

**DRAFT**



---

# MEMORANDUM

---

Date: October 1, 2001

To: The Honorable Chair and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry,  
County Administrator

A handwritten signature in black ink, appearing to read "C.H. Huckelberry", is written over the typed name and title.

Re: **Ghost Towns and Mining Towns of Pima County**

The attached study on *Ghost Towns and Mining Towns of Pima County* provides a fascinating and detailed look at sixteen communities in Pima County that experienced the boom and bust of the mining industry since the 1800s. Conveyed from a cultural historian's perspective, the stories of these communities are told with a goal of promoting preservation of the remnant railroads, schools, post offices, hotels, saloons and other artifacts from this chapter of our history in Pima County:

Ajo	Clarkston	Kentucky Camp	Rosemont
Allen	Greaterville	Mineral Hill	Silverbell
Arivaca	Gunsight	Olive Camp	Total Wreck
Cerro Colorado	Helvetia	Quijotoa	Twin Buttes

The lore and former stature of mining in Pima County's history obscures the present day reality which is simply this: the mining industry today is not a major force in Pima County's diverse economy. While in the past, the Pima County economy relied more on copper mining, we have reported in recent studies that the full net value of mines is 0.5 percent of the total value of taxable property in the County. At its maximum during the last quarter century, in 1980-1981, it was 4.8 percent. The full net value on a per-capita, constant dollar basis fell 87 percent from 1980-1981 to the present. Members of the resource extraction community are seeking an expanded commitment to mineral exploration and exploitation activities under both the Sonoran Desert Conservation Plan and the Comprehensive Land Use Update. Instead, staff will propose strategies that balance the benefit of resource consumptive land uses with their overall contribution to the Pima County economy.

*Ghost Towns and Mining Towns of Pima County* provides a look at past land uses, life ways and economies in Pima County. The study is rich in old photos, clippings and public records, and informative at many levels. Moving easily from descriptions of national events and economic forces, to the politics of the territory or state, to local events and the most interesting gossip of that day, the author, Ms. Jessica Levy of the Sonoran Desert Conservation Plan team and Cultural Resources Office, succeeds in transporting the reader to an earlier time in our history. Understanding the context of past land uses, economies, and the communities they generated allows us to define the future community through land use choices that will balance and sustain the fiscal, natural and cultural resources of Pima County.

Attachment



**Links to Our Past:  
Ghost Towns and Mining Towns of Pima County  
Pima County, Arizona**

---

Prepared by County Staff  
September, 2001

**Pima County Board of Supervisors**

Ann Day, District 1  
Dan Eckstrom, District 2  
Sharon Bronson, District 3  
Raymond Carroll, District 4  
Raúl M. Grijalva, District 5

**County Administrator**  
Chuck Huckelberry

## TABLE OF CONTENTS

I.	Introduction .....	1
II.	Prehistory .....	1
III.	Spanish Influence .....	1
IV.	Mining Industry Begins .....	3
V.	Post Civil War .....	5
VI.	Before You Go .....	6
VII.	Ghost Towns .....	8
	A. Ajo .....	8
	B. Allen .....	9
	C. Arivaca .....	10
	D. Cerro Colorado .....	11
	E. Clarkston .....	13
	F. Greaterville .....	14
	G. Gunsight .....	15
	H. Helvetia .....	16
	I. Kentucky Camp .....	17
	J. Mineral Hill .....	19
	K. Olive .....	20
	L. Quijotoa .....	21
	M. Rosemont .....	23
	N. Silver Bell .....	24
	O. Total Wreck .....	26
	P. Twin Buttes .....	27
VIII.	References Cited .....	28
IX.	Sources Consulted .....	30
X.	Appendix A – Glossary of Mining Terms	

## **I. Introduction**

As one of the elements of the Sonoran Desert Conservation Plan, cultural resources serves as a way to preserve the heritage and historic foundations from which Pima County is derived. There is a wealth of resources in this area, including remnants from the mining towns that first boosted the economy of Arizona, and eventually brought the territory into statehood. These towns are now ghost towns, and they are tangible places where one can reach out and touch the past. They are a link to an important part of our collective history, and they need to be preserved for the benefit of future generations. This report will serve as a means of familiarizing our community with some of these viable resources.

Mineral extraction is still a viable industry in Pima County, but in practically every direction, one can travel up a mountain to the remains of a once-thriving mining town, and imagine the saloons, and dance halls, and general stores that have become so legendary in old west history. Many of these communities were established, only to be abandoned soon after. They thrived until economic factors eradicated the driving force of their existence, leaving behind remnants of towns to be preserved in the dry desert air. In a short trip, one can visit the ruins of mines which produced the copper, gold, silver, and other precious metals which drew so many people to the area, bringing with them railroads, schools, post offices, hotels, saloons, and the elements which formed this chapter in the history of Pima County.

## **II. Prehistory**

In a state that derives its name from a legendary silver discovery, the impacts of mining are apparent. The state motto, "Ditat Deus," (God enriches) refers to the mineral wealth in the area, and the state seal features a miner with a pick and a shovel (Moore, 1992). Before Arizona was a state however, and even before European contact with the Native Americans, mining had been in existence, and a seemingly common practice. According to Greeley, some mines are known to be very old, and the quarrying of ubiquitous chert and obsidian must have preceded other forms of mining by several thousands of years (1987). Native people mined salt, clay, pigment materials, Quartz, stone, and turquoise, which they used to produce pottery, tools, and weapons. In 1697 the Spaniards, Captain Cristobol Bernal and Juan Mateo Manje, reported conversations with Apache Indians, in which they described minerals similar to cinnabar and native mercury, which they used as body paint (Greeley, 1987).

## **III. Spanish Influence**

Mineral extraction by non-natives was discovered somewhat accidentally in the 16<sup>th</sup> century. It happened when a would-be expedition to the southeastern United States went awry. Alvar Nunez Cabeza de Vaca, a Moroccan named Estebanico, who is traditionally thought to have been a slave (although there is discussion about who he really was), and two other men were marooned in Texas when the expedition of Panfillo de Narvaez was destroyed by weather and hostile Native Americans as the group was attempting to establish a Spanish colonial foothold in Florida in 1528 (Lacy, 1987). During the eight years of hardship and captivity which followed, the group followed the Rio Bravo del Norte (Rio Grande) possibly into present-day New Mexico, then crossed northern Mexico to the outposts of New Spain near Mocarito, on Mexico's west coast, in early 1536 (Lacy, 1987). Nunez told many stories

of strange lands and several instances where metals and precious gems were being used by the Native Americans. He claimed that Cibola, the legendary seven cities of gold, lay to the north of what is now Arizona (Lacy, 1987).

The story of Cibola was repeated to the viceroy of New Spain, Don Antonio de Mendoza, in Mexico City, on July 23, 1536. The viceroy bought Estebanico, and used him as a guide on an expedition led by Marcos de Niza, a Franciscan friar, to Arizona to investigate the story. Estebanico, who was apparently traveling ahead of Niza, was killed in one of the Zuni villages by natives, and Niza aborted the mission. He did, however, report having seen the seven cities of gold in the Zuni land (although there is discussion as to whether there were six or seven Zuni villages occupied in 1539), possibly due to the pressure to show something for all of his efforts (Hallenbeck, 1987).

A second exploration was launched on February 23, 1540, led by Francisco Vasquez de Coronado. This group did make it to Cibola, which turned out to be a group of adobe pueblos, and the only mineral wealth that Coronado could show for the effort, after two years of travel, were some copper ornaments from the chief of the Wichitas, and an abundance of turquoise jewelry used by the Zunis. This failure of wealth resulted in a forty-year pause from gold-seeking in the region. It was Espejo's reports in 1582 which again prompted the quest for gold (Lacy, 1987).

“Spanish explorers did not necessarily come to the portion of this country...out of a love of adventure, but were driven by a promise made by the mineral laws that one could keep at least a portion of any mineral riches that might be found” (Lacy, 1987, p.1).

The first comprehensive mining code applicable throughout the Spanish Empire, including New Spain, was the 1584 Regal Ordinances, promulgated by Phillip II. This code, based on Viceroy Mendoza's ordinances, was quite generous to the discoverers of new mineral wealth. They were granted the right to work the mines as their own “possession and property...observing, both in regard to what they have to pay us [us, meaning the royal crown] by way of duty, and all other respects, the regulations and arrangements, ordered by this edict...” (Lacy, 1987). A miner was given twenty days to register a mineral find with a local mining justice or the local *alcalde*, the chief administrator of the town (Lacy, 1987).

The Ordinances of 1584 governed the mining procedures of New Spain, and the rest of the Spanish Empire, for nearly 150 years. There had been another break from the search for gold, resulting from the 1680 Pueblo Revolt, in which the natives drove the Spaniards from the territory and put a temporary end to Spain's mining. In 1736, a Yaqui miner, Antonio Siraumea, discovered a deposit of silver near present-day Nogales, Arizona. This discovery became known as the *planchas de plata* (planks of silver), and it forever changed the mining industry in this part of the country. The size of the find was declared to be 300-3600 pounds, depending on which report was consulted (Lacy, 1987). The Spanish crown considered deeming the find royal property, and they sent out Captain Juan Batista de Anza to make an official inspection. The Spanish attempted to gain control of the deposit, but a rush of miners had already flocked to the area, and it was soon realized that it was not feasible to keep the upper hand in the situation. The area was closed in 1741 by the viceroy, but this decision was overruled in 1783 (Lacy, 1987).

From the late 1500s to the late 1700s, Pima County was in a territorial status called *Pimeria Alta*, which was considered to be part of the New Mexico territory to the north, and Sonora, Mexico in the southern portion (Lacy, 1987). During this time, mining activity was low, based on lack of documentation, which would have been required under the 1584 Ordinances (Lacy, 1987). Father Eusebio Kino, in his writings between 1687 and 1711, noted that there were a number of mines along the Santa Cruz Valley. Therefore, it was possible that some ore from southern Arizona was finding its way into the unregistered black market for silver. This seems somewhat unlikely, however, as an operation big enough to be profitable would draw attention (Lacy, 1987).

Despite the fact that the priesthood were not supposed to engage in any mining activities, it is alleged that mineral deposits at Ajo were discovered in 1750 by prospectors from missions. Mission prospectors may also have conducted mining activities at Quijotoa and Aribac (Arivaca) in the 1770s.

#### **IV. Mining Industry Begins**

Around 1820, Apache raids forced the abandonment of the missions in southern Arizona, and for many years discouraged prospecting in the region (Wilson, 195-). By this time, the Tohono O'odham, and their antecedents, had been mining the hills of Ajo for centuries to obtain hematite, which is a heavy and relatively hard oxide mineral with a high iron content. In fact, the O'odham word for the area was "au-auho," which means paint. According to Greeley, the word was probably transliterated to "Ajo" by the Spanish (1987). From approximately 1836 to 1886, there was general warfare occurring between the Apache Natives and the American settlers. During this time, in 1836, the Ajo mineral deposits were visited by Tom Childs, who discovered a sixty foot shaft at the site. In 1850, Dona Ana County, as southern Arizona was called at the time (as part of the New Mexico Territory), was a gathering place for people who were traveling to or from California, after the big gold rush. It was there that Childs met fellow '49er, Peter R. Brady, and told him about Ajo and its "green-colored outcrops" (Greeley, 1987). Brady in turn shared the news with George Bartlett, the first Boundary Commissioner, who included the story in his 1854 Boundary Survey report (Lacy, 1987).

After the California gold rush in 1849, there began a decay in the placer mines of that state. Placer mining is commonly referred to as "panning for gold." It is a surface level method in which the miner squats down in a bed of water, usually a creek or river, and filters out gold-bearing gravel. The average placer miner found himself "industrially desperate" by the end of the 1850s, as money and technology were being invested in quartz (lode) and hydraulic mining. The day of simple placers, "the poor man's mines," had passed (Paul, 1988, pg. 25). As few placer miners were burdened with families, businesses, or other responsibilities, it was somewhat convenient for them to relocate to where placers were still commonplace, and that was southwest Arizona (Paul, 1988).

In 1853, Arizona became a Territory separate from New Mexico. Tucson was its capital from 1867 to 1877, and by 1870 there was a population of approximately 3,200 (Wilson, 195-). From 1853 to 1861, southern Arizona was actively prospected, and many of its mineral deposits were discovered. While on the Gray expedition in 1854, which was a survey of a railroad route for Southern Pacific Railroad along the 32<sup>nd</sup> parallel, Brady had a Seri (Native American) guide him to Ajo. He returned with copper specimens, and then organized the

first mining company in Arizona, the Arizona Mining and Trading Company, in August of 1854, created specifically to mine the ores of Ajo (Greeley, 1987). As work was started, before the completion of the Boundary Survey, Mexican authorities claimed Ajo to be south of the line, and troops were sent from Sonora in an attempt to oust the Americans (Wilson, 195-).

When it first became operational, Arizona Mining and Trading Company hauled ten tons of hand-sorted oxidized ore by ox team to Yuma, whence it was shipped (via Guaymas) to Swansea, Wales. The shipment yielded \$400, but no profits (Wilson, 195-). In an attempt to increase profitability by shipping a higher grade product, the company began smelting its own ore. At the cost of \$30,000, a reverberatory furnace was constructed in 1856. Due to the expense of coke and charcoal, and lack of suitable flux, the furnace was unsuccessful, and only 100 pounds of matte copper were produced (Greeley, 1987). From 1857-1858, the Butterfield Stage Line helped facilitate mining in the region. A tri-weekly service was maintained until March, 1860, just before the onset of the Civil War (Wilson, 195-).

Operations at Ajo ceased in 1859 due to a number of factors, including its remote location, high costs of transportation, comparatively low grade of ore, and scarcity of water (Greeley, 1987). Peter Brady did remain in the territory, however, and became a prominent businessman and politician, and was eventually elected the first sheriff of Pima County in 1866. In addition, he served several terms as a territorial legislator (Greeley, 1987).

Others who had participated in the Arizona Mining and Trading Company venture became successful in the area as well. Grant Oury, for example, served as Chief Justice of the Supreme Court for the Provisional Government in 1860. He resigned the same year, but eventually gained prominence as a lawyer and politician (Greeley, 1987). Frederick Ronstadt Jr., who's father had sold him his interest in the mine for twenty five dollars, established a wagon shop in Tucson that the family helped expand into a major hardware and building supply firm. Charles Schuchard, who was an artist with Gray's railroad surveying expedition, later became affiliated with Charles D. Poston and Samuel Heintzelman, of the Sonora Exploring and Mining Company (Greeley, 1987).

Charles D. Poston became known as the "Father of Arizona," due to his efforts to separate the territory from New Mexico, and have the area admitted as a state (Lacy, 1987). Poston and Herman Ehrenberg, a German mining engineer, had come upon the scene in search of the *planchas de plata*, just as Tom Childs had been doing when he discovered the Ajo shaft. Poston never did find the *planchas de plata*, but they did find a large amount of silver in the Santa Rita and Cerro Colorado Mountains (Lacy, 1987). Poston and his associates made claims to the Salero, Heintzelman, and Arenia mines on February 1, 1857 (Lacy, 1987). As he was concerned about the legalities behind his mineral discoveries, Poston noticed that there was no alcalde, or public official, so he declared himself the assistant clerk of Dona Ana County. He considered this position to be authoritative enough for him to act as both recorder and justice of the peace for Southern Arizona (Lacy, 1987).

The ventures of those affiliated with the Arizona Mining and Trading Company and the Sonora Exploring and Mining Company paved the way for other mining entrepreneurs who were attracted to the area. Mining towns appeared all over the west, but it seems as though the settlers had a more difficult time in the southwest.

"Numerous prospecting expeditions sent over from California to southern Arizona's Gadsden Purchase Strip, below the Gila River, were driven back, not only by the fierce desert climate

and the remoteness from any supply base, but also by the constant danger of Apache raids, to which Numerous prospecting expeditions sent over from California to southern Arizona's Gadsden were added, for a time, wartime attacks by Confederate troops and Sonoran bandits." (Paul, 1988, p.31)

In addition to Apaches, troops, and bandits, townspeople were often at war with each other as well. The life of a miner was fairly stressful, working in an underground shaft all day, usually for ten hours at a time, and earning only a couple of dollars per day.

"In the graveyard of Tucson, there were 47 graves in 1860, and of that number, only 2 had died natural deaths, all the rest being murdered in brawls and barroom quarrels." (Trimble, 1986, p.7)

On his visit in 1864, world-traveling journalist J. Ross Browne wrote:

"If the world were searched over I suppose there could not be found so degraded a set of villains as then formed in the principal society of Tucson. Every man went armed to the teeth, and street fights and bloody affrays were of daily occurrence." (Trimble, 1986, p.7)

Soon after, as the Civil War broke out, many Regular Army troops were recruited from Arizona, and were replaced by the California Volunteers who "could not forget that they had been miners before they donned a blue uniform. Wherever they marched, they found time to prospect, file claims, and plan for the future" (Paul, 1988, p.32). For more than ten years, following the withdrawal of the troops, the county was dominated by Apaches. There was some prospecting occurring during this time, but no mining (Wilson, 195-).

## V. Post Civil War

As the mining industry became more established in southern Arizona, more companies were started, and eventually the region was booming with activity. From the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, mining towns popped up left and right, each promising to be a big financial success, and often ending up vacant within a year. People often qualify this frontier era as westward expansion, but the frontier expansion was really the result of "a series of thrusts from both east and west, into the cordilleran middle" (Paul, 1988, p.25). The "wild west," as it is commonly referred to as, is more accurately the wild north from 1540-1854, when the area was still a part of New Spain, and southern Arizona was still a part of Mexico. After the Gadsden Purchase of 1853, Pima County was actually a part of the "wild south of west."

Whether it was because a mine had "played out," demand had switched to a different mineral, lack of water availability, or another cause, most of the mines in southern Arizona were closed by the teen years of the 20<sup>th</sup> century. There was, however, some intermittent activity, sparked by the demand for metals during the First and Second World Wars. The most successful districts during WWI were Helvetia, Rosemont, Silver Bell, Twin Buttes, and Mineral Hill (Wilson, 195-). Also during WWI, after a period of little or no mining activity,

the mine at Ajo began large-scale production in 1917. After numerous reorganizations of operating companies, the New Cornelia Copper Company became successful due to the discovery of an ample water supply, which was developed in 1916, 600 feet underground, and seven miles north of Ajo. This led to the construction of a 5,000-ton crushing, leaching, and electrolytic precipitation plant, which was completed and began operating in 1917 (Wilson, 195-).

In 1931 the New Cornelia Copper Company became a division of the Phelps Dodge Corporation. Due to low copper prices from 1932-1934, the mine was closed, but again successful upon reopening. In 1950 a copper smelter was completed and put into operation, and in the 1950s, Ajo was the largest producer of metallic ores in the country (Wilson, 195-).

Since WWII, the mining industry in Pima County has consisted primarily of copper extraction, and the by-products of this process, such as molybdenum, and even gold and silver. Arizona is known as the "Copper State," and leads the Nation in copper production (Bureau of Mines, 1991). Copper mining is a cyclical industry, and when copper prices decline, the marginal mining companies are forced, either temporarily or permanently, to shut down operations. Currently in Pima County, the most prominent mining companies in operation are Phelps Dodge and ASARCO. Sierrita, Inc., run by Phelps Dodge, is located six miles northwest of Green Valley, Arizona, and produces copper and molybdenum. Phelps Dodge is also planning to reopen the mining facility in Ajo, Arizona, which is projected to produce 135 million pounds of copper, and 25,000 ounces of gold annually. ASARCO currently operates the Silver Bell Mine, located forty miles northwest of Tucson, and the Mission Complex Mine in Sahuarita, Arizona.

## VI. Before you go...

The cultural resources element of the Sonoran Desert Conservation Plan serves to inform and educate the community on the need for preservation of the heritage and historic foundations from which Pima County is derived. There is a wealth of cultural resources in the county, including ghost towns.

Ghost towns are remnants of the mining industry that created an economy for the region, and contributed to the institution of statehood in Arizona. They are a tangible link to an important part of our collective past, and they need to be preserved in order to protect that link for the benefit of future generations. Ghost towns are fragile, finite in number, and require our care to ensure their existence in years to come. Pima County contains several of these sites, and proper etiquette should be followed when visiting them.

The following is an archaeological site etiquette guide, published by the Arizona State Historic Preservation Office (Arizona State Parks 602/542-4009). Please take a few minutes to familiarize yourself with this site etiquette guide, as it will help to minimize impacts to ghost town sites, and all other archaeological sites as well.

1. Walls are fragile and continually deteriorating. That is why they are called "ruins."  
**Climbing, sitting or standing on walls can damage them. Also, picking up or moving rocks alters the walls forever.**

2. Artifacts, where they lay, tell a story. Once they are moved, a piece of the past is destroyed forever.

**Digging, removing artifacts, or piling them up changes what can be learned from these pieces of the past.**

3. Cultural deposits, including the soil on an archaeological site, are important for scientific tests and are used in reconstructing past environments. For instance, from such information we can learn what kinds of plants were being utilized by the inhabitants.

**Please carry out any trash (especially organic remains) you may have while visiting a site.**

4. Fragile desert plants and soils that are part of archaeological sites are destroyed when you stray from the trail. Also, snakes and other small desert animals make their homes in the bushes and under rocks and in burrows . . . you may disturb them.

**Please stay on trails . . . they are there for your protection.**

5. Fire destroys prehistoric organic materials, ruins the dating potential of artifacts, and damages or even destroys rock art by covering it with soot.

**Absolutely no fires, candles, or smoking should occur at archaeological sites.**

6. Oils from even the cleanest hands can cause deterioration of prehistoric drawings and ruin the dating potential for future scientists trying to unravel the meaning of symbols painted and pecked on stone.

**Please refrain from touching rock art.**

7. Graffiti (drawing/painting, scratching, and carving) is destructive and can destroy rock art, as well as deface wooden/stone buildings.

**Graffiti destroys rock art as well as other values.**

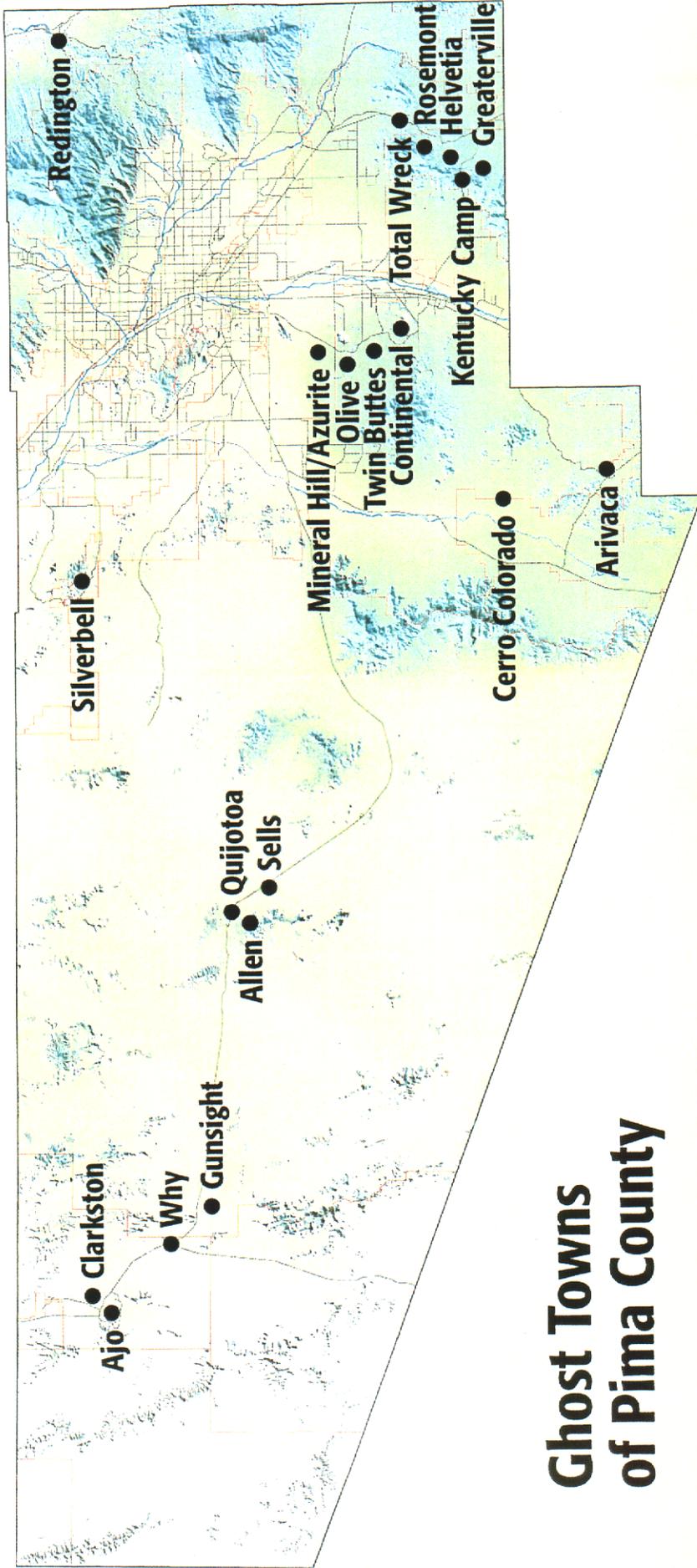
8. Pets damage sites by digging, urinating and defecating in them. They can destroy fragile cultural deposits and frighten other visitors and native animals.

**Please do not bring pets onto archaeological sites.**

Finally, be aware of your surroundings when you are outdoors. Avoid driving or riding your bicycle through sites; pitching your camp in a site; dismantling historic buildings for firewood or any other use; and, camping, or making campfires, in historic buildings.

All archaeological sites on public (federal and state) land in Arizona are protected by the Archaeological Resources Protection Act and state laws that prohibit digging, removing artifacts, damaging, and/or defacing archaeological resources; these laws provide for both felony and misdemeanor prosecution with imprisonment and fines. Graves and grave goods on private land are also protected by Arizona state law.

If you see people vandalizing sites, please report it as soon as possible by calling **1-800-VANDALS** or the Sheriff's Department.



## Ghost Towns of Pima County

- Ajo
- Allen
- Arivaca
- Cerro Colorado
- Clarkston
- Clarkston
- Cerro Colorado
- Clarkston
- Ajo
- Allen
- Arivaca
- Cerro Colorado
- Clarkston
- Greaterville
- Gunsight
- Helvetia
- Mineral Hill/Azurite
- Olive
- Quijotoa
- Reddington
- Rosemont
- Silverbell
- Total Wreck
- Twin Buttes
- Kentucky Camp

By following these simple guidelines, **YOU** can help preserve these unique and fragile remnants of **OUR** American heritage. Thanks for your cooperation, and we hope that you enjoy visiting archaeological sites in Arizona!

## **VII. Ghost Towns & Mining Towns of Pima County**

### **Ajo, Arizona**

G.L.O. Map, 1921; U.S.G.S., 1923

Land Ownership: Private Land

Arizona Copper Mining and Trading Company was the first company to operate the Ajo Mine. This venture lasted from 1855 to 1859, at which time the land became dormant. This pause between mining operations lasted for over thirty years. In the 1890s, St. Louis Copper Company was formed by A. J. Shotwell and J. R. Boddie, and they built a ten-stamp mill. Despite the investment in equipment, this company soon went bankrupt (Wilson, 195-).

In 1900 the Cornelia Copper Company was incorporated, and was sponsored by Shotwell and Boddie. In 1906, the directors of this company became victims of a fake smelting scheme, concocted by F. L. McGahan, which cost the company \$34,000. Cornelia Copper Company was mostly unsuccessful, and was eventually reorganized in September, 1909 as the New Cornelia Copper Company. Not much was done until 1911, when Ira B. Joralemon, a geologist for Calumet and Arizona Mining Company, examined the Ajo district and recommended its development. Under the leadership of John C. Greenway, general manager, the company was reorganized with the same name, and test pits were sunk. Successful demonstrations showed that a low-grade copper deposit existed at about 1,000 feet (Wilson, 195-).

Construction of a leaching plant began in 1912, and a railroad from Gila Bend to Ajo was completed in 1915, which carried shipments of high-grade ores until 1916, at which time an ample water supply was developed using the water from 600 feet below the ground's surface. The development of the water supply came at a perfect time, as WWI provided a large demand for copper, and all the minerals extracted at various sites in southern Arizona. Large scale production began in 1917, and carried on for several years. In 1931 the New Cornelia Copper Company became a division of the Phelps Dodge Corporation, and in 1950 a copper smelter was completed and put into operation (Wilson, 195-).

The mine at Ajo is not currently operating, but Phelps Dodge could plan to reopen the facility and begin production in the future. Permission by land owners for visitation should be obtained in advance.

### Allen, Arizona

T. 15S, R. 2E

Remains: Nothing; not worth the trip.

Post Office: July 5, 1882-January 11, 1886

Located about 50 miles southeast of Ajo, the town of Allen was more of a side town to the mining town of Quijotoa, than an independent community. Named after General "Pie" Allen, who owned a hotel on the west side of Ben Nevis Mountain, the town was also known as "Allen's Side," or "Allen's Camp."

General John Brackett Allen, a native of Maine, was one of the first to arrive for the gold and silver rush in the town of Quijotoa in the early 1880s (Sherman, 1969, pg.10A). He was at one time Adjutant General of Arizona, and a member of the Territorial Legislature. Farish, in *Arizona Place Names*, states that Allen was involved in the infamous Camp Grant Massacre of Apache Indians in the San Pedro River Valley in 1871 (Barnes, 1988).

The Quijotoa mining community proposed townsites were going to be on the east side of Ben Nevis Mountain, so Allen decided that the best place for a hotel would be on the west side of the mountain. A successful venture, the hotel became known for "setting one of the finest tables and serving the choicest liquors in the territory," (Sherman, 1969, pg.10A). The trek from the townsites to the hotel was approximately 6 miles by wagon.

The town of Allen consisted of about half a dozen houses and a few tents, and was populated mostly by miners. Today, there are no remains of the small "resort" community.

### Arivaca, Arizona

T. 21S., R. 10E. Sec 35

G.L.O. map, 1921; U.S.G.S., 1923

Land Ownership: Private Land

Remains: Some old buildings, mixed with the new. Currently a rural town.

Prior to its days as a mining town, Arivaca was a Piman Indian Village west of what is now Tubac. According to Bancroft in *Arizona Place Names*, "Aribac or Arivaca appears on a doubtful map of 1773 as a Pueblo." (Barnes, 1988). The Piman Indian village was abandoned during the Piman Revolt of 1751 (Barnes, 1988).

According to Barnes (1988), Dan Ming, in *Scientific and Mining Press*, states that "There was an Arivaipa mine in the Santa Ritas in 1857. The Spanish spelled it 'Aribac.'" Mexican occupation of the area began with a land grant to Thomas and Ignacia Ortiz in 1833. They built La Aribac Ranch. The ranch was deserted by the time the land became part of the United States, as part of the Gadsden Purchase of 1853. In 1856, during the time of his Cerro Colorado operations, Charles Poston purchased the ranch land from the Ortiz family for \$10,000 in gold. (Varney, 1980). In 1880, reduction works of the Cerro Colorado, or Heintzelman Mine, were located here (Barnes, 1988).

Mining has long since discontinued, but cattle ranching continues in the area. There is also a general store, which is open for business, as well as former army barracks, which are now a private residence (Varney, 1980).

Down the street from the general store are the ruins of Teresa Celeya's house, where Teresa's brothers supposedly hid out after robbing the Vulture Mine near Wickenburg. Rumor says that they buried their loot of two gold bricks at that house (Varney, 1980). No trace has ever been found, but the yard is full of holes from people's attempts to find the loot.

Arivaca is located nine miles southwest of Cerro Colorado, and twenty four miles west of I-19. Permission to visit Arivaca should be obtained by the property owners.

## Cerro Colorado, Arizona

Eckhoff Map, 1880: G.L.O., 1892

T. 20S, R. 10E. Sec 25

Land Ownership: BLM

Remains: Various ruins of buildings.

Post Office: April 17, 1879 – April 15, 1911

Located at the foot of the Atascosa mountain range, Cerro Colorado was a series of mines on the east side of Altar Valley. The most famous of these was the Heintzelman, named for Samuel P. Heintzelman, who was the first president of the Sonora Exploring and Mining Company. He later achieved fame during the Civil War (Sherman, 1969).

The Sonora Exploring and Mining Company, headed by Charles Poston, acquired the property two years after it had become part of the U.S. territory (Varney, 1980, pg.85). Operations at the mine were running smoothly until a chain of events led to the demise of the once profitable gold mine. Mishaps in the mine resulted in mistrust between the Mexican and Indian workers, and their Anglo employers. In one such incident, just before the Civil War broke out, fifteen workers were caved in when the mine roof collapsed, without any apparent way of rescuing anyone. Many workers left after this event, claiming that the mine was haunted (Varney, 1980).

When the Civil War broke out, troops were recruited from Arizona, which decreased the army presence in the region. The Apaches took advantage of this weakened defense, and increased the frequency of their raids in the area. Mining camps were under constant threat of Apache attack, and continuous stealing and desertion plagued operations at the mines (Sherman, 1969).

Another event occurred during the Civil War, which did nothing to boost morale at the mine. When Charles Poston was called off to business, he left his brother, John Poston, in charge of running the mines. John caught the foreman, Juanito, on his way to Mexico with a load of silver he had stolen from the mine. Poston, intending to make an example of his punishment, had the foreman executed. Juanito's death served only to further disrupt operations at the mine. During the next few nights, Mexican workers stole as much as they could from the mine, and disappeared to their homes in Sonora, Mexico. They returned to their homes with more than just loot. They had a story, whether fact or fiction, about Juanito having buried \$70,000 worth of stolen silver, somewhere near the mine. Having heard this tale, a group of Mexican outlaws headed to Cerro Colorado and murdered John Poston, along with two German employees. They then looked for buried loot, but never found it, and no one ever has (Sherman, 1969).

The mine ran for brief periods after the Civil War, but eventually the village crumbled. In the early days, Cerro Colorado consisted of assorted buildings and storehouses. Buildings were later constructed on top of existing foundations, but today only ruins remain. Along with

some adobe foundations and crumbling walls, some cement foundations and mill remnants from later efforts still remain as well. Behind the mill foundations, at the top of the hill, lies John Poston's grave, an important element of the site (Varney, 1980).

Cerro Colorado is located 55 miles south of Tucson, on the Arivaca road. Take I-19 to the Arivaca exit and head west. At the Arivaca Junction on the Old Nogales Highway, turn to the right, and then to the left, following the sign to Arivaca. Cerro Colorado is 15 miles from this point, on the right side of the road. The Bureau of Land Management reminds visitors to be respectful, and not to bring metal detectors to the site. Wood from buildings and all other remnants should be left where they are found. Guided tours are offered in the winter, and permits may be obtained through local outfitters.

## Clarkston, Arizona

T. 12S, R. 6W Sec 23, 24

Land Ownership: Private Land

Remains: A few old buildings.

Post Office: Established as Rowood, January 21, 1918; changed to Samclark, February 26, 1918 (rescinded); discontinued November 30, 1955.

Clarkston today is listed as a "village a mile east of Ajo, and a suburb of that town" (Barnes, 1988, p. 98). Founded by Sam Clark, the town was built in opposition to Ajo, which was then known as the New Cornelia Copper Camp (Sherman, 1969). Sam Clark essentially owned this new town, located near the copper mine reduction works. He rented lots to people, ranging in price up to twenty dollars, depending on whether the space was for business or living purposes (Sherman, 1969).

By 1916, Clarkston was more popular than Ajo, with a population reaching approximately 1,500. There were over 60 business establishments, including a bank, motion picture theater, billiard and pool hall, two shower-bath houses, two soft drink stands, a milk depot, hardware store, furniture store, music shop, and a newspaper, *Copper News* (Sherman, 1969).

When it came time for a post office to be established, the town residents attempted to have the name Wilson or Woodrow assigned, but as patriotic as their intentions were, both were rejected by the Post Office Department. They then opted for Rowood (version of Woodrow) (Sherman, 1969).

The biggest problem with the town of Clarkston was the ongoing water shortage. The New Cornelia Copper Company refused to sell water to any of Clarkston's residents, so it had to be hauled in from elsewhere. Eventually a shaft was deepened and a supply of water obtained, but because of the highly mineralized taste, water vending was still a lucrative business.

Most of Clarkston was destroyed by fire in 1931. Rowood Post Office moved to Gibson, where service continued for several years. Permission to visit Clarkston should be obtained from property owners.

## Greaterville, Arizona

U.S.G.S. Map, 1923: Sec 19  
T. 19S, R. 16E: Coronado National Forest

Land Ownership: National Forest Land; Private Land

Remains: Cemetery

Post Office: January 3, 1879 – June 30, 1946

Originally known as Santa Rita in 1873, the Greaterville mining district was founded soon after A. Smith discovered placer gold in the area, in 1874 (Barnes, 1988). Within a few years, about 400 Mexicans, and about 100 Americans had settled in Greaterville (Sherman, 1969). The town had the usual makings of a mining village. There were several dance halls, saloons, and stores, and even a night school, which was taught by Justice of the Peace, Patrick Coyne, until the first public school opened in Greaterville. At that time, only two other schools existed in Pima County (Sherman, 1969). Water access was the main obstacle for town members, but a few villagers made their living by packing canvas bags of water by burro from nearby Gardner Canyon (Sherman, 1969).

One story is mentioned by all who have reported on Greaterville, and that is the Greaterville Saturday night dance. Every week the town would host a big dance, which drew cowboys and miners from all over the surrounding area, including the nearby Empire Ranch. One Saturday night, sometime during the winter months, the miners apparently decided that they were going to lock the doors to the dance hall before the cowboys would arrive, and that way they would have the ladies all to themselves. One cowboy decided that he was not in favor of the plan, and climbed on top of the roof of the dance hall, and dropped a handful of gun ammunition down the chimney, into the open fire, causing everyone to evacuate. The cowboys grabbed their favorite ladies as they ran for the door. The machismo did not stop there though. One miner, jealous that a cowboy was dancing with his favorite lady, followed the cowboy around the dance floor with a knife, which provoked a friend of the cowboy to then follow the miner around with a knife of his own (Martin, 1997).

Greaterville had its fair share of confrontations between the citizenry and the law. The town became a known stop on "Renegade's Route," which was a path for desperados who were trying to avoid the law when journeying between the Mexican border and Tucson (Varney, 1980). There was law to be had, however, in Greaterville. Along with the Justice of the Peace, Patrick J. Coyne, Deputy Sheriff Bob Kerker helped bring justice to the small mining community. A hole in the ground, with a rope to lower and raise offenders, served as the jail. The town thrived until the 1880s, panning out about ten dollars per day in the early years (Sherman, 1969). However, by 1881 the gold was played out, and the town eventually died down (Varney, 1980).

Greaterville is located about 45 miles southeast of Tucson, in the Santa Rita Mountains.



*Greaterville Cemetary today.*

**Gunsight, Arizona**

U.S.G.S. Map, 1923

Location Restricted

Land Ownership: Tribal Land; Private Land

Remains: Unknown

Post Office: June 27, 1892 – January 6, 1896

Gunsight was formed in 1878, when silver was discovered in the area west of Quijotoa Valley, in western Pima County. There are at least two versions of how the town got its name, the more common being that it was near a mountain formation resembling a gunsight (Sherman, 72G). Another source states, "(the) mine got its name from an alleged story about one of the men who discovered it. Having no sight on his gun, he whittled one from a piece of almost pure silver, which he fastened to the barrel of his rifle" (Barnes, 1988). Either way, by 1892 the town was thriving under the Silver Gert Mining Company. Forty men were employed, and eight buildings were constructed by the company (Sherman, 1969). A nearby ranch supplied the town residents with vegetables and dairy products, and a tri-weekly stage ran between the camp and Gila Bend. Gunsight is located seventeen miles east of Ajo. It is located on the Tohono O'odham reservation, and access is restricted.

## Helvetia, Arizona

U.S.G.S. Map, 1923

T. 18S, R. 15E Sec 25

Land Ownership: Private Land

Remains: Some adobe ruins

Post Office: December 12, 1899 – December 31, 1921

Situated below the picturesque backdrop of the Santa Rita Mountains lay the remains of a once successful mining community. Named for the native country of a local Swiss miner, Ben Hefti, Helvetia began its mining activity in the 1880s. The oldest mine in the district, the Old Frijole, was located in 1880 by Bill Hart and John Weigle (Sherman, 1969). By 1891, Helvetia Copper Company of New Jersey had acquired claims and begun mining on a larger scale, and the community had grown to a few hundred people (Varney, 1980). The population of the town fluctuated with the mines ups and downs, and the peak is estimated at approximately 300 people (Sherman, 1969).

In 1903, Michigan and Arizona Development Company bought part of the Helvetia Copper Company's stock, and built a furnace of 150 tons daily capacity. The furnace was never really successful, and was shut down after a couple of years (Wilson, 195-).

Mining continued intermittently at Helvetia during the teen years of the 20<sup>th</sup> century, and from 1941-1949, as the first and second World Wars provided enough demand to keep operations running (Wilson, 195-).

"Helvetia embraced the usual assortment of saloons and stores, a school, and stage lines to Tucson and Vail" (Sherman, 1969). While all of the cultural necessities were present, the camp itself, in which the miners lived, was comprised of tents and adobe and grass shanties.

Today the scenic spot in the forefront of the Santa Rita Mountains is quiet, with only a colored pit, some adobe ruins, and a cemetery to mark where the town had once been. Permission to visit the site should be obtained from land owners prior to visitation.



*Helvetia today*

## Kentucky Camp, Arizona

T. 19S, R. 16E Sec 30, 31, 32

Land Ownership: Coronado National Forest

Remains: Restoration of buildings in process

The Santa Rita Mountains had provided the perfect scene for placer gold mining when the area was discovered in 1874. The gulches in the Greaterville district proved to be the largest and richest placer gold settings in southern Arizona. An article in an 1875 edition of the Arizona Citizen reported that one "Horace Arden, not noted for working imprudently hard," was recovering an ounce of gold a day, even though he had to haul his pay dirt to water for washing (Farrell, 1993). These success stories attracted hundreds of miners to the district in the 1870s. Between 1873 and 1875 a quarter of a million dollars worth of gold had been recovered from the Greaterville district (Farrell, 1993).

According to one miner, most of the business in the district was conducted by Americans, while the placer digging and washing of the gold was done by Mexicans, Yaqui, and Opata people (Farrell, 1993). The procedure for recovering placer gold is a job in which two men would work together, but one man would break down, hoist, and rock his gravels alone.

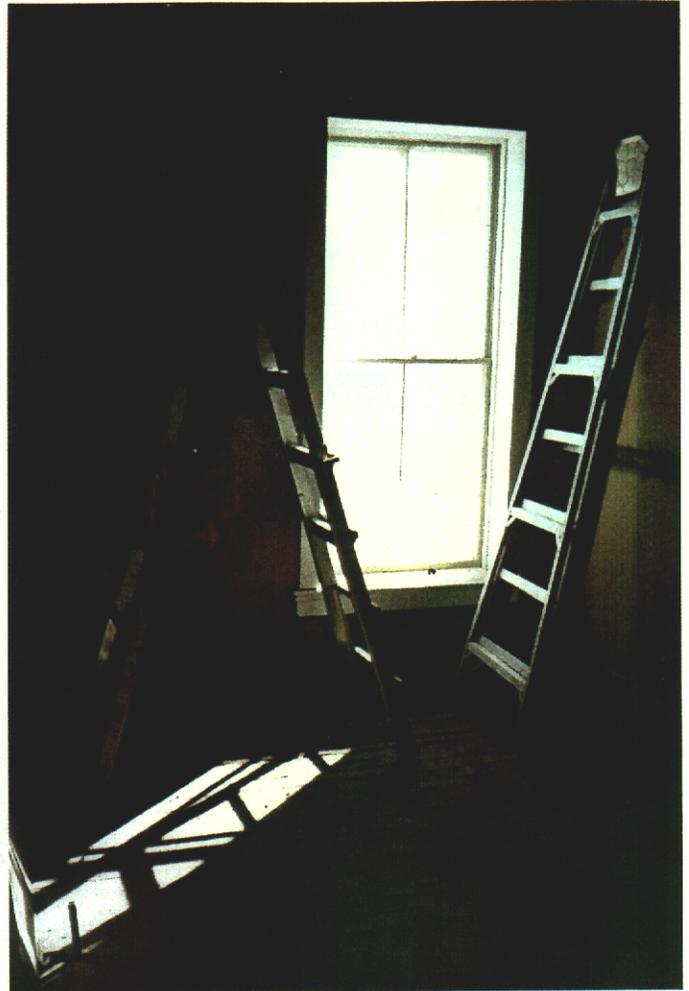
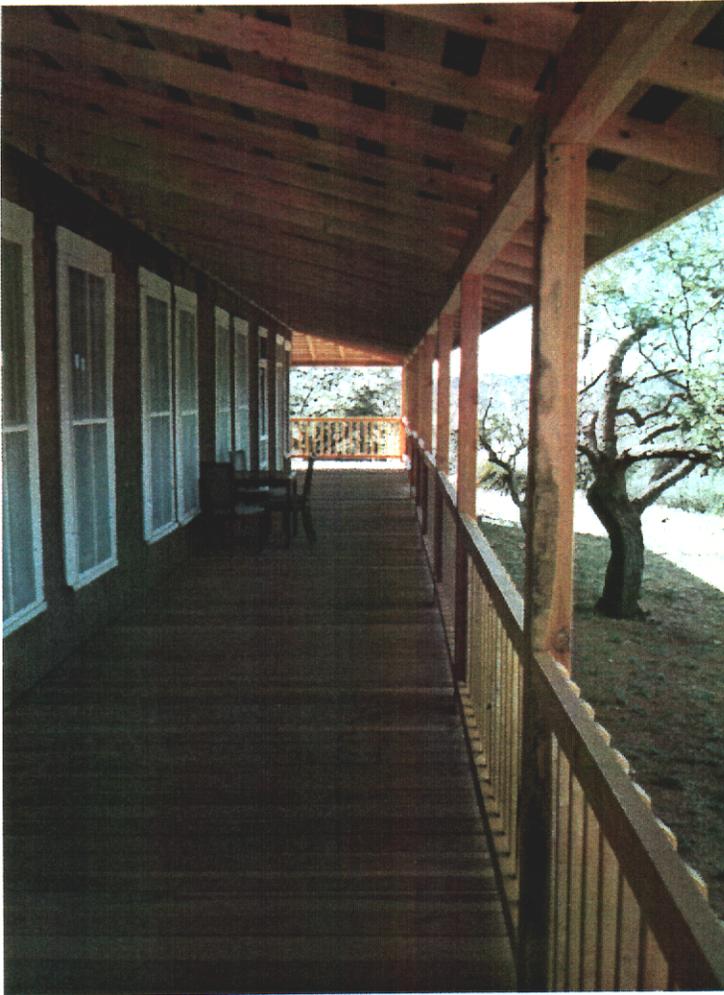
Although some large nuggets (weighing about 37 ounces each) were extracted, the majority of the gold was in the form of flakes, and had to be separated from the unwanted clay containing it. As the gulches were usually dry, the miners were faced with two choices: they could either haul their pay dirt to the few running streams, or haul the water to their diggings. Some people earned their living during this time by hauling water on burros, and charging three cents per gallon (Farrell, 1993).

Lack of water was the biggest obstacle in the Greaterville district, and at the turn of the twentieth century, an engineer, James B. Stetson, and a millionaire, George McAvery, came up with a solution. From 1902 to 1905, The Santa Rita Water and Mining Company built eight and a half miles of ditches, pipelines, and tunnels to transport water from streams farther south in the Santa Ritas, to the placer fields in the Greaterville district (Farrell, 1993). Kentucky Camp, built in 1904, was the company's headquarters. Included in this camp were five one-story adobe buildings that combined Mexican construction techniques with Anglo floor plans and facades. A room in the largest building is said to have been the "office" which stored the deeds to several mining claims the company had purchased. The company owned over 1,000 acres of patented land, and held rights to 2,000 more (Farrell, 1993). Two small cabins may have housed Stetson and other important personnel, and one building was designed for processing the anticipated gold (Farrell, 1993).

Timing was perhaps the culprit for failure of this venture. A drought had struck southern Arizona in the early years of the century, and made it difficult to deliver water to the camp. In May of 1905, James Stetson, the engineer, died from a fall from a third story window in Tucson. The property, including many patented placer mines, water rights, water tunnels, buildings, mining equipment, a telephone line, and all else affiliated with the Santa Rita Water and Mining Company, was sold at a sheriff's auction in 1906 to an attorney who used the property for cattle ranching until the 1960s (Farrell, 1993).

Kentucky Camp was unusually well preserved for a ghost town, and in 1994 was listed on the National Register of Historic Places. Thanks to two volunteer programs through the National Forest Service, *Passport In Time*, and *Friends of Kentucky Camp*, the site is being restored to resemble the original turn of the century camp. Both volunteer programs welcome and encourage new members.

Directions to get to Kentucky Camp, courtesy of Coronado National Forest, 1993:  
Kentucky Camp is located approximately 90 miles south of Tucson. Most of the drive is along a scenic highway, but the last five miles are unpaved, and a four-wheel drive vehicle with high clearance is recommended. From Tucson, take Interstate 10 east to State Route 83, and head south for about 21 miles to the Gardner Canyon Road. Take this road west (also known as Forest Service Road 92) for almost a mile, and turn right on Forest Service Road 163. Follow this road (not 163A, 163B, or 4060) for a little over 3 miles to its intersection with FS Road 4113, which is marked with a small brown plastic post. Take a right here, onto 4113. In less than 0.2 miles you will pass through a fence (please close fence behind you). Stay on 4113, which follows the ridgetop, for another mile, to an unmarked road that bears left. A locked gate will be visible; park here and walk down the road about ¼ mile to Kentucky Camp.



*(Top left). Porch at Kentucky Camp.*

*(Top right). Renovations underway at Kentucky Camp thanks to volunteer programs through the National Forest Service.*

*(Bottom). Adobe walls and renovated building at Kentucky Camp.*

**Mineral Hill (Azurite), Arizona**

T. 17S, R. 12E Sec 2

Land Ownership: Private Land

Remains: No remains

Post Office: Dates unknown

Mineral Hill, also known as Azurite, had an unsteady run as a copper mining town, beginning in the 1880s. From 1882-1884, Emperor Copper Company capitalized on the copper deposits, but a slump in the market halted operations (Sherman, 1969).

In 1897 Azurite Copper and Gold Company was formed, and they built a 30-ton smelting jacket at Mineral Hill Azurite camp was established near the smelter. The entire camp consisted of tents, some frame buildings, and a store (Sherman, 1969). Because mining was so sporadic, the population never reached the size of some of the other towns. About 125 people were living in the town in 1899, when they reported the need for a peace officer. Apparently, liquor was being smuggled into the camp and consumed by the miners, and it was disturbing the work schedule (Sherman, 1969).

By 1900 the mine had closed, and Azurite camp was no more. After having remained idle for six years, it was purchased by Mineral Hill Consolidated Company. Operations ran for one year, from 1906-1907 (Sherman, 1969). There was some more mining during World War I, and in the early 1920s the town had a store and a post office (Sherman, 1969).

Mineral Hill is located 16 miles south of Tucson, but there are no remains of the town.

**Olive Camp, Arizona**

G.L.O. Map, 1892

T. 17S, R. 12E Sec 11

Land Ownership: Private Land; BLM

Remains: Ruins of adobe structures

Post Office: March 4, 1887 – May 23, 1892

Olive Stephenson Brown was the inspiration for the name of this mine and settlement, located west of the Santa Cruz River. She was the wife of James Kilroy Brown, one of the mine's owners, and she was apparently quite a cook. While she and her husband were living there, a tradition began in which Olive would treat all of the workers to Sunday chicken dinners. It was a day of feasting and fun, and it became something that the workers looked forward to every week (Sherman, 1969).

Olive camp was unique, as there was no mill, smelter, or machinery, and ore was extracted and sent elsewhere for processing. The miners received their returns by check (Sherman, 1969).

In the 1880s, the Browns sold the mine and moved to Tucson. The camp closed when mining switched from copper to silver (Sherman, 1969). After it reopened, Olive was an active silver camp during the 1880s and 1890s. The camp served Olive Mine, San Xavier Mine, Wedge Mine, Michigan Maid Mine, and Richmond Mine, and was the largest mining camp in Pima County in 1889 (Barnes, 1988). Olive is located 17 miles south of Tucson, along Mission Road.

## Quijotoa, Arizona

### Location Restricted

Land Ownership: Tribal Land

Remains: Unknown

From the Tohono O'odham word 'kiho,' or 'qui-ho,' for carrying basket, and 'toa,' meaning mountain, this carrying basket mountain was originally fancied as having much potential for large mineral payoffs.

Compared to the town of Mineral Hill, with its small camp and single store, Quijotoa was composed of four townsites, totaling approximately 200 buildings. From the time copper and silver were discovered at the summit of Ben Nevis Mountain in 1883, by Alexander McKay, the town of Quijotoa sprang up with the anticipation of a rich payoff.

News of the discovery spread quickly, and San Francisco speculators were immediately sent out to survey the scene. This resulted in the immediate and simultaneous formation of six mining companies in Quijotoa (Sherman, 1969).

Logan, one of four townsites in Quijotoa, was named after two brothers, J.T. and W.R. Logan, who dug the well on the east side of Ben Nevis Mountain from which the camp grew. By 1884 Logan Avenue, which later became Main Street, contained a row of one-story buildings that stretched for almost a mile. At the same time, a rival camp called New Virginia was also developing (Sherman, 1969). Virginia City and Brooklyn were the other two townsites.

Society was fairly orderly in Quijotoa, considering that there were over twenty saloons and no jail. The deputy sheriff, Thomas D. Casanega, offered a solution to this problem, however, as he would tie prisoners to cots under a tree until they were shipped off on the train for Tucson the next morning (Sherman, 1969).

Along with being a fairly peaceful community, the cost of living in Quijotoa was fairly reasonable as well. Meals cost between twenty five and fifty cents, and drinks were twelve and a half cents apiece (Sherman, 1969). There was even a special twelve and a half cent coin (a bit coin), devoted entirely to purchasing libations.

On the other side of Ben Nevis Mountain was the small town of Allen, and this was one place from which water was brought in. Milk and hay were supplied by the Papago Indians (Tohono O'odham), and wood and wild game were abundant. There were also two daily stage lines, which ran between Tucson and Quijotoa (Sherman, 1969).

A ghost town would not be the same without the stories of memorable characters to pass on, and Quijotoa had its share. One such tale which has survived the pages of history is about an overzealous gambler named Harry Newton. Harry was always ready to bet his last penny when it came to the shooting qualities of his Winchester. One day, one local resident, Topy Johnson, decided to play a little joke on Harry. Topy killed a coyote and placed the body against a cactus about 100 yards from Henry's tent. He then asked Henry if he would lend him his gun, so that he could go and kill the coyote. Henry of course took the bait, and bet Topy forty dollars that he could kill the coyote with one shot. After he shot his rifle, and

the coyote did not move, he bet a hundred dollars that he could kill the animal with a second shot. When the coyote still did not move, he headed for the animal, as Topy pocketed the \$140. As Henry turned the animal over, he saw three bullet holes, and realized he had been deceived. Topy left the scene, and later described the incident to the other men in town, and they all had a good laugh on him. Topy fled soon after (Sherman, 1969).

The ore deposit in Quijotoa did not turn out to be the rich bonanza everyone had expected, and the town was already declining when a fire broke out on June 26, 1889. It started in Archie Niven's building on Main Street, at about noon, and it nearly demolished the whole town. There was no reason to rebuild. The town that once had a population of several thousand people and four townsites had dwindled to sixty people by 1891 (Sherman, 1969). The town of Quijotoa is located on the Tohono O'odham reservation.

## Rosemont, Arizona

U.S.G.S. Map, 1923

Coronado National Forest, 1927

T. 18S, R. 16E Sec 32

Land Ownership: Private Land

Remains: Few railroad tracks

"For L.J. Rose, who came to this region about 1896 from California; bought the McCleary group of mines and sank a fortune in them. Born in Scotland; came to U.S. a boy of sixteen. Raised and raced the celebrated stallion, 'Stamboul.' Died in Los Angeles about 1915." -- Letter, Carl Sholefield, Forest Ranger, Globe (Barnes, 1988, p.368).

It was actually before 1896 that L. J. Rose came to the region. He and William McCleary began locating and developing claims in 1879, and created The Rosemont Mining and Smelting company in 1894. The company was named after L. J. Rose, who was the principal stockholder.

On December 21, 1894, the *Phoenix Daily Herald* reported that there was not much activity at the mine, and that it was impractical to run an 80-ton smelter on surface materials. In 1895 McCleary and Rose sold the contents of the store, blacksmith shop, hotel, and more at Rosemont to keep the company alive. Their efforts were insufficient however, as the sale of the Rosemont Copper Mines and Camp to the Lewisohn brothers of New York (who paid between \$30,000-\$40,000 for everything) was announced in the *Phoenix Daily Herald* on February 27, 1896.

The Lewisohn brothers were unable to sustain their operation at Rosemont. The mines closed briefly in 1899 due to lack of coke for the smelter, reopened, and shut down for good in 1903. The town gradually fell into disuse and ultimately ruin after 1905 (Ayres, 1984).

## Silver Bell, Arizona

U.S.G.S. Map, 1923

T. 11S, R. 8E Sec 33

Land Ownership: Private Land

Remains: Two cemeteries from original site

Post Office: Established August 18, 1904

Mine is on private property, owned and fenced in by ASARCO. There are two cemeteries which one may visit. The first is about two miles west of the original mine site, and the other is about two miles farther down the dirt road which leads back to the freeway.

"Once described as 'The hell-hole of Arizona,' Silver Bell gained notoriety through various reported murders and other lawless acts." (Sherman, 1969, pg.13s)

Aside from its infamous reputation, Silver Bell was a successful copper mine, beginning in the 1860s when high-grade ore was discovered in the area (Sherman, 1969). Several companies were organized and acquired claims, but in 1883 copper prices were low, and mining ceased.

In 1902 E.B. Gage and W.F. Staunton, who were affiliated with Development Company of America, obtained the Mammoth and Old Boot mines. They organized the Imperial Copper Company, and Silver Bell was once again in the mining business (Sherman, 1969).

Progress came to town with the completion of the Arizona Southern Pacific Railroad, which ran from Red Rock to Silver Bell, in 1904. At around the same time, SASCO (Southern Arizona Smelting Company) built a smelter to the north of Silver Bell, and the population reached 3,000 (Sherman, 1969).

A shaft fire in 1911, combined with water difficulties at their Tombstone properties, caused the Development Company of America to go bankrupt, and mining activity again ceased at Silver Bell (Sherman, 1969).

The American Smelting and Refining Company (ASARCO) took over in 1915, but low copper prices in 1921 again halted mining activity. By 1934, the tracks of the Arizona Southern Pacific Railroad to Red Rock were torn up, and the SASCO smelter was dismantled. This marked the end of the old town (Sherman, 1969).

At its peak, Silver Bell earned its reputation as the "hell-hole of Arizona." Just three days before Deputy Sam McEven arrived to bring some order to the town, three murders were committed. McEven spent the first few months of his term disarming, jailing, and fining locals for carrying concealed weapons. One memorable event tested the deputy's determination to introduce law and order into the town. A local named Ramon Castro killed another citizen, Gracio Manzo, and then hid from the law in an abandoned mine tunnel for two weeks. McEven knew that if he entered the tunnel without sufficient protection that he would probably end up being another one of Castro's victims, so he hung a lamp on an ore car and pushed the bulletproof barrier ahead of him, through the tunnels, until he cornered

and captured Castro (Sherman, 1969).

Not a trace remains of the old camp, but the newer town of Silverbell was established in 1948, four miles southeast of the old mining site. The property is currently owned by ASARCO, and the whole site, with the exception of two cemeteries, is fenced in. The first cemetery is located approximately two miles west of the fenced property. The second is further down the road, which loops around from Marana, and ends up meeting I-10 at Avra Valley. Silver Bell is located twenty four miles west of Marana, and almost all of those miles are on unpaved roads. It is also important to note that much of the area is private ranching property, and the no trespassing signs should be obeyed. Permission to visit Silverbell should be obtained from property owners.



*Silver Bell Today*



*One of two cemeteries at Silver Bell.*

## Total Wreck, Arizona

G.L.O. Map, 1921; Sec 3

T. 18S, R. 17E

Land Ownership: State Land; Private Land

Remains: Adobe ruins (four-wheel drive vehicle required)

Post Office: August 12, 1881 – November 1, 1890

"Mine got its name when John T. Dillon, who discovered it, came to my brother Walter in 1881 to get him to make out his recording papers. Walter asked him for a name. Dillon said, 'Well, the mineral formation is almost a total wreck,' alluding to the mixed formation. 'That's its name, Total Wreck,' said my brother." Ed Vail (reported in Barnes, 1988, p.450)

Empire Mining and Developing Company purchased the property of Total Wreck and installed a 70-ton mill in 1881, the same year the railroad came to town (Sherman, 1969). As silver-mining activity picked up, so did the camp population, and by 1883 there were approximately 200 people, fifty houses, three stores, three hotels, four saloons, a butcher shop, and a lumber yard (Sherman, 1969). In June of that same year, an Apache attack killed six woodcutters on the west side of the Whetstone Mountains, and drove off a team of their mules. These woodcutters were the first victims buried in the small cemetery at Total Wreck (Sherman 1969).

The most famous story out of Total Wreck involves a shooting, typical of the setting, but with a strange twist. Mr. E.B. Salsig was involved in a dispute with another man, in which the man ended up shooting him in the chest. Salsig would have died, except that the bullet lodged in a stack of love letters he had stuffed in his vest pocket. He later married the lady who wrote the letters (Sherman, 1969).

By the end of 1884, the year after the town's peak, the mine and mill were closed (for reasons unknown), and the property was later sold for taxes (Sherman, 1969).

Total Wreck is located 9 miles south of Pantano. A four-wheel drive vehicle with high clearance is highly recommended for anyone planning on visiting this site. There are adobe ruins to be seen, but it may take a modicum of bumpy roads to get there. A permit from the Arizona State Land Department, and permission from the private property owners is required for visitation to Total Wreck.

## Twin Buttes, Arizona

U.S.G.S. Map, 1923

T. 18S, R. 12E Sec 36; T. 17S, R. 13E Sec 31

Land Ownership: Private Land

Remains: Old buildings (No trespassing sign prevents visitation)

Post Office: December 29, 1906 – August 15, 1930

The three prospectors who discovered copper in the Twin Buttes area became known as "The Three Nations." They were John G. Baxter from Wisconsin, Michael Irish of Ireland, and John Ellis of Scotland. After a number of years of dealing with small prospects, the three were finally able to convince a number of prominent investors, including Mayor David S. Rose of Milwaukee, to take over (Sherman, 1969). The Twin Buttes Mining and Smelting Company was formed in 1903, operating the Senator, Morgan, Copper Glance, Copper Queen, and Copper King mines. The company shipped ore to SASCO until 1914 (Sherman, 1969).

During the company's operation, the town of Twin Buttes had come alive. There was a bunkhouse, an assay office, a general store, a boarding house, and a school, and in 1906 a post office was established. Also at this time was the completion of the Southern Pacific Tucson – Nogales route, connecting Twin Buttes and Sahuarita. The formal railroad dedication, held on July 4<sup>th</sup> of that year, took place at the new Twin Buttes Railroad Station (Sherman, 1969).

After a series of ups and downs, the town could no longer support its 300 residents, and became a ghost town. "No trespassing" signs prevent visitation of any remaining buildings (Sherman, 1969). Twin Buttes is located twenty miles south of Tucson. Permission to visit the townsite should be obtained by property owners.



## VIII. References Cited

Ayres, James E.

Rosemont: The History and Archaeology of Post-1880 Sites in the Rosemont Area, Santa Rita Mountains, Arizona. Archaeological Series No. 147, Vol. 3. Archaeological Research Services, Inc. Tempe, Arizona, 1984.

Barnes, Will C.

Arizona Place Names. University of Arizona Press. Tucson, Arizona, 1988.

Bureau of Mines.

Minerals in the 50 States booklet. Department of the Interior. 1991.

Canty, J. Michael; Greeley, Michael N. (Editors)

History of Mining. Mining Club of the Southwest Foundation. Tucson, Arizona, 1987.

Hallenbeck, Cleve

The Journey of Fray Marcos de Niza. Southern Methodist University Press, 1987.

Keane, Melissa; Rogge, A.E.

Gold & Silver Mining in Arizona: 1848-1945. Prepared for Arizona State Historic Preservation Office. Dames & Moore Intermountain Cultural Resource Services. Research Paper No.6. December, 1992.

Lacy, John C.

Acquisition of Mineral Rights. Chapter in History of Mining. Mining Club of the Southwest Foundation. Tucson, Arizona, 1987.

Martin, Judy.

Arizona Walls: If Only They Could Speak. Double B Publications. Phoenix, Arizona, 1997.

Paul, Rodman W.

The Far West and the Great Plains in Transition: 1859-1900. Harper & Row, Publishers. New York, 1988.

Sherman, James E. and Barbara.

Ghost Towns of Arizona. University of Oklahoma Press, 1969.

Statistical Research Inc.

Cultural Landscapes of History in Southern Arizona. Pima County, May, 2000.

Trimble, Marshall.

Roadside History of Arizona. Mountain Press Publishing Company. Missoula, 1986.

Varney, Phillip.

Arizona's Best Ghost Towns. Norhtland Press. Flagstaff, Arizona, 1980.

Varney, Phillip.

Arizona Ghost Towns and Mining Camps. Arizona Highways Book. Department of

Transportation, State of Arizona, 1994.

Wilson, Eldred D.

History of Mining in Pima County, Arizona. Sixth Edition. Published by Tucson Chamber of Commerce, 195- (year of publication unknown).

## IX. Sources Consulted

- Arizona Department of Mines and Mineral Resources
- Arizona Historical Society
- Arizona Mining Association
- Arizona State Parks
- ASARCO
- Bureau of Mines: Department of the Interior
- Phelps Dodge Corporation
- Pima County Cultural Resources
- University of Arizona Main Library
- University of Arizona Special Collections
- USDA – Forest Service

# COPPER

From Mine to Market

Exploration & Discovery

Mining (Underground)

Mining (Open Pit)

Leaching & Electrowinning

Milling & Concentrating

Electrorefining

Smelter

Fabrication

Diagram of modern mining operations. Courtesy of Arizona Mining Association.

## X. Appendix A – Glossary of Mining Terms

The following glossary is from the *Historic Gold and Silver Mining* publication, Dames & Moore, 1992. The terms were compiled from the glossaries in Young (1970), Bain (1990), and *National Register Bulletin 42 (Draft), Evaluating and Nominating Historic Mining Sites*.

- adit** a horizontal entrance into a mine
- aggregate** a rock from which ore may be separated by using only mechanical, not chemical, processes; see *free-milling gold*
- assay** a quantitative chemical analysis to determine components and value of metallic ores
- alluvial deposit, alluvium** the sand and gravel transported by flowing water
- amalgam** a compound of mercury and gold, or mercury and silver
- amalgamation** a process utilizing mercury to extract gold or silver from pulverized ore. The mercury combines with the gold and silver to form an amalgam; the amalgam is then heated to vaporize the mercury and leave the gold or silver as a residue. The mercury can be condensed from the vapor and re-used. Fumes produced by heating the amalgam are toxic.
- annual assessment work** the \$100 per year of labor or improvements to a mining claim required by federal mining laws
- arrastra** (*Spanish*) a primitive grinding mill for crushing ore; powered by mule, oxen, or water power
- back** the part of an underground lode located nearest the surface of the ground
- batea** (*Spanish*) a bowl used for washing gold from placer deposits, similar in function and size to a gold pan
- bed** a seam or horizontal vein of ore
- bench** a terrace along a stream bank left by an earlier, higher water flow
- bit** the steeled end of a borer or drill

- blast** in underground mining, to force off portions of rock by means of gunpowder. A hole is made with a borer, gunpowder is inserted and tamped in, and a fuse is attached and lit (see *tamping*).
- Bolas de Plata** (*Spanish, also Planchas de Plata*) a celebrated find of native silver at Arizonac, Sonora, in 1736. Pieces of silver (*plata*) lay on the surface of the ground in chunks (*bolas*) and slabs (*planchas*).
- bonanza** a rich vein, mine, or discovery of ore
- bonnet** a protective covering over the cage, shielding it from objects falling down the mine shaft (see *cage*)
- borer** a drill with a piece of steel at the end called a boring bit
- bottoms** the deepest workings in a mine shaft
- bullion** ingots containing both gold and silver; often sent to the U.S. Mint for final refining (see *dore*)
- cage** a frame with one or more platforms used to hoist men and materials up and down a vertical mine shaft
- charcoal oven/kiln** a furnace in which wood is reduced to charcoal. The charcoal was used in smelting gold and silver ore
- chlorides** Silver ore lying above the water table where exposure to the atmosphere converts silver sulpherets to chlorides (see *sulpherets*).
- claim** a tract of land with defined surface boundaries which includes mineral rights to all lodes and veins of ore extending downward from the surface. In the United States, the maximum size for a lode claim is 600 by 1,500 ft; maximum size for a placer claim is 600 by 1,320 ft.
- claim jumping** staking a claim over a previously established claim
- claim marker** a post or rock cairn, often whitewashed, placed at each corner of a claim
- classifiers** screen-like dividers to sort ore by size of rock after crushing. The grizzly, Trommel, and Dorr classifier are three different types of classifiers.
- chloriders** a derogatory term for silver miners who mined surface deposits or "scavenged the washes below the lodes" (Young 1970:25)

- chlorination** a chemical technology for milling complex ores, after the Frieberg chlorination process developed in 1858.
- cob** (*Cornish*) to break ore with hammers to separate the ore from the waste, or country rock
- concentrate** ore that has been crushed and had waste rock partially removed
- concentrator** a simple machine to remove ore-bearing rock from waste rock using a shaking, vibrating motion. Jigs, buddles, vanners, Embrey tables, and Wilfley tables are different kinds of concentrators. The term may also refer to the building that houses concentrating machines.
- core** (*Cornish*) mining shift. Miners usually worked six hours at a time, the "forenoon core" from 6 a.m. to noon, the "afternoon core" from noon to 6 p.m., the "first core by night" from 6 p.m. to midnight, and the "last core by night" from midnight to 6 a.m.
- country rock** waste rock or gangue
- cradle** a wooden sluice operated by rocking from side-to-side; used in placer mining.
- crusher** machinery to grind ore. Various types of crushers include ball mills, stamp mills, jaw crushers, rod mills, and tube mills.
- cyanide process, or cyanidation**  
a technique developed in the 1890s in England to extract gold from low grade ores. The cruder method of mercury amalgamation may recover 60 percent of the precious metals from ore, while the cyanide process may recover as much as 95 percent. Because cyanidation extracted gold from tailings as well as from low grade ore, the introduction of the new process caused the gold boom of 1890-1917 in Arizona, as miners hurried to re-work waste from earlier mines.
- ditch** an artificial water course, flume, or canal to convey water for mining. A flume is elevated and made of wood, while a ditch is dug into the earth.
- dore** a product of cyanidation containing both gold and silver (see *bullion*)
- double jacking**  
in underground mining, a method of drilling the holes to place dynamite. Two miners work together, one holding the drilling bit (or *steel*) in place with two hands while the second miner swings an 8-lb sledge hammer, or *double jack* (see *single jacking*).
- dredge** a large raft or barge on which are mounted either a chain of buckets or suction pumps to suck up alluvial deposits of sands and gravels from below the water's surface, elevate them, and wash them to recover placer gold

- drift** a horizontal passage underground which follows the vein of ore. A *crosscut* intersects the vein; a *level* may either follow or intersect the vein.
- dry concentrating** a placer mining technique which uses a "dry washer" to extract the gold from placer deposits. The dry washer uses screens and bellows, rather than flowing water, to separate the heavier gold from the lighter waste rock.
- fool's gold** popular term for any mineral that looks like gold; most often refers to iron pyrite
- free milling gold** gold that is easily separated from its country rock and needs very little milling or grinding
- giant** a water nozzle used in hydraulic mining; its name was derived from its manufacturing trade name. See *monitor*.
- grinder** machinery to crush ore between iron cylinders
- grubstake** supplies provided to a prospector in return for a share in his claims
- headframe** the steel or timber structure erected at the top of the shaft. The headframe carries the sheave or pulley for the hoisting rope, and may also be called a gallus frame, a gallows frame, headgear, hoist frame, or head stocks.
- high grade** ore of high value
- high-grading** stealing gold during mining. "From the miners' viewpoint, pocketing a bit of extremely rich ore was merely a traditional perquisite of the job. From the owners' point of view, it was outright theft. All gold miners denied doing it; most of them were collectively accused of it; the superintendent hoped at best merely to keep it to the irreducible minimum" (Young 1970:220-227).
- hydraulic mining** a placer mining technique using water pressure to break down, wash, and transport gold-bearing placer deposits into a sluice where the gold can be trapped and collected. Delivering the high pressure stream of water requires a complex system including a diversion or storage dam, a ditch, a headbox connected to a pressurized pipeline or penstock, a hydraulic nozzle (often called a *monitor* or *giant*), and a sluice.
- kibble** (*Cornish*) a bucket, usually iron, in which the ore and tailings are hauled to the surface of an underground mine
- lavadero** (*Spanish*) placer deposit

- levels** in underground mining, horizontal galleries excavated at regular intervals below the surface. It is customary to work mines by numbered levels.
- lode** a continuous metal-bearing vein or deposit of ore (see *vein*)
- lode gold** gold found in lode deposits
- long tom** a long sluice or trough used to wash gold from placer deposits. A long tom is longer than a rocker or a cradle.
- malacate** (*Spanish*) a horse-powered whim (see *whim*)
- milling** the process of extracting metal from ore; may include crushing, grinding, chemical leaching, and smelting
- mining district**  
geopolitical entity established by a mining community for self-government
- monitor** a water nozzle used in hydraulic mining; its name was derived from its manufacturing trade name. See *giant*.
- native gold** gold in its metallic form found on the surface of the ground
- native silver** silver in its metallic form found on the surface of the ground
- ore** mineral of sufficient value and quantity to be mined at a profit
- oro** (*Spanish*) gold
- outcrop** the exposure at the ground's surface of a vein of ore
- panning** a simple placer mining technique which removes gold from placer deposits with only a shovel and a hand pan. As water, sand, and gravel are swirled in the hand pan, the lighter sand and gravel is washed over the rim and the heavier gold sinks to the bottom of the pan. Panning for gold is an old technique and may have been used in Arizona since the Spanish period.
- patio process**  
the first industrial chemical process to refine silver, invented in Mexico in 1554 by an amateur miner, Bartolome de Medina of Spain. The process, similar to the assay process of combining the silver with mercury, was used for three hundred years, particularly in areas of low skilled laborers, and limited water and fuel supplies. After crushing the ore to sand, the sand was spread in a thin layer across a stone platform (or *patio*), and then mixed with large amounts of common salt and copper sulphate to produce cupric and cuprous chloride. After some days, mercury was added to the mix, and the resulting mixture was again spread in a thin layer across the patio and

exposed to heat and sunlight, producing silver chloride. After 15-45 days, the silver, dissolving in the brine and reduced by the mercury, precipitated out as silver amalgam. The mixture was recollected, agitated in water to wash out the waste, and the silver amalgam was collected for retorting (see Young 1970:72-79 for a more detailed discussion of the process).

- paydirt** gold
- placer** alluvial deposit of sand or gravel eroded from original bedrock
- placer gold** gold found in placer deposits
- placer mining**  
the removal of gold from placer deposits by mechanically concentration. Simple hand techniques include panning, sluicing, rocking, and dry concentrating; these hand techniques are labor intensive and only recover the larger pieces of gold. More complex, mechanized techniques such as dredging and hydraulic mining require more capital investment and allow lower grade deposits to be worked profitably.
- plata** (*Spanish*) silver
- portal** the surface entrance to a mine
- prospect** any mine workings of unproven value; an excavation showing a deposit of ore
- prospect hole** any shaft, pit, drift, or drill hole made to prospect mineral-bearing ground
- real de minas** (*Spanish*) mining district
- retorting** heating an amalgam of mercury and gold or silver to vaporize the mercury and leave the gold and silver as a residue (see *amalgamation*)
- rocking** a placer mining technique using a small sluice rocked back and forth to separate heavier gold from lighter sands and gravels
- run of a lode** the direction of the vein
- salting** falsifying the value of a claim in order to sell it for a higher price (see a lively discussion of the art of salting in Young 1970:40-52).
- shaft** a usually vertical excavation made to prospect or mine underground ore, or to hoist and lower miners and materials into a mine
- sheave, sheave-wheel, shiv, shiv-wheel**  
(*Cornish*) the groove wheel of a pulley

**single jacking**

in mining, a method of drilling the holes to place the dynamite. One miner, working alone, held the drilling bit (*steel*) in place with one hand, swinging a 4-lb. sledge hammer, or *single jack*, with his other hand (see *double jacking*)

**slag**

molten waste from the smelting process (see *waste, tailings*)

**sluice, sluice box**

a long, inclined trough that uses hydraulic power to concentrate gold in placer mining, typically built of heavy timber and water tight. Obstructions, or riffles, along the floor of the trough slow the flow of water and create pockets to catch the heavy particles of gold. Placer deposits are fed into sluices by hand, by hydraulic mining, or by dredges (see *cradle, long tom*).

**smelting**

using the high heat of a blast furnace to melt ore and extract precious metals

**smelter**

a furnace in which metal is separated, both chemically and physically, from its country rock

**spalling**

(*Cornish*) breaking ore-bearing rock into small pieces prior to cobbing (see *cob*)

**stamps, stamp mills**

machinery operated by animal, water, or steam power to crush ore by descending pestles (*stamps*). The stamps may weigh as much as 2,000 lbs. each, and drop 6-8 inches 100 times per minute.

**stope**

in underground mining, a large pocket of ore. "To stope out" is to excavate the pocket in a series of steps above and below a level.

**sulpherets**

silver ore lying beneath the water table. Silver sulpherets are more difficult to smelt than silver chlorides (see *chlorides*).

**tailings**

waste or leavings of an ore reduction process other than smelting; the term usually refers to the debris generated by stamp mills. Although the milling process has removed much of the precious metal from the tailings, they may be re-worked at a later date to retrieve more of the precious metals (see *waste, slag, cyanidation process*).

**tamping**

the material, usually soft stone, used to position gunpowder for blasting in underground mining. Also refers to the process of inserting the material in the hole made by the borer, sometimes called the *shot hole*.

**vein**

any zone or belt of mineralized rock lying within boundaries clearly separate from neighboring rock (see *lode*)

**vena, veta**

(*Spanish*) a vein or lode of ore

- waste** rock broken in the process of opening the mine and excavating tunnels. In contrast to tailings, waste rock contains no ore and is taken to a waste rock dump (see *tailings*, *slag*).
- whim** a large vertical drum turned by horse power, steam power, or water power to raise ores from underground mines to the surface. The whim rope or whim chain attaches the kibble (bucket) to the whim.
- widowmakers** the first pneumatic drills used in underground mining. While drilling holes to place dynamite, the first pneumatically-driven drills produced clouds of silicon dust. The dust in turn caused miners to suffer from silicosis of the lungs and early death. Improvements to the pneumatic drill used water to reduce dust.
- workings** all underground mining development