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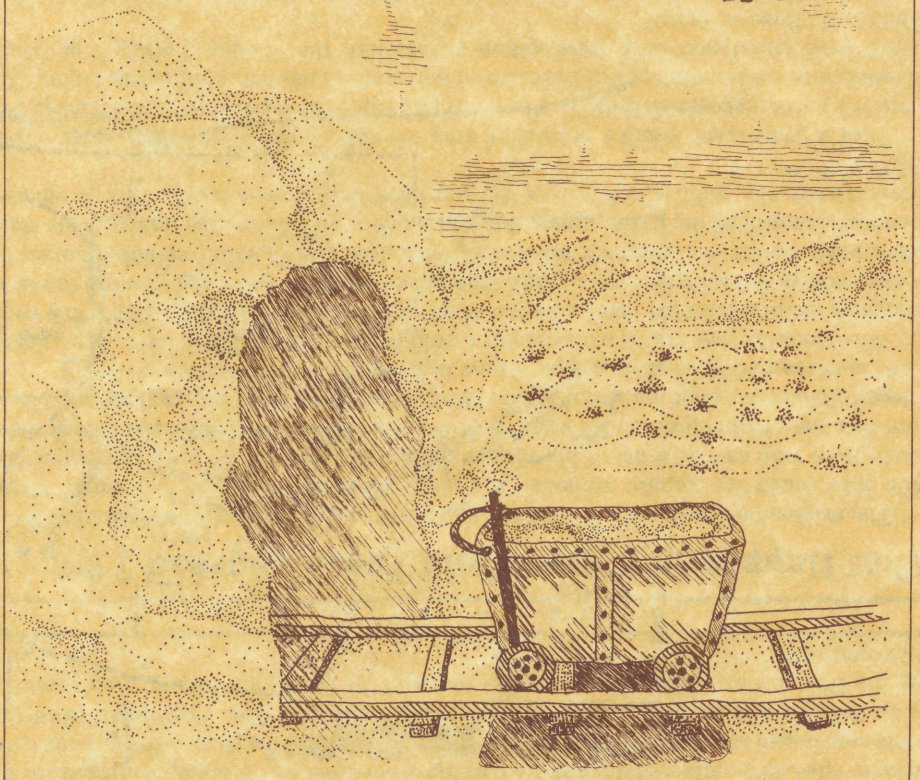
MINING
IN
JOSHUA TREE NATIONAL MONUMENT



BY
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DEDICATED TO
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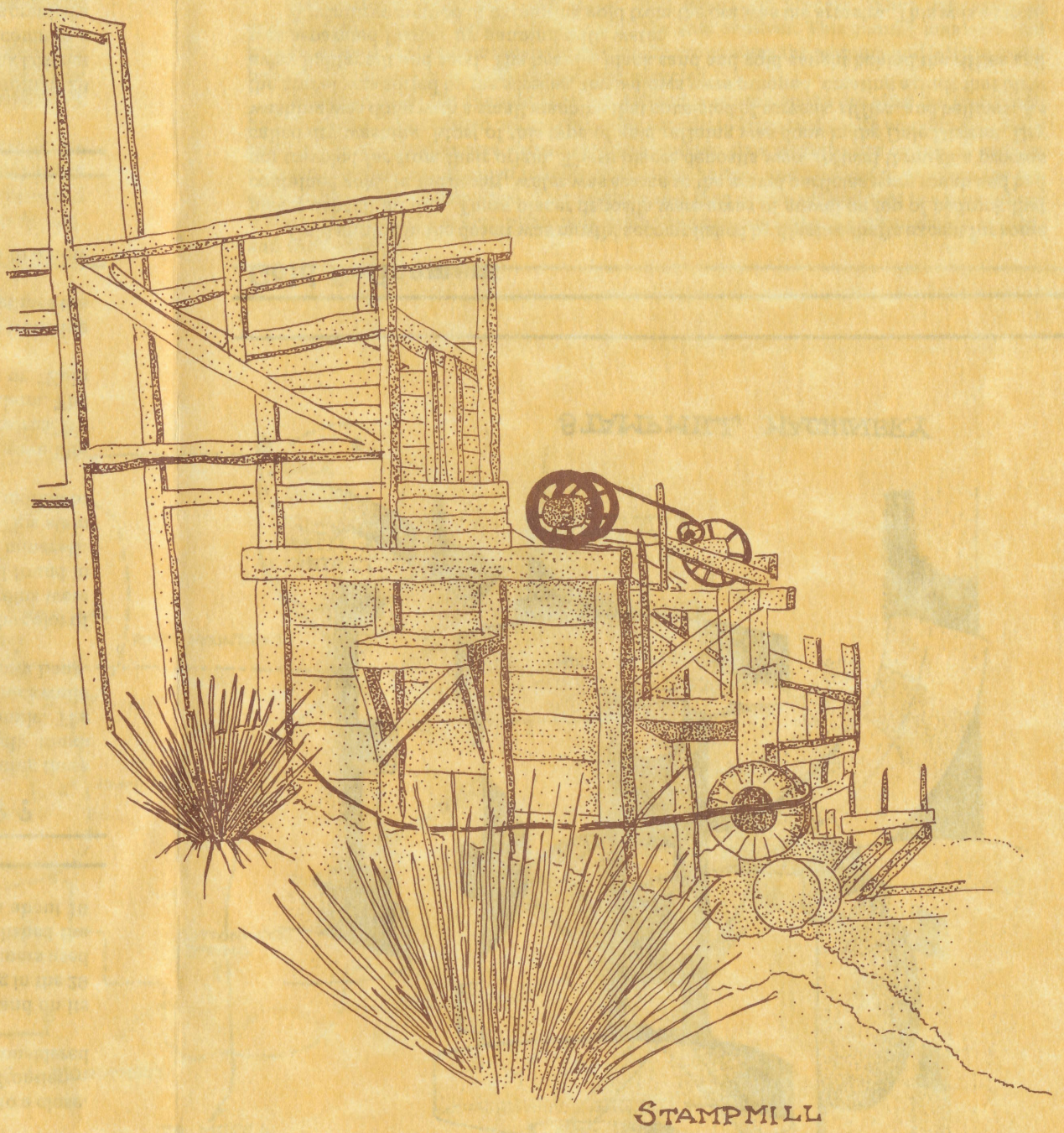
The Lost Horse Mine

Why is the mine called the "Lost Horse?" There are many versions of the tale . . . . . the most widely accepted concerns a young cattleman named Johnny Lang. Lang met a prospector named "Dutch" Frank Diebold, who told him of a promising mining site. Having been bitten by the "gold bug" already, Lang offered the prospector $1,000 for the claim if it proved out. The claim looked promising, so Lang and his father paid "Dutch" Frank. Later they took on two more partners to protect themselves from marauding cowboys. One day while trying to relocate the claim, the group lost their horses. This incident gave the mine its name.

Between 1893 and 1895 it is said the partners made $3,000 a day. In 1895 the claim was sold to the wealthy Ryan family who improved the mine with a ten-stamp mill and water source. The Ryans processed 9,000 ounces of gold and a fair amount of silver, (totaling $350,000), before the turn of the century. By the early 1900's the rich vein had hit a fault line and disappeared, never being rediscovered.

Today there is the stamp mill, and various foundations still at the mine site. The most visible signs of past mining practices are the denuded hillsides surrounding the mine. The Junipers, Pinyons and Joshua trees that covered these relatively lush mountains fueled the boilers of the steam engines which powered the stamp mill.

With the establishment of Joshua Tree National Monument in 1936 restrictions were placed on mining. Monument status meant that previously claimed mines could be operated but no new claims or extensions of ore bodies could be worked. In 1950, Monument boundaries were redrawn to exclude the major mining areas.



STAMPMILL

The cry of "GOLD" has stimulated men to seek and possess this precious mineral for centuries. In the mid 1800's California became a paradise for those struck by "gold fever". With the strike at Sutter's Mill the West's first gold rush was on. From California the "fever" spread to nearby states such as Nevada, Colorado, and Montana.

In the late 1800's the days of the boom towns and big strikes were drawing to a close. With the possibilities dwindling in Death Valley, prospectors turned to the last frontier — the wide expanse of desert in southern California. This area had not been considered before because prospecting involved multiple hardships.

The area now within the boundaries of Joshua Tree National Monument and on its northern edge never attained the notoriety as did other areas of the state. Mining in the 29 Palms area began around 1874 with the Anaconda Mine being the first. A few miners used the 29 Palms Oasis as a starting point and spread south and east. They established the Virginia Dale mining camp about 10 miles east and the Gold Park mining area about 10 miles southeast.

What Happened When "Gold Fever" Spread ? ? ?

The original prospectors followed the paths left by the Indians, later widening these trails into roads for supply wagons. A prospector was a man of extremely tough constitution who carried most of his equipment and supplies on his back and mule. The more famous prospectors of the area were Bill McHaney, Phil Sullivan, Chuckwalla Wilson (nicknamed after the lizard which he supposedly snacked on), and Johnny Lang. These men learned through experience how to track down prospective *claims.**

When looking for a claim, a prospector would seek a vein of milky quartz. The color of the quartz might determine what minerals were present. The most promising veins were stained reddish brown from iron oxides. Iron pyrite or "fools gold" is a mineral found in quartz veins and it is commonly associated with gold and or other valuable minerals. Chemical changes of the pyrite create the iron oxide which stains the quartz. This stain serves as a clue that gold, silver, copper etc. may be present. Iron was called the "mother of gold."

Once a prospector found a promising area, he could stake a claim which gave him rights to a particular vein or *lode*. The four corners would be marked with rock cairns. An old tobacco tin underneath one of the cairns might contain papers detailing the claim. The claims were christened with imaginative names like the "Lucky Turkey," or "Zulu Queen," or "Rose of Peru."

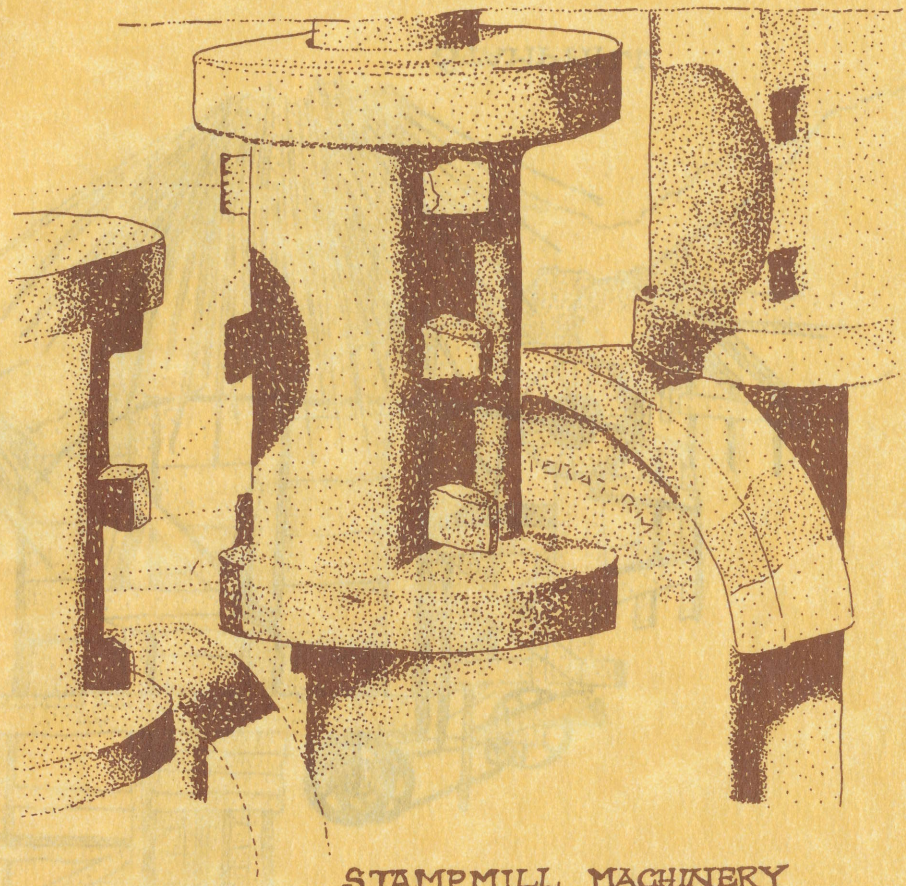
If the vein proved to be promising after obtaining an *assay, shafts* and *adits* were dug into the ground following the vein. Their length ranged from 1 to 1000 feet. Sometimes the shafts and adits would be connected by *winzes.*

Many times a claim proved to be worthless, and the prospector moved on to a new area.

* Italicized words are defined in the GLOSSARY OF MINING TERMS.

The Mining Districts

The first mine within the Monument boundaries was the Anaconda, just south of 29 Palms. Other claims followed through the 1870's and by 1880 the 29 Palms Mining District was created. By the early 1880's activity in the 29 Palms Mining District had come to a standstill, but east of 29 Palms a good amount of placer gold had been found. This created a small rush and the town of Dale with 1,000 residents. After the placer gold was "played out" miners started looking at the lodes in the surrounding mountains. Famous mines such as the Virginia Dale resulted, but the only mining district entirely within the Monument was the Pinyon District. Its borders were loosely defined as extending east from the Lost Horse Mine to White Tank, south to the Golden Bee Mine, southwest to Berdoo Canyon



STAMPMILL MACHINERY

Gold Refinement

Gold mining in the desert was mostly accomplished by digging shafts except for some placer deposit mining. These placer deposits were areas of gravel on top of bedrock that contained gold. In the desert, water was scarce so the gravel particles were rough and had not traveled far from their origin. These placer deposits were refined through a process called dry washing. Most of this type of gold refining was done in the Dale District. Dry washing was done with a small machine that consisted of screens, riffles, and bellows. As the gravel was sorted by the screens, the bellows were pumped, creating a draft that blew away lighter silt and sand. The heavier black sand and gold caught behind the riffles and was separated further by panning with water.

A primitive method of extracting gold from the ore was the arrastra. This was a circular rock-lined pit with a post in the center. Extending out from the post were two arms. Attached to one arm was the burro who was the power source, attached to the other arm were heavy rock blocks which ground the ore on the floor of the pit as the burro walked around. Water was slowly dripped onto the ore while being ground and then funneled into

Horse Mine to White Tank, south to the Golden Bee Mine, southwest to Berdoo Canyon and returning north to the Lost Horse Mine.

Within the Pinyon District the major holdings were the Pinyon Mountain Mine, the Homestake, and the Dewey — all owned by Tingman and Holland of Indio; a group of mines in the Pleasant Valley area; the Golden Bee and El Dorado Mines; and the Lost Horse Mine. Tingman and Holland had a two-stamp mill at Pinyon Well which processed most of the ore from the area until other mill sites opened at Keys Ranch and Ryan Ranch. The Desert Queeen Mine, discovered at about the same time as the Lost Horse Mine was not included in the Pinyon District.

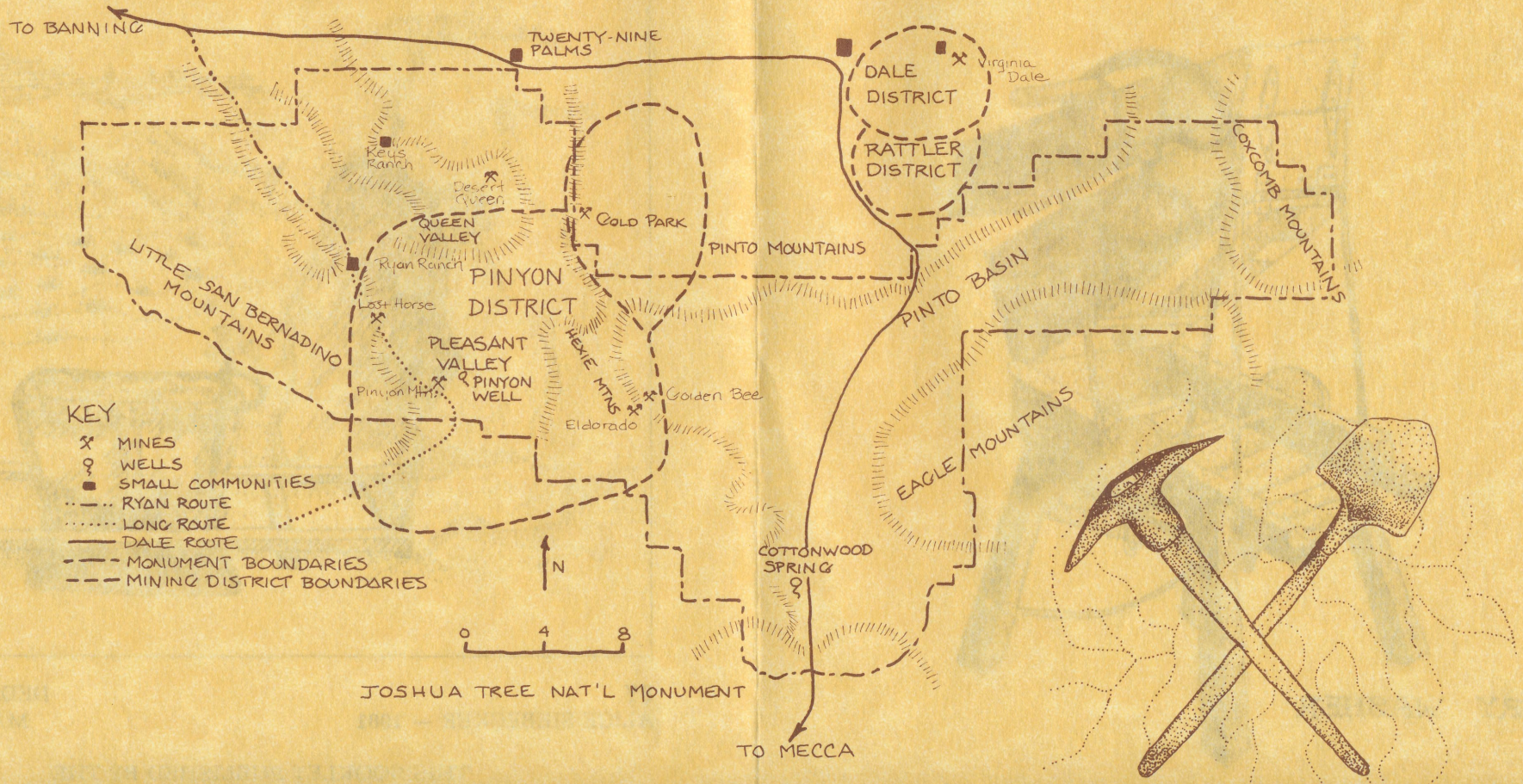
Between the years of 1883-1900 many small mining communities were created. The town of Dale supplied the mines in the Dale District while the Pinyon District had a few dispersed small mining communities. All of these communities were provisioned by Banning, 55 miles or more distant, and a 6-day trip by freight wagon.

In the 20th century the height of mining was from 1900-1917 in and out of the Monument boundaries. But the mining areas outside the boundaries sometimes depended on the resources within the boundaries. The Iron Chief pumped water from Cottonwood Spring 18 miles away, while the Brooklyn Mine hauled water from Cottonwood Spring. The Gold Park area was dependent on the water from the 29 Palms Oasis.

a sluice box where the gold flakes would catch behind the ridges. The most common method of ore extraction was the stamp mill. The "stamp" was a long straight iron rod with a heavy round head. Moving up and down it crushed the ore by its weight. Each stamp weighed between 500-900 pounds while the distance it fell before crushing the ore was about 8 inches. One stamp supposedly delivered 60 blows a minute and had the capacity to crush 3 tons of rock in 24 hours. The crushed rock was mixed with water and sent through sluice boxes.

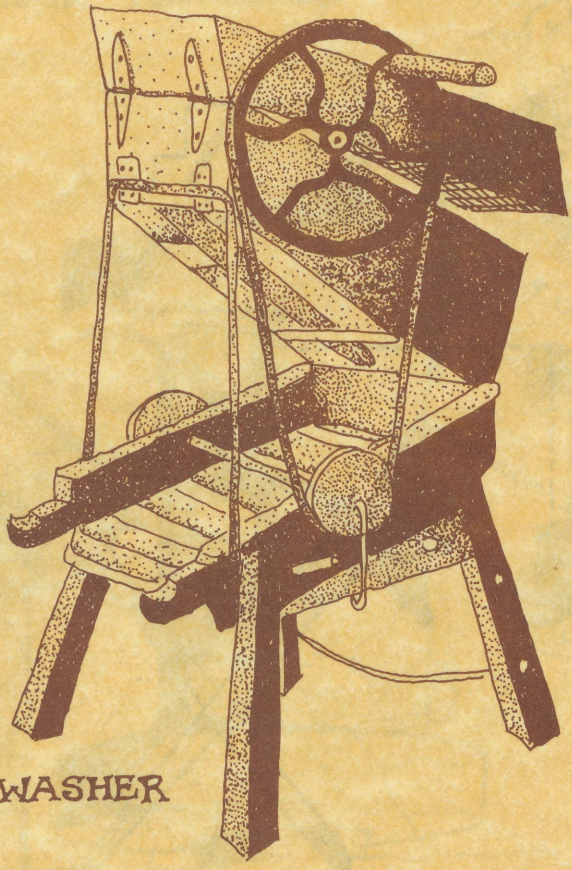
Sometimes mercury was used in the final separation process. When mercury was sprinkled on the ore it would combine with the gold or silver. This gummy amalgam ball was then heated to extreme temperatures which drove away the mercury and left the metal behind. The mercury was condensed and recycled.

At larger mines the cyanide flotation method was used on the ore after the stamp mill had crushed it. The crushed ore was taken by ore cart to large tanks with wooden slat, false bottoms. Heavy canvas was spread over the wooden slats with the ore on top. A sodium cyanide solution was pumped into the tank at the bottom and allowed to work on the ore until all the gold was dissolved. This solution was then drawn off and sent to a tank where it was precipitated. The precipitate was melted in a furnace and poured into molds, cooled, and then shipped.



Glossary Of Mining Terms

ADIT: a horizontal passage by which a mine is entered and sometimes drained of water.
AMALGAM: an alloy of silver or gold with mercury.
ASSAY: the amount of gold or silver, in ounces per ton of ore.
CLAIM: that portion of the public mineral lands which a miner, for mining purposes, takes and holds in accordance with mining laws.
LODE: a deposit of gold or other precious minerals.
PLACER GOLD: gold taken from an alluvial gravel deposit.
PLAYED OUT: miners term for a depleted ore deposit.
RIFFLE: a ridge in the bottom of an inclined trough or sluice, for catching gold contained in gravel.
SHAFT: a vertical excavation for ore.
SLUICE BOX: an inclined trough with riffles to catch the gold flakes.
WINZE: a steeply inclined shaft, driven down to connect one mine level with another.



DRY WASHER