

Drakesville Times

Exploring History in the New Jersey Highlands

EXTERIOR ELEVATION - NORTH
Scale: 1/8" = 1'-0"EXTERIOR ELEVATION - WEST
Scale: 1/8" = 1'-0"EXTERIOR ELEVATION - SOUTH
Scale: 1/8" = 1'-0"EXTERIOR ELEVATION - EAST
Scale: 1/8" = 1'-0"

Drawings John Bolt Architect

Semi-annual Newsletter

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Message from the President

Stepping briefly out of the fray, I realize that each year our volunteers have succeeded in expanding the horizons of Roxbury Historic Trust, Inc. and that 2013 has been no exception.

Soon after the last newsletter, RHT held its first fund raising event, the Silent Auction conceived of and chaired by Sue Rawlinson. Much work went into it, all the guests enjoyed themselves, and RHT raised \$1,800.

The June membership meeting, held in the Silas Riggs house, was well attended and featured widely-known financial innovator Arnie Staloff, who related his experiences from a happy childhood in Kenvil, through his years in stock and commodity exchanges, to recent business dealings in China. During the meeting new Trustees, Lou Picone and Susan Rawlinson, were elected to 3 year terms on the Board.

From March onward RHT joined in the planning for the 2013 Pathways of History Museum Tour set for the weekend of October 12-13. It was the first time our volunteers have conducted a two day opening. Thanks to the joint publicity with the 17 other participating organizations, including hours of diligent work by Mary Ann Dudak, the Museums at Drakesville saw more than two hundred visitors over the weekend.

Sunday, October 13 was also our annual Living History Day with the theme, "It's All About Iron." There was an exhibit on bloomery iron by Joe Macasek and Bierce Riley, explanation of iron science by Dr. Mike Zedalis, and dramatic demonstrations of black smithing by Dennis Cassidy with his truck mounted forge. We were also treated to old-time banjo music by Claire Reynolds. See the article and photos on page 5.

Just in time for the big weekend, road signs for Drakesville Historic Park were installed at each end of Main Street and at the intersection of Routes 10 and 46 (thanks to the Town's Chris Rath and Rick Blood, and RHT's Signs Committee). We are proud to say these are the first road signs to incorporate the Morris Canal Greenway logo as seen below and in the article on page 8.

Other important progress since May includes the awarding of a Morris County Historic Preservation Trust 2013 grant for \$77,840, matched with \$19,460 from the Roxbury Township Open Space Fund, for construction work on the King Store, including rehabilitation of the fourteen windows and three exterior doors and the icebox. This will be another milestone in the restoration of the building to its 1885 glory.

The Trust's activities have been greatly enhanced by General Operating Support Grants of \$5,000 from the New Jersey Historical Commission for years 2012, 2013 and now 2014. These have more than doubled our operating budget, and funded the computer and Internet upgrade, the gas conversion of the furnace, and have helped with expenses for the Silent Auction and the Pathways of History.

Twice this year information on the web pages, hosted by Mottel Balston, has connected RHT with people researching James Marland, the painter of the King House Dining Room mural. We are excited to have acquired a 1962 painting by him, found by Newark private investigator, Joe Higgins, and to have heard from Marland's nephew, Henry M. Marsh, in Preston, England, who has mailed us a Marland family tree and photos of James and some of his relatives.

The Trust is looking forward to 2014 and New Jersey's 350th Anniversary. The three themes of the statewide celebration are Innovation, Diversity and Liberty. The Education and Exhibit Committee will be preparing new exhibits on innovation in Roxbury to open on April 13, 2014.

It looks as if another stellar year is shaping up for RHT, thanks to this exceptional historic site in the heart of Drakesville Historic District and, of course, to the effort and enthusiasm of our small team of dedicated volunteers. If you would like to join us, please call me at (973) 584-1457.

With gratitude for the shared privilege of working with these buildings and this organization,

Miriam Morris

Officers and Board of Trustees

Miriam Morris President; Richard Cramond VP, Treasurer and Roxbury Historical Society representative; Mary Ann Dudak Secretary and Rotary representative; Charles Alpaugh, Rev. David Holwick, Janet Lordi, Robert Morris, Barbara Pescow, Louis Picone and Susan Rawlinson - Trustees

Committees

Buildings and Grounds Charles Alpaugh, Richard Cramond, Miriam Morris, Robert Morris; Education and Exhibits Marilyn Cunningham, Janet Lordi, Miriam Morris, Rosalind Musmanno, Linn O'Hara, Barbara Pescow, Sue Rawlinson, Carol Shay; Collections Janet Lordi, Miriam Morris; Publicity Mary Ann Dudak, Sue Rawlinson, Barbara Pescow, Mottel Balston; Membership Janet Lordi; Steering Committee Richard Cramond, Mary Ann Dudak, David Holwick, Miriam Morris, Barbara Pescow, Roz Musmanno, Bob Morris, Sue Rawlinson and others; Newsletter Committee Bob Morris, Janet Lordi, Mary Ann Dudak, Roz Musmanno, Miriam Morris; Signs Committee Louis Picone, Sue Rawlinson, Bob Morris, Miriam Morris; Student Volunteers Heather Johnson, Ponsee Ibrahim, Kaitlyn Barmore, Roxbury Rotary Club Rotaract team

RHT Mission:

The Roxbury Historic Trust, Inc. provides unique opportunities for discovery of our shared heritage through interpretation of the King Store and King House Museums. Visitors explore the roles of the King and Riggs families in the development of the Morris Canal, the Roxbury community and the region, from the 1820s through the 1930s, a time of tremendous growth and innovation in our nation. §



CALENDAR of EVENTS

- Sunday, April 13** First opening from 1-4 PM
- Sunday, May 11** Regular opening from 1-4 PM
- Sunday, May 18** Celebrate Preservation, noon to 4 PM. Photos of Preservation Awards buildings recognized by the Mayor and Council, hot dogs, etc.
- Sunday, June 8** Regular opening from 1-4 PM followed by the Annual Meeting and program. All are welcome!
- June** Membership renewals due for 2014-15
- Sunday, July 13** Ice Cream Social Noon-4 PM
- Saturday, August 9** Peach Festival/Ledgewood Gala Day 10:00 AM -3 PM at the Ledgewood Baptist Church
- Sunday, August 10** Regular opening from 1-4 PM
- Saturday, September 6** Suckasunny Day on Main Street, Succasunna: 10 AM - 3 PM
- Sunday, September 14** Regular opening 1-4 PM
- Saturday, October 11** Pathways of History Museum Tour 10 AM - 4 PM
- Sunday, October 12** Living History Day, "Innovation" theme, also second day of Pathways of History Noon-4 PM
- Time and place TBD** Silent Auction Fundraiser
- Sunday, November 9** Regular opening from 1-4 PM, Veterans Day theme including War memorabilia
- Friday, December 5** Salt Box Supper and Historic King House Christmas from 6-9 PM
- Sunday, December 14** Holiday opening from 1-4 PM, guest to be announced
- Friday, December 19** Evening get together 5-7 PM

Visit the [Roxbury Historic Trust](http://www.roxburynewjersey.com/trust.htm) online at <http://www.roxburynewjersey.com/trust.htm> facebook [Museums at Drakesville](#)



History of Drakesville Part 5

Adapted from the 2012 nomination of the Ledgewood Historic District to the NJ and National Registers of Historic Places written by Ann Parsekian and Dennis Bertland, Dennis Bertland Associates, Stockton, NJ

At the end of Part 4 and the early 1900's, the Morris Canal was being replaced by new sources of economic development. The Jackson Store had opened next to the King Store at the intersection of the Dover and Morris-Sussex Turnpikes. Theodore King was doing enough business at his store to employ two clerks. Drakesville had been renamed Ledgewood during the 1890s.

In what must have seemed a promising new development for local commerce, Ledgewood was located along the route of the new Dover-based Morris County Traction Company tracks that were extended in 1907. Running along the main street's spread-out linear business district, electric trolleys offered convenient, frequent, and inexpensive travel: "They were the working stiff's transportation. Their faster acceleration allowed them to make more frequent stops, collecting passengers everywhere."¹ (see photo above showing trolley car passing the 1919 Gala Day marching band)

A 1909 publication, Mountain and Lake Resorts on the Lackawanna Railroad, published by the passenger department of the railroad company, listed the Mansion House, the Ledgewood Hotel, and the Rock Spring House in Ledgewood, all eager to serve city vacationers. The Mansion House and the Ledgewood Hotel had accommodations for twenty-

¹ L. Lowenthal and W. T. Greenberg, Jr., *Morris County Traction Company*, Brimfield, MA: Marker Press, 2005, p. 3.

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five guests. The newer Rock Spring House, which overlooked the canal basin at the head of Plane 2E, and had rooms for sixty, boasted about its 1,100-foot elevation; the picturesque scenery; boating, bathing and fishing, and its location two miles from the Lackawanna station. The Ledgewood Hotel and the Mansion House accommodated transients as well as boarders with daily rates between \$1 and \$2.

The Ledgewood hotels were aimed at budget-conscious vacationers. On Lake Hopatcong, a premier resort destination, the most prominent hotels charged between \$15 and \$20 per week, and the prestigious Hotel Breslin offered rooms starting at \$21 per week.

had become part of Route 6 of the New Jersey State Highway system created in 1917, and was still the main road to Newark.

The bustling economy soon faced another decline. Both the Ledgewood Hotel (Jeremiah Baker's old hotel) and the Rock Spring House burned during the 1920s and were not rebuilt. Just as previous transportations improvements had quickly been surpassed by newer forms, the trolley was soon abandoned for the bus. Trolley service on the Morris County Traction Company line lasted only until 1926, though its tracks survived in places for several more



Around 1916, Theodore and William King donated land for a new Ledgewood (formerly Drakesville) Baptist Church. The original 1874 church, which still survives, was sold. The elegant new asymmetrical stone edifice was dedicated in 1917. By the day of dedication, its Gothic windows had already been fitted with stained glass, evidence of a prosperous congregation.

The postcard image above, from about 1920, shows Ledgewood's main street at the intersection with Emmans Road, where Goldy Emman's garage occupied a former barn along the busy route. The numerous passing automobiles that appear in the photograph provide more evidence of a thriving community. In Drakesville, the old Morris turnpike

decades. Expressing regret at the passing of the trolley, the mayor of nearby Dover commented, "There is something about a trolley line that adds an atmosphere of business activity to a community."

And shortly after the death of Theodore King in 1928, his landmark store was closed up, leaving furnishings and merchandise in place for the next five decades. The Silver Spark, a restaurant opened in 1926 by the Italian-born Maniero brothers, managed to buck the tide and survived as a convenience store well into the second half of the 20th century.

During the mid-1930s, the village witnessed the construction of Route 10 under the Works Progress Administration, which provided a new road linking

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Morris and Essex Counties. East of Ledgewood, the highway ran parallel to the old Morris and Sussex Turnpike to a point just east of the closed King store where it crossed the old turnpike to intersect the original Dover Turnpike. Here the new Ledgewood Circle was constructed. The new highway continued west from the circle, rejoining the old turnpike route west of the village. This reconfiguration of the main transportation route away from Ledgewood's main street effectively preserved that neighborhood, with virtually all new commercial development occurring along the new highway.

The second half of the 20th century witnessed a number of preservation efforts in Ledgewood. During the 1960s, E. Louise King became active in the effort to save her great-grandfather Silas Riggs' original "East Jersey Cottage" style house from demolition. She donated a small piece of property west of the store to the Roxbury Township Historical Society, which she helped found, as a site to relocate the house in 1962. The Roxbury Township Historical Society maintains the house as a local museum. The relocated [Silas Riggs House](#) was listed on the New Jersey and National Registers of Historic Places in 1974 and 1977, respectively.

In 1974, the Morris Canal was listed on the New Jersey and National Registers of Historic Places. Surviving canal structures from Plane No. 2E and the adjoining King's Basin, now known as Ledgewood Pond, border the west end of the district.

Following Miss King's death in 1975 the King properties in Ledgewood were sold for commercial development, but in 1984, with the assistance of New Jersey Green Acres funding, the Township was able to acquire the site. Also in 1984, the Drakesville Historic District was created by local ordinance.

In 1994, based on a nomination prepared by then resident Ruthann Seraly, the King Store and House were listed on the New Jersey and National Registers.

In 1995 in connection with a Section 106 Review of the proposed Ledgewood Circle elimination, the New Jersey Historic Preservation Office issued a favorable opinion on eligibility of Ledgewood Historic District (ID #2897) for listing on New Jersey Register of Historic Places. In 2009 the Morris County Heritage Commission funded a preliminary study of the district and subsequently the New Jersey Historic Trust funded preparation of the nomination. Ledgewood Historic District was listed on the New Jersey and National Registers of Historic Places in March and April 2013 respectively.



Winter 1941 photo looking west towards Kenvil from the intersection of Main Street and Circle Drive in Ledgewood. The shed behind the King Store with its cupola is seen at the right.

After extensive rescue and stabilization work by the Roxbury Rotary Club in the 1990s, the Roxbury Historic Trust, Inc. was formed in 2000 to care for the King site and buildings. Since its inception, the Trust has overseen the investment of more than \$500,000 in grants from Roxbury Township, Morris County and New Jersey State agencies in restoring and interpreting the King Site.

With a little luck, the spirit and charm of old Drakesville and its preserved historic elements may survive for another three centuries. §

LIVING HISTORY DAY

On October 13, 2013, from noon to 4:00 PM, the Roxbury Historic Trust and the Roxbury Township Historical Society jointly hosted the annual Living History Day event at Drakesville Historic Park. The focus this year was New Jersey's rich history of iron mining, forges and foundries which underpinned its early industrial development. Joe Macasek and Bierce Riley (below) of the Society for Industrial Archeology-Roebling Chapter were on hand to explain the bloomery iron and foundry processes in detail and show examples and artifacts recovered from local sites. Colonel Dennis Cassidy (with the apron) demonstrated the blacksmith trade and Mendham metallurgist, Dr. Mike Zedalis (in shorts), explained the science behind iron processing.



museums. Over half of the 120 visitors on Sunday were following the Pathways tour. Drakesville Historic Park was one of the best attended sites on the Tour.



Musical entertainment was provided by the popular Claire Reynolds (bottom left) playing old time banjo tunes. Hot dogs by Ernie Musmanno (bottom right), antique cars, pumpkin decorating and children's games rounded out the day.

This year, for the first time, Living History Day coincided with the 2013 Pathways of History Museum Tour including 18 Morris County history



Photos by Donna R. Weiss and Bob Morris



IT'S ALL ABOUT IRON

Look around and imagine what life would be like without iron. Cars, trucks, railroads, bridges, ships, planes (steel landing gear), farm equipment, buildings, electric motors and transformers and many other things we take for granted every day all depend on iron and its alloys for their properties of strength, hardness, wear resistance, and magnetism.

The most stable isotope of iron, ^{56}Fe , has 26 protons and 30 neutrons in the nucleus surrounded by 26 electrons arranged in four shells, including an unfilled inner d orbital. Synthesized via thermonuclear fusion of lighter elements in long-since-exploded stars, iron is plentiful in the earth's crust and often occurs as concentrated deposits of ore minerals including hematite (Fe_2O_3), limonite $\text{FeO}(\text{OH}) \cdot n\text{H}_2\text{O}$, and black magnetite (Fe_3O_4). Magnetite, the richest iron ore is plentiful in the ancient rocky ridges of the Reading Prong formation in Pennsylvania, New Jersey and southern New York.

The first magnetite mines in New Jersey, in nearby Mine Hill and Rockaway Townships, were operating in the early 1700's.¹ These surface pit mines exploited veins of ore which was processed into wrought iron billet form by many local bloomery forges and into pig iron by a small number of blast furnaces. The wrought iron was supplied to blacksmiths and nail makers while the pig iron was processed into cast iron objects by foundries.

By 1784 New Jersey had 8 blast furnaces and 79 bloomery forges. By 1834 there were 12 furnaces and 108 forges¹, all consuming ore and carbon from charcoal. Demand for iron continued to grow and soon New Jersey's hills were stripped bare of trees. The burgeoning iron industry then looked to the coal

mines in eastern Pennsylvania for a supply of carbon. This motivated construction of the Morris Canal which opened in 1831, and later the railroads, both of which hauled coal across the New Jersey Highlands.

In 1879 the High Ledge Mine in Ledgewood shipped 1120 tons of ore, the Dickerson Mine on Canfield Avenue 28,900 tons, and the Mount Hope Mine more than 50,000 tons.¹ New Jersey's total iron ore production peaked at nearly a million tons per year in the early 1880s but then began to decline due to increasing competition from large deposits of

hematite ore which had been discovered in northern Minnesota. The high quality New Jersey magnetite ore remained in demand for special uses and the Scrub Oak mine in Mine Hill continued to operate into the 1960s.

The origins of the bloomery process are lost in time but it was widely practiced across India, the Middle East and West Africa by the early iron age c 500-1000 BCE. The process produces forgeable iron directly from iron ore and charcoal.

Typical equipment in 18th and 19th century New Jersey

bloomery forges include one or more stack furnaces and hearths, and stream-powered bellows, stamping mill and forge hammers. The operation required water power and a steady supply of high grade iron ore, charcoal and hard labor. Staff would include highly skilled operators for both the hearth and the forge hammer. Forges sometimes operated



Blast furnace ruin in Wawayanda State Park. This 38 ft. high furnace operated from 1845 to 1856 using local ore and charcoal from a surrounding 5700 acre tract. Water-powered bellows for the furnace and also grain and saw mills relied on the wing dam on Wawayanda Lake just up the hill behind the furnace.

IT'S ALL ABOUT IRON

continuously Monday through Saturday, requiring multiple shifts.³

The bloomery process is illustrated in this drawing by [Darrell Markewitz](#) (adapted from an earlier drawing by British archaeometallurgist [Ronald F. Tylecote](#)).

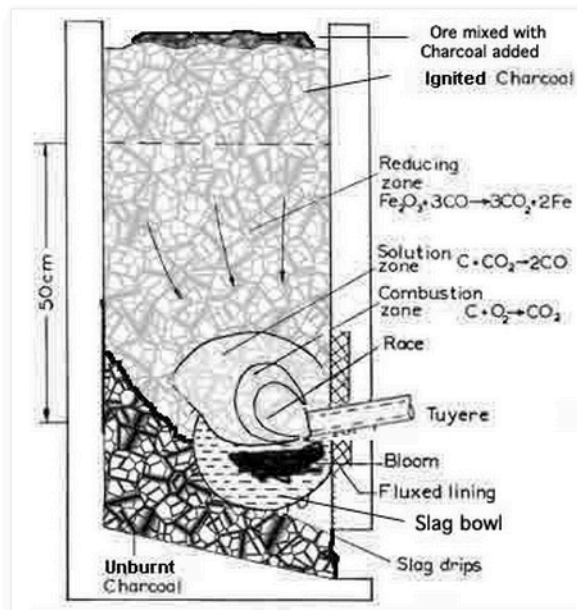
A mixture of iron oxide ore and charcoal are fed into the top of an insulated stack. Carbon monoxide generated by the burning charcoal chemically reduces the iron oxide ore to metallic iron. The silica impurities in the ore combine with some of the iron to form slag.

Approximately equal weights of ore and charcoal were fed into the top of the furnace while a stream of air from a bellows was directed at the base of the fire through a "tuyere." As the ore particles travel down through the column of burning charcoal they are transformed into particles of iron metal surrounded by a film of molten slag. The iron particles sink to the bottom of a pool of molten slag at the base of the furnace. The maximum temperature, near 1250°C (2282°F) liquifies the iron silicate slag but is not hot enough to melt pure iron, which accumulates as a porous mass or bloom.

The bloom was periodically removed from the hearth and forged using the water-powered hammer to expel trapped flux and densify the material. The final product was typically a 2 in. square bar which would be sold to blacksmiths or other customers.

In the early 1800s New Jersey forge operators improved the efficiency of the bloomery by preheating the tuyere air with waste heat from the stack.² This innovation was widely adopted. Reclaiming waste heat in this way is essential for melting steel in the modern open-hearth process.

The blast furnace is also based on chemical reduction of iron oxide with carbon, but in this case the process is adjusted to increase carbon content of the iron to about 4 weight %, much higher than in wrought iron or steel. This significantly reduces the metal melting point, resulting in a pool of molten iron in the hearth. The iron melt is periodically tapped into molds and freezes into cast iron "pigs" which would be sold to



foundries for production of cast iron products.

Some pig iron was converted to wrought iron by remelting and decarburization in "finery forge" and "puddling" operations. The [Old Andover Forge](#) at the present location of Waterloo Village, NJ made iron in this way around the time of the Revolution.

The carbon content of wrought iron is less than 0.1 weight % and the metal is malleable and strong, but not hard enough for blades and cutting tools. Increasing carbon to 0.2 to 2%

produces steel, which can be dramatically hardened by quenching from high temperature. Wrought iron could be converted to steel by prolonged heating in a bed of charcoal or by melting with carbon in high temperature crucible furnaces, but these processes were tedious and expensive, limiting utilization of steel to smaller scale applications.

This all changed dramatically in 1855 when Englishman Henry Bessemer patented blowing compressed air through molten cast iron to burn out the excess carbon. Large batches of mild steel for rails, bridge girders and other large scale applications could now be produced quickly and cheaply using the Bessemer Converter, a keystone technology of the Industrial Revolution.

Concurrently, John Roebling and Sons in Trenton, NJ were producing twisted iron wire rope, famously used to support the Brooklyn Bridge and haul canal boats up the inclined planes of the Morris Canal, and Carl Wilhelm Siemens and Pierre-Emile Martin in Europe were developing the large-scale open-hearth steel process. The rest is history!

References

- 1 - William S. Bailey, [Iron Mines and Mining in New Jersey](#), NJ Geological Survey of New Jersey, 1910.
- 2 - Robert B. Gordon, [American Iron, 1607-1900](#), Johns Hopkins University Press, 2001.
- 3 - E. S. Rusch, [The Story Of Ironmaking Bloomery Forges At Picatinny Arsenal](#), U. S. Dept. of Defense, Legacy Resource Management Program, 1999

Many thanks to Bierce Riley for schooling on charcoal, bloomery, puddling and finery processes and related topics.

§

NEW ROAD SIGNS

The week before the October Pathways of History and Living History Day openings, Roxbury Township installed "Drakesville Historic Park" signs on Route 46 (below left) and Route 10 (below center with Joe Macasek, President of the Canal Society of New Jersey) and a sign identifying the park location on Main Street in Ledgewood (right). Many thanks to Township Manager Chris Rath and Public Works Director Rick Blood for making this happen in time for our big event. These signs all incorporate the Morris Canal Greenway logo and, as far as we know, represent the first use of this logo on road signs in New Jersey.



Roxbury Historic Trust, Inc. DRAKESVILLE TIMES

Issue No. 7 Dec 2013

MUSEUMS AT DRAKESVILLE

I wish to renew my membership in or join the Roxbury Historic Trust, Inc.

Name _____ Date _____

Phone number _____ Email address _____

Mailing address _____

Annual Membership Dues - _____ Individual \$25.00, Corporate \$125

I would like to help fund a special project: _____ King House Mural Restoration
(Funding goal: \$15,000)

_____ King House wheel chair ramp

I would like to help the Trust fund continuing restoration _____ General Donation

_____ Total enclosed

Please mail information with payment to: *Roxbury Historic Trust, Inc., 209 Main Street, Ledgewood, NJ 07852*

I would like to volunteer _____ Skills / interests _____