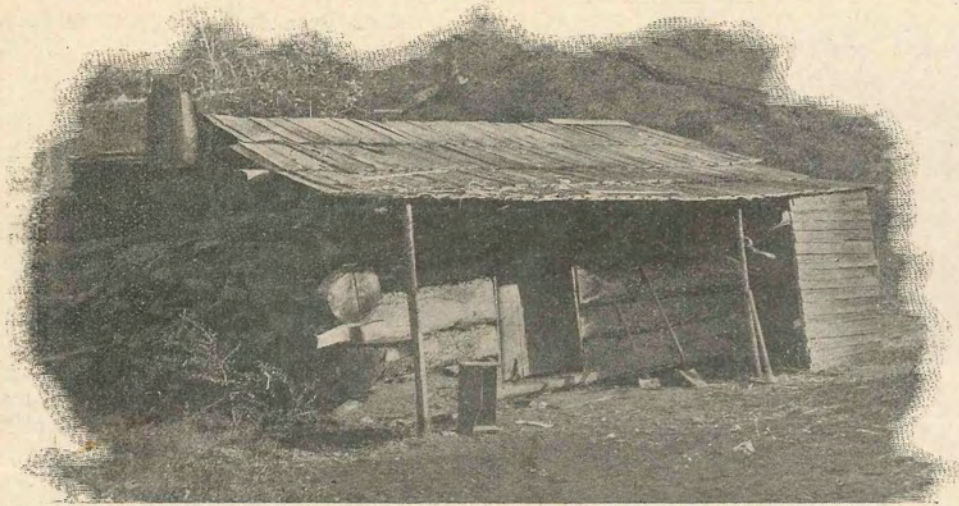


MINERAL WEALTH

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The Pioneer Days of Southern Oregon

DENNIS H. STOVALL.

The history of the discovery of gold in Oregon is nearly parallel to the story of the mad rush to California in '49. Both teem with interest, and are wild narratives of excited men, nerved with but one ambition—that of finding the royal metal.

In 1849 the vast country lying between the Siskiyou and the Calapooia Hills was comparatively unknown to white man. Along the solitary trail that led into the interior of Oregon from California a lonely traveling train now and then made its weary way, or a solitary hunter or trapper journeyed either to or from Vancouver in search of furs. Bands of Indians, with their wigwam camps, were scattered here and there along the banks of the Rogue, the Illinois and the Applegate. Great herds of deer and elk browsed and fed in the tall grass of the hills and valleys. At night the gray wolf prowled and the ever-hungry coyote awoke the echoes of the sleeping mountains with his doleful, yapping cries.

The panorama suddenly changed. One day it became noised about the California mining camps that "rich diggin's" had been found over the divide in the Oregon country. A rumor in those days was equivalent to an alarm, a command. Within twenty-four hours 600 men were on their way to the new Eldorado. They swarmed over the crags of the Siskiyou in one long and unbroken file. Coming down the north slope the living stream broke and scattered into all parts of the Rogue River Valley. The wild news, distorted, exaggerated, carried on the swift-flying wings of the "wireless telegraph" of those days, reached the Willamette Valley settlements to the north, and the immigrants there dropped their newly-acquired farms and rushed southward, eager to share in the riches of the Oregon bonanza.

THE FIRST GOLD DISCOVERY.

The first discovery of gold in Oregon was made on Josephine Creek, which is now located in the western part of Josephine county, and which was named in honor of Josephine Rawlins, a young girl who came with her father into the Oregon diggings during the early days. The first discovery was made May 2, 1851. Gold was next found on Canyon Creek, near Josephine Creek, both of which are tributary to the Illinois River. The third discovery was made at Waldo, also on the Illinois, which was called the "sailor diggings," from the fact of the discovery having been made by a band of sailors who heard of the rich gold fields in the Oregon country and deserted their ship at Crescent City and crossed the mountains into the new fields to return later loaded with treasure.

The gold seekers swarmed every creek and gulch in Southern Oregon, and the gravel of each and all were found to be rich with the yellow metal. With rocker and pan millions were cradled from the auriferous and shallow bars.

THE WINTER OF 1853.

The palmy days in Oregon were not void of hardships. Far from it. During the winter of 1853 a continuous snow fell over Southern Oregon. For four weeks the frozen fleece fell, and at the end of this time there came a freeze, and the whole region lay buried beneath an icy mantle for two long months. All travel was impeded. Trails were blocked and packers and trains locked in an ice-bound grip. Supplies from Scottsburg, the Willamette Valley and Yreka were snowbound all along the trails. The grub kits of the many miners on the creeks and gulches and in the camps, got low.

Those indeed were cold and hungry days for the pioneer seekers for treasure in the Oregon Eldorado. Gold there was in plenty, but it could not buy that which could not be had. Flour sold for \$75 a sack, and finally gave out at this price; beans, the miner's never-failing friends, could not be had at \$25 a pound; and salt was exchanged for its weight in gold.

But by and by the warm sun of spring-time peeped through the clouds, and gladly was hailed the day when the last splashes of white disappeared. Many miners had died of starvation and exposure, while scattered everywhere over the valleys of the Rogue and the Illinois were the carcasses of hundreds of horses and mules.

INDIAN TROUBLES.

Following closely upon the hardships of that bleak winter came the outbreaks of the Indians. Angered by the invasion of the whites on their sacred territory, and driven farther and farther back from their accustomed haunts, the red men at last burst into open revolt, and from 1853 to the summer of 1856, were the continual terror of the whites. It would require a volume to enumerate the hundreds of battles that were fought between the whites and the red men during the war of 1853-54, and of 1855-56. During these wars scores of brave whites lost their lives, and a still greater number of savages were sent over the Great Divide to their Happy Hunting Grounds. It was largely the white man's fault for trading the red man guns and ammunition for gold. Within a year's time after the invasion of the pale faces the Indians had thrown away their bows and arrows and armed themselves with guns and pistols, and all knew how to use them. Suffice it to say that during July, 1856, peace was declared, and the red man surrendered forever all his rights and claims to the Southern Oregon country.

THE DECLINE.

The days of gold continued in Southern Oregon throughout the '50's; by that time the surface diggings were pretty well skimmed over, the rocker and shovel had done their work, and the nervous mass of gold-hunters was ready to move on to a new Eldorado. The reports of rich strikes in the Frazer River country sounded the alarm, and in a few weeks the once thickly-populated and seething camps of the Southern Oregon country, along the Illinois, Galice Creek and the Applegate, were deserted. Furniture, camp fixtures, abandoned saloons and dancehalls, which had been scenes of high revelry night and day, were abandoned, left to the rats and the decay, and to the Chinamen. The Chinamen, following up the "Melican m'n" here, just as they did in California, swarmed into the deserted camps and swept the bedrock clean of every yellow particle.

EARLY-DAY MINING METHODS.

The miners of the early period confined their labors entirely to the creek beds and low bars. The high banks and deep old channels that are now being worked most profitably by the pipe and giant, were beyond the reach of the early-day miner and his crude implements. The pioneer wanted only free gold, and he wanted this as close to the surface as possible, and as closely bunched as an ever-kind Nature would bunch it. The rocker, the long-tom and the Hungarian sluice were the devices of the first Oregon gold-diggers. The first-named consisted of a piece of "tom" iron extended from the lower end of a sluicebox and so perforated as to permit the gold, when the gravel was stirred with a shovel, to drop through the interstices below. The Hungarian sluice was nearly the same as those used by the miners to-day; the difference being in this, that the riffles ran parallel with the sluiceboxes instead of crosswise. As early as 1853 quicksilver came to be used as an amalgam and valuable assistant in catching and holding the gold.

The early miners discovered excellent quartz prospects, but wisely (or unwisely) ignored them. In this regard only the much-sought and oft-found gold pockets were desired. These could be emptied at once, and represented instant wealth. To work a quartz mine required time, patience and much hard labor. From this it can be readily understood why Southern Oregon lay dormant for so long a time. It was not till recent years that the fact became known that

this is a rich quartz mining section. Its pocket-hole reputation extended far and wide to the detriment of the district, and nearly a half century was required for the capitalist to ascertain that the "coyote diggings" of the pocket-hunter, shallow as they were, are sure indications of more deeply-buried treasure, beyond his shovel handle's length—for that was his limitation.

SOUTHERN OREGON AS A HYDRAULIC REGION.

This section is peculiarly adapted to placer gold mining. Every stream and gulch contains gold. Even in the valleys, where the soil is rich, there is gold, and the farmer and the miner work side by side. Owing to the abundance of the auriferous gold deposits, the many streams, the mild winters, the heavy rains, the non-restricting mining laws, Southern Oregon, and especially that portion of it covered by the county of Josephine, is a great hydraulic placer region. Beds of ancient channels are found along the rivers and streams. The gravel of these old channels compose the diggings of the hydraulic placer mines. These channels lie on the bedrock to a depth of from eight to two hundred, and sometimes two hundred and fifty feet. On the bottom, next the bedrock, are the boulders, the nuggets and the coarse gold. Above this is the finer gravel and "pie clays" lying in stratum of blue and gray. Still above this is the layer or capping of red clay, which carries its values in fine or flour gold.

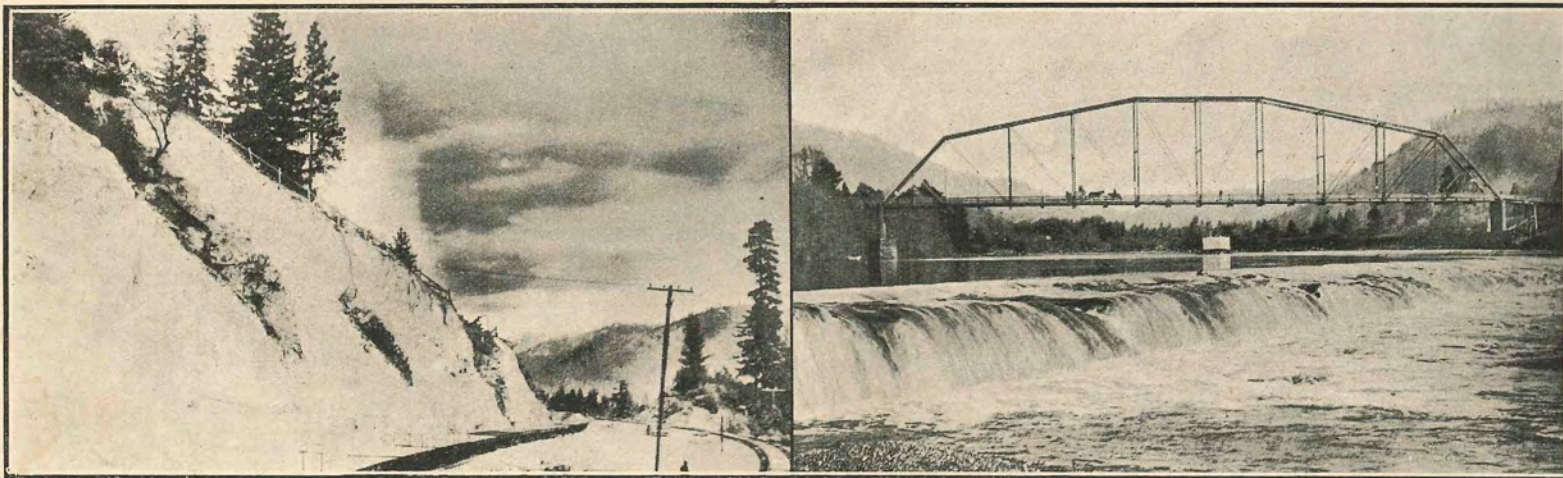
It requires capital, skill and much labor to properly equip a hydraulic mine even in Southern Oregon. Long flumes to span deep

gulches have to be built; many miles of ditches need to be constructed, reservoirs erected, thousands of feet of piping laid, and giants and other machinery set. All this takes money; but it is what has made Southern Oregon, and as a result of it, the districts of this section regularly and yearly produce from \$1,500,000 to \$2,000,000 in virgin gold.

One giant can wash down more gravel in an hour than the pioneer, with his shovel and rocker, could do in weeks. It costs from one and a half to five cents per cubic yard to tear down and mine a mountain with a hydraulic giant in Southern Oregon—after the first cost. It is usually considered that a giant mines \$100 in gold each day it is operated, though some of them in the rich diggings do far better than this, others do not do so well. However, a clean-up of from \$6,000 to \$60,000 annually is realized from the general run of the placer mines of Southern Oregon. It is purely a business proposition, mining here, and the margin for profit is as safe as any district offers.

AS A QUARTZ MINING DISTRICT.

As a quartz mining district Southern Oregon is destined to take a prominent place among the leading gold districts of the West. It can already number among its quartz mines properties that are paying monthly dividends of from \$5,000 to \$30,000. As a quartz region this part of Oregon is in its infancy. The past year, or possibly two years, has witnessed the greatest amount of real development and progress in the quartz mines that Southern Oregon has ever known.



GRANITE BLUFF, ROGUE RIVER.

ROGUE RIVER, NEAR GRANTS PASS.

Thriving Centers of Southern Oregon Population

GRANTS PASS.

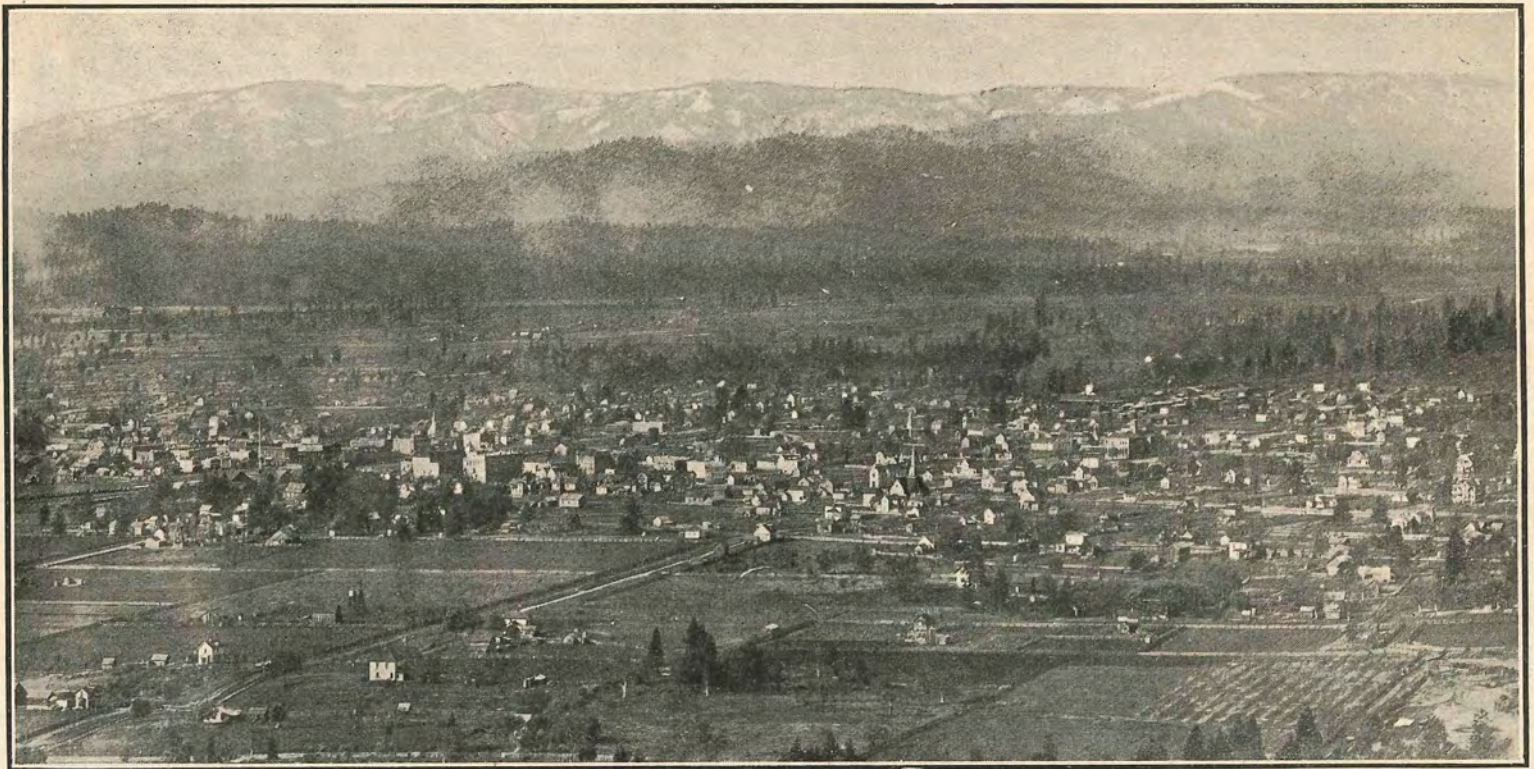
Few towns or cities in the State of Oregon have enjoyed a healthier growth during the past few years, have a brighter prospect ahead of them, or endowed with greater natural advantages for becoming a city of permanent importance than Grant's Pass, the county-seat of Josephine county. Grant's Pass is located 286 miles south of Portland,

and is directly on the main line of the Southern Pacific. The elevation of the town is 960 feet in the business section, the resident portion being from 100 to 200 feet above this. The city has at present a population of about 4,200, there being over 1,000 pupils enrolled in the three schools of the town.

The name of the city would indicate that Grant's Pass occupies a "pass" in the moun-

tains, but this is misleading and is far from the truth. The city, while located at the southern end of the railroad and wagon road through the mountains, is itself located in a pretty and verdant vale of the Lower Rogue River Valley, and nestles cosily between the bank of the Rogue River and the hills that slope back gently to the higher mountains.

Grant's Pass has been growing, growing, growing steadily, surely, substantially since the time of its incorporation in 1887. It is the hub and center for all of the Southern Oregon mining district, comprising Josephine county and a portion of Jackson and Curry, as well as a part of Douglas. Within this vast mineral demesne are the many al-



GRANTS PASS, OREGON.

ready rich, and the growing mines of the Southern Oregon mineral zone. Grant's Pass being the center, enjoys the golden fruit of the district's bounteous harvest. Into Grant's Pass the treasure streams empty, and this envious and excellent natural advantage accounts for the healthy growth the city has enjoyed, and will continue to enjoy.

The business section of the town, consisting as it does of two and three-story brick buildings almost exclusively, bespeaks the thrift and permanence of the place. There are two banks, three brick hotels, two large department stores, and three newspapers, to say nothing of the scores of other stores and business houses of perhaps lesser importance. The Sugar Pine Door and Lumber Company's factory, employing from forty to fifty men, is also located in Grant's Pass, as is the factory and lumber yards of Williams Brothers & Kendall, which, with the outlying mills, employ a large number of men. The lumber from the fourteen or more sawmills of the county is all hauled and shipped from the central yards in Grant's Pass. Many of the big orange orchards of Southern California derive their entire supply of boxes

from the sugar pine box factory in Grant's Pass.

Aside from the extensive timber and lumbering business about Grant's Pass, the city derives a large revenue from the fruit orchards, melon fields, hay and stock ranches, hopyards and vineyards. The river bottom lands of the Rogue and Applegate are well adapted to the growing of melons and berries and alfalfa. Some 500 or 600 acres are devoted to watermelons alone in Josephine county each season, and many carloads of this very popular fruit are shipped from this city. The melons are large and of exceptionally fine flavor. Then some 500 acres are planted to hops about Grant's Pass, the several yards employing immense crews of men, women and children during the picking season. The apple, peach, prune and other orchard trees bear well here. One of the big apple orchards of the county, located on Applegate River, about six miles from Grant's Pass, is owned by Consul Henry Miller, of this city, who is now stationed at Niu Chwang, China, and who disposes of nearly his entire crop of Newtown pippens in the markets of the Orient.

As the pages of this issue of MINERAL WEALTH will treat in detail of the mines surrounding Grant's Pass, no attempt will be made here to say anything of this, the greatest of the several industries of which Grant's Pass is the center. But the foregoing hint of conditions here fully suffices to show the remarkable possibilities of Grant's Pass, "The Golden City of Southern Oregon."

ASHLAND.

It has been said by an observer, that "an important mining region usually enjoys no other resource." This rule, however, will not apply to the Pacific Coast, from Central California to British Columbia. On the contrary, the district extending from Central California across the Oregon boundary, which has produced more gold than any like area of which we have history, can make unusual claim for varied natural favors, conducive to material prosperity.

Rich valleys spread in broad expanse from mountain to sea, or smaller laterals studded with happy homes, emerge from the eternal



ASHLAND, OREGON.

hills. Orchards and farms, grazing lands, and then the magnificent forests of pines, clothing the higher foothills, all prove that the observer, quoted in the beginning, had never visited the most prolific gold-producing section in the world.

Strange as it may seem, the name of Oregon is not associated to any great extent with mining, though the region immediately north of the California-Oregon boundary is a continuation of California fields, with a wealth of metal occurring under like geological conditions.

The first important point across the California line is Ashland—only twenty miles from the boundary. A number of mines are operated near this beautiful city of homes, schools and churches, but its support is varied in character, orchard, farm and manufacturing contribute to the prosperity of the community.

Ashland has a population of fully 3,500 people. The State Normal School is located

out upon the valley beyond. Many an exclamation of surprised delight has been uttered at this spot. Before the visitor lies a picture of beauty that defies the skill of the artist to represent, or the word-painter to describe. With face to the north and eyes toward the valley, the little city is revealed, nestling half hidden in the luxuriance of nature's growth, among gardens and orchards, where flourishes the peach in all its luscious glory, with an accompaniment of apples, pears, plums, prunes, apricots, cherries, etc., berries *ad libitum*, and flowers of variety, beauty and fragrance to sate the most fastidious queen; while there is ever present, the music of water, rising through the tree-tops that fringe and border the limpid mountain torrent below. The valley with its farms, gardens and orchards, its many streams bordered with the fantastic adornments that nature has seen fit to clothe them in, spreads out a little beyond, where it would seem that the Almighty has intended perfect content-

MEDFORD.

This town occupies a position in Jackson county, Oregon, similar to that of Montague in Siskiyou county, and Redding in Shasta county, California. These three towns represent the chief centers of railroad traffic for their respective counties, and, singularly enough, each has superseded, at least to some extent, an old-time mining town situated in each case six or eight miles from the railroad, and to the west. Yreka is still the center of commerce for Siskiyou county, and Jacksonville has also managed to hold her own quite well. These towns were able to do this by building short branch railroads to the Southern Pacific line. But the old town of Shasta in Shasta county was handicapped from doing this because of the natural and topographical conditions. Medford, like Redding, has seen phenomenal growth.

Medford should be ranked as the best business point in Jackson county, and fur-



MEDFORD, OREGON.

here, and the environments of education and refinement are further enhanced, by its selection, as the meeting point of the Southern Oregon Chautauqua, and its members have here constructed a "tabernacle," in which its meetings are held.

Eighty-four miles to the West is the Pacific Ocean, the city in a beautiful setting of mountains and valley, is 2,000 feet above sea level, with a climate all that can be desired.

The view of Ashland presented herewith, was taken from a point which inspired the following pen picture, by a member of the National Editorial Association, on the occasion of the Association's excursion through Oregon:

"From the Chautauqua building a walking climb of five minutes will carry the pedestrian to a hilltop perch from whence is obtained a view, which for scenic beauty can not be excelled. From this spot one looks down upon the little 'Granite City,' and

ment to be found. Beyond these there rises a majestic framework of mountains, adorned with fragments of evergreen forests of pine and fir, relieved by ridges, canyons and pinnaled cliffs, among which, spots of sunshine and cloud-shadow chase each other in and out, picturing alternately with light and shade, these billowy monuments to the power and munificence of Him whose works we see, and whose bounties we enjoy. Behind us rise by terrace and cliff the rugged Siskiyou—the 'granite range'—to a height of 8,000 feet, covered with luxuriant forests and crested with snow. From thence comes the perennial flow of sparkling water, cold as a winter's morning and pure as the dawn of youth; a life-giving and sustaining element to the valley below. Sparkling, leaping and singing over its rugged bed of pebbles and boulders, it seems a thing of life, rejoicing in its mission of mercy; an instrument of music, waking the stillness to a fit accord with the fragrance of fruit and flowers."

ther than that is declared by some unbiased people to be the town of greatest energy and enterprise in Southern Oregon. It is the center of an excellent fruit, stock, dairy, hay and grain district, and is by no means inclined to allow the mining resources of Jackson county to go unnoticed either.

The famous Olwell fruit farm, whose apples are alike noted in Europe and the Orient, is located within four miles of Medford. The fruit possibilities of this district have only recently been brought much to light, and it is an easy prediction that this locality will some day be rated with the best fruit producing section of the Pacific Coast.

The stock, hay and dairying industries are all being developed, and as already implied, the geographical situation of Medford marks it for one of the coming interior towns of the State of Oregon.

The business men are alive also to the timbering resources of Eastern Jackson county, or all that district drained by the upper



JACKSONVILLE, OREGON.

Rogue river, and occupying the western slope of the Cascade mountains. It is evident that the business interests will unite, if necessary, to extend an electric road to tap that territory. Toward the establishment of a big lumber and box factory now operating at Medford, the business men went down into their pockets and contributed the sum of \$3,000. Toward the establishment of a foundry and machine shop they did the same for \$1,000. A prominent business man told the writer that the town could be depended upon to raise \$10,000, if necessary, to land the Blue Ledge Railroad at Medford. All this shows an excellent spirit for a town of scarce 3,000 people. It is this spirit that has made Medford what it is and has given it its high standing among the Coast's interior towns.

JACKSONVILLE.

The time-honored and historic old mining town of Southern Oregon, Jacksonville, is still the county seat of Jackson county, and also the center of some little mining activity. Two of Southern Oregon's biggest placer mines, the Sterling and the Vance, are within a radius of eight or ten miles, as also two of its most promising quartz leads, the Opp and the Oregon Belle. The Blue Ledge copper district, moreover, is believed by some to be more tributary to Jacksonville than any other point. It has been these mining conditions, as well as the prestige of county seatship, that have combined to keep Jacksonville where she is, in spite of her isolation from the Southern Pacific Railroad, which came to her when the surveys for that line left Jacksonville a distance of six miles to one side, a distance which, however, is spanned by a stub broadgauge railway owned by a private party, Barnham & Sons, and having the name of the Rogue River Valley Railroad.

The town is situated on Jackson creek, where that rich stream of the early days emerges from the foot hills into the Rogue river valley, and occupies at once the point of advantage, the gateway between that rich and fertile valley on the east and the famous Applegate mining country on the west.

Neither is the spirit of improvement or enterprise entirely dead, a fact evidenced by the handsome new \$12,000 brick school-

house, completed a year or two ago. The climatic conditions are ideal, the material resources are unexcelled, all insuring Jacksonville an excellent chance of continuing to hold a front rank with the other Southern Oregon towns of to-day.

The question of water supply, which has in late years become one of some concern to the town, is to-day being solved by the enterprising efforts, in a private way, of the county's assessor, Mr. Peter Applegate, and son, who, by a system of shafts and tunnels are already able to accumulate about half enough for a very ample city supply.

GOLD HILL.

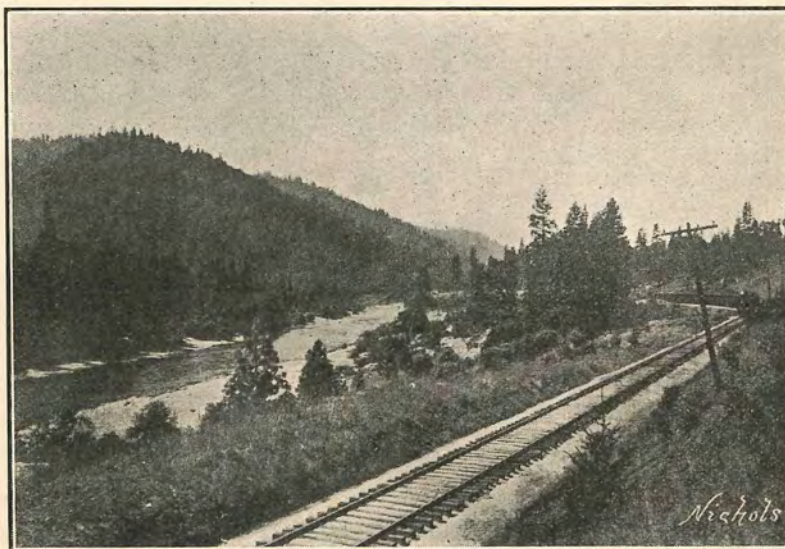
Gold Hill is the railroad point and center of interest for quite a mining and farming district, and is especially noted for a

number of rich pockets or bunches of high grade rock that have been found within a radius of six or eight miles of the town. These pockets may or may not be the oxidized or surface portions of deep quartz ledges. They unfortunately have given the whole district the reputation of being "pockety," a reputation that can be offset only by a substantial output on the part of her best prospects. These to-day are the Braden, Lucky Bart, Bill Nye, the Millionaire, the Alice, and others of this class. And these are the properties that will effect this change of reputation.

Gold Hill, like her sister towns on the railroad—Central Point, Talent, Phoenix and others—is supported also by grain, fruit and stock ranching, but, more fortunate than they, she has a point decidedly to her advantage in her mines.



The above picture is one of the famous Olwell fruit farm, taken in the midst of apple picking season. The Olwell apples have a reputation on both sides of both oceans, and have the record of being able to command the highest price in the world's best and most critical market—London. They have established an unimpeachable reputation abroad for the now famous Rogue River Valley apple, and have paved the way for a market both wide and profitable. Practically all Southern Oregon is adapted to the culture of this fruit, and the extensive orchards already set out and in bearing serve as a mild precursor of the time when Southern Oregon will be as famed for its apples and pears, and probably also for its peaches and prunes, as Southern California is to-day for its oranges and other semi-tropical fruits.



WHERE THE RAILROAD SKIRTS THE ROGUE.



A ROAD THROUGH THE WOODS.

MINERAL WEALTH

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ADVERTISING RATES ON APPLICATION.

SOUTHERN OREGON This issue of MINERAL WEALTH is devoted, in the main, to that district referred to, in a general way, as Southern Oregon. While Oregon has never attracted the attention of the mining world as a distinctively mineral State, nevertheless, the Eastern Oregon district, as well as the region known as Blue River and Bohemia, and also the district covered by this issue are to-day of unquestioned mineral importance, and when compared with like areas of mining territory elsewhere the State does not suffer by comparison.

The Southern Oregon district comprising Jackson, Josephine, and also parts of Curry counties, is, in fact, but a continuation of the Northern California mineral region, the State line passing over what promises to become some of the most important mineral deposits of the Pacific Coast. Geological conditions are not determined by artificial geographical boundaries, yet it is unquestionably true that comparatively few mining men are well enough posted on the situation to associate Southern Oregon with the mines of Northern California—the latter now by far the most prolific region of the Golden State.

The location of a good mine, or a good mining district, should make no difference, save as it relates to the question of accessibility. Even though the name of Oregon is not associated with big mines as is that of California, Nevada and the various other Rocky Mountain and Coast mineral States, this fact should not mitigate against the State, but should rather create a desire to determine its proper rank in the list of metal producing commonwealths. Happily, this attitude is now coming to prevail, and the regions named are rapidly winning a position as important mining territory. The larger mines are being put in operation, and the State of Oregon will soon take a place with her sister States as a State where the mining industry is of truly great importance.

Judicious publicity is what the mining industry of the State of Oregon needs, and this issue of MINERAL WEALTH will, we believe, be of vast benefit to the industry in general and Southern Oregon in particular—the character and distribution of the publication assures this desideratum. Mining, as a

business, is unlike other callings—particularly the mining of gold. There is no competition in this industry, the mint coins all the gold which may be offered by the miner, and there is no fluctuation from \$20.67 an ounce, its coinage value. There is, moreover, a self acceleration in gold mining that is found nowhere else. No place is the old saying more true that "Nothing succeeds like success." A miner welcomes a neighbor; the advent of a new operator in a district adds ultimately to the sum total of knowledge of the district. Geological conditions are better understood, metallurgical problems more easily solved and the cost of operation and production correspondingly lessened. Among broad and liberal operators this is looked upon as a most important and valuable means of contribution to the common knowledge of the district which in turn is used to the mutual benefit and advantage of all.

To every established community in a mining region, the development and operation of a new mine is equivalent to the installation of a factory employing a similar number of people—in fact, it is of more importance, as the wage paid is, as a rule, larger, and the product of the mine is more lasting than the product of the average factory, with its benefits therefore more widely distributed. The statement that everyone residing in a mining region is interested in the welfare and progress of the mining industry is, therefore, not far fetched, and where the product consists of money metals this is doubly true. It behooves every individual to encourage the development of this great industry, and encourage also every agency organized to promote its welfare.

Mining has evolved from the purely speculative, and is now recognized by the first financiers of the world as one of the most profitable fields for safe investment. The value of the minerals annually produced in the United States exceeds \$1,300,000,000. The United States census shows it to be the most profitable industry of the country, producing more value per capita than do even the manufactures. This is the industry to which the chief value of Southern Oregon attaches, and the importance of that district is rapidly extending and making itself felt in the mining world.

Mining regions have not always been favored by nature as Southern Oregon. The presence of mineral alone is not usually the only requisite to make the industry profitable. The surrounding conditions must be somewhat congenial otherwise, and in this respect Southern Oregon has no superior anywhere. Timber, water, climatic conditions and favorable opportunities for transportation facilities—all these are available to the operator. Within easy reach of the mines are produced cereals and fruits to feed an empire. In short, few regions are blessed with so magnificent a foundation for lasting prosperity as Southern Oregon.

OUR SPECIAL EDITION

We have tried to make this special number of MINERAL WEALTH one of special merit. We believe that its publication will prove of lasting benefit to the district in the interests of which it is published, and we hope that a modicum of benefit will come our way—as a rule publishers know how to appreciate it.

Special editions are frequently made the organs of interests willing to pay for the publicity thus obtainable. Our first object has been to make this number general in its character, and full in its scope. Again, MINERAL WEALTH has a reputation to sustain as a conservative and reliable publication, and the matter we present describes conditions as found by a careful representative in the field, and not as interested parties—who sometimes have an ax to grind—might want it.

As a rule we found the operators of Southern Oregon ready to assist us in acquiring authentic information; and to our friends, the miners, and to the progressive business men of that region, who have so freely supported this issue, we dedicate it, for the good it may do.

A SUBJECT FOR THE MINING CONGRESS

It was not intended by the government that title to mineral lands should pass to the grant-aided railroads. The government recognized the advantage of maintaining inviolate the mineral area for the benefit of the prospector, and mineral is purposely made exempt from homestead or timber entry, and an exception of all mineral, save iron and coal, is made from lands granted to the pioneer railroads. Homesteads or timber entries are at times perfected which cover mineral land, and railroad companies receive patents to large areas in well-known mineral territory. Even if fraud is proven it is almost impossible to have such patents set aside, and the prospector's field is thus narrowed to that extent.

It would be to the best interests of the mining industry and to the railroad if title to land in mineral districts remained in the government until discovery is actually made. The prospector is essential to the continued growth of the mining industry, and mineral land is of little value without the proof of discovery in place, which proof the prospector alone supplies. The prospector, as a rule, is a man who works first for a "grub stake," and then resumes his calling, until he finds a prospect, or his stake is exhausted. At best he is a man of moderate means, and cannot buy the land should he make a discovery on railroad land. Consequently, he remains off of it if he knows the ownership. This is a distinct loss to the railroad company, to the prospector and to the industry. It is a loss to the railroad, because a developed mine furnishes traffic, traffic, perhaps, sufficient to pay during the mine's lifetime for a hundred sections of land. Without the prospector the mine will have remained undeveloped, because the prospect will have remained undiscovered. In other words, it would pay the railroad company to give the prospector the land for finding the mine.

The land departments of grant-aided railroads should be conducted in the best interests of farsighted railroading. If the departmental heads looked into this from a truly railroading standpoint, a liberal policy would be announced, which would make the railroad lands in mineral regions attractive to prospectors.

Perhaps an expression by a representative body like the American Mining Congress would cause the proper authorities in railroad circles to act in their own interests, and in the interests of the mining industry of the future.

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OBJECTS OF AMERICAN MINING CONGRESS

By IRWIN MAHON, SECRETARY

Appreciating the enterprise of MINERAL WEALTH in publishing a special number, to be distributed among the delegates to the American Mining Congress, I gladly respond to your request for a contribution on the objects and purposes of the Congress.

In the first place, the mission of the American Mining Congress is a thorough business campaign of education in all branches of mining, and to this end the effort is made to bring together all classes of people, directly or indirectly, interested in the success of an industry upon which depends the success of all our industrial life, and in all legitimate ways do for the mining industry of our country what "Farmers' Clubs" have done for agriculture; the "Commercial Museum" of Philadelphia for the commerce and trade of the United States; and the "Manufacturers' Association" for American manufacture; and the Congress believes that the quickest, most intelligent and satisfactory way to accomplish this is to bring together, from all sections of the country, as many people as possible, at least once every year, at some given point, where they can not only have an actual demonstration of the magnitude of mining, but where they can hear discussions upon the subject from distinguished, practical and scientific men. This method is not a new one, but on the contrary, has been used effectively before.

For example, we have to-day a Federal Department of Agriculture, and although it was a long time before the Congress of the United States consented to create this department, we now know its value, and with its worth proven it would be hard to find a man in America with the temerity to wish, much less ask, for its abrogation.

A little more than a year ago, after years of constant struggle, the Department of Commerce and Labor was established, and though it is still in its swaddling clothes, yet young as it is, we are beginning to realize in a wonderful way its power for good. Then why not a Department of Mines and Mining?

There are other questions of special interest to the nation for which special provision has been made, as follows:

Mining Laws.

Lewis and Clark Exposition.

Relation of mining to the industrial development of the country.

Establishment in Oregon of a branch mint or government assay office.

Statutory protection for mining investors, and others of like importance.

These questions will all be presented and discussed by gentlemen of national and international note, and as the attendance this year will be a remarkably large and representative one, the Congress confidently hopes that such enlightenment will be thrown upon these subjects and such action taken as will aid very materially in bringing about desired and desirable changes.

The great industry of mining has always been taken care of, from a Federal point of view, through a bureau which has been

tacked on to some over-crowded bureau in a department, the interests of which were not directly allied to those of mining, consequently have been forced under all conditions to take second or third place, and, therefore, we do not know just what the actual production of the precious metals amount to. Correct figures can be given as to the production of coal, iron, etc., but as for the precious metals, nothing that is absolutely reliable. Much money has been wasted by the National Government by the

telephones, and the thousands of other requirements of daily life, with coal for heating. Of all these we are now the world's greatest producer, yet we hesitate to give that consideration to the very foundation upon which all this success was attained, and now depend upon—our mining industry—that it should receive from an intelligent people.

The American Mining Congress is the first and only organization of its kind in the world, and its success so far demonstrates its value. It is taking hold of all questions that vitally interest the miner and prospector. There is need for such action, and it is through this organization that these movements can be made effective.

There is nothing of a local character about



OFFICERS OF THE AMERICAN MINING CONGRESS.

J. FRANK WATSON, 3rd Vice-Pres., Portland, Ore.
THOS. EWING, 1st Vice-Pres., Los Angeles, Cal.

J. H. RICHARDS, President, Boise, Idaho
JOHN GRAY, Director, Deadwood, S. D.

IRWIN MAHON, Secretary, Pennsylvania
J. H. LYNCH, Director, Butte, Montana

separation of its scientific bureaus and the consequent duplication of results. Geological investigations of many mining districts is necessary, and cannot be carried on by individual or the States. State surveys are always incomplete, and, heretofore, appropriations for geological work have been entirely inadequate. All this needs correction and it is only through organized effort that this can be effected.

The century just passed has seen the United States grow to be the greatest producer in the world of all the great articles which man requires for his daily life—breadstuffs and provisions, cotton for clothing, iron, steel, copper, and wood for manufacturers, machinery, railways, telegraphs,

this organization. The fact that it has been forced to hold sessions in different places each year, and that these places have been greatly advanced thereby, has nothing whatever to do with the aim or purposes of the Congress. It has no selfish motives or political affiliations to advance. It has but one object ever before it, and that object is the furthering of the highest interests of American mining. In doing this the Congress believes that the general benefits to the entire industrial life of our country cannot be estimated. I ask all our mountain States, and I make no exceptions, what would they be to-day without the mining industry?

IRWIN MAHON,
Secretary American Mining Congress.

Grave Creek and Tributaries

The accompanying map represents the banner gold producing district of Southern Oregon at the present time. Grave creek, in turn, represents the best part of the district, owing to the stimulus of the Greenback, and the greatest activity is near Placer.

VULCAN AND YELLOW HORN.

Across the divide, but in the same ridge as the Greenback, are the Vulcan and Yellow Horn group, which comprise excellent prospects, with ore similar to and quite as rich as that of the Greenback.

Both carry tellurium. Their location is indicated on the map. The Vulcan is owned by F. Clements and the Yellow Horn and St. Elmo by Brown and Wise. The former recently erected a four-stamp mill.

A claim owned by P. O. Scharingson adjoins these properties on the west and is undergoing some little development. The work so far has been in the nature of prospect work, but there is a good chance for a mine.

THE MORNING STAR MINE.

One-fourth mile southeast of the town of Placer and a mile and a half directly south of the Greenback is a property owned by C. F. Howe, and well known as the Morning Star. It was originally discovered by J. C. Dysert, but was bought in 1892 by Mr. Howe and C. W. Tremain, which same year saw the erection of a Tremain two-stamp mill.

The ledge is tracable for some little distance, and the principal development work consists of a shaft which reaches a depth of about 100 feet. The mine is so situated as to render operations by sinking the only feasible method. Drifts each way from the shaft bottom show a three or four foot ledge of ore quite well sulphuretted. The quartz lies enclosed in walls of diorite and is said to run from \$5 to \$15 per ton.

A mile southwest of Placer is the well-known Hall group of claims, from which a number of thousand dollars have been taken out by pocket mining. The best work in this particular vicinity just now is being done on adjoining claims by J. H. Mills and Bennett & Mackin. Both have prospects that are looking up all right. The Little Dandy, owned by J. G. Hayden, is a good prospect a mile west on the same lead, and has the best arrastra in Southern Oregon.

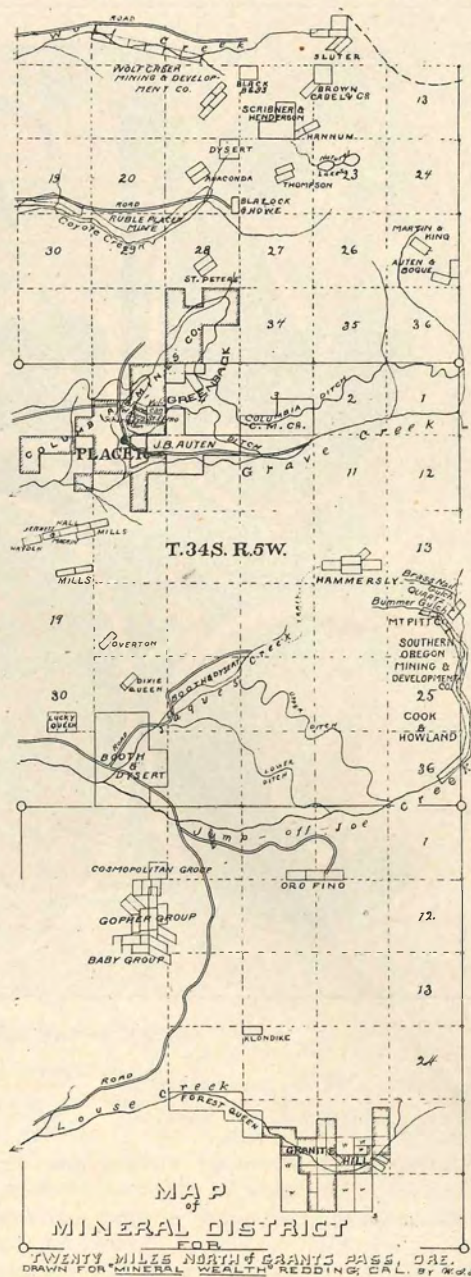
PLACER.

The postoffice and town of Placer is situated at the junction of Tom East creek and Grave creek. The town comprises a store, hotel, school house and a few private homes. It commands especially the upper Grave creek country and is the principal station between Leland and Greenback. It is located eight miles east of Leland.

The hotel conducted by Mrs. P. O. Scharingson enjoys a good patronage from the miners locally, and also from the traveling men and mining men. Mrs. Scharingson is an experienced hotel woman and knows how to look after the welfare of her guests.

The store which is owned by E. H. Wise

& Co. is only a year or two old, but it has already made its convenience felt among the miners, prospectors and farmers who appreciate the opportunity of seeing what they buy as against sending there orders off. Mr. Wise, the young man in charge, is showing his good faith by doing his share in the development of the district. He is interested with Mr. Brown in the St. Elmo and Yellow Horn claims, spoken of elsewhere.



BLALOCK BROTHERS PLACER.

It should be known that Grave creek, with its numerous small tributaries from its source to its mouth, comprises one of Southern Oregon's leading placer streams. The greater number of mines comprise immense bodies of low grade gravel and are confined, mostly, to the high bench or back channels along the main stream from the mouth of

Tom East gulch down. The J. C. Lewis, the Goff, the Van Brunt (at present under three years' lease to H. Miller), the Whitehead-Moore, the Vindicator, the Archer, the McNeer Flat and the Harris Flat are the principal ones from that point to the mouth, and with but one exception, are in constant operation and good producers. These mines, although all on back channels, and probably breakovers of one and the same channel, differ in respect to their values. Some are extremely low grade, but are, nevertheless, good properties, because of the ease with which the gravel can be moved; others are richer, while the Columbia, on the Tom East creek, and spoken of elsewhere in this issue, is the largest producing placer mine in the county.

For the first eight miles up Grave creek, above the mouth of Tom East creek, the grade of the stream is quite abrupt and the values are coarse and close to the bedrock. The stream here opens out into a comparatively flat area, permeated with a net work of ancient channels. This basin or meadow is unquestionably the repository of untold placer gold, yet it is not worked completely with success by ordinary hydraulic methods, because of the slight grade and great depth of gravel.

The back channels higher up, however, are being worked, vary readily and with good results. The principal operators here are George and John Blalock. They own 340 acres of the ground covering the higher channels, along with those of Slate, Baker,



AT THE BLALOCK MINE.

Rooth and Harris creeks, which streams also furnish them excellent water rights.

The knowledge of the existence of the extensive placers on the head of this creek is not at all recent, locations having been made on this ground and the ground having been worked twenty-five years ago. Two men, John Rooth and Riley Hannum, owned two claims, which have since come into the hands of Blalock Brothers. Rooth and Hannum had equipped with a small giant and took out good pay. The gravel, however, is very compact, and Messrs. Blalock, realizing that the most profitable way in which the ground could be worked, would be, by the installation of heavier machinery, accordingly constructed some six miles of ditch and put on the ground 2,500 feet of eleven to thirty inch steel pipe and two larger giants. With this equipment and the giants operating under a 200-foot pressure, a large amount of gravel is moved each year, and in this man-

ner the mine is made to pay very handsomely.

The mine was last fall leased to other parties, but at present Blalock Brothers are operating it, with Geo. Blalock in charge.

This property is not only valuable for its placer gold product, but also for its timber. Southern Oregon in general has gained considerable recognition for its timber of late, and Evans creek, which is just across the divide from Grave creek, has, in particular, become noted for its abundance of timber and the facilities for manufacturing and marketing. There are four or five operating saw mills on this stream and their product is eagerly sought.

Grave creek can boast of this same abundance and quality of timber. It, however, lacks as yet the facilities for marketing, because of the district's lack of good roads.

THE AUTEN HOLDINGS.

Adjoining these valuable quartz claims on the south and west is the property that will some day be valuable, and we refer to the holdings of J. B. Auten, indicated on the map. The ground comprises most of what was known as the old Browning Homestead, and besides covering valuable agricultural and water rights, it almost beyond doubt contains the continuation of the Yellow Horn, St. Elmo and Vulcan quartz ledges, as can be seen by a study of the map.

LELAND.

The town of Leland, twenty miles north of Grants Pass, on the railroad, is the railroad shipping point for the Greenback mine, ten miles distant, as well as a distributing point for both the upper and lower Grave creek country, a good portion of Wolf and Coyote creeks and the Mt. Reuben district. It is now proposed to tap the Galice creek district also. At least, the Almeida Mining Company is seriously planning the construction of a road from their mine on the Rogue to tap the Southern Pacific railway at or near Leland, and the town of Leland has already evinced a willingness to lend materially to any such enterprise.

It is only natural that Leland should occupy quite an important place as a station and distributing point, and the fact is that it stands second to Grant's Pass in Josephine county. Its relative prominence in the future will depend upon the encouragement and enterprise of its people and its business men are wise enough to know that it is largely "up to them."

THE J. C. LEWIS PLACER MINE.

Mr. J. C. Lewis is operating two placer mines of importance on Grave creek, near Leland, one of which he is the owner, and the other, known as the Goff mine, manager. The J. C. Lewis mine is covered by a fourteen-mile ditch, the first water right of Wolf creek, but which, however, at present only supplies a pressure of eighty-five feet. The deposit, which is largely of so-called old blue gravel, is sixty-five feet deep. Its removal is augmented by drifting into the bank and discharging blasts of powder with an electric

battery. Two No. 4 monitors have a special use in helping the gravel through the flumes.

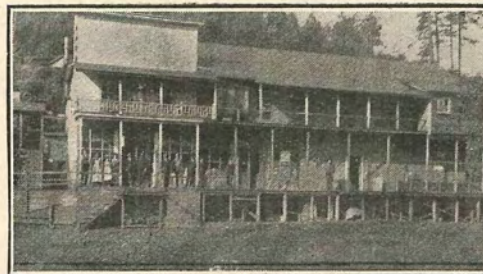
The upper or Goff mine is a continuation of the lower channel of the Lewis. A sixteen-mile extension of the Columbia Mining Co.'s lower ditch gives an abundance of water under a 240-foot head. The immense bank, 100 feet in height, is being worked with two large giants and the values are caught in a long bedrock race and flume.

WILSON MERCANTILE COMPANY.

Mr. Homer L. Wilson, the head and principal of the firm, is an experienced and popular merchant. This has been his calling for years, or long before he left Indian Territory for this coast seven years ago. He at that time bought a one-half interest in the business to-day owned by T. J. Mackin, but selling out of that business, started for himself, constructing in 1901 a big new store building on his own ground, a building 100 by 25 feet. It is enough to say that he maintains a well equipped general merchandising store, pays especial attention to the needs of the miners, for whose trade he makes a special bid, carrying, for instance, a complete stock of powder, fuse and caps.

STORE OF T. J. MACKIN.

The merchandising business of T. J. Mackin dates from 1894, when George Turner established the pioneer store of the town, and with a small stock of \$400 or \$500. He shortly afterward took in a partner, Mr. C. Burnett, who succeeded to sole ownership the following year. In 1899 D. L. Brown-



T. J. MACKIN'S STORE.

ing, E. F. Hannum's partner in the Greenback discovery, bought the store, but within a year sold it to Robt. G. Virtue and H. L. Wilson. Virtue & Mackin succeeded to this ownership, and in January, 1904 Mr. Mackin in turn became the sole owner.

In these ten years the stock has grown from the small original five hundred dollar stock of Turner to one of that many thousands owned by Mr. Mackin. The trade of the Mackin store permeates every district above mentioned, Mt. Reuben, Grave creek, above and below, Wolf creek and Jump-off Joe. The stock that occupies Mr. Mackin's shelves is a diversified stock, but one that, after all, looks to the special needs of both placer and quartz miners. Mr. Mackin has spent a number of years in this vicinity, and there is no one better posted than he on the needs of his mining and farming customers. He holds himself out as being especially able to properly outfit the prospector. His stock in general comprises dry goods, groceries,

boots and shoes, hardware, tinware and such other commodities as will to-day be found in a well stocked store in any mining camp.

The Leland postoffice is located in Mr. Mackin's store building, with Mr. H. C. Ball as postmaster. Leland is the mail distributing point for Grave, Placer and Greenback, for which points there is a daily stage (except Sundays), leaving at 9 a. m.

Mr. Mackin is a man whose interests extends further than the walls of his store. He



BENNETT & MACKIN'S ARRASTRA.

is himself interested in mining, owning with Mr. A. J. Bennett the westerly extension of the well-known Hall prospect on Grave creek, near Placer. He also owns considerable other property. He has a farm on Grave creek, two miles above Leland, and is the largest individual property owner in the town of Leland. He is public spirited and is lending every encouragement and support to the proposed wagon roads to both Galice and Mt. Reuben.

HARRIS FLAT MINE.

This mine, of which A. M. Gray is manager, comprises 160 acres of located placer land, covering back channel ground of lower Grave creek, and is a property of more than ordinary interest.

The ground was located by the early day miners, and was worked by them in the ordinary way—one process of operation succeeding another. This early day mining was, fortunately, done at a place that could not have been more admirably chosen had the old time miners known that the ground would later be opened and equipped for the hydraulic process.

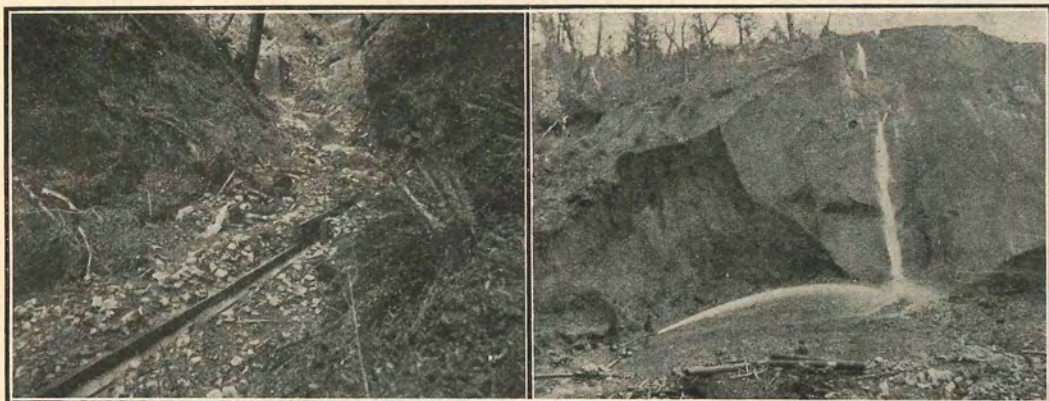
Two embarrassing features in placer mining are, first, poor dumping facilities, and, second, poor water rights. The Harris Flat mine need never be embarrassed from these causes. At the present point of operations, which is also the lowest point so far reached in the mine, a natural gulch affords an excellent outlet for the tailings. A tailrace 360 feet long, and including four stretches of flume, with bedrock race and drops between that aggregate sixty feet, has a final fall of 360 feet into Grave creek. The water right, which could be very much improved artificially, is a good one by nature, and as at present utilized, gives a pressure of 170 feet. The ground is easily worked. One inch of water will remove two cubic yards of gravel every twenty-four hours, under the present head.

The bank is very high, as is shown in the

picture, and seems to represent three separate channels. The first channel encountered was thought to represent the bottom, but when the opposite side was reached the rim

could not be "bottomed" with the then race. A new race had to be cut.

These same conditions were repeated the past season in still another channel, which



HARRIS FLAT MINE, SHOWING TAIL RACE AND GRAVEL BANK.

was found to be much worn and the bedrock was suddenly found to be dipping away. Further work developed a new channel so much deeper than the first that the bedrock

will necessitate a still deeper race. The values have improved with each succeeding channel, so that the required additional outlay will be gladly met.

THE GREENBACK MINE Largest Producer of Southern Oregon



The Greenback mine of Grave creek is the largest producer of Southern Oregon, and with probably one exception, the North Pole of Sumpter, is the most extensively developed mine in the State of Oregon, the underground workings aggregating upwards of two miles. The story of its discovery, development and growth is full of interest and one that no miner in this new district should fail to familiarize himself with.

The history of the Greenback dates from only seven years ago—from May 16, 1897, to be exact. On that day D. L. Browning and

E. F. Hannum, two young men who were at that time living near the present town of Placer, crossed over the divide between Browning Gulch and Tom East Creek, and began prospecting for a pocket. They took their first shovel of dirt from the upper bank of the Columbia Hydraulic Company's ditch, and were fortunate in getting a big trace in the first pan. In two hours they had followed it 250 feet. They lunched impatiently that day, and resuming their search, followed the trace for twenty-five or thirty feet more when at four o'clock they were rewarded by the discovery of a seam. From this seam they took out upwards of \$300 in the next several days. This was a fair pocket. The seam was made up of disintegrated quartz particles, and was found to run diagonally into what appeared to be a stronger vein. It seemed to join the vein from the lower side, but was probably nothing more nor less than a breakover of the rich ledge, which in its gravitation had conveniently arranged itself into what is often called a "feeder of the main vein." The fact is that the discovery point was so near the main vein that the finding of the latter was a matter of natural consequence.

Specimen ore of the richest kind was removed, and early in July the discoverers had an arrastra ready for operation. The vein was found to run almost east and west with a considerable dip toward the north, or with the surface. The pay shoot was found to pitch westerly, and during the following twelve months the owners took out an average of about \$2,000 per month—this from a property that had become to be spoken of as Browning and Hannum's rich "pocket ledge" on Graves Creek.

The vein was opened by four levels, but

the lowest was only 175 feet deep. All in all, the prospect presented such an excellent showing that it was bonded in August, 1898, by F. T. Sutherland, of Los Angeles, for \$60,000. About this time it was discovered that the vein at its eastern and richer end was cut off by serpentine. At about the same time a neighboring locator had set up a contentious claim to the ground, so that the mine was finally bought by Sutherland and his associates for half the bonded figure.

Tom East Creek, like Browning Gulch, is a northern tributary of Grave Creek. It is on this creek and immediately below the Greenback, that is situated the Columbia mine, one of the largest of the State's hydraulic producers. It is not inappropriate at this point to call attention to the noteworthy quartz developments just now taking place up the numerous rich placer streams throughout Northern California and



FLASHLIGHT VIEW OF GREENBACK.

Southern Oregon. The surprise is that the possibilities of these fields have gone unexploited for so long. The explanation is in the fact that placer miners, after the days of the long tom and sluice in this country, preferred to go to other placer fields rather than take up with the new, and, to them untried, field of quartz mining. With the going of these placer miners went a world of valuable information which, were it only available at present, would prove invaluable in the search for pay quartz. It is enough in this connection to add that the gold of the Columbia gravel mine and Greenback quartz mine are identical in character.

The purchase of the Greenback, on the part of Mr. Sutherland, was in behalf of Mr. W. H. Brevoort, of New York, and Moffatt & Smith, of Denver. The corporation bears the name of the Greenback Gold Mining and Milling Company, and the control of stock is in Mr. Brevoort.

The story of the development of the mine reads with interest. The year following its purchase a ten-stamp mill was built. Ten more stamps were started dropping February, 1903, and the June following twenty more, making a total of forty stamps. Last year also was added a new cyanide plant of 100 tons daily capacity. An hydraulic filter press, or montejus was also added, and is being experimented with

on the slimes. Wilfley concentrators are used with great satisfaction. The camp that has sprung up about the Greenback is typical of the modern or up-to-date quartz mine, and numbers a community of 300 to 400 people. A selective influence has been exercised in the choice of employees, and the social and intellectual standard of the camp is correspondingly high.

The mine itself, both in its underground works and on the surface, is operated along lines at once scientific, practical and business like. That is one reason of its success. Southern Oregon may well congratulate itself that this prospect fell into such efficient hands. No little of the credit belongs properly to Superintendent C. W. Thompson. As evidence of its good management, the mine is electric lighted, the drilling is by machinery; a hundred thousand tons of pay ore and more are blocked out in the stopes—a quantity sufficient for nearly four years' steady milling—and sinking from the 900-foot or mill level is being vigorously pushed with the help of first-class hoist and pumping machinery, the latter being operated by an ingeniously economical method, namely, by power developed from water brought to the pump under ground from the upper mill level, 300 feet vertically above. The water is thence conveyed to the tunnel mouth and into the mill, where it undergoes a further use as battery water.

As to the mine itself, its most remarkable feature is its long pay shoot. Values continue uniform and comparatively high for a distance of 700 feet. This remarkable length is developed on both the upper and lower mill levels, the fifth and ninth, respectively. Up till the time the new mill started the ore averaged \$16 per ton. Since then less pains are taken in sorting, and the average returns per ton have probably dropped one-third or thereabouts.

The last ground above the old mill level has just been stoped out this winter, and henceforward that mill of ten stamps will be discontinued.

The vein is a true fault fissure with the evidences of its fissure character very marked. The quartz itself is seldom found in well defined ledge form, but, on the contrary, is badly mixed with filling, giving to the ore a mottled or "pudding stone" character which occurs throughout the mine. The pay matter lies mostly in the form of lens-shaped masses, usually on the hanging wall, and frequently overlapping one another. The distance between walls will ordinarily range from five to ten feet. The hanging wall is the better defined, yet the lenticular ore bodies, because of their feather edges, would often be mistaken for "feeders" but for the extreme watchfulness that is exercised to guard against being sidetracked.

The geology of the mine presents an interesting problem. The ledge itself has an east and west strike and in a formation of diorite or biabase. A mass of serpentine rests against the diorite near the eastern end of the vein forming a north and south contact. The ledge, however, is cut off before the serpentine is reached by an almost vertical fault, also north and south. The fault, to be exact, extends a little east of south and west of north, with a slight dip to the northeast. It is the theory of the owners—and the theory is borne out by development to date, as well as by a study of the geology of the country round about—that the slip downward has been on the hanging wall side in which event the easterly continuation of the rich chute in the upper-Greenback workings will be easily picked up by drifting along the line of the fault unless the slip has been too great.

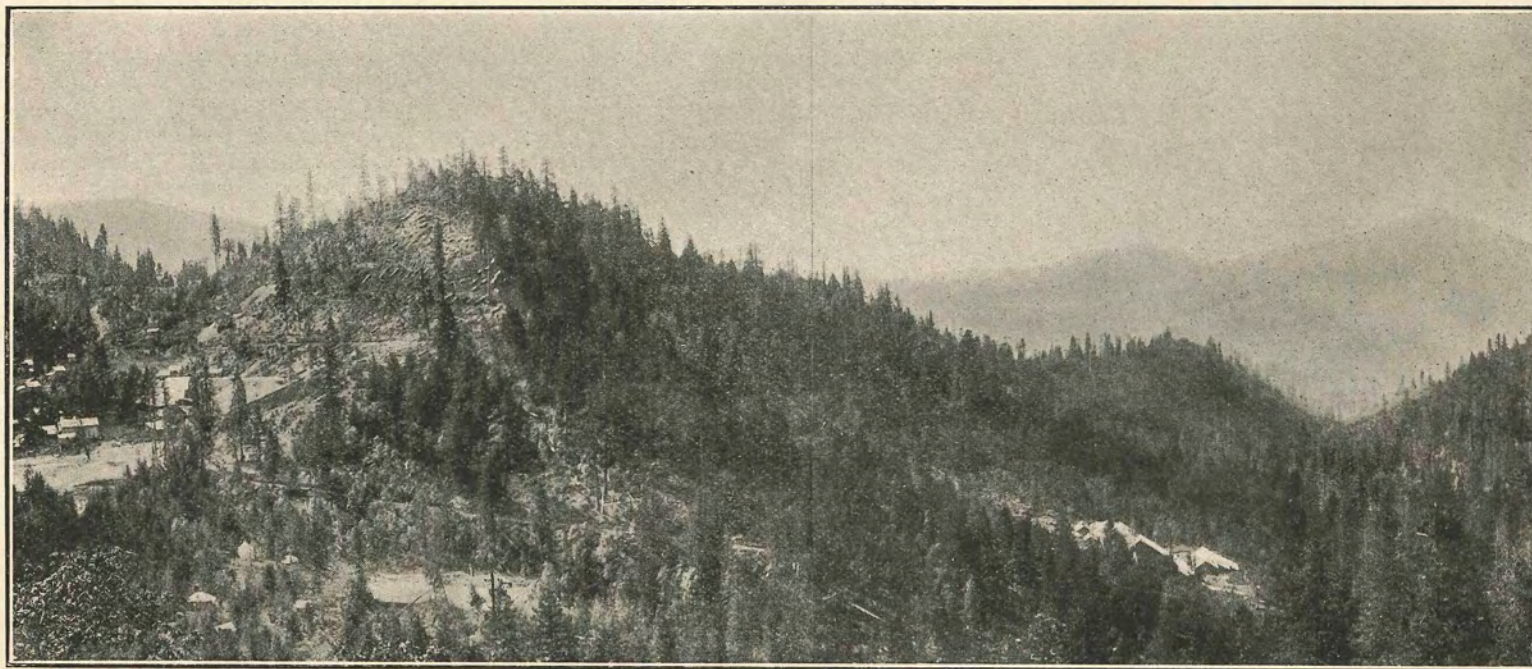
That the slip has not been very great seems to be indicated by the development of the ninth level. Here the tunnel was driven easterly far enough beyond the fault to show that the serpentine had receded to a point considerably easterly from where it had been encountered between the eighth and ninth levels. Mr. Thompson is so sure that they have reached a depth below the serpentine that he intends drifting from the eleventh

level in an attempt to pick up the lost chute. This effort will be watched with interest by mining men. Drifting on the vein from the eleventh hundred foot point of the winze is already being prosecuted in both directions. At the tenth hundred foot point a station has just been completed to facilitate pumping and hoisting. The lowest point in the mine is already fifty or seventy-five feet below the bed of Tom East gulch.

Besides the Greenback proper there are seven veins in various stages of development on the group comprising the property. None, however, has been very extensively opened up. Of these the Irish Girl is the most promising. It lies south of the Greenback 150 feet, and is parallel to it. The walls are from three to six feet apart, and the values lie principally in small stringers of high-grade ore, carrying value, occasionally, in combination with tellurium. A promising vein shortly north of the main Greenback is just now receiving some active attention. It is showing up well and the company puts considerable faith in it.

A noteworthy feature of the Greenback ore has been its tendency to show great richness in spots, while at the same time carrying regular values throughout its long pay chute. The gold continues free, handsome specimens are found in the lowest levels. The 200-foot winze sunk from the mill level gives a total depth on the vein of 1,100 feet, yet the proportion of gold saved on the plates at this lowest point is as large as ever. In other words, the ore is distinctively a quartz ore, the sulphurets rarely constituting more than one per cent of the total.

The Greenback in the true sense is pioneering the quartz mining industry in Southern Oregon. It is a property which, although hardly started on its career, yet would be a credit to any of the older established mining camps. It stands among that rare class of quartz mines that have paid from the grass roots down, and its output to date—approximately \$750,000—entitles it to rank with the first-class mines of the country.



VIEW AT THE GREENBACK, SHOWING OLD AND NEW MILL SITES. THE NEW MILL IS TO THE READERS RIGHT, AND TO THE WEST. THE STRIKE OF THE LEDGE IS APPROXIMATELY EAST AND WEST AND IS REPRESENTED BY THE LOCATION OF THE TWO CAMPS.

WOLF CREEK MINES.

SCRIBNER-HENDERSON.

A formation very favorable to the existence of gold-bearing quartz ledges in both Southern Oregon and Northern California, is one that on the surface shows up in the form of a soft red or yellow rock. It is a formation for which the average prospector naturally has quite a failing, and one which, for want of a better name, he conveniently calls "porphyry." In reality it is nothing more or less than the weathered or oxidized capping of one or another of the various formations of diorite or diabase, with which the country abounds. Occasionally, the diorite appears in a narrower width than at other times and is spoken of as a porphyry "dyke."

Some of these diorite belts are literally seamed with small gold-bearing quartz veins. It is not unlikely that there will be found among these bodies of diorite, some whose weathered surfaces will prove sufficiently high grade to warrant some method of reduction. As a matter of fact, it is to-day not an infrequent thing to find their surface sluiced or hydraulicked for its gold-bearing contents. The gold gathers in rich seams after having been freed from the quartz by the oxidizing processes, and it is from these seams that some of the greatest pocket finds have been taken. The richness and frequen-



AT THE SCRIBNER-HENDERSON MINE.

cy of these pocket seams might furnish a pretty accurate criterion as to what the un-oxidized diorite beneath is capable of producing, save for the fact that in addition to the weathered portion of the formation which to-day contains this gold we must allow for the formation previously worn away, all of which has left behind at least a part of the yellow metal it once contained intact. The richest of these diorite bodies personally visited and inspected by a MINERAL WEALTH representative is the Scribner and Henderson ground at the head of Wolf creek, now under option to Mr. J. C. Dysert. The

two prospectors who gave it its name traced up a number of seams, and are said to have handmortared and washed out \$35,000.

The whole surface yields a heavy trace of gold. A large number of seams have been opened up at various places on the property, and many others will, no doubt, be uncovered from time to time. Mr. Dysert took charge of the property last summer, and constructed a well-built double tub arrastra, and since that time has operated the same profitably and to very good advantage in every way.

The porphyry of the Scribner and Henderson mine is about a quarter of a mile wide, extends northeasterly and southwesterly, and lies between a formation of serpentine and slate, the serpentine lying on the southeast. The porphyry or oxidized part of the diorite is from twenty to forty feet deep apparently and will average quite well in free gold considering the amount of tonnage in sight. A good grade of sulphuret also is saved in the arrastra. The mine will be operated by surface stoping on exactly the same lines as the now famous King Solomon porphyry dyke that has produced so phenomenally in the past half dozen years, on the south fork of Salmon river, Siskiyou county, California.

On the Scribner and Henderson property a tunnel 180 feet long has been run to cut a ledge that parallels the serpentine near the point of contact. The tunnel is not yet quite complete, but offers a most excellent opportunity to sample the diorite for its average value.

The showing made by this tunnel and the various openings on the surface are surely such as to invite investigation, especially in view of the equally good showing made by the Sluter mine a mile northeast or on a continuation of the same formation.

A large iron dyke, averaging, perhaps, twenty feet wide, lies along the serpentine-porphry contact, and a gold-bearing quartz ledge a foot or fifteen inches in width lies just north or immediately below. This ledge has been thoroughly opened up at a point easterly of the Scribner and Henderson holdings, and shows up to very good advantage. A good chute of ore is laid bare. The property is indicated on the map and is owned by J. B. and E. F. Hannum.

SLUTER MINE.

This property, owned by H. D. Sluter, presents a duplication of the conditions of the Scribner and Henderson mine. The surface showing is the same, the diorite has the same width, namely, one-fourth mile, the serpentine still continues as the "hanging wall," and the slate formation to the northwest might be designated as the "foot wall." Even the iron dyke and the Hannum quartz ledge both still hug the serpentine. The quartz ledge has yielded some fine specimens. A thirty-five dollar piece was taken from the very summit of the Wolf creek divide.

The Sluter placer mines, which compose part of the Sluter holdings, lie on Sailor's gulch, which is a northern tributary of Wolf creek. During the eight years he has mined

this gulch, Mr. Sluter has piped away some 750 feet of the ancient channel formation that formerly lined this stream. The gold is heavy. Nuggets have been found weighing from \$20.00 to \$50.00. Mr. Sluter has realized an average of \$10.00 for every foot length of the stream bed and has done this in spite of the fact that he was compelled to leave unworked a good bit of the lower ground because of a poor dump.

These placer mines were unquestionably fed by the gold from the porphyry or decomposed diorite of these upper Wolf creek properties, for, no gold is found above the serpentine-diorite contact. Mr. Sluter has found the same rich seams that are found on the Scribner and Henderson property. From one of them he took out over \$4,000 in less than three months. Mr. Sluter a year ago last winter turned his giant upon



AT THE SLUTER MINE.

a small area of the decomposed diorite, and while he was unable to save much of the gold because of the obstinacy of the porphyry in disintegrating, yet the experiment was of value in showing up quite a surface of the formation, and the seams that enter into its composition, and it furnished him, as it were, a cross section of the geology.

The Sluter holdings of 100 acres of the porphyry formation and the Scribner and Henderson holdings of 120 acres, are separated, as indicated on the map, by a similar property owned by Brown, Cabel & Co.

WOLF CREEK MINING AND DEVELOPMENT CO.

The Wolf Creek Mining and Development Co. owns 160 acres of placer ground and four quartz claims on Wolf creek and Hole-in-the-Ground creek in the Wolf creek mining district, Josephine county, Oregon.

This is an ideal district. The region is heavily timbered and contains an abundance of water. This Company owns excellent water rights. Arrangements are now being made to extend one of the ditches to the lower portion of the placer. It will cost only a comparatively small amount to build this ditch and when it is completed the Company will have sufficient water to operate two large

giants the greater portion of the year, and will have sufficient gravel ahead of them to keep the giants at work for fully twenty years on good ground without the further expenditure of another cent for the building of ditches, etc. The channels are sixty to one hundred feet wide, with a depth of four to six feet, and contain values of from twenty-five cents to seventy-five cents per cubic yard, and, in some places, yields as much as \$2.00 per yard. The gold is mostly of a coarse nature and many large nuggets have been found. Messrs. Wilson and Rickard, who are working the claim adjoining this property on Hole-in-the-Ground creek, picked up a \$47.00 nugget a few weeks ago. Pieces of the value of \$2.00 to \$10.00 are very frequently washed out in these old channels. A \$1,220.00 nugget and another of \$700.00 was picked up years ago by the old timers. There are portions of ancient channels on this Company's placer ground that have never been touched, even with pick and shovel. Some of the more accessible parts were worked in early days and they yielded big money with the old-time sluices. With the modern hydraulic equipment, that the Wolf Creek Company will have installed for the coming season, every inch of this ground will be washed and handsome returns should be the result.

The Company also owns several good quartz claims. They are located on the head of Hole-in-the-Ground creek, a tributary of Wolf creek, about a mile above the placer property. There is an abundance of water and timber for mining purposes. These claims are located on the rich mineral belt running through that section of the country and are not more than five miles from the Greenback. It is conceded by mining men, who are familiar with that section, that the lead on which these claims are located has been the feeder for all the rich placer ground below it. Sufficient development work has been done on the quartz to demonstrate its value, and the tunnel now being driven is in ledge matter fifteen feet in width and the foot wall has not yet been encountered.

Both the quartz and placer ground are easily accessible. The county road runs through a portion of the placer and within a short distance of the quartz. The Company is now selling a small block of the treasury stock for the purpose of equipping and developing the property as outlined above.

M. B. Bozorth, 251 Alder street, Portland, Or., is the secretary and manager of the Wolf Creek Mining and Development Company. The other officers are prominent professional and business men of Portland, Astoria and Salem.

A DRIFT MINE.

Besides the placer properties of the Wolf Creek Company and H. D. Sluter, Lehman Brothers control 1,100 acres or so, which they are working by drifting. J. C. Rickert has a claim adjoining. The present channel was worked years ago. The present owners located it for the same purpose thirteen or fourteen years ago, but after a year or two they ran into a formation of gravel projecting into the present channel from the north side, and on a brief investigation satisfied themselves that the ground was rich and commenced drifting. This was a surprise

to the old miners, who never suspected a back channel. The gold is quite coarse, pieces as large as twenty dollars and more being found. A drift mine needs no recom-

mendation as to its hydraulic character and it really would not require a great outlay to transform the Lehman property into a hydraulic mine.

THE RUBLE MINE AND GRIZZLY.

THE RUBLE MINE.

This mine is situated on Coyote creek, which flows into Wolf creek at the station of that name on the Southern Pacific Railroad, thirty miles north of Grant's Pass. Coyote creek was one of the best streams of the country in the early days.

The Ruble mine, owned by Ruble & Sons, comprises a consolidation of a number of former smaller properties, and is known to be a mine of good value. The one detractive feature has been the lack of natural dump, since the grade of the stream is very small. Then the water, too, is scarce for the ordinary methods of hydraulic mining and the material is quite heavy, there being many goodsized boulders. During six years of the mine's operation the present owners took out a total of \$65,000. The property includes much virgin ground, and represents an ideal opportunity for a still further consolidation on the part of larger capital, this larger organization to provide for larger water rights and more extensive equipment in other ways. MINERAL WEALTH is in a position to state that these holdings could be secured on a reasonable basis. That they represent one of the best openings in Southern Oregon for a big hydraulic mine is a statement whose truth will become readily apparent on even a casual investigation.

THE RUBLE GRIZZLY.

The slight grade and the limited water supply of the Ruble mine involved a se-

rious problem in that mine's operation. The owners were driven to various experiments to meet the difficulties and since the large boulders rendered hydraulic elevating out of the question, it almost looked as though much good ground was destined to remain unworked. After some experimenting, the Rubles finally hit upon a process of elevating, all their own. They constructed an apparatus consisting essentially of a grizzly and undercurrent over which the gravel is forced by means of ordinary hydraulic giants and the results have been very satisfactory. It was by this means that they were enabled to remove the above amount of money in the time named as stated, and from ground which, under other circumstances, would have been worked at a very great cost, if worked at all.

The process of operating is simple enough. The material is forced over the grizzly, as shown in the picture. Boulders, stumps, roots and logs alike find a common dumping place beyond the "stacker." The finer material is screened from the rest in transit through the appliance and is sluiced off through an elevated sluice way on the opposite side of the grizzly. It is in these sluices that the gold is saved.

The Ruble elevator is a device whose merit has been fully proven, which is amply attested by the eighteen or twenty grizzlies which are in use in the various districts of Southern Oregon. MINERAL WEALTH's representative found them giving good satisfaction wherever they were being used.



SHOWING A RUBLE GRIZZLY AT WORK. THE SCAFFOLD SUPPORTING THE GIANT IS NOT A NECESSARY PART OF THE APPARATUS.

JUMP-OFF-JOE CREEK MINES

ORO FINO MINE.

MINERAL WEALTH is glad for the opportunity of giving the public some notion of this promising young property, situated, as it is, in the heart of a promising district. We are glad, moreover, to point out so instructive an instance of what cautious, painstaking work will do toward the development of an embryo mine.

The Oro Fino, like nearly all other Southern Oregon ledges, was free milling on the surface. The values, on the other hand, occur finely disseminated throughout the quartz instead of being concentrated in specimen-like quantities, so that at the present depth free gold is rarely ever seen, even in rock of the highest quality.

The Oro Fino was discovered at a point about forty feet north of what is to-day being shown to be the main vein. The present workings show this discovery to have been only a branch of the main vein, although it produced from \$18,000 to \$20,000.

Since Mr. S. Chase took hold of the property a year ago he has demonstrated beyond a doubt the separate entity of these two veins. In fact, what has been shown is this, that the Oro Fino proper is only one of three or four veins, all of which, as they descend, approach a distinct and separate vein—joining it from its northerly or foot wall side.

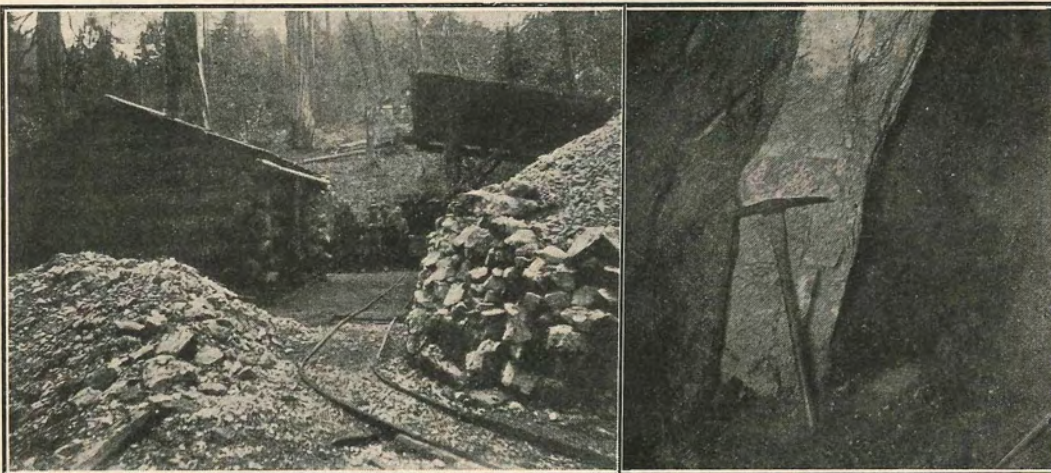
This main vein, previous to Mr. Chase's ownership, had been struck by a 140-foot cross-cut tunnel, and followed with a drift for a distance of 333 feet. It was noticed that there was some little difference between the character of quartz at this place and the quartz above, but the cause for this difference remained for Mr. Chase to disclose. From the 333-foot point on the drift, a cross-cut to the right or north was run to connect with a shaft from the old workings above, the object being to get air. This shaft, as subsequent development has shown, went down on another one of the feeders. Work on the main drift was resumed, and at a point sixteen feet beyond the 333-foot point a seventy-one-foot winze was sunk. At the bottom of this winze a strong ledge of good average ore, six feet wide, was disclosed, but in the drift things did not show quite so encouragingly. The ledge had given way to a bare seam and a displacement of waste matter. Attention was transferred to the tributary vein just mentioned, or on which the old shaft had been sunk. This vein was followed southwesterly on an angle that would have brought it to the main vein in a distance of 100 feet or so, but it in turn narrowed to a small width and was given up at a point ninety-four feet from the shaft. This was in 1902 and represented the last work done on this level in the mine until taken hold of by Mr. Chase and associates.

After a study of the situation Mr. Chase decided to cross-cut southerly for the vein. He believed that the vein could be found in place, and his hypothesis proved correct, for at the end of only nineteen feet of cross-cutting the expected happened, for the vein was

encountered. Since that time the development of the Oro Fino has been a simple, persistent, steady, unfolding process, with the result that to-day it stands as one of the country's best prospects.

After intersecting the vein, a drift was pushed westward fifty-five feet, every foot of which was on good ore—in fact, some of it very high grade. A winze was sunk sixty-five feet in depth, every foot on good ore, showing a fine two-foot vein of unmixed high grade quartz. The drift itself has been continued westward for sixty feet, the whole length of which and the face of which are both on a fine looking ledge of good ore. The hanging wall is well defined, while the foot wall is becoming more so as it gets down beyond the zone of feeders or branch veins.

A fifty-ton daily capacity cyanide plant is at present being installed. A Boston crusher and Sturtevant rolls will be used to reduce the ore. Development at the Oro Fino will be watched with keen interest.



VIEWS AT THE ORO FINO—EXTERIOR AND INTERIOR.

BABY AND GOPHER.

These properties which form with the Cosmopolitan a compact group, as indicated on the map, are both prospects with interesting records to their credit, as well as promising assurances for their future. They have the good fortune of being in the hands of good companies. Both happen to be California companies. The Baby is being developed by the Capitol City Mining Company, of Sacramento, C. C. Higgins as manager at the mines. The Gopher, with headquarters at San Francisco, is represented at the mine by T. E. Lacy.

Both properties are equipped with two-stamp mills. Both have yielded considerable from high grade rock, especially the Baby. The work of both at the present time is in the nature of prospecting. At the Gopher there is being run a long cross-cut tunnel to tap a mammoth ledge of quartz ore in the hope of striking a pay chute. This tunnel is now in over 700 feet. The ledge where exposed on the surface is low grade.

THE HAMMERSLY MINE.

This noted prospect, after a turbulent career of twelve years, is to-day under bond to the Willis & Osgood Company of Seattle, who, after unwatering it, are to-day doing the first systematic development the mine has seen since its early days. The mine is so situated in a depression of the mountain top as to make sinking and hoisting the mode of operation. It is on the divide between Jacques creek and Brass Nail gulch, on the upper Jump-off-Joe, and as indicated on the map. It has produced \$75,000 to \$100,000, and is esteemed as a prospect of excellent promise.

LUCKY QUEEN.

This property, whose situation is given on the map, is owned by Corliss, Rush & Son, but at present under bond to G. Trapschuh and associates of Spokane. It is thirty-five years old, being among the first quartz locations in the country. Twice has it witnessed the construction and removal of a five-stamp mill, and large quantities of high grade rock have paid for expensive mining, hauling and shipping. The tunnelling and

shafting will aggregate 2,000 feet.

The new company has done considerable development during its ownership of the past year, and has commenced the construction of quite a long tramway and ten-stamp mill. Mr. C. D. Crane is manager.

THE COSMOPOLITAN.

The Cosmopolitan group of mines, formerly known as the Little Dick group, is situated on Bear Mountain with such mines as the Baby and Gopher on its southern extremity, and the Lucky Queen mine just across Jump-off-Joe creek on the north. It stands distinctly in a class by itself. In respect to the character of its ore it differs widely from that of the mines just mentioned, and as regards size, it is not equaled in the district.

It consists of three quartz claims and eighty acres of railroad land, and was purchased by the present owners, A. G. Minter

of Seattle and August Fetsch of Grant's Pass last fall. They bought the ground from Jacob Meier, who likewise secured it by purchase three years ago from J. C. Dysert.

The work, prior to the sale, was very much along the line of surface stoping. The oxidized ore near the surface was quarried out and the finer material was screened and conveyed to the bottom of the mountain, for a distance of 800 feet, by washing it through a V-shaped flume. The ore was treated with a twin-tub arrastra, built by Mr. Dysert, and by this method would give a gross return of over \$4.00 per ton.

When Mr. Minter assumed control he set about to open the property more extensively. He ran a cross-cut of 150 feet west and tapped the vein at a depth of 100 feet, touch-



AT THE COSMOPOLITAN MINE.

ing the foot-wall first. The length of this cross-cut was through diorite, at first soft and easy of removal, but as depth was gained the rock became more and more hard, and when the ledge was struck the diorite had almost the hardness of flint. The course of the vein is northwest and southeast and dips southwest or into the hill. The cross-cut was continued in the ore for twenty feet and the other wall has not yet been reached.

The ore is a peculiar mixture of quartz and diorite, with also a great deal of lime. The values at this depth are mostly in the sulphurets and the method of treatment will no doubt be by cyanide. A one and one-half mile ditch, tapping one fork of Jump-off-Joe creek, brings water to the ground below, and affords an excellent opportunity for a reduction plant. There is an abundance of timber on the ground for mining and building purposes.

JUMP-OFF-JOE HYDRAULIC MINE.

Seven miles up Jump-off-Joe creek from Merlin, on the tributary known as Jacques creek, is a consolidation of mining ground controlled by Dysert, Keyes and Booth. It comprises 758 acres, of which 548 acres is deeded ground. The nucleus of this area consists of about 500 acres consolidated by J. C. Dysert in 1895 out of four separately owned properties. The first year of the Dysert ownership, Mr. Dysert constructed a three-quarter mile ditch from Jacques creek and, fitting up with pipe and giant, mined

the property in this way for the first time. The present channel of that tributary of the Jump-off-Joe had been pretty well worked, at least, below its confluence with Horse creek, and in order to tap the old back channel it was necessary to cut a bedrock race 600 feet long. The gravel was eighteen or twenty feet deep and ran from fifteen to twenty cents per cubic yard. It was seen that the plant was inadequate for the amount of ground to be worked away, and accordingly, in 1898, Mr. Dysert commenced the construction of a large ditch tapping Jump-off-Joe creek, to be about five miles long and having a capacity of 2,000 inches. Two miles had been completed when a company of four San Franciscans formed a partnership, bonded the property and completed the ditch in six months, employing at one time as many as 150 men. But the ditch was finished too late for much of a season, and six months more saw the partnership divided in some matters of policy, with the result that the possession and ownership was allowed to revert to Mr. Dysert.

Early in 1903 the property was bonded to Jos. Clark, of Los Angeles, brother of Senator Clark, of Montana, who made a cash payment of \$5,000 and fitted the mine up with additional pipe, giant, electric lights, etc., bringing the equipment up to four giants. Jos. Clark died during the summer and his personal representatives failed to close the bond. Besides several thousand feet of pipe, there are all told about twelve miles of ditches, including a by-wash ditch of 800 inches capacity, also out of Jump-off-Joe creek.

The mine is opened up at two places. At the lower point or near the mouth of the creek there is little grade, it having been necessary to cut a 1,300-foot race, flumed for most of the distance with four-foot flume. But the giants here can be worked under a 400-foot pressure. As you go up the creek the grade increases rapidly until at the upper mine the dumping difficulties become merely nominal, the freshets of the creek acting as a flusher for the tailings. The pressure of piping, however, is less than half of what it is at the lower mine. The lower mine offers ideal conditions for hydraulic elevating.

The J. O. Booth claims of eighty acres and the farm of H. M. Gorham lie below the property on the Jump-off-Joe and are supposed to comprise equally good ground.

The property during the past season was under lease to Wallace and Hasty.

SOUTHERN OREGON MINING AND DEVELOPMENT COMPANY.

The Southern Oregon Mining and Development Company of Portland are now operating one of the richest placer mines in the Southern Oregon field, and it is a property that has an established record for its high values in gold.

This ground was first located in 1862 by Henry Wines, an erratic Prussian, but who was the pioneer miner of this district. The property, as it stands to-day, consists of a strip of land one and three-quarters miles in length on Jump-off-Joe and Bummer

creeks, and the pay gravel for this entire distance is from 100 to 600 feet in width. The bank ranges from four to fifteen feet in depth. These conditions have been determined after careful prospecting. It is an economical mine for operation. The water supply is good and the dumping facilities



SOUTHERN OREGON MINING AND DEVELOPMENT COMPANY'S MINE.

are ample. It is a mine that can be worked as heavily as its owners may choose and obviously has years of operation before it.

The present owners purchased the mine from C. D. Sexton, who has operated it every season for the past nine years, and whose cleanups have always been more than satisfactory. The gold is coarse and heavy, averaging \$18.50 per ounce. Mr. Sexton has kept a number of souvenir pieces ranging from \$2.00 to \$180.00.

This property had been in the eyes of old time residents here for years. Wines was a very eccentric man; some charged him with being a hard old customer; others found him a generous, kind-hearted old chap. No prospector who had "gone broke" and showed up at Wines' cabin was ever refused a welcome or a helping hand for a fresh start.

Wines was known to have considerable gold always in his possession, mostly in large nuggets; his smaller gold he would sell to get his supplies.

About ten years ago he had two men in his employ. It is claimed by these men that he finally grew sullen and that they feared that their lives were in danger at his hands. They watched him, and one evening, it was claimed by them, he attempted to take their lives. They, however, were quicker than he, and he was killed instead. These men were tried for murder and acquitted, but many of the residents and miners in the camp still think that the old man was murdered for his money. It is conjectured that his gold is still left where he hid it and will some day be unearthed.

The present owners of the property have been operating this season on merely a prospective scale. It is their intention to equip it thoroughly for next season's run, and from past experience they are justified in expecting a big cleanup for the coming year.

THE MT. PITT COMPANY.

A mining deal of no little importance was recently consummated in which a part of the former holdings of Cook & Howland be-

came the property of the Mt. Pitt Hydraulic and Quartz Mining Company, composed mainly of Portland men. The company is incorporated under the laws of the State of Oregon, and is capitalized for \$50,000, with headquarters at Portland, Oregon, 226 Failing Building. The directory is represented by E. House, president; D. L. McCloud, secretary and treasurer, and A. C. Hooper, one of the original discoverers of the St. Helens field, Washington, as superintendent and manager.

This promising property comprises 125 acres of valuable placer ground on Bummer gulch, tributary of Jump-off-Joe creek, Josephine county, and two quartz claims immediately on the line between Jackson and Josephine, and in close proximity to the placer.

The present equipment of the placer is rather meager, but it is the policy of the present management, after some preliminary prospecting, to install an equipment adequate to handle the great deposits of rich gravel. A ditch of one mile will supply abundance of water from the gulch under a pressure of from 175 to 200 feet.

The nature of the gravel is old channel de-

posit, and if indications count for anything, the owners are justified in their sanguine attitude toward their present holdings. The channel is no doubt a continuation of that of the Southern Oregon Mining and Development Company, and also the Cook & Howland. It is located less than two miles from the latter well known property and adjoins the former.

Former owners who were content to operate this ground in an unsystematic and haphazard manner obtained results that were far from being unfavorable, the upper end of the ground paying \$7.00 per day with a rocker. The values are of a very coarse nature (one piece having been found on the lower end of the property that weighed \$110.00), and are scattered throughout the bank, which is from ten to fifteen feet in depth.

Just across the line in Jackson county the company owns two quartz claims, located on the same vein, and of these the company is, and has a right to be, very hopeful. The vein has been traced for a great distance on the surface and by pan prospects the most flattering results have been obtained. The ledge has been opened and discloses a vein

five feet in width, gives returns by assays of \$30.00 per ton in free gold, and will soon be tapped by a crosscut tunnel, now almost complete.

About the middle of June or several weeks after our representative visited this mine, the Mt. Pitt Company struck their ledge. They struck a big body of high grade ore. Part of the rock was exceedingly rich, and for the whole ledge, or for a width of ten feet, will pay well to mill. They have gained from 50 to 60 feet of back with a 90-foot crosscut.

BRASS NAIL GULCH.

On this gulch, above the property of the Southern Oregon Mining and Development Company, are properties owned by Hillis & Collins, Thompson & Schroter and Bennett. For several months in the year there is a good head of water from Brass Nail gulch itself, and some very heavy gold is found—one piece weighed \$245.00.

J. W. Robinson, now of Crook county, is said to have taken out \$25,000 to \$30,000 in his six years of ownership.

THE GRANITE HILL MINE.

A scene of great activity is the Granite Hill mine, on Louse creek, the property of the American Gold Fields Company. The mine was purchased by this Company about two and one-half years ago and has in that time undergone almost phenomenal development. Modern equipment has superseded the primitive methods in vogue; development work has been constant and systematic; and all in all, the property bids fair to become one of the State's best.

Its history up to the time of its purchase by the present owners was not entirely unlike that of its contemporaries. The development was desultory at best and there were frequent changes of ownership. It finally in 1899 came into the hands of Mr. C. L. Mangum, who, at once setting about to inaugurate a systematic line of policy, interested with him such men as A. J. Hechtman, H. Fleishhacker and F. H. Buck, of California, and R. A. Booth, of Oregon. J. O. Booth subsequently obtained an interest.

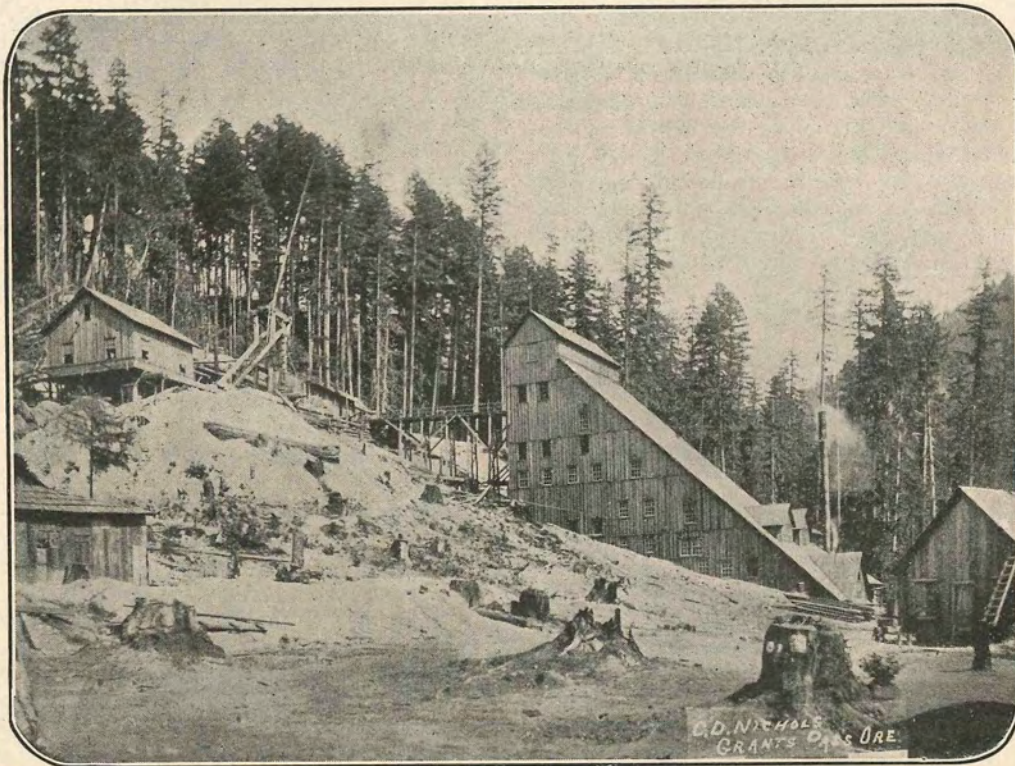
The holdings of the American Gold Fields Company cover more than 700 acres of area, and the placers on this ground were worked in the early days by the comparatively ineffective methods employed by the early gold seekers. After the richest had been worked by pick and pan, the ground was successively worked by the long tom, by ground-slaicing and by drifting. These various methods were each in turn employed with great success for a considerable time. The mine, however, failed to see any improvement in modes of working until twelve or fifteen years ago. This was no doubt due to the fact that it could be so successfully

worked by the simpler methods. So that it was in the early nineties before a hydraulic equipment was added.

This progressive step is to be accredited to M. F. Hull, W. S. Beck and Pelton Brothers, who at that time owned the ground on the south fork of Louse creek, or what

is known as the "Upper Diggins." C. N. Matthews and W. T. Turnham owned the ground at the junction of the three forks and they still continue to work it by drifting and ground sluicing.

The gold in the placer of the south fork is local wash and was unquestionably deposited by erosion from the gold bearing veins of the surrounding mountains. This was, however, not universally conceded by the placer miners working on the stream, till what is called the Bed Rock vein was exposed, by washing away the auriferous gravel which obscured it. The eyes of the



MILL AT THE GRANITE HILL MINE.

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miners were thus opened to a new field of mining and they constructed an arrastra, by which means they took out \$8,000 from the Bed Rock vein.

This gave an impetus to a new industry and the possibility that Louse creek would

mineralized diorite, these three formations being in close proximity and their lines of contact parallel.

During the time of Mr. Mangum's management the property was more thoroughly and consistently opened up than it had ever

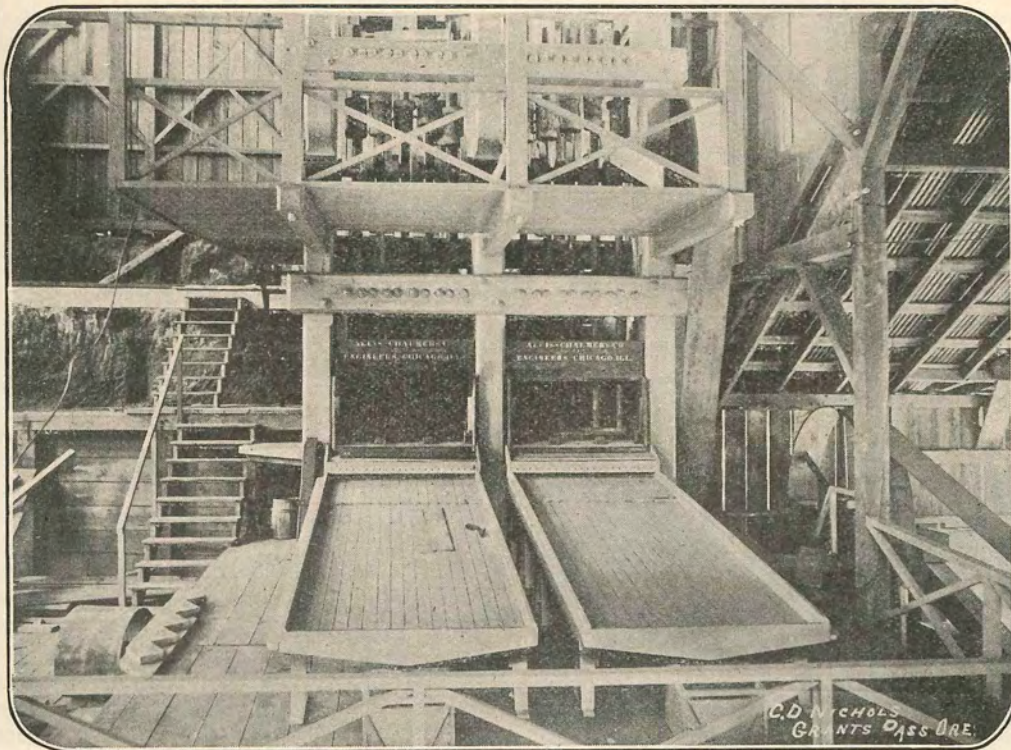
W. J. Morphy, of Chicago, for the American Gold Fields Company, of which he is manager, about two and one-half years ago.

Walter de Varila, who was superintending operations for the Company at that time, commenced sinking the shaft on the Granite Hill vein. An engine and small hoist were installed and this work was vigorously prosecuted. Later L. B. Wickersham succeeded Mr. de Varila, and he has continued to work out the policy of the Company.

The shaft was a vertical, double compartment, five by six feet in the hoisting compartment, and five by two and one-fourth feet in the man way, and this shaft was down 107 feet when Mr. Wickersham took charge. A change was thought necessary in the construction of this shaft and was brought about by Mr. Wickersham by putting the spreader in the center of the shaft, thus making two equal compartments and giving sufficient room for the pump and air line in the man way and ample room for the cage in the other compartment.

The shaft was continued for fifty feet further before the ledge was struck, and here was encountered a chute of ore which was heavy in galena, and free gold in close proximity to the galena. A mill run of 100 tons at this point gave returns of \$9.00 on the plates.

On the 207-foot level a station was cut in the shaft and drifts run both east and west on the vein, aggregating about 400 feet, in which the ledge showed as strongly as it did in the upper or 107-foot level. In the west drift a chute of galena ore has been struck, of the same character as that encountered in the shaft in the sinking. The values are pleasingly high grade, and the ledge is from three to seven feet in width, with the pay ore mostly on the hanging wall.



INTERIOR OF MILL AT GRANITE HILL MINE.

become a quartz mining camp, lead other placer miners to discontinue their calling and search for pay quartz. Other veins of promise were accordingly discovered and more arrastras were built, so that when Mr. Mangum secured the ground in 1899 and effected its consolidation, there were three arrastras and one small stamp mill on the ground that has later all been acquired by the American Gold Fields Company.

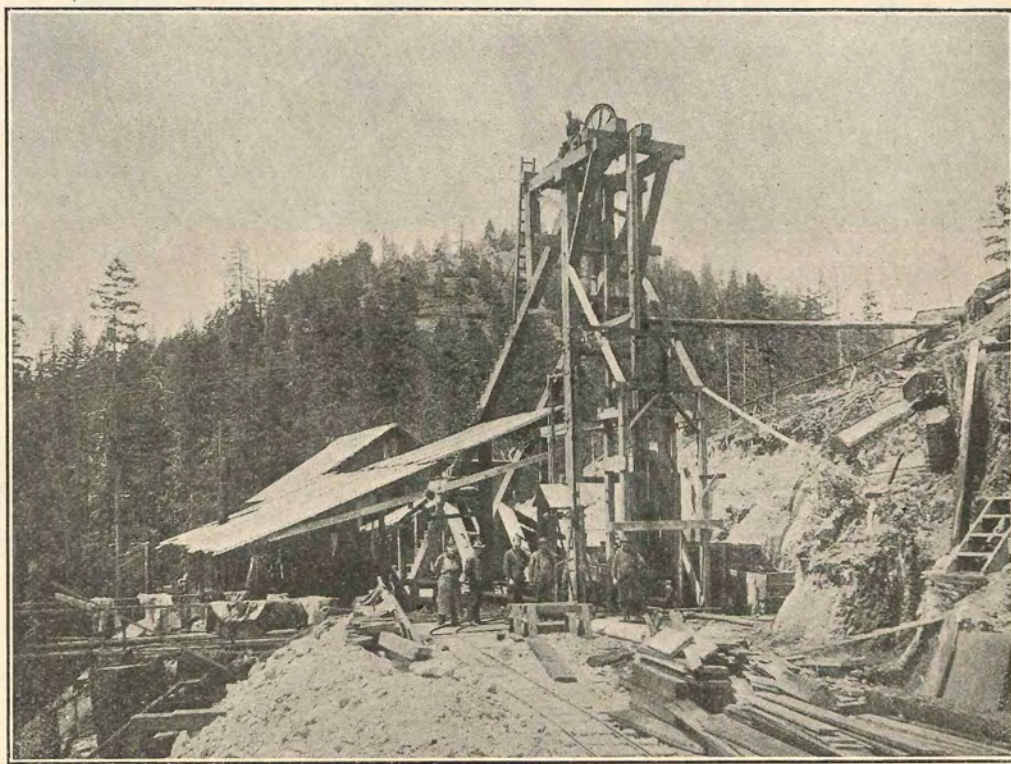
Running east and west through the property is an ancient blue gravel channel 150 feet wide and from 40 to 50 feet deep, and this represents the nucleus of the Company's placer ground. This is now covered by eight miles of ditches, representing the first and entire water right of the three forks of Louse creek, and the necessary pipe and giant equipment.

Four of the numerous veins on the holdings of the present Company were discovered and partly developed when Mr. Mangum secured the ground; two more were discovered on the patented lands of the Company and one on public land, which was accordingly located. There are seven distinct veins on the property in various stages of development.

The veins, which are evidently true fissures, occur in two formations, viz., granite and diorite. The contact passes through the center of the property and has an east and west strike which is parallel to the strike of the Granite Hill vein. The strike of the High Tariff and Red Jacket veins on the other hand, is nearly north and south. However, all other veins thus far developed on the property run east and west.

Again on the northeast and lying smoothly against the granite is a dike of highly

been before. A latest improved Wilfley concentrator was added to the equipment, which at that time was a small 5-stamp mill, run by steam. Underground work was pushed forward, and all in all, Mr. Mangum and



HEAD FRAME AND SHAFT HOUSE GRANITE HILL MINE.

associates expended some \$12,000 in developing, and by the legitimate disposition of this amount the property presented such a creditable showing that it was purchased by

It is the policy of the Company to carry the drifts steadily forward, raising on the chute to the level above, thus insuring good air and ventilation.

At a depth of 230 feet in the shaft a subterranean water course was struck, occasioned by a flat slip crossing the formation which allowed considerable water to come into the shaft. To overcome the difficulty of sinking against this influx of water, a number 9 Smith-Vaile pump was installed and a cross-cut driven twenty feet north from the shaft and having the same width. At the end of this solid ground was struck, and a sump, capable of holding 10,000 gallons of water, was cut. The station was well timbered and electric lighted; then the big pump was swung from the shaft into the pump station. In this way, practically all the water entering at this point and from above, is caught up and pumped to the surface, thus keeping the water away from the shaft and obviating the necessity of having to pump this influx from the lower levels. A small Worthington pump is hung in the shaft to take up any

The new mill has just been started. It is a model structure and deserves more than casual description. The stamps are of the well known Allis-Chalmers make. The ore cars wheel into the top of the mill from the collar of the shaft and dump into bins of 200 tons capacity. A drop of seventy feet is afforded from the bin to the concentrating floor and an excellent grade has been provided for an automatic run of ore from the time it leaves the shaft till it is impounded in the tailings.

The stamps, as has been stated, are of the Allis-Chalmers type, provided with hanging feeders. A crusher of eighty tons capacity is stationed at the top of the lower ore bin. Six-foot Frue Vanners are used, there being four in the mill at present.

The mill is spacious and well lighted, being provided with electric lights. A 100 horse-power boiler supplies power for the plant, which will be augmented by one 75

ite Hill mine, are now being installed with a view to extensive development work. The owners of the property believe that the Red Jacket will prove to be one of the richest mines in Southern Oregon and propose to open it up on a scale commensurate with its merit.

A saw mill in connection, with a capacity of 6,000 feet of lumber per day, is located 200 yards from the mill. All the lumber for the buildings and mine has been sawed out at this place. The Company's holdings in the vicinity have an abundance of timber of the celebrated Douglas fir variety, which, in its qualities of strength, toughness and elasticity is unexcelled. This settles definitely and favorably the problem of mining timbers at the Granite Hill for all time.

The camp has an excellent mess house, and it is the intention of the Company to erect a number of small bunk houses on the north fork of Louse creek, each to accommodate four or five men. These will replace the ones now being used. The superintendent's office, and the assay office and laboratory are situated about 100 feet from the new mill.

All in all, the Granite Hill mine represents at the present moment the most interesting quartz development in Southern Oregon. The Greenback is too well established to excite any unusual interest, and the Benton, Opp and Braden are still all unequipped.

The creditable showing at the Granite Hill is due to the efficient management of the mine has had at the hands of Manager W. J. Morphy and Superintendent L. B. Wickersham.

FOREST QUEEN MINE.

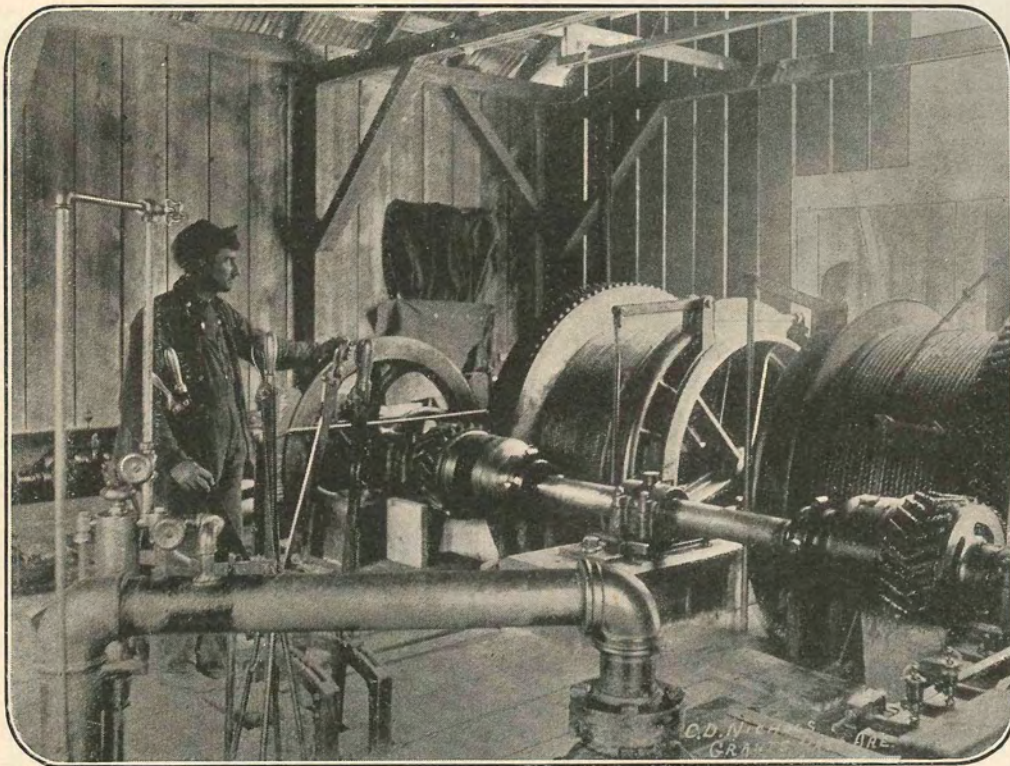
On Louse creek, and adjoining the holdings of the American Gold Fields Company on the west, is the conveniently located and fitly named Forest Queen mine.

Last October this property passed into the hands of J. B. Pipes, a practical miner who has extensive holdings in lead and silver mines near Wardner, Idaho. Mr. Pipes purchased the interests of two of the former owners and has the remaining interest under bond and lease.

This property, while at one time a great producer, is just at present undergoing exploration, for the purpose of determining the location of the pay streak, which was completely lost, while under the management of owners previous to Mr. Pipes' purchase.

This property, comprising 213 acres of patented land, covers both the present and ancient channels of Louse creek for a distance of two miles or more. A two-mile ditch from Louse creek supplies the ground with 2,500 inches of water. Two 800-foot pipe lines giving a pressure of 225 feet and with two number two giants and one number five, with sufficient water for a long season's run, go to make up a very complete equipment.

The question of dump on this property was a very perplexing one, and was given solution by the installation of one of Ruble Bros.' patented elevators or grizzlies. The values were originally found in the old channel deposit, and this channel has been the objective of most of the work on the ground.



INTERIOR SHAFT HOUSE, GRANITE HILL MINE.

water that may accumulate in the bottom. This work has solved the water problem and enables sinking to be carried on vigorously.

The shaft is now going down rapidly and its continuation will be carried on in conjunction with the driving of levels and connecting with raises, it being the intention of the Company to carry this shaft down at least 600 feet at once, developing each level from the shaft as it is reached.

The Company has installed a hoisting plant, which is one of the finest in the State. It is of the double drum, twin engine type, and capable of carrying the shaft down 2,000 feet. The drums are six feet in diameter and the whole plant is set on piers of solid concrete ten feet in thickness. An inch steel cable is used hoisting over a forty-foot head frame and carrying a cage which can be converted into a "double decker," handling timber, men and loaded ore cars carrying 1,600 pounds of ore.

horse-power, which is now being installed. A six-drill Ingersoll-Sargeant air compressor has been set up in the power house adjoining the mill delivering air through a three-inch line to the shaft and levels.

With such an equipment, as regards hoisting, air compressor capacity and a complete solution of the water problem, the Granite Hill is in excellent shape to insure a rapid development.

The Red Jacket claim deserves more than a passing notice. It has been opened up by a tunnel driven over 250 feet in length, cross-cutting three well defined veins, with a rich pay-chute of eighteen inches to two feet in thickness. Two of these veins, parallel, are only eight feet apart and dip toward each other and undoubtedly will unite soon and form a large body of high grade ore. A winze being sunk on the vein discloses a fine body of high grade ore, and the boiler, hoist and compressor formerly used on the Gran-

GALICE DISTRICT.

THE OLD CHANNEL PLACER MINE.

This mine is in some respects the most notable hydraulic property in Oregon. It comprises the deepest banks and probably contains greater quantities of gold-bearing gravel than any other operating mine on the Pacific Coast.

It is owned by a corporation known as the Old Channel Mining Co., which company is in reality a close corporation consisting of a trio of Chicago men who came into possession of it about four years ago.

The ground in places is two thousand feet wide, and the banks frequently two hundred feet high. The mine is worked under unusually favorable conditions. The banks being high, the effectiveness of the water is great, and since this whole deposit occupies a plateau of bedrock a thousand feet above the Rogue river, the ordinarily important question of disposition of tailings is for this mine a problem quite simple. A twelve-mile ditch delivers 5,000 inches of water from an excellent water source, namely, the west fork of Galice creek, to a reservoir affording a 510 foot head at the present point of operation. The situation, in a word, is most admirable for cheap operation, and the fact is, that the ground is handled at a cost not to exceed two cents per cubic yard, which is a record that even the famous North Bloomfield mine of Nevada county, Cal., never equalled in its best days. The features that contribute to this cheapness are the vastness of the deposits, and the excellent advantages in water supply and dump facilities.

This mine has produced as much as \$50,000 to \$75,000 a year, and is known to still embrace much ground of the same character. It is composed mostly, however, of lower grade gravel, the removal of which is rendered profitable only by virtue of the exceptionally excellent conditions. Four thousand to five thousand cubic yards can be removed daily when the mine is in full operation, and the season extends over a period of seven to eight months.

The gold from the Old Channed mine is, as a rule, coarse and high grade. Running along in the middle of the deposit, or in what **might** be called the main channel, it will average \$19.33 per ounce, while outside of this channel the value drops, for some reason or another, to about \$18.25. There is another feature, however, that is quite as interesting as this high grade value of the gold. The gravel has been found to contain the various metals of the platinum group, and to such an extent that in the season of 1902-3 the mine was equipped with patent platinum-saving apparatus. Enough platinum was saved the first year to more than pay for all equipment and operating expenses for that season.

The mine the past year has been under lease to one of the partners, Mr. J. R. Harvey, of Chicago. The first half of the season was spent in cutting a long and deep tail-race with an outlet on the Rocky gulch side.

Much of this race was cut through solid bedrock, but represents an excellent investment, for it will facilitate the mine's operation for all time. Work on the Rich gulch side was not prosecuted the past season, but during the ensuing year work will be resumed in earnest, and it will be worth the time of anyone to visit the Old Channel mine and witness no less than four great streams of water playing through nozzles from four to six inches in diameter and under a pressure of 500 feet against the giant banks of this monstrous mine.

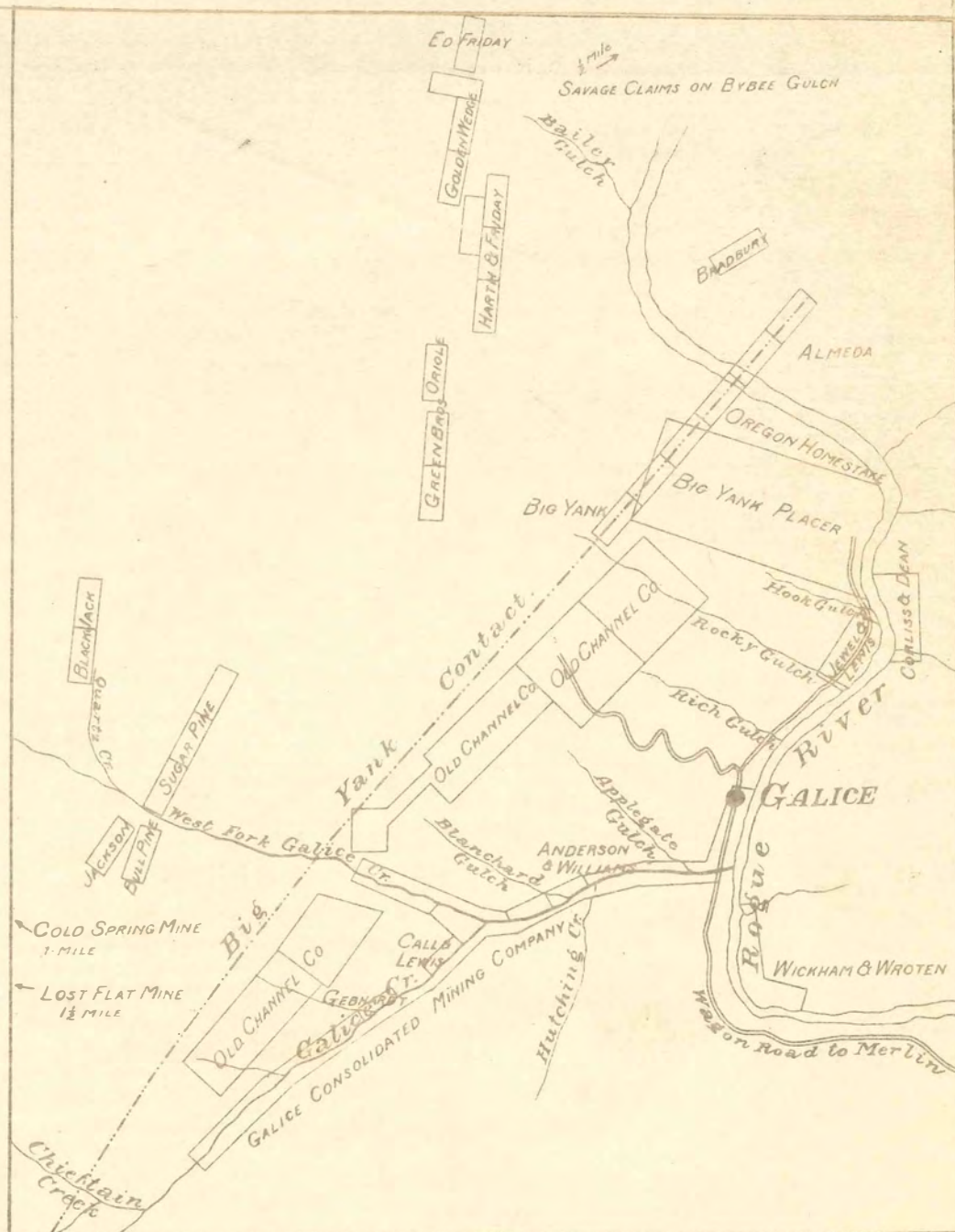
FRIDAY.

Almost adjoining the Golden Wedge on the north is a property owned by Ed. Friday, and consisting of a single claim. Enough

work has been done to show a permanent appearing lead and it is not unlikely that the future will disclose it to be the northern continuation of the Golden Wedge ledge. Mr. Friday will do considerable work on this prospect during the ensuing year.

BYBEE GULCH.

The mouth of Bybee gulch has always been an interesting point of geologic and mining speculation, both as regards quartz and placer. To-day Jas. Savage and Sons control this area with five quartz location claims. There are several seams. They are about in a line with the Golden Wedge and in the same formation, although a mile or two away. The main ledge or the McKinley is traced across the Rogue river. Some quartz has been mined on both sides of the river and there have been five arrastras at one time or another within a radius of one-half mile of this point. The Bradberry prospect, which has produced several thousand dollars, is not more than a mile or so away. (See map for location.)



MAP OF GALICE DISTRICT.

THE GOLDEN WEDGE.

This is a prospect that has always excited more than ordinary interest. It has been more of a puzzle than anything else. It was discovered twelve or fifteen years ago with the quartz lying, in great part, flat on top of the ground, forming an uncovered or exposed blanket ledge of a very high grade rock. Later, and at a point two or three hundred feet further south on the course of the main vein the ledge was found dipping into the ground. The ore, however, was found to continue as rich as ever, so that all told about \$40,000 has already been accounted for from a mine whose surface can literally and truly be described as being as yet practically unscratched. Most of this amount was milled from above the adit level of the present workings. Everything above this level, or to a depth of eighty feet below the apex of the ledge has been stoped. Last year a winze from this level twenty feet deep had been sunk by Mr. Willis Kramer, the Myrtle creek flour mill man. At this time the trio of Thein Brothers and Saurbrey came into a part interest in the mine as well as possession. They extended this twenty foot winze to a depth of sixty feet, and then drifted fifteen feet each way on the ledge from the bottom. At this point the fall rains so thoroughly saturated the gulch in which the mine is situated that work was brought to an end by excess of water in the winze.

The property is equipped with a two-stamp mill, manufactured by the Ashland Foundry and machine shop, and by Jacobs' concentrator. Both machines are run by water power, which is amply supplied, at least for the winter, by Bailey gulch, at two of whose forks the mine is situated.

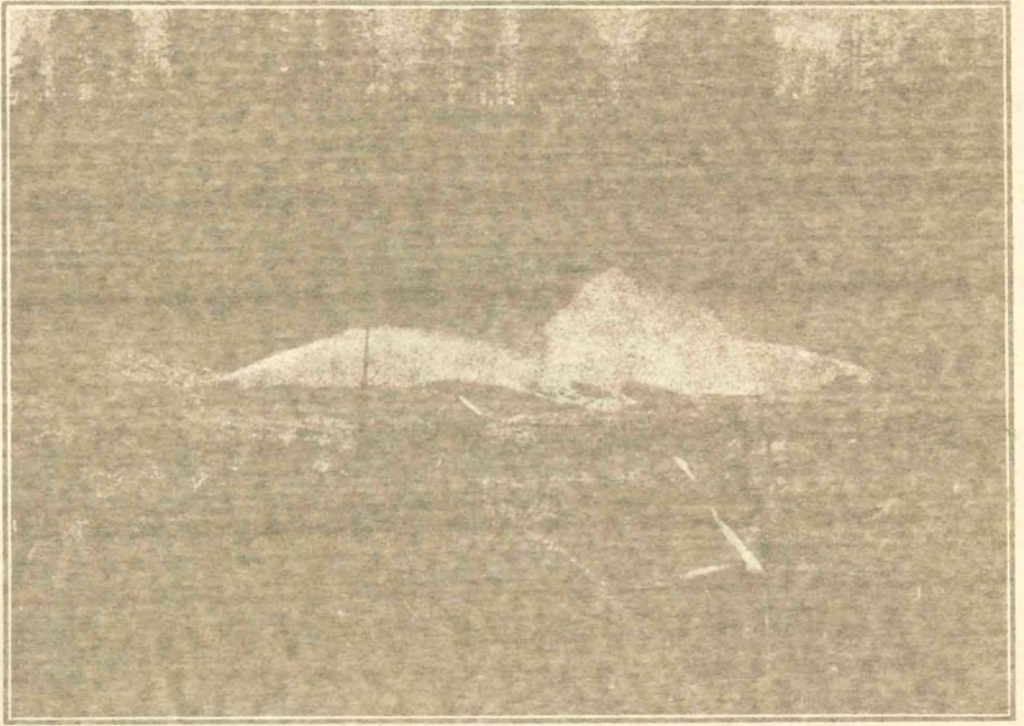
Some four or five hundred tons of tailings have been impounded below the mill, and



TUNNEL MOUTH AT GOLDEN WEDGE MINE.

these tailings will average from \$5 to \$15 per ton in values.

The formation at the Golden Wedge mine is apparently a variety of diorite, with evidences here and there of a schistose structure.



BANKS 200 FEET HIGH AT OLD CHANNEL MINE.

There is little doubt of the true fault fissure character of the vein, which is evidenced by the lenticular manner of its occurrence and the firm smooth walls. It runs to six or seven feet in width, is of a grayish cast of quartz, and carries values in galena and probably occasionally tellurium. The Golden Wedge is easily one of the banner prospects of Southern Oregon.

GREEN BROTHERS.

A mile and a half south of the Golden Wedge is a new and promising prospect owned by Green Brothers. The Oriole near by, owned by Mattison and Mitchell, is on the same lead, and has some very pretty rock exposed.

THE SUGAR PINE QUARTZ MINE.

The Sugar Pine quartz ledge on the right fork of Galice was one of the first discovered of Southern Oregon, having been located in 1860 by two miners, Draper and Cassidy, who organized a partnership and built an arrastra in the following year, although little further was done. The prospect lay idle until the spring of 1872, when Green Bros. located it and built a new arrastra, the only kind of milling plant the property has ever had. They ran a drift on the ledge and stoped out about \$5,000. The following year they ran a lower drift, stoping from that level about \$10,000 in the year. A third drift also yielded \$10,000 from its stopes. This represented practically the last milling the property has seen (1882): A lower level had been driven on the vein for a distance of 600 feet.

The vein exposed is small, frequently narrowing to the barest seam but has never been lost. In 1882 the property was acquired by Bolt & Kubli. The Kubli interest some ten years ago was sold to Frank Knight. Recently the whole property was acquired by W. I. Dowell at sheriff's sale. The tunnel

was continued to a point over 700 feet in, but has come into a change of formation, pronounced by some to be a form of serpentine, which seems to have cut off the continuity of the seam. This fact, however, is making no difference with the present owner, Mr. Dowell, who expects to either sink or upraise at one or two of the more promising points in the tunnel. The strike is north and south, with a slight dip to the west and the formation is diorite. The concentrates are high grade, three tons, the only concentrates ever saved, yielded about \$4,100.

BULL PINE AND BLACK JACK.

A seam that is exposed for a length of sixty feet and which may grow into quite a ledge on very little additional development work is the Bull Pine, across Galice creek from the Sugar Pine and less than a quarter of a mile away. The seam is exposed for the sixty feet by an open cut and tunnel of that length. The rock is a fine grained quartz and every bit of it gives a flattering prospect from the pan. The situation in respect to timber, water and power is hard to excel, and the location is about three miles from the postoffice of Galice. It was located November 19th, 1900, by Reeves, Williams and Merrill, but is owned to-day by J. W. Reeves and the Williams estate.

On Quartz creek, the main tributary of the right fork of Galice, Robert Jackson, working also for his partners, Moon and Cary, is working a property that has several points of peculiarity. The gold is found in bunches, finely imbedded in quartz that itself is firmly frozen to the seam walls, and occurs in a schistose structure laminated with silica. Four thousand dollars was removed in a small bunch four years ago and taken out by means of a hand mortar, and six or eight hundred dollars again this spring by Mr. Jackson.

The Galice Consolidated Mines

Galice creek district is a district by itself, and Galice creek proper deserves almost to be classed alone as a producer of placer gold. It empties into the Rogue river at a point twenty miles or so below Grants' Pass and fourteen miles west of Merlin, to which later point on the Southern Pacific Railroad this whole section is tributary in a commercial way.

Galice creek cuts for the most part through a slate formation. By examination of the map of Galice creek it will be seen that the stream follows approximately the direction of the Big Yank contact but on a line further east. This means that for four or five miles of its length from where it empties into Rogue river it keeps to the east of the dior-

Each of these flows from the west, and besides furnishing a means for the conveyance of the gold and gravel of the old channel to Galice creek, the North Fork and Blanchard gulches have cut deep gorges through the slate bed rock below. These tributary streams and gulches were themselves exceedingly rich and paid well for working and re-working both before and after the old channel company had used them for artificial tail races for their truly immense quantities of tailings.

The history of Galice creek, if properly assembled, would make interesting reading. There is no means of getting any very definite idea of the output of Galice, but the total would probably not fall far short of

handsomely, moreover, for extraction by the use of the latest devised machinery.

The Galice Consolidated Mining Company has added a Campbell hydraulic elevator, and there is little doubt that this process will prove eminently successful. The operations of this Company are full of interest and show what can be done in the way of equipping a property when taken hold of by push and enterprise.

The formation of this Company probably dates back to six or seven years ago, when Mr. A. B. Cousin, a young man who had spent five years of his life on the creek and who had made a careful study of its possibilities, interested with him Mr. J. L. Atkinson, a pioneer and capitalist of Portland. It was the plan to put on ditches and pipe, and work off the remaining spots on the creek that could be worked with profit, and perhaps in the end, also re-work the bed of the stream. About two miles of the creek lying above the confluence of the forks was acquired and an equipment added. About this time Mr. Atkinson died, so that Mr. Cousin was compelled to organize a company to carry out his plans, which he succeeded in doing in 1901. His principal co-workers were Mrs. Atkinson and Waggy Brothers. The Company was organized under the name of the St. Helens and Galice. The equipment of the mine was completed and the season of 1902 and 1903 proved a very profitable one. Mr. Cousin in the meantime had seen a good opportunity of organizing another company and thereby acquiring practically complete control of the creek from the mouth to its forks, which opportunity he embraced, so that between this latter company, the Galice Hydraulic and the former, the St. Helens and Galice, Mr. Cousin acquired a control over five miles of the stream, or practically the entire stream, excepting the Green-Harmon (now the Anderson & Williamson) mine below the forks and the Call & Lewis claim above. It was in 1902 that the Galice Hydraulic Company was formed, and with Dr. E. Cable, G. E. Waggoner and A. B. Cousin as principal stockholders. Last fall the two companies, under the influence of Mr. Cousin, were merged into one, and under the name of the Galice Consolidated Mining Company.

The equipment to-day includes ten or twelve miles of ditches, a thousand feet or so of pipe, three giants, two derricks, and now a Campbell hydraulic elevator. The water privileges for a large part of the year are simply not to be excelled. The four mile ditch, to-day carrying 2,000 inches of water to a point near the mouth of the creek or where the elevator has just been set, furnishes ample water and ample pressure. The season, however, can be lengthened by the extension of the ditch from the north fork to the south fork, and this will be done this summer. A second elevator will then be installed, since the Company in its recent purchase of Gamblers' bar and the site of the present town of Galice, has added a hundred acres of good ground, constituting excellent elevating ground. The Company now owns some 700 acres, has a saw mill, good buildings and is in a position to commence to realize on its investment.



RESERVOIR DAM, GALICE CONSOLIDATED.

ite or mineralized formation of Galice district, so that the creek itself has been fed its values from other sources. Those sources are not very far to seek. Independently of what it may have gained by erosion from its headwaters, the far-famed richness of Galice creek is unquestionably due to the contributions of an ancient high channel that parallels it to the left at a superior elevation of 1,000 feet and that lies between Galice creek and the Big Yank contact. This ancient channel, which is elsewhere described under the caption of "Old Channel Mines," represents a big deposit of gravel, large alike in each of its three cubical dimensions. Crossing this great body of gravel at almost right angles are the north fork of Galice, Blanchard gulch, Applegate gulch and China gulch.

\$10,000,000. Considering the length of the stream this amount seems almost fabulous, yet it is probably approximately correct, and it accounts for the great name that Galice creek will always hold in the annals of Southern Oregon placer history.

After the whites and Chinese had skimmed the cream, which was previous to twenty years ago, it was, of course, thought that the remnants would not pay. There were those, however, who thought differently, and there were those, too, who were willing to sacrifice time and money in finding out. It is to-day practically universally conceded by those at all familiar with the conditions, that there are unworked spots of Galice creek that must be very rich, and that will pay

OTHER GALICE CREEK CLAIMS.

One of the best portions of Galice creek is that which is embraced in the ground usually known as the old Harmon-Green property, but which is to-day owned by two Oakland, California, men, under the partnership name of Anderson & Williams. With good ground, good water right and good equipment otherwise, they are bound to get good results under the efficient management of the resident partner, Mr. Anderson.

The Call and Lewis claim just above the forks is owned by S. F. Call and H. L. Lewis and represents quite a strip of virgin ground. They have a small water right from Town gulch. A three and one-half mile ditch from the left fork of Galice creek would furnish adequate water and head and will probably be dug.

Above the Lewis and Call claim is a claim owned by William Gebhardt and known to contain some good gold bearing gravel. Like many other good gravel mines, Mr. Gebhardt's mine lacks the best water facilities, and it is consequently worked on a very limited scale.

COLD SPRINGS COPPER MINE.

The Cold Springs Copper mine comprises a group of five claims owned by J. W. Reeves and the Martin A. Williams estate. Three of the claims were located by these two men six years ago, and soon after, Mr. Reeves located two more. The first three claims located cover, for their total length what seems to be a continuous lead of copper. The higher grade of pay ore in this lode is a streak from one to six and one-half feet wide. Eight tunnels have been run, the shortest being sixteen feet and the longest 240 feet. A twenty-five-foot shaft and a few open cuts also pertain to the development work, which in tunnels and shafts will aggregate 734 feet.

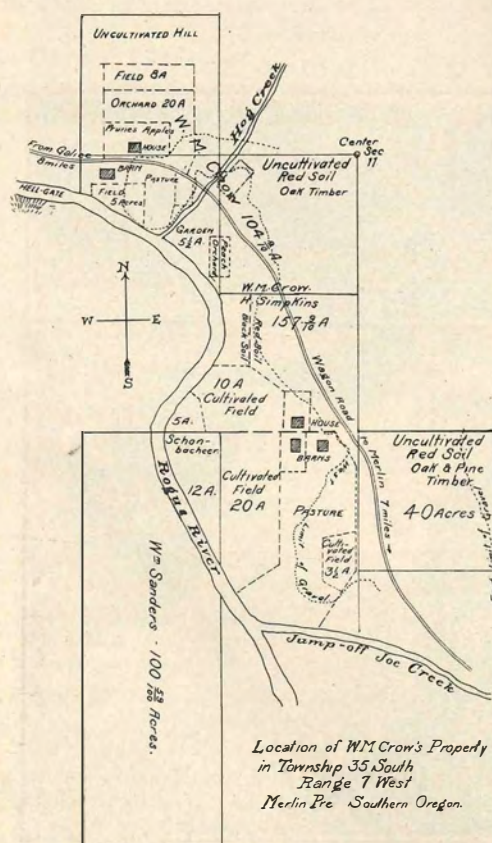
The elevation of the property is about 2,500 feet and is ideal for tunnelling from the very start. It is situated about three miles from the wagon road and five miles from the store and postoffice of Galice. Five assays made from the croppings averaged very good indeed. Twenty assays taken over 3,400 feet of its length, and on the streak of high grade ore five feet wide, are claimed to have averaged \$6 in gold, eight per cent copper and two ounces silver. These assays were practically from the surface, since none were obtained from a depth of over fifty-one feet.

The last work done was to drive a cross-cut. This cross-cut in 225 feet will tap the ledge at a depth of 175 feet; at present it is in 180 feet. There are two veins on the property and on these two veins three pay shoots have been discovered. The vein that has been given the most attention is in a formation of hornblende and schist. The mountains in which these veins occur are very highly mineralized and show considerable gossan. The strike of the vein is southwest and northeast and the dip is to the east. The property is in the control of Mr. Reeves. The estate of M. A. Williams owns one-half interest in three of the claims, but Mr. Reeves is the administrator for that estate.

W. M. CROW PROPERTY.

A promising piece of entirely new and undeveloped gravel ground is that which, unknown to the general public, has constituted the most valuable portion of what has ordinarily been known as the Crow ranch, situated on the Rogue river, at the mouth of Jump-Off-Joe creek. There is one man who has not been unaware of the mineral character of the ground, and that is the owner, Mr. Wm. M. Crow. It was not his purpose, however, to draw attention to the fact until certain neighboring ground was acquired, which acquisition was made in the spring of 1903. This purchase gave him a total acreage of 275 acres, more than one-third of which area is made up of gravel deposit, as indicated on the accompanying map.

There is one other man who happens to know a good bit about this property, and that is N. S. Yokum, of Grants Pass. Mr. Yokum, in the years gone by, was a resident of these parts, and at one time undertook



some little prospecting or development work on the gravel. A surface cut thirty or forty feet long, and four or six feet deep, made just in front of the Crow residence, as indicated on the map, paid wages for its excavation. An eighteen-foot shaft on the rise east of Hog creek showed gold to exist everywhere in the gravel, and, to use Mr. Yokum's own words, gave a "rattling good prospect" near the bedrock. On the west bank of Hog creek and just overlooking the creek he took out \$2.75 in a half day's pick and shoveling. An uprooted tree on another part of the ground tore up gravel containing a good prospect. A well near the eastern portion of Mr. Crow's ground showed gold throughout the gravel. Investigation will probably show the bed of gravel to average thirty feet deep, and Mr. Crow places its value very conservatively at ten cent per cubic yard.

The property represents one of the very few spots of virgin ground remaining for placer mining, and the conditions in every way are ideal. Eight miles of ditches from Hog creek and Quartz creek, respectively, will furnish 1,500 inches of water for five to six months, and can be built for about \$6,000, according to Mr. Crow's estimate. A pressure of 250 would be developed. The bedrock is apparently level, although at one place the gravel deposits spread out to about one-fourth of a mile in width. The old channel lies about 100 feet above the present Rogue river. At another place on the property a bank fully sixty feet in height is exposed, but this is very obviously a different channel, possibly a part of the channel opened up at the Stratton mine several miles below.

The Crow ranch has heretofore been known only as a farm, garden and orchard, practically every acre of it being subject to cultivation. Mr. Crow, however, is not one of that type to undervalue the mineral characteristics of the ground, and it was for the purpose of consolidating his property into a placer mine that he purchased the Simpkins ranch last spring. Of course, the major portion of these combined properties will never interfere with the excellent garden ground at the mouth of Hog creek, the twelve acres of fine orchard and eighty odd acres of unsurpassed alfalfa land that the two places include.

LOST FLAT.

This is another prospect that, like the Golden Wedge, had its richness promiscuously spilled about over the surface. It was discovered about 1887 by two prospectors named Thorndyke and Hathaway, and was the first prospect in the Galice creek country to receive attention after the Sugar Pine, from which property it is about four miles away, in a southerly direction, as indicated on the map. W. M. Crow and another got a half interest for developing the property, and later Crow and Thorndyke became the sole owners. A little money was crushed out by means of an arrastra. J. C. Taylor bought out the Thorndyke interest and Taylor and Crow shipped eight carloads, realizing \$80 per ton in gross returns.

The quartz, however, has never been found in place. The ledge was shattered by a slide, fault or eruption, but some systematic work the past year on the part of Smith Brothers, of Grants Pass, who succeeded to the Taylor interest and who have the Crow interest under bond, promises to result shortly in some interesting disclosures.

THE COPPER EAGLE.

This property, owned by a group of Eastern Oregon mining men and others, under the corporation name of the Copper Eagle Mining Company, and managed locally by J. C. Mattison, is situated at the head of Rocky gulch, and shows some of the best copper ore in Southern Oregon, assays running as high as thirty-five to forty per cent. The ore, however, as far as developed, is confined to a comparatively small ledge, from three to six feet wide, and is of quartz.

A Mammoth Prospect.

THE PROPERTY OF
THE ALMEDA MIN-
ING COMPANY.

What promises to become one of the greatest mines not of the State of Oregon, but the whole West, is being developed in the Galice creek district, on that is known as the Big Yank lode. At a point about three miles below the mouth of Galice creek the Rogue river cuts through a formation that in a casual way has interested the passerby miner and prospector for years, and it has also interested mining capital; but out of it all little has ever come until three or four years ago.

At that time Mr. John F. Wickham, who had become interested in lode mining in the Galice creek district, began to take a close interest in the Big Yank croppings. With Mr. O. M. Crouch and R. C. Kinney, he purchased two claims commencing at the Rogue river and extending northeast. The Almeda Mining Company was subsequently organized with Mr. Crouch as president and Mr. Wickham as manager, and development since that time has been steadily prosecuted, with the result of a most excellent showing at the present time.

The ore body is exposed by two tunnels—one 185 feet long, the other 370 feet long—not to mention the immense outcroppings that can be followed by the eye for a distance of nearly half a mile. When visiting the mine Mineral Wealth's representative went to the pains of taking five samples, representative of the ore in the two tunnels, and got good gold and silver returns, in fact, very good returns considering the magnitude of the ore body as exposed and the amount of development work done. The lowest assay was \$2.12 in gold per ton, and .09 ounces silver; the highest assay was \$6.80 in gold and .24 ounces in silver. The average was \$4.25 in gold and .16 ounces in silver. In both tunnels the values increased as the tunnels gained depth. The largest assay in each case came from points furthest in. From the upper or longer tunnel which crosses the ore body diagonally from left to right and a distance of several hundred feet vertically above the other tunnel the sample furthest in gave a return of \$5.20 in gold and .19 ounces in silver. It is on copper values, however, that the Almeda people are placing their greatest hopes, notwithstanding that as a gold and silver producer alone the mine would have few rivals. The expectations of the Company in this respect are based on the well-known fact that the weathering processes of nature ordinarily leach out the copper values and cause them to descend into lower portions of the mine, constituting what geologists term the process of secondary enrichment. The present owners express themselves as highly pleased with the copper shown up by the present limited surface development. Samples taken by them and covering a period of two years gave an average assay of 2.66 per cent copper, according to P. Baumel, the Portland assayer. The copper appears in the form of malachite, azurite and chalcocite. Besides the gold and silver (and in the recent workings considerable lead in the form of galena)

there is a great abundance of iron in the form of pyrites. In fact, it is this latter, just as soon as the surface crust of oxidized ore or gossan is broken through—which in some parts of the croppings is a matter of inches instead of feet—that gives the Big Yank lode at this point its very apparent mineral character. The ore forms on a contact of slate and diorite. This contact, so far as determined, stands perpendicularly at the scene of the Almeda's operation. It extends northeasterly and southwesterly. There are two claims, the Bonanza and the Monte Cristo, embracing 3,000 feet of the lode, commencing at the Rogue river and running northerly. The red or oxidized capping shows for a width of 125 feet. The mammoth outcroppings can be traced on the surface for a distance of 2,500 feet and to a vertical height above the river of 1,000 feet.

This elephantine prospect, although still in its early stages, has had a career that would make interesting reading if the facts were all available. The following interesting excerpt is from a report on the property by Mr. J. H. Fisk, a mining engineer and metallurgical expert of Portland:

"The Great Yank ledge has a history running back for the past forty years or more, with which most of the Southern Oregon miners are quite familiar. It has been located and abandoned, and relocated many times, and many attempts have been made to develop and work it without success, on account of its immense size. Hundreds of assays have been made from it time and again. I, myself, have made, I presume, a hundred assays from it, always running a dollar or two per ton—some declaring it to be pay ore, others not; but the real fact is, that these determinations have always been made from the hard flinty capping which covers these two claims, or the ore body for eighty or one hundred feet."

Mr. Fisk then proceeds to state that the true character of the mine stood unrevealed until the present owners took the property vigorously in hand and penetrated through the hard capping which to others had remained the fatal bar, but which to Mr. Wickham and associates became the "open sesame" to the mine's hidden stores.

The work done has been done to good advantage, and there is already a large body of ore developed. In fact, the showing is so satisfactory that the Company has decided upon the erection of a smelter. The furnace will be of a new type, put out by the new Improved Mineral Smelter Company, of Portland. Preliminary to the construction of the smelting plant, however, a wagon road will be built. Surveys have already been started. The road will pass northerly over a low divide between the Rogue river and Grave creek and connect with the Southern Pacific Railroad three miles north of Leland. The total distance between the two points will be eleven (11) miles, but about two miles of the present Grave creek road will be utilized. This will leave nine (9)

miles of new road to be built. Access to the mine at present is by way of the Galice creek road from Merlin, a distance of about eighteen (18) miles. By using this latter road only one mile of new road would be necessary, unless the Company should elect to keep on the right side of Rogue river the entire way. The juncture with the Galice road would then be at a point above Masie's ferry and about four miles of new road would be required. This, however, would shorten the distance to the railroad (Merlin) to sixteen (16) miles and also obviate ferrying at two points.

The Almeda Company is fortunate in having at its head honest and efficient men. Besides the men already mentioned, the directorate consists of: Mr. R. C. Kinney, secretary and treasurer; Dr. Emmett Drake, of Portland and Mr. G. H. Howland, of Medford, Ore. Mr. Wickham, the manager, has the honor of being president of the Oregon State Miners' Association.

VAN DORN & HEDRICK MINES.

On the Rogue river, immediately opposite the Crow mining and agricultural holdings, lies a piece of L-shaped high bench gravel mining ground that in the past year or two has been developed by its owners of the above name. To-day sluice cuts, shafts and other openings expose a big body of good paying gravel at numerous places, making it possible and easy to get a fairly accurate idea of the ground's true extent and value. About 10,000 cubic yards that have been piped away in the course of this development has produced \$2,800 and is about representative of what the rest of the ground will do.

The great handicap so far has been in the lack of water. A ditch has been started from Zigzag gulch one and one-half miles distant which for a season of three months or so will furnish an effective head of 200 feet, and the mine will no doubt then become a fine payer.

MERLIN.

The leading merchant of Merlin is Mr. J. W. Mitchell, who recognizes the central location of his town, and in accordance therewith keeps a stock that serves the varied needs alike of farmers, miners, fruitmen, timbermen and stockmen. He has maintained his store here for sixteen years and therefore is entitled to the name and consideration of the pioneer merchant.

The hotel in Merlin is conducted by Mr. H. A. Jordan. Mr. Jordan's connection with the town in this capacity dates from three or four years ago. Previously and since he interested himself in the country's chief industry. With Riley, Thompson and others he is interested in a promising prospect on the Quartz creek branch of Thompson creek on the Applegate, and they are at present doing some active development.

CORLISS AND DEAN.

The Corliss and Dean placer comprises 200 acres (forty acres patented). The main water right is from Ash creek, but a one-mile ditch from Green creek and a one and one-half mile ditch from La Mar creek, also cover the property, which is this year under lease.

MT. REUBEN DISTRICT.

THE GOLD BUG.

The Gold Bug mine of Mount Reuben district is classed with the three or four largest producers of Southern Oregon. The reader will find it indicated on the map of the Mount Reuben district, and it was this property that occasioned the construction of the twenty-mile wagon road from Glendale. While only from 500 to 600 feet deep, yet it is numbered as the third deepest mine in the State, save in the Eastern Oregon district, and from its short pay chute, averaging only 125 feet in length, the phenomenal sum of \$425,000 was removed in this depth.

Senator John P. Jones, of Nevada, and associates are the owners, but it is at present optioned to a group of Portland and Eastern Oregon mining men, including Angus McQueen, Albert Tabor and others.

THE BENTON'S WONDERFUL SHOWING.

There are two men operating in the Mount Reuben district whose faith in her quartz prospects has never waned and who have backed their faith by spending more money than any other two individuals. It so happened that these two men became interested together in the prospect known as the Benton. In several months they have opened up a property that outranks all its neigh-



BUILDINGS AT BENTON MINE.

bors, and in the short space of a year's time ranks with the best four quartz mines in Southern Oregon. The showing is almost phenomenal. A 1,300-foot tunnel has been driven every foot on the vein, and every foot of the vein is paying ore. This, with the showing at the Greenback, Braden and Opp mines, refutes forever the imputation that the pay chutes of this country will be found to be short. When these properties all get to going full blast, with thirty or forty stamps each, the quartz mining industry of Southern Oregon will be placed well on its feet.

The Benton is the property of J. C. Lewis and R. A. Jones. It is at present entirely under bond to Lewis, with Jones as superintendent and manager.

THE ELWILDA GROUP.

This group, comprising eight claims near the mouth of Whiskey creek in the Mount Reuben district, is owned by Willis Kramer,

the flour mill owner of Myrtle Creek, and Grant Palmer, the discoverer, and who has charge of operations at the mine at the present time. The prospect dates from only three years ago, and while the work done is yet unextensive, still it is of such a character as to present a very flattering prospect at the present time. The ore is very high grade and is shown up at several different



TUNNEL AT ELWILDA MINE.

points on the property. The two main openings, while three-eighths of a mile apart, appear, nevertheless, to be on the same vein and the showing in each is indeed gratifying. The values occur largely in combination with tellurium, so that they have been hard to save in milling. A Parker rotary four-stamp mill was installed, but has not proven satisfactory. The situation for a reduction plant is ideal. A flume from Whiskey creek and less than a mile and a half long has a vertical elevation above

Rogue river of over 300 feet. The formation is diorite; there are seven distinct veins so far discovered on the group, including one quite rich in copper, and the claims from left to right and downward, as given on the accompanying map of Mount Reuben district, are as follows: Oakley, Blue Ledge, Elwilda, Willis Kramer, Riverside, Madrone, Golden Queen, Grant Palmer and Manzanita.

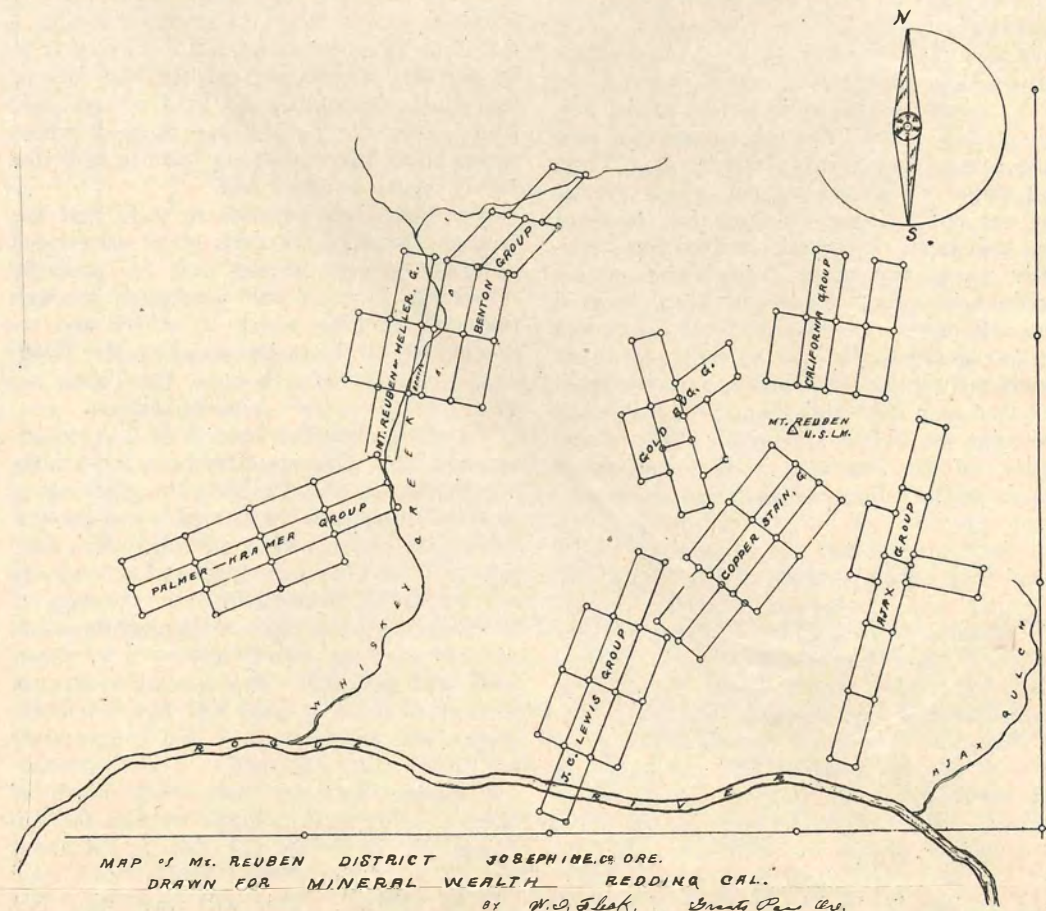
THE HELLER GROUP.

Separated from the Gold Bug mine by the Benton group, and, in fact, properly forming the continuation of that group, is the Heller group of five claims, owned by the Mount Reuben Mining Company. The company also has two placer claims along the bed of Whiskey creek. Most of the work so far done is on what is known as the Heller claim. There are two tunnels, one starting from a level a little above the creek bed and following northward on the vein for 125 feet, and the other thirty feet or so above and sixty-five feet in. The vein is a true contact lead lying between walls that have been called diabase and syenite. These walls will vary from three to six feet apart. About one-third of the ledge filling will compose solid ore, the ore consisting of heavily sulphuretted quartz. The assays are very satisfactory.

THE COPPER STAIN.

This property is owned by C. D. Burnett, of Leland, and Jas. A. Connelley and Mesdame S. L. Dana and R. D. Lawrence, of Springfield, Ill. It was found fourteen or fifteen years ago, but the only work of any consequence done upon it was done by J. B. Wetherell until purchased from him by the present parties four years ago.

The present owners continued an incline



shaft from the sixty-foot point to a depth of 300 feet, and drifted on the ledge from the bottom of this shaft for 300 feet, most of this distance being southwesterly, which already practically blocks out a mine. The ledge is well defined, the ore is free milling and high grade and there are several thousand tons of it on the dump.

AJAX.

This prospect, owned by David Williams, is in the heart of the Mount Reuben district, and has produced some of the best rock taken out of that region. The work for the past year or two has been in the nature of development purely. The mine is equipped with a two-stamp mill, and by many people is looked upon as one of the best prospects of the noted Mount Reuben district.

THE CALIFORNIA.

At the bottom of a 125-foot shaft the California shows a six-foot ledge of high grade ore, and what is more the lead on the surface and elsewhere has every indication of being a permanent one. C. W. Kline, J. C. Lewis, R. A. Jones and the Gold Bug Company are all parties at interest. This is one of the several instances in Southern Oregon where inharmonious among partners is holding back a good mine.

REUBEN CREEK PLACER MINING ASSOCIATION.

"This association was organized three months ago in its present form to avoid the odious requirements of the Eddy law as regards taxation on capitalization. It is practically an effective partnership, and controls that rich and well known portion of Reuben creek that has passed into the control of Burton, White & Co., the prime movers behind the present organization.



GLENDALÉ.

Glendale, a town of 300 or 400 inhabitants, is situated on the south edge of Douglas county, close to the Josephine county line, and thirty-five miles northerly on the railroad from Grant's Pass. It is situated well up Cow creek and is a thriving railroad point. The development of the timber interests has given the town its first impetus and the mines will soon follow. Glendale is the outlet point of the famous Mount Reuben district which it taps with a twenty-mile wagon road, and otherwise is the center of an interesting geologic district.

A big saw mill plant is now operating on Windy creek several miles northeast of Glendale and the lumber is flumed to the railroad.

H. G. ZONNEMAN DEPARTMENT STORE.

The town can boast of a full-grown department store, that of H. G. Zonneman, who came to Glendale from Salem about four years ago and bought the J. L. Dewey stock of dry goods and groceries. He last year bought the additional store and stock of Hugh A. Cuthbert, which increased the total ground floor space to nearly 5,000 square feet, not to mention a thousand square feet or so of balcony space, devoted to rugs, carpets, matting, etc. The stock is complete and up-to-date.

LADD & OLSON.

A firm especially suited to the growing mining trade of Glendale and vicinity is that of Ladd & Olson, who have both mined in various parts of Northern California and Southern Oregon. They formed a partnership and started a small dry goods and notion store at Roseburg in 1902, removing to Glendale in 1903 and adding a stock of groceries and provisions.

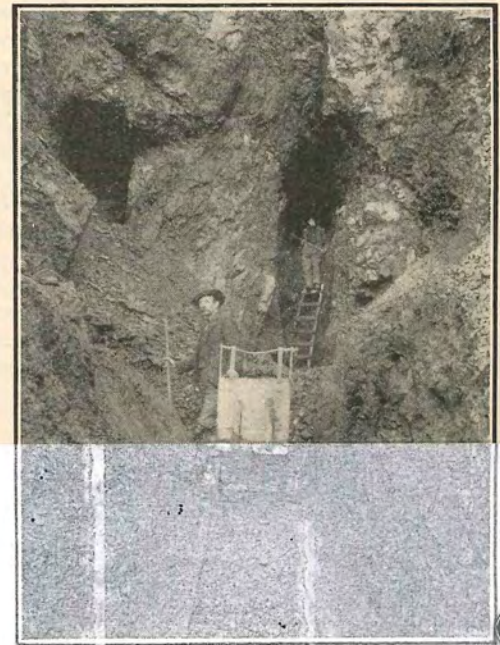
Besides their past direct interest in mining, they also have present direct interests in timber. This relation to both mining and lumbering brings them into close sympathy with the two main industries of the country, and such sympathy is necessary before a merchant is brought to appreciate the situation from the other man's point of view.

CHAS. T. NAIL, MERCHANT.

Mr. Nail started up in business September 18, 1901, and has enjoyed a steady growth along with the general improvement of the

L. L. HURD.

Mr. Hurd came to this section several years ago and with customary alertness at once became interested in the first industry of the country—mining. He has not only interested himself, but others as well. On the headwaters of Reuben creek he, with R. A. Jones and others, is developing a good prospect.



PORPHYRY DYKE ON STARVEOUT GULCH.

STARVEOUT CREEK.

Sixteen miles east of Glendale on Starve-Out creek, several placer and quartz mines are operated. The district is a continuation northward of the Coyote-Wolf creek mining districts, and has about the same geological formation and mineralogical conditions.

COW CREEK.

Below Cow creek are several good placer properties, at the head of which stands the well known Victory mine. This mine is a noted producer, and is also noted for the installation of a steam power pumping plant, several years ago, at a cost of \$80,000, and which proved a failure. The mine has since then been operated by water gathered together from several of the nearby tributaries of Cow creek, and is at present being successfully operated by E. N. Camp, of Chicago, owner.

BLALOCK & HOWE.

One of the best strikes in Southern Oregon the past year is that of Blalock & Howe, made last fall on their prospect of that name on Coyote creek, as shown on the map on page 8.

They are supposed to have taken out \$15,000 to \$20,000 by a few days' work, and the gold, as in the case of the Briggs discovery, appeared in big specimen character, embedded in solid quartz. The Blalock & Howe prospect is developing into a good ledge, and so will many another that is looked upon at the time of its discovery as a simple "pocket."

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DAM OF CONDOR WATER AND POWER COMPANY



interesting geologic district.

a special effort to serve.

GOLD HILL DISTRICT

THE FAMOUS GOLD HILL POCKET.

In our description of the Gold Hill quartz mining properties, we are sorry not to be able to give more detail to the Roaring Gimmel, Nellie Wright, May Belle, Fort Lane, Graham and Braden partnership, Millionaire, Tin Pan and numerous others. We would be pleased to give the particulars of the discovery and total production of the famous Gold Hill pocket, which was accidentally found in 1854 by a young rancher named James Hayes, and which from an excavation less than thirty feet deep has yielded an amount variously estimated at from \$250,000 to \$350,000. The ground is to-day owned by the Condor Water and Power Company.

UP THE ROGUE RIVER.

Above Gold Hill or Tolo on the Rogue. MINERAL WEALTH was deprived of the opportunity of investigating at first hand into the mineral possibilities of the region. Elk creek and other tributaries, however, are known to have gold. The lack of placer gold may have its explanation in the same cause that operated in the Bohemia and Blue River country in relation to those conditions.

Forty-five miles northeast of Central Point and about eight miles north of the famous Rogue river falls, W. H. De Zeng is opening up a porphyry dike bonded from P. Applegate and associates.

Several miles to the north there are known to be great quantities of quartz, some carrying gold values and some not. The Pearl Mining Company owns 176 acres in an almost solid block of quartz as shown on the surface. Quartz Mountain to the north is probably the biggest body of exposed silica in the State, and here and there carry some values that may some day make it valuable.

This whole Cascade country is new and untried, and offers an inviting field for the prospector, since it is safely beyond the railroad limit.

HOUCK BROTHERS' INTERESTS.

One mile east of Gold Hill is situated a combination of industries which embrace a flour mill, a quartz mill and an electric plant, the property of a partnership consisting of two brothers, J. J. and A. L. Houck. Mr. J. J. Houck, who has been a resident of Southern Oregon for fifteen years, commenced business here in 1892 by building a flour mill with a daily capacity of twenty barrels. Three years later he erected a two-stamp quartz mill for the reduction of the ore from his mine, and, incidentally, to handle custom work. The 750-pound stamps are of the Hendy type, and the mill is further fitted with a bumping table for concentrating. The flour mill and quartz mill occupy the same building.

The mine, referred to and known as the Ross mine, composed of five claims, is located three miles from the mill and is supplied with the most modern equipment. The shaft on the main vein is down at present 130 feet and is in four feet of ore and will be carried on down by means of first-class steam hoist, pump and drill, power at the mine being supplied from a twelve horse power boiler of the locomotive type. This was the first steam drill and the second steam hoist installed in the Jackson county mineral belt.

The 130-foot shaft and 100-foot drift disclose a strong vein of free milling ore carrying values of from \$15 to \$65 per ton. Fifty tons of high grade ore are now on the dump awaiting treatment.

In 1898 the flour mill was increased to fifty barrels daily capacity. The machinery in the mill is very modern, two-stand Nordyke and Marmon rolls and a one-stand case roll being used. The girator system of bolting is employed and the mill is further fitted with a Columbian first break feed governor. A Silver Creek cleaner is used.

The cereals, mostly corn, wheat and bar-

ley, are brought to the door by the farmers of the locality, and Mr. Houck's product goes exclusively to the local market of Southern Oregon. A 15,000 bushel warehouse was completed last summer, giving a total storage capacity of 30,000 bushels of grain.

The situation of the electric power plant is most ideal. A 2,000-foot ditch brings water directly from Rogue river without the construction of a dam and gives a head of twenty-five feet. This water is conducted to twin turbines connected with a Thompson and Houston eighteen ampere generator, carrying 104 volts. This plant at present gives 100 horse power, supplying the city of Gold Hill with both power and light. There is also a pumping plant in connection, and power is used to pump water into a reservoir, 300 feet above the town, which gives a pressure of 120 feet on the city mains.

At the location of the plant the lowest water available is 150,000 inches, and under the head obtainable, is sufficient to generate from 5,000 to 6,000 horse power.

Mr. Houck & Brother own 140 acres of patented land covering one mile of the river front.

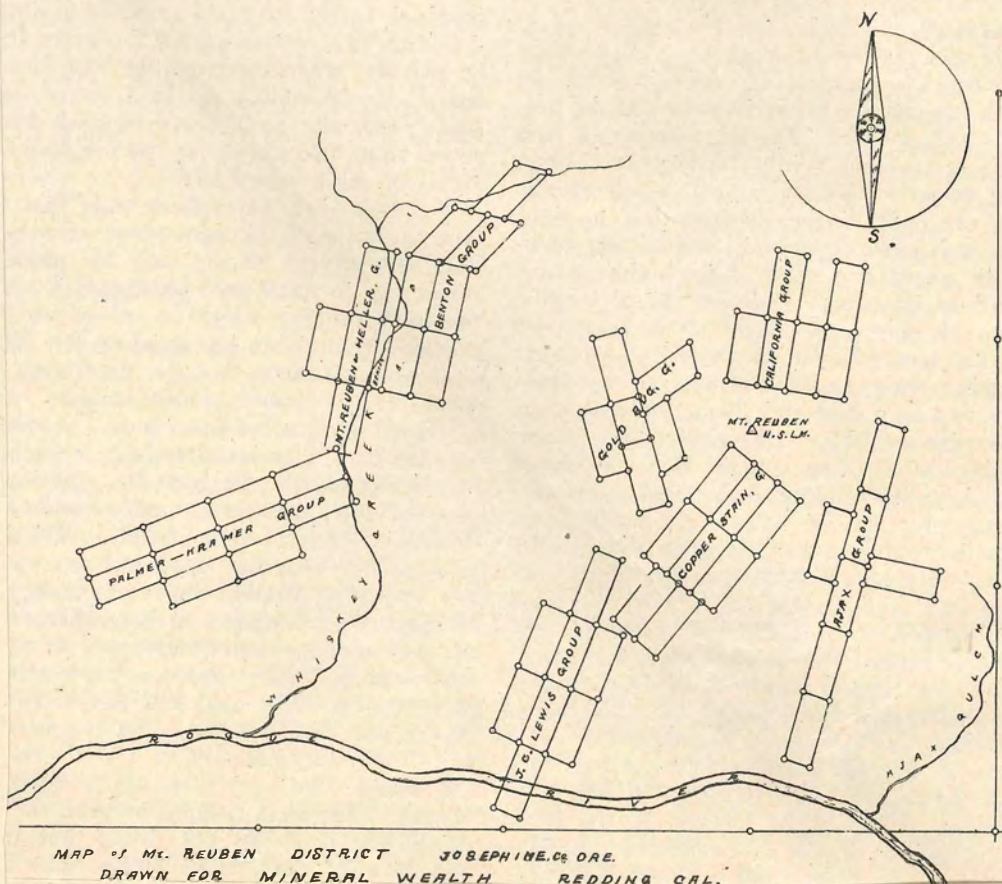
The power station throughout is fitted with the latest and most approved apparatus in electricity and the equipment of the mills, moreover, would indicate that Mr. Houck & Brother do not believe in doing things by halves.

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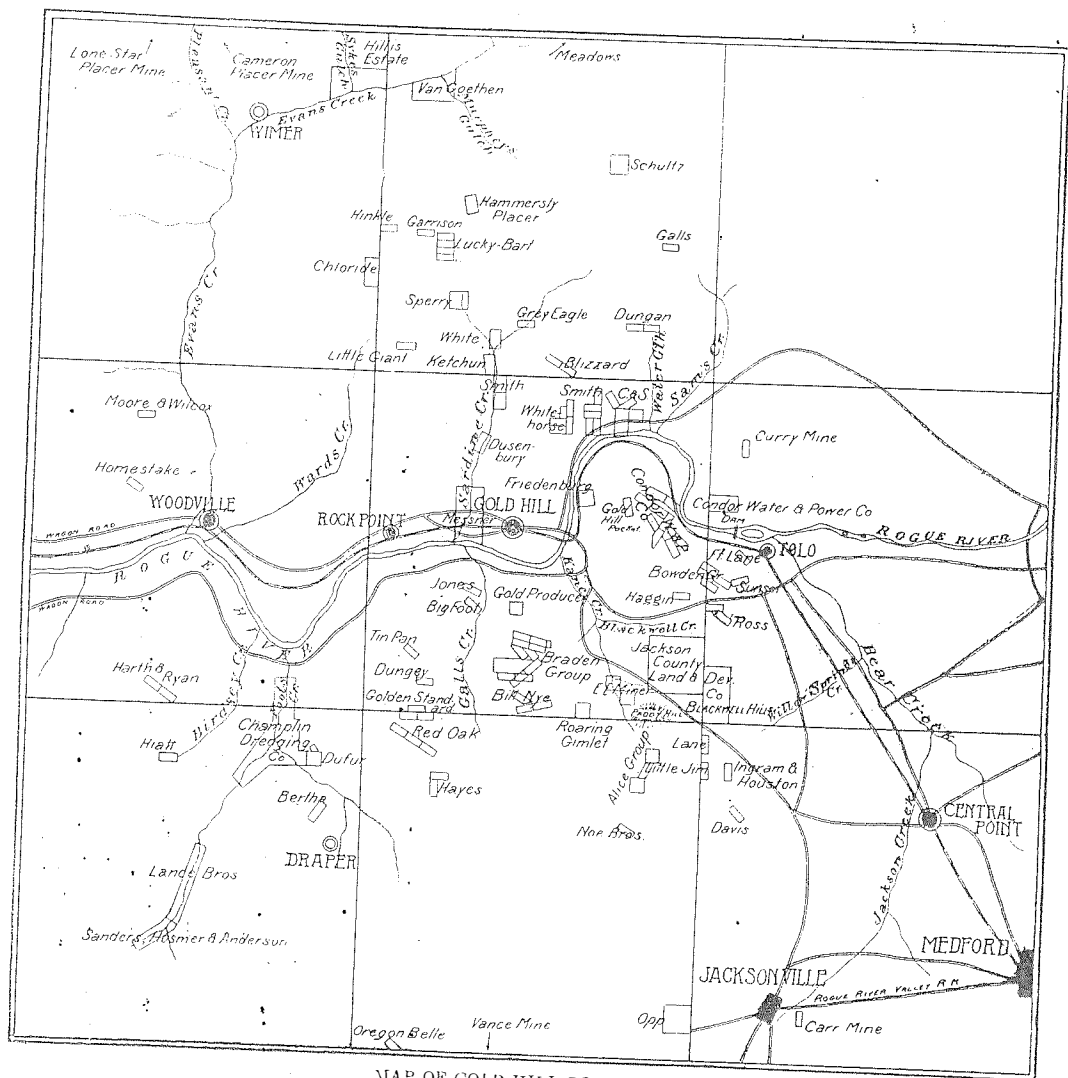
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MAP OF GOLD HILL DISTRICT.

scription of the Houck Brothers' plant, a group of Eastern capitalists, through Mr. H. Schaeffer, of Milwaukee, have secured an option on the magnificent water privileges that this property controls, and have announced their intention of putting in a large electric plant of 3,000 or 4,000 horsepower capacity to start with. They have

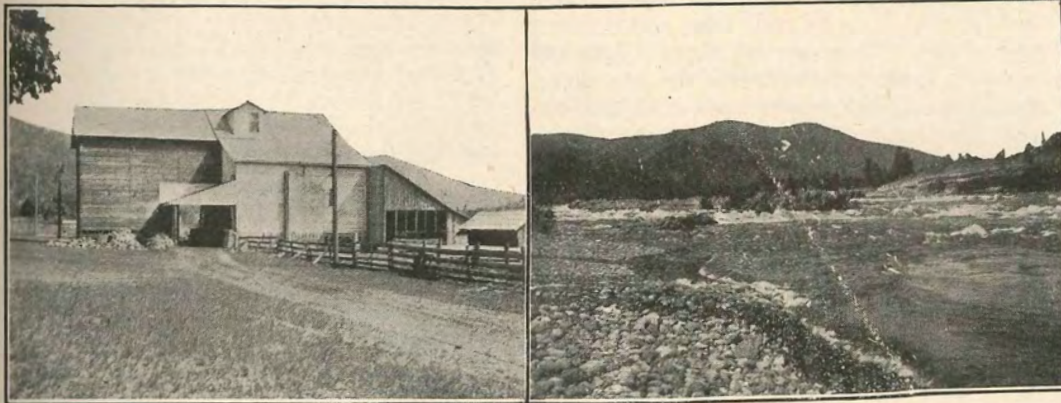
two miles above Gold Hill. Some placer ground at the mouth of the creek is owned by the Condor Water and Power Company and W. J. Hayes; it is the quartz and base ore development, however, that betokens the most for this gulch. At the mouth, and crossing Rogue river, is a big iron dyke; little work has been done but a large iron

Mr. McClure. The value of the ore is said to be satisfactory; a very little more work is required to have ore blocked out for a depth of four hundred feet.

DRILL FOR SALE.

Mr. E. G. Perham, of Gold Hill, last fall bought a new standard sized Ingersoll-Sargeant steam drill for use in his sub-contract on the new Applegate road. This drill is to-day in excellent repair, in fact, is as good as new, and he is offering it for sale, together with an upright ten horse power boiler, also almost new, with complete steam pipe and hose connections for the drill.

They were examined by MINERAL WEALTH's correspondent. The drill is, of course, adapted to either surface or underground work, and the outfit complete is surely offered at a bargain.



SHOWING HOUCK MILL AND RAPIDS IN ROGUE RIVER AT THIS POINT.

secured options on some valuable mining holdings as well and are planning the erection of a smelter. These enterprises would prove of inestimable value to this new district.

CONDOR WATER AND POWER CO.

The biggest single investment made in Southern Oregon during the past four or five years is that of the Condor Water and Power Company, whose big dam of the "horseshoe" pattern, situated at Tolo, or four miles above Gold Hill at a point where the Rogue river leaves the Rogue river valley basin, was finished last year, affords a twenty-foot head and is capable of generating an almost unlimited supply of power.

This company, financed in New York, and represented locally by Dr. C. R. Ray, has acquired numerous mine, timber and agricultural holdings, and with its ability to furnish cheap electric power for the interurban railroads that will sooner or later network rich Rogue river valley, promises to involve a greater outlay of capital than any other enterprise in this part of the State.

The most important single holding of its various mining properties is the Braden quartz mine at Gold Hill, which, at a depth of about 400 feet, already has large quantities of medium grade free gold ore blocked out. A twenty-stamp mill will be erected this year.

The gold quartz mining industry of the Gold Hill district especially will see a decided development under the impetus of electric power for mill and mine as planned by the Condor Company.

WATER GULCH.

This is a small gulch three miles or so long and emptying into Rogue river about

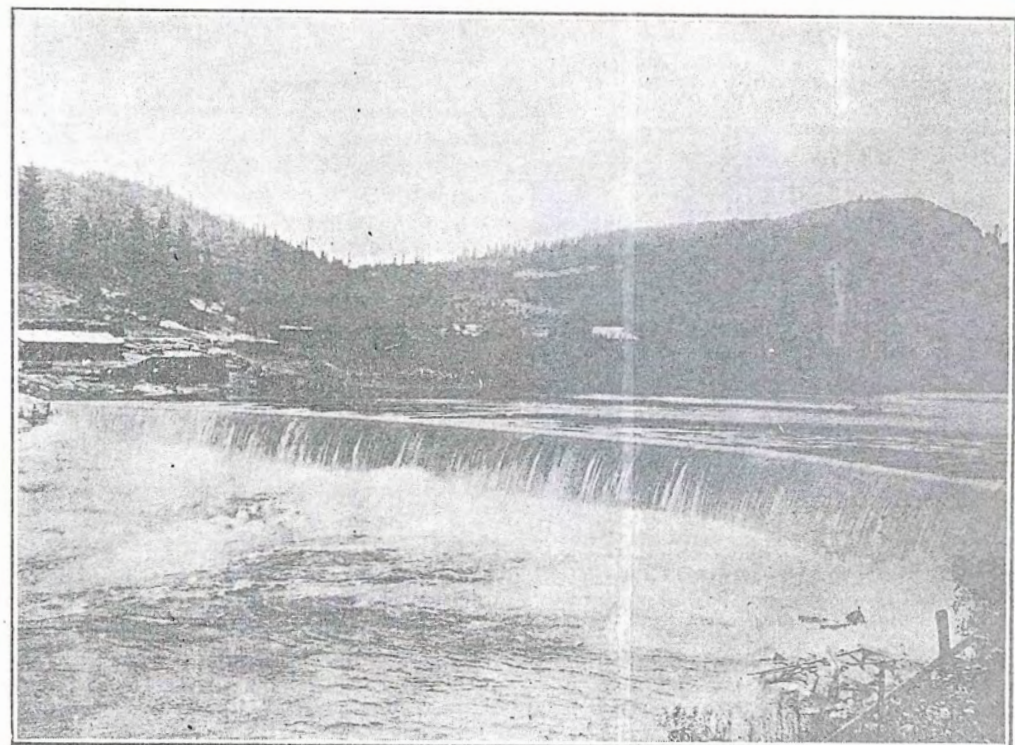
oxide capping, carrying a little gold also, may develop into something quite interesting with a little greater depth. It is known as the Garfield. A group of Seattle men, headed by J. D. McCauch, recently bought it for something like thirty thousand dollars, it is stated, on good authority.

The best developed quartz claim on the creek is the White Horse owned by W. L. McClure, but at present under bond to Davidson, Ward & Co., of Portland. A splendid vein is shown up as a result of some very systematic development work on the part of

MEADOWS, UPPER EVANS CREEK.

An interesting mineralogical section is the Meadows, on upper Evans creek, which has a greater field of mineralization than any other like area in Southern Oregon. The minerals include gold, silver, copper, nickel, cobalt, cinnabar, coal, asbestos, mica, iron and lead. The best developments are in copper, coal and cinnabar. The Southern Pacific has spent considerable money prospecting for coal.

Dr. Chisholm, of Gold Hill, is doing the most extensive development in copper, and the best cinnabar prospects are owned by a San Francisco company, of which Mr. H. Bowers is the local representative.



DAM OF CONDOR WATER AND POWER COMPANY AT TOLO.

Galls, Kane, Sardine and Birdsey Creeks.

GALLS CREEK—THE COOK ESTATE.

If Galls creek has any dredging ground—and to the writer it seems to have—it is on that part of the creek covered by the Cook, Horn and Lawrence properties, lying in the order named as you go up stream, and commencing about two miles from the mouth.

The Cook homestead, or property of the W. S. Cook estate, and comprising 160 acres of land adjoining Galls creek on the west, is to-day in the hand of R. M. Cook, who, in his own right, controls the corresponding eastern side of the creek, or for a distance of one-half mile. The ground that will probably be found to be dredging ground constitutes a flat strip about 100 yards wide. A shaft sunk at the lower end of the ground encountered bedrock at a depth of forty-six feet. This was done in 1896 by M. J. Lawrence, who was planning for a hydraulic elevator. He found the ground rich enough, but too deep for that class of mining as developed up to that time.

THE H. D. HORN PLACE.

One hundred and fourteen acres of deeded land constitutes this ground, which was homesteaded by Mr. Horn's father a good many years ago. It controls three-fourths miles of the creek, and lies just below the mouth of Alder gulch, on which is located the promising Gold Standard quartz mine owned by Kubli & Co., and which is one of the best in the Gold Hill district. Half of the land comprises excellent farming ground and the additional area available would bring the total close up to 100 acres. A small ditch out of Galls creek and three-fourths mile long was recently built and covers the place

claims, three in number, are situated about one mile north of the Golden Standard. Mr. Dungey relocated the ledges five or six years ago, taking up what was supposed to be worked out "pocket" holes. He milled \$1,300 to \$1,400 at Houck's mill from a half dozen tons of ore. These are two sister ledges and all show up well, considering the amount of work done. They are on a line with the Graham-Braden and Millionaire mines, but several mines west.

GOLD HILL AND BOHEMIA COMPANY.

This company, of which Davidson, Ward & Co., of Portland, are the fiscal agents, has three separate properties in the Gold Hill district, all situated on Galls creek. The Gold Bank comprises eighty acres of patented land and lies about two miles from the mouth of the creek on the ridge dividing Galls creek from Kanes creek. This property has hardly been prospected at all as yet, but it contains several seams that give good promise of developing into permanent leads. The surface of this ground is among the notably rich spots of the Gold Hill district. The Gold Producer lies one-half mile from the Gold Bank and on the same side of the creek. It is down in the basin, however, so that it will have to be worked by pump and hoist. Shafts sixty-five, twenty-five and twenty feet have been sunk on it and enough ore stoped to pay for this work. Since it is a sinking property and therefore a more expensive one to work, the Gold Producer will be allowed to await its development awhile, or until the other properties of the Gold Hill and Bohemia Company get to producing.

The Red Oak is a ledge near the Golden

at the bottom of the winze and representing the lowest point in the mine will average better than seven dollars for a width of thirteen and one-half feet. This winze is from the ninety-foot level and is itself forty feet deep. The tunnelling on the property totals over five hundred feet.

A quartet of Eastern Oregon men last fall took hold of the property. Their experience with Eastern Oregon ore enabled them to see an opportunity in the Alice that was going unappreciated by other men, and they are to-day adding a mill and cyanide plant of fifteen or twenty tons daily capacity. The mill, which is of the new Ideal type, is an experiment with them, but since they are not men of a hide-bound, non-progressive type, and, moreover, since this particular experiment happens to be costing them nothing, as they merely removed the mill from a neighboring property, they are quite willing to find out what the Ideal can do for itself on this particular ore. C. R. Townsend, an experienced assayer and cyanide man, is the managing partner, and Mr. M. J. Roelsma will have charge of the mill.

One-half mile up Galls creek from the Alice, Winter & Nutt have three new claims. Wm. Mendenhahl and associates also have some good prospects in this vicinity.

THE BOWDEN MINE.

The Bowden Mining Company are developing a promising prospect about four miles southeast of Gold Hill, a prospect that has already yielded from \$15,000 to \$20,000. Like its neighbors, the Millionaire, Graham & Braden, Nellie Wright, Maybelle and others, it is deprived of development work by tunnelling because of its situation in the low hills that border the western fringe of Rogue river valley. Proximity to the great farming district of Southern Oregon may have its advantages; freedom from shaft-sinking is not one of them. The Bowden people have faced the situation squarely and have equipped their property with the best sinking plant in the district. A 100 horse power boiler with engine and hoist capacity for sinking 750 feet, constitute the main equipment. They are now down 175 feet in a well-timbered double compartment shaft, inclined to coincide with the slight dip of the vein and disclosing high-grade ore at various levels. There is an excellent showing at the bottom and the ledge throughout averages twelve or fifteen inches.

CENTENNIAL GULCH DRIFT MINE.

Centennial gulch was the richest gulch of upper Kane creek. Its values were unquestionable contributed in great part by Paddy Hill. There is a north and south channel that seems to bear a very close relation to that eminence, hugging the east skirts of the Hill. The wash is almost ten feet deep, very high grade and seems to be traceable as a distinct channel.

This ground belongs to Mr. George Hall, of Medford, who has owned it for ten or twelve years. It was formerly the property of the Centennial Company, a group of Portland capitalists, who had been handicapped in their operations by lack of right of way, and to such an extent that the property, when Mr. Hall bought it, had not been worked for ten years. The water right is

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THE J. M. LAWRENCE PLACE.

This place comprises 134 acres, but was homesteaded as a complete quarter section in 1871. After purchase by the present owner, M. J. Lawrence, a tract of twenty acres containing the Bliss quartz mine was sold off as also another strip of six acres to the Bill Nye Company. The place controls a half mile of the creek, at the same time extending easterly far enough to include a lot of good agricultural land. From the house to the creek—a distance of a hundred yards or so—there is a good strip of ground known to contain a wide channel of good pay gravel. It is disclosed by shafts and cuts at various points.

HOLDINGS OF T. DUNGEY.

On the gulch emptying into Galls creek just north, or below Alder creek, are located an interesting group of quartz and placer claims owned by Mr. Dungey. The quartz

claims creek from Kanes creek. This property has hardly been prospected at all as yet, but it contains several seams that give good promise of developing into permanent leads. The surface of this ground is among the notably rich spots of the Gold Hill district. The Gold Producer lies one-half mile from the Gold Bank and on the same side of the creek. It is down in the basin, however, so that it will have to be worked by pump and hoist. Shafts sixty-five, twenty-five and twenty feet have been sunk on it and enough ore stoped to pay for this work. Since it is a sinking property and therefore a more expensive one to work, the Gold Producer will be allowed to await its development awhile, or until the other properties of the Gold Hill and Bohemia Company get to producing.

The Red Oak is a ledge near the Golden Standard, and while still almost entirely undeveloped, is, nevertheless, described as being a prospect of almost equal promise with that of its well-known neighbor.

THE ALICE MINE.

A center of interest at the present time is the Alice mine on Kanes creek (see map). This property was found about twenty years ago by Enoch Rhoten, who took out a lot of free gold by means of an arrastra. The property was bought from the Rhoten estate by Morton Lindley in 1893 and four years later it was bonded to John R. Mitchell, a prominent Colorado man, interested with an English company known as the Gold Key Syndicate. This company had plans formulated and contracts ready for the construction of a big electric power plant on Rogue river about opposite Gold Hill, when the South African war broke out and so affected interests of the company elsewhere that the plans had to be given up. A carload shipment of seventeen tons to Selby made by Mitchell in 1898 gave returns of one ounce six pennyweights gold per ton.

It is a large ledge. Taken through its total width it will constitute a forty-foot body of low grade ore, with the values occasionally running quite high. A cross-cut

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This ground belongs to Mr. George Hall, of Medford, who has owned it for ten or twelve years. It was formerly the property of the Centennial Company, a group of Portland capitalists, who had been handicapped in their operations by lack of right of way, and to such an extent that the property, when Mr. Hall bought it, had not been worked for ten years. The water right is

equally inadequate, so that Mr. Hall, after trying for two years by ground sluicing with the surplus water from the McDougall ditch, has operated the mine by the present method and through lessees until the last year. In the ten years the various lessees have worked out about \$15,000, drifting in all a total of less than an acre. The Centennial Company sluiced \$80,000 from four acres. There is evidence that what has been removed is but a small sum as compared with what is still unmined. It remains for some individual or company with the means and enterprise to equip the property on a scale commensurate with its true value.

DREDGING OPPORTUNITY ON KANES CREEK.

What appears to be one of the best opportunities for dredging in Southern Oregon, a district that will in the near future abound with dredgers, is on Kanes creek in the property of E. E. Miner. Mr. Miner owns two tracts on this stream, separated by the old Birdsey homestead, and both places, as well as the Birdsey place, will some day be dredged. The two forks of Kanes creek and their tributaries were very rich wherever they were worked. They were worked until the flat basins of the valley made further work impracticable. The upper Miner place occupies a position in the valley a little below the mouth of the rich Centennial gulch on the west, and directly opposite the even more rich Harris gulch on the east. Moreover, the famous Paddy Hill, a circular eminence noted for its numerous pockets, joins the property on the west; indeed, is partly included in the acreage. It is impossible to take a pan on this hill without getting a trace, showing a richness of the decomposed surface that would warrant sluicing or piping were water available—in fact, parts of the outskirts of the "Hill" were worked in that way and proved very rich.

The Kanes creek basin at this point is fully a thousand feet wide. There are various opportunities of getting some idea of what the ground contains, although a verification can come only from prospecting by drilling, which, of course, will be done by whoever options the property. A shaft sunk near the east side of the basin in 1901 by a man named Thorpe showed good values and a drift of thirty feet toward the present creek paid for the work. Below, on the creek, and about one-fourth mile distant, a thirty-foot shaft was sunk the following year. A prospect drift northward or at about right angles to the stream and below the present stream level paid about one dollar a foot for a distance of twenty-five or thirty feet, although the dimensions of the drift were but about three by five feet. Four hundred feet north of this point or where the two channels of Kanes creek meet a twenty-seven-foot shaft was sunk and \$19.90 taken from the bedrock. The gravel itself was not washed, although it prospected throughout. There is one thing which gives an ideal opportunity for averaging up the gold contents of the top gravel. The left fork of Kanes creek which joins the right fork at the Miner ranch, cuts through the ranch like a tail race. The McDougall ranch above is shown up in the same way.

For a depth of six or ten feet the upper stratum of gravel is exposed. Of course, it is essential in this connection to remember that the gold of nearly all the old channel washes of Southern Oregon is found concentrated in the lower gravel or near the bedrock. Such is true, for instance, on Foothills creek, where the Champlin Company is dredging. The Miner holdings of 350 acres control one and one-fourth miles of Kanes creek and include some good quartz prospects as well.

SARDINE CREEK.

Sardine is located within the Gold Hill district (see map) and has produced considerable gold. It still has a lot of unworked ground, and it is a fair question whether the land about its mouth and owned by Messner & Son does not offer an inviting opportunity for dredging.

Immediately above the Messner ranch are 360 acres of deeded land controlling a mile and a half of the creek and owned by R. L. Dusenbury; there is a two and a half mile ditch out of Sardine creek, but it gives a very small head, so that while the ground is known to compare with the best on the creek, its working effectiveness is far below what the mine properly needs.

Mr. James N. Smith on the opposite side and a mile above owns 320 acres that he has bought at different times from C. Vrooman of Gold Hill. Mr. Smith's holdings are especially valuable in that they control two of the oldest and best water rights of the creek. Mr. Smith divides his time profitably between mining and ranching and shows what a young man of industry and enterprise can do, for, his present holdings, which could probably not be touched for ten thousand dollars, have been built up from nothing by mere dint of thrift and industry since his arrival in the camp only eight or ten years ago.

FORKS OF SARDINE CREEK.

Mr. F. B. Ketchum owns four claims, including one above the forks. The property was acquired by Mr. Ketchum October 15th, last, by purchase from Mr. Charles Veachler, who had owned and operated it for six years. At this mine the bars and benches were not alone in receiving attention from the sluice miners, as the surface debris or loam and even the bedrock of soft decomposed porphyry was also sluiced away. In fact, it is to the latter that Mr. Ketchum has directed his operations alone for the past season, and with good results. There is another creek that comes in here or near the forks named Drummond gulch, from which Mr. Ketchum gets his water for mining. A three-quarter mile ditch (2x3x1½ feet) affords a season of three months or so by means of reservoir heads. Half of Mr. Ketchum's ground is still unworked, the rest would pay to rework; during a ten days' run in April of last year, or when Mr. Ketchum had the property merely under bond, he got one hundred and ten dollars from a thousand square feet of this formerly worked bedrock. Mr. Ketchum is working with a pressure of 180 feet, more than any other mine on the creek.

Adjoining Mr. Ketchum's property is some good ground owned by H. L. White,

but under lease to J. L. Mosena. Mr. Mosena placers in winter, but spends his summer developing some good quartz prospects about three miles up the right fork.

DRUMMOND GULCH, SARDINE CREEK.

Drummond gulch, aside from Ketchum's ditch, is interesting in the fact that Miller, Owen & Reed are opening up a small but permanent looking vein of high grade ore, on which they are to-day operating a small one-stamp Kendall prospect mill by steam.

The west fork of Sardine is interesting mainly in the Lucky Bart quartz mine, which has produced fifty thousand dollars or so, and has certain earmarks of becoming a good mine; it is owned by Joe Beman, but is under lease and bond to Hayes & McKay of Gold Hill.

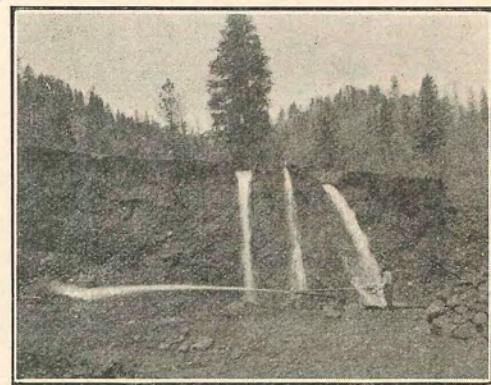
Below the Lucky Bart, G. W. Sperry has two claims, one purchased and the other located. They comprise a square of forty acres and therefore include only about one claim length of the creek—from Johnson's claim above to the Ketchum mine below. Mr. Sperry is planning a small hydraulic equipment and can also boast of a sulphur spring as part of his mineral holdings.

The last claim up the creek visited by our correspondent was that of G. R. Hammersley, about a mile above Sperry's. Mr. Hammersley owned the ground, and doubled its value by the purchase of the old Maybright ditch. This ditch gives a seventy-five foot pressure at present point of piping, and is still more than a quarter of a mile from the lower end of the claim. At the upper end of the claim there is a natural reservoir site that could be improved and would increase the value of the property very materially.

BIRDSEY CREEK.

A striking thing about Southern Oregon mining is how every little gulch will have its banks of wash gravel ten to twenty and thirty feet high where no pay was expected several years ago. Still others were known to have pay but were not opened up.

Willis M. Hiatt is opening up such a claim on Birdsey creek, near Foothills creek,



HIATT MINE, BIRDSEY CREEK.

and has an excellent showing. Three years ago he bought the ground, two claims, from Sam Matthis. It lies three miles from the mouth of Bear gulch, and probably represents the ancient flow of that tributary of Birdsey creek. Mr. Hiatt has the first water right out of Birdsey, plays a No. 1 giant against a twenty or thirty foot bank with a 160-foot pressure, and is taking out good pay.

EVANS CREEK DISTRICT.

WOODVILLE.

The leading merchant, W. V. Jones, who is also the Southern Pacific Company's agent, is a wide awake man, and knows the needs of his district. He has always been interested in the mines, and once had the Hammersley mine on Jump-Off-Joe creek under control and management.

The hotel at Woodville is conducted by Mr. R. M. Moore, a man also fully awake to Southern Oregon's chief industry. He has a two-thirds interests in a quartz prospect on Fielder creek, four and one-half miles above Woodville.

THE HOMESTAKE.

Within a mile of Woodville the Homestake mine, owned by W. J. Stanley and associates, but now under bond to a company of Wisconsin and Eastern Oregon men, organized under the name of the Enterprise Mining Company, is making an excellent showing. The ledge is not a large one and lies quite flat in the hill, but a fine shoot of ore has been developed and a five-stamp McFarland mill is being erected.

A half mile or so westerly from the Homestake M. H. Lowell owns eighty acres of patented ground on which a strong north and south quartz lead, standing almost perpendicular, has been disclosed and may prove a valuable prospect. A shaft twenty-three feet deep and an open cut 300 feet below disclose the quartz in gold-bearing character.

THE LONE STAR MINE.

This is the most important hydraulic mine at present operating on Evans creek, and it is situated on that creek's chief tributary, Pleasant creek, about six miles above where the two creeks meet. It is operated by the Lone Star Mining Company, of which C. E. Wickstrom is the principal stockholder. The most of this property was acquired by Mr. Wickstrom about six years ago from Calvert Brothers, Lister & Company, and made the nucleus for the present holdings of 305 acres, 200 of which are deeded land.

Mr. Wickstrom took this property up at a time when its real value was yet to be proved. He constructed a small ditch and did a lot of painstaking prospecting. As soon as the extent and value of the gravel deposits had been sufficiently determined, he added (1901) a big five-mile ditch and flume from Pleasant creek. Since that time he has worked off upwards of two acres annually. The present point of operation is at the mouth of Harris gulch, a west tributary of Pleasant creek, and the wash is best described by saying that it is very much like that of the Golden Drift or old Dry Diggings ground at their present point of operation on Bloody Run gulch and described elsewhere. The gold is very much the same, three-fourths of it being very coarse. For removing logs and stumps Mr. Wickstrom employs a novel arrangement, namely, a drum and cable, and he finds it far better than using powder.

Good property adjoining the Lone Star is that of L. Antoine, who is also one of the stockholders of the Lone Star Company.

THE CAMERON MINE.

This property, situated below the Lone Star mine on Pleasant creek, is operated at the present time by its owner, Mr. D. Cameron, as a hydraulic mine. Operations are considerably handicapped, though, because of the lack of pressure and dumping facilities. There are several parallel channels running through the ground, and from twelve to sixteen feet deep. Much of the ground was covered by three short ditches which furnished a good pressure, but this ground has mostly been worked over.

The ground comprised in this mine has been worked since the early days and was owned by different parties at the time when Mr. Cameron six years ago effected a consolidation. To-day it embraces 1,100 acres.

It has been examined lately to ascertain its possibilities as dredging ground, and by those who know of its character and conditions otherwise, it is declared to be a most excellent piece of property.

SYKES CREEK.

On Evans creek, several miles above the junction with Pleasant creek, are its two best gold-bearing tributaries, Murpheys gulch and Sykes creek. The first one you come to is Sykes creek, and the two best properties of the creek are the Jones' holdings a mile or two up the creek and the Hillis estate at the mouth. These properties should be combined under one ownership, as they to-day handicap each other fatally in the matter of water rights and dump. It is possible, however, that each might be dredged.

MURPHEY GULCH.

Above the mouth of Sykes creek a little over a mile is the mouth of Murphey gulch, also a tributary of Evans, but from the south side. This creek furnished some of the richest of early-day diggings. Carter, Siver & Ammons are operating a good property to-day, although with a small plant and on a back channel. Several quartz ledges up this gulch have been receiving some attention during the past year.

An interesting property is that situated at the mouth of Murpheys gulch and known as the old Albright place. It was for many years owned by the late John B. Hillis, the old Evans creek pioneer. It was secured by the present owner, W. A. Van Goethen, seven years ago, from E. D. Thompson, the Wimer merchant. There are 207 acres, the most of it comprising old channel wash. Much of the gravel is covered by slide, this very slide matter, however, carrying a heavy trace of eroded quartz gold. The covered channel has about the same elevation as the present bed of Evans creek and is known to carry good values. The ground has been completely prospected and presents an excellent opportunity for hydraulic elevating or dredging.

BAGLEY IMPROVEMENT COMPANY.

Wards creek is the scene of an interesting new enterprise, that of combining mining with fruit, hay and stock ranching.

The gist of the plan is to store the water by means of great retaining dams. The winter season will furnish water in abundance for mining, the dams will store water for irrigation for the summer.

This corporation is the Bagley Improvement Company. It dates from 1901, in which year John H. Bagley visited Rogue river and later with a partner bought some land and mining claims on Wards creek. In the fall of 1902 E. E. Bagley visited the creek; in October he bought out the partner's interest and the partnership became Bagley & Bagley. There was some mining in a small way that winter. During the summer of 1903 plans were perfected for larger operations, and a company was organized under the name as given above.

The whole creek or about 1,600 acres is to-day owned by the company or held under option. This includes much good gravel ground, already extensively opened up, and about 800 acres that will eventually be under irrigation; also a good quantity of timber land.

The pre-eminently interesting feature of the enterprise is that of the reservoir dams. These dams are constructed by means of hydraulics after the order of an ordinary railway fill. One is just being finished that will back up a body of water whose surface area will approach, and possibly exceed, four acres, and whose average depth will be twelve to fifteen feet. Another, a quarter of a miles below, will be commenced this fall whose surface area will be four times that of the first.

The control or manipulation of the water is complete. The dam just put in and having a height of forty feet, has its supply outlet twelve feet from the bottom, which outlet consists of a ten-inch sewer pipe. A sixteen-inch pipe on bedrock serves as a sluice for sediment. Both pipes are supplied with the latest Ludlow valves, to be operated from platforms projected from the top of the dam. The spillway for the present dam is thirty feet wide and five feet deep, cut through blue clay and quite near the bedrock.

The company is a close corporation, with an authorized capitalization of \$100,000. The officers and directors are: Elmer E. Bagley, president and treasurer; John H. Bagley, vice-president; A. C. Hough, secretary; J. Swinney and D. T. Smiley.

A part of the ground under option to the Bagley Improvement Company is the property of G. F. Schmidlein, comprising 360 acres, the first 200 acres being deeded and the rest secured under homestead right as late as 1860. About 175 acres are cleared up and about 240 acres of arable land will come under the ditch.

There are several good prospects as yet hardly scratched, but the best so far is that known as the Gold Chloride, between the two forks of Wards creek, four miles above the Bagley dam. It is said to be a fine prospect, but is now dormant.

FOOTS CREEK DISTRICT.

CHAMPLIN DREDGING COMPANY.

In gravel mining the march of progress in a half century of development in America had passed successively through all its various stages from the pan, rocker, long tom and sluice up to the installation of great ditch and pipe lines and hydraulic monitors. There was finally reached, however, a point beyond which progress seemed impossible. It was believed that the climax had been reached. It was thought that the ultimate fate of most gravel ground must depend on the test whether or not the pipe and giant could remove it. To be sure hydraulic elevation had come into some little vogue and, under favorable conditions, was giving satisfactory results, but as a general thing, the admittedly final test had come to be "will piping pay?" The monitor, in a word, had come to be looked upon as the acme of perfection, the one unsurpassable device for handling gravel. Wherever conditions (law made, as in California, or otherwise) were such as to preclude hydraulic operations, the situation was philosophically accepted as irremediable, save as in such spots as might prove rich enough to drift, or to sluice or pipe and impound the tailings. Thus great bodies of auriferous gravel, some of which were known to be exceedingly rich, were by common consent given up as ground destined never to be worked.

This "common consent," however, did not extend to all men. Under certain favorable conditions the dredger was already being successfully employed in New Zealand and Australia, and the prizes hidden away in the unworked gravel beds of America were too great to long remain unsought.

The dipper, or steam shovel dredge, which was the type to first receive attention, has been superseded almost altogether by the endless chain dredger.

The most extensive of dredging fields in the world is the Otago river district in New Zealand, where there are some eighty companies operating. On the Feather river, below Oroville, California, there are twenty-four dredgers in a radius of six miles.

One of the most successful dredging operators to date has been the Champlin Dredging Company, of Bannock, Montana. It has just completed and set in operation on Foot's creek, near Gold Hill, Southern Oregon, what will probably rank as one of the most perfect dredges of its type in existence.

The history of this company dates from ten years ago, when it commenced the construction of a bucket dredge of the well known Bucyrus type at Bannock. This was completed the following year, and was such a good investment that a second dredge was built, but along somewhat new lines. The work was done under the direction of R. W. Christian, who had also had charge of the construction of the previous dredge. The new features of the second dredge consisted of an improvement in the link, the installation of a sand pump for secondary elevation and the substitution of a sluiceway for a

stacker. Both dredges proved good investments.

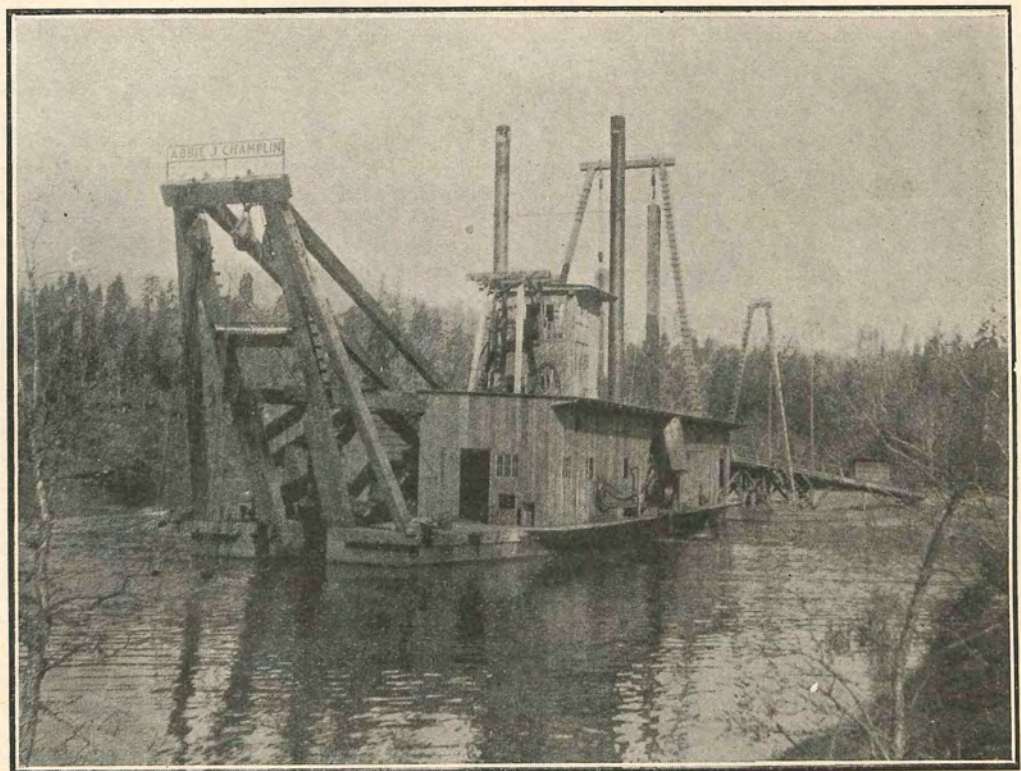
The Montana ground gave out and the company, in casting about for new fields, was attracted to the dredging opportunities of Southern Oregon, where, after little delay, they a year ago secured an option on the land extending from the mouth of Foot's creek to the Hosmer place, a short distance up the right fork and to the Dufur claim a similar distance up the left fork. The distance from the mouth to the fork is two miles, and the total acreage afforded is 1,200 acres. The Lance property alone comprised 702 acres, and the consideration was \$35,000. The prospecting proved favorable and the option was closed.

The Foot's creek dredge, which is called the "Abbie J. Champlin," was also constructed by Mr. Christian, and with an eye to certain very marked and serious difficulties. The gravel that had filled the Foot's creek basin had not been carried far enough to lose its angular character, nor to leave behind its big rocks. The formation, while not cemented, is, nevertheless, unusually hard and compact. Moreover, it is deep, much of the ground measuring forty to fifty feet, and over. To cope with boulders, and a formation both compact and deep, Mr. Christian designed a digging apparatus capable of withstanding twice the test of the second Montana dredger, which itself was one of the strongest dredges ever built.

The total cost of the dredger will approximate something like \$100,000. The whole machinery is such as to warrant a somewhat detailed description.

The hull of the boat is 112½ feet long, and is of the standard pattern. An eighty-foot ladder or digging beam constitutes the frame for the chain of forty-two eight cubic foot buckets and their alternating links. The link connection is an invention of Mr. Christian's, who has had it patented. It consists of a slug or "telescope" link with multiple connecting projections, and is the particular feature upon which the present machine depends for its great strength. The digging or power engines are supplied with steam from two large boilers of the ordinary locomotive type and having a capacity of 100 horse power each. They can exert a lifting force of 80,000 pounds, and this after making the very liberal allowance of sixty per cent for friction besides. Theoretically, this can fill every bucket 350 times a day, or lift a total of 4,500 yards.

The actual effectiveness on the Foot's ground is about half the theoretical capacity. The gravel clings together almost as though cemented and for this reason abundance of water and ceaseless agitation is required for its separation. From the buckets the gravel gets a shaking up by a ten-foot straight drop into the hopper. Water enters at this point, helping to sluice as well as wash. The gravel is then received into a revolving grizzly, with five and one-half inch perforations and replacable lining—replacable because of wear. The interior of this grizzly is supplied with a number of water jets for a fresh supply of water. The boulders are conveyed through the grizzly to the side of the boat and dropped off, the rest of the material passing through the funnel-shaped bottom of the case surrounding the grizzly to a short sluice that leads to a second receptacle or well. It is on this short sluice that about seventy-five per cent of the gold will be saved. The best means of accomplishing this are still to be devised. At present Hungarian riffles are used, the



CHAMPLIN DREDGE ON FOOT'S CREEK.

grade being one inch in five. From the well into which the sand and gravel has passed it is then elevated by a twelve-inch centrifugal sand pump, which pump is also supplied with replacable linings, to a height of sixteen feet or to the head of a 120-foot sluiceway of Hungarian riffles. These riffles in that distance have a fall of seven and one-half feet.

The sluiceway is supported by a pontoon and represents an interesting substitute for the old-time power-consuming stacker. Its outlet is only four or five feet above water level, yet when it is taken into consideration that it is situated 240 feet down stream from the "digger," and that the "swell" of the dredged gravel is only about ten per cent, it merely requires an intelligent placing of the tailings to obviate "choking up."

The boat is notable for its simplicity throughout, a fact which reveals the experience of the builders.

DUFUR PLACER.

Up the left fork of Footh creek and adjoining the holdings of the Champlin Dredging Co., is the placer ground of E. B. Dufur, comprising forty-one acres of ground, of which thirty-five acres are patented. This property, which in later years was owned successively by Messrs. Profontaine and Raphael Morat, was acquired by Mr. Dufur and three associates about four years ago, previous to which time the mode of operation had been by sluicing or piping with a small hose. Dufur and partners added a No. 1 giant and 700 feet of six-inch pipe, which latter was replaced by eight-inch pipe after Mr. Dufur became the sole owner.

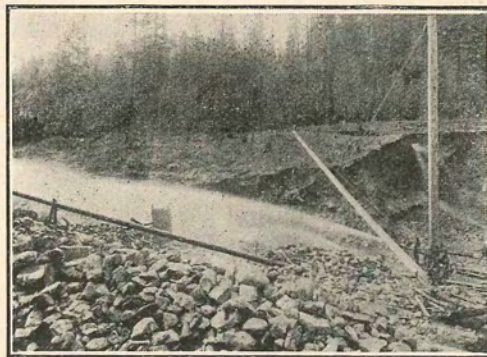
The ground itself is a continuation of the old back gold channel which has given rise to the company of that name. Considerable drifting on this company's ground discloses a streak of high grade gravel, but this part of the company's ground has been left unworked pending the stripping of more accessible ground. Mr. Dufur, however, has undertaken to bottom the deposit with pipe and giant, and the first thing thereby necessitated has been the cutting of a deep bed-rock race. About four acres have been stripped to a false bedrock, and it is below this that the best pay lies. Limited pressure and water facilities have made the work difficult, but the richness of the ground has been its compensation.

LANCE BROTHERS MINE.

This property, consisting of 310 acres, and owned by Marion and George Lance, is conceded to be the best property on the west fork, although the Sanders, Hosmer & Anderson property is also a number one property. Their ground commences about two miles above the mouth of the forks and covers a mile and a half of the creek. They are working at a point considerably below the middle of their property. There are two distinct channels, about fourteen feet vertically apart. The lower channel is shown to be about 300 feet wide and has furnished most of the big pay of the mine so far; of the upper channel less is known, yet it is known to contain good pay and will measure about

one-third of the width of the other, with a depth of about twenty feet. The larger channel is shallower by eight or ten feet. The work on the back channel has been discontinued on account of lack of dump.

The property is well equipped. There are two ditches, not long, but one, at least, is high and effective. A thousand dollar der-



LANCE BROTHERS MINE.

rick of Hendy manufacture was installed last fall to handle the big boulders and has decreased operating expenses materially. The gold is coarse, one piece of \$300 having been removed.

SANDERS, HOSMER & ANDERSON.

N. Hosmer, C. T. Anderson and A. W. Sanders own a good property above the Lance Brothers' mine, and are operating today on what is called the right fork of the west fork of Footh creek. A peculiar feature at the convergence of these upper forks is that, while the one appears to have contributed the gold of the Lance mine, the other appears to have contributed the big boulders. And since men mine for gold and not for boulders, Sanders, Hosmer & Anderson have taken to the right fork and are mining good ground. Lance Brothers' property is situated below the forks, so that they are compelled to take the big boulders with the ground, and hence the introduction of their derrick last fall. The operation of the Sanders, Hosmer & Anderson mine is much



SANDERS HOSMER & ANDERSON MINE.

easier and their eighty acres are yielding them very good returns indeed. A new ditch one and one-fourth miles long was built last year, and with reservoirs planned, but as yet incomplete, a very good water right will be advantageously utilized. Mr. Sanders has charge of operations.

OTHER PLACER MINES.

Other hydraulic properties on the right fork are those of Mattison & Son and also G. W. Matthews, both worked on a small scale, and near the mouth of Eads creek. In fact, Mr. Matthews, who this year equipped his plant with a No. 1 monitor, is working the creek bed proper and has struck a good pay streak.

The principal property up the left fork is that of the old Black Gold Channel Mining Company, N. H. Latimer, of Seattle, the president. The property comprises 900 odd acres, has a fair water right and the small grade of the creek is offset by the use of a Ruble grizzly. The property is under a five-year lease to S. C. Ruble.

Above this property is the Bailey claim, which is paying for ground sluicing. Cook & Son made a good run this year with their hydraulic plant. The farthest property up the creek is that owned by Wm. Morris and Mrs. Ben Hayman, which had been sluiced for thirty years. Last year, however, the mine was fitted up with pipe and giant and this year has yielded a good profit.

Carr Brothers, old pioneers, have a small hydraulic plant up one of the little tributaries of the left fork. Another property similarly situated on the left fork is one owned by a Portland company, but not this year in operation.

THE BERTHA QUARTZ PROSPECT.

On a creek as short and as rich in placer gold as Footh creek, developments in quartz are bound to follow. None will be watched with more interest than those of the Bertha mine, which property occupies a central point in the district, located, as it is, on the middle fork and three and one-half miles above the mouth of the main creek. It was discovered in the fall of 1883 by Alex Orme, who at that time owned a placer mine that has since been absorbed in the extensive Latimer holdings. In the nine years Mr. Orme owned it he took out an average of \$2,000 per year. The bulk of the amount, however, was taken out in 1890 and 1891, in what might be called the preliminary development of the mine. The ore was treated by a small five-stamp mill that was put up on the property in 1890.

The claim was sold in 1898 to J. C. Meier, who took Chas. F. Young in as a full partner three years ago. It is to-day under bond to Ruble & Bates. A tunnel constituting the third level was driven on the ledge by Orme for a distance of 200 feet. The distance between walls averaged four feet. Part of the distance there was a strip of high grade ore milling \$100 per ton. This strip ran from six to eight inches in width. No tailings or concentrates were ever saved.

OTHER QUARTZ PROSPECTS.

One of the best prospects on the creek is that of Grant Matthews and A. W. Sanders, situated conveniently two miles from the mouth of Footh creek and a quarter of a mile from the wagon road. It is located on a twenty-acre claim that was formerly part of an eighty-acre piece, three-fourths of which was sold to the Champlin Dredging Company. A good vein running almost

north and dipping to the east is shown up by a forty-foot shaft and a drift to the south, which work also indicates a pitch of the vein into the hill or to the south. The formation is diorite.

The Daisy Queen, formerly owned by Tom Cook, but to-day owned by Fitzgibbon, Hall & Young, is a property of a good record and still more promise.

On the middle fork a copper prospect is being developed by a cross-cut tunnel by the Rogue River Lumber and Mining Company, of Ohio. Mr. C. L. Carr is opening a quartz claim further to the west. Between these two, and a mile or two from either, is a big body of low grade quartz owned by Sanders, Hosmer & Anderson that will some day see development. The Purkpile, Bailey or Swacker, Orme and others might be cited to show the prevalence of gold-bearing quartz in the district.

THE ADA GROUP.

This group of four claims, owned by Messrs. P. H. Harth & Son, the Grant's Pass merchants, and William Ryan, dates its dis-

covery from three years ago last April when it was traced up and found by Mr. Ryan. That summer a forty-foot shaft was sunk on the ledge which in this distance had widened from eight to twelve inches. Seven tons of ore were removed from the shaft in the course of this development and milled \$348.86. The following spring the shaft was sunk ten feet further. A 100-foot cross-cut was driven to tap the bottom of the shaft and twelve tons more of ore were removed, milling approximately the same as the previous seven tons.

Subsequently drifts were run on the ledge from the cross-cut's point of intersection and a hundred some odd tons were stoped out and milled.

In running the cross-cut tunnel another and unexpected seam was encountered at about the fifty-foot point and last year a winze seventy feet deep was sunk on this seam from the tunnel level. In this distance the vein increased in size from an eight-inch seam to an eighteen-inch ledge of good grade ore. In the meantime a 200-foot cross-cut had been started from a point gaining 105

feet greater depth than the above level. This tunnel was driven eighty-one feet, but encountered a hard reef of country rock and progress finally became so difficult that the owners decided to stop operations entirely. The formation is a diorite, although the interior wall of the first vein is a formation much like slate. By running a distance of 119 feet on the cross-cut, and an upraise of thirty-five feet, the bottom of the winze will be tapped and a further cross-cut of approximately fifty feet will tap the other or first ledge.

The quartz is of a bluish-white caste and is beginning to carry some sulphurets along with the free gold. The 142 tons so far milled have returned an average of \$28 per ton in free gold.

The prospect is situated on the summit of the divide between Shefflin gulch and Birdsey creek, one mile back from the Rogue river. It is within two miles of the Champ-lin dredge, so that the problem of power, with this proximity to an electric power line, need never give the Ada mine much concern. The situation otherwise is ideal.

Jacksonville and Ashland Districts.

THE OPP MINE.

The Opp quartz mine, which is now attracting so much attention, was one of the early discoveries of the country. C. C. Beekman owned it for about thirty-two years, or until four years ago, when he sold a half interest to Mr. William Opp, who since that time has acquired the complete ownership.

It is a property that has paid from the grass roots. The fact that the property, with only a little more than 1,800 feet development work, has produced more than \$100,000, speaks something for its character.

Another noteworthy circumstance is the mine's position, lying, as it does, on the headwaters of the rich and farfamed Jackson creek. Much of the gold of that stream was undoubtedly contributed by erosions from what is now the Opp ground.

The prevailing formations of the locality are diorite and slate. The veins on the property that have so far been developed are parallel and occur in both formations. That they are true fault fissures, the development to date would seem to indicate beyond a doubt. The strike of the veins is northwest and southeast and the dip slightly to the southwest.

The general character of the ore is a light and dark colored quartz, the vein filling being entirely of quartz, with no waste or barren matter whatever. The values are carried in free gold and auriferous pyrite. Near the surface the weathering processes of nature have worked a complete oxidation. Amalgamation tests prove fifty per cent of the gold to be free. The ore to the depth so far attained is absolutely devoid of the baser metals, such as antimony, lead, copper, etc.

In all the pay shoots thus far opened up and worked, the ore seems to lie in two streaks of different quality, the higher grade occurring on the foot wall. The walls, so far as determined, are well defined and

smooth, which would indicate more or less of a movement against the ledge.

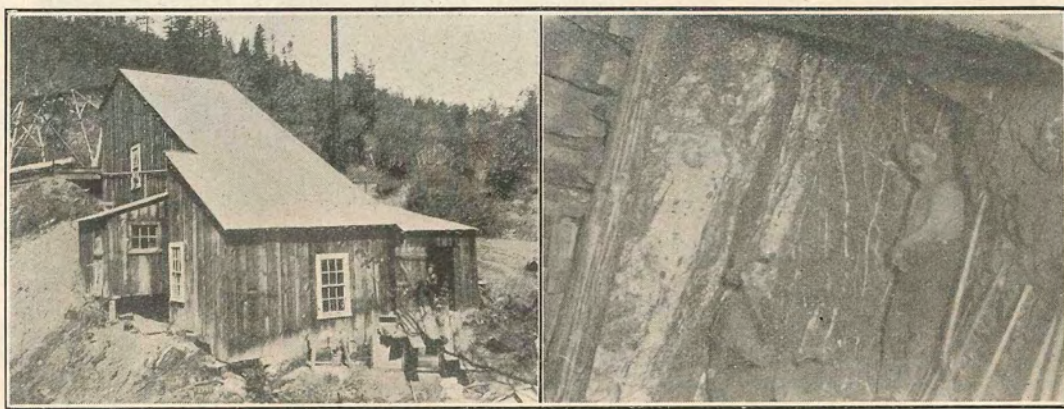
The adit tunnel runs in on the Opp vein proper for a distance of 150 feet. The vein runs from eight to twelve feet wide and is of low grade ore, save in a pay shoot that was encountered eighty feet from the tunnel mouth and which for twenty-five feet milled \$7 in free gold and \$4 in sulphurets.

A cross-cut of 120 feet in length taps the vein at a point seventy feet lower and an up-raise is made clear to the surface. Another drift south 120 feet and still another

come into prominence again, first, in the quantity and value of low grade ore developed, and, second, in the higher grade ore occurring near the foot wall. The streak is five feet wide and assays \$9.50.

The north drift shows a larger vein for a distance of 180 feet. For this entire distance the ore is uniformly low grade, averaging about \$3 per ton. The vein at this depth is found to be continuous and well defined, while the ore chutes are known to extend to the surface as disclosed by the other two levels.

This summarizes, pretty much, the work that has been done on the Opp vein proper. The pay shoots developed on this vein alone entitle the Opp mine to first-class distinction. But, besides the Opp vein proper there are half a dozen other promising pay ledges,



MILL AND LEDGE, OPP MINE.

north eighty feet disclose a shoot of ore 160 feet in length, whose width is five feet and which assays \$8. The walls are hard, dark, fine grained and mostly of diorite.

Another cross-cut of 180 feet taps the vein at a still greater depth of 130 feet and by means of drifts run in both directions here makes an excellent showing. In fact, the work discloses the best shoot of ore yet developed on the property. It lies in the south drift and is 100 feet in length. Here the principal characteristics of the ore body

notably the Beekman, Kitto, Telluride and El Dorado.

THE STERLING PLACER.

The Sterling is the biggest of the placer producers. It is supposed to yield from \$30,000 to \$40,000 and in its record season of about five years ago its output approached \$90,000.

The history of Sterling creek in general and of the Sterling mine in particular reads like a story. The discovery dates back to

1854, or to almost "the beginning of things" in placer mining, and was made by Aaron Davis and James Sterling, after the latter of whom the camp was named.

For the first five years the camp was the scene of seething activity. It then witnessed a marked decline. The lighter placers were thought to be worked out. During this period of what was practically abandonment, two men, Hon. Theo. Cameron and U. S. Hayden, quietly located and bought up the whole creek on the theory that an ancient and rich channel ran parallel to the present creek channel.

They, however, did comparatively little mining of an extensive nature, and after twelve or fifteen years disposed of it to D. P. Thompson. M. S. Burrell, Hon. Levi Ankeny, now United States Senator from Washington, and other Portland people, who, in 1877, incorporated the Sterling Mining Company. This company secured the entire water right of Little Applegate river, and constructed a twenty-eight mile ditch with a capacity of 2,500 inches and installed the latest and most approved hydraulic machinery. The cost of the mine and plant when ready for operation was about \$100,000. The equipment was at that time the most complete in Southern Oregon, and there is none better in the district to-day.

In 1880 the property passed into the hands of the present management and is operated under the old corporation's name, with V. Cook, of Portland, president, and H. E. Ankeny, brother of Senator Ankeny, superintendent. At the present and for the past year F. E. Ankeny, son of H. E. Ankeny, has had charge of operations, and is conduct-

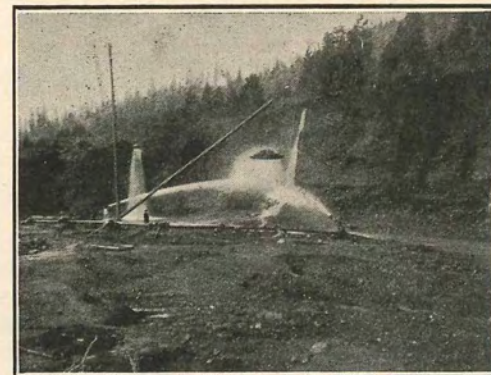
Because of the compactness of the gravel, the force of the stream from the monitors against the bank is rather ineffective in cutting and caving the ground and to overcome this deficiency and to further assist in moving gravel, holes are drilled into the bank and loaded with powder, which is then discharged by means of an electric battery. This means an increase of working force and also of the expense account otherwise, but the results amply justify it. The powder bill alone frequently exceeds \$300 per month.

The Sterling mine is reached by an eight-mile wagon road leading directly south from Jacksonville.

THE S. A. VANCE HYDRAULIC MINE.

One of the best known mines of Southern Oregon is the old Sturgis on Forrest creek, which recently changed into the property of the S. A. Vance Hydraulic Company. It begins about three miles from the mouth of the creek and extends a mile and a half up to the forks, and then about one-half mile up each of the forks. An old back channel is the mainstay of the mine and continues for most of the length of the property. A right angle drift, started by Mr. Sturgis, to cross-cut the channel, has a length of 200 feet and has not yet reached the opposite rim. Its bedrock averages eight feet or so higher than that of the formerly worked old channel, and the present channel is twice as rich, running probably \$10,000 per acre. About five acres of it have been worked away since its rim was first broken into by Mr. Sturgis six years ago, and one-third of this has been piped away since the change of own-

this back channel, whose career is just being entered upon, there is still some good ground



VANCE HYDRAULIC MINE.

remaining virgin in the lower channel, and which in the end will be worked by hydraulic elevator. Some idea of the possibilities of Forrest creek gravel beds can be had from the fact that in 1868 2,000 whites and 400 Chinese found employment on that stream. A company of six Chinamen took out \$23,000 in one season.

What made the old Sturgis a specially valuable property was its water rights. The main or upper ditch is a mile and a half long and carries 1,500 inches of water. It empties into a larger reservoir immediately opposite the present workings, and gives a pressure of 200 feet. Another ditch eighty feet lower and with a capacity of 1,000 inches furnishes flush water for the tailings. The water comes from both forks of Forrest creek, a quarter-mile ditch connecting the two forks. This water system furnishes a steady head until April or May. The season is prolonged into midsummer by use of reservoir heads.

ASHLAND DISTRICT.

The Ashland district is at present very quiet. Some work is being done by the Shorty-Hope Mining and Milling Company on Wagner creek. This mine, which is at present owned mostly by Philadelphia capital, has seen a great deal of development work—about 2,000 feet of tunneling—and has been quite a producer. It has a present depth of about 300 feet.

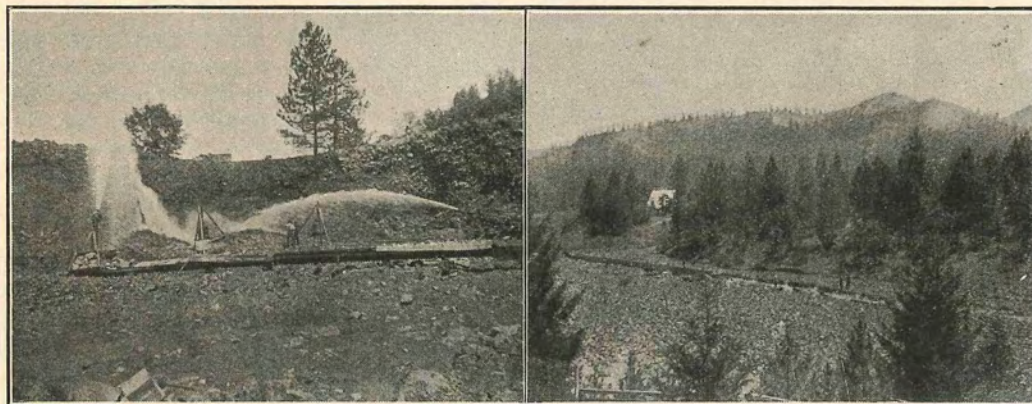
The Ashland mine, the second deepest in Southern Oregon, is a well-equipped property, and lies about two miles back of Ashland. It is developed to a depth of 800 feet, and has a fine ten-stamp mill, but has not been active during the past year.

J. K. Reader owns ninety acres of deeded land and one mining location on Ashland creek, and on this ground has a well-defined vein. It lies in a formation of granite, and about 250 feet of development work tends to show a continuity. The greatest depth so far reached, however, has been but seventy-five feet. The vein has a width of about three and one-half feet, and some very rich shoots of ore.

Alfred Mahon owns some ground on the divide between Ashland and Wayne creeks that has seen some extensive development, and also some good production.

Jacob Wagner also owns some very promising prospects on Wagner creek.

Barron brothers are developing a huge ledge about eight miles southeast of Ashland.



PIT AND FOILINGS RACE, STERLING MINE.

ing the mine admirably.

The equipment of the Sterling is unexcelled. Numbers 3 and 4 Hendy giants are used, with Hendy deflectors; there are four giants on the ground, but a battery of only two is directed at the bank at one time, the others answering emergency purposes.

The fact that they have been working up stream for so long a time, has resulted in quite a decrease of pressure, which, at present, is about 125 feet, but the enormous quantity of water that is carried from the penstock through 700 feet of twenty-two inch steel pipe makes up in great part for that loss.

The water, involving, as it does, such a desirable right, is sufficient for a long season's run, and by a comparatively simple piece of engineering could be made twelve miles shorter and give an increased pressure of 200 feet. This could be accomplished by tunnelling through Wolf creek mountain.

ership last December. The back channel at the time of this purchase was definitely located by the cross-cut drift, the mine having been laid bare by shafts and gulches, not to mention the showing made at the lower reservoir.

At the time of the recent sale, there was one giant, a No. 3, and 2,000 feet of pipe, and the mine was operated only during the daytime. The new company added another giant of the same size, 1,100 feet of pipe and an electric plant, and in thirty days two giants were operating on the Sturgis mine for the first time, and the mine, moreover, was running night and day. A big derrick had also been added for handling the larger boulders. The mast of the derrick is sixty feet high, the boom seventy-four feet, and the power used is steam.

The ground, while well settled, is easily worked, and at present a thirty-foot bank is composed about one-half of gravel. Besides

THE OREGON BELLE

AN EXCELLENT PROSPECT ON THE APPLGATE.

Applegate river, from its source to its mouth, has, with its various tributaries, contributed more to the gold output of Oregon than any other like area. Its early day production was little short of marvelous, and the one interesting consideration above all others was that all her tributaries paid well, almost without exception, or at least until down as far as Murphy creek, which is ten miles or so from Rogue river. Elsewhere have we spoken in detail of the records to the credit of the tributaries, Little Applegate, Forrest creek, Humbug creek and Williams creek.

Applegate to-day has the biggest placer producer in the State, the Sterling, besides such other well known properties as the old Sturgis on Forrest creek, the Layton and the Watts.

This area, as might well be expected, has had a correspondingly good record for its quartz so far as developed, although the surface has as yet barely been scratched. So-called pockets have been found on every branch of the Applegate. It was at the head of the Applegate that the famous Steamboat pocket of \$250,000 or \$300,000 was found and mined in the early days. Systematic quartz mining, however, is a thing of recent advent. It has had to wait for systematic quartz miners, and this essential species has only lately come to take an interest in the possibilities of Southern Oregon quartz. For the very reason that placer mining has been so universal and profitable and also because of the widespread prevalence of pay quartz, as evidenced in the numerous pocket and incipient ledges—for these reasons it is a warrantable conclusion that Applegate will some day be in respect to gold quartz, what it has always been in placer, namely, one of the ranking streams of not alone of Oregon, but of the whole west.

The best developed and most promising prospect at the present time is the Oregon Belle on Forrest creek. It was discovered twelve or thirteen years ago by a trio of prospectors, Broad, Reid and Throckmorton. They took out a rich bunch of specimen rock and the report went out as usual that another rich pocket had been found. The last named partner early sold out to the other two, and the prospect became known as the Broad & Reid, which name it retained until its sale by those parties to the present owners two years ago for a cash consideration of \$30,000.

The systematic development of the mine dates from 1895. In 1898 the small Huntington mill (three and one-half foot tub) was added that is to-day still on the property. The mine then, as is so often the case with good prospects, entered an era of troublesome litigation, from which it finally emerged some three years ago. It will thus be seen that nearly all of the development work, except that done by the present owners since their purchase, was done in the years from 1895 to 1898.

The group comprises nine claims, but the work has been done on three veins or what subsequent work may show to be but two. They are the Oregon Belle, the Fairview and the Gold King. Most of the work has been confined to the Oregon Belle or the claim which gives the rest of the group its name. The veins have a general southwesterly and northeasterly trend with a northwesterly dip, but there is at least a slight variation between the veins in both the strike and dip. It is not unlikely that the Oregon Belle and Fairview will prove to be one and the same vein. The Gold King lies east of the Oregon Belle. It dips northwesterly at a less angle than the Oregon Belle, which fact denotes a divergence of these two veins with depth. In other words, the present indications are that the Oregon Belle and Gold King are, and by further development will be shown to be, two distinctly separate veins.

them 160 feet of backs. A short pay chute of seventy-five feet was encountered on this level (number one) at the seventy-five-foot point, but this is entirely distinct from the larger pay chute developed on the levels above.

The vein is a true fissure, lying between walls of finegrained diorite. The Fairview and Gold King are both permanent appearing ore bodies of quartz of good values, as is also another vein called the Cross vein, but which may prove to be a displaced or slightly faulted continuation of the Gold King. A notable feature is that the veins are true, with well defined walls and thus far free from "horses."

The Oregon Belle, with its eight levels, embraces most or nearly all of the development work, and it has a good showing to make for every dollar spent. This is one of the few properties in Southern Oregon or elsewhere to pay for itself as it went along. Its various levels give some idea of its permanence, while its output speaks for its values.

It presents an ideal property for tunnel development. The mill or lowest level has



SCENE AT THE OREGON BELLE MINE.

The Oregon Belle is well developed and shows an average width of eighteen inches of milling rock; the Fairview will average four inches less. The Gold King, on the other hand, shows from twelve to thirty-six inches in the two places where it is opened up and will probably average two feet.

A 250-foot pay chute on the Oregon Belle was developed successively by the levels to-day known as the fifth, fourth and third. The number one tunnel has not yet been run sufficiently far to encounter the pay chute in the bottom, but the raise that connects the number one tunnel with the number two has opened the same on the north side. This establishes definitely the pitch of the pay chute. The owners have little fear of failing of encountering it. This level will give

an elevation of 3,300 feet and this tunnel level will open the vein a thousand feet below the crest of the mountain.

The property is situated ideally otherwise. There is abundance of timber and water for milling and domestic purposes, while geographically, it is twelve miles from Jacksonville, the county seat, accessible from Forrest creek by wagon road of easy grade.

On the other hand it is situated only five miles westerly of the Opp mine on Jackson creek, so that the problem of power for milling and mining purposes will be easily met by running a pole line for electric transmission from that point.

The Oregon Belle is an ideal prospect, ideally situated, and will no doubt develop into a very valuable piece of mining property.

APPLEGATE AND TRIBUTARIES.

UPPER APPLEGATE.

In describing the mines of the Upper Applegate, mention should not be neglected of the famous Steamboat Pocket, found on a tributary of that name of the right fork. This pocket, with the Gold Hill Pocket, make up the richest bunches of ore ever taken from Southern Oregon mines. The amounts taken from these pockets are supposed to be about the same, although in neither case are the values even approximately known. The amounts in each case are estimated at from \$250,000 to \$350,000, and it can readily be imagined that the discovery of such quantities of gold naturally caused quite an excitement at the time.

The Gold Hill pocket was found in 1854, and the Steamboat pocket about ten years later. A remarkable thing about these discoveries is that both were made by "green-horns." Another remarkable thing in both cases is that the amount was taken from a very small hole, the area of ledge in neither case exceeding 400 square feet. Aside from the Steamboat pocket, there has been little quartz development on the Upper Applegate.

The two prospects attracting most attention just at present are those of Collings & Hacker on the middle fork and Terry & Langley opposite the mouth of Squaw creek.

COLLINGS & HACKER.

This property, owned by Messrs. A. E. Collings and William Hacker, was found three years ago last fall, and has yielded \$6,000 from a depth of less than thirty feet, \$2,000 of which was taken out in ten days. It is situated on the Fall creek tributary of the middle fork of the Applegate. It is



COLLINGS & HACKER PROSPECT.

looked upon as being in the nature of a pocket, although there are, in fact, good indications for a firm and lasting ledge. A cross-cut tunnel is being driven that is expected to tap the ledge at a depth of about fifty feet.

THE TERRY & LANGLEY QUARTZ.

Several veins have been known to exist on the patented ground known as the old Langley homestead, which was taken up thirty years ago. Some pocket hunters took some money out of one of the ledges about three years ago. Mr. E. J. Langley refused to sell on their terms, but formed a partnership with Jas. Terry. Considerable work has been done since that time, enough to demonstrate the existence of three veins called the Lucky Queen, Rover and North Star. They are in a granitic formation and all have a general direction toward the southwest that would seem to indicate a convergence with depth. The veins vary from one to five feet, but have every earmark of permanency. A small three-stamp mill, doing about the work of an ordinary arrastra, takes out a little gold for the owners from time to time. The ledges are within a quarter of a mile from the Applegate, so that their situation in regard to water is all that could be desired. Timber, too, is a plentiful quantity.

SISKIYOU GOLD MINING COMPANY

This company controls the land at the junction of Joe and Elliot creeks. Two ditches cover the property. Each is one-half mile long, one, the pipe head ditch, from Elliot creek, furnishing a 600-inch head under 300 feet pressure, and the other 3,500 inches for by-wash purposes. There are eight claims besides the claim up Elliot creek, and the control of stock of the company is in Messrs. Willet and Harrell.

The property is otherwise equipped with a No. 3 giant and 1,100 feet of pipe. It would require about 800 feet more of pipe to extend to what is known as the lower bar, where there is some good ground awaiting development.

Aside from its value as an hydraulic mine, the property has another good value. It is a natural site for smelter and town, and represents the nearest approach to the Blue Ledge that insures practically unlimited water. Moreover, it represents the terminal of the new wagon road just completed by the Jackson county board of supervisors.

APPLEGATE POST OFFICE AND VICINITY.

The Applegate store and postoffice located on the Applegate river ten miles above Murphy and fourteen miles west of Jacksonville, is conducted by John W. Pernoll, in behalf of the Wm. Pernoll estate. While only a young man, Mr. Pernoll is none the less a first-class storekeeper. His neat store, his well-selected stock and his unfeigned affability—these things explain the esteem in which he is held.

There is an area above Applegate as yet comparatively little prospected, and that has every indication of bearing good gold-bearing veins. It is that district that drains

its three sides, respectively, into Thompson creek on the west, and Applegate on the east and north. It is drained by such streams as Star gulch, Palmer gulch and Keller gulch, and the various eastern tributaries of Thompson creek. These several gulches all have considerable placer yield to their



APPLEGATE STORE AND POST OFFICE AT MAIL TIME.

credit, especially Star and Palmer gulches. There are some quartz prospects located, but little development work has as yet been done.

The most important quartz prospects besides those already mentioned on Forrest creek, Missouri Flat and Williams creek, are the Golconda, across the river from Missouri Flat and owned by A. C. Taylor and associates. In its lifetime of fifteen or twenty years it has produced upwards of \$30,000. The Maid of the Mist on Thompson creek, four miles above Applegate postoffice, is owned by White, Thurston and Brown. This latter has a very good showing for a small amount of development.

Three miles southeasterly from Ruch, on Little Applegate, the three McNulty Brothers are opening up a prospect said to have a most excellent showing for the work so far done. The values are comparatively high and the ore body is large. The one drawback is that the ore is base.

HUMBUG CREEK.

There are several placer properties of interest on Humbug creek, including that of White and Brown, which is active, and that of the Johnson estate, which is dormant. This creek was formerly a great scene of mining activity, but future interest will center in quartz. Packer's gulch is a tributary that has some good prospects, and Ben Thurston has an interesting claim in a quartz prospect located in slate formation.

THE TACOMA COMPANY.

This company, which two years ago bought out the Cook & Howland holdings on the left fork of Forrest creek and a mile or so above the Vance mine, are equipped and situated almost like the latter property, except that there is a difference, namely, that the width of channel and length of season are both abbreviated because, first, of the approach to the head of the stream, and, second, the priority of the Vance water right. The mine is ably managed by E. A. Spaulding.

THE SAN ANTONIO MINE.

Another good placer property on Forrest creek is that one called the San Antonio mine. This property embraces two separate tracts, one of 160 acres known as the Carter ranch and the other of 172 acres formerly owned by Peter Black. These two places were both purchased by Mr. Jas. B. Duggan, of San Francisco, from the probate court of Jackson county.

The equipment represents three reservoirs, two supplying the pipe head and one the by-wash flow. The water is brought from the reservoirs by a one-mile ditch and gives a pressure of 125 feet at the upper pit and 200 feet at the lower. The ground is opened at two places and shows a bank from fifteen to twenty feet deep. The values are mostly in the form of coarse gold, and the gravel, although compact and coarse, is quite free of large boulders. A derrick is used in their removal. A No. 1 giant is the size used. The entire water right of upper Forrest creek is controlled by Mr. Duggan, as is also that of Marshall gulch. These rights insure a good run during the winter months, and by the use of reservoirs extend the run well along into the spring.

THE PEARCE PLACER.

A ditch one and one-half miles in length brings water onto this property from Poor Man's creek. The ground, comprising 230 acres, mostly patented, is owned by J. D. Pearce and Sons, and embraces a lot of entirely virgin gravel formation.

The past season was a particularly good one. A lot of coarse gold was taken out. One piece, weighing \$55 and another weighing \$23, were among the output. During November and December, and while work was otherwise slack, Pearce Brothers built a three-quarter-mile ditch about ninety feet higher than the old ditch, and which later gave them an excellent run for all January and February and March, and leading them into an unexpected old channel with the values above spoken of.

QUARTZ ON FORREST.

Opposite the Vance mine and half mile or so away, George A. Dyson, the discoverer of the noted Lucky Boy mine of Blue river, is opening up a small but rich quartz ledge between walls of slate and diorite, and formerly owned by McIntyre & Orme, who gave it the name of the Yellow Jacket.

THE SUNSET.

Situated at a 1,000-foot elevation greater than the Vance hydraulic mine and three-fourths mile northwest, is a quartz prospect of some promise called the Sunset. It was discovered about five years ago by M. Winingham who, with M. A. Van Gorden, took out from six to seven thousand dollars the following three years. This amount was taken from only about 200 tons of ore.

The ore is base where opened up by a 245-foot cross-cut to a depth of 200 feet. The concentrates go about \$200 per ton.

The vein is small, running from four to

fourteen inches, as shown by a 150-foot drift from the inner end of the above mentioned cross-cut.

THE REED & FLETCHER PROSPECT.

This is situated on Bishop creek, an east branch of Forrest creek, and about two miles above the mouth of Forrest creek. It was found 15 years ago, and about \$5,000 has been taken out. The ore is base at its present depth of 150 feet. The trouble with this property is, that it should have been opened by sinking. Its topography precludes mining by tunnelling.

SAVAGE AND MILLER.

The chief hydraulic claim operating on Missouri Flat is, that owned by Savage and Miller. It comprises eighty acres of cleared land, all on Miller creek, a direct

in drifting and rocking. Hydraulic operations are handicapped not alone by poor water facilities, but poor dumping facilities as well. Mr. Miller is covering good ground to-day with his tailings because of the farm below. It will require a consolidation of the divergent interests of Missouri Flat to insure the best operation of the mines.

The gold is high grade and generally coarse. It was on this ground that the famous Dan Miller nugget was found by the present owner's grandfather in the early days. In fact, it was found at a spot not fifty feet distant from the scene of the last piping operations of this season.

DAVIDSON & SON.

The best individual gravel ground on Missouri Flat, at least excelled only by that of Miller & Savage, is the ground held and mined as placer mining ground by Davidson



AT THE SAVAGE AND MILLER MINE.

tributary of Applegate. The property lies back from the river about a mile and has an elevation of about 400 feet above the river. Nearly all of the ground is good gravel ground, averaging about fifteen feet deep. Only about two acres of bedrock have been cleaned.

The mine is necessarily worked on a small scale, owing to its water right. There are two ditches, one from Miller creek about 300 yards long, and the other from Rocky creek about one mile long. This latter leads to a reservoir, but the reservoir affords only a very light pressure, seventy feet at the present point of operations. Besides this, the equipment comprises a No. 1 giant, 1,000 feet of eight-inch pipe and one-half mile of flume.

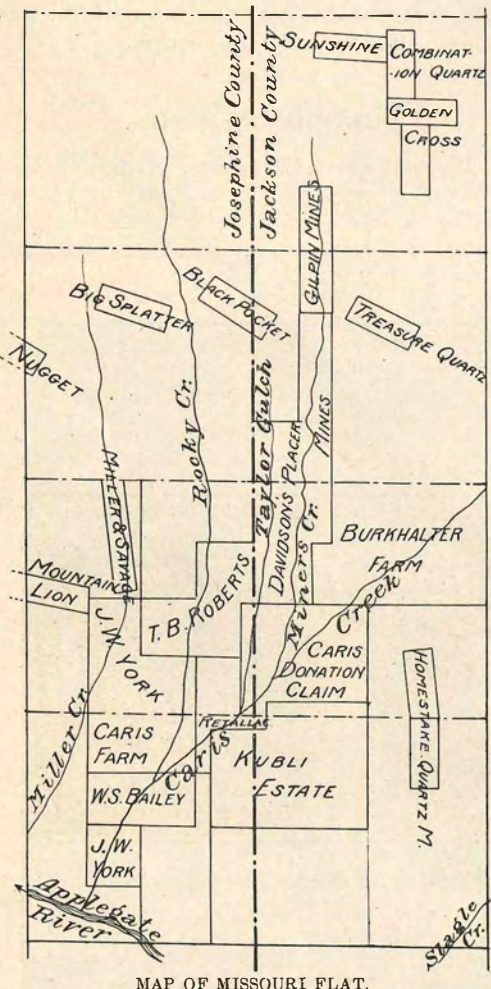
The character of the ground is unquestioned, since Mr. Miller, when conditions for piping fail him, is repaid for his labor

& Sons. It is a theory, and a very plausible one, of some who have studied into the conditions of Missouri Flat, that the ground owned by Davidson & Sons controls some of the richest gravel in the country. It is believed that that strip lying between Miners' gulch and Taylors gulch, and extending northwards for considerably over a mile from where these streams flow into Caris creek, represents an old channel that flowed southward and emptied into the Applegate at some point south of Caris creek. The bed of this old channel is exposed at one or two places by the tributary gulches of Miners gulch and Taylors gulch, and wherever the bedrock has been approached good values have been secured.

During the past winter Davidson & Sons took occasion to cross-cut this tunnel easterly and westerly, by means of a waterrace, which cut its way down into the formation.

It was shown that there is an old channel bed, and while the race did not extend low enough to get to the bottom of the channel, still enough work was done to show the paying character of the deposit.

Davidson & Sons have been restricted from extensive hydraulic operations because of the alleged damage to farming interests below. Some day all Missouri Flat will no doubt be consolidated into one big holding on a scale that will justify the absorption of all interests, and thus make away with all possible handicap.



MAP OF MISSOURI FLAT.

HEAD OF MINERS' GULCH.

The Golden Cross and Big Mountain mines, owned by John R. and George W. Bailey, and the Sunshine, owned by W. S. Bailey, form an interesting group at the head of Miners' gulch, which was the richest gulch of Missouri Flat. On the Golden Cross there is 300 feet of tunnelling and a fifty-foot shaft, 200 feet of the tunnel being on the vein. There is also a fifty-foot shaft, intersected by a 150-foot tunnel. In the Golden Cross a firm ledge of good ore is shown up, and a most excellent opportunity is given for further tunnel development. The Sunshine may prove to be an extension of the Big Mountain.

COOK AND HANNUM.

While tracing for a pocket on Christmas day, 1902, E. F. Hannum and Amos H. Cook discovered a ledge situated one-half mile back from the Applegate river and a mile or so east of Missouri Flat. They ran an open cut for the vein a distance of seventy-five feet and encountered a rich bunch

of ore thirty inches wide and assaying \$240. A shaft was started and the rich rock continued for a depth of fifteen feet, although the vein had narrowed to a width of fourteen or sixteen inches. It has been followed down by the shaft to a depth of twenty-seven feet. The ledge is traced on the surface for a distance of three or four hundred feet, lies between granite walls that will average a distance apart of three to four feet where developed and has an east-west strike.

HOMESTAKE.

Besides the Mountain Lion and Golden Cross properties, might be mentioned the Homestake on Caris creek, owned by W. S. Bailey, and which for the limited amount of work done presents a good showing in the form of a permanent looking ledge, of low grade ore, however.

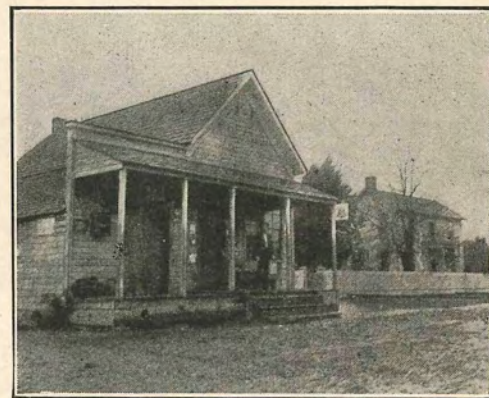
WILLIAMS CREEK, A DISTRICT WITH A RECORD.

There is a north and south tier of seven townships that is claimed by some to be the pre-eminently interesting gold mining district of Southern Oregon, and the most southerly township of this tier is the one comprising for the most part the famous Williams creek district. The rich old Williamsburg diggings, like the remains of the historic old settlement of Williamsburg itself, are fast becoming a thing of memory only. The hydraulic mines operated by Mr. J. T. Layton on Bamboo gulch and Mr. Alex. Watts on Horsehead gulch represent practically all the placer activity on the main creek. The other things of interest to the reader are, first, the historical associations of the district; second, the development being made in quartz; and, third, the possibilities of dredging. Leaving the first and last of these three fields to other investigators, we take up the subject of quartz development only to say that hardly enough has yet been done to either commend much or condemn the district. The Golden Eagle, Rising Sun, Horsehead, Oregon Bonanza, Bone of Contention and Rising Star all represent investments of from a few hundred to a good many thousand dollars, in the order named, the latter two occupying opposite sides of the stream, four or five miles from its mouth, and being equipped with eight and ten-stamp mills, respectively. The Bone of Contention is a good looking prospect and is to-day undergoing some good development at the hands of Messrs. Johnson, Catterlin and associates, of Portland. The Layton placer is referred to elsewhere.

WILLIAMS POST OFFICE AND STORE

Mr. David John, the pioneer storekeeper of Williams Creek, has owned and conducted a store there since 1892. Previously, the nearest store was the Applegate store, and that store formerly was two miles farther from the Williams Creek postoffice than it is to-day, or twelve miles away. Prior to 1864 Mr. John had been blacksmithing; that year he became interested in farming. His present holdings in the heart of Williams Creek embraces 370 acres, part of which was bought outright, part held under home-

stead right and part under location. Practically the whole tract lies to the west of the creek and about five miles from its mouth. The ground is devoted mostly to raising hay, grain and vegetables, but there are about sixty acres that are conceded to constitute ideal hop raising ground. About 160 acres are under cultivation.



WILLIAMS CREEK STORE AND POST OFFICE.

Mr. John has conducted the postoffice at Williams since 1882. There is a daily mail and stage to and from Grant's Pass, except Sundays. Besides this store, farm and the postoffice, Mr. John takes an interest in keeping up a pleasant home, at which public travel also is entertained.

MILLER'S CORNER.

This store, owned by J. H. Miller, and located a short distance below the postoffice, occupies a commanding position in the Williams creek valley, and is patronized alike by miners, farmers and stock ranchers. Mr. Miller was in the employ of the Gotcher mill eleven years ago, when he saw an opportunity to branch out. He started this store and has been gradually increasing his trade until it may well be the envy of any investment of the same amount in that country.

RANCHING AND IRRIGATION.

Williams creek is noted not alone for its past or prospective mining output, but for its present achievements in an agricultural way. It is without question the best valley in that respect for its size in Josephine county. Its irrigation ditches comprised a formidable competitor to its mining ditches, and its farms have a renowned fertility. Six tons of hay per acre is a nominal record.

The biggest interests in this line are those of R. and C. O. Bigelow, father and son, who became interested in the valley at first through its mining, buying in 1862 the Baltimore placer mine and acquiring the other mining ground later. As placer mining waned Bigelow & Son began to expend their energies in other directions, and to-day their ranch and water right interests are quite as substantial as a good paying mine. They own 1,000 acres of the valley's best land and the best water rights for irrigation on the creek. A ten-mile ditch, carrying 500 inches of water, runs through townships 38 and 39, covering 2,000 acres of land, and is to-day the big ditch of the valley. Other ditches, notably the old Hoxie and the projected Williams Creek Irrigation

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Company's ditch will mean when completed the perfection of the most complete system of irrigation in Southern Oregon, and one that will no doubt serve as a good model for other streams.

The J. M. Gotcher place adjoining the main Bigelow ranch, is one of the other large holdings of the valley, and is correspondingly interested in the water question. Mr. Gotcher controls the second best water right in the valley, that out of Powell creek.

THE WATTS PLACER MINE.

This property is one of the faithful producers of Southern Oregon and one of the best on the Applegate. As already stated, this mine is on Horsehead gulch. It lies about one and one-half miles northwest of Williams postoffice and five miles from the mouth of the creek. It is about a mile back from the main stream, at an elevation of 1,300 or 1,400 feet, and comprises 320 acres of land, of which seven-eighths is deeded. There are several old channels, or else a series of deposits resulting from a very remarkable perambulation of one old channel. While the geological formation may be an interesting enough question to speculate upon, this much is true, that prospecting on the part of Mr. Watts has shown beyond a doubt that the whole flat situated above and back of the Gotcher saw mill is one vast deposit of good pay gravel, a fact not even suspicioned before the present operations of Mr. Watts at this point, commencing about four years ago. In 1862 a couple of miners named Woods Brothers took out \$200 from a spur or breakover on Butcher's gulch, and from a hole that could be washed out with Mr. Watt's present equipment in one or two hours.

Mr. Watts has been interested on this creek since 1861. Previous to his four years of operation at the present point of workings, he piped for two years at a point further up Horsehead. For twenty years previous he had worked there at ground sluicing. Five years ago the three-mile ditch from China gulch was extended five miles to Munger creek and increased to six hundred inches capacity. This marked the serious entrance of Mr. Watts into the field of hydraulic mining on Williams creek, and it is now planned to double the ditch's capacity and at the same time extend it six miles to the main Williams creek. There is an understanding between Mr. Watts and the ranchers along the stream to the effect that Mr. Watts cease the use of the water at any time after May 1st that the ranchers require. Accordingly, in order to secure the maximum effectiveness of operations, Mr. Watts is compelled to augment his water supply for the winter months by thus enlarging the ditch. The ditch gives a pressure of 300 feet where now being used.

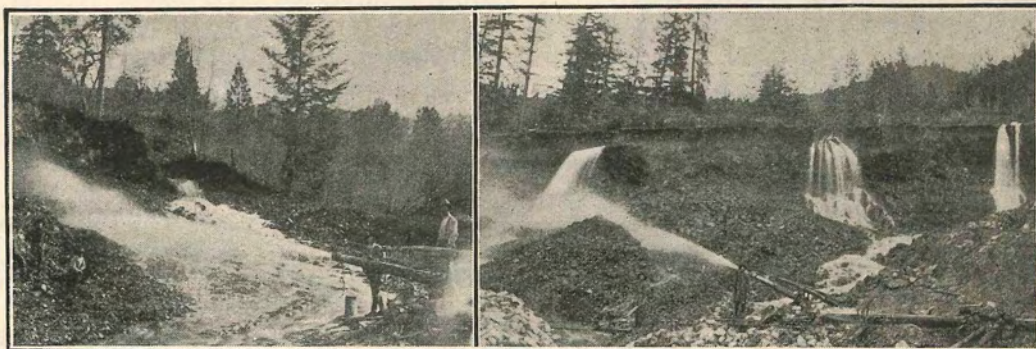
POWELL CREEK.

Aside from some quartz claims opened up by Sharp Brothers and E. G. Holman at the head of the creek, the only mining operations of consequence are those of the Powell Creek Mining Company, comprising a partnership of the above named three men and Dr. J. S.

Moore. It practically represents a consolidation of the available placer claims held in succession of ownership until finally acquired by the present owners in 1902.

The property comprises eleven claims, commencing about four miles above the mouth of the creek into the Applegate, and controlling three miles of the creek, although two claims are valuable only as controlling the dumping privileges of the mine. About six years ago six miles of Powell creek was worked with pick and shovel, some of the ground going \$10 a day per man for the whole season. The present work is on a bench along the sides of the main stream and operations have disclosed a channel still further back and above. The ground is quite heavy; a derrick, operated by water power, has been added, to remove the rocks. The gold is quite coarse. One piece found on Powell creek contained \$113.

The facilities for working, at least so far as water is concerned, are good. The creek has a wonderfully steep grade, so that a 360-rod ditch gives a piping pressure of 300 feet. The dump, on the other hand, is not so good. It requires a flume 1,200 feet long to get rid of the tailings.



LAYTON MINES—FARRIS GULCH AND BAMBOO GULCH.

A BIG PRODUCER WITH EXCELLENT WATER RIGHTS.

Nature has not always been careful to combine good ground and good water rights; she did, however, in the case of J. T. Layton's properties on the Applegate. To be sure the conditions even here supplied by nature required some revision, and it took a small fortune to do it; but it was done, and the Layton water rights are known as numbering with the best three or four in Southern Oregon, and, therefore, the best three or four in the State.

Up to the time that Mr. Layton began to acquire his holdings by the purchase and consolidation of the Kubli, Bolt, Hudson and Caldwell interests in Farris gulch in 1868 and 1869, these properties had been worked by pick and shovel or ground sluiced. What is known to-day as the lower Layton ditch was at that time used to supply the noted Williamsburg diggings. This ditch (dimension, 5x4x2 feet and a grade of three-eighth inches to the rod) was extended from Whiskey creek for three and one-half miles and a small giant started to working. This ditch is taken from the west fork of Williams creek and is seventeen miles in

length, including two small stretches of flume.

It was determined by means of this equipment that there was ground of quality and quantity enough to warrant a higher ditch and accordingly in 1874 the construction of the Layton upper ditch was commenced and in 1877 it stood completed. This ditch, like the other, is also taken from the west fork of Williams creek. It also takes up the water from the east fork and has the dimensions of 42x26x24 inches, with a one-half inch grade. This ditch passes over some rough topography, but has no fluming. It, however, has an inverted syphon of 600 feet of length over the Williams creek divide, the first syphon introduced into the country.

These ditches could furnish an unlimited head throughout the year. Mr. Layton has preferred, however, to let them go unused during the winter on the assumption that it is the part of precaution to avoid breaking down over some of the fine Williams creek farms in the turbulent water season of the year. The ditches furnish ample pressure, as well as ample water. The lower ditch gives a head of two hundred and seventy-five feet at the present point of operations, while the

upper ditch is still 550 feet vertically above the lower. The mine itself controls the whole of Ferris gulch, there being 140 acres of patented land, ninety acres of railroad land and a number of original locations. Virgin ground is at present being worked, but further up the gulch the surface was sluiced away for a depth of eight or ten feet, or until it was believed that cement had been struck. Mr. Layton finds that not only is the residual formation not cement, but that it contains the best part of the pay. There is a thousand yards of the channel's length still to mine.

On Bamboo gulch, which is on Williams creek side, Mr. Layton is also operating a property, but this is worked only at such times as there is a surplus of water in Mr. Layton's mining season. It is well covered by the upper ditch and is 160 acres in extent.

As valuable as are his mines, Mr. Layton's water rights are still more valuable. Some day, if in the meantime water is not brought from the Applegate, either through a forty-mile ditch or by a centrifugal pumping plant, the extensive and rich gravel deposits of Missouri Flat will be worked with these rights.

Waldo, Kerby and Illinois River.

WALDO.

Waldo represents one of the best known hydraulic regions in Southern Oregon. It is situated on the Grants Pass and Crescent line, and was one of the earliest placer fields in the west. At present this section is receiving considerable attention because of its copper deposits, and together with the Blue ledge country, it represents the most promising field for that line of mining activity. It is situated on the Grants Pass and Crescent City stage line, about forty miles from Grants Pass.

The only hotel in Waldo, one of the oldest mining camps in Southern Oregon, is owned and conducted by Chas. Decker, a pioneer. Mr. Decker followed mining in Oregon and California from his arrival on the coast in 1864 till the year of 1889, when he purchased his present business in Waldo, to which he to-day gives his exclusive attention.



HOTEL AT WALDO.

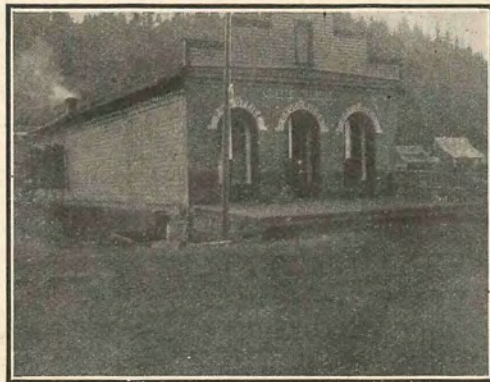
The hotel is a good frame building, with well furnished rooms and accommodations for about twenty guests. It is located on a plat of 160 acres of patented land situated in and about the famous old mining camp, and much of it is still valuable as placer ground.

Besides his hotel interests, Mr. Decker owns a store, carrying a \$4,000 or \$5,000 stock of general merchandise. Here is the outfitting headquarters for prospectors, and patronage is always enjoyed from numerous other sources in the fertile Illinois river valley. Mr. Decker also conducts the post-office.

Just as it is in the case of his store, so in the case of his hotel, the main desideratum is the satisfaction of patrons. Mr. Decker, in the conduct of his diversified interests, has the good business judgment of applying the Carnegie rule of not attempting to look out for every detail personally, but to see to it that competent lieutenants do. In the store George W. Elder has charge, and no better all-round merchant could have been secured. At the hotel Mrs. C. Johnson presides—a more orderly hostess or better cook could not have been secured.

The situation of Waldo is ideal. It is on the stage line between Grants Pass and Crescent City and is located about midway. By virtue of its location it is the pronounced stopover station between points. It is the open door to southwestern Josephine county,

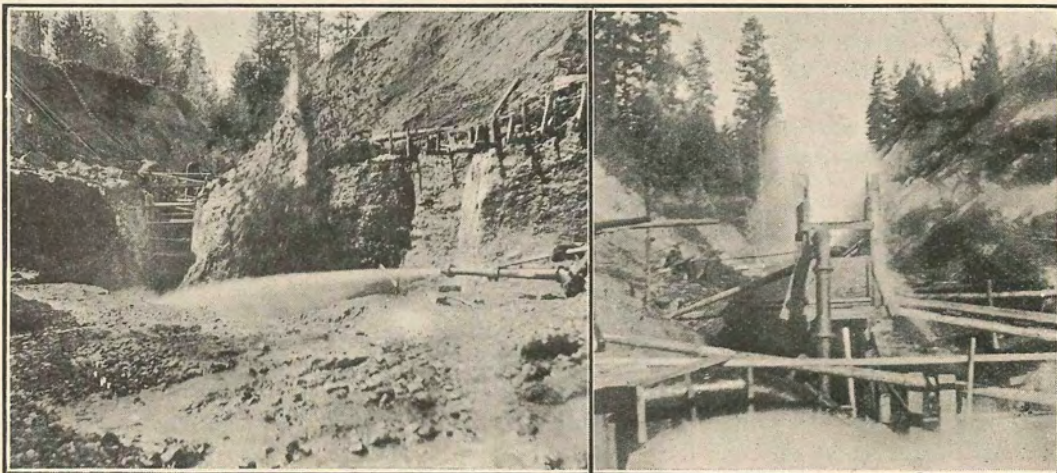
Curry and Del Norte. Within a radius of three miles are three of the leading hydraulic enterprises of the county, and it is the center of a very promising copper district. The



STORE AT WALDO.

mines have been developed far beyond the stage of prospects and a 100-ton smelter is now in course of construction. Waldo's location is not wrong.

The placer mining is confined principally to two large elevator properties immediately adjoining Waldo. The one is known as the Simmons, Logan & Cameron, and the other as the Deep Gravel mine. Both have installed hydraulic elevators of the Hendy type, which are working very successfully, and represent two mines that are numbered among the best hydraulic properties in the west. The former is managed by Mr. James



ELEVATOR IN OPERATION AT DEEP GRAVEL MINE.

Logan, and the latter, which is owned by A. E. Reames and W. J. Wimer, is managed by Mr. Wimer. The latter is equipped with two large ditches, two and four miles long, respectively, furnishing a pressure of 190 feet to a No. 2 Hendy elevator. The peculiar topography of this mine has necessitated the cutting of a long race, 7,000 feet long, and in some places sixty feet deep, including also a tunnel of 300 feet. This race constitutes a very important part of the present process of hydraulic elevation, which was introduced into operation only during the past year. This method of working the mine, however, has proven a success beyond all

doubt, and the Deep Gravel mine will shortly be one of the most lucrative placer mines in the State. A cut of their hydraulic elevator in operation is given below.

On Allen gulch, one mile southeast of Waldo, the W. & O. (Willis & Osgood) Company, of Seattle, are operating quite an extensive mine. The property includes 700 acres, or clear to the mouth of the creek.

NEAR WALDO—JAMES LYTTLE HOLDINGS.

An interesting mineral area is that embraced in the old Lyttle homestead several miles from Waldo on the road to Kerbyville. The east fork of Illinois flows through the place for a half mile of its length. The basin spreads out for a thousand feet and, while never prospected, there is a good chance that it will make paying dredging ground. The most of the values will no doubt be near the bedrock, however.

South of the river on this place is an eminence that is interesting alike for the gravel and quartz it contains. The gravel consists of old back channels and is exploited to some extent by tunnels driven to prospect the quartz. Mr. Lyttle has spent some little money to tap a contact ledge lying between serpentine and diorite. A tunnel commencing a little above high water is in a bank of gravel for its entire distance, and the gravel prospects very well. A forty-foot shaft also has been sunk. The ledge, besides its outcrop on the hill, was beautifully exposed in the river bed before the irrigation dam on Mr. Lyttle's place was built. It showed two feet wide. Mr. Lyttle declares that every pan on this knoll will give a prospect of quartz or placer gold, and only regrets that he is not again a young man to develop it as it should be done. Mr. Lyttle

has been a resident of Southern Oregon for over fifty years. He sold a couple copper claims near Waldo a year or two ago for upwards of \$20,000.

DREDGING NEAR WALDO.

Near Waldo was tried the first experiment of inland dredging in Southern Oregon. An English company known as the American-Canadian Company, acquired the ground known as the Old China Diggings, which had been owned and operated by a capable Chinaman for years, and were reputed to be great producers. The American-Canadian Company equipped the property

with a Hammond dredger, but for some reason or other, their operations proved unsuccessful.

Adjoining this property, and almost surrounding it, is a tract of ground owned by Mr. F. H. Osgood, and which possibly offers a good opportunity for dredging. Mr. Osgood himself is turning his attention more to quartz mining, and consequently is willing to allow the experiments in dredging be made by other parties. He has several hundred acres of Illinois bottom, just opposite the mouth of Allen gulch, and from its surface, at least, it would appear to offer reasonable opportunities for dredging.

Several miles above this property, on the same branch of the Illinois, is the Smith-Beer mine, which has produced considerable gold, and of which Mr. Oscar Beer is manager. Much of the gold has come from sluicing and piping of the weathered portion of a bedrock formation called porphyry.

LIME AND CHROMITE.

Smelting in the Waldo district will never be handicapped for a lack of lime as flux, especially after the projected railroad to the coast is complete. Great bodies of limestone are available. The noted Josephine caves on Grayback mountain are in a bed of limestone almost unlimited, but there will be no need of ever going that far. There are numerous lime deposits, but one of the best is on Woods creek, two or three miles from its mouth and four miles southwest of Waldo. Wm. Ross, of Waldo, has some good claims and also has some good chrome iron claims in view. Chromite was formerly shipped out in good quantities from various Del Norte points from Preston Peak to Crescent City.

LOWER ILLINOIS.

On the main stream, below the Wilson-Meredith on Josephine creek, until lately owned by Mr. Erasmus Wilson, of Los Angeles, but now owned by Mr. W. P. Wilson, and which is one of the larger mines of Southern Oregon, there is little activity just at present. This is a district handicapped by lack of wagon road. The mine at the mouth of Six Mile creek and owned by the Old Channel Company of Galice has been greatly improved and well equipped, but is this year being worked on a lease. At the mouth of Briggs creek the Oak Flat Mining Company has extensive holdings, but have not worked this season.

Four miles below Selma Sickles, Woodcock & Erickson control a bench channel 150 feet above the present bed of Illinois river. A fifty or sixty foot bank of small gravel carries good values as disclosed by a short drift. A four-mile ditch to Squaw creek would afford abundance of water for a six months' hydraulic season, and a three-mile extension would materially increase that supply. There are four claims and they lie about one-half mile below the mouth of Deer creek and on the opposite side.

BRIGGS CREEK.

This creek, a northern tributary of the Illinois and situated in the western part of Josephine county, has been and is yet worked considerably for placer gold. One or two places in the creek's channel were rich, and some old back channels about ten miles up

the creek, are to-day being opened up and show some good values. A group of half a dozen properties present an opportunity for a consolidation and this is the only way that they could advantageously be worked.

A quartz ledge, as yet little developed, was discovered a year or two ago by Mr. Samuel Brown.

Another northern tributary of Illinois is Silver creek, and there are those who claim that this creek will soon be heard from for its quartz. It was a richer stream in placer than Briggs creek up to a point where a slide came in and backed up the stream for a mile. A California company is running a tunnel to bottom this immense accumulation for drift mining, and if the pay streak is encountered some rich returns will be secured.

Southern tributaries of the Illinois are Fall creek and Rancherie, both of which were good in the early days.

About midway between the mouths of Fall creek and Six Mile creek is situated the old Sikes property, to-day owned by J. M. White. Mr. White has had this property for several years, but equipped it for hydraulic mining only last fall. He had everything in readiness for the first fall rains, and has had an excellent run. Besides these mining interests on the Illinois proper, Mr. White has good interests on Fall creek—both quartz and placer. Especially has he several good quartz prospects there which were inspected somewhat in detail by MINERAL WEALTH's representative, and for which our correspondent will unhesitatingly vouch. On Fall creek is also the copper showing known as the Siskiyou mine. It was discovered years ago when there was considerable native copper shipped away. Rigley and Smith were the first locators about thirty years ago. There was also gold in the ore which was saved by means of a small hand-made stamp mill, while the copper in the ore was leached. In 1895 Captain George Wheeler began opening the mine for the Siskiyou company of Baltimore. A trail was built, a six-ton water jacket smelter installed. Yet all this had been done before the ledge had been developed, although a mile or so of tunnelling has been driven in all. With depth the vein will no doubt prove to be a contact vein. An east and west contact of serpentine and diorite cuts the country. Mr. James McGuire is the present owner.

EUREKA.

On Soldier creek, a tributary of Briggs' creek, is located one of the best prospects of Southern Oregon, the Eureka, owned by Eureka-California people, and managed by Mr. A. F. Nelson. It is excellently equipped with a ten-stamp mill, and should soon become a well known producer.

JOSEPHINE CREEK.

We have reserved to the last our mention of this stream, by far the best tributary of the lower Illinois. Canyon creek, in turn, was the rich feeder of Josephine and among its tributaries we find Lightning gulch, which is at present exciting considerable interest for its tellurium discoveries.

Canyon creek was one of the very rich streams of Southern Oregon, to which fact the stacked and worked out tailings that line every square foot of available space, con-

tribute some evidence. Josephine was the richest, moreover, from the mouth of Canyon creek down. Sister tributaries of Canyon that contributed to Josephine below and from the same side are Fiddlers gulch, Day gulch and Mike gulch, all these streams to-day becoming more interesting for their quartz than their placer. Prospecting is encouraged from the fact that railroad grants do not interfere. At the head of Mike gulch and Day gulch is an interesting bit of territory called Pocket Knoll, whose surface is of decomposed diorite and which is literally poisoned with the offthrow of quartz gold. On Fiddlers gulch, a mile and a half from its mouth, J. H. Wittrock is opening up a good prospect which he calls the Pinal. Some years ago a forty-five-foot tunnel had been run, but the looked for lead was not struck. A year ago last June Mr. Wittrock returned and struck the ledge the first day. He took out some \$600 last summer and fall, besides putting up an arrastra. This year he has been running a lower tunnel.

The most interesting quartz development is on Josephine creek proper, about four miles above its mouth, and being prosecuted by the Gold King Mining Company, M. Marks, superintendent. A six-foot ledge somewhat broken up was found in the very stream bed. The Bour Brothers made the discovery on their placer diggings.

The Chinese took out great sums of money at this point in quartz gold the break over of this ledge. Some \$10,000 in all was taken out in a few square feet. The ledge has a peculiar "salt and pepper" appearance, occupies a contact between diorite and olivine, or unweathered serpentine, running north and south or with the course of the stream, and carries some tellurium. A shaft was sunk from the creek bed in low water season, but this mode will probably be changed to sinking from the bank. The company, which is made up mostly from Fort Worth capital, devoted itself, during the winter, to the old Bour-Dailey placer mine, which it purchased last fall.

A mile or so south of the Gold King is an extension owned by W. T. Feheley. It has the advantage of being out of the stream bed, and the further advantage of being situated just far enough above the stream in a steep bank to make prospect work by a cross-cut tunnel ideal. It is opened at one or two places and shows the same peculiar looking ledge formation of the Gold King, carrying the same free gold values and tellurium. Boulders rich in free gold have been found below this ledge. A couple of claims intervening between this property and the Gold King are owned by Warren, Wade Tuttle and Feheley.

SHELLEY CREEK—EGGERS CLAIM.

Immediately adjoining the Monumental on the west are a couple of promising prospects owned and being developed by Sam Eggers.

THE ANDERSON CLAIM.

Two miles south of the Monumental, on the opposite side of Shelley creek, Otto Anderson is developing a promising copper and gold prospect, the ore assaying about \$20 in the latter metal and \$3.90 in the former. The work as yet is too limited to give much of an idea as to size.

ALTHOUSE AND SUCKER CREEKS

ALTHOUSE CREEK.

Althouse and Sucker creeks were both notably rich streams in the early days. At present they are being equipped to some extent with modern apparatus, ditch lines, pipe and giants. The biggest producing placer mine on Althouse creek is that of the Althouse Mining Company, situated three miles southwest of Holland postoffice. Captain Robert Brown is superintendent. The past season the mine was operated in the same way as heretofore, viz., by washing the tailings through the tunnel under the divide between the Althouse and Sucker creeks, and dumping on the Sucker creek side. But a ditch is now being constructed that will tap Althouse above the head of the present ditch, whose water will then be used to operate a hydraulic elevator, now being installed.

The next property up the creek is Dale Hill, owned by Mr. T. F. Rourke, of Portland. It is situated on the mountain side and represents the ancient flow of the Althouse. It is equipped with a long ditch (covering a good water right), pipe line and giants, and is being successfully operated.

The next mine of importance is the Grass Flat placer mine, owned and operated by George Layman and Wm. Neil. The past year the mine was equipped anew. A new ditch brings an abundance of water from Althouse creek, and gives an excellent pressure.

Mr. Ed McDowell, representing a company of Humboldt county, California, men, is endeavoring to give solution to an interesting problem. He is working on the theory that the old channel is a continuation of the one that disappeared so completely on the Indian creek side of the divide, in Siskiyou county, California. Mr. McDowell assumes that the unaccounted for portion of the tunnel is buried beneath some mountain slide, and to prove his theory correct, he is doing some drifting at a certain point on the mountain. The result of his work will be watched with interest by those who are familiar with the conditions.

On the Irwin gulch, a tributary of Althouse creek, is located a good producing placer mine owned by Frank Houston. The equipment is small, but, considering the character of the ground, is quite effective. Just below the mouth of Irwin gulch is the Kiphart placer, owned by Alex Kiphart & Son, who are operating with a complete hydraulic equipment, and taking out good pay.

Further up, on a tributary of Althouse creek, called Bear Gulch, which puts in from the south side, is the mine of C. D. Hammond. The ground is quite heavy, but is worked successfully with a small giant. The larger boulders are removed with a derrick. Mr. Hammond also has a quartz ledge on his claim.

ON SUCKER CREEK.

The Sucker Creek Mining Company, of Seattle, H. Warner, secretary, controls three miles of the creek, and has set out to work

the flat bars in quite a novel way. The dirt is hoisted and conveyed to water by means of overhead cables, run by steam. The company is planning to put in a steam shovel.

Just across Sucker creek from California Bar is a well-known placer mine conducted by W. C. Slade, who owns the ground with two partners, Messrs. Thornthwaite and Barnett. It has been equipped the past year with new ditches, pipe line and giant.

The ground lying between the holdings of the Sucker Creek Mining Company and the headwaters of the stream, and all its tributaries, is largely controlled by individuals with small holdings, and is worked by drifting or ground sluicing. Among this class of mines should be noted the respective properties of Chas. Yager, F. A. Alexander, G. H. Benke, Cable, Perrin & Falk, George W. Lewis, David Briggs, and Creed & Engles. On the ground of the latter a nugget was found in the early days which weighed \$2,500. These properties, paying as they do for the work done on them with the meager equipment they have, could be made to net handsome dividends if fitted up with modern equipment, since the grade of the stream is ample, and water can be had in abundance. The Reed property at the head of the east fork of Sucker, and the Wise-carver placer on Bolan creek, are among the number that have already taken this progressive step, and they have realized nicely from this additional outlay.

The quartz on this stream has not received the attention that it has justly deserved.

The principal interest clusters about a prospect that is owned by W. H. King, of Holland, and H. G. Siskern, of San Francisco, and is situated on the divide between the headwaters of East Sucker and East Bolan. A thirty-foot shaft sunk on a two-foot vein of a peculiar ochre ore makes a most excellent showing. The ore is of high grade, and the values are entirely free.

One-half mile north of this prospect, and on the same ridge, is the quartz property of Jas. Thomas and G. B. Thomason. By a twenty-foot shaft they have exposed a thirty-inch contact vein of ore carrying good gold, silver and copper values.

J. F. McCracken has several claims on lower Sucker creek and on the Althouse divide. A forty foot drift discloses a ledge of quartz four feet wide. The values are entirely in sulphurets, various samples assaying from \$3 to \$15.

MCDONALD GULCH.

The richest branch of Sucker creek was probably Bolan creek. McDonald gulch, in turn, was the richest tributary of Bolan. This gulch is to-day practically in the control of Jacob Klippel. A small hydraulic plant is being used to strip the basin of the gulch. There are numerous high benches of virgin gravel, and there is an excellent opportunity to tap Bolan Lake, which at low water mark covers an area of twenty-two acres. This would insure an increased water supply in winter, and an extended season as well. Moreover, the lake, which is situ-

ated on the divide between Bolan and Althouse, is amply high to cover effectively nearly all the ground on either side.

The quartz property of W. D. Gardner on McDonald gulch comprises two claims which were discovered and located by Mr. Gardner in 1898. A sixty-foot cross-cut taps the vein at a depth of thirty-five feet, and 120 feet of drifting on the vein shows very regular values. The ledge lies between porphyry walls and has an average width of four feet, with good values in the foot wall for a distance of from four to six inches. The strike of the lead is slightly west of north, and dips west into the mountain. In the past six years Mr. Gardner has made more than



ON THE KLIPPEL CLAIM.

a comfortable living off his property, by means of a small hand arrastra. An open cut of fifteen feet on a vein that is evidently an extension of the vein described, discloses a good prospecting ledge two feet wide.

Mr. Gardner sees a very interesting thing in the location of his ledge. The placer wealth of Sucker creek and its tributaries has been almost fabulous, a richness that continues up the west fork of Bolan creek to McDonald gulch. As it approached the place where Mr. Gardner's ledge crosses this gulch, the nature of the gold departed more and more from that character of gold known as old channel gold to gold of a rough quartz nature. Above the Gardner ledges the ground ceased to pay, and Mr. Gardner therefore believes that he has located the source of much of the famous Sucker creek placer gold.

GRAYBACK MOUNTAIN

A discovery that was made in June at the extreme heads of Althouse and Sucker creeks and on the southwestern slope of Grayback Mountain, has created considerable excitement, and is, in fact, a discovery of more than ordinary interest. The discovery was made while out hunting by a young man named Roy Briggs, and represents a quartz ledge from which out of a small excavation of a foot or two deep and six feet long several thousand dollars were taken. The ledge lies in a contact of diorite and granite and is said to be tracable for quite a distance. There is a very reasonable likelihood that it will develop into a good and permanent mine. Its location is given as being twenty miles northeast of Holland, from which place it is reached, in most part, by a wagon road, and the rest of way by trail. The discovery of this mine recalls the phenomenal strike made by Blalock & Howe on their Coyote creek prospect last fall and described on page 25.

THE COPPER INDUSTRY.

The production of copper has shown a marvelous growth during the past quarter of a century. From a comparatively unimportant industry it has developed into one of the greatest in the world, and the large copper producers have created some of the world's greatest fortunes.

The Age of Electricity, as yet hardly ushered in, but which promises to make the twentieth century the most important epoch in history, is responsible for much of the increased demand. The annual increase in consumption is now almost equal to the world's total annual production of half a century ago, and the trade is fortunate that new fields of production are developing, maintaining the equilibrium between supply and demand. The following table will be of interest in this connection:

COPPER PRODUCTION.		
	United States Tons	World's total Tons
1880	27,000	153,959
1890	115,966	269,455
1895	170,100	351,473
1900	269,111	485,854
1901	281,600	499,526
1902	294,297	532,700

COPPER CONSUMPTION.		
	United States Tons	World's total Tons
1895	118,835	364,486
1900	153,900	488,329
1901	221,000	515,788
1902	203,225	556,000

The figures compiled from the most reliable sources indicate the real cause of the strength displayed by the red metal industry, and the avidity displayed by large capital in securing new properties of demonstrated magnitude.

The Pacific Coast entered the field as an important producer only a few years ago, if we except, a few Arizona producers and include that Territory with the other Pacific Coast States.

Prior to eight years ago, very little copper was produced in California. Since the advent of the Mountain Copper Co., Ltd., operating the Iron Mountain mine, in Shasta county, the State has advanced to fourth in importance as a producer. The record

of recent years has drawn the attention of copper operators to Northern California, and as in the case of the precious metal, gold, copper has now been proven on the Oregon side of the line, and important operations are under way, and contemplated, in the region of the California-Oregon boundary.

As these districts are so closely associated geographically, some reference to what has been accomplished in Northern California will be apropos to the Southern Oregon edition of MINERAL WEALTH.

As already stated, the Mountain Copper Co., Ltd., was the first to apply ample capital and modern metallurgical practice to the reduction of copper ores in California. In 1897 the first furnace of the present magnificent plant at Keswick was in successful operation, and the resultant matte was sent to the company's plant in New Jersey for refining. The effect upon the mining industry of Shasta county can best be appreciated by referring to the following table of production:

1896	\$ 623,443
1897	2,224,706
1898	3,510,728
1899	4,661,980
1900	5,574,024
1901	6,737,571
1902	3,730,049
1903 (estimated)	4,500,000

The output fell off during 1902 and 1903, due to the labor troubles, which now no longer exist, and the output for the first six months of 1904 is in excess of \$4,000,000. Since operations began in Shasta county, the seven years' production shows a total of 159,532,854 pounds, valued at \$22,989,712, exclusive of the gold and silver content of the ore treated, which will not fall short of \$3,290,000. The Mountain Copper Co., Ltd., has of course been the largest producer, but in 1901 the well-known operator, Captain J. R. De La Mar, began the reduction of the Bully Hill ores, and this mine has taken second place in California, for the value of its output.

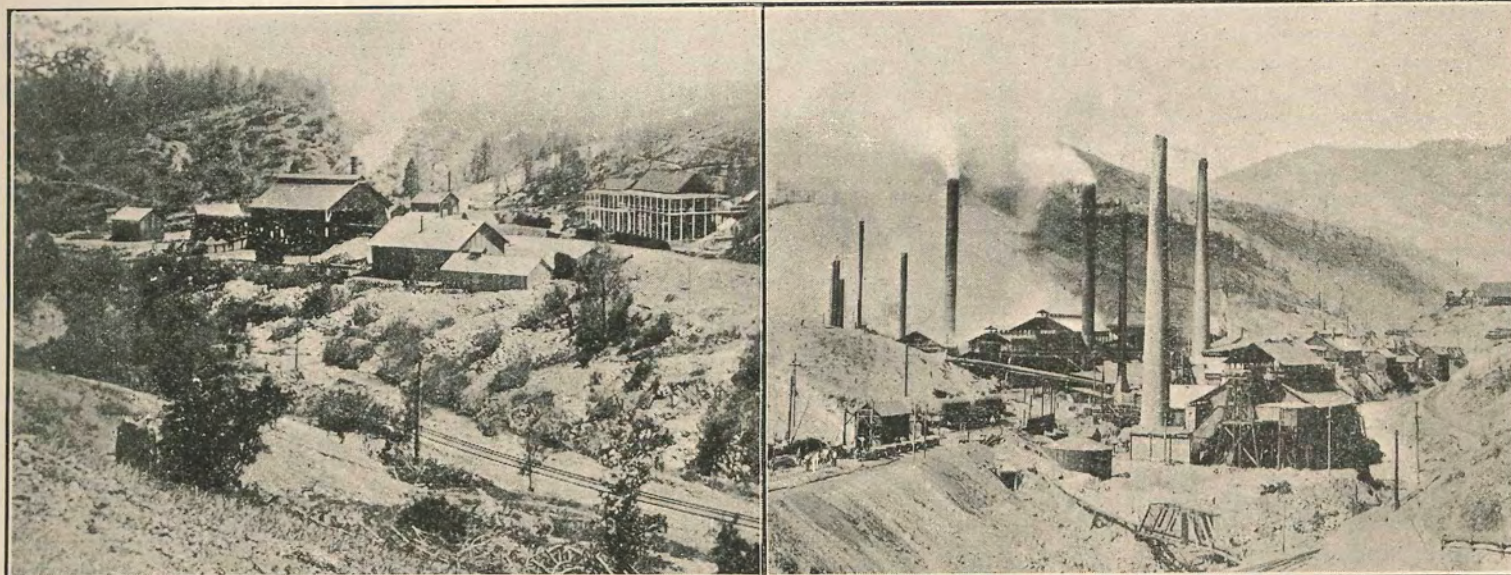
The copper belt of Shasta county is quite extensive, and two important districts have been proven. The Iron Mountain district lies four to seven miles west of and paralleling the Southern Pacific Railroad and Sacramento river, extending a distance of about twelve miles in a northeasterly and southwesterly direction. The formation in which the lodes occur has been classified by the United States Geographical Survey as metarhyolite. The formation is fully four miles wide in places, and lies between quartzite on the southeast, and slates as a rule on the northwest.

In the eastside district, to which the Bully Hill ores belong, the copper values are also associated with the rhyolitic rocks, but occurs more in vein form, evidently filling fissures, the gangue mineral being mainly barite; the grade is also much higher, and the gold and silver values much in excess of the west side ores. On the west side the ore occurs in deposits mainly along the line of the quartzite footwall—if it can be justly termed so.

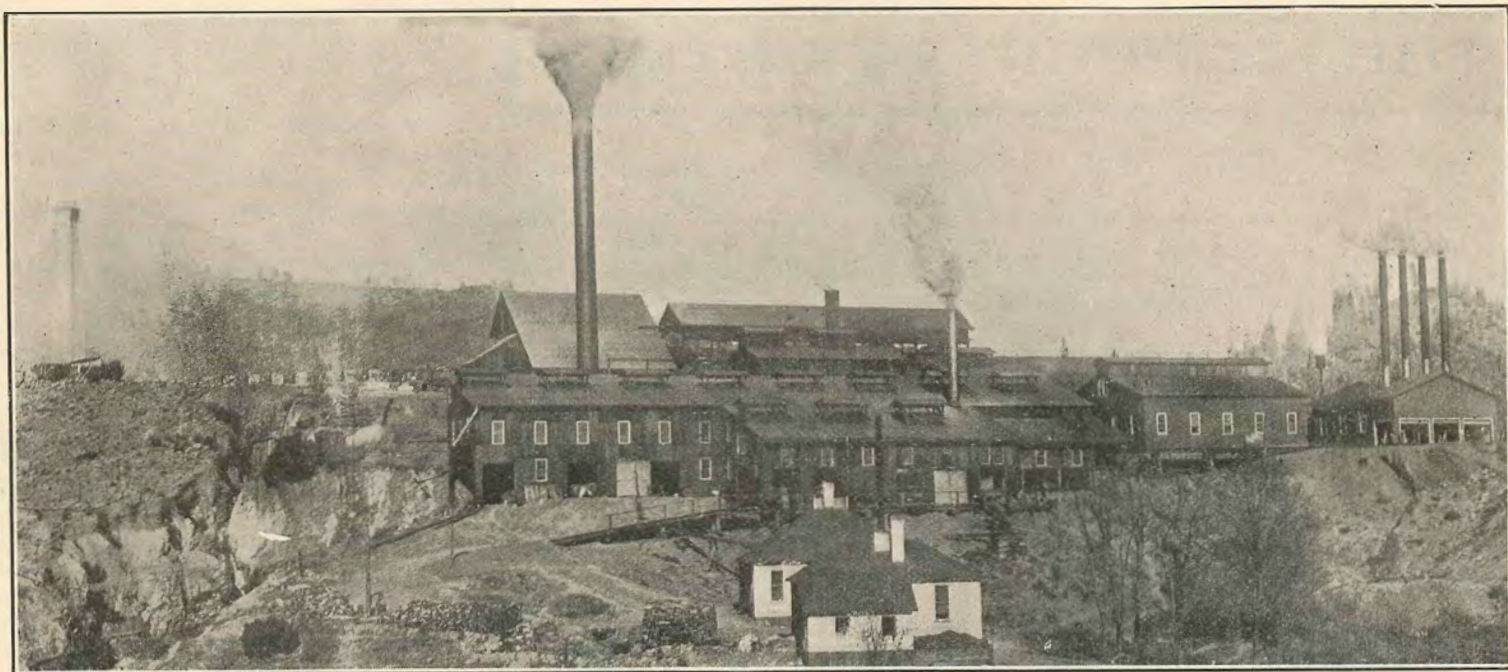
The copper industry of Shasta county gives employment—directly and indirectly—to fully 2,000 men. The value of all metal produced will not fall short of \$3,600 per capita for the year, which indicates how important and profitable the industry, still in its infancy, has become.

A prominent engineer employed by the Mountain Copper Co., Ltd., in its early operations, contributed an article to the American Institute of Mining Engineers' Souvenir—"California Mines and Minerals"—issued by the California Miners' Association, in which he said: "I think the base-ore region of Shasta county will furnish an inexhaustible field for centuries, in the copper mining industry of this State. The surface ores—except in the case of Iron Mountain—are unexplored. There is no reason why the ores of this section should not go down to depths similar to those of Montana and Michigan. They are of better quality than those of Rio Tinto, in Spain, which are now mined, and which were worked by the Phoenicians ages ago."

What has been done since those lines were written, five years ago, demonstrates that this region will develop into one of the world's largest sources of copper supply.



SMELTER OF THE MOUNTAIN COPPER COMPANY AT KESWICK AS IT APPEARED IN 1897 AND AS IT APPEARS TO-DAY.



PLANT OF BULLY HILL COPPER MINING AND SMELTING COMPANY AT DE LA MAR, CALIFORNIA.

Copper in Southern Oregon.

A SMELTER FOR WALDO.

The first smelting plant of noteworthy proportions to be erected in Southern Oregon is to-day being built to treat the ore of the Waldo Mining and Smelting Company, a corporation, which is at present made up mostly of Colorado men, with Charles L. Tutt, of the United States Mining and Reduction Company, at its head. This company is supposed to have spent about \$100,000 in the outright purchase and development of a number of properties in this immediate vicinity. One vein, especially, the Queen of Bronze, which has a width of over a hundred feet, with its values in gold and copper, will be the first to receive extensive development. The smelter is being constructed by the Takilma Smelting Company, a corporation, which, while having a separate identity from the Waldo Smelting and Mining Company, nevertheless is made up of much of the same stockholders and has for its president the man who is president of the other company, namely, Charles L. Tutt. The smelter is situated at Takilma, which is the postoffice and telephone headquarters for the mines and smelter, and about four miles southeast of Waldo, as is indicated on the map. The smelter will be ready for operation sometime early this fall, and marks the commencement of operations in a district that before many yeears promises to become one of the foremost copper producing centers of the Pacific Coast.

THE MOUNTAIN VIEW MINE.

One mile from Holland and one mile back from Althouse creek on the left hand side and 800 feet vertically above, is located the property of the Mountain View Mining Company. A big ledge of chalcopryite ore is drifted on for a width of twenty-five feet

on the eighty-foot level, for a distance of 100 feet, and is stoped for a height of ten or twelve feet. A level fifty feet lower is stoped for seventy-five feet for the same height. From this lower level a vertical shaft of thirty feet brought operations to the foot wall, the hanging wall has nowhere been encountered. The walls are slate and the direction northwest and southeast. The gangue includes considerable silica and waste matter from the walls. A fifty-ton Vulcan smelter was added a year or two ago, but the disadvantages proved too great for operating on so small a scale. After matting and shipping about \$2,000 worth of copper the experiment had to be given up. This property was formerly owned by Sowell Brothers, but W. E. Olmstead and S. A. Vance are the principal owners now.

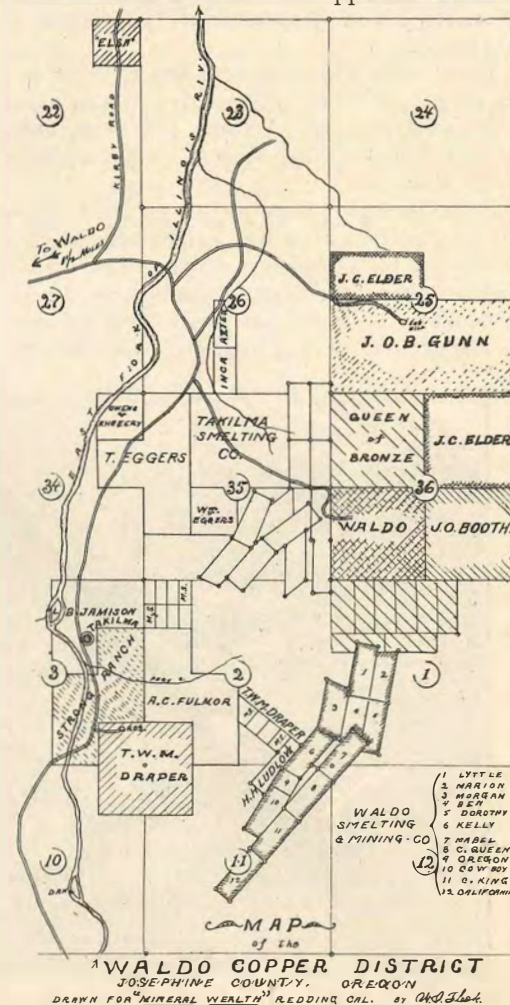
S. E. DUCOMMUN.

On Houck mountain, on Althouse creek, five miles from its mouth and about one-half that distance south of Holland postoffice, is situated the Ank prospect, to-day owned by S. E. Ducommun. The discovery was made by R. E. L. Ank in 1897, and was acquired by the present owner four years later. Four claims more have been added, making a total of six claims, and the property is reached by wagon road from Holland. A ledge apparently traceable for three claim lengths was cross-cut at a depth of fifty feet and showed a body of copper ore sixteen feet wide. An average and carefully selected sample returned an assay of about \$10 in gold and copper, the ore running about four per cent in copper.

A cross-cut to tap the ledge 175 feet is to-day in a distance of 375 feet. The formation is diorite. The prospect is looked upon by mining men as one of considerable promise, considering the amount of work done.

THE MAMMOTH PROSPECT.

Several copper prospects in Siskiyou county, and at various points along the State line in Jackson, Josephine and Curry counties, Oregon, have reached an interesting stage of development and will no doubt have some big disclosures for the near future. Three districts that are almost entirely new are represented by Elk creek, Shelley creek and Diamond creek. None of these streams have been gold producing streams and therein lies the reason of their apparent newness.



We wish to speak now of the copper showing on Elk creek.

Elk creek is a branch of the west fork of the Illinois, and joins that stream some six miles from Waldo. The chief feature of this stream, aside from the timber and the proposed railroad which is surveyed out to pass through it, is an immense body of gossan croppings that call to mind the great outcroppings of the now famous Iron Mountain. It is the kind of showing that presages big things, and its owners, Messrs. Allbright and Turner, who are opening it up, will no doubt some day be well paid for the kind of courageous spirit it required to undertake a mining enterprise of such proportions by a partnership of two men of limited means.

This deposit seems wholly unattached to that of any other deposit in Southern Oregon or Northern California. It is several miles to any other copper indication, although beyond that distance there is copper at almost any point of the compass.

The prospect occurs on a ridge dividing Blue gulch from the west fork of the Illinois, Blue gulch being a southern tributary of Elk creek and rising within a hundred yards of the California line, and at a point not more than nine miles from Waldo, in a southwesterly direction.

The croppings occur along the backbone of the ridge, and there are three immense exposed bodies within a distance of perhaps a couple of hundred feet between the nearest.

be threatened by injunction suits, for there are no farmers to get out the writs. A wagon road will connect with the mine from the end of the present wagon road in a distance of two and one-half or three miles.

The altitude is about 2,500 feet, but the location is such that the mine is singularly free from snow.

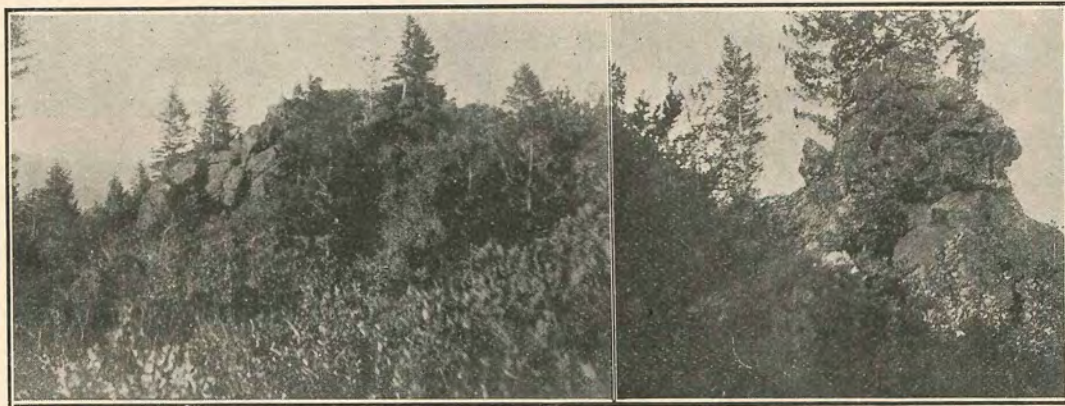
There are about 300 acres comprised in the property, and the prospect properly goes by the name of Mammoth.

PRESTON PARK DISTRICT.

On a copper-gold prospect in the northwestern corner of Siskiyou county, Geo. W. Young, president of the New York Mortgage and Trust Company, has spent thousands of dollars and has developed some great bodies of high grade ore. A four-foot trail, twenty miles long, connects with Waldo.

Eight miles northwest of Preston Peak and in Del Norte county, J. F. Sanger is slowly developing a group of twenty-seven claims, and gets good encouragement in what he is bringing to light.

Four miles north of the Sanger is a group of claims called the Ivanpaw and owned by C. L. Mangum and J. R. Reeves. The ore bodies are described as being large, 200 feet wide, and lie in highly mineralized diorite, whereas the Sanger and Preston Peak deposits are in serpentine. The Ivanpaw is about twelve miles south of Waldo.



CROPPINGS OF THE MAMMOTH PROSPECT.

The gossan is the leached out remnant of a copper iron ore, a chalcopryite or bornite, with a gangue of mixed quartz and barite. The croppings occur on or near a contact of diorite and serpentine, and their exact relation to this contact is being determined by the present development.

The property is one that has been known for twelve or fifteen years, but has been held under present location only since October, 1898. In this time upwards of one thousand feet of tunnelling has been done. The topographic conditions are such as to have rendered the development somewhat difficult. The owners, however, are at present doing some work which promises to be effective in its disclosures.

When this property finally becomes a developed mine, it will have surroundings not to be surpassed. Wood and water are bountiful, and a smelter, located as it necessarily will be, on the Illinois river, immediately below and west of the property, will have an ideal situation, and for one thing, will never

THE BLUE LEDGE COPPER MINE.

The month of June witnessed the consummation of what will probably prove to be the most important mining transaction Southern Oregon has ever known—the sale of the Blue Ledge copper mine at the head of Applegate. To be exactly accurate, it may as well be stated that the Blue Ledge is not really in Southern Oregon. It lies in Siskiyou county, California, about four miles south of the Oregon-California line, but the relief of the country is all into Southern Oregon, so much so, that while several different possible routes into Southern Oregon are under contemplation as outlets for the camp, there has not been even the remotest consideration of a plan of connecting with the Southern Pacific Railway at Hilt, the nearest point in California and hardly half so far away. Either Grants Pass or Medford will land the prize and the contest may become an interesting one. Grants Pass has the advantage of a water

grade (the basin of Applegate river) and also the argument of the projected railroad to the coast. Medford, on the other hand, has the argument of the shorter distance. The difference in distance, however is not very great. The length of such a road to Grants Pass would be forty-five to fifty miles.

The Blue Ledge district has the latent possibilities of becoming one of the greatest copper districts of the country. In its five years of existence known to man it has been visited by many capable geological men, who expressed great faith in it, and some of whom enthusiastically declared it to be the greatest copper showing extant for the amount of development work done. A thing acting as a deterrent against its earlier sale was the unusual formation, micaceous schist, in which the ore is formed. The pay is in the form of chalcopryite, lying in immense lens-shaped masses in the huge laminations of the schist formation. Additional work, however, has shown their tendency to go down, and it is a reasonable prediction that in this highly mineralized area, say ten miles square, there will be unearthed in the next few years some of the greatest bodies of copper ore in the west. At least the careful reports of no less than a dozen authoritative investigators defer to that conclusion, and the fact that there were numerous big operators after the property at the time of its recent sale affords some evidence of the esteem in which the property is held.

The Blue Ledge property is located at the head of Joe creek, a tributary to Elliot creek, the latter in turn emptying into the east fork of the Applegate. There are eleven claims in the group, and while not patented, they have all been located by survey. They are given on the accompanying map under the names of Malone, Cooper, L. F. Cooper, McVay and Adams, W. H. Hamilton, Brown Bear, Malone, Hamilton, L. H. McVay, Lake, S. G. Adams, D. Malone, and Adams. There is a new wagon road up the Applegate and up the east fork to within four miles of the Blue Ledge.

The Blue Ledge is in the center of a district fully six to eight miles square, whose geological features in matter of structure, strike and dip are everywhere identical. The formation is classified as a micaceous schist, which is sometimes decidedly black in color and other times of a lighter or more silvery hue. The Blue Ledge vein itself, whose croppings are from fifty to three hundred feet wide, is sometimes described as a contact vein because of the variation of the walls in this respect. The vein strikes with the formation whose general direction is ten degrees east of north and also dips with the formation, the angle being about fifty degrees from horizontal and the dip to the west. In other words, the Blue Ledge—and all the other veins of the district, for that matter—appear to occupy rifts in the laminations of the schist, which laminations are like fissures in their general character. There are probably ten distinct fissures in this belt, the Cook & Green vein ranking second to the Blue Ledge. The Bloomfield claim, owned by Jeldness & Co., is a part of the Cook & Green lead; it is a fine prospect and is described elsewhere.

The Nabob, of which considerable is heard

as being one of the best showings of the camp, is owned by the Blue Ledge Company and is probably an extension of the Blue Ledge itself.

While the surface croppings or gossan are in themselves a great showing, taking the whole district over, the work on the Blue Ledge and Bloomfield claims has shown up some immense ore bodies, and depth is the desideratum with copper mining investors.

The most important work on the Blue Ledge is a drift seventy feet long starting in a narrow streak of gossan and running for the first third of that distance in a body of ordinary pyrite. The pyrite there is replaced to some extent by chalcopyrite. The ore is cross-cut at several points and a width is determined of twenty-two feet that will average five per cent in copper, \$5 in gold and silver. Aside from this there is a three-foot streak of chalcopyrite that averages fifteen per cent copper.



CROPPINGS ON THE BLUE LEDGE.

The situation of the mine, aside from remoteness to the railroad, is ideal. Water and timber facilities are unsurpassed, and the topography of the country lends itself ideally for tunnel operations and development. A depth can be reached in this manner of 2,200 feet. Although the depth today is not to exceed 300 feet, yet it is computed that there are upwards of 100,000 tons of ore exposed averaging not less than \$15 per ton, or a total of upwards of \$1,500,000.

Development work on a big scale has already been inaugurated, and another of the big base ore deposits of Northern California-Southern Oregon can be said to be safely started upon its career as a mine.

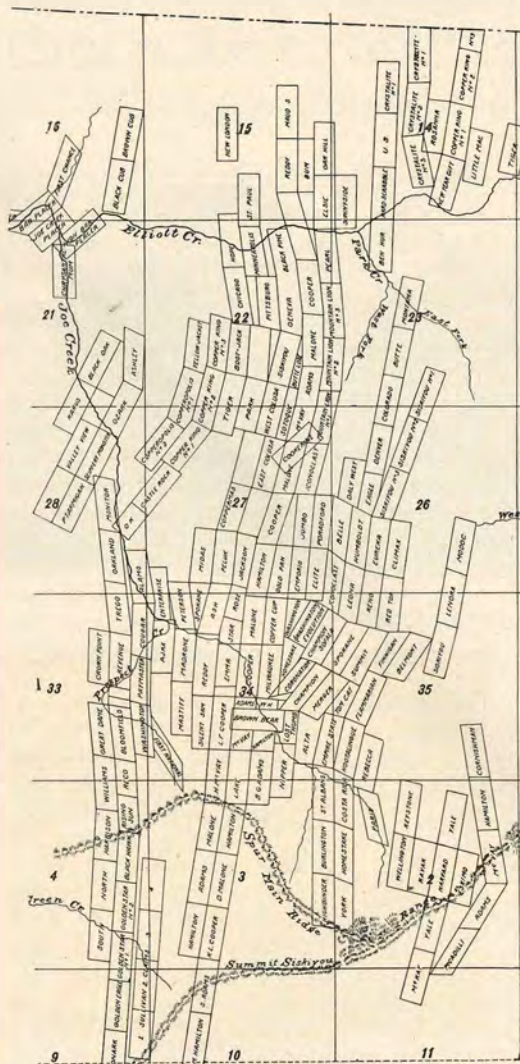
The selling parties are: W. Hart. Hamilton, Geo. M. Keller, L. F. Cooper and W. F. Malone, all of Crescent City, M. Wenger, of San Jose, California, Chas. Prim and George Neuber, of Jacksonville, Oregon, and J. F. Reddy, of Spokane, Washington. The buyers are John R. Allen and associates, of New York.

THE BLOOMFIELD GROUP.

A surface showing and underground development that is a good second to that of the Blue Ledge, is the Bloomfield. This property is owned by a partnership of three individuals—Peter Larson, O. Jeldness and A. Jeldness, all of Spokane, Washington,

and was located by the latter named partner shortly after his arrival in the district, two years ago last April. Mr. Jeldness was attracted to this field while in Reno, Nevada, en route to Tonopah. He first gave his attention to Squaw creek, but afterwards transferred it to Elliot creek. On the divide between Elliot creek and Joe creek he examined into the conditions surrounding the Blue Ledge to learn what he could of the nature of the mineral deposits of this field. His experience in copper has been in such camps as Republic, Rossland and Okanogan, and when he took hold of the present mine he very apparently knew what he was about. On the Bloomfield lead he has two claims and two fractions, on the Blue Ledge he has some claims, and half a mile east of the Blue Ledge he has located a group known as the Wellington group. This group is on the same mountain as the Blue Ledge, but on the Dutch creek tributary of Elliot creek, and presents the best surface showing of any of the partnership's properties at the present time.

The development work consists of a drift on the ledge, beginning at a point where the gossan capping has a width of forty-five feet. This drift has been extended southward 150 feet, gaining a back of eighty feet.

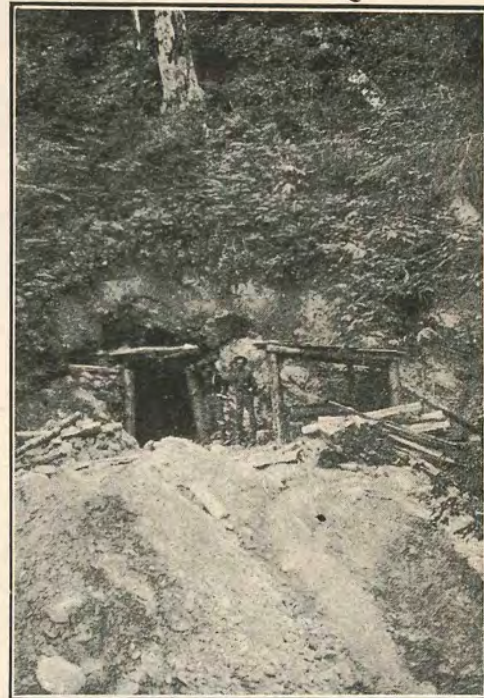


MAP OF BLUE LEDGE DISTRICT.

and towards a point where the capping has a width of ninety feet. A cross-cut has been commenced which will tap the ledge at a point where drifting on it will give an increased depth. This cross-cut is now thirty feet and near the ledge. Specimens of na-

tive copper have been gotten from the wall rock in this cross-cut. In the upper drift a streak of iron ore, lying against the hanging wall, has been followed the entire length of the drift. This streak has been cross-cut at intervals, and in every instance has shown a width of not less than fifteen feet.

In all, Mr. Jeldness and his associates own less than ten full claims, but these claims are on five different ledges. The work done on them is what miners everywhere would call first-class, and this helps to give this property its position in the front rank of Southern Oregon copper prospects.



SHOWING TUNNEL MOUTH AT THE BLOOMFIELD.

THE ANDERSON CLAIM.

Immediately adjoining the Nabob on the east is a claim called the Siskiyou and owned by E. W. Anderson. It is a sister lead to the Nabob and, therefore, supposedly of the Blue Ledge proper also. It is controlled by Mr. Anderson for two claims, for he also has a north extension called the Oak Hill.

Mr. Anderson came early into the Blue ledge district. He has staid persistently and therefore deserves the success that is to-day coming his way. He puts his greatest faith in what he calls the Rising Sun claim, which parallels the Blue Ledge to the west. The Rising Sun, in fact, is on what is known as the Cook & Green lead, which includes the Jeldness & Co. prospect, the Bloomfield, on Joe creek. The croppings show for fifty to sixty feet wide for almost the entire length of the Rising Sun claim, and at one point, a forty-foot tunnel, to-day breaking through the oxidized croppings, is showing up some fine ore.

THE MONARCH GROUP.

This group commences on the summit west of Joe creek and continues in a southerly direction on the lead for a distance of 6,000 feet. The surface showing is one of the strongest in the district, and the gossan capping, which has a width of from 100 to 200 feet, has been traced for more than a mile.

The Booth claims, nine in number, are named as follows: the Clay, McKinley, St. Joe, Della M., Henry, Mae S., Tom S., Native Daughter and Hobson.

Grants Pass District.

GOLDEN DRIFT MINING COMPANY.

Mining in the immediate vicinity of Grants Pass is confined mostly to that district lying about four miles above the town on the Rogue river. It is here that the Golden Drift Mining Company is operating its hydraulic mines, and it is on the opposite or south side of the river that are found several good quartz prospects, the chief of which are mentioned below.

The operations of the Golden Drift Company are of more than ordinary interest. In November, 1901, C. W. Ament, of Chicago, bought the extensive placer holdings of H. A. Corliss, who had in the previous eight or ten years made a consolidation of the various claims on Bloody Run, Granite, Jones, Maple and Nealey gulches. This ground constituted the famous old-time Dry Diggings, whose name bespeaks the character of the diggings. The ground was rich, but operation was rendered difficult because of lack of water, the short gulches affording, in this respect, a serious handicap. Some idea of the pay character of the gravel is gained from the fact that over 1,000 feet of drift mining was done on Jones gulch.

Mr. Corliss added a hydraulic equipment, building a reservoir for storing the water of the gulches. He was thus enabled to operate a number 3 giant from 200 to 600 hours (eight to twenty-four days) a season, securing a production of from \$125 to \$200 for every twenty-four hours of operation.

When Mr. C. W. Ament saw the quantities of gravel available, and the unlimited water supply available from the Rogue river near by, he at once recognized an excellent opportunity for the installation of a great pumping plant. He accordingly bought the Corliss holdings and organized the Golden Drift Mining Company under the laws of Arizona, and with a capital of \$1,500,000.

An immense dam has been completed, affording a 20-foot head for generation of power. The dam is built in sections, on the hydraulic principle, the pressure of the water holding each section separately in place.

This summer will see the installation of the turbine wheels and pumps. Four 18-inch five-step centrifugal pumps, each 42,000 pounds in weight, and each capable of delivering 9,000 gallons of water per minute to a height of 800 feet, will be used to sup-

ply six number 3 giants, equipped with 2½-inch nozzles, and operating under a head of from 400 to 500 feet.

The plans of the company also include that of furnishing electric power to the quartz mines, and also of extending irrigation ditches from the dam to cover both sides of the Rogue river for at least six or eight miles.

The plans for irrigation that are being formulated contemplate taking two ditches from each side of Rogue river at the point of the dam and covering in all some 20,000 acres of land. The upper ditch, on the north side, will be eighty feet high; that on the south will be forty feet high, and each will be supplied with water by pumping. This system of ditches will cover practically all the land not too steep for convenient cultivation.

A BIG LEDGE.

When Mr. H. A. Corliss sold his placer interests to the Golden Drift Company he reserved a certain portion of the ground near the present dam because of its quartz possibilities. Within 300 feet of the dam there is a large body of granitic or syenitic formation, very highly mineralized. Any of it will assay, and some of it will assay very well. The discovery was made four years ago and some development work has been done each year since. It is the theory of Mr. Corliss that a crosscut tunnel giving depth may have some interesting things to reveal, since the formation embraces a mountain, and the situation could not be excelled for cheapness of operation.

THE COMSTOCK MINE.

The Comstock Mining and Milling Company, of which J. Monroe Layman, of Danfield, Illinois, is manager, has eight claims on Green creek, and only one mile from Rogue river, at a point opposite the site of the Golden Drift Company's power dam.

The vein, while only partly developed, has a showing sufficiently good to induce the owners to continue work on a somewhat larger scale than has heretofore obtained. The work so far has been confined to one claim and consists of a tunnel on the main vein of 250 feet, a winze sunk on this level fifteen feet, a shaft sixty feet deep and drifts

run from this shaft, aggregating in all about one hundred feet. The working tunnel is in a distance of 250 feet, giving a back of nearly 200 feet. This entire distance was on the ledge and it has nowhere disclosed a tendency to fault, waver or in any way lose its persistence. The ledge is composed of a number of small stringers of quartz, which are very rich, the values being carried mostly in the form of sulphides, although when the vein was first discovered a bunch of ore was found which was exceedingly rich in free gold. There was enough of it to induce the owner, at that time a Mr. Belden, to erect a five-stamp mill for its treatment. The ore then turned base to such an extent that treatment by milling became unprofitable, and the mill was later removed.

The vein is in a formation of diorite having a strike nearly east and west, dipping to the north. The vein filling is also of diorite but slightly mineralized and carries good values.

Just across the gulch and in a direction west of the mouth of the tunnel a shaft has been sunk to a depth of sixty feet. At a point fifty feet down a cross-cut was started and driven to reach a granite formation which lies against the diorite. The dip of this contact is greater than the dip of the vein and it is thought that when the vein encounters this contact that it will continue in the course of the contact. Furthermore, the diorite filling, as depth is gained, becomes more altered, and the owners believe that it will give way entirely to quartz when the contact is encountered. A study of the existing conditions on the grounds would seem to justify these conclusions.

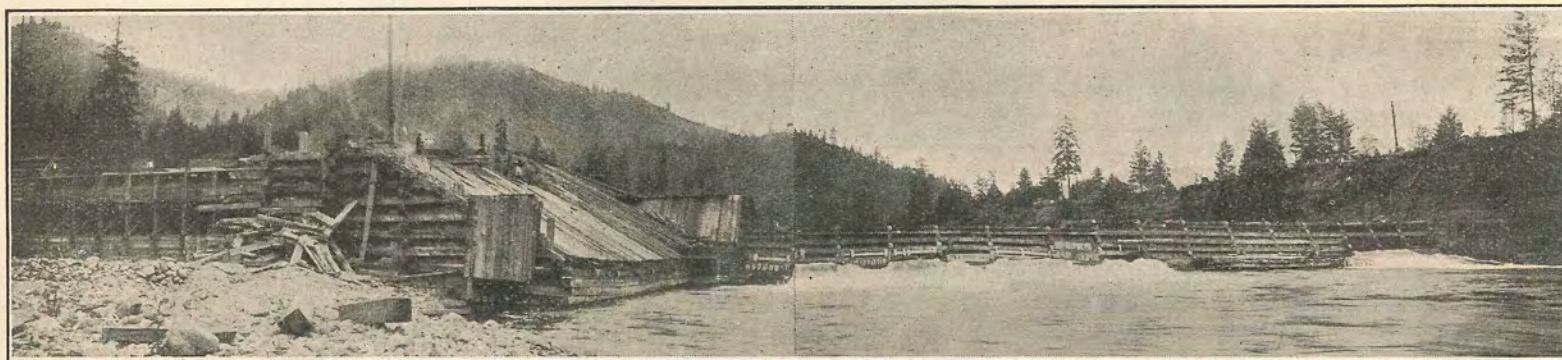
In the main tunnel the existence of a pay shoot 150 feet in length was determined and a winze started downward to connect with a drift that is being pushed forward from the fifty-foot point in the shaft. This winze is now down fifteen feet and when the drift and winze connect a nice body of ore will be blocked out.

THE JEWETT MINE.

Not far from the Comstock is the Jewett mine, owned by Benjamin Healey, of San Francisco, and from which considerable gold has been mined and milled.

BELOW GRANTS PASS.

On the Rogue river, below Grants Pass, there is comparatively little mining until you reach Galice creek, the exceptions being at Pickett creek and the Emerson-Flanagan mine, below the mouth of the Applegate. The latter is a well known property.



DAM OF GOLDEN DRIFT MINING COMPANY, ACROSS ROGUE RIVER, FOUR MILES ABOVE GRANTS PASS.

GRANTS PASS BUSINESS FIRMS.

THE HAIR-RIDDLE HARDWARE COMPANY.

The Hair-Riddle Hardware Company is one of the solid business institutions of Southern Oregon. The business to-day which goes by the above name dates from the very beginning of Grant's Pass, twenty years ago, as it was the first hardware store of the town. It was founded by Sherer & Judson in 1885, but was subsequently sold out to Cramer & Jewell. The Cramer interest was later acquired by N. P. Dodge and the business soon afterward became known as the Jewell Hardware Company. The Jewell Hardware Company was in turn succeeded by the present firm in 1899.

While the present concern is nominally a corporation, still practically it is merely a partnership of two parties—W. M. Hair, the president of the company, and George R. Riddle, secretary and treasurer. Both men have demonstrated their fitness for this particular line of business; and, what is more, both are men of high standing, not only in business circles, but in the community otherwise. Energy, enterprise and square dealing have been laid down as constituting a formula for success in all business, and the success of this firm can be traced without difficulty to those attributes. Sufficient proof of the gradual growth of the firm in the esteem of the public is found in the fact that their trade has increased regularly from year to year until to-day it is double what it was when they took hold five year ago. Six or seven men are required to handle the present volume of business.

Two of these men are employed in a tinning and plumbing shop, a feature of the business, added only this year. The shop is undergoing a progressive evolution, and is

being fitted up more and more with a view of fulfilling the repair and other wants of the mining trade, both quartz and placer. The most modern of appliances have been added in the way of equipment. Hydraulic pipe, air pipe, ore buckets and other mining supplies will be manufactured, and for the construction of hydraulic pipe a gang punch has already been ordered.

The firm has the exclusive Southern Oregon agency for the Giant Powder Co of San Francisco, of whose products they handle four car loads annually. In other lines, too, they have shown their eagerness, ability and success in catering to the mining trade. They have, for instance, added a complete stock of Calkin's assaying appliances, including furnaces, ore crushers, gasoline tank outfit, etc. In their efforts to satisfy the mining trade they have made a careful study into the needs of the field. The large stock of mining tools and supplies that is carried in response to that trade attests the success of those efforts. By handling high class goods and treating their customers right the Hair-Riddle people have set a strong pace for competitors and incidentally they have built up a business of the kind that they have a thorough right to be proud of.

CRAMER BROTHERS HARDWARE STORE.

Cramer Bros. Hardware Store is one of the substantial business houses of the town. The business conducted under that name was acquired from J. T. Tuffs & Co. by the present firm, Geo. P. and T. P. Cramer, eleven years ago.

The stock at that time consisted of a general hardware stock that had no particular reference to the needs of the mines. There

was, for instance, a line of crockery and glassware that has since given way to the heavier classes of hardware, mining and milling supplies.

The connection of Cramer Bros. with the business really dates from 1892, when T. P. Cramer, having recently arrived from Omaha, entered into partnership with L. L. Jewell in buying out the hardware firm of Sherer & Judson. At the end of the year the



CRAMER BROTHERS, HARDWARE.

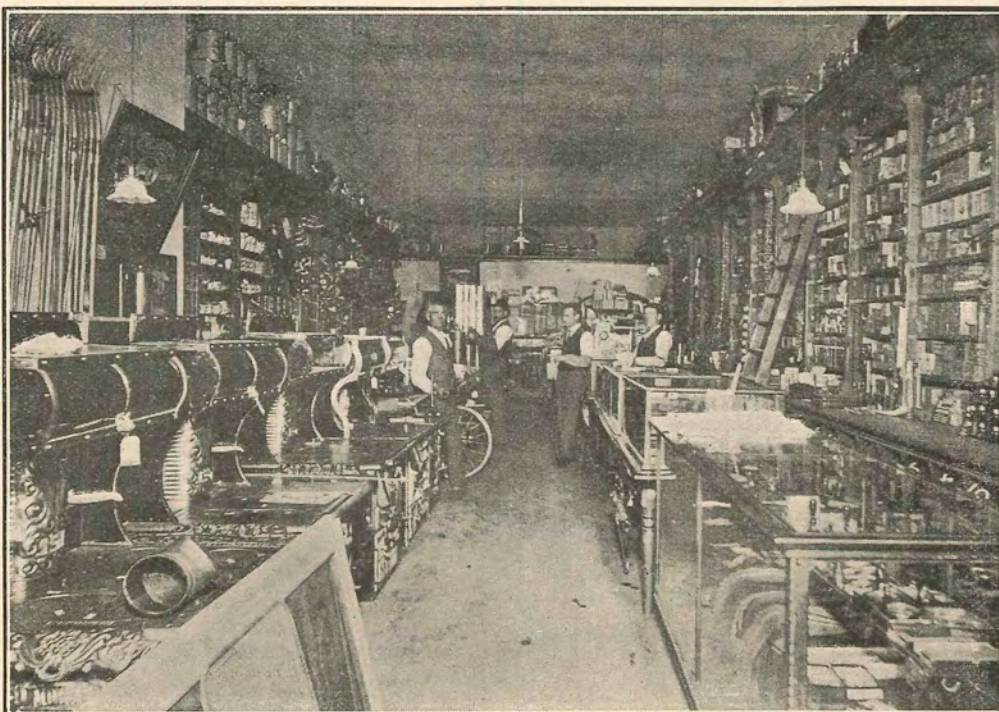
partnership was dissolved, Mr. Jewell continuing the business, while Mr. Cramer, with his brother George, who had also recently come on from Omaha, bought out the firm of Tuffs & Co. and set up for themselves.

The Cramers are good hardware men and have had fine business training, both brothers having formerly been employed at Union Pacific headquarters in Omaha. During their ten or eleven years in the hardware business at Grants Pass, they have striven conscientiously to make a study of the needs of the mines, for they fully realize the pre-eminence of that industry in Southern Oregon.

Their great ambition has been to satisfy their customers in the best manner possible, and they early decided that the first essential to this end was a high grade stock. In their purchases accordingly they insist on getting only the best quality, and this, coupled with their otherwise prompt and businesslike methods, accounts for their present lucrative trade. Both partners are public spirited citizens. One was formerly secretary of the Board of Trade, the other is chairman of the Grants Pass School Board.

GRANTS PASS HARDWARE COMPANY.

This company dates its beginning from 1893, when Mr. Joseph Wolke came to Grants Pass and set up a little shop in the tinning and plumbing business. Mr. Wolke knew his business, and with the additional application of industry, thrift, good judgment and a growing appreciation of what creditable relations Grants Pass as a town was destined to bear to the rest of Southern Oregon, he built up a trade that has had only one movement—steady growth. From the tinning and plumbing business it was an easy step to the introduction of a small tinware stock, and from this to a limited hardware stock, and from this to a more pretentious stock. Such an evolution is exactly what took place, and in 1902, when the business was sold and merged into the Grants Pass Hardware Company, with A. E. Carlson as general manager, it had grown from



HAIR-RIDDLE HARDWARE COMPANY.

the modest little tinkering shop into a number one hardware store that would rank with the best of any in the State's interior towns.



GRANTS PASS HARDWARE COMPANY.

They estimate that half of their business is with the mines, and consequently they are willing and glad to do anything to legitimately promote the best interests of that industry.

Besides carrying a number one stock as regards mining supplies proper, they also have the agency for various lines that it would not pay them to keep in stock in large quantities. Among these are the famous Fairbanks, Morse & Co.'s gasoline engines, and also the noted Moline and Schuttler road wagons.

JOHN MINOR BOOTH.

We take pleasure in calling attention to the card advertising the fire and accident

insurance business of John Minor Booth, representing some of the best companies in America and Europe. He has recently taken the agency for the United States Fidelity and Guaranty Co., one of the best in the world, so don't bother your friends to "go on your bond," but consult Mr. Booth.

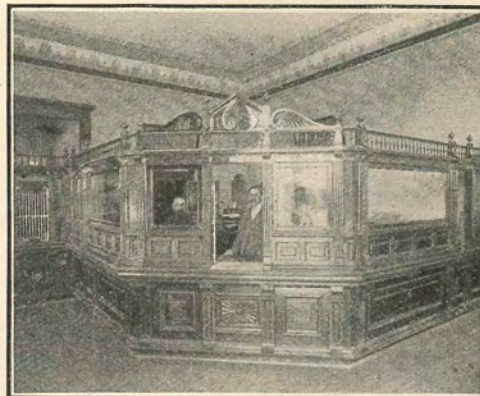
L. G. HIGGINS, ASSAYER.

In modern times the high class professional man is having his inning. When legal or medical advice is needed people are learning more and more to go to the best lawyer and the best doctor. This same thing is true in mining. In no profession is there more responsibility hinging on the advice or opinion of one man than in mining, and in arriving at his conclusions, the mining engineer in turn, is dependent on no one more than he is on the man who makes his assays.

An assayer must be both capable and honest to be of any service to himself or profession, and when you find one combining both those qualities, you will find a man that it is worth while giving your business to. Mr. Higgins has been in mining since 1880, but came to Southern Oregon from St. Helens and Washougal copper districts, Washington, in 1902. Since coming to Grants Pass he has made a careful study of the various forms of mineralization of the section, and is in a position to-day to give the mining man who employs him the benefit of this experience. He is especially willing to undertake the assaying for such metals as nickel, quicksilver and tin. In connection with this latter we might say that some good

tin prospects have lately been found of which more may shortly be heard, Mr. Higgins assured us. Mr. Higgins, besides his business as an assayer, is managing the development of a big dike of gold ore on the headwaters of Chetco river and near the boundary of Josephine and Curry counties.

THE BANKS.

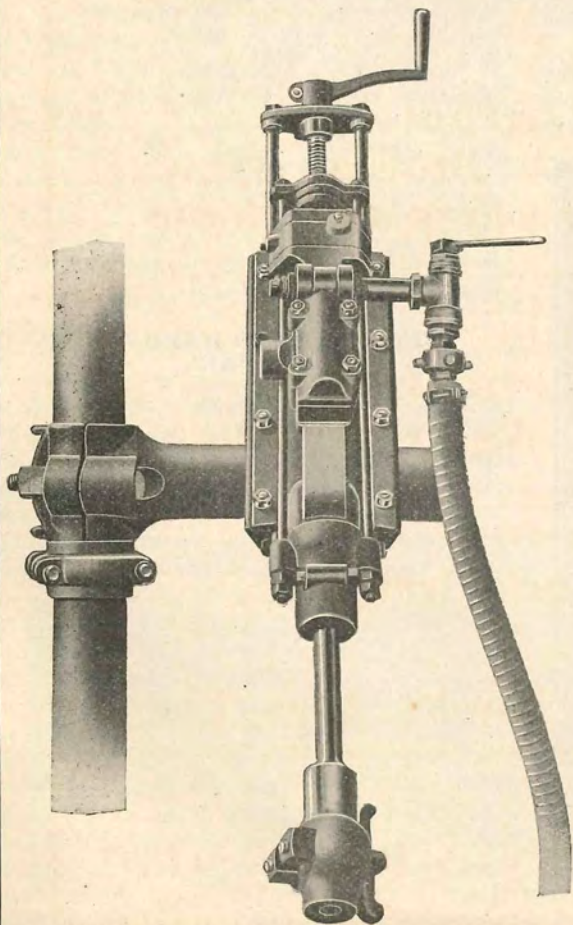


FIRST NATIONAL BANK OF SOUTHERN OREGON.

A bank in a new mining country must necessarily exercise the greatest caution in its loans, and this sometimes brings unjust criticism upon the bank. The officers of such a bank are called upon to meet difficult situations occasionally, and they must therefore be well qualified for their tasks or cause loss and possibly failure to the business.

Both banks in Grant's Pass are administered by men well grounded in the require-

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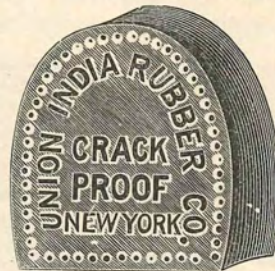
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ments of their calling; they are conservative in their methods, and at the same time fully awake to the value and resources of the various industries of their field.

The First National Bank of Southern Oregon was organized sixteen years ago and has a paid up capitalization of \$50,000.00. It to-day has a surplus and undivided profit aggregating \$19,000.00 and a credit to its depositors of upwards of \$250,000.00. This bank has beyond question been a strong factor in the advancement and upbuilding of the city of Grant's Pass and country round about. It does a general banking business, buys and sells exchange, makes collections, and, in short, performs all other functions of the ordinary interior bank. Its officers are: R. A. Booth, president; J. C. Campbell, vice-president; H. L. Gilkey, cashier; P. H. Harth, H. C. Kinney, J. D. Fry and J. G. Tuffs, directors.

The Grant's Pass Banking and Trust Company is of later origin. It was organized three years ago, and has gained a substantial position in the favor and approval of Grant's Pass business interests. At its head are men as well informed as to the country's chief industry as can be found among the business men of Grant's Pass or elsewhere, and we refer especially to Mr. L. L. Jewell, who had been a business man of the town since the town's beginning and who in this time has taken as wide awake an interest in mining as any other one man. The bank transacts all the ordinary business that characterizes banks of its rank. The personnel of its directorate is made up of some of the State's most substantial citizens and is as follows: J. Frank Watson, of Portland, president; R. A. Booth, of Eugene, vice-president; L. L. Jewell, cashier.

JOSEPH MOSS, REAL ESTATE.

It is universally conceded that the soundest, safest and most secure investment to-day is that properly placed in real estate. Josephine county, and the whole State of Oregon, for all that, represents an unusually favorable field for that kind of investment at the present time, as real estate values everywhere are rapidly advancing. In this connection, it is eminently proper to speak of the leading real estate dealer in this section of the State, and we refer to Mr. Joseph Moss.

Mr. Moss has made his home in Josephine county for twenty years. No one is better informed that he on true valuations and what bargains can be had. Accordingly, some five years ago he took up with an inviting and congenial calling and launched forth into the real estate business. He does a gen-



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JOSEPHINE HOTEL.



WESTERN HOTEL.

Hair- Riddle Hardware Co.



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Assayers' Supplies

Manufacturers of

Pipe for Mining and Irrigating

Agents for

The Giant Powder Co's. Powder, Caps, Fuse
Also for Calkins Assaying Appliances

SIXTH STREET, GRANTS PASS, ORE.

eral business in real estate, buying and selling property, making collections, writing insurance and doing all other things coming under the scope of legitimate real estate and brokerage transactions. He has for sale a large list of properties, including city lots, farm lands and ranches, timber lands, mines, etc. He is reliable and responsible, and all business entrusted to him will be attended to promptly. Mr. Moss stands classed among the foremost business men, is an enterprising citizen, and is always on hand when the best interests of the city or county are at stake.

THE JOSEPHINE HOTEL.

This hotel, conducted by George E. Good, is the best hotel in the city, and enjoys a fine patronage from mining and commercial men. The hotel building itself is the property of Counsel Miller at Neuchang, China, and represents one of the best business blocks in the town.

THE WESTERN HOTEL.

The Western Hotel, on the corner of Sixth and D streets, is conveniently situated near the business portion of Grants Pass. This hotel was purchased by the present owner, J. O. Booth, in 1895, and represented Mr. Booth's advent into the hotel business. The Western Hotel and Hotel Josephine were at that time, as to-day, the leading hotels in the town.

Mr. Booth, recognizing certain advantages in consolidation, purchased the Hotel Josephine and united them under one management. He successfully conducted them combined for five years and built up a good

business. His interests, however, had by this time become directed to some extent in other channels. Rather than sacrifice much of the business he had built up, he disposed of the Josephine and retained the Western, which latter he continues to own and manage to this day.

ROTERMUND'S DRUG STORE.

The most attractive corner of Grant's Pass is Rotermund's drug store, in the Masonic building and diagonally opposite the Hotel Josephine. Mr. Rotermund, personally, is one of the wide awake business men of the town, and the benefit of his alertness naturally goes partly to his customers as well as partly to himself. Mr. Rotermund has won marked success since his advent into the drug business in Grant's Pass hardly a year ago. Neatness, completeness and up-to-date-ness of stock, and zealously to meet the needs of patrons—these are his cardinal tenets, and they tell the story of his success.

FOSTER AND GUNNELL.

MINERAL WEALTH takes pleasure in making a special reference to the firm of Foster & Gunnell, and calling attention to their card, which appears in this issue. These two young men came into this field equipped with experience and an enthusiasm for their calling which they have surely not misapplied.

They, to-day, have the thorough confidence of mine owners and operators, and have a knowledge of Southern Oregon conditions possessed by few men. They recently reduced this data to the form of a map of the

two counties, showing the location of the mines with reference to the various streams, roads, towns and railroads, and, in so doing, have supplied a long felt want. Instead of blue printing the map in the ordinary way, they have reversed the coloring process by using the reverse or blue line process, which brings the rivers, roads etc., out in blue, leaving the background white.

Foster & Gunnell are the local representatives of the New York and Western Gold Mining Company, having negotiated for that company the purchase of the Oregon Belle mine near Jacksonville, described elsewhere.

EXCELSIOR LIVERY STABLE.

The Excelsior Livery Stable, owned by Tom Galvin and Ed. Herriott, represents the oldest established livery business in



Southern Oregon. As such, a history of the different ownerships will be interesting alike to the old and new patrons of this well-known barn. It was established when Grants Pass was established and by Henry Thornton.

MINERS AND MINE OWNERS

Know that the quality of the goods they use is one of the first considerations. We would therefore call your attention to the following necessities, which we carry

Canton Drill Steel, Washoe Picks, Comstock Hammers, Disston Saws, Black Diamond Files, Ford's Patent Blocks

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After one year it was sold to L. F. Smith, who conducted it for about ten years, when it was sold to A. R. Yantis and H. G. Lewis. These owners in turn sold it to Fay & Son, who ran it for two years. This was from 1897 to 1899. It was bought in 1899 by H. L. Lewis, who two years later sold it to Tom Galvin and W. C. Smith. The Smith interest was recently acquired by Ed. Herriott, so that at present the ownership is in Galvin & Herriott. They to-day have a stable equipped not only the best in its history, but the best in all Southern Oregon. What makes it so is the fact that both partners are natural horsemen and that they are content with nothing less than the best in either their rigs or their stock. Their horses are standard bred, and their hacks, surreys and buggies are the best.

BUNCH & SON, LIVERY STABLE.

The well known feed and livery stable formerly owned by L. J. Perdue and Brother, but later conducted by Hayes & Bowen, has recently been bought by Mr. Wm. Bunch and son. It will continue to be run as a first class stable, and will be considerably improved, if anything.

A livery stable, like many another line of business, depends for its success largely on the man behind the reins. A livery stable keeper should be a man who knows the proper care required by horses, who knows what a good turn-out is and who is zealous to meet the needs and wants of his patrons. Such a man is Mr. Bunch.

Mr. Bunch is not unknown to the business interests of Grant's Pass, for he conducted a butcher shop in the town sixteen years ago when there were but two brick buildings in the town—those of Smith Bros.' Grocery and Riddle & Scott's Mercantile store.

He, however, sold out and moved to his farm on the Applegate at the mouth of Murphy creek, about ten miles south of Grant's Pass. This farm shows Mr. Bunch's



COLONIAL LODGING HOUSE.

characteristic enterprise. About one-third of the 315 acres are under irrigation, covered by two ditches—one each out of Applegate river and Murphy creek, the former being almost three and one-half miles long.

This farm has gained the name of being one of the best kept up in the county and is still the property of Mr. Bunch, although at present under lease. When Mr. Bunch bought the Perdue Stable, admittedly the best stand in town, he replenished the livery

stock with a number of fresh horses from the farm, and even added the private family buggy to the equipment, intent on forming a good nucleus for the number one livery business that he intends shall grow therefrom.

Mr. Bunch early saw the convenience—almost necessity—of having a rooming-house for the accommodation of patrons and he accordingly rented the newly finished and



BUNCH & SON, LIVERY STABLE.

newly equipped brick Colonial house of sixteen rooms, which is situated just across the street from the stable, and whose patronage by his livery stable customers has already attested the sound sense of the experiment, and the further fact that when worn-out travelers come in from a long trip in the hills that they appreciate the matter of feeling at ease as to a convenient place nearby, where they are assured of cleanly accommodations and a good night's rest.

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B. A. WILLIAMS.

Mr. Williams, in establishing a real estate, brokerage and insurance office at Grant's Pass a year ago, took up with a line of work for which his long residence and varied experiences in the county gave him certain advantages. Mr. Williams, twenty years ago, cut and threshed grain on the present site of Grant's Pass. Since then he has successively been school teacher, hotel keeper and miner, and it is this variety of life that has brought him into true touch with conditions as they are. He is the local representative of the New Improved Mineral Smelter Company of Portland that is just now exciting so much interest.

He has also started up a new line of business, that of an employment agency, a business which should develop into quite a feature at a place like Grant's Pass.

NEW FOUNDRY FOR GRANTS PASS.

A thing that the growth of the country in general and the central location of Grant's Pass in particular has for some time been inviting is a foundry and machine shop. B. M. Hall, an experienced moulder and

foundryman, whose experience covers twenty years, has recognized the opportunity and made the start. On May 12th he left Portland with his newly purchased outfit and on June 2nd he turned out the first product of the new shop, a casting of a set of grate bars for the Grant's Pass Door and Lumber Company. Mr. Hall has a three years' lease on his premises and had both buildings—(1) his foundry and (2) his engine room and machine shops already up, the former twenty-two by thirty-four feet and the latter twenty by thirty feet in size. Both will be enlarged as occasion demands. His present equipment includes a fifteen horse-power stationary boiler and engine of the Mansfield make, a Champion No. 6 blower, capable of supplying blast for a thirty-six inch cupalo and a twenty-two inch cupalo, although this latter will be increased to one of thirty inches diameter as soon as the business justifies it.

Mr. Hall is a thorough foundryman, acquainted with every detail of the business, and naturally a good mechanic besides. He is prepared to do all kinds of iron, steel, brass and bronze casting, and as soon as he gets his repair equipment complete, he will add a

department for buying, repairing and selling second-hand machinery.

NEW MACHINE FOR CRUSHING ORE.

W. B. Sherman and N. R. Whipple have invented a quartz mill on the principal of a rotary crusher, and expect shortly to put it on the market. One is now on exhibition at Grants Pass. It is circular in shape, thirty inches in diameter, and weighs 1,100 pounds. It consists of three parts—a base, a disc, and a hood. The disc revolves about the base and below the hood at the rate of 1,000 revolutions per minute. The hood being convexed forms a V-shaped opening between it and the disc, and this gives it its wonderful crushing capacity. Its possibilities are claimed to be very great. During a test the machine crushed fifty pounds per minute to a fineness of seventy-five or eighty mesh.

An advantage claimed for the machine is its durability. It is said that no wear takes place except on the disc. This can be easily re-shod at any time. Another advantage is its portability, the heaviest piece weighing less than 400 pounds. A machine of the size described requires ten horsepower for

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its operation, and although weighing only about equal to a single one-stamp of the ordinary mill, it has a claimed crushing capacity six times as great.

A thing claimed for this mill is its efficiency in treating rusty ore. It has a scouring surface which travels at the rate of a mile a minute. But the transcending feature is the cheapness of first cost as compared with the ordinary stamp mill.

A complete plant will be in operation at the ensuing session of the American Mining Congress.

Mr. Sherman figures in another mining invention, that of a novel concentrator, which is also about ready for the market.

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Unfamiliarity with ore has caused the

failure of many a mine and prospect that might otherwise have been a success. The advances in metallurgical science to-day, make it possible to know accurately not only what values an ore contains, but also the best means of extracting those values. The C. A. Luckhardt Company (Nevada Metallurgical Works) of San Francisco stand ready to lend their services exactly along these lines. To this end they have recently prepared and issued a neat little pamphlet containing a statement of what they can do for you and what it will cost you. See card elsewhere.

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On the Needs of a Department of Mines and Mining.

By IRWIN MAHON, Secretary of the American Mining Congress.

The United States is the greatest mining country in the world, and yet we are the only great nation that does not provide an adequate supervision of the industry, and we can never have a proper governmental supervision of the industry of mining until the Congress of the United States creates an independent Department of Mines and Mining with a secretary at its head, who shall be a member of the President's cabinet.

The Department of Commerce and Labor, recently established, with its several bureaus, in which mining is placed as a bureau, within the bureau of manufacture, was no more necessary, nor even so much so, than is a department of mines. The placing of mines under the supervision of the Department of Commerce is not only unsatisfactory, but it is a reflection upon the importance of the industry in its relation to the welfare of the industrial life of the nation, and a detriment to its greater advancement and independence.

Mining has tremendous certainties. The value of our mineral products in 1880 was \$369,319,000. In 1890 these products were valued at \$619,512,173. In 1899 the value was \$976,800,946; and in 1900 passed the billion dollar mark.

In considering this question we must not associate it altogether with the precious metals. The value of our bituminous and anthracite coal production each year runs up into the millions of dollars; also petroleum, cement, brick, clay and stone, and the specified mineral products on the mineral output list of the geological survey number sixty-two. And with the mining industry as it is, still in its infancy. Certainly this infant is quite large enough, quite important and strong enough, to be taken out of its swaddling clothes. It not only looks to be, but it is, out of place when it is a bureau within the manufacturer's bureau of the Department of Commerce and Labor.

In its bearing on the general welfare and prosperity of the country, mining, in the narrowest light you can look upon it, is as powerful for good as any of the other State departments, and it is not impossible for even the most ordinary statistician to show, in proportion to the population, that the products of the mining States are of far greater commercial value than the product of any other States in the Union.

With the development of the mining industry, the number of working mines has increased proportionately, until to-day there are hundred, yes, thousands, of men working in mines and at mining plants. The interests of these men must be safeguarded; not in an indirect way; not through a department in which mining will figure as an incident along with the lighthouse service, marine hospital service, bureau of foreign commerce, and similar branches of the public service, but in an independent department of its own, the same as the agriculture of our country is now cared for. New and complex problems are arising in the mining industry constantly, which must be judiciously considered by men equipped for

that purpose. The secretary of a department of mines and mining, not only should, but he must be a man with the quantity and quality of brain and the experience that will insure the proper discharge of his complex and most trying duties; and a man, it cuts no figure how well qualified he may be for Secretary of Commerce, would not be fitted for the position of secretary of a Department of Mines and Mining, and this fact more strongly emphasizes the necessity of an independent Department of Mines and Mining.

As far back as December, 1896, Mr. Chas. D. Walcott, Director of the United States Geological Survey, reported to the chairman of the Senate Committee on Mines and Mining that he believed the mining interests of the country should have a clearly defined representation in the organization of the government. In 1896 our mineral products were only valued at \$697,820,720, and in passing the billion dollar mark, which they did in 1901—certainly if such a department was desirable in 1896, it is absolutely necessary six years later, when the value of the products of our mines exceeds the billion dollar mark.

The American Mining Congress very well understands that since the establishment of the Department of Commerce and Labor, with mining as it is, a bureau within the bureau of manufacture, it becomes more difficult to secure an independent department of mines and mining, and so the influence that caused it to be placed there, understood it would be, but that affords no reason for lagging in the work for it; it is rather one of the greatest incentives why the concentration of influence should be greater, more active and powerful than ever before. Everything is to be gained by an earnest and honest fight, and nothing lost. As to the importance of the issue—not alone to mining men, but to the whole country—there can be no question.

The movement for the creation of an independent department of mines and mining was made for the welfare, not of any one section, but the entire of North America. It was started in California many years ago, and taken up by the American Mining Congress in Denver in 1897, and it would be a serious loss of prestige for California to be so apathetic at this time, when the question is surrounded with greater difficulties than it was when she championed its cause, to lose her leadership.

At the coming assembly of The American Mining Congress, meeting in Portland, Or., August 22, 1904, this question will be taken up and discussed by statesmen of national and international reputation, and by them, through The American Mining Congress, carried up to the Congress of the United States, and the part our mining States and Territories, especially California, Colorado, Montana, Idaho, Utah, Wyoming, Washington, Arizona, New Mexico and Oregon take in this coming struggle becomes a matter of record.

ADVANCE PROGRAM

Seventh Annual Session American Mining Congress

Portland, Oregon, August 22-27, 1904.

Governor Geo. E. Chamberlain, address of welcome on part of the State of Oregon.

Hon. Geo. H. Williams, Mayor, address of welcome on part of City of Portland.

RESPONSES BY STATES.

President's annual address; Hon. J. H. Richards, Boise, Idaho.

"Benefit to be derived from the Lewis and Clark Exposition to be held in Portland, Oregon in 1905."

Hon. Wm. A. Sulzer, M. C., New York City. "Creation of a Department of Mines and Mining by Our Government."

"Mining Laws." (Speaker not yet named.)

Hon. H. W. Scott, editor "The Oregonian," Portland, Oregon, "The Relation of Mining to the World's General Advancement."

Chancellor E. B. Andrews, University of Nebraska, "The Promoter and His Place in Our Advancement."

Hon. John H. Mitchell, U. S. Senator, "The Establishment in Oregon of a Branch Mint or Assay Office by the Government."

Mr. Fred G. Shaffer, secretary and treasurer Consolidated Brazil Mining Co., "Statutory Protection for Mining Investors."

Mr. Frank H. Probert, Los Angeles, Cal., "Concentration of Copper in the Southwest."

Hon. John Thomas Wertz, Washington, D. C., "Mining the Support of Banks and the Individual Payers of Railroads."

Mr. T. A. Rickard, editor "Mining and Engineering Journal," N. Y., (Subject not yet named.)

Hon. R. W. Richardson, secretary National Good Roads Committee, Washington, D. C., "Good Roads in Mining Sections."

Mr. Arlin T. Brown, "The Cyanide Ores, Ragged Top District, Black Hills."

Hon. O. W. Powers, Salt Lake City, Utah, "Permanent Location of National Business Headquarters for the American Mining Congress."

"Permanent Location of National Business Headquarters for the American Mining Congress. Hon. J. F. Callbreath, Jr., President Denver Chamber of Commerce; also Hon. H. C. Hamlin, Denver, Colorado.

William L. Wilson, Secretary and Treasurer Rocky Mountain Security Co., Denver, Colo. "The Question of Mining Stock and the Flotation Thereof."

James W. Abbott, special agent Rocky Mountain and Pacific Coast Division, office of Public Road Inquiries, U. S. Dept. of Agriculture; subject, "The Influence of Mining Men for Better Roads."

Appointments by Governors of State to present papers upon the Mineral Resources: Prof. C. H. Pettee, New Hampshire.

Col. F. V. Drake, Oregon.

Mr. H. C. Beeler, Wyoming.

Mr. R. N. Bell, Idaho.

Prof. H. H. Nicholson, Nebraska.

Hon. H. C. Hamlin, Colorado.

Dr. Geo. E. Ladd, Missouri.

Prof. C. J. Norwood, Kentucky.

Dr. I. C. White, West Virginia.

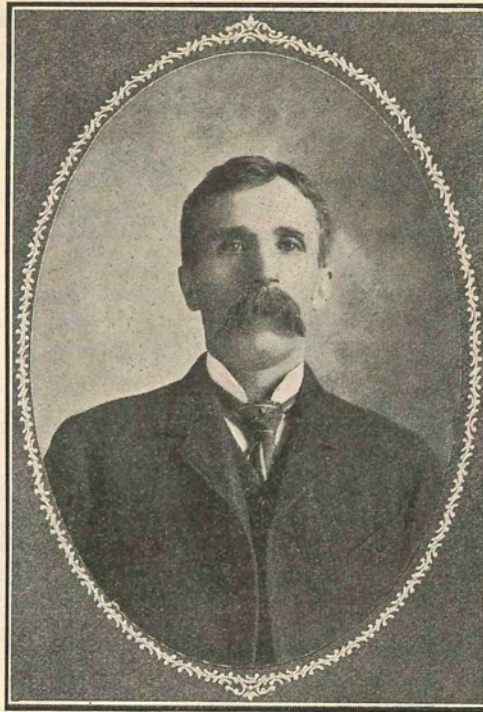
Dr. A. S. Draper, New York.

Mr. J. D. Hyde, North Carolina.
 Hon. R. A. Shiflett, Tennessee.
 Hon. E. J. Watson, South Carolina.
 Hon. Thos. Gregory, South Dakota.
 Prof. Wm. Bullock, Maryland.
 Mr. R. V. Brower, Minnesota.
 Mr. F. M. Life, Indiana.
 Prof. E. Haworth, Kansas.
 Hon. Tom A. Hanna, Michigan.
 Mr. Fisher Harris, Utah.
 Prof. S. W. McCallie, Georgia.
 Mr. H. R. Kunnel, New Jersey.
 Mr. G. H. Perkins, Vermont.
 Refer to Labor Bureau, Illinois.
 Mining and Geology Department, Iowa.
 State Mining Bureau, California.
 Refer to Hon. G. W. Komer, Commissioner of Agriculture, Virginia.

OREGON MINERS' ASSOCIATION.

The past year has witnessed the organization of an effective Miners' Association in the State of Oregon. The mineral industry of the State has reached a position where its proper protection and promotion requires such an organization; the miners are recognizing the fact and are acting accordingly.

Southern Oregon has two branches of the



J. F. WICKHAM, President of the State Miners' Association.

State Association, one at Grants Pass, the other at Ashland.

PAPERS IN SOUTHERN OREGON.

People in general are loth—at least, slow—to appreciate the value of their local papers. The Southern Oregon weeklies and semi-weeklies (there are as yet no dailies) are accomplishing no little good in the advancement of their respective districts and deserve the liberal support of their communities. Grants Pass has three papers, the Oregon Mining Journal, the Rogue River Courier and the Oregon Observer; Ashland has three, the Tribune, the Times and the Record; Medford has two, the Mail and the Southern Oregonian; Jacksonville has two, the Sentinel and the Times; and Gold Hill and Glendale each have one, the News.

F. W. BRAUN COMPANY CATALOGUE.

The F. W. Braun Company has just completed "Catalogue R," 1904. Over 500 pages are devoted to setting forth of assayers' chemical and laboratory supplies. "Catalogue R" will be an invaluable aid to such as have need to order anything embraced in the complete line, of its class, handled by this enterprising firm.

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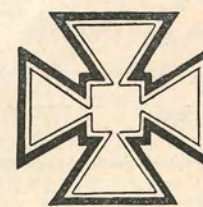
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THE MOUNTAIN LION MINE.

The Mountain Lion mine on Missouri Flat, which was recently bonded by Mark S. Smith, of Minneapolis, Minnesota, Clarence Poindexter, of Portland, Oregon, and J. B. Crawford, of Grant's Pass, Oregon, has long been waiting the development that it is now receiving. It is owned by C. E. Harmon, John Bailey, George Bailey and L. L. Jewell, and embraces four claims and a mill site, and is equipped with a five-stamp mill, engine and boiler and a Woodbury vanner, all of which are now being overhauled. The mine can already boast of 3,500 feet of development work, and a contract has recently been let for 750 additional feet, 600 feet on the adit tunnel and 150 feet on the extension of the No. 2 tunnel to cut the No. 1 shaft. The adit tunnel will have a back of 298 feet with a 300-foot drift on the vein. There are two well defined veins on the property, called the north and south, but it is the opinion of Col. Crawford that there will subsequently prove to be three. The vein matter consists of two classes, occurring on the foot wall as a ribbon rock and on the hanging wall as a formation of what Californians call decomposed sugar quartz, carrying free gold from one to eight ounces per ton so far as found. The enclosed rock runs from \$2.40 to \$6 in gold.

STEVE'S GULCH.

On the headwaters of the Applegate, on a tributary called Steves Fork, there have been two new hydraulic mines started in the past year, and on a creek that had not even been worked by the miners in the early days. The Oro Grande Company was organized by Whitman, Heard and Hutchinson, of Medford, and the Missouri Company is backed chiefly by Messrs. Warner and Smith, of Eugene. The two companies control six or seven miles of the stream, and have already installed complete plants.

NEW MINERAL MAP OF SHASTA COUNTY.

Chas. L. Reynolds, the surveyor and civil engineer, has just completed a new mineral map covering 540 square miles of the most important mineral region of Shasta county. This map covers the territory east and west, from the Trinity county line to the Afterthought mine, a distance of thirty-six miles. The base ore belt is shown in its entirety, and all the more important properties where the locations are accurately known, as shown on the map.

Shasta county has produced, from 1900 to 1903, inclusive, \$20,541,644 in copper, gold and silver, representing 22.4 per cent of California's output in these metals during that time. The map is 3 x 6 feet in

size. Price, \$10. Send orders to MINERAL WEALTH, or Chas. L. Reynolds, Redding, California.

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T

HE interesting things to be seen in the Golden State are so many that it is impossible to tell of all of them in anything short of what Kipling calls "a three-decker" book; but even in a limited space, we can touch upon a few of the more striking features, and perhaps help the prospective visitor to understand what is best worth seeing.

From the time the boundary of California is crossed, the traveler begins to behold one marvel after another, and his mind is kept constantly alert with pleasure and interest. In a scenic way, there is no State in the Union that can equal California. The mountains hold such natural wonders as Yosemite and Kings River Canyon, and such marvels as the giant sequoias, towering hundreds of feet high and testifying to the tender age of some 8,000 years. The great valleys are rich with gardens, orchards and fields, and in passing through them, one beholds the unrolling of an amazing panorama of beauty and wealth. The eight hundred miles of sea-coast is a long line of natural attractions, to which man

has added the picturesque old missions, thriving modern cities, and charming pleasure resorts. The traveler coming from Portland over the Shasta route of the Southern Pacific will see some of the finest mountain scenery in the West almost as soon as he has entered the confines of the State. The crossing of the Siskiyou Mountains affords views such as shall not be often found elsewhere, for the train winds around rugged spurs of the range as it slowly toils upwards toward the summit; crosses deep and dark canyons and, in coming down on the southern side of the mountains, makes several great loops, which affords the traveler some wonderful views. Mt. Shasta is the majestic guardian of this northern doorway of California, and the different views that one obtains of its hoary, snow-crowned crest, as the train rolls downward into the Sacramento Canyon, is something that will give rise to many an inspiring memory in after days. To mining men the Shasta country is of stirring interest, for much of the glamor of the early "days of gold" hangs over the region from Mt. Shasta to Red Bluff. A stop at Keswick and a visit to the great smelter at Iron Mountain will be of absorbing interest to many.



Mt. Shasta, the Guardian.



San Fernando Mission, Coast Line.

Monte, Monterey, Santa Cruz and the Santa Cruz Big Trees, Paso Robles Hot Springs, and many other places, including the Lick Observatory and the two great colleges, Stanford and the University of California.

The wonders of Yosemite Valley and the Mariposa Big Trees may be seen in one trip, by taking the Southern Pacific to Raymond, in the foothills of the Sierras, and then journeying by comfortable stages over oiled roads to the great gorge, whose astounding features have been the marvel of men ever since their discovery years ago.

To reach Los Angeles and the orange groves of Southern California, the traveler will find the Coast Line one of great interest. This is the way of the old Missions, and no railroad trip will give more pleasure. The route generally holds close to the coast, sometimes almost at the water's edge, where the white surf thunders in on the glistening sand, or the breakers dash against the cliffs. In Southern California there will be found more things of interest than one can crowd into many weeks of earnest sightseeing, for it is a country of marvelous productions and astounding progress.

All visitors to the West should see California, the beautiful. To neglect the chance to make a trip through this State is to lay a good, solid foundation for no end of regret in after years. California books and literature may be had of W. E. Cowan, Passenger Agent, Portland, Oregon, or at Information Bureau, 613 Market St., San Francisco.



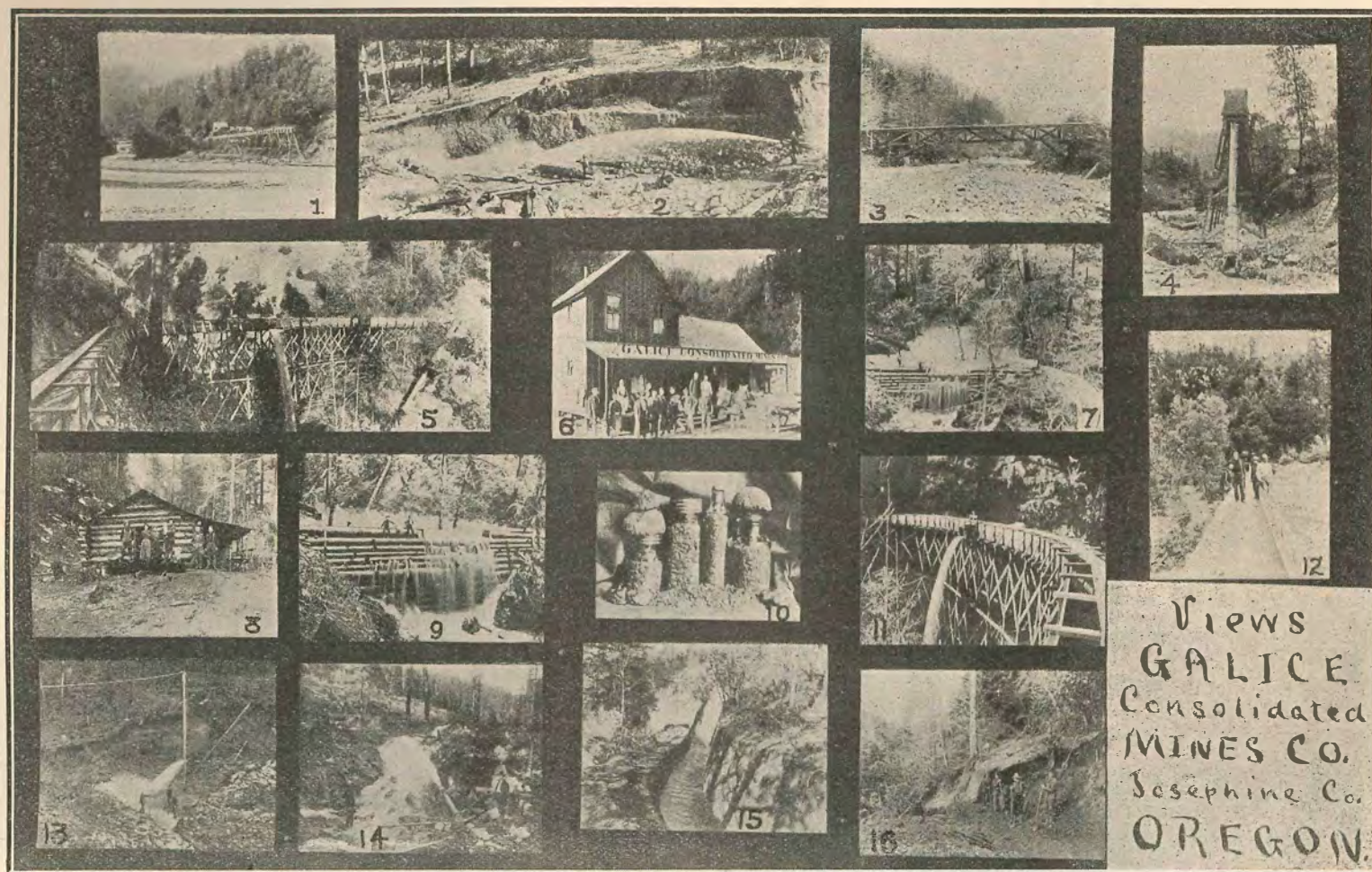
Golden Gate and Bay of San Francisco.

Red Bluff is at the head of the great Sacramento Valley, one of the greatest valleys in the world, and as the train continues southward, still following the Sacramento River, the traveler will begin to realize something of the enormous industrial possibilities embraced in this principality of 6,000 square miles of alluvial soil, from which a little water and a little care will bring forth nearly all the fruits of the semi-tropic lands.

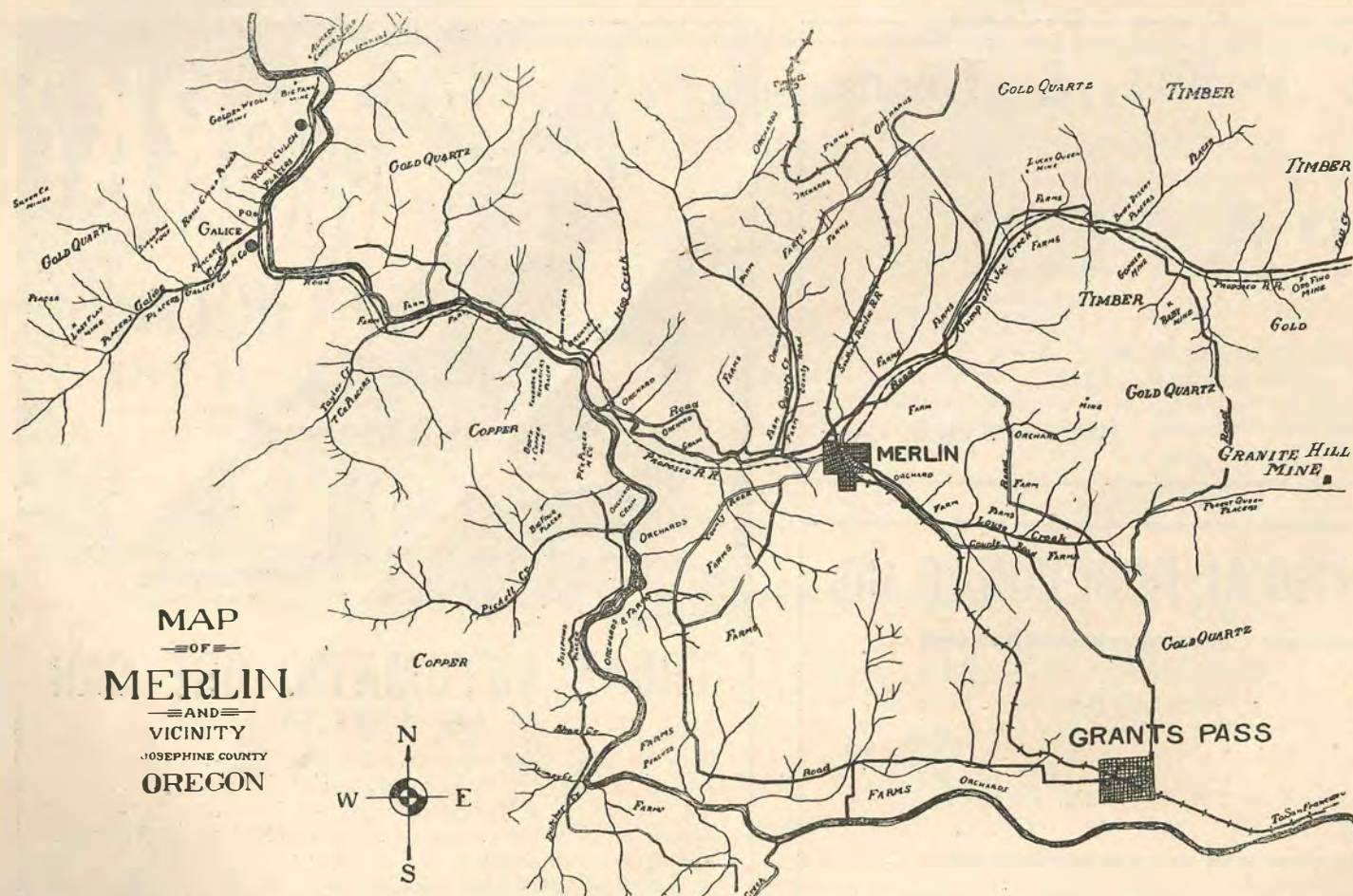
At Sacramento the traveler will see not only the capital of the State, but a beautiful city, where the orange tree grows thriftily in the gardens and the palm spreads its broad leaves with no thought of latitude. San Francisco, with a population recently estimated at 485,000, is the great port of the Pacific Coast, and the visitor to it will find a wealth of interesting things, from its unique, old-world Chinatown to the most recently erected office building, whose multiplied stories testify in part to the reason for the title, "a second New York." From San Francisco many of the most famous places in California can be easily reached. Very often the Southern Pacific has low excursion rates in force, which will enable one to visit world-famed Del



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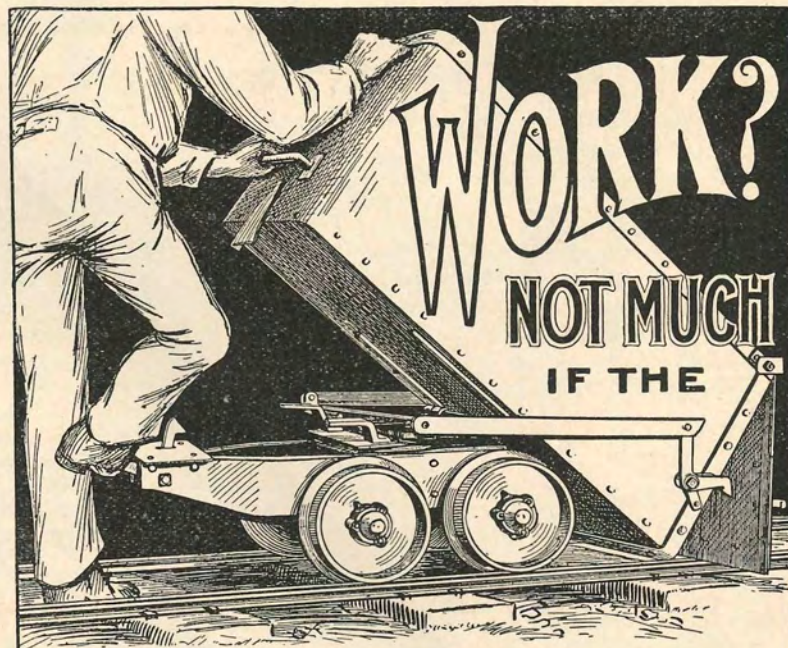
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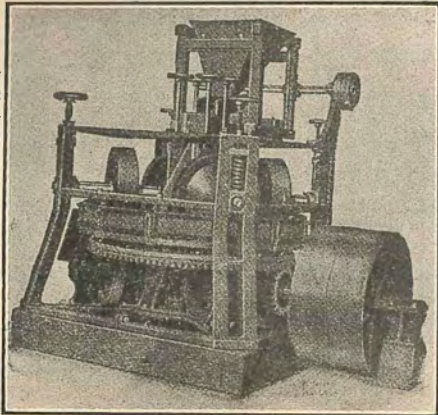
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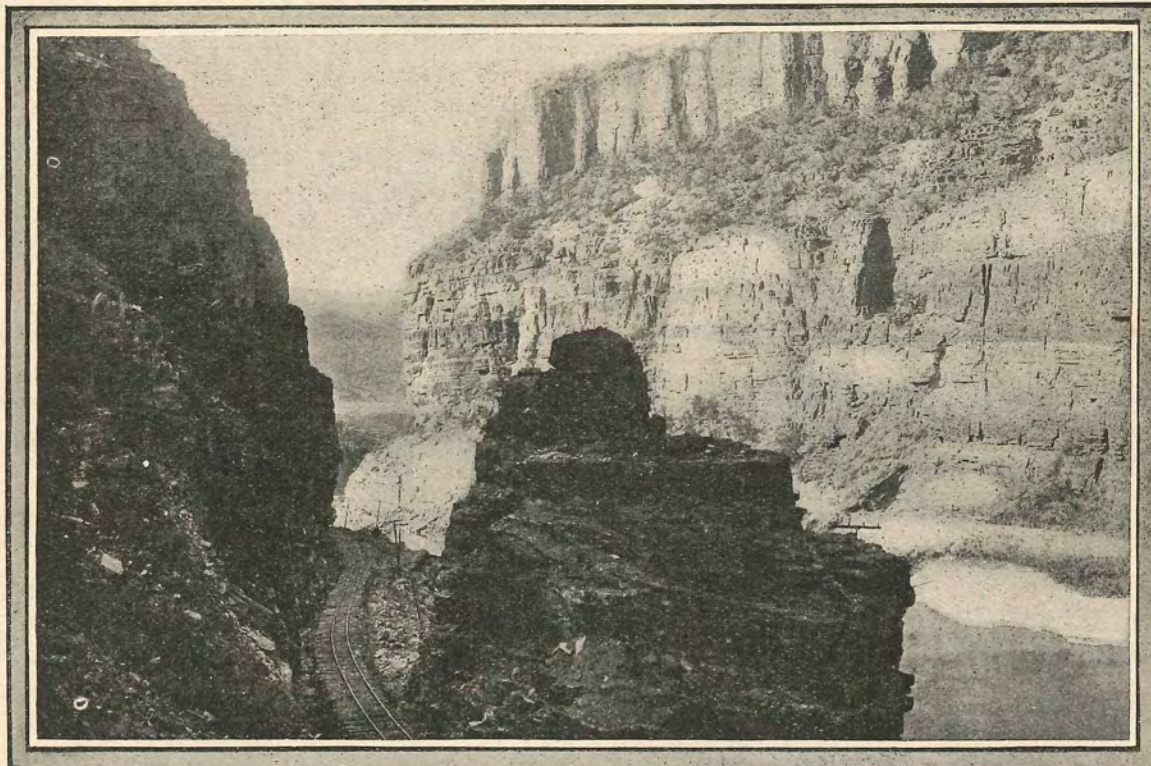
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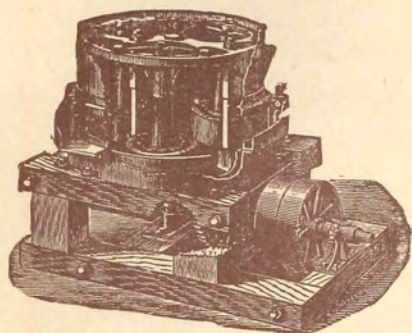
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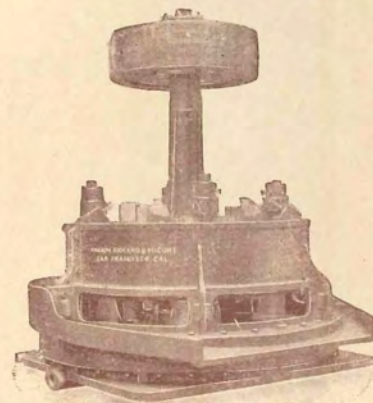
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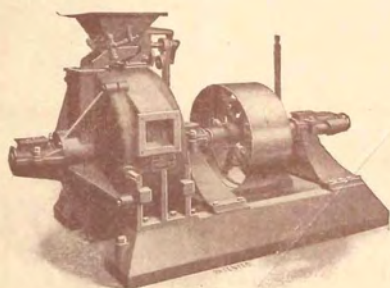
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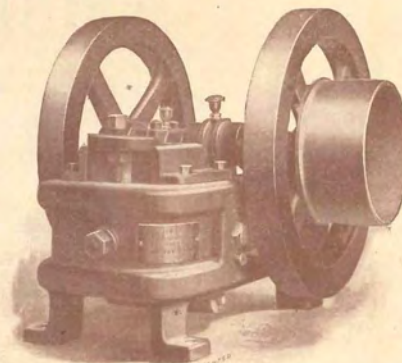
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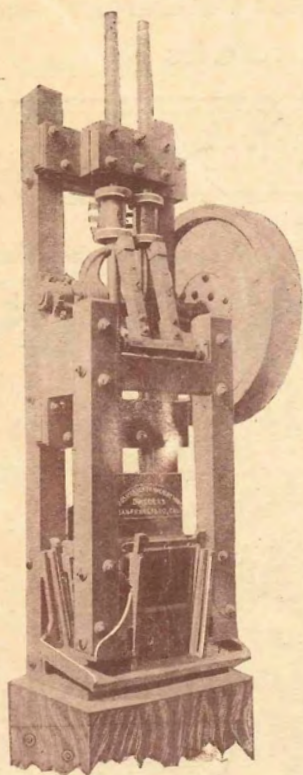
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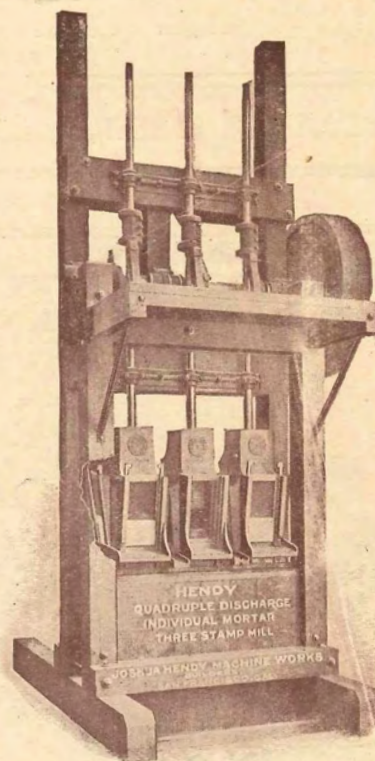
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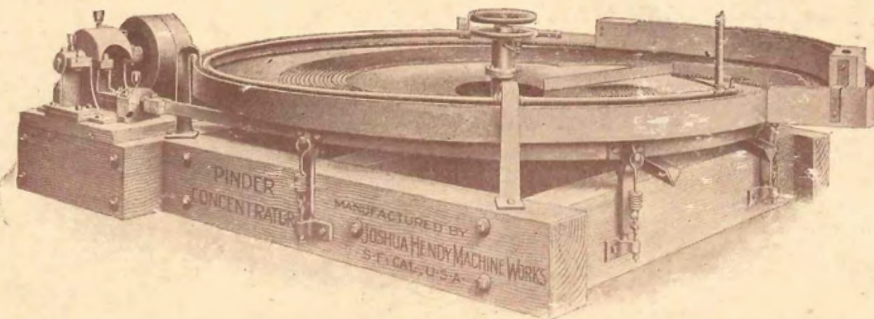


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