

OPERATIONS IN THE "OLD RELIABLE."

BINGHAM is what is known as the West Mountain Mining district of Utah. This camp, up to within a few years, has been regarded as a "poor man's" camp, in that it has been worked in a most desultory manner, and the ores taken out at the top in good paying quantities. In this way, however, the richness of the properties were discovered and large companies then went on the ground with expensive pumping and hoisting machinery and have taken out millions of dollars, as the records of the mining companies will show. It has also developed the remarkable fact that the deeper the working, the richer and more abundant the ore, and none of the veins have ever "petered" out on account of depth.

All of the valuable properties have been worked by shafts and tunnels to the point where it is impossible to go farther on account of water. This is

depth of about 400 feet and with such a large body of ore in sight the company figures that it is now in a position to begin the erection of a big smelter to handle it. Preparations are being made at the mine to enable the company to extract the heavy tonnage needed for the large plant. A 50-horsepower air compressor has been ordered and is expected to reach Bingham and be set up soon after the beginning of the year. The boilers are now being put in place and other work is being done at the mouth of the lower tunnel which foreshadows a big campaign during the coming year. The company owns nearly 1,160 acres of mineral land in Bingham and the superintendency of the property is in the hands of A. P. Mayberry who lately increased the force to 70 men.

THE ST. JOE.

The St. Joe Mining company has 250 acres in claims in Bingham, about 25 miles from Salt Lake and 14 miles from one of the largest smelters in the country. These properties are surrounded on the north, west and south by the

drain, but that requires a goodly force of men because of its magnitude. The tunnel is now in 1,500 feet and it must go a total length of 7,000 feet in order to reach the workings, which are now flooded. This great drain will come 200 feet below the ore body which had been penetrated in the workings. As soon as the drain is made a great stoppage will be run on the ore and an immense tonnage is to be produced. A depth of 1,500 feet was reached in the shaft, so that the big drain tunnel will be 1,250 feet below the surface when it reaches the workings.

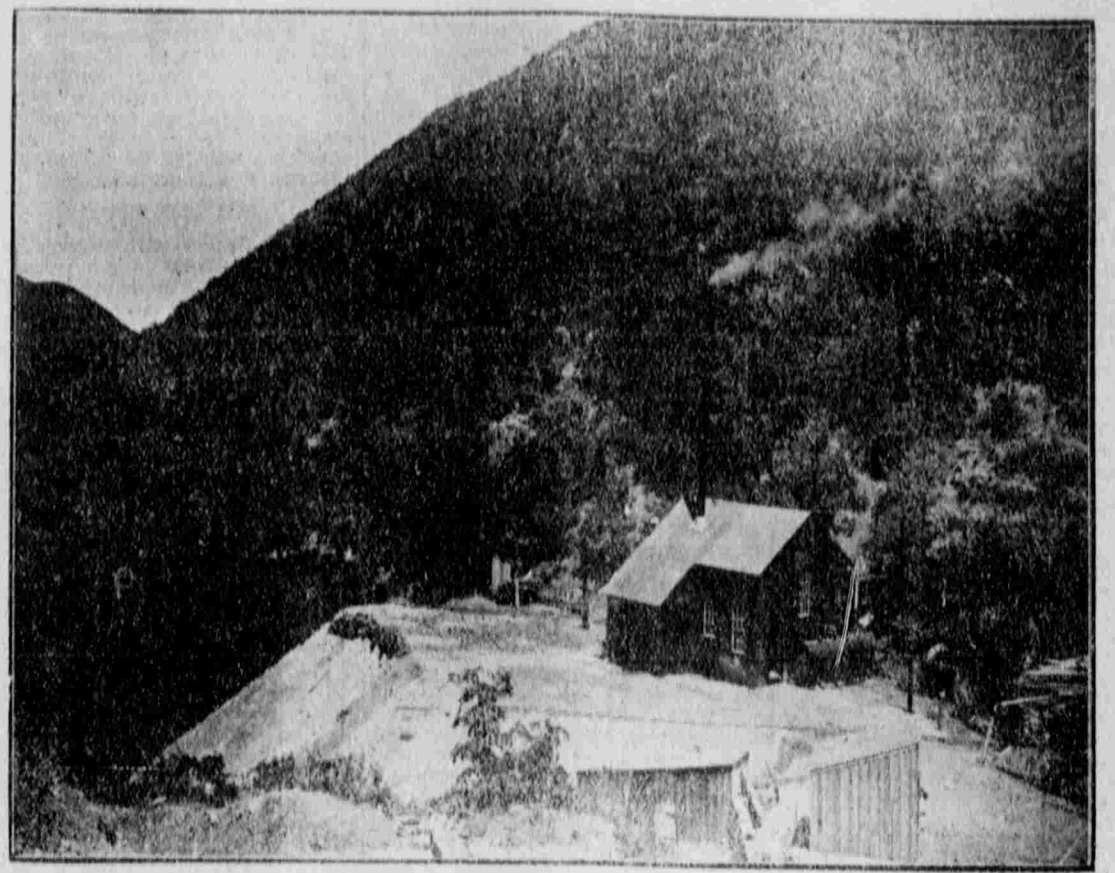
TOMBOY GROUP.

Located in Dry Fork gulch is the Tomboy group of seven claims belonging to the Tomboy Gold and Copper Mining company, of which E. W. Duncan is president and C. R. Epperson is secretary. The tunnel is in 350 feet at present and a contract has been let for 500 feet more, well within which distance it is anticipated the vein will be encountered. In fact, indications point to its being cut at 350 feet, or 150 feet further. Already there has been ex-

BINGHAM.

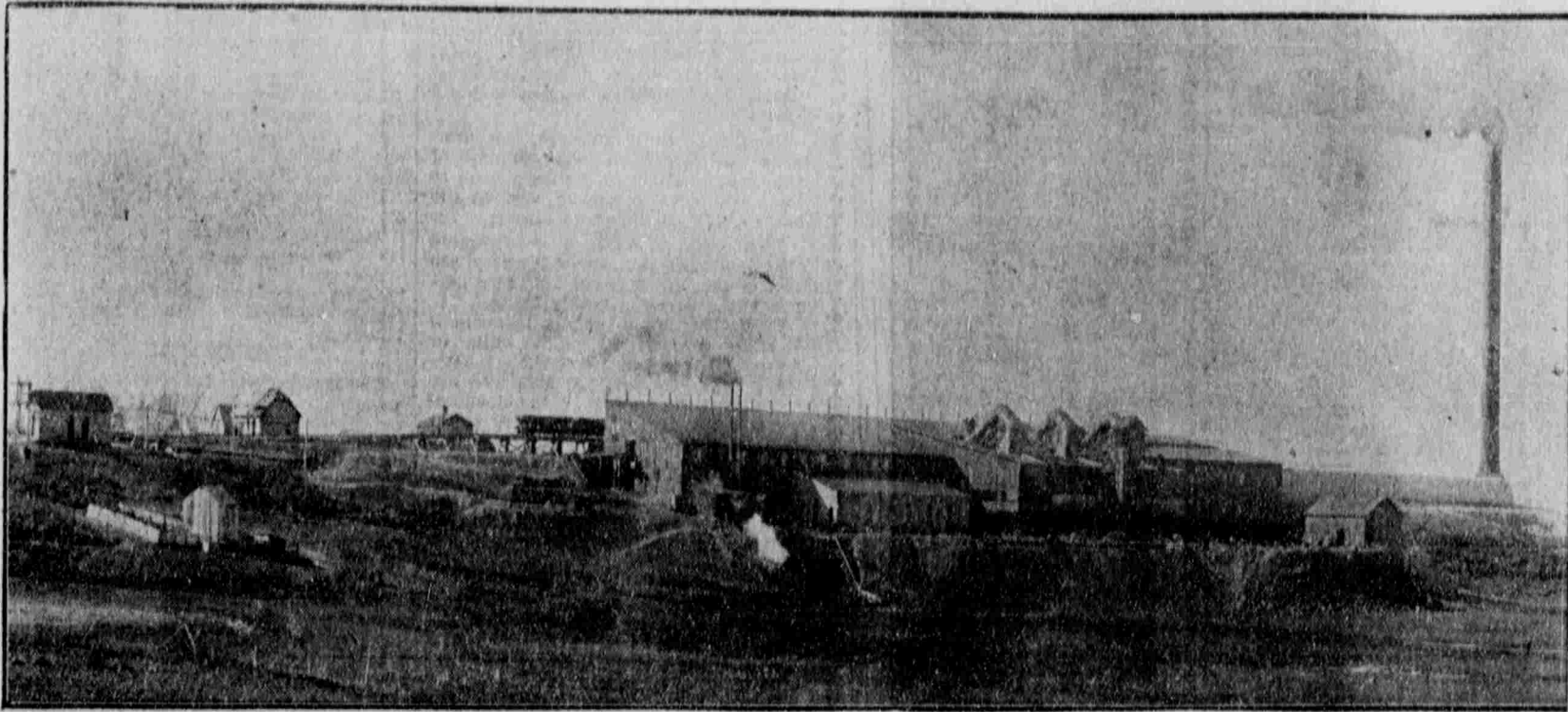
The shipments of first class ore have amounted to about two cars per month during the year. The advantageous location of the Red Wing group, it being but a very short distance from the railroad, and the quantity of ore in sight gives the property a very promising outlook for the future, and when the company shall have rebuilt their mill, which was lost by fire a year ago, the earnings from this ground should be sufficient to put it on a permanent paying basis.

The directors of the company are: L. H. Curtis, J. J. Curtis, J. W. Kiddell and W. C. Orem of Salt Lake City, and Thomas Bryant, Thomas Wolfe and A. Anderson, of Nebraska.



THE BOSTON "CON."

Big Bingham Property Which Has Developed into a Bonanza This Year.



BINGHAM CONSOLIDATED SMELTER.

The plant pictured above represents the Bingham Consolidated company's new smelter, completed during the present year. It is a matting plant and is running very successfully. Its location is about nine miles south of Salt Lake City. The cost of construction was \$300,000. It is known as the Anti-Trust Smelter, among mining men.

a condition that has been discovered in other mining regions of the world, and where possible is avoided by deep tunnels projected from the sides of the mountains under the properties. In this way no pumping is necessary, as the water drains off and no hoisting of ores is required, as they are stopped down from above and tramped out by gravity through the tunnel. This is the present status of this camp and the modern plan of tunnel drainage is being adopted.

When the conditions in regard to water were finally determined in this district, the St. Joe deep tunnel was determined upon. This tunnel will drain the following mines from 400 feet to 1,400 feet below the point where it is now possible to work them: The Old Telegraph, the Brooklyn, the Castro group, the Lennox, the Yosemite, Giant Chief, the Badger and the St. Joe group.

Within the past few years the lower levels of the camp have proved to be rich in copper and all the properties have been worked demonstrate that the copper is continuous throughout the camp, and the production of this metal is increasing with every month. The water which will come from the deep tunnel will be valuable for irrigation and power purposes. It will cost about \$70,000.

Following are descriptions of the mines and workings of the district as they have been developed up to the present time:

THE UNITED STATES.

A force of about 60 men has been employed at the United States Mining company's property during the year and some very important developments have been made in the lower workings of the mine. The vein was reached by means of a cross-cut tunnel about 300 feet in length and some 400 or 500 feet of drifting has since been done on the vein with very gratifying results. For a distance of 210 feet the management drifted on the strike of the vein on a magnificent ore chert. This chert has a width of thirty feet in places and carries values in silver and lead amounting to \$12 per ton. The recent prospecting on the vein in the lower tunnel gives the company a vertical

United States, Dalton and Lark, Yosemite, Badger, Chicago, Greek Group, New Yosemite and Lennox. The upper tunnel cuts three distinct veins, the first is between 136 and 200 feet wide and has ore in bottom of tunnel that carries 2 to 3 per cent copper, 5 to 10 per cent lead, 10 to 20 ounces silver, and 8.25 in gold to the ton. This vein is opened up in various places along its course on the St. Joe property for a distance of 2,700 feet and there is ore in all openings. The upper tunnel, which is about 250 feet, cuts one of the largest mineralized veins in the camp, there being a distance of 20 feet between foot wall and hanging. This vein has lead carbonate on the foot wall and copper values in the vein matter between walls.

This upper tunnel has cut stringers of ore for a distance of 400 feet into face of tunnel. This tunnel will allow of second vein being worked 900 feet in depth for a distance of 1,500 feet on St. Joe ground. Upper tunnel can be used to develop adjoining properties. From the surface of the Fire King on this property there has been taken out many thousands of dollars.

On the Fire King claim about midway down the slope considerable development work in shafts and tunnels has been done, showing good ore bodies. The principal work done is a tunnel 1,100 feet driven to the upward into the mountain, and from this three drifts on cross veins have been run. At the last and lowest part of the group, a deep tunnel is being driven to the west line, which when completed will be 1,550 feet in length, cutting through and crossing seven veins, and at its western end will have a vertical depth of 1,410 feet. The ores consist of gold, silver, lead and copper. Oxides, carbonates and sulphides. The oxides and carbonates in the upper measures, and sulphides on the lower.

These upper measures have a vertical depth of from 100 to 400 feet, which the pyrites is met, and below this, the lower measures, which have never been explored, are expected to hold out to a great depth of veins.

DALTON AND LARK.

The only work that is being done now at the Dalton and Lark is on the big

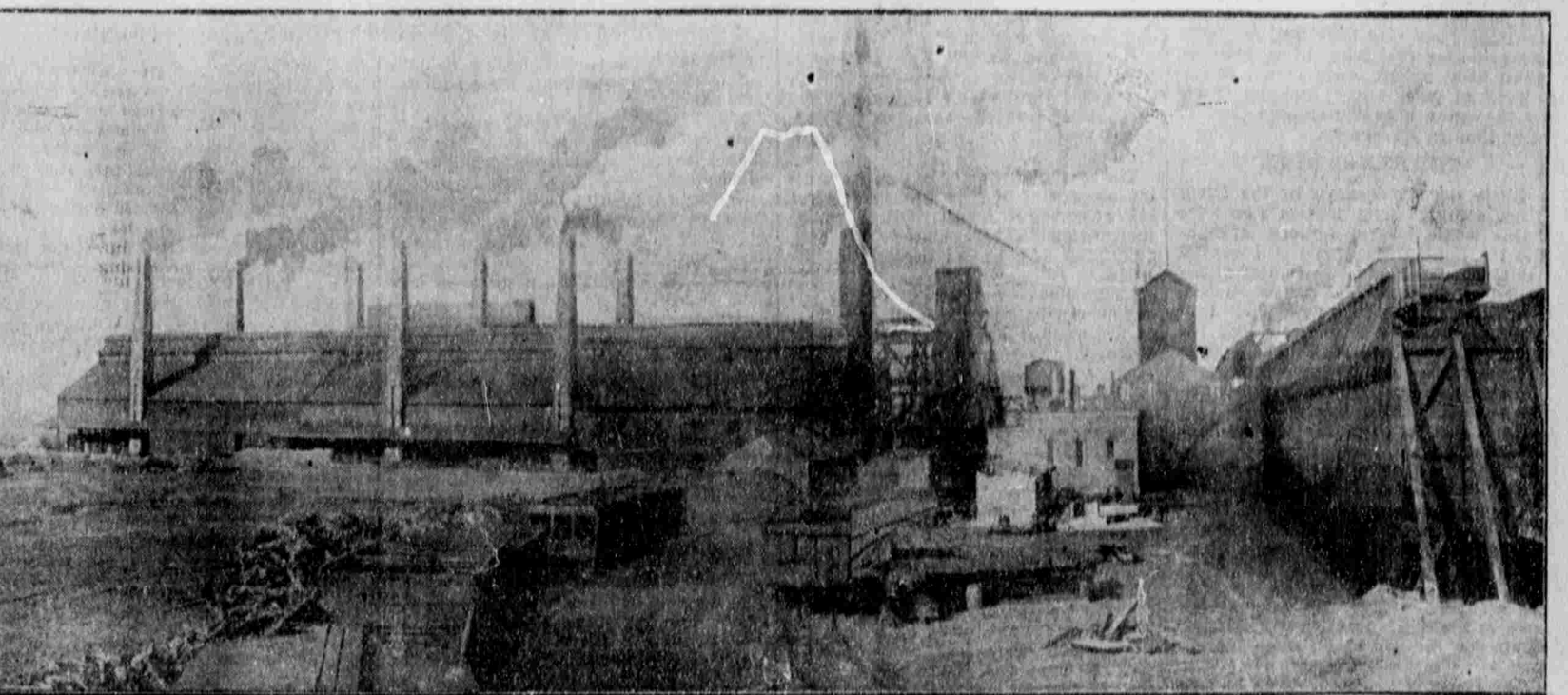
posed a fourteen foot body of low grade concentrating ore, which carries lead and silver as its chief values, associated with gold to the worth of \$2.50 in the ton.

RED WING.

The Red Wing consists of eleven claims located near the mouth of Markham gulch in Bingham canyon. All of these claims are patented with the exception of three, and there are few properties in the district on which the surface showings look so promising as those in the Red Wing. In the past history of the property something like one-half million dollars has been taken out, and as yet no work to amount to anything has been done below these surface workings. In fact, some of the best ore bodies that have been found in the property have been followed from grass roots down to one hundred feet. This work was mostly done by leasers in the security of carbonate ore near the surface, and when the sulphide zone was reached, on account of the lack of smelting facilities, operations were stopped.

The Red Wing Gold Mining company, which now owns the property, has been doing more or less development work for the last three or four years, the entire production amounting to something near one hundred thousand dollars during this time. The last year's work has been confined chiefly to the upper levels, on what is known as the Silver Hill claim. About two thousand feet of tunnels, winzes, stopes, etc., have been made, and about forty thousand dollars worth of ore marketed.

At the present time there is disclosed in the mine a large body of milling ore, the average assays of which show about 15 per cent lead, 88 ounces silver, 2 per cent copper and slightly cents gold per ton. The ore chert runs from two to ten feet in thickness, and it is estimated that the mine can easily produce from what is now in sight from twenty-five hundred to three thousand tons of this class of ore. Something over one thousand tons of first class ore has been marketed during the past year, the net profits from which were between \$15 and \$30 per ton. Some first class ore is now being taken out



THE HIGHLAND BOY.

Above is represented the enlarged plant of the Highland Boy Mining company. It is located south of Salt Lake City, near Murray, and has a capacity of upwards of 500 tons per day. It is a thoroughly modern copper smelter.

VESPASIAN AND HOOGLY.

The Vespasian and Hoogly group of claims, as the name implies, is a consolidation of the old Vespasian group of claims with that of the Hoogly group, making about seventy acres. The former has a good production record for lead-silver ore. The ores of the latter are carbonate in character and carry high values in silver, some of the shipments running up to over one hundred ounces per ton, the gold values associated with it being from five to forty dollars.

The Vespasian vein is a lime contact bedded vein, and the Hoogly vein is of a well mineralized cross-fissure. A large amount of money has been taken out of the latter property by leasers; in fact, almost every foot of the vein produces some ore. Development work during the last year has been confined chiefly to running a long tunnel to open up the Vespasian and Hoogly veins at their intersection. This tunnel will give several hundred feet of stopping ground on the ore chert. The last few feet has disclosed small particles of galena, indicating that the tunnel has almost reached the vein, the Vespasian vein being a large lime contact carrying a large body of low grade ore, and the Hoogly being a well mineralized fissure carrying high grade ores. The management confidently expects to open up a good body of shipping ore in this tunnel.

Further development work has been done in the Vespasian by drifting from the bottom of an incline near the mouth of the old tunnel. Considerable ore has been blocked out, which is unmarketable at this time on account of the high percentage of zinc contained in it, the average contents of the ore being about twenty per cent lead, fifteen ounces silver, twenty per cent zinc, and two dollars gold. The management expects to spend a large amount of money on this property during the coming year and feel confident that some large ore bodies will be opened up. F. M. Orem of Salt Lake is secretary of the company that owns the group.

YORK AND DANA MINES.

These properties are most advantageously located near the top of the York Hill, the Highland Boy, and the Highland Boy Consolidated. These properties are old producers of silver-lead and copper ores, the York having produced the greater amount, the value of which aggregates something between \$200,000 and \$300,000. Development work has been pushed on the lower levels with the intention of opening the ore chert which have produced good quantities of ore down to the 300 foot level. The lower levels are being opened up through a series of tunnels from the Petro incline in the Petro property, adjoining. A few shipments of first class ore have been made during the past year.

The Agnes, Dana, and York proper-

ties are all to be worked the coming year through the York tunnel, and it is the plan of the management of these properties to spend from \$25,000 to \$50,000 in the coming year in development work which, it is believed, will block out a very large tonnage of ore. The copper ore will average from 6 to 8 per cent, with occasional bunches that will run up to 12 or 15 per cent. The lead ore is of good shipping grade, and will average about 50 per cent lead and 8 ounces silver per ton. The York vein runs from two to twelve feet thick.

The Dana fissure, on the Charles Dana claim adjoining the York, is the largest and richest fissure vein in the vicinity. Systematic sinking and drifting on this vein would open up the different big lime contacts on the hill be-

low, among which are the Parnell, Yampa and Highland Boy contacts, and the date of the location of the claim being among the first in the district gives it special advantages.

The owners feel confident that they will succeed in opening up a large amount of ore next year. The York property is controlled by local people, J. J. Curtis is president, and F. M. Orem, secretary of the company.

The Dana and Agnes claims are owned by the Copperfield Mining company, of Boston, J. W. Horne, 53 Tremont street, secretary.

THE MAXWELL GROUP.

Since his sale of the Yampa claim to the Flint Mining and Development company Col. E. A. Wall has given a great deal of his attention to the Maxwell group, consisting of about fifty acres. This property lies northeast from the Yampa group, and, judging from the outcrop, it has the continuation of the Yampa vein for a distance of something over 1,500 feet. A cross-cut tunnel was driven into the hill a distance of 700 feet before the vein was tapped. On reaching the vein it was crosscut about 120 feet and the great mass of the ore in low grade pyritic ore. Since determining the width of the vein a force of men has been put to work drifting in both directions on the vein and about the same class of ore is being exposed in the drifts as was developed in the crosscut. The colonel has installed a Leyner drill during the year, arrangements being made with the Yampa people for air to operate the machine drill.

A few men are still engaged at the old Petro, but it is said to be getting near the point when the discovery of a new ore body must be made or the property may be closed down. The mine is said to be almost devoid of shipping ore, and the management expects to close down rather than begin levying assessments to continue the exploratory work of the past few months, which has been almost without any results. Some ore has been shipped this year, but the future of the Petro looks a little clouded. The fire was operated for a time on second class ores when the winter snows thawed out last spring. This made the company a little money, and the operation will doubtless be repeated next spring, but the early disappearance of the water makes it a matter of really little importance to the company. The discovery of copper lines by another company is said to have greatly encouraged the Petro management, but if copper should be under the present Petro workings it is doubtful at present if it could be reached without the levying of assessments.

LOMBARD GROUP.

The Lombard group of claims consists of the Nevada, I. X. L., Fire Clay and

has found that the heat loss is much less when the sheets are separated 24 to 48 inches than when the separation is more or less. Wetting the outside glass increased the loss about 40 per cent.

The Egyptian bread has shown yeast cells in the microscop more than 4,000 years old.

On the 63 tramway lines of Paris and its suburbs, owned by 11 companies, 853 cars are run by mechanical power and 257 by horses. There are 28 electric lines, 19 being operated by accumulators and only 1 by trolley, the latter being prohibited in the city and only allowed provisionally on a single suburban route. On 6 lines the cars are driven by compressed air, on 5 by steam, and on one they are hauled by cable.

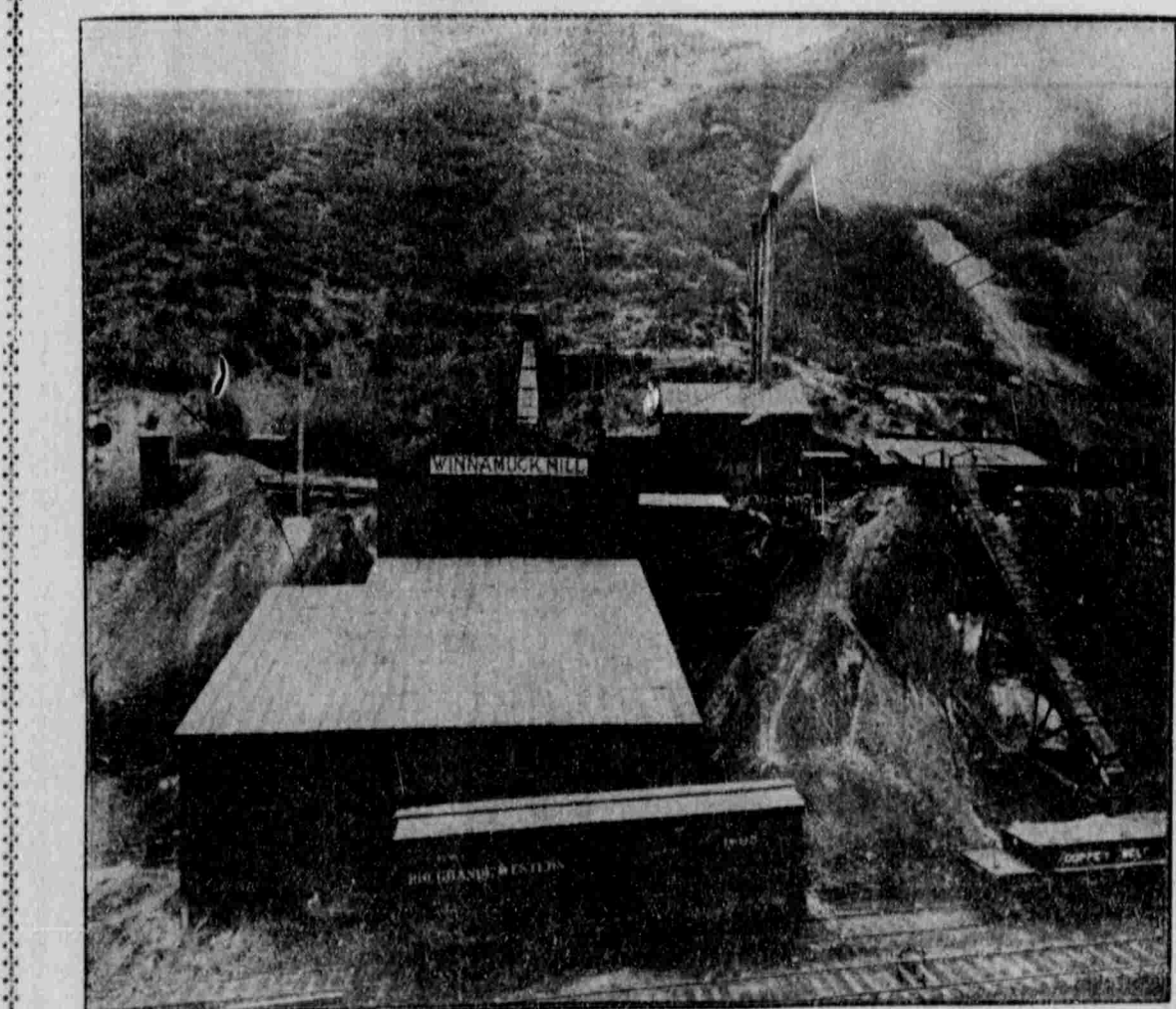
A new material, known as "Orlyte," is produced by Orlyte and is separated 24 to 48 inches than when the separation is more or less. Wetting the outside glass increased the loss about 40 per cent.

A glass stopper for preventing mould in syrups and other substances has been invented by a German pharmacist. It contains a chamber, with perforated bottom, into which is stuffed cotton saturated with chloroform, and the vapor from the chloroform prevents any fungus growth in the bottle.

The newest slot machine dispenses X-rays to enable the patient to see the bones of his hand. The tube is put in action by the usual nickel.

A Utopia to which Dr. Francis Galton confesses having given much thought is the idea of a great society, publishing intelligence and memoirs, holding yearly elections, administering large funds, establishing personal relations like a missionary society with its missionaries, keeping elaborate registers and discussing them statistically with honest precision. The purpose would be improvement of the human breed. An effort would be made to apply the known principles of evolution as in the rearing of domestic animals, but further knowledge would be sought in elaborate scientific inquiry. Such inquiry, necessarily on a vast scale, would be justified by one of the highest objects within the view of man. Not least of the plans for the world's betterment is one that has been already strongly advocated—the segregation of all habitual criminals and degenerates of the anarchist type, and the resolute denial to them of all opportunity for producing offspring.

Plants are distributed over the earth in a great variety of ways, some of the more curious having been lately noticed by M. V. Brandicourt. These growing on icebergs are landed and take root when the ice reaches its journey's end; a cocoon of Java was transplanted to South Africa on pumice thrown out by the volcanic eruption of Krakatoa, and even fire spreads certain



WINNAMUCK MILL.

This old Bingham mill has been renovated during the year by a party of Michigan capitalists and is now running successfully on the ores of the old Tiewauke mine.

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Don't take the weak, watery Witch Hazel preparations, represented to be "the same as" POND'S EXTRACT, which easily rot and generally contain "wood alcohol," a deadly poison.