

# Industrial Archeology and Historic Mining Studies at Michigan Tech

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**R**ecent years have seen an increasing awareness and concern for industrial heritage in North America and internationally. Public and private interest in the rise of industrial society is readily visible in the creation of industry-focused national parks such as Saugus, Lowell, America's Industrial Heritage Project, Steamtown, Keweenaw National Historical Park, as well as state and community-recognized sites like Slater Mill, Sloss Furnace, Eckersley Village, and Fayette State Park.

Prominent among the sites and communities that highlight industrial heritage are the locations of former mining activities, both here and abroad. Interpretive efforts on major mining sites have been especially successful in Australia. Carefully designed and located interpretive signs combined with walking and driving tours provide important information to visitors at Broken Hill, Burra, Moonta, and Kapunda, among other sites. A major interpretive center at Sovereign Hill in the gold fields of Victoria is one of Australia's most successful tourist attractions, drawing visitors to a carefully reconstructed, if not fully faithful and accurate, historic mining complex. Something of a cross between Disneyland and Williamsburg, the Sovereign Hill complex is an excellent representation of several stages of mining activity from an isolated tent camp to a fully developed village, complete with mills, machines, mollock heaps, steam engines, pubs, housing, and costumed interpreters.

In Cornwall, through the efforts of the Trevithick Trust and other organizations, the extensive mining history of the English countryside is being studied, preserved, and interpreted for the public. Engine houses for pumping and hoisting have been acquired and rehabilitated, interpretive centers have been housed in mining company buildings, and former mining tramways have been developed as interpretive trails linking key sites for walkers. These imaginative schemes preserve important elements of the mining landscape and allow visitors to appreciate their role in the history of the region.

In the United States, historic mining sites and lore occupy an important place in our collective memory and popular culture, whether it be stories of the Forty-Niners, coal mining in Appalachia, or gold prospecting in the Black Hills. Several states continue to base their identity on mining heritage, such as the Silver State of Nevada; the totemic Badgers of Wisconsin, referring to the badger-like diggings of early lead miners; or, the California state slogan, "Eureka!" The cultural and technological importance of mining ventures to our national development is reflected in these expressions of shared identity, even if the historic distribution of benefits was limited to investors and owners.

Few types of human habitation and enterprise generate such profound impacts on the landscape as mining operations. The scale of earth-moving, resource consumption, and environmental impact associated with mining generally exceeds that resulting from any other activity. The often rapid growth of communities devoted to the mining enterprise, the development and spread of distinctive cultural and technological forms, and the persistence of a "mining mentality" also attract attention and curiosity. In addition, the very notion of extracting essential and/or precious minerals from the bowels of the earth, working in perpetual darkness, and the attendant technologies for accomplishing these feats generate sincere interest at a basic emotional and humanistic level.

Scholarly interest in mining towns and landscapes has also penetrated the realm of social science. Several historians have focused their research inquiries on mining as an economic enterprise and, in recent decades, interest has extended into other disciplines. For example, the well-respected studies of Anthony Wallace on Pennsylvania coal mining towns demonstrates the analytical power of anthropological community studies. Archeologists have also been drawn to mining sites across the country because of both research interest and cultural resource management concerns. Identification and management of historic mining sites frequently arise when environmental evaluations are necessitated by federal or state-sponsored projects. Numerous studies have also been conducted by federal agency archeologists and/or private consultants on lands administered by agencies such as the Forest Service, the National Park Service, and the Bureau of Land Management, where pertinent data on historical significance are needed for short and long-term management plans.

Archeologists at Michigan Technological University began studying mining sites in the vicinity of the university in the mid-1980s. Michigan Tech, founded in 1885 as the Michigan

Mining School, is located in the midst of a nationally important copper mining district and near to extensive iron mining regions. Copper mining flourished from the 1840s until the 1960s, while iron mining is still active in the Lake Superior region. Michigan Tech has expanded into a comprehensive science and engineering university in the 20th century, but its surroundings and historic beginnings continue to provide an unparalleled opportunity for studying former mining operations. The remnants of mining ventures litter the physical and social landscape. Mining-related machines, buildings, transportation systems, and waste deposits dominate the small communities that survive. The social structure of mining enterprises, with their rigid and hierarchical ranking systems, have left unmistakable traces in the housing stock and settlement patterns. Heavy dependence on immigrant labor also produced a diverse mix of ethnic and national minorities, a mix distinctively unlike other communities in the Midwest. Fortuitously, the mining school's focus during its early decades resulted in the gathering of an impressive collection of documentary records and resources related to mining, thus providing an especially rich source of insight into technological matters.

Michigan Tech's unique location and history have made it a convenient setting for the study of historic mining. Faculty in the Department of Social Sciences have taken advantage of the setting for several decades, dating at least to the mid-1960s, when the late Lawrence Rakestraw studied historic copper mines within Isle Royale National Park. In the late 1970s, archeology was added to the department's curriculum when Patrick and Susan Martin joined the faculty; the archeological examination of mining sites commenced almost immediately. For example, when the Ottawa National Forest initiated planning efforts for developing trail systems within the Ontonagon District,

Patrick and Susan Martin carried out historical and archeological surveys that provided detailed information about the National Mine near the town of Rockland. Mining-related sites also composed a significant portion of the cultural resource database generated by Patrick and Susan Martin for the Cultural Resource Overview of the Ottawa National Forest, completed in 1979.

As Michigan Tech University's curriculum evolved during the 1970s and 1980s, the Department of Social Sciences developed a faculty focus on "Science, Technology and Society" as a unifying theme among the several disciplines represented (anthropology, history, geography, political science, and sociology). Adoption of this philosophical and methodological approach resulted in traditional American historians gradually being replaced by historians of technology, a shift that further encouraged study of historic mines and mining. As a result, Larry Lankton was hired shortly after he had led a Historic American Engineering Record team that had documented the Quincy Mining Company operation in Hancock. In the early 1990s, this departmental emphasis continued as a Master's degree program in Industrial Archaeology and was formally developed to take advantage of both faculty expertise and local opportunities for research. Establishment and expansion of the program resulted in the hiring of two additional full-time archeologists (Susan Martin and David Landon) and an architectural historian (Alison K. Hoagland) in order to complement the historians of technology (Larry Lankton, Terry Reynolds, and Bruce Seely) and the cultural anthropologists (Carol MacLennan and Josiah Heyman), whose interests focused on industry and work.

Archeological field school students documented a variety of mining-related site features in 1984 at the Quincy Mine near Hancock. While learning archeological methods and techniques, student crews recorded surface features, systematically collected artifacts from looters' backdirt piles, surface collected in plowed fields, and excavated test pits in a residential area associated with the mine. Patrick Martin and Larry Lankton also undertook a research project under contract with the Ottawa National Forest that year. This work intensively examined the Norwich Mine complex in Ontonagon County and involved documentary background and surface survey to guide decision-making for routing a major hiking trail through the mining site. Martin and Lankton documented several mining companies and their associated physical remains that were still visible within a square mile area. In addition, the research generated a National Register inventory-nomination for the site as well.

*The Kennecot Mill, operated between 1908 and 1932, with glacial moraine and mountains in the background. Located within the Wrangell St. Elias National Park, Alaska, this site has been the focus of a cultural landscape study by Michigan Tech University and the National Park Service. Photo by the author.*



In 1986, Michigan Tech University entered into a multi-year Cooperative Agreement with the National Park Service's Midwest Archeological Center to conduct archeological survey and evaluation of sites within Isle Royale National Park. University-based crews focused their attention on historical sites, particularly those related to copper mining on the Island. Several interesting sites were located and mapped; limited test excavations were also conducted at the Siskowit Mine. Particular attention was paid to mining sites that were previously known but incompletely understood. Documentary research preceded fieldwork, allowing for more thorough appreciation and interpretation of surface features. Michigan Tech University staff produced detailed maps that will continue to

serve management and interpretive purposes in the future.

In the early 1990s, our attention returned to the Norwich Mine complex. The Ottawa National Forest was ready to develop their trail system and a new resident Forest Archaeologist was interested in partnering a Passport in Time project. After preparing a Cultural Resources Research and Management Plan, Michigan Tech University and the U.S. Forest Service collaboratively commenced two years of archeological investigation using industrial archeology graduate students, USFS employees, and numerous enthusiastic volunteers. Mapping and surface collection was the primary focus of early work, while later stages concentrated on archeological excavation. Crews discovered a

## ***Geology National Historic Landmark Theme Study***

The Geology National Historic Landmark Theme Study, under development by the National Park Service since 1990, focuses on the identification and evaluation of geology-related sites. Many are of major importance in the history of Economic Geology (Mining). The list of potential NHL sites includes the following:

### **ARKANSAS**

Bauxite Mines, vicinity of Little Rock  
 Barite Mines, Hot Springs County  
 Crater State Park (Diamond Mine)  
 Novaculite Quarries (Quachita Mountains), Blanchard Springs

### **CONNECTICUT**

Cheshire Barite Mines, Cheshire  
 Higley Copper Mine, East Granby  
 Hoadley Neck Quarry, Guilford  
 Jinny Hill Barite Mine, Cheshire  
 Old Newgate Prison Copper Mine, East Granby (NR)  
 Old Mine Park Archaeological Site, Trumbull (NR)  
 Ore Hill Iron Mine, Salisbury  
 Portland Brownstone Quarries, Portland  
 Strickland Quarry, Portland  
 Hale Pegmatite Quarry, Portland  
 Branchville Pegamite Quarry, Ridgefield

### **COLORADO**

Rulison Project Site

### **GEORGIA**

Soapstone Ridge, Dekalb (NR)

### **ILLINOIS**

Lead Hill, Hardin County  
 Rose Hotel, Hardin County (NR)

### **IOWA**

Mines of Spain, Dubuque County

### **LOUISIANA**

Salt Mines and Offshore Oil Drilling Site (various locations)

### **MISSOURI**

Meramec Spring Park, St. James  
 Schaperkoetter Clay Pit

### **NEW JERSEY**

Bog Iron and Batso Village, Hammonton  
 Franklin-Sterling Hill Mineral District, Sussex County  
 Schuyler Copper Mine, Bergen County

### **OHIO**

Samuel P. Hildreth House, Marietta

### **PENNSYLVANIA**

Wyoming-Lackawanna Coal Field, Wilkes-Barre and Scranton

### **SOUTH DAKOTA**

Homestake Gold Mine (part of the City of Lead Historic District), Rapid City (NR)

### **TENNESSEE**

Iron, Mining and Furnace Sites (multiple properties) in Tennessee, South Carolina, North Carolina, Kentucky, and Alabama

### **UTAH**

Bingham Canyon Open Pit Copper Mine

### **WISCONSIN**

Mineral Point Hill, Iowa County (NR)  
 Neda Open Pit Mine, Dodge County  
 Pendarvis House, Mineral Point (NR)  
 Trimborn Quarry Site, Milwaukee County

*Harry A. Butowsky*  
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(NR) denotes listing on the National Register of Historic Places.

number of important and interesting features including several structures associated with the various companies that had operated within the area. Field and archival studies identified and explored an 1840-1850s residential area as well as the milling facilities associated with the Ohio Trap Rock Mine. While excavating portions of the stamp mill, built to crush the basaltic bed rock and remove native metallic copper, the well-preserved remains of some unusual features were discovered. Two large wooden buddles, circular devices 8 to 10 meters in diameter, had been used to separate finely crushed rock from the copper particles. Buddles were common in the tin and copper mines of Cornwall, England, in the 18th and 19th century. This technology was evidently employed in the early stages of the site's mining development, but apparently did not work efficiently in the local situation. The unique characteristics of the ore bodies did not lend itself to this separation method and it was quickly abandoned. Prior to the discovery of these exceptional examples, no wooden buddles had been recognized elsewhere at any North American mining site. The accidental burial of the Ohio Trap Rock Mine buddles in copper-rich stamp wastes preserved them for 150 years, leaving them available for the unexpected discovery by Michigan Tech University archeologists. [For further information, see: "Archaeological Perspectives on the Diffusion of Technology: An Example from the Ohio Trap Rock Mine," (Landon and Tumberg 1996), *IA: Journal of the SIA*, 22(2): 41-57.]

A National Register-related project administered through the Michigan Historical Center produced an intensive survey of historic mining sites in a single Upper Peninsula County. Ontonagon County saw significant copper mining activity in the 19th and 20th centuries, including the last copper mine to operate in the area, the White Pine Mine, which ceased its operations only recently. While some sites were prominent and well known, many others had faded from both sight and memory and were obscure to land managers and decision makers. The need for a systematic survey was well recognized. Grant Day, a Michigan Tech University student, conducted the documentary and field survey under the faculty guidance of Susan Martin and Terry Reynolds. The well-researched final survey report, *Copper Mines and Mining in Ontonagon County, Michigan: An Intensive Level Survey of Historic Era Mining Sites* (Day 1996), was recognized with an award from the Michigan Historic Preservation Network as an outstanding contribution to the state's preservation efforts.

In 1997 Michigan Tech University entered into a Cooperative Agreement with the National Park Service's Alaska Regional Office to undertake cultural landscape studies on two mining complexes within the Wrangell St. Elias National Park. Working with archeologist Ann Worthington and landscape architect Cathy Gilbert of the National Park Service, Patrick Martin and graduate students Paul White and Will Updike initiated work at the famous Kennecott Mine and the nearby Bremner gold mining district. Inventory work by Michigan Tech University archeologists will supplement the extensive historical research and documentation that has been previously accumulated on Kennecott.

A perspective that emphasizes the physical nature of artifacts and structures and the integration of associated landscape features, and leavened with an understanding of mining and milling technologies, makes for a different level of interpretation than might be generated by a landscape architect or historian. The complexity of Kennecott's landscape and development, as well as the massive scale of the site makes for a challenging prospect, but an exciting one. The project combines traditional pedestrian survey and recording techniques with Geographic Information System technology for presentation and interpretation. The combination of an archeological approach with the perspectives of historians and landscape architects promises an interesting and informative product.

While historic mining is a major interest area, mining sites are not the only focus of the Industrial Archaeology program at Michigan Tech University. Student thesis research has also focused on a foundry in Alabama, worker housing in the Lake Superior mining district, a water-powered sawmill in Wisconsin, and an early Lake Superior lighthouse. Michigan Tech University's definition of industrial archeology has been established in a broad and inclusive way by its staff and students. But the study of mining sites, technologies, and communities promises to remain the core area of research in the near future. Of particular interest are comparative studies, using data and perspectives from Upper Michigan to illuminate mining sites and communities around the world.

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