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A RECONNAISSANCE BETWEEN THE ALMEDA AND SILVER PEAK MINES OF SOUTHWESTERN OREGON

By
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In the latter part of July a reconnaissance traverse was made from the Almeda Mine on the Rogue River in northwestern Josephine County to the Silver Peak Mine, a few miles south of Riddle, in southern Douglas County. The area which this reconnaissance concerns is roughly 6 miles in width by 20 miles in length. It is a belt of greenstones bordered by Galice slates and volcanics on the east, and Dothan sediments on the west. Within the greenstones are masses of serpentine, rhyolite, and small diorite and related intrusives.

This reconnaissance was undertaken to find out how readily the mineralized zone of these two mines could be traced in the area between and, because of the similarity of mineralization at each mine, to see if the zones could be connected. Also, it was hoped that further information could be gained on the mineral deposits of the area and to ascertain if barite in commercial quantities were indicated.

Mining and prospecting have been carried on in this region for many years. One of the first geologic studies was published by J. S. Diller (1914). Later studies by P. S. Shenon (1933) and by W. R. Lowell (1942) have given additional details on the ore deposits. W. E. Caldwell and D. Sumner (1946) studied the copper content of the Silver Peak mine waters. A study of the Mt. Reuben area has been completed by E. A. Youngberg (1947). These should be consulted as a background for a better understanding of this region.

A review of the literature shows that the ore bodies are usually found in a steeply dipping greenstone series bounded on the east by the Galice formation and on the west by the Dothan formation, all of which are considered to be of Jurassic age. The regional trend in this area is N. 20° to 40° E. for both the formations and the schistosity. Most of the zones of mineralization conform with this trend. The Silver Peak Mine appears to be an exception for according to Shenon it occurs in a schistose part of the Dothan formation. The greenstone is a series of meta-andesites and metabasalts with intercalated silicified tuffs and some chert. Several shear zones parallel the general trend and the ore bodies; alteration of the wall rock is found in the more highly sheared zones.

The ore body that crops out at the Almeda Mine is locally known as the Big Yank lode. It follows close to the contact between porphyritic dacite and slates of the Galice formation. Diller (1914) states:

> "The contact between the slates and the igneous rock, with which the Big Yank lode is associated, may be traced for over 20 miles in a direction about N. 30° E. from Briggs Creek valley to Cow Creek at Reuben spur. Although the general course is maintained with considerable regularity, there are many small variations, and the contact dips to the southeast in the same general direction as the slates. The plane of contact is generally a fault plane and is for the most part followed by the lode. The contact is apparently most irregular and the quartz porphyry[1] most cut by shearing planes in the vicinity of the ore bodies."

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[1]Called "porphyritic dacite" by Shenon (1933).
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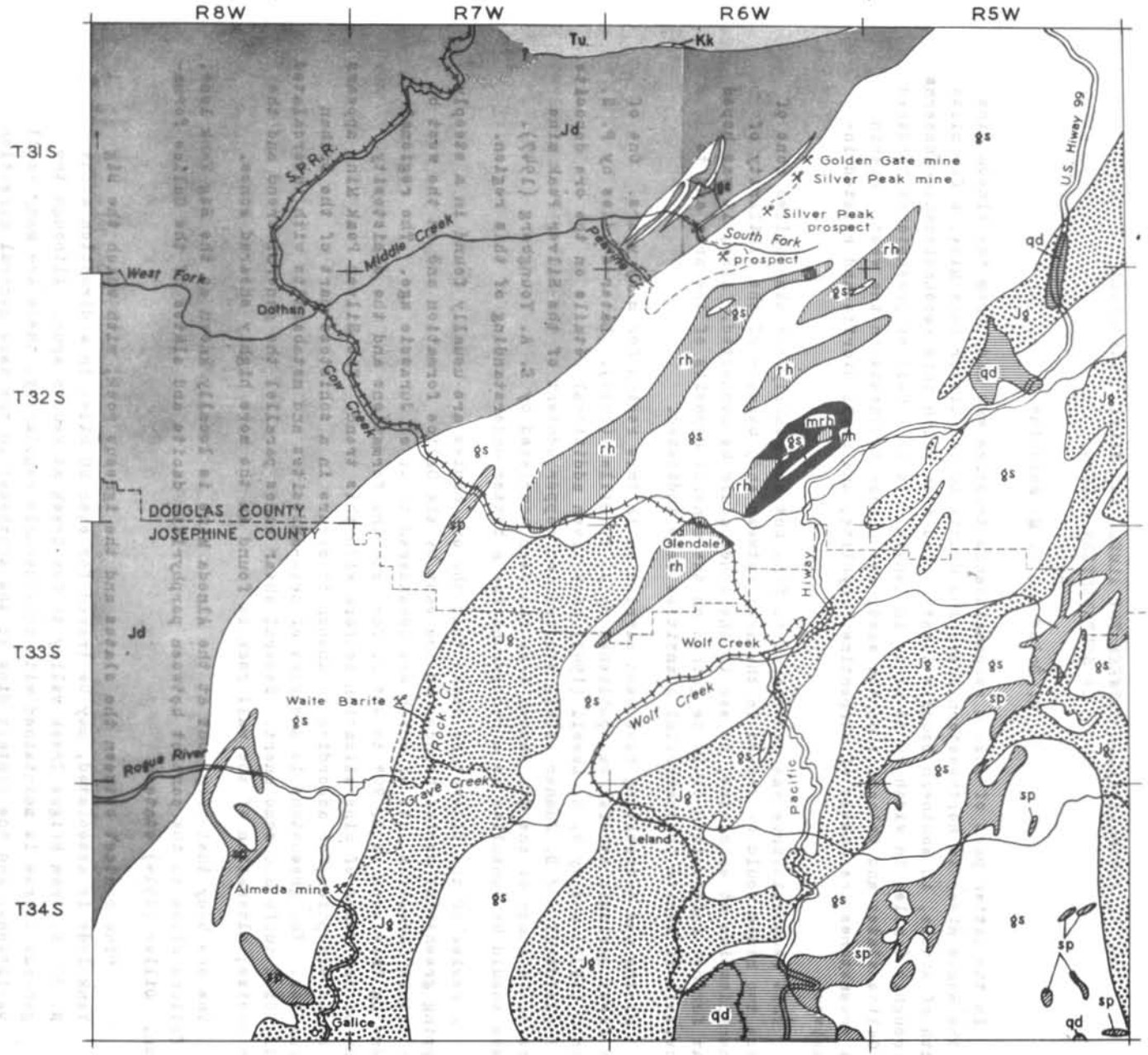

SEDIMENTARY ROCKS

- Tu — Umpqua fm. — Eocene
- Kk — Knoxville fm. — Cretaceous
- Jd — Dothan fm. — Jurassic
- Jg — Galice fm. — Jurassic

IGNEOUS ROCKS

- qd — Quartz diorite and related rocks — Late Jurassic or early Cretaceous
- sp — Serpentine — Late Jurassic or early Cretaceous
- gs — Greenstone, gabbro and related rocks — Chiefly late Jurassic
- rh, mrh — Rhyolite and metarhyolite — Chiefly late Jurassic

Geology of the area in the vicinity of the Almeda and Silver Peak Mines.

Taken from U.S.G.S. Riddle Folio and Bulletin No. 546 by J.S. Diller.

Most of the ore bodies south of the Almeda toward Briggs Creek do seem to follow the Galice-greenstone contact as pointed out by Diller. However, there is little evidence of mineralization along the contact farther north. At the Waite barite prospect on Rock Creek, the mineralized zone is at least 1000 feet west of the contact, and at Silver Peak, mineralization according to Shenon (1933) is within an altered part of the Dothan formation.

The ore occurs in shear zones. Such zones are common and the location of the ore bodies may therefore depend more on the location of the contributing intrusives rather than the location of the zones. For instance, the California tunnel (Wheeler tunnel) on Reuben Creek encountered numerous shear zones in its 7364 feet (Youngberg, 1947), few of which were mineralized.

Quartz diorite crops out at the Benton mine a few miles to the west of the projected trend of the Big Yank lode; porphyritic dacite was encountered in the Almeda mine. Other intrusives occur to the east and although none is known in the region between the Almeda and Silver Peak mines it is probable that they occur at depth.

Almeda Mine

Mineralization at the Almeda mine has been discussed in some detail by Shenon (1933). He reported two types of ore, the "siliceous gold-silver ore" and "copper ore with barite." Shenon (1933:30) described the latter ore as follows:

> "The ore from the higher-grade shoots is composed principally of barite, quartz, and sulphides. The barite was introduced into the intensely silicified porphyritic dacite before the sulphides, and locally it has almost completely replaced the quartz. The sulphides, in turn, have replaced the barite as well as the quartz. Some specimens clearly show veinlets of sulphides cutting coarse-grained barite. The sulphides include pyrite, chalcopyrite, galena, sphalerite, chalcocite, and covellite."

Lowell (1942:574) seems to differ as to the age of the barite. He stated:

> "In the Almeda and Silver Peak ore, barite replaces quartz and fills fractures in pyrite, chalcopyrite, and tetrahedrite.... Barite was deposited late in the mineralizing stage and was followed by sericite which is developed as shreds in fractures in barite."

Lenses of pink and gray massive barite, in several instances 4 to 8 feet in width, were found on the surface of the Big Yank lode up the hill behind the Almeda mine. Some barite was interspersed in the silicified rock from which the sulphides had been leached. The lode was traced to a point between 600 and 700 feet above the river at which point it was lost, presumably cut off by a low angle reverse fault similar to or the same as the fault noted by Hotz and Bell (unpublished map, U.S. Geological Survey) a short distance to the northwest. The massive lenses of barite appear to be podlike and might pinch out rapidly, nevertheless, a large tonnage is indicated. A sample assayed 37.36 percent $BaSO_4$.

Almeda Mine-Grave Creek Valley

No mineralization was noted along the ridge between the Almeda mine and Grave Creek.

The contact of the greenstone and Galice formation showed little sign of mineralization along Grave Creek, although it is not well exposed. It is possible, however, that further prospecting would show some signs of mineralization in this intermediate area.

Waite prospect

A prospect, under lease to E. R. Waite, Grants Pass, is located in the NW¼ sec. 29, T. 33 S., R. 7 W., along the west side of Rock Creek valley and about 2½ miles by trail from a point where the Grave Creek road crosses Rock Creek. There is a preliminary report on this property in the files of the State Department of Geology and Mineral Industries.

Several short prospect tunnels and open cuts reveal a mineralized zone which contains barite, one lens being more than 4 feet in width. The deposit, like others in the greenstone, strikes N. 40° E. It lies at least 1000 feet west of the Galice-greenstone contact. One sample of barite contained .05 oz. gold, 2.80 ozs. silver and 91.34 percent $BaSO_4$. A sample (P-6194) from the lower tunnel by the trail contained .01 oz. gold, .10 percent copper, trace of lead, 2.05 percent zinc. A sample from a prospect pit a few hundred feet up the hill (P-6195) contained .10 oz. gold, 5.33 ozs. silver, 1.30 percent lead, .40 percent copper, .55 percent zinc, and 52.27 percent barium. More work is needed at this prospect to determine the amount of ore.

Cow Creek valley near Reuben Station and Kolar

The greenstone-Galice contact in the vicinity of Cow Creek is irregular. The belt of greenstone broadens to the north. Although exposures were poor along both sides of the creek, the lack of established claims near the contact at Reuben Station points to a probable lack of mineralization in that region. A short distance to the north along the west side of Panther Butte and Grayback Mountain, a zone of mineralization has been found that if projected would reach a point a mile or so west of Reuben Station.

South Fork of Middle Creek to Grayback Mountain

A mineralized zone trends northeastward across the South Fork of Middle Creek valley from Panther Butte to and beyond Silver Peak. This belt of claims is near the west boundary of the greenstone mass and appears to follow a persistent shear zone. It does not form prominent outcrops and is difficult to find except for iron staining. A prospect tunnel driven by Al Glick and C. L. Cox along a quartz stringer is situated above the creek near the mineralized zone. The tunnel, about 75 feet long, trends S. 70° E. although it turns a little more to the south near the end of the drift. This quartz stringer is bearing across the greenstone belt and not following the shear zones; it may be along a cross fracture formed during the stage of deformation that caused shearing. Further inspection of this region and an examination of the other claims in this zone are needed.

Silver Peak

The mines in the vicinity of Silver Peak are described by Shenon (1933). Two of these, belonging to the Silver Peak Copper Company and the Umpqua Consolidated Mining Company, lie south of Silver Peak. The Golden Gate mine lies about half a mile north. The district is reached by a forest road that leaves the county road near Russell Creek. According to Shenon (1933:18):

> "The ore minerals occur as massive tabular bodies and disseminated in highly foliated schist. The two principal workings expose a zone of mineralized schist more than 100 feet wide. Across most of this zone sulphide minerals are rather sparsely distributed, but in at least two places bodies of nearly solid sulphide ore occur. * * * Normally the massive ore grades into schist with disseminated sulphides, but in some places, especially where the massive ore pinches, one or both walls are slickensided fault surfaces commonly lined with several inches of gouge.
>
> "The massive sulphide ore is distinctly banded, probably in part because the ore minerals have replaced schistose rocks and in part because the minerals were introduced along parallel fractures in the rock. The sulphides include pyrite, sphalerite, chalcopyrite, bornite, galena, tennantite, chalcocite, and covellite named in their relative order of their abundance. The last four mentioned occur in relatively small amounts....The gangue minerals are principally quartz, barite, and sericite."

The order of mineralization as given by Lowell (1942:589) shows pyrite followed by quartz, then fracturing, sphalerite, more fracturing followed by tetrahedrite, tennantite, chalcopyrite, bornite and galena, more fracturing with barite and sericite the last of the hypogene minerals.

Considerable barite is present as lenses in the ore bodies uncovered in the mines. Some of this has disseminated sulphides which might be a hindrance for some uses of barite.

Several prospects are located in this mineralized belt to the southwest. A tunnel on the Silver Peak property, located at the head of a small tributary of the South Fork of Middle Creek, trends N. 40° E. and parallels the schistosity. Considerable exploration has been done as is shown by the size of the dump.

Although most of the ore bodies are in the greenstone, those at Silver Peak, according to Shenon (1933:16), are in the schistose part of the Dothan formation. He describes the schist as follows:

> "Near the Silver Peak mines the Dothan formation is composed principally of dark-gray to almost black thin-bedded schist and highly altered fine-grained argillite. Many of the Dothan rocks are so completely altered that it is difficult to differentiate them in the field from the altered greenstones. Near the ore bodies the schist is bleached to light gray or almost white, and, because of the abundance of sericite, has a talcose appearance. In addition, the ore-bearing schist commonly contains considerable quartz, barite, and disseminated sulphides."

Conclusions

Mineralized zones have been with few exceptions found within the greenstone mass. Diller indicated that the position of the Big Yank lode between Briggs Creek and the Almeda mine closely paralled the contact between the Galice formation and the greenstone; thus it is relatively easy to locate. However, it is difficult to prove that the ore bodies farther north are a direct continuation of this lode. Instead, they appear to be independent shear zones located in an echelon arrangement and situated progressively westward in the greenstone mass when traced northward to Silver Peak where they are in the Dothan formation. This generalization needs further checking. As was shown in the California (Wheeler) tunnel, several shear zones exist, few of which were mineralized. Thus it may be the location of the intrusive at depth, rather than the shear zone that determines the location and extent of mineralization.

With the exception of the Big Yank lode above the Almeda mine, the outcrops of the mineralized zones are not particularly prominent. Mineralized zones farther north were difficult to locate and had little on the surface to indicate their presence. In such rugged terrain, considerable time will be needed in which to locate claims and prospects as well as other existing mineralized zones.

At present, the Almeda and Silver Peak mines appear to have the largest and perhaps the most accessible deposits of barite. The barite appears to be but one phase of regional mineralization. The barite deposits might well be studied in conjunction with a study of the ore bodies. More work is needed, particularly in the area just south of the Almeda mine, between Grayback Mountain and Silver Peak, and perhaps for a few miles north of Silver Peak. All existing claims in this area should be visited.

Bibliography

Caldwell, W. E. and Sumner, D.,
1946 "The copper content of certain mine waters": Oregon State Dept. Geology and Mineral Industries Ore.-Bin, vol. 8, no. 12.

Diller, J. S.
1914 Mineral resources of southwestern Oregon: U.S. Geol. Survey Bull. 546.

Lowell, W. R.
1942 "The paragenesis of some gold and copper ores of southwestern Oregon": Economic Geology, vol. 37, no. 7.

Shenon, P. S.
1933 Copper deposits in the Squaw Creek and Silver Peak districts and at the Almeda mine, Southwestern Oregon, with notes on the Pennell and Farmer and Banfield prospects: U.S. Geol. Survey Circ. 2.

Youngberg, E.
1947 Mines and prospects of the Mt. Reuben mining district, Josephine County, Oregon: Oregon Dept. Geology and Min. Industries Bull. 34.

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CANADA SEEKS WAY OUT OF EXCHANGE TROUBLES

The Canadian Government has announced that Parliament will consider legislation which will in effect allow a $7.00 an ounce increase in the price of newly mined gold produced from Canadian mines in excess of that produced in the year ending last June 30. The program would be for a period of three years and is designed to strengthen Canada's dollar exchange which has been showing a progressively weakening tendency. Officials of the U.S. Treasury and of the International Monetary Fund have been thrown into a dither over the Canadian announcement. It is reported that a formal protest has been made by the United States, and that it has been effective in stopping this Canadian subsidy plan.

The United States Treasury has made much over the inflationary effect of the large and increasing stock of gold held in this country. Without commenting on the relatively small increase in the flow of gold which would be caused by the Canadian bonus, it would appear that the United States officials are obstinately and unrealistically clinging to an untenable policy. With all currencies tied to the dollar we are attempting by the indirect means of the International Monetary Fund to regulate value of these currencies. It may prove to be an impossible task like opposing the law of supply and demand. In addition the subject is so tied up with international politics that nobody understands the probable consequences of devaluation of currencies.

The Engineering and Mining Journal has recently stated editorially that the French Government will reduce the official value of its currency in dollars, and the report is that other European countries will follow suit. The Italian lira has recently been devaluated. In the editorial the Journal expresses the belief that devaluation is a formal acknowledgment of the free-market price of gold, and that a higher price of gold is inevitable in due course.

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ALCOA WEST COAST FABRICATION PLANT

A fabrication plant which will specialize in making aluminum rod, wire, and electrical transmission cable will be built by Alcoa on the west coast probably at Vancouver, Washington, according to an announcement in the press on November 28. Construction will depend on assurances of availability of adequate power. This new plant will be an important step in company plans for integrating the Northwest aluminum industry. A further important step will be the production of alumina from Oregon ore. It is suggested that the company will do well to consider the desirability of putting the bauxite plant on the Oregon side of the river. Otherwise an undue proportion of the company's production facilities will be placed in Washington, giving that state all the cream, with Oregon receiving a very thin skim milk. Sharing of plant facilities with Oregon would make for much better public relations, and it is not clear why the Washington side of the river has any especial advantage over the Oregon side for a bauxite plant; in fact, from a security standpoint, there are certain disadvantages in grouping too many important production facilities at the Vancouver site.

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CURRY COUNTY HAS NEW MINERAL SOCIETY

The Curry County Mineral Society has been organized at Gold Beach. Frank Schiska was elected president and Mrs. A. J. Russell, secretary-treasurer. Several field trips have been planned. According to the Curry County Reporter of November 27, membership is open to anyone interested in rocks, gems, mineral collecting, mining, or the lapidary art.

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OREGON CHROMITE ORES CONCENTRATED BY U.S. BUREAU OF MINES

"Beneficiation of Chromite Ores from Western United States" is the title of the U.S. Bureau of Mines Report of Investigations 4079, June 1947. Deposits in California, Oregon, Washington, Idaho, and Montana were explored by the Bureau of Mines during the war and concentration tests were made on low-grade ores. Ores from three deposits near John Day, Oregon, namely the Chambers, Dry Camp, and Iron King, which contain 90 percent of the chromite in the area were beneficiated by tabling. Concentrates were produced as follows: Chambers, Cr_2O_3, 33.8 percent with chrome-iron ratio of 1.69:1 and recovery of 74.1 percent; Iron King, Cr_2O_3, 37.6 percent with chrome-iron ratio of 1.50:1 and recovery of 68 percent; Dry Camp, Cr_2O_3, 48 percent with chrome-iron ratio of 2.58:1 and recovery of 82.4 percent. Concentration of ore from the Briggs Creek deposit, Josephine County, produced a 52.3 percent Cr_2O_3 concentrate having a 2.03:1 chrome-iron ratio with a 79.7 percent recovery.

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SHEEP MOUNTAIN MANGANESE CONCENTRATION TESTS

The U.S. Bureau of Mines has released results of concentration tests performed on a sample of manganese ore from the Sheep Mountain property located about 8 miles west of Durkee, Baker County, Oregon. The information is published in Report of Investigations 4149, November 1947. Test work was done at the Bureau's Salt Lake City station on a 290-pound sample submitted by the State Department of Geology and Mineral Industries. The crude oxide ore contained 23 percent manganese with intimately associated silica as the principal gangue. Beneficiation tests included both gravity and flotation methods. Best results, obtained by jigging and tabling, produced a concentrate assaying 42.1 percent manganese with a 69.9 percent recovery.

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MINE TO BE REOPENED

It has been reported that Mr. Robert Cannell of Semi, California, has recently purchased the Copper Queen Mine, two miles west of Leland, Josephine County, Oregon. Present plans are to mine by open pit method.

The Copper Queen was originally located in 1916 and has been worked sporadically since, usually by underground methods. Last work done at the mine was in 1941. According to a Department report, two carloads of ore were shipped in 1934 from which was received 44.81 ozs. gold and 229.83 ozs. silver.

Mr. Cannell purchased the mine from Messrs. O. S. Blanchard and Herman Schmidt of Grants Pass. Work is to be under the direction of Tom Cannell, Sunny Valley.

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BONANZA MINES

The only producing quicksilver mine in Oregon at the present time is the Bonanza at Sutherlin in Douglas County. Total payroll includes about 20 men with from 4 to 6 men kept continuously on development work. The furnace is run from 10 to 12 days a month and production averages a little more than 100 flasks a month. New development planned includes drifting south on the 830 level to prospect for an orebody found on the 630 level in 1946. A new level at 1060 feet has just been started from a winze and it is believed the extension of the main orebody on this level will be cut after drifting about 50 feet.

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HIGH METAL DEMAND FOR 1948

A digest of a Department of Commerce report appears in the December 11 issue of E&MJ Metal and Mineral Markets and is reproduced below.

Major industries in the United States will operate at a high rate throughout 1948 to meet continued high consumer demand, according to a report on industry and trade prospects issued by the Department of Commerce. The report, appearing in the Department's "Domestic Trade Digest," assumes that the boom will continue next year. The authors do not "predict" that it will and warn that their findings are "subject to the influences of the international economic and political situation."

In reference to the outlook for steel, the report points out that effective steel ingot capacity will be 1,000,000 tons higher in 1948 than it was this year. Supplies will be affected by the demands of the European recovery program. Tight finished steel products, such as sheet and strip, can be obtained in sufficient quantity only if raw steel is diverted from other products.

Demand for copper and copper products cannot be forecast, but domestic and foreign requirements combined may create a situation that could bring about the "expansion of a series of controls." Copper prices are expected to remain firm next year.

Lead continues in short supply. "While many are willing to concede that the current price for lead is inordinately high," the report said, "there appears to be every reason to believe that there will not be a substantial, if any, break in the price during 1948."

The zinc demand-supply-price situation is expected to continue almost unchanged next year, or "on an even keel."

Tin supply will remain short, owing to the failure of production to expand to a normal rate. Some restrictions on use of tin may be continued. Normal output is not expected before 1950.

Automobile production is expected to increase to 5,000,000 passenger cars in 1948, compared with 3,500,000 cars in 1947. Because of the vast backlog of orders for cars, the 5,000,000 rate should be maintained for several years.

Total new construction in 1948 is estimated at $15,200,000,000, compared with $12,665,000,000 in 1947. Private residential building will increase from $4,800,000,000 in 1947 to $6,000,000,000 in 1948. Public utility construction will increase from $1,315,000,000 in 1947 to $1,625,000,000 next year. Industrial construction, however, should decline from $1,695,000,000 this year to $1,350,000,000 in 1948.

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PUBLICATIONS

GEOLOGIC MAPS — Price postpaid

1. Geol. map of the Wallowa Lake quad., 1938: W.D.Smith & others (also in Bull.12) — $ 0.45
2. Geol. map of the Medford quad., 1939: F.G.Wells & others 0.40
3. Geol. map and geology of the Round Mountain quad., 1940: W.D.Wilkinson & others 0.25
4. Geol. map of the Butte Falls quad., 1941: W.D.Wilkinson & others 0.45
5. Geol. map and geology of the Grants Pass quad., 1940: F.G.Wells & others . 0.30
6. Prelim. geologic map of the Sumpter quad., 1941: J.T.Pardee & others . . . 0.40
7. Geol. map of the Portland area, 1942: Ray C. Treasher 0.25
8. Geol. map of the Coos Bay quad., 1944: J.E.Allen & E.M.Baldwin (sold with Bull. 27) ----
9. Geol. map of the St. Helens quad., 1945: W.D.Wilkinson, W.D.Lowry, & E.M.Baldwin (sold with Bull. 31) . . . . ----

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