

Stateline, Utah's New AND Promising Gold Camp.

THE Stateline district is situated in the extreme western end of Iron county in southwestern Utah. Here is located one of the richest gold mining camps in the state, yet the fact has never been fully appreciated. The district is 12 miles long by 2 miles wide, the principal mines lying within an area of a mile square. The camp is yet in its infancy; its discovery occurred only about eight years ago.

and it has never been fully prospected. The early locations were made by men of limited means who were unable to develop their properties and unwilling to let others do so on reasonable terms; as a consequence, the growth of the district has been slow.

PROGRESS WAS RETARDED.

Many have wondered why better progress has not been made; but the foregoing facts offer the solution. Capital has been kept out of the camp for the

very reason that owners of prospects have asked mine prices when overtures were made to them by persons who displayed a willingness to spend their money in the development of the district. Stateline has been unfortunate in other ways, too. Incompetent management in one or two instances has been the cause of the closing down of properties which should be making money for their shareholders.

The town of Stateline is off the main line of the San Pedro, Los Angeles & Salt Lake railway about 16 miles. Modena being the diverging point from

which a daily stage line is operated. The wagon road is a good one and all the mines of the district are easy of access. The town lies at an altitude of about 6,000 feet, and as the accompanying illustration indicates, it is very dry. The climate is agreeable and work may be prosecuted throughout the year without inconveniences from snow or heat. The hills are covered with pine, fir and cedar, and good fire wood is cheap and plentiful. Two small streams of water, sufficient for milling purposes, on a moderate scale flow through the town. The Johnny mine is productive of a large volume of water, and besides supplying its own mill and works, derives a good revenue from this source by furnishing it to the citizens of the town.

STATELINE'S MOST ACTIVE MINES

The most active mine in the Stateline district at the present time is the Johnny, which is equipped with a combination cyanide and amalgamation plant. This mill was placed in commission during the present year and has proven to be a success. It is the intention of the company at an early date to increase the capacity of the plant with the probable adoption of machinery for the more economical treatment of the siliceous ores. The present capacity of the mill is from 35 to 50 tons per day. The Ophir mine and mill have been closed during the most of the year pending an adjustment of the company's financial difficulties. Until this matter is straightened out the properties will undoubtedly remain in idleness. The Ophir is unquestionably a proposition of merit. It has expensive equipment. A resumption will probably take place during the coming year.

Good progress has been made with development at the Margaret mine, of which Judge Grant H. Smith of Salt Lake is manager, and its likelihood of becoming one of the principal producers of the camp is exceedingly bright. The group covers extensions of some of the most productive veins operated in the Johnny mine. Two shafts have been sunk, one of them double compartment, to a depth of 150 feet. This latter shaft has penetrated a good body of milling ore, the vein averaging from three to eight feet in width; it contains considerable high grade ore, while the vein as a whole will average \$10 to the ton. It is estimated that in the Margaret mine is at least 5,000 tons of ore of a milling grade blocked out.

During the past year work has been prosecuted only in a small way in other properties. Among the most important among these are the Hope, Venus, Creole, Willowvale and Rice, and may be the scenes of unusual activity next year.

ORES PRINCIPALLY GOLD.

The ores of the Stateline are principally gold bearing; however, some portions of the district are productive of much silver. This is particularly true of the Ophir veins.

VEINS OCCUR IN FISSURES

The veins of the camp are fissures; occurring in the porphyry. The main body of the porphyry is hard, siliceous and iron stained, and reddish or purplish in color; it covers the central portion of the camp, including the Johnny and Margaret, where the values run principally to gold. The other porphyry belts, lying further to the west, are lighter in color, looser in texture and more felspathic. This is the section where the veins show a predominance in silver.

SUPPLY POINT FOR INDIAN PEAK.

Stateline is headquarters for the mines of the Washington Mining district, in the extreme southwestern part of Beaver county. In this district the Blue Jay Extension mine has been under development with results quite satisfactory to the Salt Lake syndicate, and whose direction the work has been prosecuted. The Washington district lies in the vicinity of the noted Indian Peak mountain; the section has

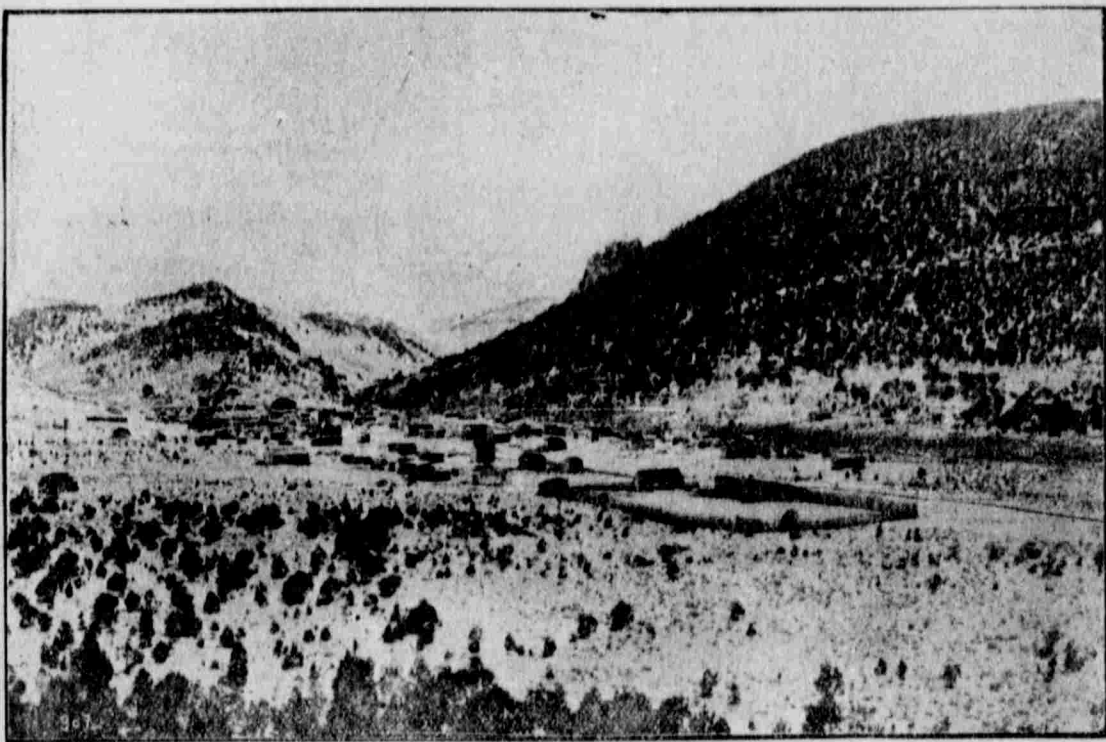
only been prospected to a limited extent, but it undoubtedly possesses merit and is, therefore, a good field for further investigation.

NEAR TO NEVADA CAMP.

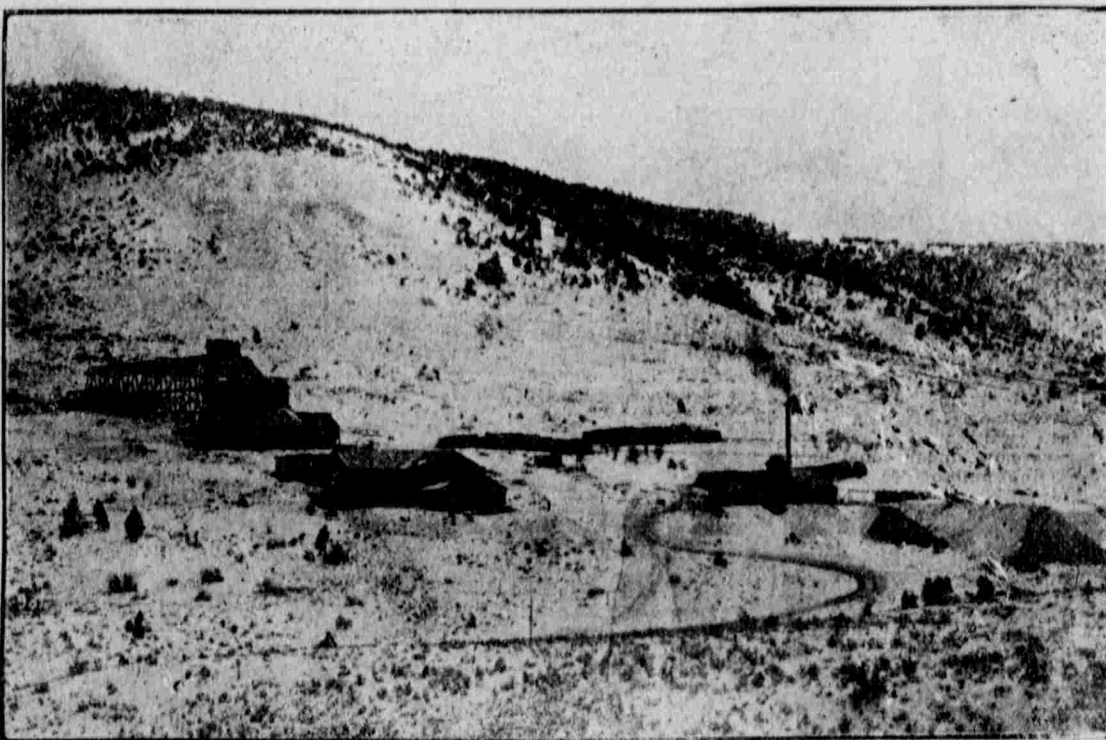
Within a few miles of the town of Stateline is the Deer Lodge and Eagle mining districts, just over the stateline in Nevada. Here is built a rival camp with Fray as the metropolis. A few years ago A. W. McCune and associates opened up the Horseshoe mine, equipped it with a mill, which was operated only a short time, it proving to be a

failure. About this time Mr. McCune commenced giving his attention to South American mining enterprises, so the Horseshoe received little attention from him after that. But during the past year or so new blood has entered the Nevada camp, which has resulted in a revival there. The Horseshoe has been acquired by eastern talent and is now in possession of the Shawmut & Nevada Mining company. The mill has been remodeled and equipped with a process which, according to recent reports, seems to bring the desired results. Manager G. Fray Smith, recently bonded the Snowflake group, which has been consolidated with the Horseshoe. The Horseshoe property is another one that has passed to an eastern agent, who has equipped it with a 35-ton mill. However, the two is situated the area, comprising a group of 23 claims, operated by a Salt Lake company, Grant H. Smith being manager.

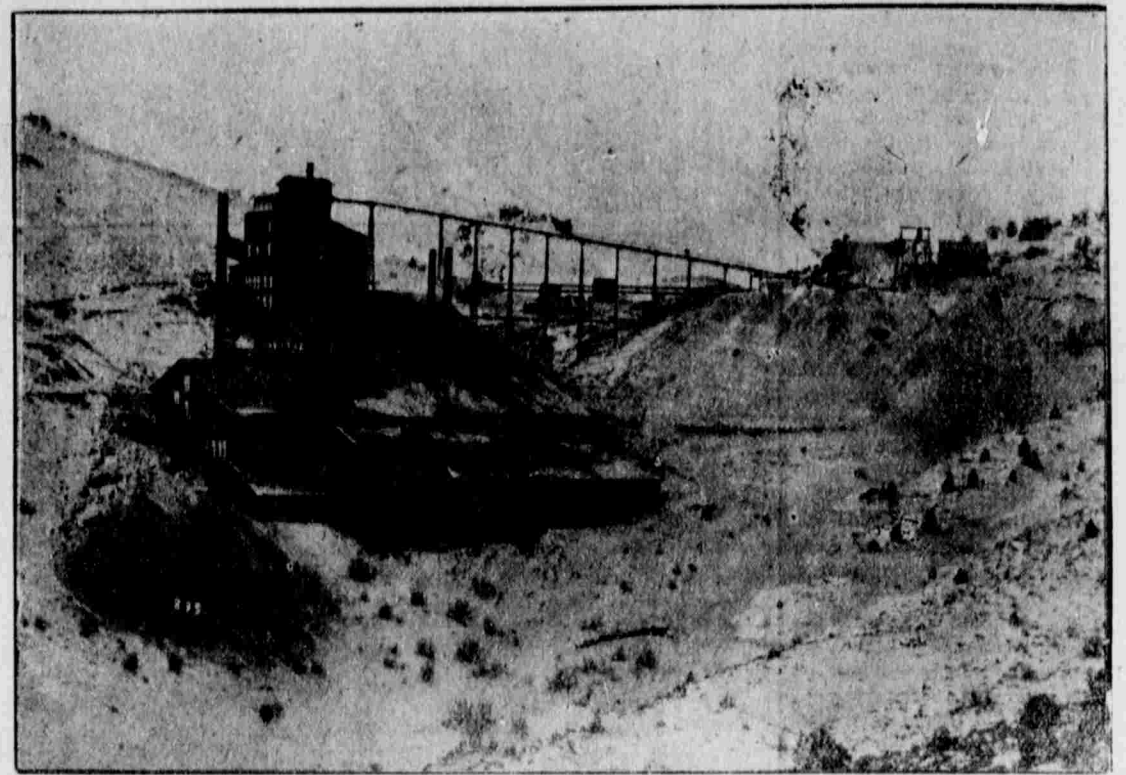
The Independence mine, located about three miles from Fray, has been recently equipped with new machinery and is now being developed. The company claims to have 1,000 tons of milling ore in sight.



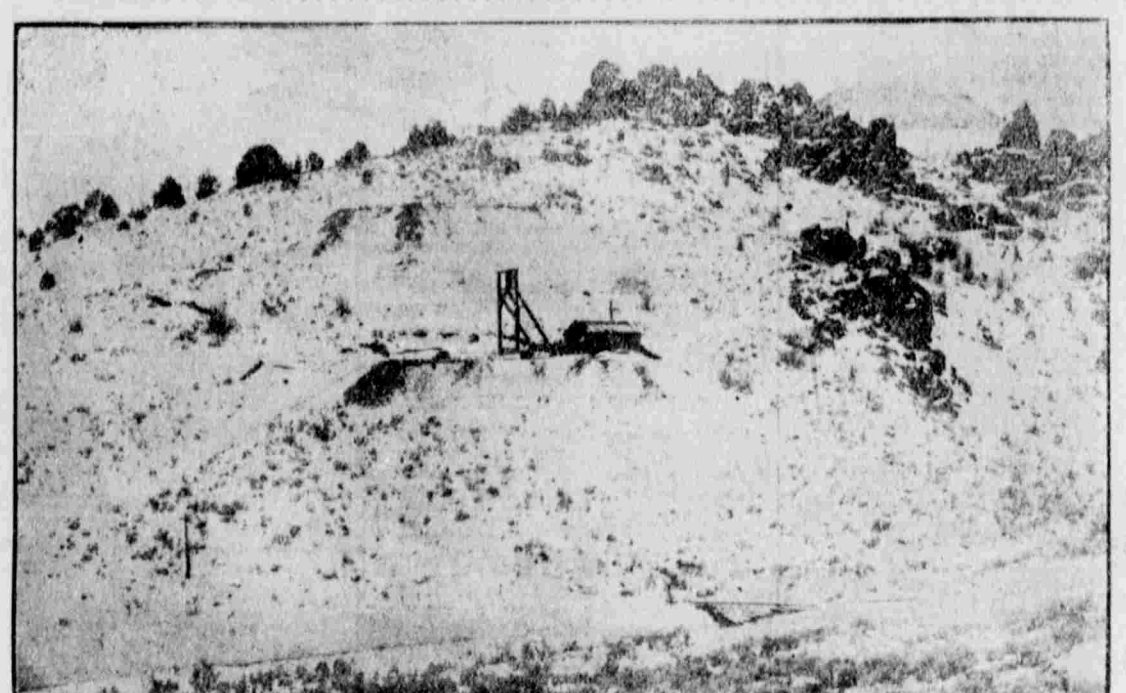
TOWN OF STATELINE.



JOHNNY MINE AND MILL.



OPHIR MINE AND MILL, STATELINE, UTAH.



MARGARET MINE HOIST.

Con. Mercur's Big Improvements.

IN Mercur, the home of the great Consolidated Mercur mines, the important events of the year were the change made in the methods of treating the siliceous ores at the Consolidated Mercur mill and the equipment of the Sacramento mill with rotors for the treatment of the chloride ores which exist in large quantities in the Sacramento mine. There was some mining done in a small way on other properties in the Camp Floyd district, mainly by leasers.

Some development work has been conducted at the Ingot with favorable results. The probabilities are that the quick silver ores found there will be productive of considerable revenue in the near future.

CAUSE FOR APPREHENSION.

It became apparent to the management of the Consolidated Mercur early in the year that owing to the ores of that bonanza becoming more siliceous a change in treatment was a necessity, the tailings showing a constant increase under the old method of reduction. In 1901 the tailings averaged 15 cents, in 1902, they ran up to \$1.19, while during the six months prior to May 1 last the average was still higher, \$1.30 to the ton. During the succeeding months a less tonnage was put

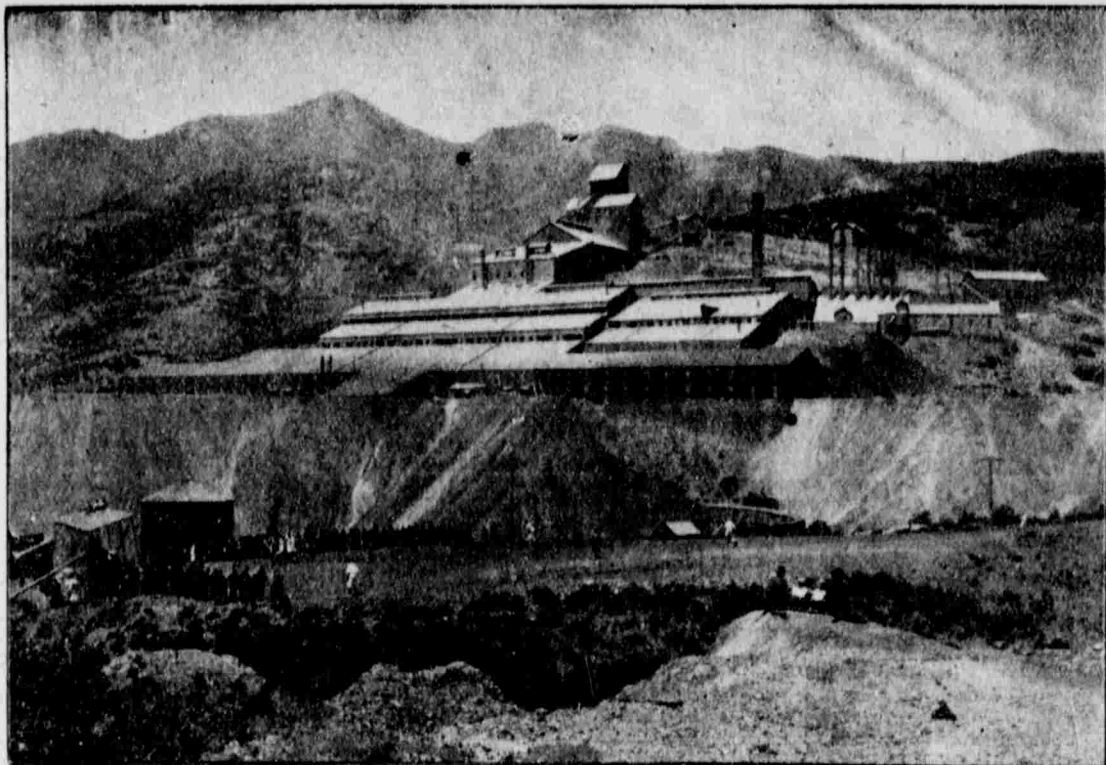
through and more care exercised in mining, with the result that the average was brought down to about \$1.21.

TREATMENT METHOD CHANGED.

The situation was discussed by the directors of the company and the decision reached to install the Moore process; after conducting a series of experimental tests and satisfying themselves that the process was metallurgically a success. Accordingly, George Moore, the inventor of the process, was instructed to proceed to equip the big mill with his new system which the tests previously made seemed to indicate would overcome the difficulties that had been experienced. The great task was undertaken in July, and the reconstructed plant was placed in commission about the first of October last. Metallurgically speaking, the initial run more than came up to the expectations of the management and had it not been for some mechanical defects the plant would have undoubtedly performed its functions perfectly. These troubles have been practically adjusted, however, after a great deal of annoyance to the company and to Mr. Moore.

DIVIDENDS SUSPENDED.

In anticipation of the alterations to the mill, dividends were suspended in May; but the mine paid during the year 15 cents a share, or \$150,000. Since the organization of the present company there has been \$700,000 in "valued" checked out. Adding to the above the amounts paid by the old Mercur Gold Mining and Milling company and DeLamar's Mercur mines, prior to their

THE CON. MERCUR MILL.
The Greatest Cyanide Plant in America.

consolidation, the grand total of dividends derived from the properties of the present company aggregates the sum of \$3,219,312.97.

RECORD OF EXTRACTION.

According to the report of Manager George H. Dern, submitted to stockholders recently, during the last fiscal year the bullion produced was valued at \$1,253,556.73, which was the product of 33,163 tons of ore. Hence the extraction was \$3.84 per ton. Adding the tailings average of \$1.21, the average value of the ore, therefore, was \$5.05. The expense of mining was \$1.30, and of milling \$1.53 per ton.

A MILLION TONS IN SIGHT.

The physical conditions at the Consolidated Mercur are considered to be very satisfactory and it is estimated that in the old Mercur mine alone, there are no less than 1,000,000 tons of ore in sight, while the Golden Gate mine has an immense available tonnage.

The management of the Consolidated Mercur deemed that by the installation of the Moore machinery a closer saving of at least 5 cents a ton could be made. Mr. Moore now takes greater claims for his method; he insists that the saving in the cost of labor will equal that retained from tailings over what was customary during the first half of the year.

From Mr. Moore the "News" has received the following concerning the

mechanism, operation, etc., of the plant at Mercur.

MR. MOORE'S STATEMENT.

"The process was designed by the inventor to meet a difficulty almost universal, or at least international, in the cyaniding of ores; that is, the slimes difficulty, by which probably 90 per cent of all the ores are seriously affected. The methods at present in vogue for the treatment of slimes are costly, the extreme of decantation and the filter-press methods being the only ones heretofore attempted in a large way. Both of these have very serious objections and both are useless for low grade ores. The filter-press method has largely displaced decantation and is, especially in South Africa and Australasia, very extensively used."

"The writer had full experience in the operation of filter presses at the Sunshine mine, where the ore averaged less than \$5 to the ton, and there encountered difficulties with which every filter-press operator is familiar, that is, the cost of manipulation and the slimes difficulty, which probably 90 per cent of the ores are seriously affected. It is impossible to prevent a partial separation of the coarser slime particles from the finer. Thus the re-

sistance to the flow of wash water varies in different parts of the cake and the water naturally takes the course of least resistance and a large part of the cake is not washed. To overcome this difficulty operators in South Africa resort to "double filter pressing," that is, they stir the cakes from the first press into an emulsion with water or solution and repeat the filtering operation. This of course doubles the operating cost, already too high.

"The accompanying illustrations show some of the Moore process filters in operation at the Consolidated Mercur mill. The filters consist of a series of parallel plates four inches apart. Each plate is 20 feet long and four feet high and is simply a light frame-work with canvas on both sides. A suction pipe passes through the top at the center down to within a half inch of the bottom, while two blowing pipes also enter at the top, each one half way between the center ends and extend barely through the top. Eighteen of these parallel plates are firmly attached to channel irons crossing their tops thus forming one basket of filters, and the entire set of baskets is supported by a 3-inch cross header pipe, rests a 5½-inch and 8-inch by 7-inch vacuum pump. The whole basket hangs by eight wire cables from an electric crane which raises and lowers the basket and carries it from one

New Ore Process and New Profits.

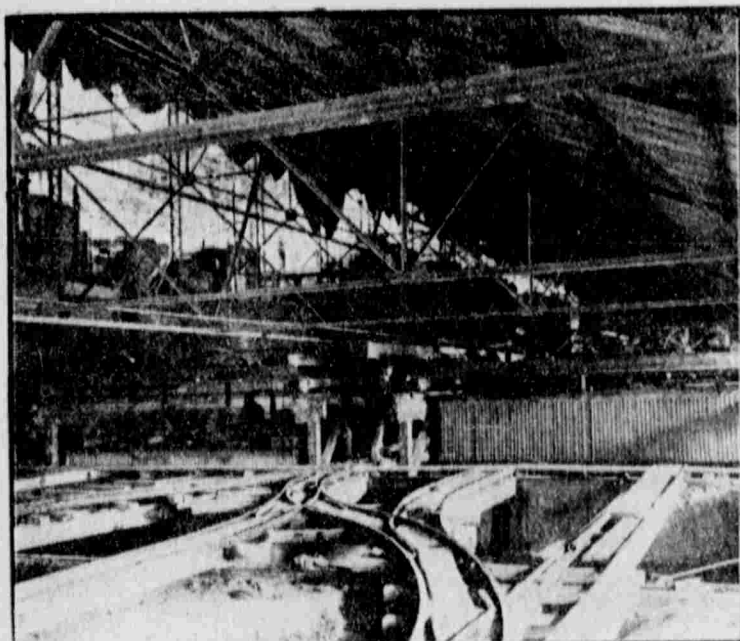
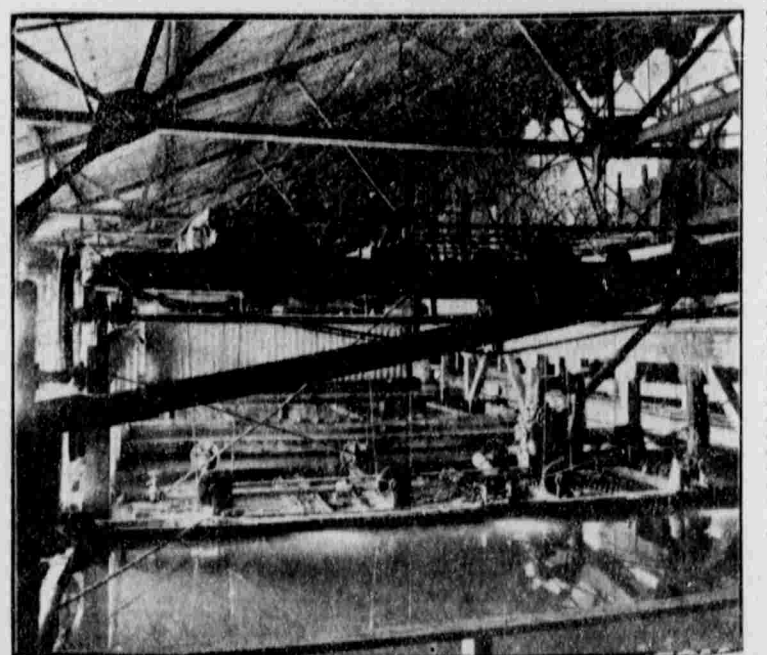
compartment of the tank to another. This tank has three compartments, containing slimes, weak cyanide solution, and wash water. Just beyond the wash-water compartment is the discharge point, simply an open space under which the tailings cars stand to receive their load.

"In operation the filter basket is lowered in the slimes compartment and the vacuum pump is started. The slimes are agitated to prevent settling. After the suction has proceeded from one to two hours, varying with the character of the slimes and with the thickness of the emulsion, there is a coating of slimes on all parts of the filtering surface of from three-fourths to one inch in thickness, representing from nine to twelve tons of slimes, dry weight. The motor on the crane is then started and the basket with its load is lifted out of the slimes compartment, this operation requiring four seconds. The crane is then moved along its track until over the weak cyanide compartment and the basket is lowered. Twenty minutes in this tank and ten minutes in the wash-water tank is sufficient for a complete displacement of the valuable solutions. During all this time the pump is in operation and the vacuum produced prevents the cakes from dropping off during the transferring. Having arrived at the discharge point, the vacuum pump is stopped and a blast of air turned into a pipe connecting with the blowing pipes of each plate. The air passing through the cloth from within the plates dislodges the slime cakes and they drop at once in the cars below, so that from nine to twelve tons are discharged and

loaded in about a minute. Each filter handles about 75 tons per day, and one man operates the four filters, so the cost of labor is about three cents a ton. The wear on the cloth is almost nothing; cloths in use six months in the experimental plant showing no deterioration. The power required is very small; a 7½-horsepower motor does the raising of the basket and is in operation only four minutes during the cycle of two hours. The vacuum pumps are run by air and hold a vacuum of from 18 to 20 degrees of mercury. The discharge solution is as clear as spring water.

"The advantages of this system are obvious; first, a saving of from 40 to 60 cents per ton in labor; second, a saving of a like amount in extraction; third, a saving of over 50 per cent in the cost of installation. The saving on extraction is due to the fact that, while the filter is in the slimes tank and the suction in operation an equalizing action is taking place, rendering all parts of the cake of equal resistance to the flow of solution and wash water, so that when placed in the washing tanks a perfect displacement of solutions is accomplished. For example, we might consider that it would be possible for one spot on the 2,800 square feet of slime cake to have more of the coarser slimes or fine sands than the other parts; then there would be less resistance to the flow at this point; therefore, the flow would be accelerated here, the slimes would be brought up and would cover this point more rapidly than the other parts until, by this increased coating, the resistance to the

(Continued on page fifteen.)

INTERIOR VIEW CON. MERCUR M.
(Moore Process Section.)ANOTHER INTERIOR VIEW CON. MERCUR MILL.
(Moore Process Section.)