

# GOLD MOUNTAIN DISTRICT AND ITS RICH MINES

**T**HE GOLD MOUNTAIN district is located about 200 miles south of Salt Lake City, just inside the limits of

Plute county—indeed almost intersecting the three counties of Sevier, Millard and Plute. Its geological formation has been fully described in a number of Utah and other publications by Mr. J. F. Gibbs, the veteran writer and miner, to whom the "Neva" is indebted for much of the information furnished in this article.

The nearest railroad station at present available for the traveler to the district is the Sevier station of the Rio Grande Western railroad, from which stage is taken for about 15 miles. As one proceeds westward he soon enters "Clear Creek" canyon, and noting the will grandeur of the gorge, sees that it has been ploughed deeply through a bed of basalt. This bed extends westward from Sevier station some 14 miles, where it finally becomes the country of basalt and establishes the apex of the range.

## GEOLOGICAL HISTORY.

Of the early geological history, Mr. Gibbs says:

"It is clearly evident that, at some depth, the entire range is underlain with a broken and faulted substructure of quartzite, and that it may be credited to the Devonian age."

"The preponderance of evidence is that the area now represented by the Mt. Baldy range, and its northern prolongation, the Pahvan mountains, between Millard and Sevier counties, was under the ocean during the Devonian age. Hundreds, perhaps thousands, of feet of sandstone was deposited. The succeeding lower carboniferous period covered the sandstone with a thick bed of limestone."

"At the close of the lower carboniferous a gentle upward movement occurred, and the area under discussion rose above the surface of the ocean where it remained during the enormous lapse of time that intervened between the closing centuries of the lower carboniferous, and well along towards the close of the Tertiary age, when an almost world-wide change of level occurred."

"Along the east side, and parallel with what is now known as the Mt. Baldy range, and its northern prolongation, the Pahvan range, the earth's crust was fissured from the surface down to the region of molten rock."

grade proposition, and to many nothing but a wild cat venture, but it took Mr. P. L. Kimberly and some of his wealthy associates from Pennsylvania to demonstrate its real value. They had ample capital, and this, allied to the skill and courage they possessed, soon wrested their treasures from the hills and ultimately yielded the wealth that resulted in the purchase of the famous Annie Laurie mine and the claims contiguous. From that time a vigorous

each running in connection with overhead screens.

The reduction is effected gradually, the first set of rolls taking the coarsely crushed ore which has been delivered from the dryers and breaking it up into smaller particles. It is then elevated and screened, the oversize going to another set of rolls to be there still further reduced in size. After more screening and crushing the ore is finally delivered into the pulp bin before men-

kins to make its appearance on the surface. It is allowed to stand in contact with the ore for a number of hours, during which time most of the gold and silver is taken into solution. This gold- and silver-bearing solution is now drawn off from below and piped to the cyanide solution passes on to the pump tank, where it is brought up to strength again by the addition of fresh cyanide in the solid form and pumped

through metallic zinc, cut up into fine threads or shavings and there the precious metals are deposited in the form of finely divided metallic slimes, which are "cleaned up" periodically, and after acid treatment and other operations incident to refining, are melted into bars weighing on an average about 100 pounds each. These bars regularly find their way to Uncle Sam's coffers, and are as regularly converted into divi-

been more than conclusively proven since its adoption. The tailings, after leaving the plates, are flumed a considerable distance and impounded behind a dam, and to prevent it from contaminating the waters of the creek which flows past the mill. A rather unique feature in connection with the disposal of the tailings is the suspension bridge over which they pass on their way to the dam, for, as far as the writer is aware, it is the only one of its kind in

ample of a well managed and an economical wealth-producer, took the acting manager of the company is Mr. A. E. Hyde, Jr., a well known member of the mining fraternity in this city, and one whose reputation justifies his holding the position of trust he fills.

The mine superintendent is Mr. H. N. Bowen, a young man from Waterbury, Conn., who knows every detail of his work. He came west in 1890, and came to Utah in 1896 but has only recently accepted a place with the company. The milling department, which includes the two power plants on Fish Creek, six miles away, and the auxiliary steam plant at the mill is in charge of Mr. O. Wiser, who is a Kentuckian by birth, who took Greely's advice 13 years ago and came west. Mr. Wiser was educated in a Kansas university and gained much experience in the mining camps of Colorado in the capacity of a machinist and master mechanic. About three years ago he entered the employ of the Annie Laurie, and by his executive ability and skill soon became superintendent of the mill, where he has introduced many improvements in the way of simplifying and increasing the efficiency of the dry crushing machinery.

The leaching department, upon which much of the success of the business depends, is in the care of Mr. A. W. Russell, who, since his promotion some months ago, has demonstrated that the enviable record made by his predecessor in this department in times past shall in no wise suffer at his hands. Mr. Russell received his preliminary metallurgical training in Scotland, the land of his birth, but since he came to this country, over five years ago, he has identified himself more especially with the cyanide process, and has had much practical experience along this line in "Chippie Creek" and in other parts of Colorado. His many truly Scottish traits and characteristics endear him to all with whom he comes in contact, and his integrity, together with his technical ability, make him well qualified for his position of trust.

## THE ANNIE LAURIE EXTENSION MINING CO.

Many of the good things said of the Annie Laurie property may be truthfully repeated of the Annie Laurie Extension company's which, as the name indicates, is really an extension of the veins of this great company.

The Annie Laurie Extension company was organized Oct. 10, 1902, and numbers such well known men as the following in its directorate:

Lars H. Outzen, president, Richfield, Utah.

Floyd Weed, vice president, Kimberly, Utah.

A. W. Russell, secretary and treasurer, Kimberly, Utah.

Charles Skougard, director, Richfield, Utah.

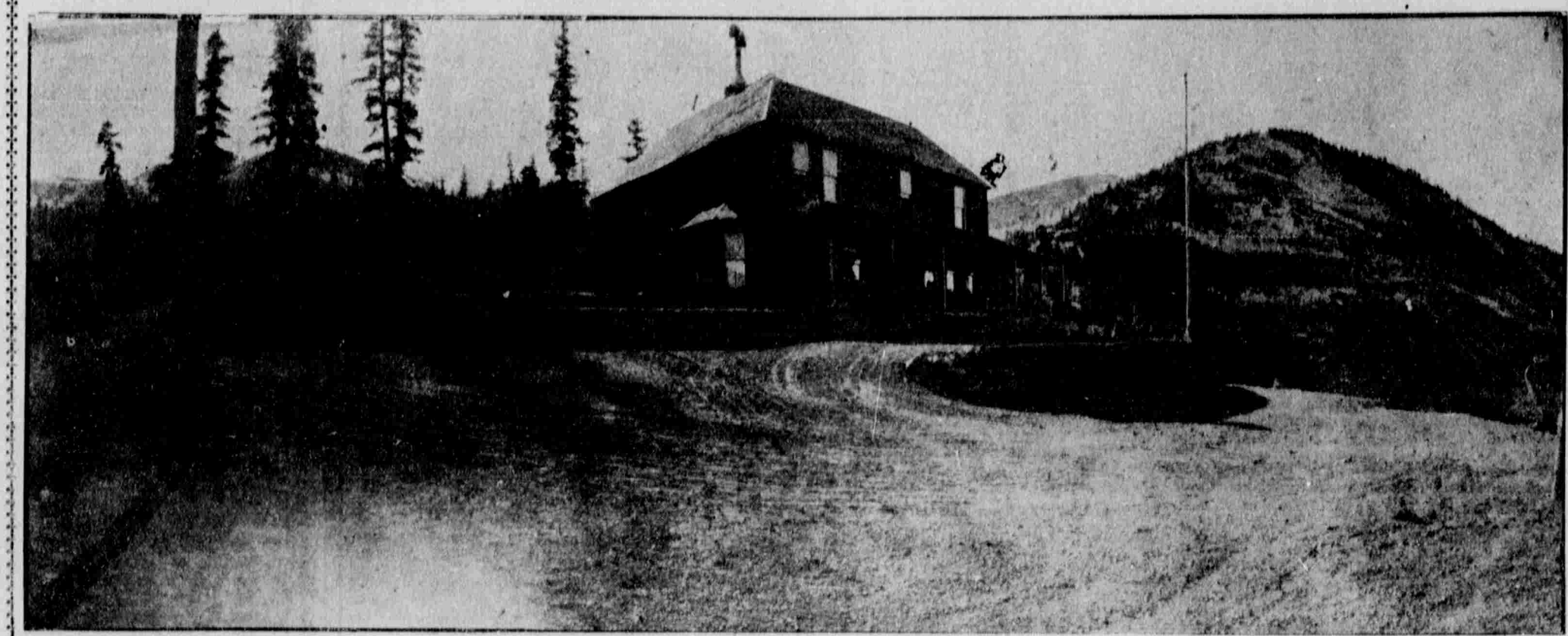
Gideon Snyder, director, Kimberly, Utah.

H. G. Snyder, director, Kimberly, Utah.

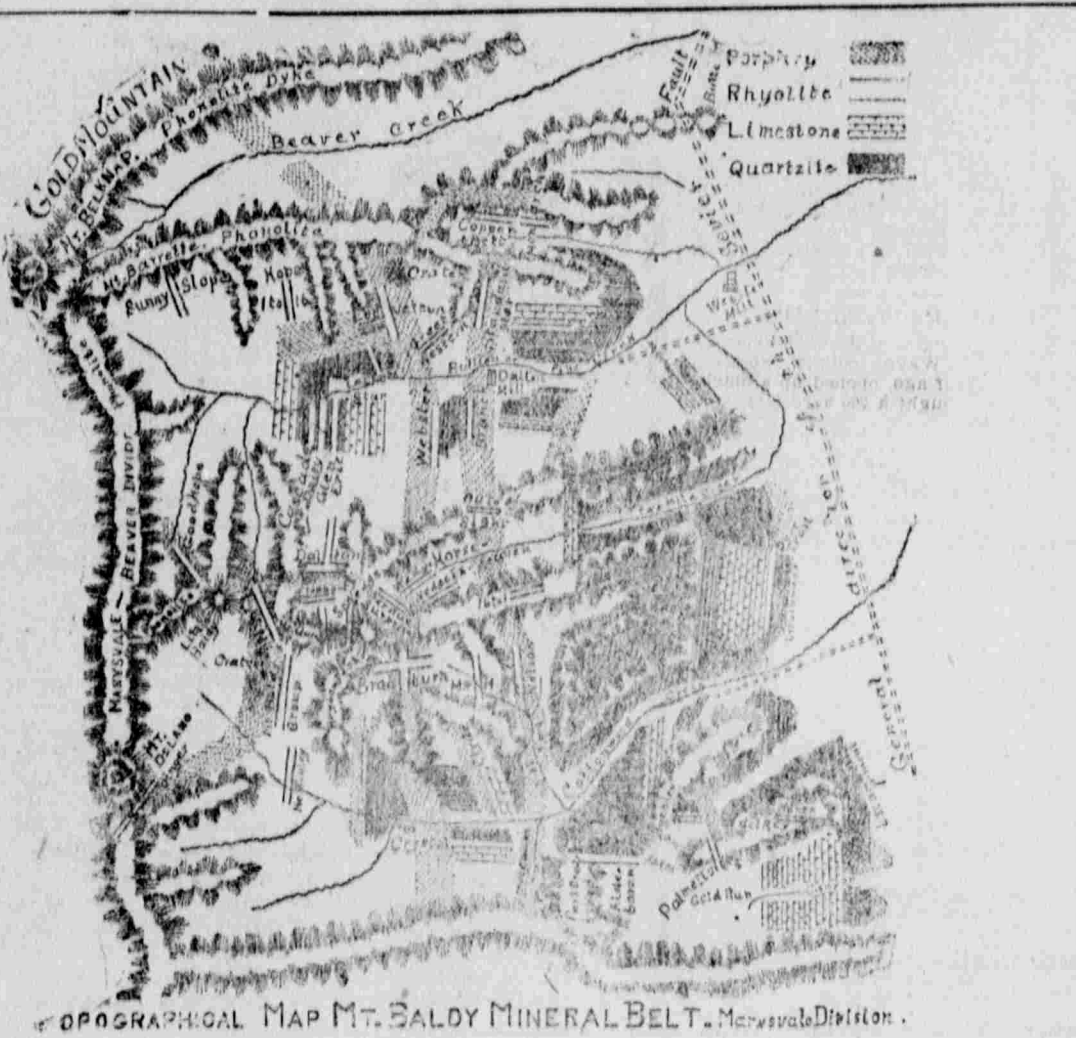
James Long, director, Kimberly, Utah.

The company owns 28 claims. They are adjacent to the Blue Bird and 1,299 veins south of the Annie Laurie.

Careful surveys of the great veins of the Annie Laurie, Blue Bird and Mammoth, establish beyond a doubt, that all these veins extend inside the Annie



"THE LODGE," HOME OF ANNIE LAURIE MINE MANAGER, OVERLOOKING KIMBERLY.



## RECENT DEVELOPMENT.

The Gold Mountain district has probably won more fame within the last two or three years than any other mineral section in Utah. It has long been known as a mineral producing belt, but heretofore it has been looked upon as a low

campaign of development went on, and the record made by the Annie Laurie, its dividends, and the sums offered and refused for it have all combined to make the name of the Gold Mountain country among the most widely famed of any of the prosperous districts of the west.

tioned, all of it having passed through what is known as a "40-mesh screen." This fine state of division is necessary to break open the particles of quartz surrounding the gold and so expose the metal to the action of the cyanide solution with which it comes in contact in the subsequent leaching process.

The leaching department has been twice extended since the starting up of the mill and is now capable of handling a larger tonnage than ever before. The equipment consists of 16 steel tanks, varying in capacity from 120 to 240 tons, and each is provided with a filter bottom and Argall gate valves through which the tailings are sluiced when the extraction of values is complete. The ore is taken from the pulp bin in cars and dumped into the tanks over a system of distributors which prevent the ore from packing and at the same time spread it evenly over the bottom. The benefit of this is to be seen later on in the increased rate of leaching and better displacement of solutions which is thereby effected. While the tank is filling, a solution of potassium cyanide is at the same time soaking its way up from below, and not long after the tank is fully charged the solution be-

up into the stock tanks by a centrifugal pump. From here it is led on to the top of the ore in the leaching tank, where it completes the work of extraction, and at the same time, washes out or displaces the gold and silver-bearing solution retained in the charge.

The solution first brought into contact with the ore is known as "strong" solution and varies in strength from time to time as the nature of the ore and laboratory tests would indicate. There is another solution in use too of a different strength—roughly speaking, of about half the strength of the first—and this is called "weak" solution. Besides performing somewhat the same duty as the other it displaces this "strong" solution from the charge, and, in this way it can be kept separate for its own particular share of the work. In a similar manner, clean, pure water is piped onto the top of the charge and allowed to filter down through for the purpose of removing the "weak" solution. Each displacement of solution passes

dents payable to the Annie Laurie's fortunate shareholders.

But to go back to the treatment of the ore in the tanks, which was all but finished when we left it, the values have been extracted, the cyanide has been washed out and recovered, and it remains to get rid of the tailings in order to make room for a new lot of ore in the tank. The gate valves are raised, and a stream of water is directed onto the tailings, which are thus washed through the valves into large wooden launders. These conduct the tailings to the plate house, situated immediately below the mill, where they pass over a series of amalgamated copper plates. Sufficient time is given in sluicing to allow any coarse particles of gold left in the tailings to come in contact with the surface of the plates and so be amalgamated and caught. The scheme of amalgamation after cyaniding is a novel one, as far as dry-crushing processes are concerned, but the wisdom of the step has

use anywhere for a like purpose. It has a span of 270 feet and at the center its height above the creek is over 100 feet. It is quite a novelty on the landscape and never fails to attract the attention of the visitor to the camp.

The process in use is known as the McArthur-Forrest cyanide process, and that it is well adapted to the ore in question is evident when the record of the mill since its commencement is considered. Unlike many, the directors of the Annie Laurie company spent much time and money beforehand in determining just what process or modification of a process would be most suitable and subsequent operations have amply borne out all that was even promised in the preliminary tests by the McArthur-Forrest representatives.

## THE OFFICIALS.

But much of the success of the un-



A. E. HYDE, JR.,  
Acting Manager Annie Laurie Mine.



O. WISER,  
Mill Superintendent, Annie Laurie.

## THE ANNIE LAURIE.

A property which in three years has paid out of itself its purchase price, has returned in dividends the sum of \$149,516, has paid for its power plants and mills, and now employs 150 men on its pay rolls, such, in a paragraph, is the story of the famous Annie Laurie.

The company today owns 73 full mining claims and covers an area of over 1,300 acres, most of which is traversed by rich veins of ore.

The mine proper is operated from two tunnels, although there are five altogether, two being old tunnels that are abandoned. Nos. three and four tunnels are being used, and an intersection is made with the vein at a depth of 700 feet below the surface of the ground.

All of the ore mined is delivered to the mill through No. four tunnel, and from there by tramway to the mill. Another tunnel is being driven at 400 feet below No. 4, which has penetrated over 2,600 feet and will within three months have cross-sectioned the principal vein, where rich values are almost certain to be met. Here connection will be made with the upper workings and the entire mine will then be worked by one hand stoping and the output delivered at the mill direct through this new tunnel, which is driven on a level with the mill.

The Annie Laurie mine has in tunnels, drifts, stopes, sublevels, raises, etc., over four miles of workings and practically all is in pay dirt.

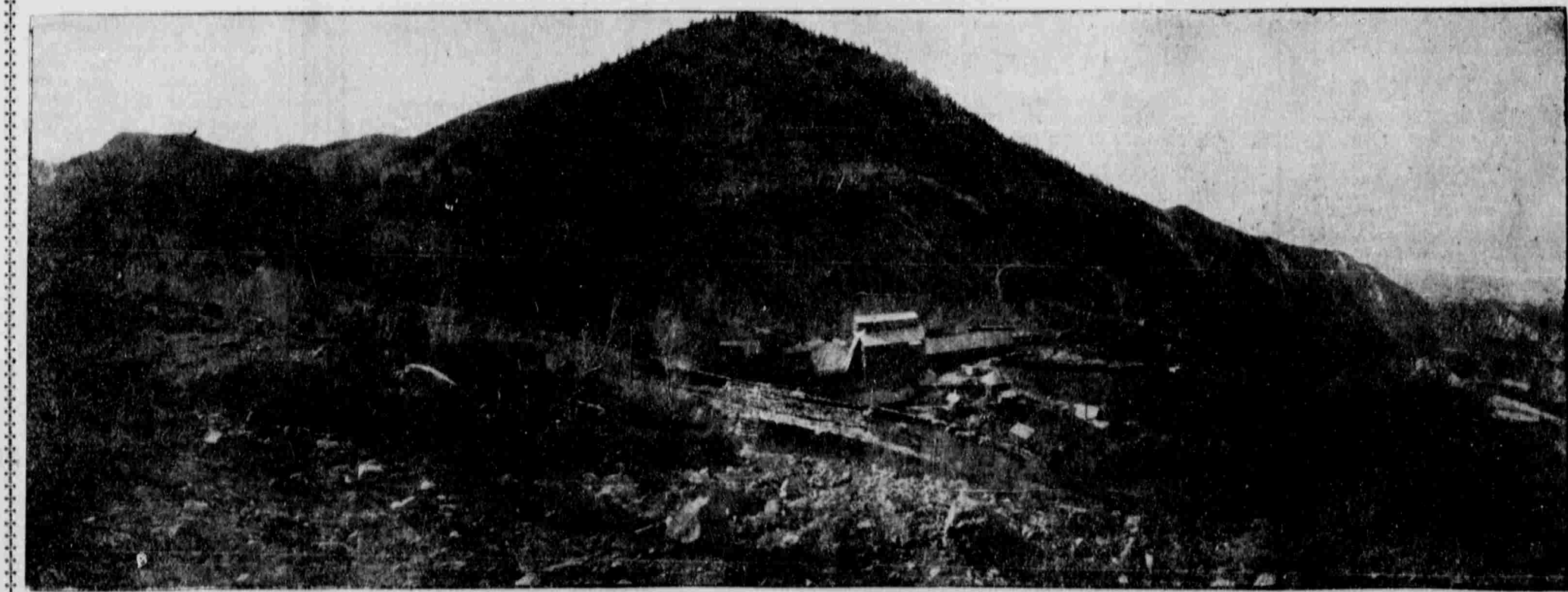
The average output is nearly 200 tons per day, from which in the past year over \$800,000 worth of bullion has been extracted; there are still over 540,000 tons of reserve ore blocked out.

The average cost of mining and milling has been estimated to be about \$3.50 per ton, or to better illustrate \$10 ore leaves the handsome profit to the owners of some \$6.50 per ton.

There are something over 150 men employed in the mine whose payroll amounts to a little over \$6,500 per month.

**THE ANNIE LAURIE MILL.**

The ore from the main working tunnel is brought down over a gravity tramway some 1,800 feet in length, and automatically dumped into a 400-ton receiving bin. From here it is fed over grizzlies, passing directly to the ele-



MILL WHERE THE ORES OF THE FAMOUS ANNIE LAURIE MINE ARE WORKED.

dertaking is without doubt due to the tireless industry and unflagging zeal of those who have watched over its interests and who are today bringing it more and more to the front as an ex-

Laurie Extension's lines. The most careful estimates prove that the greatest of the Annie Laurie's developed veins run the entire length of the Annie Laurie Extension's acreage, embraced by the 23 claims. Upon this criterion the Annie Laurie Extension company was founded and is grounded. It is now running a tunnel, to date in about 400 feet, to tap these veins. At a length of 450 feet the tunnel will pierce the first of three parallel ledges, another 400 feet the second ledge and an additional 1,000 feet should tap the main zone at a depth of 2,000 feet from the surface.

## SURFACE SHOWING.

On the surface of the Annie Laurie



ALEX RUSSELL,  
Superintendent Cyanide Department,  
Annie Laurie Mine.