shafts, which not only provided air for the miners, but also for movement of the ore. Today, the tunnels serve as one of Connecticut's most important locations for bats to hibernate during the winter.

1865-1872

Mine Hill During Its Heyday

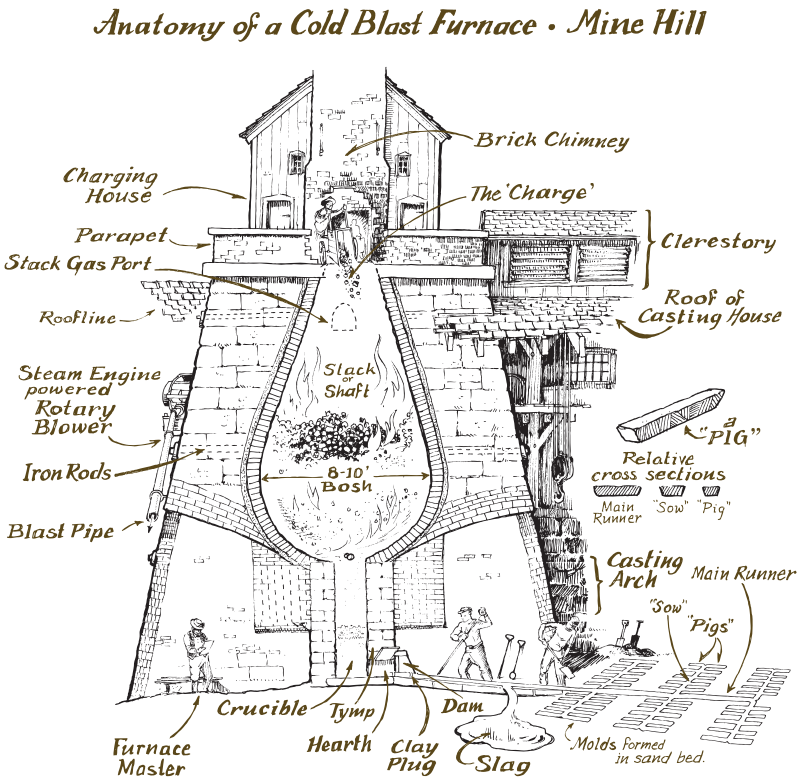


Artist Billy Steers' rendering of Mine Hill complex circa 1867 based on photographic evidence and physical remains.

Built of Roxbury granite and topped by a tall chimney, the cold blast furnace was at the heart of Mine Hill's iron-making venture. Alternating loads of charcoal, roasted siderite and limestone or marble were dumped into the top of the furnace through a large opening in the chimney. On the way down the fiery stack, the carbon in the charcoal combined with the oxygen in the iron ore and escaped as gas, leaving the iron and waste called slag behind. A continuous blast of air blown into the furnace through the "tuyere" pipes kept the fire roaring near 3,000°F around the clock.

Over time, the ore melted and sunk down to the crucible at the base of the bulb-shaped "bosh." When the furnace master decided the time was right, he broke off a clay plug that allowed the molten metal to flow out of the hearth into runners dug in the sand floor of the casting room. Here, it cooled to form 100-pound iron bars known as pigs for their resemblance to piglets suckling on a mother sow.

Although its chimney is long gone, the granite furnace with its graceful brick arches, was meticulously restored along with the two roasting ovens in the early 1980s.

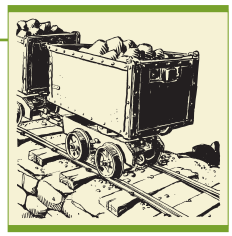


From Ore to Steel

Mining

Miners used hand tools to drill into the hard granite rock, filled the drill holes with powder and blasted the rock loose. The miners then excavated the ore and loaded it into carts.

Transporting

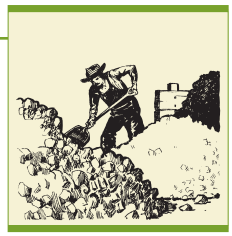


The loaded ore carts ran down the hill on narrow-gauge rails from the entrance of the lowest tunnel to the roasting ovens. The empty carts were pulled back up the incline by donkeys.

Roasting

The first step in processing the siderite was to roast the ore in one of two large ovens. This drove off some of the carbon and sulfur, which may have caused problems in the furnace.

Sorting



The roasted ore was hand-sorted into piles of iron oxide and unwanted quartz. The ore was then crushed and mixed with marble or limestone, which acted as a flux.

Charging

Workmen shoveled alternate loads of prepared ore and charcoal into the top of the blast furnace. The intense heat from the burning charcoal transformed the ore into molten metal.

Casting

When the crucible was full, impurities called "slag" were drawn off the top and the molten iron was tapped to ran into channels in a sand casting bed, where it cooled into iron pigs.

Making Steel Although plans called for converting the pig iron to steel using the "puddling" technique, very little steel was actually made in Roxbury. The steel mill was moved to Bridgeport in 1868.

The Granite Quarries at Mine Hill

While the fortunes of the mines at Mine Hill rose and fell over the years, eight granite quarries at the site prospered and have brought a steady income for their owners for close to two centuries. In fact, when Yale University professor Benjamin Silliman visited Roxbury in 1817, he was more impressed by the "light, agreeable gray" stone he found than the iron and silver ore, declaring the granite "singularly perfect."

It is not clear when quarrying at Mine Hill first began, but it seems likely that stone was being cut by individuals on an informal basis long before 1850 when records suggest the first quarry opened. Oxcarts first carried the granite to Roxbury and New Milford. Later, large slabs were shipped to Bridgeport by rail and then by barge to New York City for use in building the buttresses of the 59th Street Bridge, as well as the railroad approach to Grand Central Station.

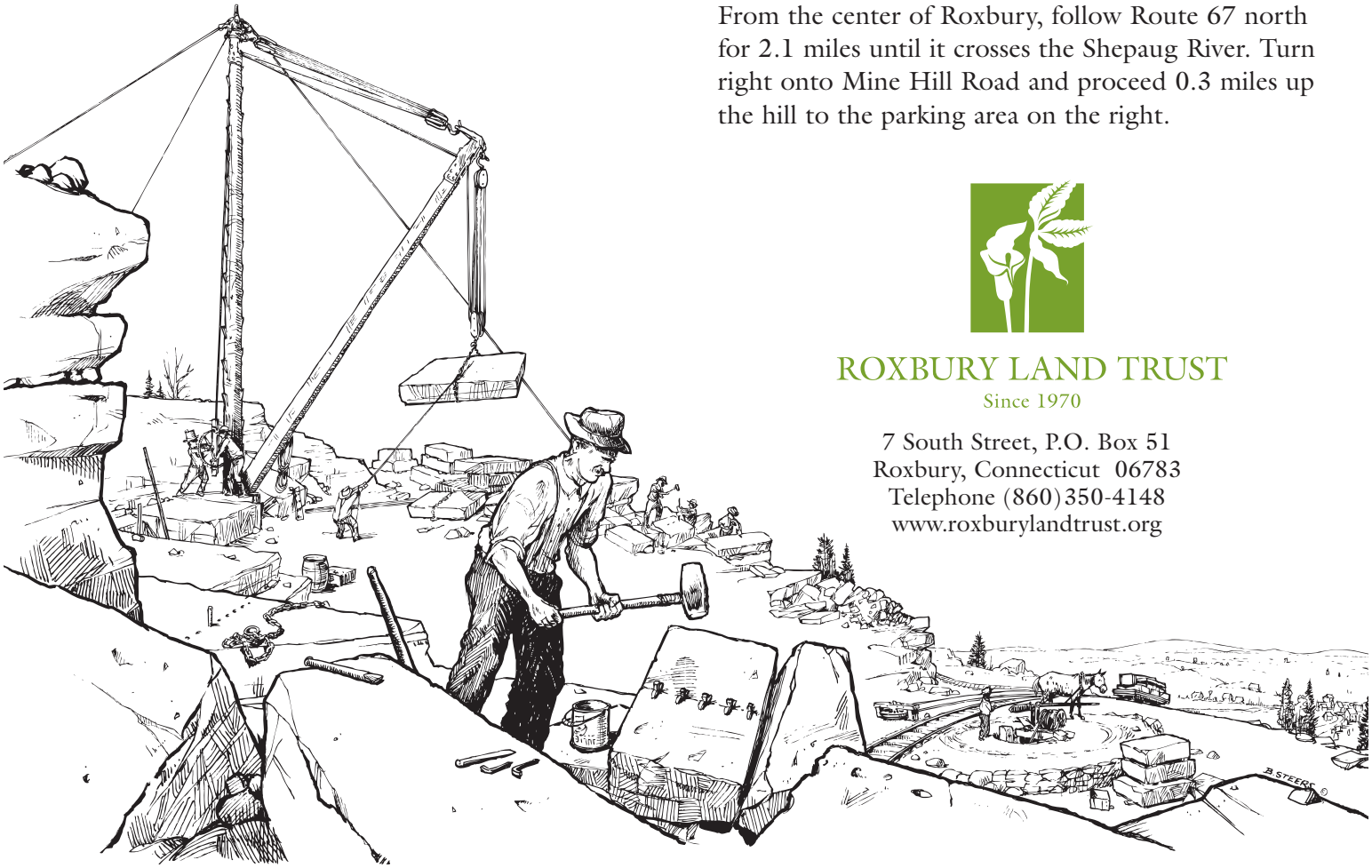
Quarrying continues to this day at Mine Hill, with the fine granite prized for building hearths, chimneys, terraces, walkways and other stone structures. In Roxbury, granite from Mine Hill was used to build both the Hodge Library and the stone chimney at the Minor Memorial Library.

About the Roxbury Land Trust

Established in 1970, the Roxbury Land Trust is a private non-profit organization that seeks to preserve Roxbury's natural resources. Today, more than 3,000 acres of conserved open space is under the stewardship of the Trust. It is governed by a volunteer Board of Directors and supported by membership dues and charitable contributions.

How to Find Mine Hill Preserve

From the center of Roxbury, follow Route 67 north for 2.1 miles until it crosses the Shepaug River. Turn right onto Mine Hill Road and proceed 0.3 miles up the hill to the parking area on the right.



ROXBURY LAND TRUST
Since 1970

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Numerous people and resources were helpful in compiling this brochure. For a complete list and more details, visit www.roxburylandtrust.org.