

AMONG RICH MINES AND GOLDRIBBED HILLS OF ARIZONA

By Harry Beardsley



OFFICE AND GENERAL STORE OF THE CROWN KING MINES COMPANY, IN THE BRADSHAW MOUNTAINS, ARIZONA.



THE STORY is told in Arizona of the president of a bank in one of the smaller cities of the middle West, who, in 1893, was clutched and strangled and left ruined and helpless by the scourge of financial disaster which swept the country in that eventful year.

It was not long after the passing of this storm of '93 that an unusual burro train was crossing the precipitous mountains in the heart of the mining region of Arizona. There was snow several inches deep on the trail, and it clung to the scrub-oak and mesquit bushes, making the landscape bleak and vast and lonely. At the head of the pack-train rode a refined but substantial-looking man, whose skin had none of the bronze dye of the native in the Arizona sunshine. Behind him rode his wife, astride of another burro; and following her, three children, two of them girls and quite young. This was the banker who had been ruined in the panic, with his family.

At the end of the trail they reached a mine, about which were a number of the usual crude mine buildings—the boarding-house, mill, shaft house, assay office, and quarters for the miners. The banker and his family made their home in the small, bare rooms above the assay office, forty-five miles from the nearest railroad, with neighbors many miles away, with plain pine boards and scant furniture for household comforts, in the midst of the rough men of the new mining camp, this banker and his family began a new era in their lives. It was a sudden and complete transformation—an extreme and absolute change from the ease and luxury of their existence in the Western city, where the banker is always the type of the prosperous and well-to-do. But it happened that the only available remaining asset of the man who had lost his business and his fortune in that swift and direful deluge of '93 was an interest in a mine in Arizona, which in his prospering days he had taken at the solicitation of some friends. Upon this mine he must now depend for his whole livelihood and the care and support of his family.

The banker's wife, with the perpetual home-making instinct of woman, soon filled the bare rooms over the assay office with dainty feminine decorations and small comforts. For a bit of lace curtain or a red geranium in a pot on the win-

dow-sill of the rudest cabin signifies, nine hundred and ninety-nine times out of a thousand, that a woman has her home there, and that she is struggling to express her fine instinctive love for the beautiful. It was only three years afterward that from the gold which came from the mine the banker had paid all the debts in which the panic had involved him, and had made a substantial fortune beside, so that his wife and daughters no longer dwelt in the small rooms over the assay office, but had returned to the comforts and plenty of their old home.

There are so many other interesting and significant incidents of this mining region that I lack for space here to tell them all. For the richness of Arizona, particularly that section of it included within the boundaries of Yavapai County, has for a quarter of a century made interesting history and tradition. In this district is the old Congress mine, the deepest gold mine in America; the Crown King, known for its richness; and the United Verde copper mine, which is said to pay \$9,000,000 in dividends every year to United States Senator William A. Clark, of Montana.

The road from Prescott, Ariz., to the town of Crown King, whether you go by wagon or rail, is full of interest and surprises, because when you are on the summits you can see, across the hills, the smoke that rises from the mills of the great Verde and the location of the famous Congress. And, if you take the wagon road, you pass in a wide semicircle a mountain-bordered valley called Battle Flat, and it is a valley with a stirring history.

The first miners in this region faced many obstacles in their search for gold; and not the least of these were the savage Apache Indians, whose descendants, indolent, idle, and unclean, are still found in various sections of the Territory. But in those days the Apaches had not yet given up the fight. They were outlaws, stealing and murdering without discrimination, made more cruel and desperate because they were fugitives from the United States soldiers. They hid among the rugged, mineral-ribbed hills, the same in which the prospectors and miners were digging for their gold. The gold-diggers were in constant dread of the stealthy savages.

And in these hills to-day there is eloquent evidence of the fearful dangers of those days. Near the gold veins where these men found their rich ore are caves under eaves of sheltering rock. These caves were the miners' homes. While they worked during the day with their rifles near at hand, at night they cooked their meals and slept in the caves. And the fuel for their camp-fires was charcoal, which makes heat without a flame—for the miners knew that the bright blaze of a log fire would disclose their hiding-places to the lurking savages. To-day, in these same old caves, the ashes of those charcoal fires still remain.

The prospectors had gathered in force for their own defense, for the savages had been unusually murderous and aggressive, and an armed body of the Indians coming from their hiding-places in the surrounding hills met the prospectors in a pitched battle on Battle Flat. Many were killed. But there seems to be little record of the fight, excepting tradition and abandoned graves.

Such were the dangers of the early miners in Arizona. But there were other serious obstacles as well. They were scores of miles from the railroads or even the farthest outposts of civilization, and over the mountains which intervened they were obliged to pack all their food and other supplies. Nevertheless they took out millions of the precious metals, risking their very lives for the rich reward of gold. The mines which were first worked in this manner, the Congress, the Oro Belle, the Tiger, and others, paid abundantly from the very top of the ground. They are

all in the Bradshaw Mountain country, a region which is one of the most important in the whole Southwest, and where Eastern money and enterprising railroad construction are making possible great increases in the profits of old mines, their extension and development, and the discovery of many new and valuable mines besides.

The Bradshaw Mountains are perhaps the most heavily mineralized mountains in the Southwest. They are a cluster of comparatively low and very rocky hills, rising abruptly from the surrounding land, and are crossed and broken by great dikes and ledges. The ledges are shown by reddish brown stains on the hill-sides, for the iron that is with the gold, silver, and copper which the veins contain is rusted to a red color and stains the rock at the surface. In the center of the mountains is the Crown King mine, lying between the Congress on one side and the United Verde on the other, and the King is in some respects the most typical of the rich Bradshaw Mountain mines.

It had been owned and worked by the earlier and adventurous spirits whose enemies were the Indians. They took their ore from the surface, picking out rich specimens and grinding them up in a simple arastra to take out the metal. They at once found some rock that was extremely rich. On one of the veins, from a tunnel only 200 feet long, \$90,000 was taken out in a short time. The next owners of the Crown King built a stamp mill of ten stamps on the banks of a creek a mile away from the mine. They took the ore from

the mine until Eastern capital and a new company secured control, and the new company has already spent \$200,000 in improvements.

I mention this because Eastern capital and intelligent mining procedure have done more and are now doing more to develop the resources of Arizona than all the desultory mining of the past. During the last year alone millions of Eastern capital have been invested in Arizona, and some of the best properties of the Territory are now owned by Eastern companies.

At the Crown King, as at other Arizona mines, the crude stamp and concentrating mill took from the ores only a part of their values. The evidence of this is very plain. The new mill here installed, involving a new and unique process of extraction of gold and silver, is interesting mining men the country over. At the side of the mill is seen a huge heap of finely ground rock, like a drab sand. This is the "tailings," the "waste" from the extraction of mineral. But the assays show that this "waste" heap itself contains gold and silver of the value of \$20 a ton, and there are 50,000 tons of these "tailings." The net value of this heap after all the expenses of milling and smelting are paid is estimated to be \$600,000.

The mill which has been built to separate the values from these "tailings" is one of the newest features of the new mining in Arizona. The "tailings" contain gold, silver, iron, copper, and zinc and sulphur, and by the use of the invention of Dr. Henry T. Campbell,

the other end, connecting with the old Crown King vein at a depth of 800 feet below the level from which the last ore was taken out. This tunnel would cut at about right angles all the veins of the mountain, and would undoubtedly disclose new ones which do not appear on the surface. At the top many of these veins already known are very rich. The first which would be intersected by the tunnel is called the Dam Site, and its ore assays \$6 at the surface; the next vein encountered, called the Dartmouth, assays from \$40 to \$46 a ton. Other veins, the Nelson, the War Eagle, the Zackey, and others, all produced rich ore at the top in the old Indian-fighting days, and like the Crown King vein they undoubtedly grow richer with depth.

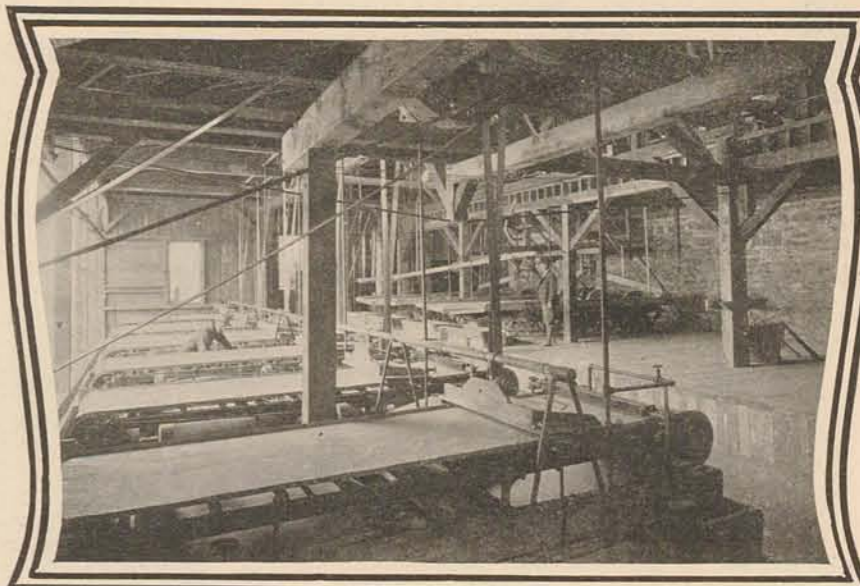
The ideal way to work a mine is to tunnel underneath the bodies of ore, so that gravity will haul the freight. By this tunnel all ore would be brought to the railroad, loaded on freight-cars, and taken a short distance to the mill; and besides taking out with great facility ore the presence of which is already known, a tunnel like this, it is expected, should discover rich streaks of gold, now unknown, like those which produced \$90,000 to the ton in the Crown King vein.

But I must pass on to other mines in this district which are famous. I was intensely interested in the Old Tiger mine, because of its romantic and picturesque past and the immense possibilities of its future. Both it and the Crown King are owned by the Crown King Mines Company, which is composed of New York capitalists.

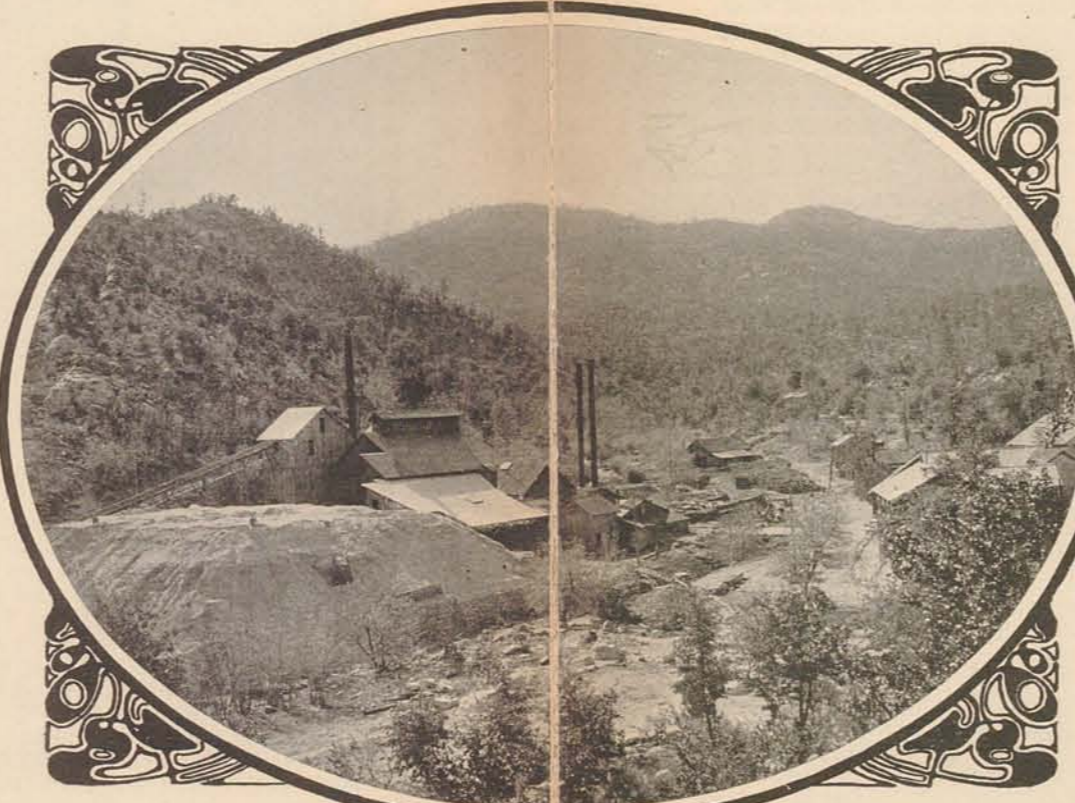
The Tiger mine has produced, according to the most authentic records, \$2,500,000. The silver ore was intensely rich, most of that which was mined containing a thousand ounces of silver to the ton, worth in those days from \$1,000 to \$1,200. And the ore was sold in far-away San Francisco after a long journey by a remarkably circuitous route. The mine's product was packed on burros and carried over the difficult mountain trails—the distance is 150 miles in a straight line, but much farther by the constantly winding trail—to the Colorado River. There the ore was loaded on barges and taken by the current down to the Gulf of California. Here it was transferred to sailing vessels which carried it down the whole length of the Gulf, around the point of the peninsula of California, and thence northward along the Pacific coast to San Francisco, where it was sold. Only the richest ore was worth while under this great expense.

The mine was then only 300 feet deep; the silver values were going out and the gold values were coming in. Silver was at that time the favorite metal, because it was worth then twice as much an ounce as it is now. Clark's Verde copper mine and the Congress gold mine were both silver properties in the beginning, as were the famous mines of the Comstock lode. When the quantity of silver began to decrease, the miners at the Tiger, who did not understand the methods of handling gold as they do now, and whose mill was fitted only for the reduction of silver, began looking in other fields for new mines of the white metal, which alone they understood. The flock of miners who had made Bradshaw City their lively home rose and flew to other regions where they thought that silver could be found.

About the same time the Tiger mine was sold out. Others who knew the mine's great value—Eastern capital again—secured control, and the Tiger is soon to be worked extensively, its ores to be transported by an aerial tramway, a mile and a half long, to the mill at Crown King. The Tiger is perhaps the most striking illustration of the impressive mineral formation in the Bradshaw Mountains. A great vein extends across the hills for miles, its course being clearly traced by rugged dikes which stand boldly above the surrounding rock and



WHERE GOLD IS GROUND OUT IN THE BRADSHAW MOUNTAINS. INTERIOR OF CROWN KING MILL.



MILL AND IMMENSE ORE-DUMP AT CROWN KING, WHICH CONTAINS \$600,000 IN GOLD.

their tunnels, loaded it into wagons, hauled it to the mill, using amalgamating plates to catch the free gold which the ore contained, and concentrating tables to separate the mineral from the silica rock with which it is associated. The concentrates were then taken by wagon forty-five miles to Prescott, where they were loaded by hand on to freight cars and shipped to a smelter. This process involved great expense.

In the first place only ore that averaged from \$40 to \$65 per ton was taken from the mine. Large quantities of a lower grade were left in the tunnels and drifts to be mined now by the present owners. Six thousand tons of this, of value from \$10 to \$12 a ton, is already blocked out, and aside from these great bodies, large quantities of other ore were apparent as I went through the mine in a flickering candle's light. The former owners took out ore only to the depth of 500 feet. Some of this ore contained values of \$175,000 to the ton; there were other rich streaks which assayed \$90,000. Out of four tons of ore, which was put into 800 fifty-pound sacks, \$20,000 was gleaned. In the distance of forty-five feet in the tunnel, \$95,000 was obtained.

The mine had produced \$2,000,000, all this having been taken from workings that extended only 500 feet below the surface. At this point the owners struck the most valuable ore. On account of the very richness of the mine, it seems, the owners had a falling out, one party claiming that the other was not giving the returns in dividends warranted by the production. The affairs of the company reached the courts and the organization became demoralized. One conflicting claim, I was told, was for \$45,000 for wages for foreman and men. The claimants were told that if they wanted their money they could dig it from the mine, and this they very speedily did, for no one knew as well as they where the richest ores were to be found. Litigation among the owners stopped the progress of

of Boston, zinc in the Crown King ore, which was formerly a penalty at the smelters, is now a profitable product. Dr. Campbell is distinguished as the inventor of simplex wire, an insulated wire for electrical use from which the Morse Company, of Boston, is said to have made seven million dollars. His invention for the extraction of minerals consists in heating the ore in such a way that the iron is magnetized and caught, with the gold and silver with which it is associated, on magnetic plates, while the zinc is separated and passes on. The invention has already been tried at the Crown King, and notably at Rico, Col. But the right for its use in Yavapai County belongs to the Crown King alone.

Dr. Campbell's mill devices have another important use. They enable the present mine owners to do that which their predecessors were unable to do; and that is to glean practically all the values out of their ore. The old company received no value from its "tailings." As an example of the efficacy of the new invention, the profits of the new Eastern company, figuring on the capacity of the mill, 80 tons a day (50 tons of "tailings" and 30 tons of new ore), would be \$1,800 a day. For the "tailings" average \$12 a ton net, and the new ore, according to assay report, averages \$40 net. This Crown King mill is undoubtedly one of the most complete in the whole Southwest.

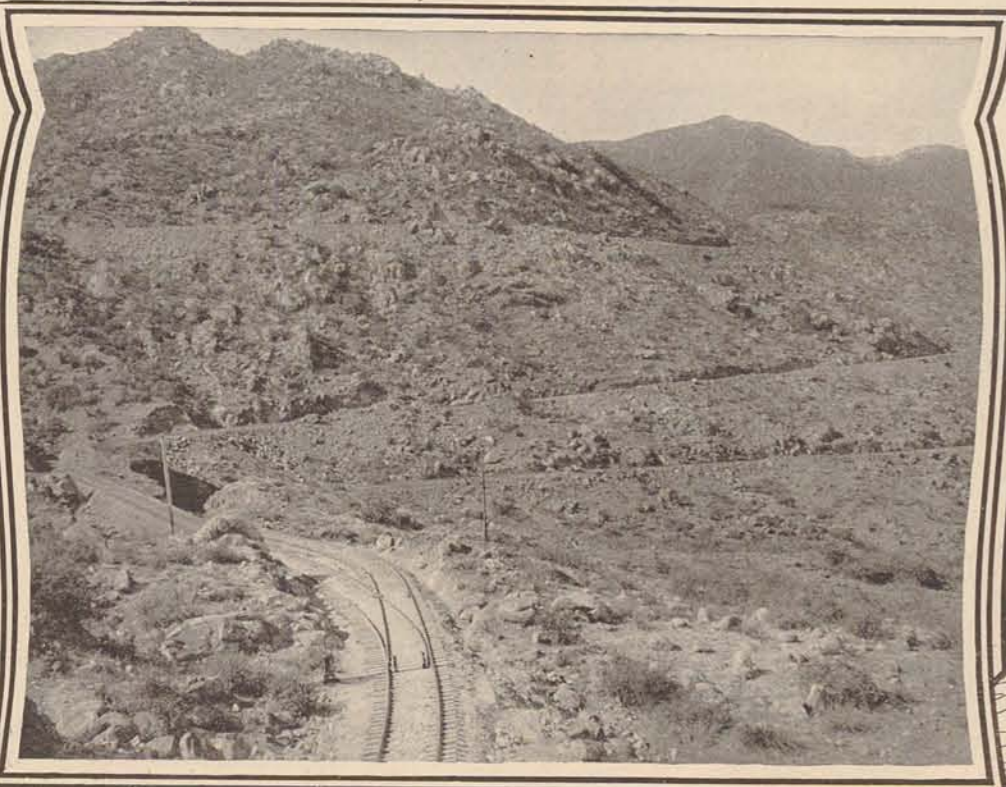
I cannot leave a description of the noted Crown King mine without a reference to the method planned by Mr. George F. Shurtliff, its manager, for developing and working the whole property. The veins which bear the gold cut nearly at right angles a huge rocky hill that is shaped like a colossal loaf of bread. At one end of the mountain are the old workings of the mine. At the other end are the tracks of the Bradshaw Mountain Railroad, a branch of the Santa Fé, Prescott and Phoenix Railroad. It is planned to start a tunnel into the mountain at the railroad, and run it to

drift, having resisted for ages the tremendous and incessant leveling influence of the air and water. And wherever this great vein is apparent it has been assayed and shown to bear, even at the very surface, gold, silver, and copper in paying quantities. To all appearances the Tiger should be one of the greatest mines in the whole Southwest. For the Congress, near by, has shown how the gold values remain and increase in richness the deeper the veins are followed. Men are working now 3,400 feet below the ground in the Congress, and drills have been sent 1,600 feet farther, and the ore is still there. With the depth of a mile at least, and the length of the veins not even determined, an estimate of the quantities of ore which these mines of the Bradshaw Mountains contain runs into the many millions of tons, and the values into sums that seem fabulous.

The Congress mine had in 1900 a production of \$6,000,000 to its credit. And the report of the Treasury Department of that year, which places the Congress mine ahead of the Crown King, says of the latter: "Yavapai County boasts of another magnificent gold-bearing property, the Crown King mine," and says further that "few mines are so well situated for economical working." And in my recent visit I found this to be strikingly the case, the railroad which has just been finished to the door of the Crown King mill adding enormously to economy and convenience.

Before the Bradshaw Mountain Railroad was built from Prescott, experts were sent out by the railroad company to examine the mines of this region. A part of this railroad construction cost \$50,000 to the mile, and before it embarked on the building of this costly track the company satisfied itself that profit would be derived from carrying ore. The railroad extends past the Crown King mill, and the depot, marking the terminal, will be built just beyond.

Thus the Crown King and Tiger are the centre of activity in this region of Arizona. With an aerial tram carrying ore from the big Tiger to the Crown King mill, with large quantities of ore coming through the great tunnel on the Crown King mine itself, with 1,400 acres of mining claims, and the rich products going out by railroad—these should give to this mill at Crown King as great a tonnage of ore as any in the Southwest, and make the mine one of the most profitable and prolific in the United States.



REMARKABLE SWITCH-BACK RAILWAY THROUGH THE ROUGH BRADSHAW MOUNTAINS TO CROWN KING.



THE GOLD-FILLED HILLS AT CROWN KING, AND TUNNEL ENTRANCE THROUGH WHICH \$2,000,000 IN GOLD-ORE WAS TAKEN.