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An Archaeological Perspective on Nineteenth Century Copper Mining Communities in Upper Michigan, USA

by Patrick E. Martin

Introduction

The western portion of the Lake Superior basin is home to the largest native copper deposits in the world. Several hundred volcanic flows lie beneath the lake and thrust their eroded edges up at the surface, forming the Keweenaw Peninsula to the south, and Isle Royale near the north shore (Figure 1). Dating from approximately 1.5 to 0.8 billion years ago, these volcanic basalts contain the nearly-pure metallic copper upon which the mining industry of this region was based. The metal is deposited in the voids left by small gas bubbles, in conglomerate deposits with sand and gravel, and in veins or fissures. Mass copper, as this latter type is called, has been found in single fragments as large as 500 tons.[1] Native Americans discovered and utilized these copper deposits at least as early as 3,000 B.C.[2] Indian use of copper rose and fell in importance during the succeeding centuries, but it was still a material of at least mythological importance when Europeans first entered this region in the seventeenth century. The thousands of mining pits left from the simple extraction of the metal invariably led Euro-American explorers to the deposits: virtually every significant mine in the district was established on or near aboriginal workings.

Discussions of the copper deposits of the region written during the seventeenth and eighteenth century were generally fantastic. One attempt at mining was undertaken in the Ontonagon district in the latter half of the eighteenth century, but was largely unsuccessful. It remained for the explorations of Douglas Houghton, geologist for the new State of Michigan, to bring the extent and nature of the copper deposits to the attention of government and investors. Houghton's visits to the Upper Peninsula in the 1830s and early 1840s were the earliest systematic evaluations of the potential of copper mining on a commercial scale. His annual report to the Legislature describing the 1840 field season[3] and his reports to learned societies provided detailed and very positive assessments of the opportunities for successful mining ventures in the region. By the time that the Treaty of LaPointe between the United States government and the Chippewa went into effect in 1843, opening the western Lake Superior area to mineral exploitation, there had already been several companies formed, exploring parties organized, and stock sold to capitalize operations. The majority of these companies and individuals were interested in the Keweenaw Peninsula, but several parties focused their efforts on Isle Royale, as well.

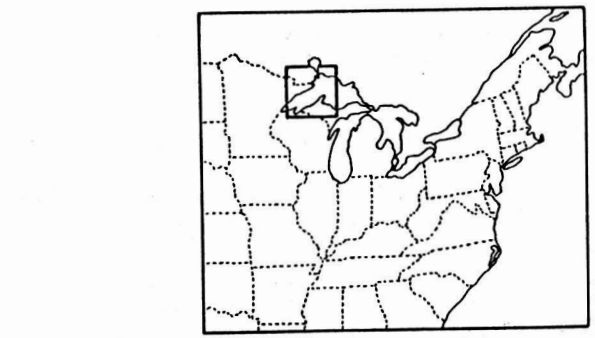
During the next century, more than 300 companies were formed to wrench mineral wealth from the region. Over 12 billion pounds of refined copper were produced, fully 75 per cent of North American production during the decades before the Montana mines were opened late in the nineteenth century. The industry began with a period of exploration, followed closely by speculative investment, a flurry of determined capitalization of the more productive companies, a mature industrial period, and a period of decline and failure.

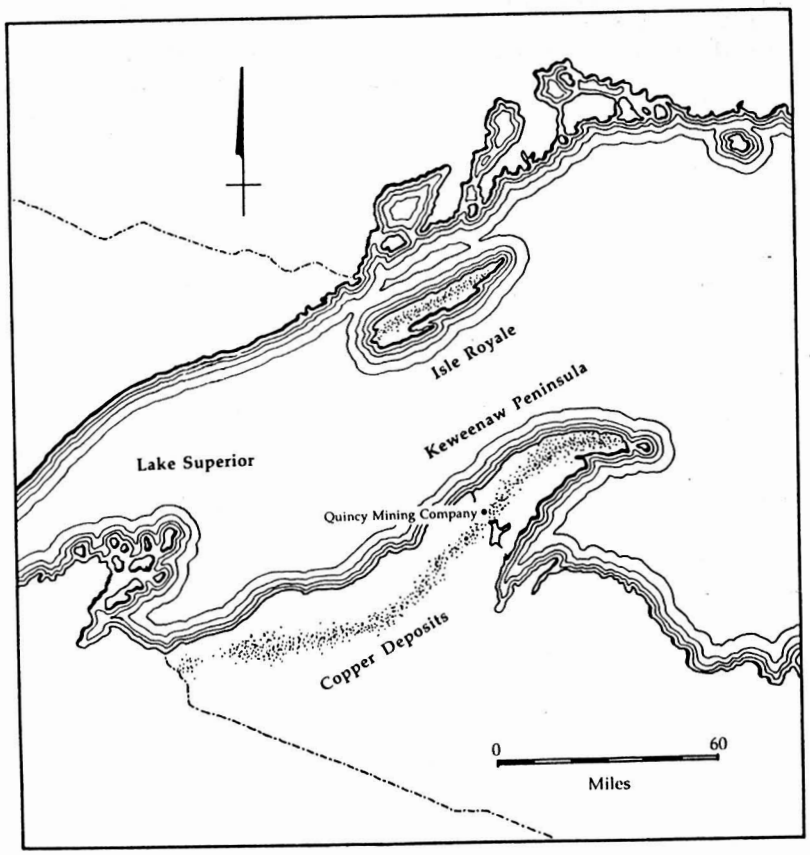
Development of the region's mineral industry has attracted a number of historical scholars, who have described and analyzed various aspects of the mining history from traditional historical perspectives: they have wrung the documents for insights into economic, political, and technological developments.[4] Some social history has been done, as well, with inquiries into issues of ethnic history, immigration, and social movements such as labor organization.[5] While these works have proven useful and interesting, they have left some important and tantalizing gaps; the existing historical scholarship emphasizes the mature industrial period, for example. It tends to focus on the larger-scale, more successful companies, rather than the smaller, less successful operations that were actually more typical and numerous. Furthermore, most historical studies ignore an important category of data, one more traditionally utilized by archaeologists; the physical record of the industry. Archaeologists depend on the things people leave behind for insights into their lives. This emphasis is the same whether studying ancient hunters or nineteenth century miners. In the former case the physical record is the only source of data, while in the latter it is an independent and often overlooked source for information on a wide range of social issues. The remainder of this paper offers some arguments for including the physical data in a social history of mining, supported by examples drawn from the nineteenth century copper mines of Lake Superior.

Shortcomings of the Documentary Record

While the documentary record of mining operations in the Lake Superior district is rich and varied, it manifests a number of problems that may apply equally to other mining regions. First, the record is incomplete. Most of the companies that operated in the region were ephemeral and short-lived. They generated only a minimal paper record, at best, and even that minimal record often disappeared with the company. For example, despite the presence of an active, State-sponsored archive at Michigan Technological University, in the heart of the mining district, extensive company records have survived for only two companies, with limited coverage of perhaps half a dozen others. Even the published documentation for these enterprises, the annual reports to stockholders required by State law, only exist in the form of partial collections spread around the country in archives and private collections.[6] Many companies are represented by only one or two of the reports.

Fig. 1. Vicinity Map of Western Great Lakes Region





Even when a paper record does exist, it often leaves a great deal to be desired for social history studies. Annual reports were typically designed as sales promotions, or at least justifications for continued expenditures of investors' money. They told tales of production, changes in management and Board leadership, and finances. They seldom contained much detail regarding daily operations, and almost never included any material concerning the social lives of the company's operatives. Newspaper articles also tended to treat issues related to the productivity and financial status of the industry, downplaying or completely ignoring information on the community. This is hardly surprising, when even some of the radical workers' newspapers were secretly controlled by the mining companies, and the more conservative press was overtly directed for management ends. Even when local news was reported, it reflected the biases of the dominant social class. For example, the Portage Lake Mining Gazette reports that "two Finns received a mashing at the hands of a drunken adversary", and "Italian trammer injured", notices that ignore the identity of the parties involved, recognizing only their ethnic affiliation.

A further difficulty in use of documents and traditional historical scholarship is the bias toward the larger and more successful companies. In this district, the two significant collections of company records are from the two largest companies, the Calumet & Hecla Consolidated Copper Company and the Quincy Mining Company. These two giants clearly dominated the industry, but their operations should not be considered typical. They each enjoyed financial success that far outstripped their many competitors. They exhibited types of management and levels of technological development unrivalled in the district, as well as controlling the richest deposits of copper encountered by any operation. The influence of these companies continues into the present as their records tend to dominate the historical literature. While their impact on the region should be recognized, their dominance skews the perspective on the normal, more typical mine.

A final shortcoming of the historical literature on this region is the lack of coverage on the exploratory and speculation stages of the industry's development. During the first decade after the native Chippewa land claims were extinguished, hundreds of explorers and speculators filled the area, seeking for paying deposits. Yet very little has been published on this critical aspect of the district's development, and little primary documentation survives. One great hero, Douglass Houghton, has been lionized extensively for his role in publicizing the copper deposits. This attention has probably been more focused than it might have been, had Houghton not died tragically in Lake Superior during the peak of the exploration period.

Added Dimensions of the Physical Record

A recent article by James Deetz illustrates the complementarity of archaeological and historical data, as synthesized by historical archaeologists.[7] He argues eloquently for the integration of documentary and archaeological data in a way that results in more informed interpretation and explanation. Though his case study is not drawn from a mining region, it demonstrates clearly the productive interaction of these independent sources of information. Archaeology provides compelling insights where the documentary record is thin, and stimulates a reexamination of the documents in the light of these new insights. This point is reinforced in the Lake Superior mining context.

When a researcher refers to the physical evidence of copper mining, in addition to the documentary and historical literature, a significant new dimension is added to the information available for social and technological history. In answer to the shortcomings of the documentary record listed above, the archaeological record offers direct information about companies that did not leave a significant paper trail. We can, and do, find the sites left by companies for which there are no annual reports, no diaries, no production records, and almost no documentary trace. An example is the Amygdaloid and Isle Royale Mining Company (Figure 2). A single note on a government surveyor's map of 1847 alludes to the existence of such a company. The map located the company's exploratory efforts on the north shore of the island, and an archaeological team followed the map to the site. We can now determine the scope of their efforts and, if warranted in the future, compare this site and its contents with others of interest in an explicit way. The physical evidence significantly expands the meagre documentary record, a situation that is repeated numerous times throughout this district. Such is likely to be the case within any mining district, where records are slim or poorly preserved.

A second area of contribution for the archaeological record is in the range of issues and topics that are accessible through these types of data. When the documents are numerous and well-preserved, they often relate primarily to operational detail, production rates, and economic issues. The archaeological data can occasionally be applied to these matters, but are also amenable to use in a variety of other inquiries, as well. For example, the physical record left at a mining site can often provide substantial insights into technological innovations that simply do not appear in the documentary record. In the case of the Isle Royale and Ohio Mine (Figure 2), the annual reports and assorted other documents refer to an experimental smelter constructed in 1847 to process the mine's product on site. It was argued that this arrangement would result in a significant cost advantage over shipping the mineral down the lakes to Detroit or beyond for smelting. The documents tell us of the company's hopes, and even the identity of the engineer who was to implement the plans. However, they offer no details of design or construction, no insights into operation, no summary of success. In fact, we only

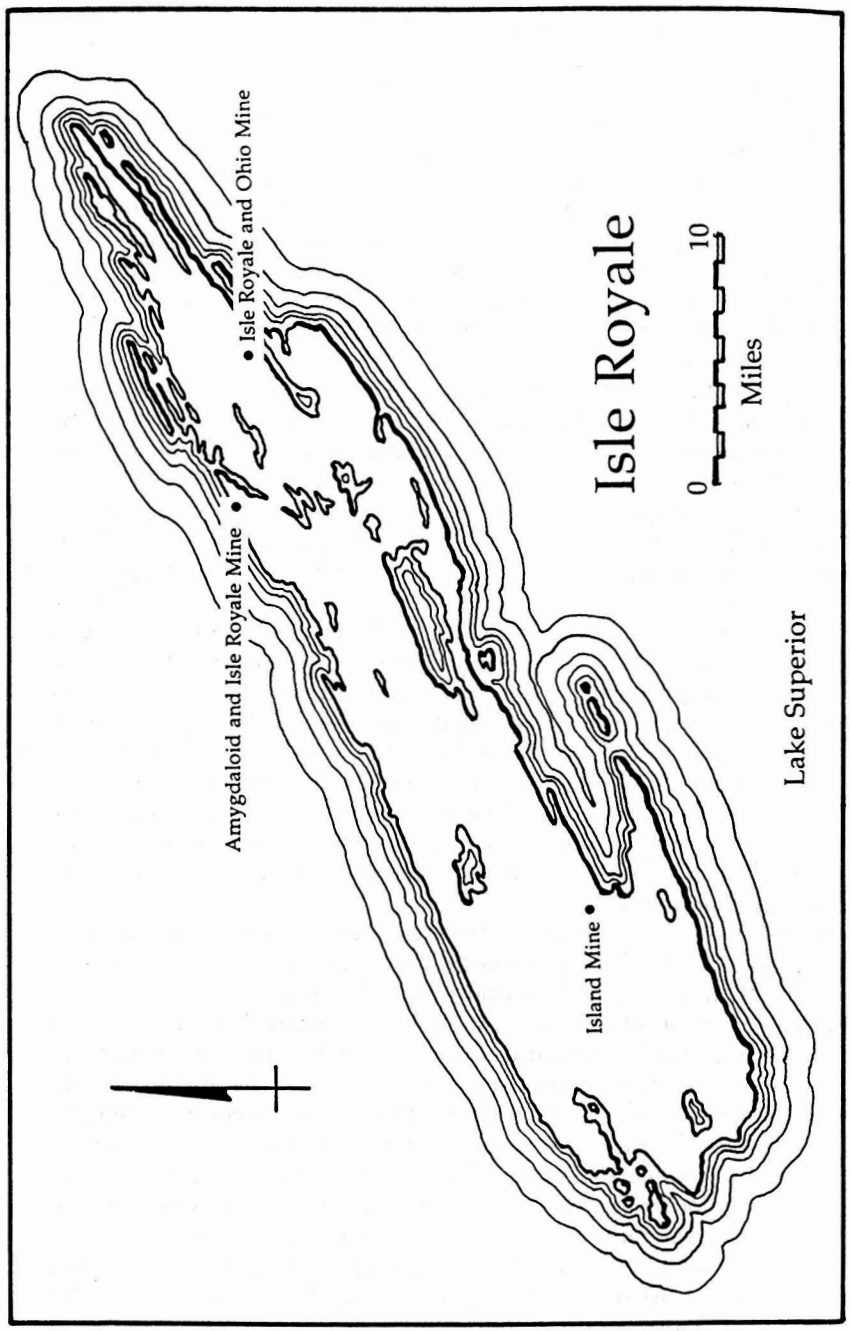


Fig. 2. Isle Royale, Lake Superior, with mine locations

learned of this venture's failure by resort to documents generated by a neighboring company that had hoped to benefit from the establishment of a smelter.

When we located the site, however, we found a rich record of technological detail. The smelter was simply abandoned after it failed. The site has seen little use or subsequent development, so that the physical remains of the smelting operation are visible on the surface, even after 140 years. We can easily see that a simple cylindrical blast furnace was employed, along with a masonry reverberatory furnace. The blast furnace is clogged with the slaggy remains of its final charge, offering some insight into the reasons for failure. The ruins of the charcoal kiln that provided fuel lie nearby, along with several other as yet unidentified building ruins. No excavation has been attempted here, but the surface remains alone promise to tell us much more than the documents about this failed technological venture.

This site offers an example of another advantage provided by the combination of physical and documentary evidence. It is possible here to study the failed mining enterprise, not just the success. Historical scholarship in this region has focused largely on the latter, while a balanced view requires that the failed undertaking receive serious attention. Understanding the industry will not be possible without an examination of the failures, along with the successes.

In their recent series of review articles concerning industrial archaeology, Clark[8] and Palmer and Neverson[9] emphasize the importance of the time perspective enabled by archaeological studies. In addition to the technological details offered by the emphasis on material culture, the archaeological perspective provides a strong focus on temporal control that is sometimes lacking in the documents. In this district the lack of attention paid to the exploratory and speculative stages of industrial development is being corrected by an archaeological approach. Not only can we purposely seek out evidence of the earliest operations, but we can use archaeological reasoning to separate early works from later ones where documents cannot. It is possible, using the artifacts associated with mining ventures, to distinguish the dates of operation for undocumented sites. Based on the presence or absence of datable artifact types (ceramics, tobacco pipes, bottles, tools, etc.) we can correct the bias inherent in some historical scholarship. This is simply not possible using the written records in the absence of the physical evidence.

The foregoing examples are rather specific cases. Two more general areas of archaeological inquiry have also had positive results in recent studies of mining in northern Michigan, and may serve as more powerful examples of the kinds of contributions made by archaeological study. The first has to do with settlement systems, or the physical layout of mining communities, and the second concerns the study of material culture to measure the persistence of ethnic identity.

Settlement Systems

Arnold Alanen, an historical geographer, has studied the settlement systems used in Lake Superior mining communities from a documentary point of view. He recognizes a hierarchy of settlement types, from isolated camps, to speculative developments, locations, and company towns.[10] The latter two forms, the location and the company town, were emphasized in Alanen's work, for they were the most numerous and important settlement types. Controlled largely by the mining companies, the locations were clusters of dwellings centered on a mine, while the company towns offered a broader array of services. The locations were much more common in the district, and were scattered across the landscape wherever mines were established. Sometimes merely a random assortment of houses conveniently near the mine, the locations were more often a planned arrangement of dwellings situated near the workplace. The construction of housing by the companies was an absolute necessity in the early years, for no alternatives existed in this frontier setting. The practice was continued in a spirit of paternalism, with mining companies providing pasturage, schools, water, fuel, health care, and lots for the construction of churches. These benefits were instrumental in maintaining a compliant work force that often rejected the organizing efforts of unions in favor of the benefits of paternalism. Thus, a mixture of idealistic and practical motives combined to encourage the persistence of these clustered communities. Many of the nineteenth century locations survive today, even though the mining operations have been shut down for decades.

The Island Mine was established on Isle Royale in 1873, and operated until 1878 (Figure 2). Documentation on this company is average for the time period; since it was operated during the mature stage of the industry, there are some annual reports, a diary, some government statistics, and a number of newspaper and magazine articles available to document the company's operation. The archaeological study of the Island Mine began when the National Park Service sought to expand its survey of cultural resources within Isle Royale National Park. The survey was designed to provide information to guide the park's management program and to supplement the interpretation of cultural resources for the public. No traditional excavation has been undertaken at the Island Mine, merely surface surveys to determine the extent and locations of physical evidence.

The Island Mine's physical plant is somewhat more dispersed than most copper mines in the region (Figure 3). The primary copperbearing deposits were located approximately 4 km from their lakeside shipping depot. The documentary record provided the approximate locations of the dock facilities, a powder house, and the mine shafts, noting also that a road connected these important elements of the site. Nowhere in the documents was there any mention of the placement of the residential location. In fact, most of the documents refer to a townsite, rather than a location, noting that the townsite was designated the seat of Isle Royale County government in 1875. The single surviving diary offers the most insights into social history,

and consistently refers to "the Location", but does not offer any direct information as to its whereabouts. Despite using this diary extensively, the authors of a recent historical study interpret the Island Mine settlement as a town or a village, though they fail to place it on their map of the site.[11] The authors of another National Park Service sponsored historical project concentrated on underwater resources, such as shipwrecks. However, in the discussion of the Island Mine, the study's authors consistently refer to the "town" and the "town site above the wharf"[12] and include it on their site map.

Using the available documentary data, the author visited the vicinity in the Spring of 1989. The mine, wharf, and powderhouse sites were readily located. Despite repeated sweeps through the area suggested as the location of the settlement, no physical remnants of dwellings were discovered. This was initially surprising, since this mine housed over 100 workers and family members. On other sites of the period, even though they've been abandoned for over a century, one can see the outlines of ruined structures, cellar holes, wells, and privy pits. Only two privy or well pits were visible in the wharf area or nearby. After coursing through the forests near the mine shafts, near the stamp mill, and along the roads connecting the various parts of the mine complex, the nature of this location became clear.

Four clusters of dwelling ruins were discovered, spread over the several square kilometers that encompass the site. The first cluster of building ruins was located about 1.5 km from the lakeshore. The cluster included four structures, three of which were probably duplexes measuring 15 m by 7 m. The duplexes are recognizeable because of their larger size, double cellars, and symmetrical, two part construction layout visible in the foundations. The fourth was a single dwelling measuring 9 m by 7 m. About 100 m northwest, across the road, was a small cemetery with a single marked grave. Approximately 0.5 km up the road, toward the mine, the second cluster of dwellings was discovered. Two large buildings were mapped, 17 m by 6 m and 13 m by 6 m, about 10 m apart. A stone-lined well was located between the buildings, and a large earth-bermed root cellar lies just behind the buildings, dug into the slope of a small hillside. These buildings may be the office and dwelling of the mine superintendent, or perhaps the company store known to have existed in the complex. The scale of the structures is significantly larger than the single-family dwellings, or the two-family duplexes.

The third small cluster of four building ruins lies near the mine shafts. These were undoubtedly occupied by mine operatives, perhaps firemen or boilermen who needed to tend their engines closely. The buildings in this cluster were all small log structures, less than 8 m by 5 m, clearly the homes of lower status workers.

The stamp mill was built on a stream just over a kilometer east of the shafts, with a narrow gauge tramway connecting these parts of the mine. About 100 m from the mill, the fourth and largest cluster of ruined houses is located. Ten structures, most of them duplexes 10 m square, are arrayed

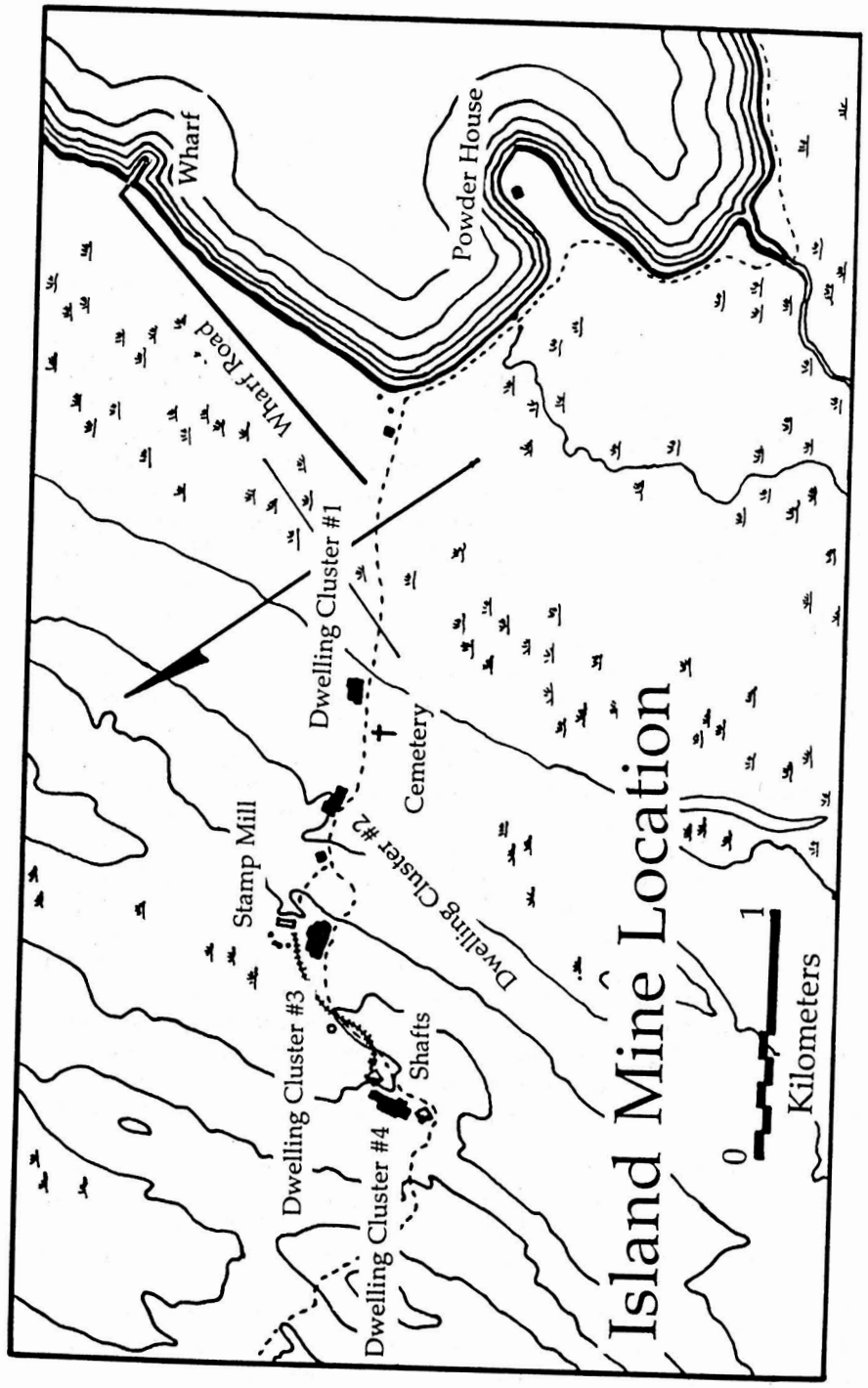


Fig. 3 Detail of Island Mine Location, Isle Royale

along two parallel streets or lanes. A stone-lined well was placed near the center of the cluster. This final cluster of dwellings lies close to the mill and surely housed the mill workers. Mine workers probably also lived here, and traveled along the tramway to the workplace. The cluster is just under 0.5 km from the second cluster, nearly a full kilometer from the first and from the mine.

Further study of this site, including selected test excavation, should allow us to identify and differentiate more certainly the homes of workers and managers. For the time being, we are able to dispel the myth of a town, and suggest that the settlement system employed here is somewhat different than the typical location arrangement. While housing was provided in close proximity to the workplace, the dispersed nature of this particular mine complex required that the location be subdivided, with housing clustered near each of the functional areas of the mine. Only the study of the physical evidence makes this interpretation possible, and opens the question of explaining this variant settlement form.

The experience of archaeologists in other mining and metal processing sites in the region suggests that this separation of housing localities is often a function of the segregation of socioeconomic groups, as well as occupational differences. For example, at the contemporary (1867–1891) iron-smelting village of Fayette on the Lake Michigan shore of Michigan's Upper Peninsula, the company-owned habitations of skilled workers were distinctly separated from those of the lower-status laborers[13]. This segregation was also largely carried out along ethnic lines, the skilled workers being U.S. citizens or of English-speaking background, while the laborers were mostly recent European immigrants. In the Island Mine case, it is not clear whether the segregation of housing was based on occupational specialization, ethnic differences, or a combination of both. Future archaeological study should settle the matter.

Ethnicity

Documentary history suggests that ethnic segregation was practiced regularly throughout the region. The work force that manned the mines and mills of the district was predominantly of nonnative origin throughout the nineteenth century. Waves of immigrants from the Old World and Canada entered the region seeking employment. Ethnic discrimination and antagonisms were a significant element of social life, and the maintenance of ethnic identity was a constant concern for many people. At the same time, there were significant pressures on the part of the companies and the government to Americanize the work force. English language lessons were supported, along with many other efforts aimed at developing a loyal, homogenized population. The competing concerns of maintaining identity and becoming good citizens caused an interesting social dynamic, one that is somewhat accessible through the archaeological study of mining sites. One example is

the study of Swedetown Location at the Quincy Mining Company in Hancock, Michigan (Figure 1, Figure 4).

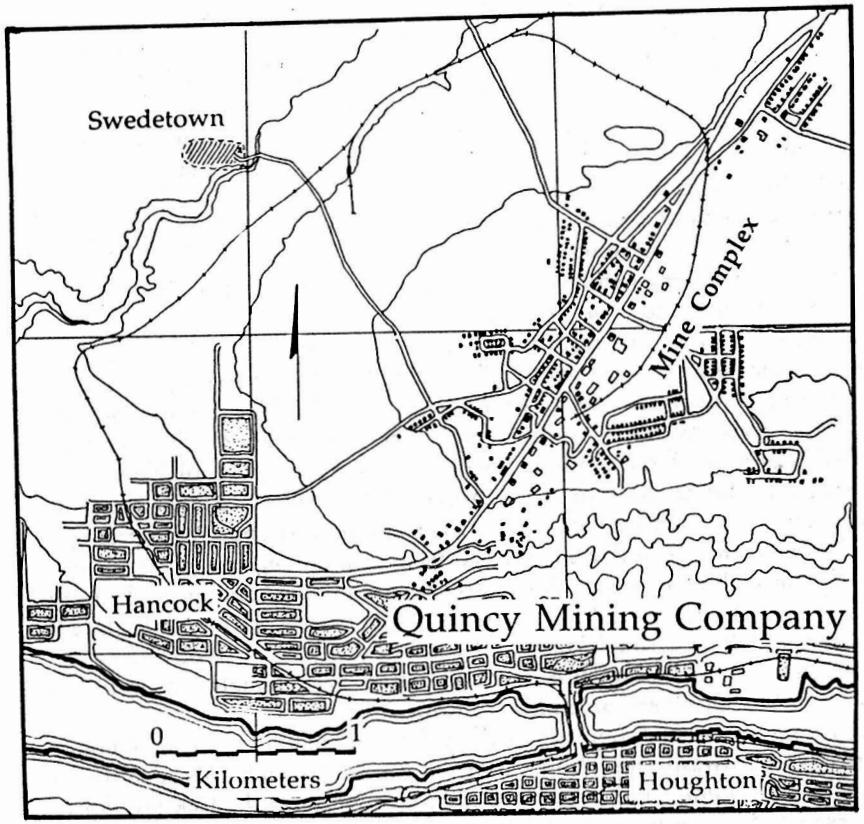
The Quincy Mining Company was one of the giants of copper production, the second largest supplier of the metal in the region. Dubbed "Old Reliable" for her regularity of paying dividends, Quincy has left both a remarkable physical site and an impressive documentary record. The company has been the focus of two major historical studies,[14] as well as several papers dealing primarily with the economic and technological aspects of their operations. The Quincy was a typical mine in some ways, and built a large number of dwellings for its workers. By the early twentieth century, Quincy had over 1000 housing units for its 1650 employees, renting these units at very reasonable rates. The housing was supplied as a part of the overall pattern of paternalism, along with garden space, pasture, fuel, bathing facilities, a library, health care, and death benefits.

Quincy's housing was clustered into locations, generally situated to facilitate access to the workplace. Thus, mill workers were housed near the stamp mills, and miners near the shafts. The workforce was mostly foreign-born: 50–70 per cent throughout the nineteenth century. Early census records, from the 1850s through the 1870s, are dominated by Cornish, Irish, and German immigrants, with some Canadians and Italians present. Beginning in the 1880s, more Scandinavians appear, along with various eastern Europeans, such as Croatians and Slovenians. Quincy's locations carried a distinct ethnic flavor from the time of their establishment, with names such as Limerick, Frenchtown, and Swedetown.

Swedetown Location was established in 1863 to house a group of new families arriving from Sweden. Recruited to bolster a labor force decimated by the loss of workers to the U.S. Army, these workers were to occupy 30 newly-built log houses. This particular experiment in direct recruitment of foreign laborers was evidently a failure and the houses fell into disrepair by the early part of the twentieth century. This much the documentary record offers, but despite extensive mapping by the company and very intensive historical study, the site of the location was not known. Following clues derived from an oral history interview, a team of archaeology students found the site of Swedetown Location in a modern potato field (Figure 4). The annual plowing of the site brings artifacts of many types to the surface where they are easily collected for study.

Swedetown has proven interesting for at least two reasons. First, it is over 2 km from the mine itself, far from any of the known ancillary sites, such as the stamp mill or saw mill. All of the other locations are in very close proximity to the workplace; why was Swedetown so isolated? One historical writer suggested in the HAER report that the mine's managers succumbed to the xenophobia of some of the established workers, effectively banning the new Swedish workers to the far reaches of the Company's property. This seems a less than adequate explanation, since the established workforce already included members of more than a dozen nationalities, housed cheek to jowl in several locations.

Fig. 4. Quincy Mining Company complex, with Swedetown Location



Though we have only a surface collection to go by, and almost no documentation, the artifacts do suggest an alternative explanation. There are numerous farming implements among the ruins of Swedetown: fragments of scythes, large horseshoes, hoes, and other farming tools. Perhaps these particular workers were employed to produce food for the company stores? The Quincy records of the period do mention foodstuffs that were presumably grown on their lands. However, the records do not discuss who did the farm work. It seems likely that the inhabitants of Swedetown Location were expected to perform these tasks.

The additional point of interest in Swedetown lies in the use of material culture to recognize ethnic identity and, perhaps, the persistence of that identity. Among the artifacts collected from the potato field at Swedetown Location were some that clearly indicated a significant difference between these residents and other workers in the region. When compared with artifact collections from several other mine sites, the tobacco pipes and some of the ceramics from Swedetown stand out as distinctly different.

The tobacco pipes are made of white ball clay, the dominant material for pipes of the period, but have some unusual characteristics. In particular, they have a curved stem, where most nineteenth century pipes found on North American sites are relatively straight. Furthermore, the stems carry an embossed design all along their length. This design appears to represent the scaly skin of a reptile, probably a dragon, and the bowl at the end of the stem is held in the grasp of three clawed fingers. Only one example of this type of pipe has been found in my review of the published literature on North American historic sites to date, and none at all have been found within the mining district. Yet we found more than a dozen examples on the surface at Swedetown in one afternoon. Though we have thus far been unable to identify the maker or country of origin, it is clear that tobacco smokers at this place had either an affinity for these pipes or access to them that was not shared by their contemporaries in the region.

Besides the pipes, the team found some other artifacts of great interest. The ceramics from the site were primarily English whitewares, the dominant form used throughout North America at the time. The English pottery industry blanketed the continent with low cost, high quality ceramics throughout most of the century. These wares were readily available in local markets, including the company stores of the mines. Along with the whitewares and some utilitarian stonewares, there were about 15 sherds of a reddish earthenware unlike any we had seen from the region. The fragments were from shallow bowls, with slip decorations in white and green, beneath a clear lead glaze. The exterior portions of the vessels were not all glazed; some were left in a rough, unglazed condition. These were obviously the products of a traditional folk pottery, rather than a highly mechanized industry, but were very unfamiliar in form.

A extensive series of inquiries finally led me to Heikki Hyvönen, Curator at the Museuovirasto in Helsinki, Finland. Mr. Hyvönen kindly identified a slide of the ceramics and introduced me to his work on the folk pottery of the region.[15] These are examples of vessels from either western Finland or eastern Sweden, probably from the west side of Hamina-Oulu. These shallow clay dishes were used by rural and working class people as both serving dishes and communal eating vessels. The type was very common in the nineteenth century, and examples dated at least as early as 1756 are known in museum collections.

This attribution of the unusual ceramics to a Scandinavian origin was the deciding element in identifying the site as Swedetown, and it brought up additional questions, as well. Would other ethnic groups leave similar material culture "markers" of their identity? Would these material correlates of ethnicity be found in all aspects of daily life, or primarily in areas known to be conservative, such as food preferences and religion? What effect would isolation from resupply have when such preferred goods were worn out and discarded? How quickly would the homogenizing forces of the company and the government combine to obliterate the material boundary markers of ethnicity? These and other questions open new avenues of inquiry into the history of mining in this region, questions that do not arise spontaneously from the study of the printed record alone.

Summary and Conclusions

In the Lake Superior mining district, the archaeological study of mining communities has offered fresh insights into a variety of social and technological history questions. It adds a significant dimension to incomplete documentary records, as well as affording an increased time depth in many situations. It makes accessible types of data seldom included in the written record, and provides a check on interpretations based solely on the traditional sources of historical evidence. The modest successes reported here should encourage future collaboration between historians and archaeologists in the study of historic mining communities, for the combination of documentary and physical evidence clearly results in richer and more informed interpretations. The archaeologists' use and dependence on material culture has particular significance for the development of a social history of mining, for it taps dimensions of social life beyond the scope of traditional economic and technological history. We can explore households, settlement patterns, ethnicity and consumption patterns via material remains, in ways not possible with printed evidence. Furthermore, these data are independent sources, not conditioned by the written record, enabling a questioning feedback that ultimately enriches both types of evidence and inquiry.

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