Mines, Mining, and Miners on Mariscal Mountain: Landscape and People in Cultural Resource Management

By
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Years ago I worked with the Historic American Engineering Record (HAER), a division of the National Park Service, as part of a team documenting the abandoned Mariscal mercury mine and village site in Big Bend National Park in Texas.[1] This article details the Mariscal mine project as a case study in cultural resource management (CRM), while including research questions and methods that were not a part of the original study but that I have used in subsequent research. The goal is to present a general framework for studying a range of similar sites that may be encountered in CRM work.[2]

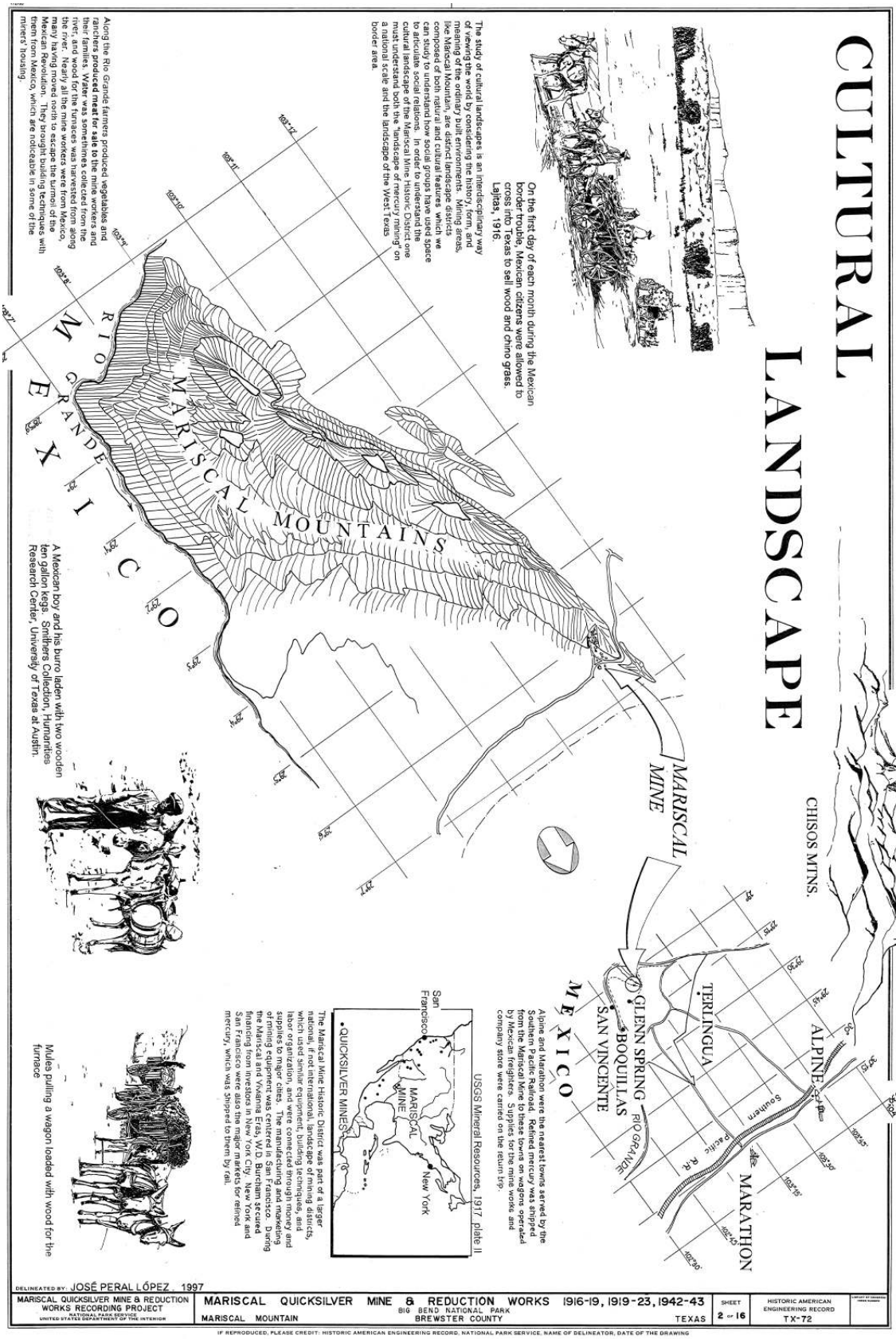
Research in cultural resource management involves combining information that we can learn from the site itself—the physical structures and landscapes—with information from the documentary record on the site—written materials that might include company records, government records, published material on the site, industry journals, or other sources. These two very different types of sources each reinforce the other, giving us a better understanding of the site under study. For the Mariscal site we used sources that included histories of the Big Bend, previous histories of the Mariscal mine (which were cursory), mining journals, and records and photos from other mines in the area. Combining these categories of sources is not unique to CRM work. Researchers from a range of disciplines, including historical archaeology, geography, and cultural landscape history, combine information gained from physical sources with information from documentary sources.

While research in cultural resource management means combining physical sources with documentary sources, what matters most, as in any research, is the questions we ask. Questions lead us in our research, guiding us to seek out evidence we can use to answer them. The "Mines,

The ruins of the Mariscal Scott furnace (foreground) are only one-third the height of the complete furnace. Behind the furnace are two of the three mercury condensers. HAER photo by Bruce Harms.

Mining, and Miners" in the title of this article refers to three broad categories of questions that we can ask in researching CRM sites: questions concerning the physical site, what went on at the site, and the people who were involved with the site. It is useful for researchers to separate these categories in order to manage their research, while being vigilant, however, in remembering that they are inextricably interconnected.

The questions we ask about the mines, the physical sites we study, tend to be: "What is it?", "How was it built?", and "When was it built?" These questions drive research that results in descriptions of the resource, and these descriptions, often called documentation studies, are frequently the first step in CRM-related research. Questions about "Mining" refer to the activity that occurred at the site under study. At production sites like Mariscal an industrial process was performed and the physical structures of the site can best be understood by understanding the part they played in this industrial process. Questions for this type of



This drawing introduces the idea of the Mariscal Mine cultrual landscape as an interrelated set of resources that is more fully understood when the physical landscape remains are "inhabited" by the researchers with information regarding the builders and origiant inhabitants. (Available full-sized at American Memory, Library of Congress, keyword "Mariscal.")

research include: "What was the industrial process?" and "How was the process performed on the site?" Questions about "Miners" guide us to study the people who were involved with the site, the builders, workers, and others, including the workers' families. At Mariscal we were interested in the stories of the men, women, and children who built, worked at, and lived their lives in relation to the mine. To tell stories of these people we need to ask: "Who were these people?", "Why did they build the site the way that they did?" and "What were their lives like?"

Ultimately the questions that we ask about "Mines, Mining, and Miners" guide our research and dictate the story that we are able to tell about a site. A large part of the art of research is to ask questions that can best tell us what we want to know about a site, being mindful that the questions we ask need to be matched to the site. We should not ask questions of a site if the evidence we need to answer those questions is not available.

The goal of the Mariscal mine recording project was to create HAER documentation for the Mariscal site.[3] This documentation is a nationally recognized standard in historic preservation, and is often specified as a way for federal and state agencies to meet certain legal requirements.[4] The end result of the Mariscal HAER documentation was sixteen 24-by-30-inch pages of measured drawings of both existing conditions and reconstructions, the field notes used to create the drawings, fifty-two large-format photographs, a ten-thousand-word history of the mine, and an archaeological site survey of the mine settlement and its surroundings.

The HAER team architects spent six weeks in the summer, working from sunrise until early afternoon (when temperatures reached 115 degrees F.), taking detailed measurements and preparing field notes on each of the features at the Mariscal mine. In the process of preparing these field notes the team members became intimately familiar with the site. Back in an air-conditioned workspace, the team combined the field work with information from the documentary record through a method that involved making informed guesses, checking them with the site ruins and with the documentary record, and modifying the guesses when necessary.[5]

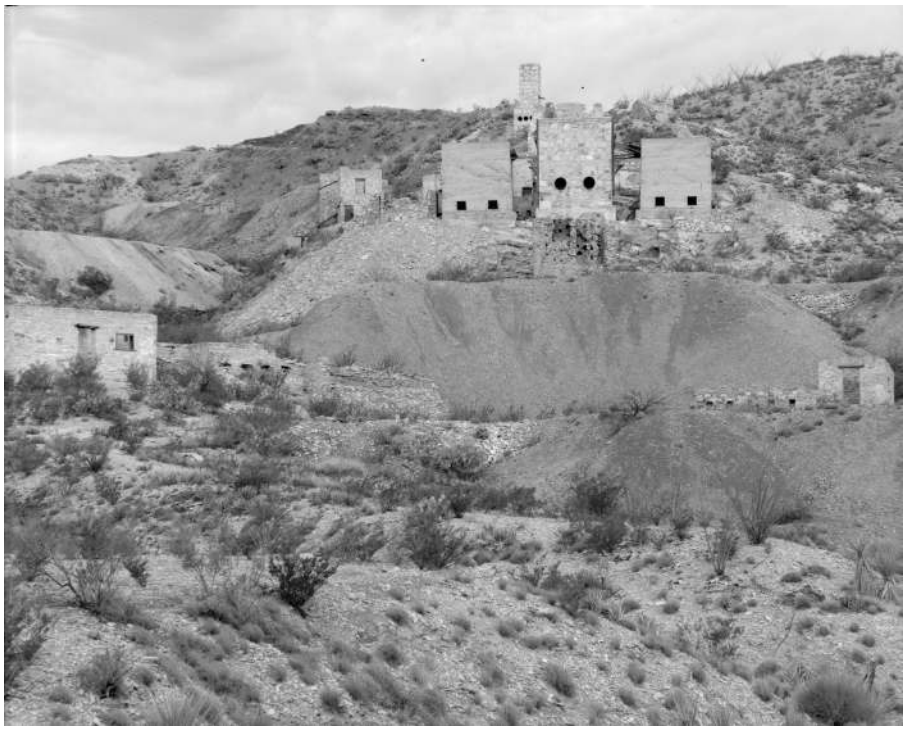
The Mariscal Mine Recording Project is presented here in an idealized form, detailing the work that was done, adding new research, and creating a wish list of items for future research. The HAER Mariscal drawings, photographs, and history referenced throughout this article are available on the internet from the Library of Congress, Prints and Photographs Division, Historic American Engineering Record collection, number TX-72.[6]

Mines: The Mariscal Mine

Sites have many things to say, and there is much to recommend using all of your senses in site research—sight, smell, touch, hearing, and sometimes even taste. Sites are also often mute. Sometimes we can coax them to speak, other times they will keep their secrets forever. Becoming intimately familiar with a site is a must. The field of cultural landscape studies has much guidance to offer regarding asking questions that explore the reciprocal relationship between the site and the groups who built and inhabited it.

The Mariscal mine site is remote, lying deep within Big Bend National Park and accessible only by four-wheel drive. Only six miles from Mexico, the mine is on the northern tip of Mariscal Mountain, a long ridge that extends from the United States into Mexico but is intersected by the Rio Grande, creating a remarkable canyon that forms the boundary between the countries. In the vast desert landscape the mine ruins and even 3,900-foot Mariscal Mountain appear small, especially when seen against the 7,800-foot Chisos Mountains.

Mariscal village, marked by the stone shelters erected by miners, was built where the desert



Three eras of mining activity on Mariscal Mountain are visible in this view. At the lower right are the Ellis era ruins; in the middle are the Mariscal era ruins; and at the upper left are the Vivianna era ruins. The mine entrace is at the top left. The piles of furnace tailings are prominent directly below the ruins of their associated eras. Photo by Bruce Harms.

The stone houses at Mariscal were constructed from the local rock with wood for doors, window frames, and roofing support. While this house exhibits horizontal stone coursework, other stone houses at Mariscal were built with a variety of coursework styles. see the house in HAER photo 48 in the Marical collection for an interesting comparison with this house. HAER photo by Bruce Harms.

floor meets the mountain. The most visible ruins are the ore-processing facilities that extend for a few hundred yards from the desert floor up and over the crest of the mountain, and the associated human-made accretionary features, mostly waste rock. From the construction and condition of the ruins it is clear that the features extend not only in space but also over time, raising questions about when one structure was built relative to another.

Few of the ore-processing features are identifiable to the untrained eye. We cannot identify them in the way we can identify a house, an outhouse, or a barn. Industrial sites are built by people to do unique things not a part of our everyday world. While the features are hard to identify, the workmanship involved in making them is evident, and provides a ready connection with the makers. A number of the Mariscal structures are made of hewn stonework, and we connect with the builders by imagining them shaping the stone and then lifting and mortaring the stones into place.

The features at Mariscal are ruins. The valuable and the portable pieces of the site have been taken; what is left are the parts of the site that are durable and lack economic value, characteristics that allow them to survive the elements, salvage companies, and looters. One ruin that is easy to identify is a former furnace, evident from the firebrick strewn around it. (See p.51) It is easy to see, however, that there is not enough brick on the ground to come close to rebuilding the furnace. In instances such as this the site begs us to ask the questions: "Why was the furnace torn apart?" and "Where did people take the brick and why?"

A partial answer to the furnace questions comes from a building further up the hill. Maybe it was an office or a bunkhouse. The walls are partially made of firebricks, probably from the old furnace. Was the firebrick taken from the old furnace or was it damaged or simply left over from furnace construction? On the initial visit the site prompts us to ask many questions, while making clear that its multiple episodes of occupation are not clean and distinct, but complicated and inter-

The top floor and the roof are missing in this view of the office structure. Firebricks were mixed with stone from the site to build the first floor, while firebrick alone was used to form slots for the floor joists (middle of image) and roof joists (top). Photo by Bruce Harms.

woven.

Not far from the top of the ridge the aboveground processing plant ruins give way to the underground world of the mines. In mining landscapes the focus of human endeavor—the greatest effort in reshaping the earth—occurred underground in the mines. At Mariscal the mine openings have thankfully all been closed by metal grates, although those with the stomach for it can, after checking first for rattlesnakes, lie on the grate over the main shaft, a forty-story hole straight into the earth, and feel and smell the cool and musty air that circulates through the mines. In the hills around the main shaft are a handful of small and irregular entrances leading to a warren of tunnels and diggings.

At times overlooked or dismissed as ecological hazards, the accretionary topographical features of mining sites can be a rich source of information for the CRM researcher. Examples of this type of landscape feature include tailings piles of processed ore, formations of waste rock from mining activity, and earth moved to level land or for road building. These site features, the result of work done as part of industrial processes, are most often sequentially deposited and can yield data on the processes used, the scale of operations, and the relative success of operations. Careful study of these features can aid in establishing timelines for the construction, reworking, and demise of the site. How people worked the earth, and how they discarded what they did not want, can provide information as valuable to the researcher as any other information collected at the site.

Besides the mine and processing plant, there are the remains of a village of about forty houses, of which about half are of a relatively permanent construction. This village was the focus of an archaeological survey of the extended area around the mine included in the HAER project.[7] Some of the associated features relatively close to the mine and houses were a cemetery, wells, and a brick kiln. Further afield but important to the mine were small farms along the Rio Grande where some of the food for the mine was produced, and forested areas in the Chisos Mountains many miles distant that were the nearest source of timber. The nearest settlements circa 1920 were Glenn Springs, seven miles to the northeast, and small villages across the river in Mexico. All of these features figured in the lives of the people at Mariscal and have a part in the story of the Mariscal environment.

Mining: Making Mercury at Mariscal

Over the years, the Historic American Engineering Record has emphasized the recording of industrial processes, that is, detailing how sites actually operated through drawings, photography, and histories.[8] Understanding the industrial process is an important step in CRM research on industrial sites. At mines such as Mariscal the industrial process included two main steps—mining the ore and processing the ore. Mining the ore took place underground, and is in most cases difficult to study because the physical remains of the activity are not accessible. Processing the ore took place aboveground, and is much easier to study.

The most significant force governing both processes at Mariscal was gravity—workers moved ton after ton of rock and earth, first out of the ground, and then through the various steps involved in processing the ore, including discarding the processed tailings and waste rock. Understanding how the people who built the site used gravity goes a long way toward understanding the basic site layout. Because the mine at Mariscal was at the top of the ridge, and the road ran at the foot of the ridge, the processing facilities at Mariscal were arranged on a line down the ridge.

Research in mining journals told us that a mercury reduction plant had three major components:[9] the ore delivery system, the furnace, and the condensing system. The ore delivery system was designed to allow people to move the ore from the mine to the furnace, in the process sorting and crushing the ore. In the furnace the ore was heated until the mercury vaporized, and

then the spent tailings were removed. The gaseous mercury from the furnace was then forced into the condensing system where it was cooled until the mercury condensed to a liquid state. The mercury was then collected and bottled in cast-iron flasks, ready for shipment.[10]

Once understood, these three components of a mercury reduction system provide a new way to study and understand the site. With this information we can ask which of the site features together comprise a single processing plant. At Mariscal this analysis is complicated by the fact that the site had at least three periods of occupation. This does not mean, however, that there were three complete and separate processing plants. Operators in later eras sometimes reused or modified part of an earlier plant or completely tore down part of an earlier plant for its building material or to rebuild something new in its place.

Discerning eras at sites such as Mariscal can be complicated. Generally, materials, style, and construction techniques can give important clues to associate certain structures with others. Another key issue in deciphering a multi-layered site like the Mariscal mine is technological change. Understanding the technology used in the industry and how it transformed is an important tool in researching the site. Mining "buffs" spend great amounts of time detailing such information.

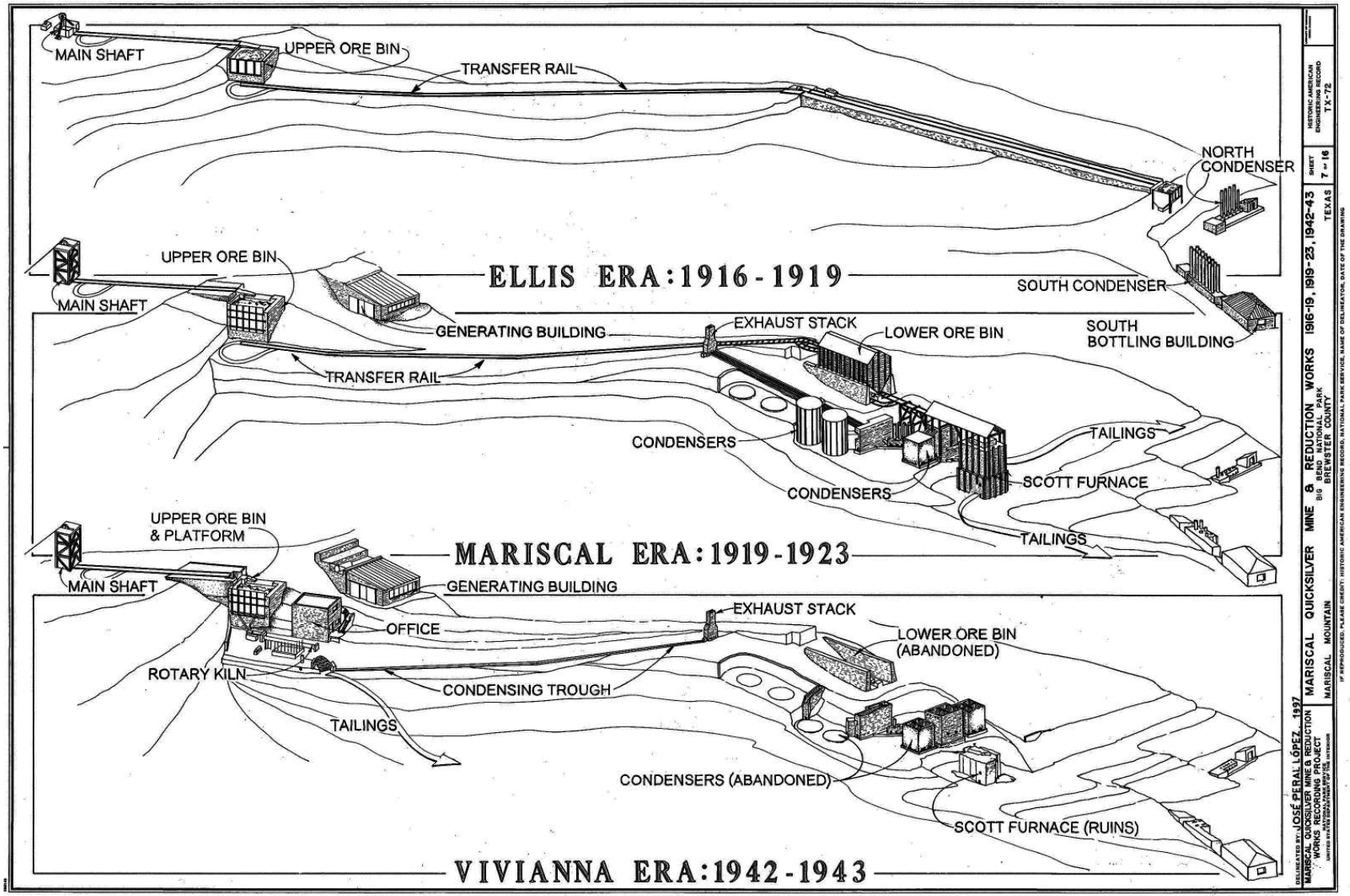
Business records tell us that three eras of ore processing occurred on Mariscal Mountain: The Ellis era, 1916-19; The Mariscal era, 1919-23; and The Vivianna era, 1942-43.[11] The Ellis and Mariscal eras were continuous from 1916 to 1923, and are when the majority of the features were built. The drawing by Jose Peral Lopez (right) from the HAER project gives an overview of the processing facilities in each era.

The Ellis era featured two complete furnace and condensing systems, located next to one another at the base of the mountain, easily accessible from the valley floor. The small "north" plant was supplemented by a larger "south" plant when the mine proved to be profitable. Production records show that from July 1917 to May 1918 the mine produced 894 flasks of mercury at a time when mercury was selling at a relatively high $110 a flask due to World War I. This meant gross sales of over $90,000, probably yielding a profit for the owners.

Records show that in 1919 W. K. Ellis sold the mine to William Burcham, a mining engineer who had worked at mines in the Terlingua mercury mining district thirty miles to the west. Burcham sought investors and with their money redeveloped the former Ellis mine, renamed the Mariscal mine. Burcham introduced a new scale of production capacity to the site, enlarging and deepening the main shaft and building a much larger reduction plant.

The Mariscal reduction plant ruins are the most physically dominant ruins on the site, and are notable for being made of stone from the site, carefully hewn and expertly laid. The ruins occupy a steep slope below the mine but above the old Ellis-era works. Burcham's major investment in the site was a Scott furnace, an expensive but time-tested mercury reduction technology. A three-drawing sequence in the HAER drawings—the Ore Delivery System (p. 60), the Huttner-Scott Furnace (p. 65), and the Condensing System (not shown)—details the Mariscal reduction plant.[12] Despite the relatively large investment, the Mariscal mine under Burcham was a disappointment, producing only about four hundred flasks of mercury.

The final era of mining on Mariscal Mountain occurred because of the price boom for mercury during World War II. William Burcham organized a new company, the Vivianna Mining Company, and this time had two new tools at his disposal: a new geologic theory that involved deepening the main shaft to over four hundred feet in the search for ore, and an efficient and relatively inexpensive new rotary-style furnace and stainless-steel condensing system that he could purchase, bring to the site by truck, and quickly assemble. This new technology was very compact, requiring only a



HAER drawing by Jose Peral Lopez, 1997. (Available full-sized at American Memory, Library of Congress, keywood "Mariscal.")

fraction of the area of the Mariscal-era plant, allowing the new plant to be built on a small, level area near the main shaft.

Once again, however, results failed to justify Burcham's optimism. Very little new ore came from the mine, and the small amount of quicksilver produced probably came from tearing apart the Scott furnace, recovering the mercury-saturated firebricks, and running them through the new furnace. This yielded ninety-seven flasks of mercury, a small return.

While the HAER team was able to explain how the various Mariscal reduction plants worked, the team was able to say very little about the mining of the ore. It is unfortunate for researchers studying mining that the greatest work of the miners remains largely unseen because underground workings are typically inaccessible and often destroyed. However, many sources exist that can aid the historian or cultural resource specialist in understanding the underground world. Particularly valuable are mining journals and government or private reports on the mines, made by economic geologists or mining engineers, which detail mining methods, mining costs, and the geology of the mine.

To study mines, researchers first need to understand the particular nature of mining. Unlike aboveground landscapes, which are created by "positive" built forms in open space, a mine is "negative" space hollowed out from a solid. Buildings above ground shelter people and their activities from the elements, and similarly the shafts and tunnels of mines shelter humans enough that they can accomplish their work.

Unlike buildings, however, mines are dynamic. The historian must confront the fact that until a mine was abandoned, it was in a constant state of adaptation and change. A miner's work involved continual modification of the mine by extending, enlarging, or back-filling tunnels, stopes, and shafts. Unlike many landscapes a historian may study, a mine never reached a state of completion; the process of mining involved constantly reconfiguring space in the effort to extract ore.

The HAER drawing by Christopher Brown (p. 62) is a reconstruction of the greatest extent of the underground workings at the Mariscal mine, based on mine reports, oral histories, and surface surveys. Although the mine never would have looked as it is depicted in the drawing—it shows all parts of the mine active though all parts were never active at once—the drawing is a tool for understanding the underground landscape.

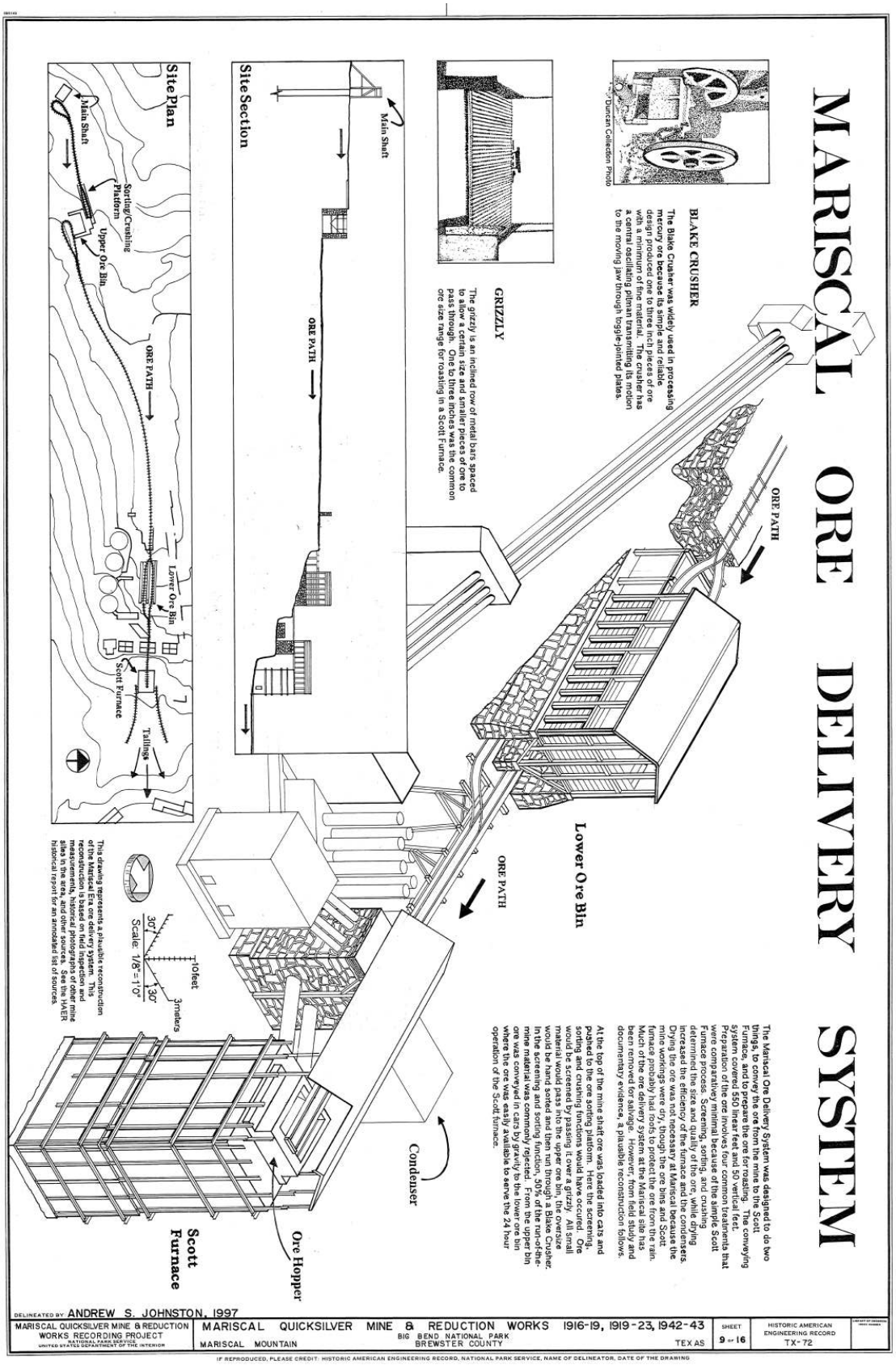
The cinnabar ore was found near the surface in three major stopes. These stopes were worked during the Ellis era and produced the majority of the mercury recovered at the Mariscal site. The mining of this era resulted in a "rabbit warren" of tunnels that followed ore bodies. In this type of mining the miners simply followed veins of ore wherever they went, at whatever angle.

The warren of tunnels, expeditious and practical, exists in stark contrast to the four hundred-foot-deep main shaft, straight and considered, that Burcham developed and later extended in an attempt to find ore bodies deep in the earth. Throughout his life Burcham held a speculator's belief that rich mercury ore bodies lay deep within Mariscal mine.

Miners: Working and Living at Mariscal

Determining the industrial processes used at Mariscal is a powerful tool that provides a way to understand the construction and function of the various features on the site. But the industrial processes only provide us with information on the work landscape at Mariscal. Humans, however, are complex. They act based on their thoughts and dreams, and these complexities are visible in what they build and how they shape both landscapes of production, where they work, and landscapes of reproduction, where they replenish themselves to work again and where they live with their families.

Researchers of industrial sites often substitute a reliance on the ideas of efficiency and econom-



HAER drawing by Andrew Johnston, 1997. (Available full-sized at American Memory, Library of Congress, keyword "Mariscal.")

ics for the messy reality of human complexity. The construction and spatial arrangement of features on a site are explained in terms of "it is that way because that is the most efficient layout," or "the workers lived in hovels because the quicksilver business was not profitable." Efficiency and economics are very important concerns, but are only part of the story. Understanding the people at Mariscal—who they were and why they built the way they did—adds important depth to the study.

The prominent people attached to a site are often easily studied because information on their lives exists in the documentary record. At Mariscal these include the owners, such as William Burcham, and the mining engineer during the Mariscal era, Curt Schuette. Definitive histories of these men have not been written, but the research that is available on them aids us in understanding the site.

Burcham, a mining engineer, was born in Indiana but lived his life in west Texas, and quicksilver mining was his business. He worked for the larger mines in the region, but Mariscal was his mine, his dream of striking it rich. Throughout his life he believed that the Mariscal mine could make him money. The manuscript census shows that in 1920 he was thirty-five years old, married, with a young son. [13]

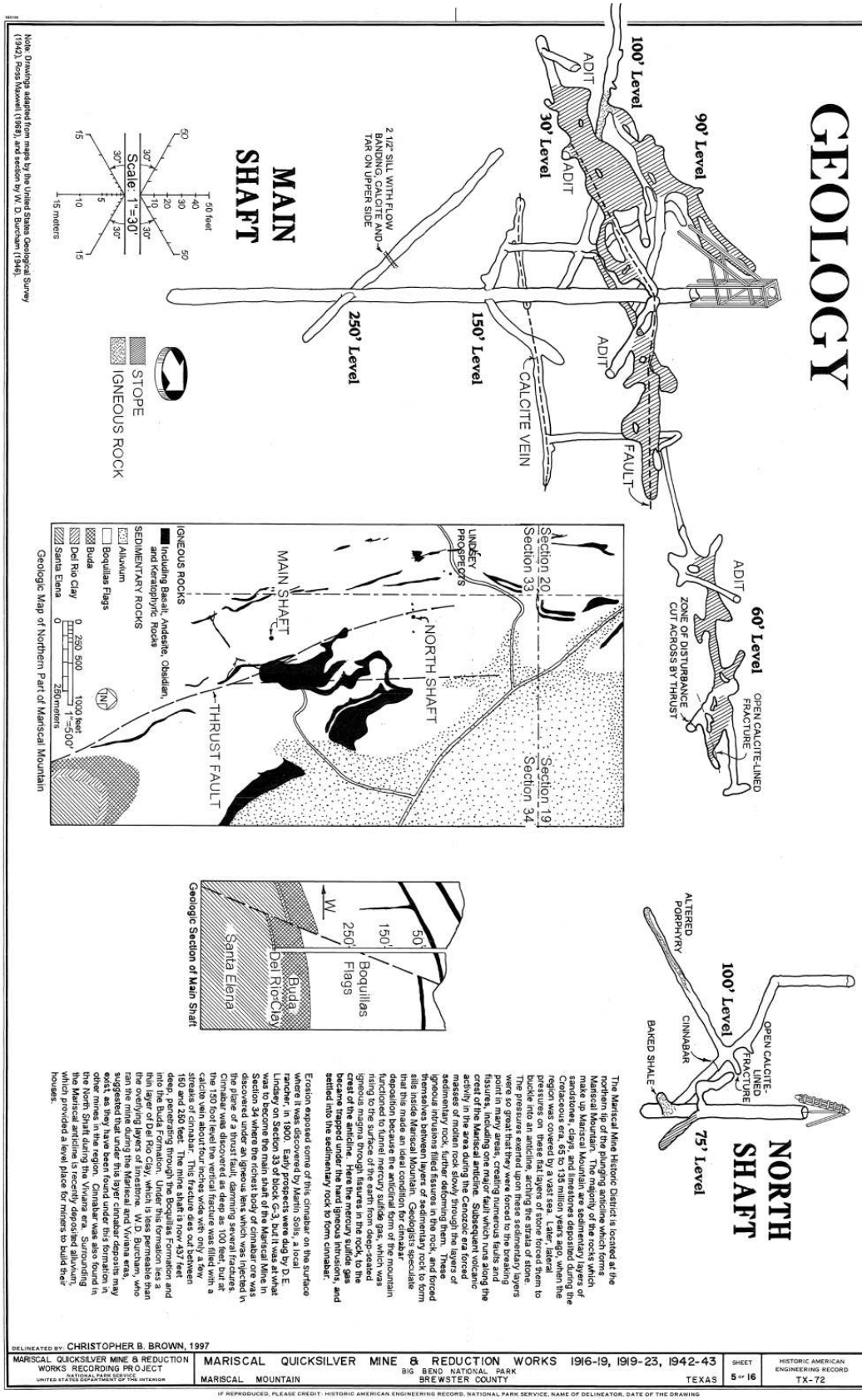
During the Mariscal era Curt Schuette was a young mining engineer just out of mining school at the University of California, Berkeley. Within a very few years, however, by the mid-1920s, Schuette was an acknowledged expert on quicksilver mining and metallurgy, who eventually published many books and technical articles on the subject.[14] While he never wrote a book or article about Mariscal directly, he did refer in his writings to his experiences at the mine. Schuette cut his teeth in the industry at Mariscal. The 1920 manuscript census shows him to be twenty-five and single.

While Burcham and Schuette are the persons most visible in the historical record, they were a small minority of those who lived at Mariscal. The 1920 manuscript census for the Mariscal mine village provides a wealth of information about the others living at the mine. The census shows sixty-six people living in the village in fourteen residences. Twenty-two men were employed by the mine, and the wider community consisted of sixteen adult women, and twenty-eight children. All were Mexican nationals except for two young Americans, Curt Schuette and his housemate, a twenty-nine-year-old gas engine mechanic.

The years from 1910 to 1920 were those of the Mexican Revolution. Pancho Villa, governor of the neighboring Mexican state of Chihuahua in 1913-4 and an important revolutionary, was upset by American support for one of his challengers. As a result Villa launched a vendetta against Americans in Mexico and on the border. Villa's men raided Glenn Springs in 1916, and in response two companies of the U.S. Sixth Cavalry were stationed there. After the raid, Burcham lived with his wife and child at Glenn Springs where, with other white families, they were protected by the soldiers.

The Mexican Revolution may also have been responsible for some Mexican families coming to live and work at Mariscal. Some of the mine workers may have been wanted men in Mexico, while others may have wished to move their families as far as possible from the fighting and unrest in Mexico. That whole families came to Mariscal, rather than only male workers, supports this idea. Six of the fourteen Mexican families at Mariscal immigrated to the United States in 1917, and all came between 1914 and 1918. The Mexican revolution was probably more of a force in the lives of the people who lived at Mariscal than was World War I, although the war caused the high price of mercury and thus the operation of the mine.

The village included fifteen or so stone houses, with outdoor cooking areas, animal pens, and privies. There was also a company-built, five-room adobe residence, presumably for Burcham when he was at the mine and maybe for the



HAER drawing by Christopher B. Brown, 1997. (Available full-sized at American Memory, Library of Congress, keyword "Mariscal.")

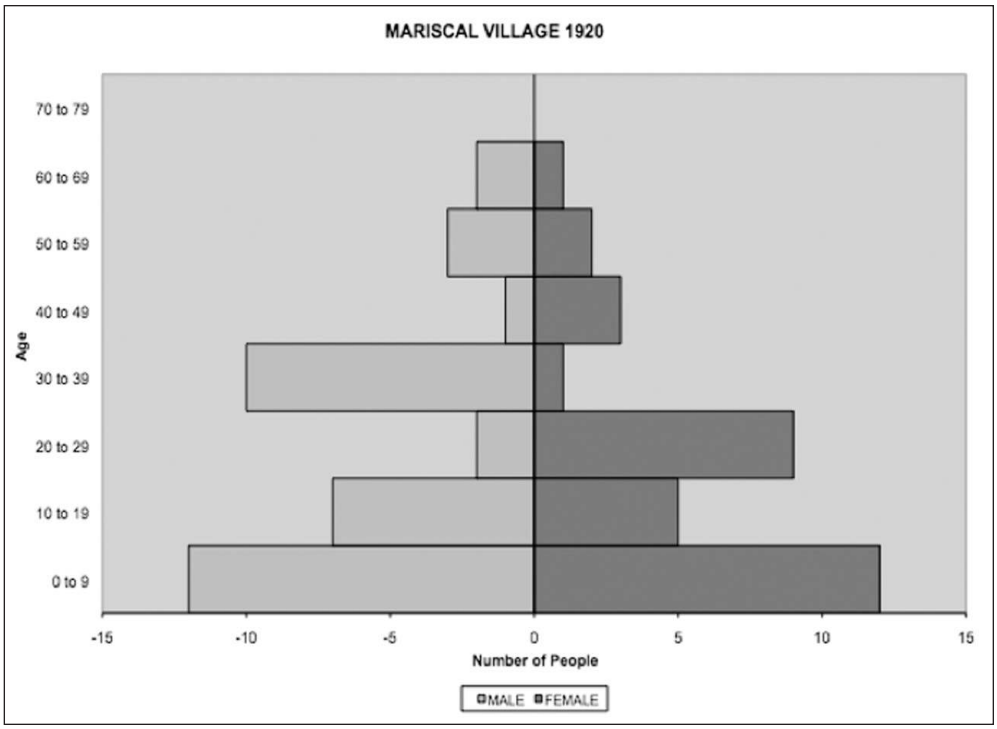
other American employees also living there. At the edge of the village, along the road to Glenn Springs, stood four wood-frame stucco buildings identified through oral history and archaeological evidence as brothels.[15]

If they were brothels (a common feature of mine settlements), why were they located at Mariscal—where the population was made up almost entirely of nuclear families—within sight of the rest of the village? One possibility is that the brothels were frequented by the soldiers stationed at Glenn Springs. The question of who profited from this arrangement invites speculation.

The image of mining camps is often of single young men living in company barracks. As the 1920 census data tells us, this was not the case at Mariscal. Only three single men lived in the village: the two white Americans and one Mexican laborer who lived with a family as a boarder. The other nineteen males were either married and living with their families at the mine (fourteen men, all mine employees) or teenaged sons who were also mine employees and were living in their fathers' homes at the mine. Ages of employees ranged from fifteen to sixty-two, although most were in their thirties.

None of the Mexican workers were listed in the census as able to speak English, and only two were able to read and write Spanish. Of the twenty-two men who worked at the mine, probably more than half worked underground. The rest processed the ore, tended the furnace, and maintained the facilities. Other workers were probably brought in for short-term work such as building roads, making bricks, and doing construction work. These workers may have lived in the twenty or so temporary residences or "dug-outs" identified by the archaeological survey.

Of the sixteen adult women listed at Mariscal, fourteen were married and two were elderly widows. The women at Mariscal worked in the home supporting family life. Twenty-eight children



The population pyramid for Mariscal from the 1920 manuscript census shows the age distribution by gender. There were three age concentrations of mine workers. The wives of the workers tended to be a few years younger than their husbands. Many of the children under four years of age were probably born at Mariscal.

lived in the village, nine of whom had been born in Texas since 1917—some of these may have been born at Mariscal. The census shows that in some families older children could read, whereas slightly younger children, who would have been of school age after 1917, could not, presumably because Mariscal had no school. Children probably worked collecting firewood, herding goats, and fetching water, in addition to playing and being kids.

The 1920 census data help to bring alive the Mariscal mine and village. Correlations also exist between the documentary record (which showed fourteen families at Mariscal), and the archaeological survey (which identified about fifteen stone houses from this era). The next level of research is to think about what the experience of living and working at the Mariscal mine was like. We have enough information to discuss Burcham and Schuette as individuals. However, we do not have that level of information for anyone else at Mariscal. If we had diaries, oral histories, or letters from any of the Mexican workers or family members at the mine, then we could analyze the site by the experiences of these persons as individuals. As it is, we have to analyze these people in groups.

At this site one can usefully look at groups defined by gender, age, race and ethnicity, and type of work. For example, women's and children's experiences were probably centered on the space of the camp, while men split their days between the camp and the mine. Men employed at the mine also divide into those who worked underground and those who worked aboveground, as well as into managers and laborers.

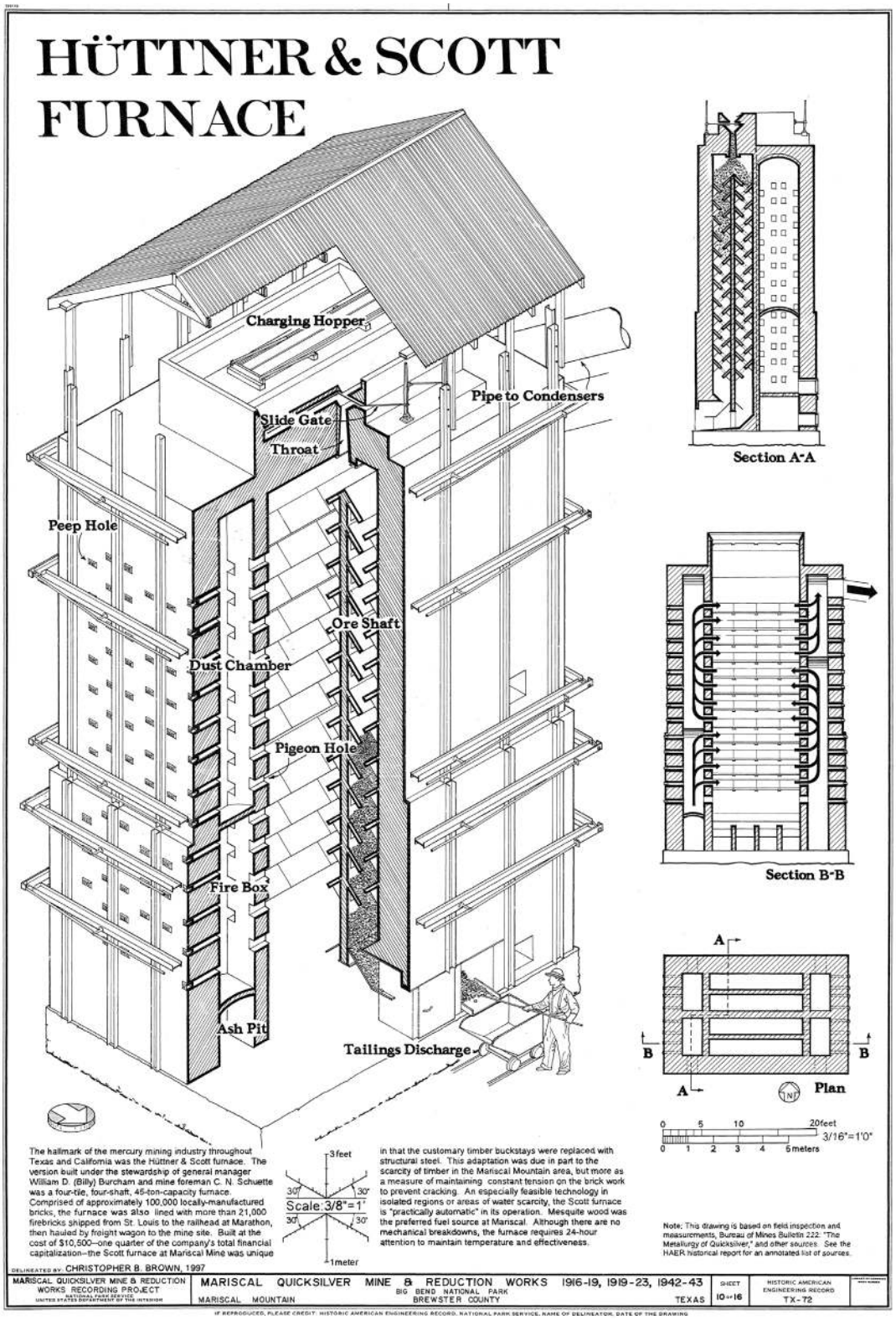
As an example of how people at Mariscal experienced the landscape we can speculate about how they interacted with the Scott furnace. From our earlier research we know what the Scott furnace looked like, how it was built, and how it worked. What we have not yet asked are questions about the experience of operating the furnace and what the furnace meant to those who lived and worked at the mine. Based on technical descriptions in mining journals we can project what it was like to work around a Scott furnace.

When fired up, the Scott furnace was a three- or four-story living and breathing monster, requiring men to feed it fuel, feed it ore, and dispose of its waste. The Mexican laborers at Mariscal did most of this work. During normal operation, trammers brought ore to the furnace, chargers charged the furnace with ore and oversaw its operation, and slagmen both discharged the furnace and tended its fires. Schuette and Burcham probably closely monitored the furnace operation.[16]

Trammers pushed the ore cars by hand over elevated rail lines from the mine to the top of the furnace, where they dumped the ore into the charging hopper. The charger minded the performance of the furnace, a job that required great experience and a "feel" for its optimum performance. The charger gave orders to the slagmen as to how much wood to add to the fires, and decided how fast ore traveled through the furnace. He also climbed the scaffolding erected around the piping hot furnace and poked metal rods through pigeon holes to loosen ore that became jammed between the shelves of the furnace.

The slagmen had the toughest jobs. They added wood to the firebox that extended across the bottom of the furnace, and they also drew (raked) spent ore out of the draw-pits on either side of the bottom of the furnace. Drawing tailings was a nasty job, often injuring workers, who tried not to breathe the poisonous fumes coming from the hot tailings, at times tying wet bandanas to their faces in an attempt to filter the air they breathed.[17] After loading the tailings into cars, slagmen pushed them to the tailings pile and dumped them, the hot tailings crackling as they cooled.

The hot gas expelled from the furnace into the condenser circuit was a mixture of mercury and sulphur (cinnabar's chemical designation is HgS). The rotten-egg smell of sulphur was a constant companion to the aboveground workers, and was probably very unpleasant to people in Mariscal



HAER drawing by Christopher B. Brown, 1997. (Available full-sized at American Memory, Library of Congress, keyword "Mariscal.")

village when the wind carried the fumes that direction.

In addition to the experience of working around the Scott furnace, we can also speculate on the meaning the furnace had for different people at the mine. For Burcham the Scott furnace was the symbol of the mine. Only successful mercury mines had Scott furnaces, and the Mariscal mine was his chance to be a big man in the mercury mining industry. But the forty-ton-capacity Mariscal Scott furnace was actually too big for the Mariscal mine; its processing capacity would have served all but a handful of the very largest mercury mines in the country. Also, this furnace type had been developed to process large quantities of low-grade fine ore, while the only significant concentrations of ore at Mariscal, mined during the Ellis years, were small quantities of relatively high-grade coarse ore. Burcham probably used the Scott furnace to attract investors and it was only in this capacity that it was a success. Building the furnace was a big gamble on Burcham's part, and one that did not pay off as the centerpiece of a successful mine.

For Schuette, overseeing the Mariscal Scott furnace was a way to gain knowledge and to experiment. As a young mining engineer he was looking for ways to advance his career and the Scott furnace was a useful tool toward that end. It was an object on which he could experiment, and although he never wrote specifically about them, it is likely that the modifications made to the furnace and condenser system, including additional concrete and wooden condensers, were his handiwork.

For the families who lived at Mariscal, and the men who tended the Scott furnace, it probably functioned as a symbol of the mine's power over their lives. The success or failure of the furnace determined the success or failure of the mine, and thus the livelihood of the workers and their families. The workers risked their lives in dangerous work and polluted their bodies in the service of the furnace in order to have a job and make a life for their families at Mariscal. For the women and children at the mine the furnace was not part of their everyday life, except as a symbol of the mine owner, as the place where their men worked, and as a source of noxious odors.

Telling Stories

This detailed study of the Scott furnace is only one example of the many possible stories that could be told about the Mariscal site through a careful combination of sources, both physical and documentary. It illustrates the depth of knowledge that can be learned about a CRM site by choosing questions carefully. Ideally a range of questions that explore "Mines, Mining, and Miners"—the physical site, the activity performed at the site, and the people who were involved with the site—guides CRM research. With this knowledge it is possible to speculate on the experiences of the people at the site and the meanings that the site held for them.

The experiences and meanings of a site can open our eyes to various points of view, including, but not limited to, those defined by class, race, ethnicity, gender, and age. It is not enough to physically describe a Scott furnace and to detail how it operated. Cultural Resource Management research can strive toward understanding the experiences and meanings a site produced for the various peoples associated with the site. This article has shown how, ideally, one can piece together from both physical and documentary sources a persuasive reconstruction of the lives of people who lived and worked at a mine site and the landscape in which they lived. ■

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Notes:

1. In the early twentieth century mercury was in demand for the production of bomb detonators and other war materials. Another name for mercury (Hg) is quicksilver. Cinnabar (HgS), the primary ore of mercury, is often bright red and is used to make vermillion.
2. For cultural resource management issues in mining see: Bruce J. Noble, Jr., and Robert L. Spude, *Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* (Washington, D.C.: U.S. Dept. of the Interior, National Park Service, 1992); "America's Mining Heritage," [issue title] *CRM* 21, no. 7 (1998); and Leo R. Barker and Ann E. Huston, *Death Valley to Deadwood; Kennecott to Cripple Creek: Proceedings of the Historic Mining Conference, January 23-27, 1989, Death Valley National Monument* (San Francisco: Division of National Register Programs, National Park Service, 1990).
3. The project was sponsored by the Historic American Engineering Record, Big Bend National Park, and the Intermountain Cultural Resources Center, National Park Service.
4. See "Secretary of the Interior's Standards for the Treatment of Historic Properties" at www2.cr.nps.gov/tps/standguide/index.htm. For more on the Historic American Engineering Record see the HABS/HAER website at www.cr.nps.gov/habshaer, and a special edition of the Park Service's cultural resource magazine *CRM*: "Historic American Engineering Record," *CRM* 23, no. 4 (2000).
5. Persons contributing to the Mariscal project, in addition to the author, included Robert Spude, Jose Peral Lopez, Christopher Brown, Arthur Gomez, Donald Hardesty, and Thomas Alex.
6. The HABS/HAER collection is available online at the Library of Congress, Prints and Photographs Division (http://lcweb2.loc.gov/ammem/hhhtml/). Search by the keyword "Mariscal."
7. See HAER drawings no. 3 and no. 4 in the Mariscal collection (TX-72), Prints and Photographs Division, Library of Congress.
8. The tradition of HAER drawings goes back to the 1930s and the Works Progress Administration (WPA). As a means of giving employment to out-of-work architects during the Great Depression, the Historic American Buildings Survey (HABS-the older sibling of HAER) was established as a New Deal project which recorded historic buildings for posterity. An example of these early drawings is the HABS drawings from the New Almaden mercury mine, the other mercury mine in the HABS/HAER collection, also available at the Library of Congress website (keywords "New Almaden"). These drawings, which are exquisitely detailed representations of the mine buildings as they existed in the 1930s, make an interesting content comparison with the industrial-process-oriented drawings from the Mariscal project.
9. Reduction is the name for the process of extracting mercury from mercury ore.
10. HAER Mariscal drawings no. 8 to no. 12 record the various reduction plants built at the site.
11. A man named Lindsay did a small amount of mining at the site early in the twentieth century. The ore that he extracted was hauled to other mines for processing. See the HAER Mariscal history for more information on the history of the mine.
12. These are drawing nos. 9, 10, and 11, Mariscal collection (TX-72), Library of Congress.
13. The manuscript census is the form that a census taker filled out when doing his job of visiting every house in his area. The form includes a wide range of information. The manuscript census is a one-day window into the community; for Mariscal it was 15 March 1920. For the Mariscal census see: Fourteenth Census of the United States, 1920, Brewster County, Texas, Justice Precinct #2, Enumeration District 3, sheets 3-4; John E. Purcell, enumerator.
14. Schuette's major work on quicksilver is: L. H. Duschak, C. N. Schuette, and R. R. Sayers, *The Metallurgy of Quicksilver* [U.S. Bureau of Mines Bulletin 222] (Washington, D. C.: USGPO, 1925).
15. All of these landscape elements appear on the HAER Mariscal site maps, drawings 3 and 4.
16. The extensive drawings of a Scott furnace in Schuette's *Metallurgy of Quicksilver* probably detail the Mariscal furnace. Evidence for this includes the similar size and construction of the furnace, and the fact that the furnace in the drawings is shown with metal buckstays, when the industry standard, at least in California, was wooden buckstays.
17. Mercury poisoning, called salivation because effected people tended to salivate uncontrollably and lose their teeth, was common among people who worked around mercury furnaces. Mercury can be absorbed through respiration, through ingestion, and through the skin. It is a cumulative toxin that can cause brain, liver, and kidney damage.