



Another MinerDiggings Adventure

Successful Dry Placer Operations at Plomosa, Arizona

Mining and Engineering World

By William L Plummer

July 1, 1916

Mining and Engineering World was a weekly publication that covered a broad range of mining subjects in the early 20th century. It published weekly updates of mine happenings, technology advancements, and other important industry events.

You may download a copy of this and other articles about mining from our [Ripple Library](#).

www.minerdiggings.com/Ripple/Library.html

MinerDiggings provides this publication for the education of fellow prospectors. This document is within the public domain and may be shared freely.

NEW YORK
35 Nassau St.
Phone Cortland 7331

SALT LAKE CITY
513 Felt Bldg.

MINING AND ENGINEERING WORLD

DENVER
1st Nat'l Bk. Bldg.
MEXICO CITY, MEX.
SAN FRANCISCO
320 Market St.

No. 1. Vol. 45.

CHICAGO

July 1, 1916.



PANORAMIC VIEW OF THE PLOMOSA PLACER PROPERTIES, PLOMOSA, ARIZONA.

Successful Dry Placer Operations at Plomosa, Arizona

By WILLIAM L. PLUMMER.

Since 1865 the dry placer gold fields adjacent to Quartzite, Yuma county, Arizona, have been worked with more or less profit, on a small scale, through the medium of native dry washer, pick, drill and "muck-stick." The highest values in this district are found in a natural cement which lies in blanket form, from 4 to 20 ft. in thickness, above the bedrock. From the grass roots to this cement the formation consists of a semi-cemented gravel rich in gold when treated on a large scale, but not of sufficient value to tempt the dry washer, who sinks direct to bedrock, and works only about 4 ft. of the richest cement. Half a yard of gravel a day mined, hoisted from the shaft, hammered by hand to liberate gold from cement, and run through the dry washer, is a high average for one man; and as earnings of from \$10 to \$20 a day were of common occurrence in former years, it is not difficult to realize the richness of these placers. Furthermore, the early workers could not mine with any degree of profit to a depth of more than 20 ft.; for this reason there are vast areas that have not given up any of their virgin value.

Chief among the fields of the Quartzsite district are the Plomosa, La Paz, Middle Camp, Ora Fino and La Cholla.

It is said that between 1865 and early in the seven-

ties over \$7,000,000 in gold passed through La Paz alone, then the Yuma county seat, supporting a population of 4000 placer miners. The old inhabitants say the Plomosa field sent out \$2,000,000. Fabulous sums were gleaned from the gravel by hand, and it was commonly known that great sums still remained in the ground. In spite of this fact no practical means of liberating the gold from gravel on a commercial scale had been discovered until within the last 2 years.

The two essentials to an efficient plan are—First: A mill to save the gold-bearing cement and gravel and reject the non-bearing country rock. Second: A system of dry concentration of great capacity.

A mill embodying the necessary principles was invented by Mitts Quenner, a blacksmith, and used with a battery of native dry-washers in placers at El Boluda, Mexico. Its essentials are a cylindrical drum made up of a series of iron bars and gratings, inside of which revolves a shaft, the same being hung with a number of chain hammers in spiral form. The shafting revolves at about 400 rpm. in one direction, while the drum travels at a much lower speed in the opposite direction. Cement and gravel, fed in at one end of the mill is quickly disintegrated, the fines dropping through the gratings to a bin beneath, while the rock and boulders are thrown out of the opposite end of

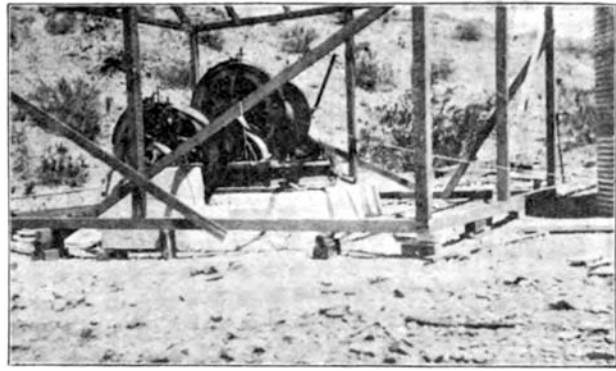


PLOMOSA MILL AND POWER PLANT.

the mill after having been thoroughly scoured by the action of the hammers.

The Stebbins Dry Concentrator.

The Stebbins dry concentrator has solved the problem of dry concentration. Its makers guarantee a saving of 95% of all free gold. These tables work on practically the same principle as the wet table; however, instead of using water to lift the gravel, and

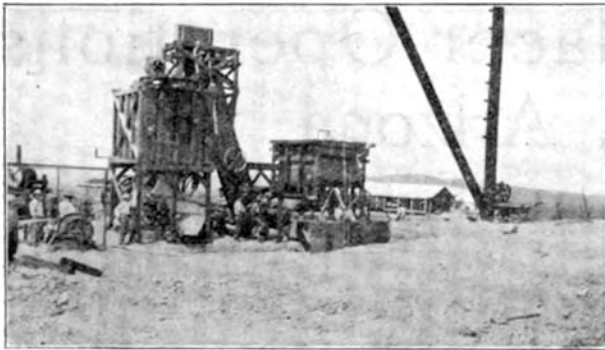


60-HP. LIDGERWOOD HOIST FOR SCRAPER LINE.

1 to 12 ft. long, with a capacity of 40 tons an hour, down to machines operated by hand, with a 4-ft. deck.

In the Plomosa district a small experimental plant composed of a Quenner mill and Stebbins concentrator was installed in the fall of 1915; and although this plant did not have the excavating and conveying equipment necessary to operate at a profit, it demonstrated the efficiency of both mill and concentrator.

Plomosa is the scene of great activity at present.



ORIGINAL EXPERIMENTAL PLANT.



HAULING MILL EQUIPMENT BY TRACTOR.

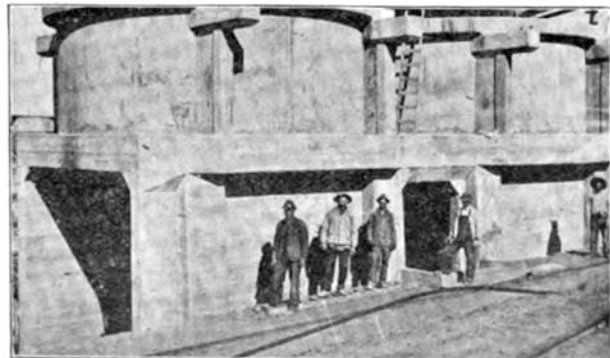
allow the gold to settle behind the riffles, air is used, it being introduced through small slits in the table deck. The gold and middlings travel along the top riffle to a receptacle, the tailings dropping off the lower side of the table.

Stebbins machines are made in sizes ranging from

Here the Yuma Con. Co. is installing a 2000 yd. plant and the Plomosa Placer Properties has nearly completed a plant with a capacity of 1000 yds. The Plomosa field averages 30 ft. from surface to bedrock, and, from prospect holes that have been sunk, engineers estimate the ground will average \$1 a yard in



125-HP. LIDGERWOOD HOIST BEING INSTALLED.



CORRUGATED IRON COOLING TANKS.

gold. One shaft sunk by the Yuma Con. near the Plomosa line averaged \$1.40 a yard for 40 ft., where false bedrock was encountered; at 83 ft. gold-bearing cement was again struck and for 15 ft. the ground averaged between \$3 and \$5 a yard.

Activities at the Yuma camp have been confined more to preparation than to installation. Electric power is to be used there, and a system of railways and cars will bring the gravel to the mill.

The Plomosa Placer Properties has 380 acres, and the plant will be in operation about the first of August.

The New Plant.

Although all of the units of this plant have been in successful operation in different parts of the country, it will be the first plant of its kind bringing together all of these units, and much interest is being manifested pending its completion.

The excavating equipment consists of a Shearer & Mayer drag-line excavator having a capacity of 1000 yds. daily. The mast for this rig is erected on the crest of a hill 75 ft. above the placer ground. The track cable extends from mast head to anchors 700 ft. distant. Thus, a circle of ground some 1400 ft. in diameter is commanded by the 1½ yd. bucket. Cables for the equipment are controlled by a Lidgerwood double-drum, hoist, power being furnished by a 125-hp. Bessemer oil engine. The reduction plant is located on grades cut into the hill below the excavator mast. Cement and gravel will be hauled up the track cable and dumped into a bin at the hill's eminence. From this bin the gravel will be fed into a Williams-Quenner 36-hammer mill, the boulders being rejected and carried away by belt conveyor, the fines dropping to a boot below where they will be elevated to a bin feeding a No. 12 Stebbins concentrator with a capacity of 40 tons an hour. Gold, middlings and concentrates from the large table will be re-elevated to a second bin from which they will run over a small finishing table. Tailings will be carried off by a belt conveyor which will dump them within easy reach of a Sauerman drag-line scraper which, in turn, conveys them to a large gully of waste land. This scraper is operated by a Lidgerwood hoist, power being furnished by a 60-hp. Bessemer engine.

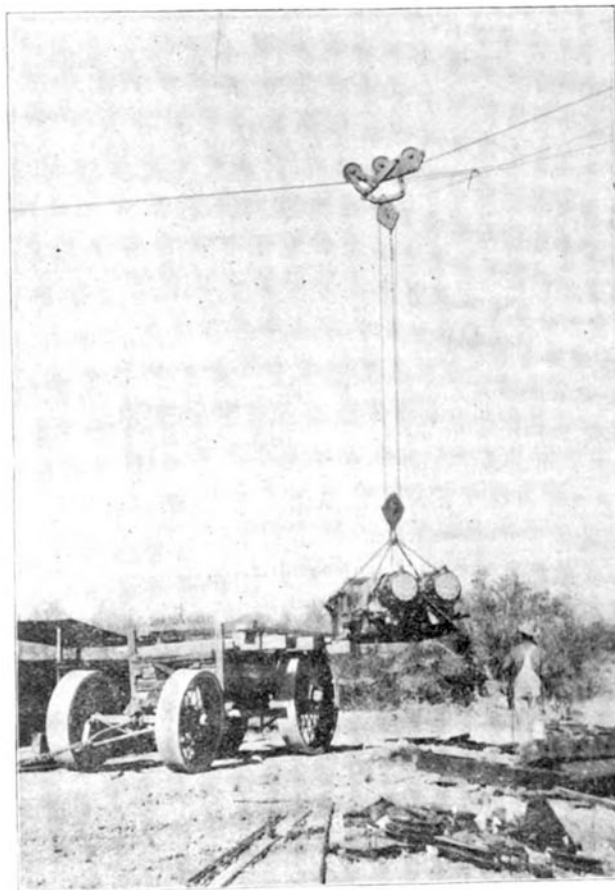
For breaking up cemented gravel in the ground a small compressor and power drill will be used.

The plant is being installed under the supervision of A. Maltman, E. M., who has chosen some of the richest ground in the district upon which to commence operations. He estimates the cost of operation at between 15 and 20 cts. a yard; however, he states that the lead-silver concentrates will more than pay operating expenses. The company plans to triple the capacity the coming year, giving it a daily output of 3000 yds.

At a distance of some 1200 ft. from the mill is a placer run about 100 ft. in depth. This run consists of two deposits, an upper strata of 40 ft. of cement

and gravel and a lower strata topped by a false bedrock some 50 ft. in depth. Directly above the bedrock is a 15-ft. layer of rich gold-bearing cement, which averages \$3 and up a yard. The company is planning to sink a double compartment shaft to this cement, drift it out and convey it to the mill by rail, in addition to the regular work of stripping the ground commanded by the drag bucket to the first bedrock.

The eyes of the mining world are on this new district. Much interest is being shown in the outcome of operations there, which bid fair to add another chapter to the history of gold mining, and to open up vast areas of dry placers hitherto dormant, because no



TAKING HOIST TO HILL BY DRAG LINE.

practical method of operating them had heretofore been discovered.

Tungsten and Antimony from Bolivia.—Exports of metals from Bolivia in the last 2 years have been as follows:

	Tons. 1914.	Tons. 1915.
Tungsten	276	499
Antimony	186	13,085
Copper	3,874	17,872
Tin	37,259	39,312
Bismuth	437	568

Bolivia and Peru have been growing in importance as sources of tungsten since the war started. The expansion in antimony and copper in Bolivia, due to the war, is also striking.