

A TRIP AROUND CRIPPLE CREEK.

Notes on the Changes and Improvements Which Have Been Made There Within a Short Time.

Written for MINES AND MINERALS, by Prof. Arthur Lakes.

When we last visited Cripple Creek, the town was just recovering from its great fire, and the streets were littered with bricks and boards for replacing the old wooden shacks with substantial brick buildings. There was still a peculiar earthy, smoky smell about the town issuing from charred beams lying here and there in blackened cellar ways and ruined foundations. Now, we find a substantial, business-like city that looks as if it had always been there, a city like Leadville on one hand and like Denver on the other, only of course much smaller. We cannot but think what a blessing in disguise was the fire that cleaned out the "rough and tumble" pioneer "shack" town and replaced it with a handsome, business-like city. Railroads seem to abound and still others are talked of. We used to labor wearily over the hills on foot or horseback. Now an electric railway carries us in a comfortable car up Poverty Gulch and over the whole circular panorama of hills, stopping at every leading mine you may wish to examine, dropping you there, and later picking you up again in a most obliging manner. A better way of seeing the camp could not be imagined so we were not loathe to take advantage of it. As we passed up over the hills we were struck, as every one must be, by the prodigious prospecting that has taken place in this area. Another striking feature is that where formerly we remember mere prospect holes, there are now substantial mines with fine plant buildings over them. Again, where we remember mines to have been surmounted by ordinary mine houses, now there are buildings on a sumptuous scale. The Independence was the first to start what was then considered the finest plant in Colorado. This example seems to have brought all the other mining properties "up to the handle," and since then they seem to have competed with one another as to who should put up the finest plant, consequently the hills are studded with lofty buildings that, in the distance, remind us of the great corn elevators on the docks of Chicago. It were invidious to mention names, but we remember among the prominent ones the Anchoria-Leland on Globe Hill, The Buena Vista, Lee, and Victor shaft houses below Altman and Bull Hill, the Independence and Gold Coin, Anna Lee and Portland near Victor, and the Moose, Raven and Elkton on Raven Hill, and the Anaconda between Gold and Battle mountains. We remember, too, when some of the principal mines like the Buena Vista, Ingram, and Independence were being worked by a Davis horse whim. In the place of this, there is now the finest hoisting machinery in the state, or perhaps west of the Missouri; some of the mines are in part lighted by electricity and the latter will doubtless, as at Aspen, soon become fashionable. All this rapid evolution of a thriving mining camp in the space of two or three years.

The numerous railroads threading the district have cut quite a feature in the camp, and as their object is to get as close to the mines as possible, and intersect here and there through the mining camp, formidable obstacles were thrown in their way by the

dumps of some of the mines, which had grown into gigantic proportions of late years. The mining dump had the right of way, so to speak. It was there first and proposed to stay, so as the railroads could not conveniently go round these dumps they had to go through them. This meant either an open cut or tunnel through a mass of loose material, upwards of 60 or 70 feet high and of considerable width and area. To tunnel through such a mass of incoherent material would have been difficult, and would have required timbering and support at every foot advanced. The easiest way was to make an open cut down through the mass of debris, and transport and dump the material elsewhere, temporarily bridging over the top of the gap, so that an ore car could still be trammed out of the mine and deposit its debris over the dump. Then in the gap so formed a handsome

arched tunnel was placed, made of riveted iron girders and arched plates as shown in Fig. 3, boarded over as a closed arch with 3-inch lumber, and finally covered over the top with dump material, so that it would, eventually, be a handsome iron built tunnelway under the dump. The tunnel was about 18 feet high by 14 feet wide and 240 feet long.

Further on near the Lone Pine and Granite Mines we found the same obstacle overcome by a square set tunnel made of very thick tall uprights of pine trunks lagged behind and heavily roofed. The dimensions were much the same as the preceding one, but the tunnel was not so long.

The dump question in many camps is a serious one, especially in the advanced stages of that camp. In the early stages a mine is located near the bottom of a valley, and, for some time, there is ample dumping room. By and by the prosperity of the locality causes a town to grow around this mine and its streets and houses congregate around the dump. By degrees, however, the dump keeps growing like the advancing snout of a glacier, and houses and streets which were located there before the dump assumed such proportions, decline to be overwhelmed, or pushed out of the way by the advancing dump. As mines cannot consume their own dump, they get over the difficulty, in some cases, by carting away the dump and filling up old ravines outside of the city limits. It may also be usefully employed at times in levelling up places in the town or building roadways. The difficulty would seem still greater when, as in the case of the Gold Coin, or one or two others, the mine was actually discovered in the heart of an

already built town like Victor, the outcrop of the ore deposit having been discovered in digging for the foundation of a hotel.

Another difficulty in the dump line is often seen both in Leadville, Aspen, and Cripple Creek, that is, when on the sloping side of a hill the dump of the mine above encroaches on that of the mine beneath, threatening both plant and workings. In this case cribbing is resorted to, as shown in Fig. 4, and the dump matter is cribbed back by square sets rising sometimes tier upon tier above one another. Some of these cribbed-back dumps are 50 to 100 feet high. Some exceedingly fine cribbing and cross-set work at the Gold Coin mine is shown in Fig. 1, where the dump material appears to have been cribbed back and up to form a foundation for the magnificent building plant of the mine.

The Gold Coin plant is one of the finest and most recent in Cripple Creek; everything within the great building is on the newest and most approved scale, from the hoisting apparatus down

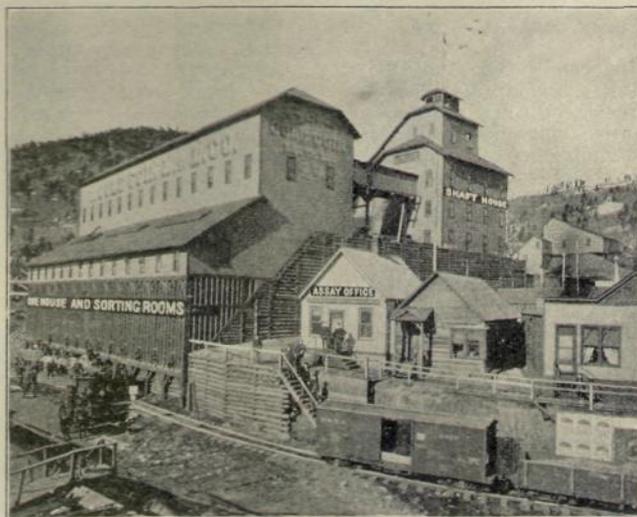


FIG. 1.

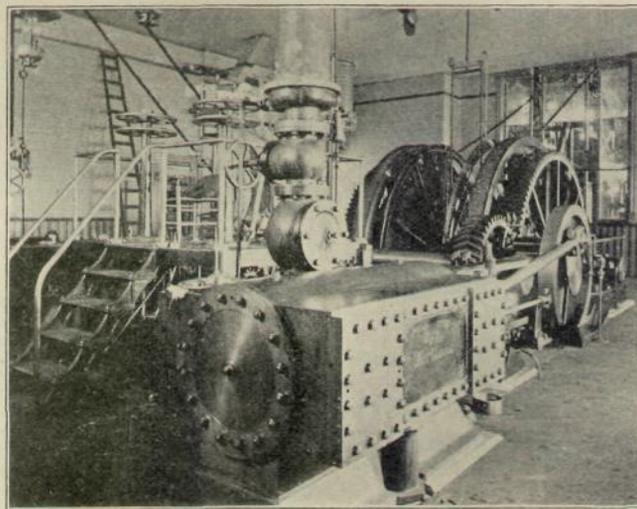


FIG. 2. PORTLAND MINE HOISTING ENGINE.

to the ore bins. One of the most pleasing features in this building is a reading room in the upper story, well supplied with books and mining periodicals, and among them we noticed MINES AND MINERALS. Another feature was scarcely less notable, and that was a good lavatory where the men could wash after coming up out of the mine, a sanitary measure which we would suggest in all similar institutions. We remember at a deep coal mine in



FIG. 3.

IRON ARCHED RAILWAY TUNNEL THROUGH PORTLAND DUMP, CRIPPLE CREEK

England where the miners were compelled to take a bath and a change of garments every day on coming out of the mine.

The advantage of a reading room for miners, most of whom are bachelors and have no home to go to in the evening or on Sundays, nothing but the saloon and dance hall, is of the highest importance and speaks much for the enlightened humanitarian and benevolent character of those who own and direct the mine.

Readers of MINES AND MINERALS may remember a description of this mine in its comparative infancy about a year ago, how the ore zone was discovered in digging the foundation of the Victor Hotel. The appearance of this outcrop which has led to one of the largest and most important shipping mines in Cripple Creek, consists of a zone of rusty, parallel, narrow cracks, covering a

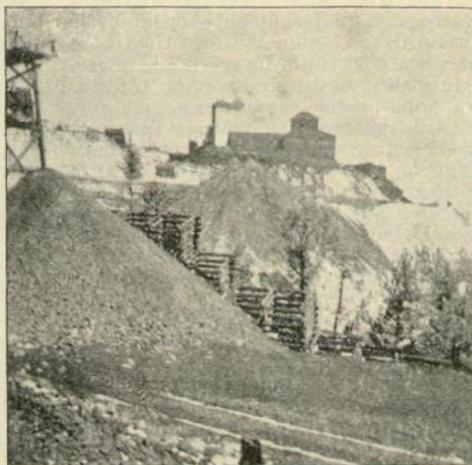


FIG. 4.

SQUARE SET CRIBBING TO HOLD BACK DUMPS, GOLD COIN MINE.

width of some six or eight feet in the granite of Squaw mountain, in other words what is understood as a 'shearage' zone, the granite having been cleaved into parallel sheets by slight faulting movements. Nothing could be less suggestive of a valuable ore zone. It was followed down however and traced in a direct line about north and south for many hundreds of feet.

In portions of the mine this mineralized zone widens to upwards of 20 feet, a large proportion of which is shipping ore. The ore, to the visitor, appears practically as rusty oxidized

granite; there is little so-called vein matter, such as quartz seams or visible ore, and only occasionally the parallel crevices are found stained and lined with purple flourine stains, and on this the rusty pseudomorphs of gold after telluride minerals, as well as the shining telluride crystals may sometimes be seen. An agreeable feature of a part of the mine is that it is lit with electricity, a vast improvement over the ordinary miner's lamp.

There was nothing about Cripple Creek in a geological and vein way any newer than given in Mr. Penrose's report, an abstract of which we gave some time ago in MINES AND MINERALS. The mines, however, had gone deeper and had proven a point which, at one time, gave some anxiety and difference of opinion even among mining experts. This was, how far the veins or ore bodies would be continuous with depth, especially when the overlying andesitic breccia overflow cap was pierced, and the granite entered. While it was generally admitted that the impregnated phonolite dikes would continue down into the granite and might retain their values, it was doubted whether fissures like that of the Ingram and some of the Altman mines, which are fissures in the andesitic breccia, and not true dikes, would continue down with profit into the granite. This, we understand, from a well known expert, has been satisfactorily cleared up by the shafts of several mines which have passed through the breccia and are mining on in the granite. The same expert also told us that ore deposits are often found after awhile

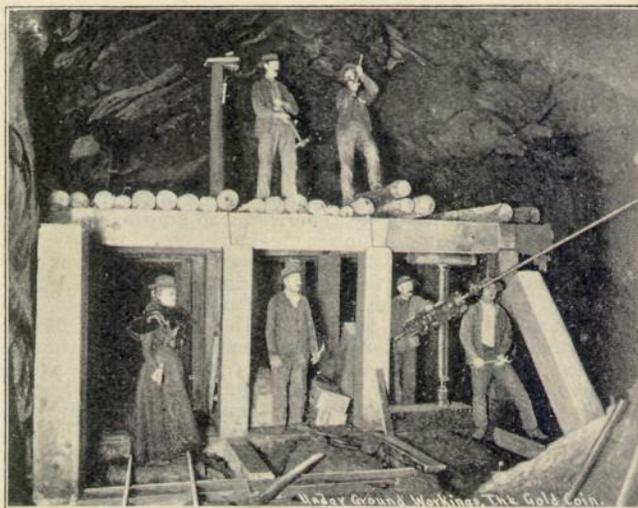


FIG. 5. UNDERGROUND WORKINGS, GOLD COIN MINE.

leaving the impregnated phonolite dikes and branching off into the granite and at times again returning to the dike. In some of the deepest mines certain unoxidized ores of lead and zinc have been found of quite a different character from those in the upper zones of the mines. The principal new feature that seemed to interest the Cripple Creek people, was the late discovery of ore at the Flourine mine and the apparently anomalous and doubtful character of the geology of Copper mountain in which the deposits were contained, as described in MINES AND MINERALS for June.

The Consumption of Domestic and Foreign Coal.

In the United Kingdom, Germany, Belgium, and the United States, which are the large coal-producing countries, most of the coal consumed, as might be expected, is home produce. In the United Kingdom, 99.99 per cent. of the coal consumed is domestic product; in Germany the proportion is 92 per cent.; in Belgium 89 per cent., while in the United States the corresponding figure is 99.2. Of the remaining countries Russia consumes, roughly speaking, 80 per cent. of coal of native production, 16 per cent. of British coal, and 4 per cent. of coal the produce of other countries. In Sweden by far the larger proportion of the coal used, viz., 87 per cent., is of British origin, 10 per cent. of native production, and the remainder the product of other countries. In France 73 per cent. of the coal used is of native origin, 12 per cent. of British origin, and 15 per cent. the produce of other countries. In Spain the coal consumed is, roughly speaking, half native and half British produce, while in Italy almost the whole of the coal consumed is of British origin. In Austria-Hungary 64 per cent. of the coal used is of native production, 1 per cent. being of British production, and the remainder, 35 per cent., the produce of other countries, chiefly Germany.