

UNITED STATES BUREAU OF MINES issues

# Metal Production Figures For 1934

## ARIZONA

The value of gold, silver, copper, lead, and zinc produced from mines in Arizona in 1934 was about \$22,711,300<sup>1</sup>, or more than double the value<sup>2</sup> of the output in 1933, according to C. N. Gerry and Paul Hoff, of the United States Bureau of Mines.

A marked gain over 1933 was recorded in the production of each of the five metals and the increases in the production of gold, silver, and copper were especially pronounced. The copper output, of primary importance in Arizona, approached the output of 1932 when the state produced more than 182,000,000 pounds; however, it was still far below the 831,000,000 pounds produced in 1929.

The gold output increased from 79,922.61 ounces in 1933 to about 157,066.00 ounces in 1934, an increase of 6 per cent. About 61 per cent of the gold output in Arizona in 1934 was contained in copper bullion from the three copper smelters at Douglas, Clemenceau, and Superior, and nearly 27 per cent was contained in gold bullion and precipitates sold to mints and refining plants. Most of the remainder was in crude ore and concentrates shipped to the smelter at El Paso, Texas.

The largest producers of gold in Arizona in 1934 were the Copper Queen branch of the Phelps Dodge Corporation at Bisbee, the Lake Superior & Arizona mine at Superior, the New Cornelia mine at Ajo, the Tom Reed mine at Oatman, the United Verde Extension mine at Jerome, the Magma mine at Superior, the Jim mine at Oatman, the Gold Standard (Roadside and Arabian mines) at Silver Lake, and the Sheeptanks mine near Crowsburg. These mines yielded about 6,000 ounces of gold or 68 per cent of the state output.

Other mines that produced more than 100 ounces of gold each in 1934 were the Tombstone Development at Tombstone, the Gladstone-McCabe near Prescott, the United American at Oatman, the Golden Belt at Cordes, the Montana at Ruby, the Wadsworth Gold (New Year and Mowbray mines) near Mammoth, the Ace of Spades near Phoenix, the Vulture near Crowsburg, the Belmont at Superior, the Cordes at Katherine, the Golden Turkey at Cordes, the Hillside at Hillside, the Cordes mine of the Consolidated Gold Mines at Dos Cabezas, the Shattuck-Denn at Bisbee, and the Vulture tailings dump at Crowsburg. The chief decline in gold output was that of the United Verde Extension at Clemenceau. No gold dredges were operated in Arizona in 1934.

The silver output increased from 2,363 ounces in 1933 to about 4,150 ounces in 1934, and the value from \$6,627 to \$2,680,900, as the average price of silver rose from 35 cents an ounce in 1933 to 64.6 cents an ounce in 1934. The copper smelting plants at Douglas, Clemenceau, and Superior continued to receive company ore and concentrate, but other smelting plants

were idle. Receipts at Douglas were larger, chiefly from ore and concentrates of the Phelps Dodge properties, and receipts at the Magma smelter also increased though the plant was idle about one month. The silver produced in Arizona in 1934 came chiefly from copper ore from the Copper Queen branch at Bisbee, the Magma mine at Superior, the United Verde Extension mine at Clemenceau, and the New Cornelia mine at Ajo. Lead ore and siliceous ore from the Tombstone Development property at Tombstone and lead-zinc ore from the Montana mine at Ruby supplied considerable silver. There were six mines in Arizona that produced more than 100,000 ounces of silver each in 1934—the Copper Queen branch of the Phelps Dodge Corporation, the Magma property at Superior, the United Verde Extension mine at Jerome, and the Tombstone Development, Montana, and New Cornelia mines.

The copper output rose from 114,041,781 pounds in 1933 to about 178,200,000 pounds in 1934, an increase of 64,158,219 pounds or about 56 per cent. The value increased from \$7,298,674 to about \$14,256,000. Copper smelters at Douglas, Clemenceau, and Superior continued operations during 1934, but the receipts at Clemenceau were smaller than in the preceding year. The largest producer of copper in Arizona in 1934 was the Copper Queen branch of the Phelps Dodge Corporation at Bisbee; it was followed by the Magma mines at Superior where there was also a marked increase in copper production, and the New Cornelia property at Ajo where work in the mine and concentrator was resumed in July. Aside from the increases in copper ore and siliceous ore shipped to Superior and Douglas, the features of the year were the resumption of work at the New Cornelia and Miami mines. The Miami Copper Co. produced two classes of concentrates in 1934; one was sulphide copper concentrates shipped to the International smelter at Miami for storage and the other was cement copper concentrates shipped to Douglas for smelting.

The lead production in Arizona increased from 3,422,540 pounds in 1933 to about 5,800,000 pounds in 1934, and the value from \$127,374 to about \$214,600. The average sales price of lead remained at about 3.7 cents a pound in 1934.

The Montana mine of the Eagle-Picher Mining & Smelting Co. at Ruby resumed work in August and shipped a large quantity of lead concentrates and zinc concentrates the last five months of the year; the property was the largest producer of lead and zinc in Arizona in 1934. Next in order of lead output were the Tombstone Extension property, operated the first half of the year by the American Smelting & Refining Co. and the last half of the year by the Tombstone Extension Mining Co., and the Tombstone group (Bunker Hill property) operated by the Tombstone Development Co. and the United States Smelting, Refining & Mining Co. Other producers of lead were the "79" mine near Winkelman and the Golden Belt and Golden Turkey mines at Cordes. Nearly all the lead ore and concentrates from Arizona in 1934 were smelted at El Paso, Texas.

Zinc production was resumed late in 1934 in Arizona through activity of the Eagle-Picher Mining & Smelting Co. at its Montana mine at Ruby in Santa Cruz County. More than 37,000 tons of lead-zinc ore containing appreciable amounts of gold and silver were milled in the company's 250-ton flotation-concentration plant.

## CALIFORNIA

The value of the gold, silver, copper, lead and zinc produced in California in 1934 was \$25,107,000, according to F. W. Horton and C. W. Merrill of the United States Bureau of Mines. This estimate compares with a total value of \$15,927,722 for the output of the five metals in 1933, an approximate gain of \$9,180,000, or 58 per cent. This large increase in total value was due both to higher prices and larger production in 1934. Compared with 1933, production of gold, silver, lead, and zinc increased while copper declined.

Metal mining in California is virtually synonymous with gold mining as 97 per cent of the total value of the 1934 output was supplied by gold, the recoveries of the other metals being effected almost entirely as by-products of gold mining.

In 1934 California maintained its leading position among the gold-producing states with an output of about 701,000 ounces compared with 613,579 ounces mined in 1933. The value of the 1934 production, calculated at the average price of \$34.95 per fine ounce, was \$24,499,950 or \$8,816,871 more than the output in 1933 when \$25.56 per ounce was the average price.

The Grass Valley-Nevada City district continued as the leading productive area, and the Empire Star Mines, Ltd., was the only company in the state to produce more than 100,000 ounces of gold. Eleven companies (including three gold-dredging companies operating 15 dredges) had outputs exceeding 10,000 ounces each and collectively produced approximately 398,000 ounces of gold or nearly 57 per cent of the state total. Thirty-six companies, each with a production of more than 1,000 ounces, accounted for 73 per cent of the output as compared with 82 per cent supplied by 33 companies each with outputs of over 1,000 ounces in 1933.

The decreased percentage of gold supplied by large producers in 1934 was, in part, occasioned by a notable increase in the aggregate production of small mines and in part due to labor difficulties at three of the leading mines on the Mother Lode (the Argonaut, Kennedy, and Central Eureka), that kept these mines closed throughout the last quarter of the year. The 10 largest producers of gold in the state during 1934 in order of their output were the Empire Star Mines (Ltd.), Natomas Co., Yuba Consolidated Gold Fields, Idaho-Maryland Mines Co., Capital Dredging Co., Argonaut Mining Co. (Ltd.), Carson Hill Gold Mining Corporation, The Mountain Copper Co. (Ltd.), The Original Sixteen to One Mine Inc., and the Kennedy Mining & Milling Co.

There was unusual activity throughout the state in reopening old mines and en-

<sup>1</sup>Gold production calculated at \$34.95 per fine ounce, for 1934 in all instances.  
<sup>2</sup>Gold production calculated at \$25.56 per fine ounce, for 1933 in all instances.

## SOME STATISTICS ON 1932, 1933, AND 1934 PRODUCTION OF COPPER, GOLD, SILVER, LEAD, AND ZINC IN THE WESTERN UNITED STATES

State	Copper—Pounds			Gold—in Fine Ounces			Silver—Ounces		
	1932	1933	1934	1932	1933	1934	1932	1933	1934
Arizona	182,491,825	114,041,781	178,200,000	66,789	79,992	157,000	2,082,823	2,390,363	4,150,000
California	1,417,876	990,380	500,000	569,167	613,579	701,000	493,533	402,591	789,000
Colorado	7,398,000	9,667,000	11,040,000	317,928	242,828	317,214	1,860,408	2,186,140	3,389,500
Idaho	1,143,381	1,562,234	1,530,000	46,885	64,592	86,600	6,716,968	6,987,960	7,310,000
Montana	84,847,349	65,476,375	63,700,000	40,602	57,822	92,500	1,686,213	2,660,700	3,950,000
Nevada	31,487,606	28,489,610	41,650,000	129,719	98,590	146,700	1,304,365	1,148,621	2,700,000
New Mexico	28,419,000	26,947,000	28,067,000	23,208	26,474	25,630	1,142,351	1,181,580	1,058,000
Oregon	32,199	11,453	43,000	19,861	20,240	32,200	8,616	20,760	58,000
South Dakota				480,338	512,404	481,727	126,195	125,417	100,000
Texas	7,000	2,000	30,000	9		368	1,422	160	816,820
Utah	64,964,111	73,583,130	85,585,000	135,256	109,129	134,100	6,962,097	5,669,197	6,985,000
Washington	5,524	5,781	5,000	5,082	4,563	6,900	17,412	18,520	40,000
Wyoming	397		4,000	257	2,200	4,900	195	260	89

larging mills to handle increased tonnages. Following one of the largest construction and rehabilitation programs of the year, the Carson Hill mine in Calaveras county became an outstanding producer and now ranks fourth among the lode producers of the state. Most of the larger lode-mining companies did much development work and many of them increased their holdings by the acquisition of other properties. Active prospecting was carried on. An interesting gold strike was reported with the development of the Silver Queen mine, located in 1933 near Mojave in Kern county.

There was no notable change in the output from gold dredging, the production being estimated at about 190,000 ounces from 26 dredges as compared with 201,710 ounces from 24 dredges in 1933. The Natomas Co. and Yuba Consolidated Gold Fields with six dredges each, and the Capital Dredging Co. with three dredges were the largest operators and their combined production was approximately 150,000 fine ounces. Yuba No. 17, the world's largest gold dredge, was completed during the summer and placed in operation at Hammon in July. It has a capacity of 350,000 cubic yards per month and is able to dig 110 feet below the water line. Small-scale placer mining along the rivers and creeks continued during the year and although returns from individual operations were very small, their aggregate formed an appreciable part of the total production.

The production of silver increased from 402,591 ounces valued at \$140,907 in 1933 to about 789,000 ounces valued at \$509,694 in 1934. Most of the silver was recovered as a by-product from gold ores, and the greater part of it came from the Grass Valley-Nevada City district.

The output of copper decreased from 990,380 pounds valued at \$63,384 in 1933 to approximately 500,000 pounds valued at \$40,000 in 1934. This is the smallest production since 1895, when the output was 225,650 pounds. Cupriferous pyrite from the Iron Mountain mine in Shasta county, leached at the Martinez plant of the Mountain Copper Co., was the largest individual source of copper.

Lead production increased from 761,156 pounds valued at \$28,163 in 1933 to approximately 850,000 pounds valued at \$31,450 in 1934. This is the lowest output since 1927, when 328,681 pounds was produced. Most of the lead came from Inyo county.

The output of zinc increased from 290,214 pounds valued at \$12,189 in 1933 to approximately 600,000 pounds valued at \$25,800 in 1934, and was shipped in the form of carbonate ore from Inyo county.

## COLORADO

Eleven and one-half months actual mine production with an estimate by the mine operators and smelters for one-half of December indicates that the output of gold, silver, copper, lead, and zinc from Colorado ores and gravels in 1934, in terms of recovered and estimated recoverable metals was 317,214 ounces of gold, 3,389,552 ounces of silver, 11,040,000 pounds of copper, 8,296,000 pounds of lead, and 1,505,000 pounds of zinc, according to Chas. W. Henderson of the United States Bureau of Mines. These figures are to be compared with 242,828 ounces of gold, 2,186,140 ounces of silver, 9,667,000 pounds of copper, 4,803,000 pounds of lead, and 2,569,000 pounds of zinc in 1933.

Gold production from the Cripple Creek district increased from 109,868 ounces in 1933 to 124,234 ounces in 1934. New crushing equipment and enlargement of cyanide tanks at Golden Cycle 1,200-ton roast-amalgamation-cyanidation custom mill, at Colorado Springs, allowed it to operate at an average of 1,244 tons daily (over 1,500 tons a day were treated in October), principally on Cripple Creek sulphotelluride ores. All Cripple Creek ores are treated at this mill. During 1934 the 300-ton selective flotation mill, added to the Golden Cycle equipment in November, 1929, was used to treat low-grade Cripple Creek ores and custom gold-silver-lead ores from Boulder, Clear Creek, Gilpin, Lake, and other counties in Colorado and small lots from northern New Mexico and Wyoming, the lead-copper-iron-gold-silver concentrates going to the Leadville smelter and the tails from the flotation machines going direct into the cyanide circuit. A new 450-ton flotation mill was almost completed by the end of the year nearby the sampling and crushing houses. The old 300-ton flotation equipment will be moved to the new building.

Park county's output of gold (recoverable) increased from 60,146 ounces in 1933 to 86,426 ounces in 1934. Of this total, 2,050 ounces were recovered from placer mines, compared with 247 ounces from placers in 1933. The increased yield of placer gold was due chiefly to greater activity of individuals on the Alma placers, and to large-scale placer operations with power shovels, specially constructed washing plants and centrifugal gold separators in the Tarryall district. The production of silver in Park County increased from 40,526 ounces in 1933 to 61,045 ounces in 1934. The largest producers of both gold and silver were the American, London, London Extension and "North London" mines.

The yield from San Juan county in 1934 was 16,503 ounces of gold, 301,800 ounces of silver, 835,000 pounds of copper, and 1,868,000 pounds of lead, as compared with 23,474 ounces of gold, 389,642 ounces of silver, 1,184,000 pounds of copper, and 1,198,400 pounds of lead in 1933. The Sunnyside Mining & Milling Co.'s 1,000-ton selective flotation mill at Eureka, continued idle in 1934. The 550-ton Shenandoah-Dives selective flotation mill was in steady operation throughout the year 1934 on gold-copper-silver-lead ore.

In 1934 Eagle county maintained the lead it has held for several years over other counties in Colorado in the production of silver and copper, through the output of copper-iron-silver-gold sulphide smelting ore from the Empire Zinc Co. Eagle mine from ore bodies in the Leadville limestone formation, dipping northeastward under Battle Mountain, near Redcliff. Producing mines, other than the Eagle mine, included the Alligator, Ben Butler, Ground Hog, Pine Martin, and Star of the West.

Operation of the May Day mine and mill in La Plata county was continuous during 1934, and crude ore and concentrates were shipped to the Leadville smelter. The La Plata Mines Co. made regular shipments of ore from the Gold King mine during the year. Other producers included the Bessie G, Lucky Discovery, and Mountain Lily group. A new road was built to the long-idle Neglected mine on the east slope of the La Plata Mountains, near the head of Junction Creek; a concentration mill is planned.

At the Little Annie mine, at Summitville, Rio Grande county, development work was done in the mine, a 25-mile power line was built to it from Del Norte, and a 200-ton flotation-100-ton cyanide mill was completed and set in operation October 1.

Lake county (Leadville) in 1934 produced 15,165 ounces of gold, 90,360 ounces of silver, 1,169,000 pounds of lead, 93 pounds of copper, and 1,150,000 pounds of zinc, as compared with 10,727 ounces of gold, 35,989 ounces of silver, 1,010,000 pounds of lead, 15,000 pounds of copper, and 2,492,000 pounds of zinc in 1933. The Leadville district produced no iron-manganese ore in 1934. Some pyrite was shipped to the General Chemical Co., Denver, for its sulphur content. Gold ore was shipped from the Amity, Ballard, Eureka (at Twin Lakes), Fortune, Golden Eagle, Ixex, Lilian, Monarch, Resurrection and Venir mines. The Arkansas Valley smelter was operated continuously (one furnace) as a lead bullion

TIME STATISTICS ON 1932, 1933, AND 1934 PRODUCTION OF COPPER, GOLD, SILVER, LEAD, AND ZINC IN THE WESTERN UNITED STATES

State	Lead—Pounds		Zinc—Pounds		Total Value in Dollars				
	1932	1933	1932	1933	1932	1933	1934		
Arizona	2,364,300	3,442,540	5,800,000	11,024	1,689,000	13,535,935	10,307,893	22,711,300	
California	2,417,416	761,156	850,000	290,214	600,000	12,066,750	15,927,722	25,107,000	
Colorado	4,299,000	4,803,000	8,296,000	218,000	2,569,000	7,698,373	7,876,122	14,531,147	
Idaho	144,235,067	148,726,710	143,830,000	20,504,234	41,935,977	50,450,000	7,877,604	11,460,945	15,362,390
Montana	2,157,766	13,163,432	19,400,000	4,393,034	41,448,905	61,000,000	6,856,737	8,827,569	14,238,600
Nevada	880,986	4,606,732	21,600,000	254,795	12,774,550	27,000,000	5,067,171	5,452,300	12,164,000
New Mexico	20,227,000	22,086,000	20,225,000	51,186,000	61,848,000	52,808,000	4,734,683	6,229,637	6,843,816
Oregon	7,917	9,379	48,000	12,061	12,290	69,700	415,627	526,188	1,172,000
South Dakota	7,000	.....	.....	.....	.....	.....	9,965,256	13,140,936	16,901,202
Utah	34,000	6,000	570,000	.....	.....	.....	2,041	406	563,890
Washington	125,552,966	117,376,556	111,871,000	59,331,888	59,489,193	56,220,000	14,398,593	16,324,369	22,656,600
Wyoming	1,842,267	1,680,430	630,000	4,489,334	6,738,169	3,800,000	300,263	468,653	454,180
Montana	9,800	.....	.....	.....	.....	.....	5,679	56,322	172,152

32—Average metal values: Gold, \$20.671835 per ounce. Silver, \$0.282 per ounce. Copper, \$0.063 per pound. Lead, \$0.30 per pound. Zinc, \$0.030 per pound.

33—Average metal values: Gold, \$25.56 per ounce. Silver, \$0.35 per ounce. Copper, \$0.064 per pound. Lead, \$0.037 per pound. Zinc, \$0.042 per pound.

34—Average metal values: Gold, \$34.95 per ounce. Silver, \$0.646 per ounce. Copper, \$0.08 per pound. Lead, \$0.037 per pound. Zinc, \$0.043 per pound.

plant with subsidiary leady-copper plant during the year. The copper furnace installed in 1932 was not operated in 1934. A second lead furnace is prepared for operation.

The Climax Molybdenum Co., at Climax, miles north of Leadville, operated its station mill at an average of 4,000 tons a day until August 1, and at 2,800 tons a day from then on continuously throughout the year.

Aspen (Pitkin county) produced 14 ounces of gold, 105,770 ounces of silver, 6,000 pounds of lead, and 198,000 pounds of zinc, compared with 8 ounces of gold, 68,860 ounces of silver and 178,000 pounds of lead in 1933. The 1934 production came mainly from the Mid-Right flotation mill.

The silver mines of Mineral county (Creede) which had been idle since July, 1930, produced 484,079 ounces of silver and 168,000 pounds of lead in 1934. Among the producing mines were the Methyst, Commodore, Corsair, and Molokai.

Gunnison county in 1934 produced 2,900 ounces of gold, 13,434 ounces of silver, 1,000 pounds of copper, 59,000 pounds of lead, and 43,000 pounds of zinc, compared with 320 ounces of gold, 135 ounces of silver, 1,300 pounds of copper, 163,000 pounds of lead, and 60,000 pounds of zinc in 1933. The principal producer of gold was the Carter Mine Co., which operated its mine and mill in the Gold Brick district continuously during 1934.

Two dredges in the Breckenridge district, one operated by the Continental Dredging Co. and the other by the Tiger Dredgers Co., recovered 89 per cent of the gold and 29 per cent of the silver output from Summit county in 1934.

In 1934 the combined output of Clear Creek and Gilpin counties was 18,115 ounces of gold, 122,354 ounces of silver, 10,000 pounds of copper, and 715,000 pounds of lead, compared with a yield from both counties in 1933 of 9,655 ounces of gold, 36,572 ounces of silver, 10,000 pounds of copper, and 225,000 pounds of lead. The Clear Creek and Gilpin Ore Co., which had reopened its sampler at Idaho Springs in December, 1933, continued in 1934 to purchase ore concentrates from operators in both counties, and in July began treating ore at the company's new 75-ton concentration-flotation mill, built during the year as part of the sampler enterprise. The

Argo mill, also at Idaho Springs, was run part time and treated custom ores, as well as company ore.

The Chain O'Mines mill, at Central City, Gilpin county, was operated until March by the Chain Syndicate, was idle for several months, and was then started up by the Central City Gold Mines Co. and continued production for the remainder of the year.

Boulder county in 1934 produced 16,634 ounces of gold, 44,709 ounces of silver, 23,000 pounds of copper, and 102,000 pounds of lead, compared with 4,403 ounces of gold, 11,926 ounces of silver, 4,000 pounds of copper, and 26,000 pounds of lead in 1933. Custom ores were purchased during 1934 by the St. Joe Mining & Milling Co., both at the Boulder Ore Sampling Works at Boulder, and at its custom mill on Left Hand Creek, near Gold Hill. The mill was not operated the first four months of the year, but in May began treating ores purchased and ores from company mines, including the output from the Grand Republic mine after June, when this mine was leased and optioned to the St. Joe Mining & Milling Co. Until June the Grand Republic ore was shipped to the Golden Cycle mill at Colorado Springs. The largest producing mines in the county during 1934 were the Grand Republic, Wano, Wood Mountain, Slide (mine and mill), Big Horn, Poorman, Sugar Loaf, Lucky Star-Sakhrat group, Nancy group, Mount Pleasant, Little Johnnie and Home Sweet Home, Cash, Dime, Prussian, Hereafter, Logan, and Fairfax. In addition to those listed above, 122 mines shipped smaller amounts of ore to the Golden Cycle mill in 1934, compared with 62 in 1933.

The Humphreys Gold Corporation installed a traction land dredge and additional machinery and continued operation of its placer in the bed of Clear Creek, below Forks Creek, and produced the bulk of the gold from Jefferson county in 1934.

IDAHO

The value of the gold, silver, copper, lead, and zinc produced from mines in Idaho in 1934, according to estimates by C. N. Gerry and T. H. Miller of the United States Bureau of Mines, was \$15,362,390 compared with \$11,460,945 in 1933, an increase of \$3,901,445 or 34.04 per cent. There were substantial gains in the output of gold and zinc and a

small increase in the output of silver; the output of lead decreased 3 per cent, and the output of copper decreased slightly.

The output of gold increased from 64,592.23 ounces in 1933 to about 86,600 ounces in 1934, an increase of about 34 per cent. Calculated at the rate of \$34.95 per fine ounce, the value of the 1934 production was \$3,026,670. Nearly all the increase in the gold output (more than 22,000 ounces) came from lode mines, as the output from placers was about the same as in 1933. The Boise-Rochester property of the St. Joseph Lead Co. in Elmore county, by far the largest gold producer in the state in 1934, increased its output more than 12,000 ounces over 1933. Substantial increases in lode-mine gold were also made at the Talache at Quartzburg, the Comeback at Pioneerville, the Four Square at Murray, the Golden Chariot at Silver City, and the Grunter at Shoup; a decrease of about 1,700 ounces was reported at the Gnome property near Elk City. The Yellow Pine Co. at Stibnite, Valley county, produced about the same quantity of gold in 1934 as in 1933 and retained its position as the second largest gold producer in the state. The Idaho Gold Dredging Co. and the Warren Creek Dredging Co., both near Warren, Idaho county, followed in order, both dredges reporting a decrease from 1933. Other large producers of gold were the McFarland placers in Boise county and the Gnome, Lone Pine, Comeback, and Talache mines.

Idaho was again the largest producer of silver in the United States, followed by Utah. The output of silver in Idaho in 1934 was about 7,310,000 ounces compared with 6,987,960 ounces in 1933, and the value increased from \$2,445,786 in 1933 to \$4,722,260 in 1934, due chiefly to the increase in silver price from 35 cents an ounce in 1933 to 64.6 cents in 1934. There was a decrease of about 450,000 ounces of silver from the Bunker Hill & Sullivan mine at Kellogg, but substantial increases were recorded at all the other large producers of silver in the state. The Sunshine Mining Co., east of Kellogg, increased its silver output slightly and maintained its position as the largest silver producer in the United States. Other large producers of silver were the Hecla, Bunker Hill & Sullivan, Morning Crescent, Boise-Rochester (Elmore county), Page, Golconda, and Gold Hunter

one of the leading gold producers in the district and county. Ore from the mine was largely treated in the Mammoth 40-ton amalgamation-flotation mill at Silver Peak, 11 miles from the mine, although some shipments of higher grade ores were made to Salt Lake City via Blair Junction. The small cyanide plants were also active part of the year at Silver Peak treating old mill tailings.

At the old camp of Hornsilver (now Goldpoint), 30 miles south of Goldfield, the Ohio Mines Corporation were rehabilitating the mines and started installation of equipment for the cyanidation of 100 tons of ore a day. This mill is expected to be in operation in the early part of 1935. The Caliente Cyaniding Co. in the Delamar district, Lincoln county, completed a 150-ton cyanide plant for treatment of the old Delamar dumps which were reported to contain about 1,500,000 tons of tailings. Gold ore was also mined and shipped from the Elko Prince mine in the Gold Circle district, Elko county, and there was considerable activity at the Pony Meadows mine in the Palmyra or Como district, Lyon county. The Dixie Valley gold property in Churchill county was equipped with a mill and some bullion was shipped.

The output of silver from mines in Nevada in 1934 is estimated as 2,700,000 ounces, valued at \$1,744,200, a gain of 1,551,379 ounces and \$1,342,183 compared with 1933. The reopening of the Tybo mines of the Treadwell Yukon Co., which remained closed throughout 1933, made Tybo one of the largest silver-producing districts in the state in 1934; the company was also the largest individual producer of silver. The Tonopah Mining property was the next largest source of silver, followed by the Pioche mines of the Combined Metals Reduction Co., the Bristol Silver Mines Co., and the Arizona Comstock Corporation. The Ely or Robinson district contributed considerable silver as a by-product from the treatment of porphyry copper ores and also notable amounts from siliceous ores mined in the Reno City area and used as flux at the McGill smelter.

Installation of a new plant to treat the waste from the old cyanide plant of the Tonopah Mining Co. at Millers was completed by the General Metals Recovery Corporation and shipments of precipitates were made to the Selby smelter. Equipment for a slime plant was being installed during the latter part of the year. Approximately 2,000,000 tons of tailings in which the values are mostly silver with subordinate amounts of gold are available on this property.

The production of copper from mines in Nevada in 1934 is estimated as 41,000,000 pounds, valued at \$3,332,000, an increase of 13,160,390 pounds and \$1,000,665 compared with 1933. The Robinson district, White Pine county, continued to be the chief copper-producing section in the state. The balance of the output was largely a by-product from gold and silver mines, mostly from the Battle Mountain and Bullion districts, Lander county, and lead concentrates shipped from the Tybo district. Ore from the Bristol Silver property carried some copper.

The lead output from mines in Nevada increased from 4,606,732 pounds in 1933 to an estimated total of 21,600,000 pounds in 1934, and the value increased from \$778,449 to about \$799,200. This large increase was due to the resumption of

mining by the Treadwell Yukon Co. and shipment of lead concentrates from its Tybo property. In the Pioche district the Combined Metals Reduction Co. shipped ore to its concentrator at Bauer, Utah, and was one of the largest producers of lead in the state. The Bristol Silver Mines Co. was the next largest shipper, followed by the Prince Consolidated Mining Co. Leasers on the Richmond Eureka shipped lead-silver ore during the midyear.

The output of zinc in Nevada in 1934 is estimated at 27,000,000 pounds, valued at \$1,161,000, and came entirely from the ores mined in the Pioche and Tybo districts. The output in 1933 was 12,774,550 pounds, valued at \$536,531.

NEW MEXICO

Eleven months actual mine production with an estimate by the mine operators for December indicates that the output of gold, silver, copper, lead and zinc from New Mexico ores and gravels in 1934, in terms of recovered and estimated recoverable metal, was 25,630 ounces of gold, 1,058,232 ounces of silver, 28,067,000 pounds of copper, 20,225,000 pounds of lead, and 52,808,000 pounds of zinc, according to Chas. W. Henderson, United States Bureau of Mines. These figures compare with a production in 1933 of 26,474 ounces of gold, 1,181,580 ounces of silver, 26,947,000 pounds of copper, 22,086,000 pounds of lead, and 61,848,000 pounds of zinc, and show a decrease of 844 ounces of gold, a decrease of 123,348 ounces of silver, an increase of 1,120,000 pounds of copper, a decrease of 1,861,000 pounds of lead, and a decrease of 9,040,000 pounds of zinc.

The gross value of the New Mexico metal production at average yearly prices of \$34.95 per ounce of gold, \$0.646 per ounce of silver, \$0.08 per pound of copper, \$0.037 per pound of lead, and \$0.043 per pound of zinc in 1934 was gold \$895,769, silver \$683,618, copper \$2,245,360, lead \$748,325, and zinc \$2,270,744, with a total of \$6,843,816, as compared with \$6,229,637 (gold calculated at \$25.56 per ounce) in 1933, an increase for 1934 of \$614,179, or 9.86 per cent.

The Chino Mines of the Nevada Consolidated Copper Company, at Santa Rita, and the mill at Hurley, which have been operated on a schedule of 15 days per month since 1932, were closed down in October, 1934, for an indefinite period. The full capacity of the Hurley flotation mill is 12,000 tons a day.

The Pecos mine, of the American Metal Co., on Willow Creek, San Miguel county, in its eighth year of production, continued to produce at about 550 tons a day. The ore minerals in this complex sulphide ore body are sphalerite, galena, chalcopyrite, and pyrite, and the gangue is a sheared micaceous diorite. The ore bodies are mined both by the cut and fill system and by square set stopes. The mine and mill are connected by a 12-mile aerial tramway. The capacity of the mill, selective flotation plant, is 600 tons a day. The mill in 1934 produced 37,320 tons of zinc concentrates and 17,009 tons of lead-copper-silver-gold concentrates, as compared with 41,110 and 19,466 tons, respectively, in 1933. This mine is the largest single producer of gold, of silver, of lead, and of zinc in New Mexico. Other producers of zinc concentrates were the Black Hawk (or Combination) selective flotation mill, at Hanover, operated continuously on zinc-lead-copper-silver ore from the Ground Hog mine, the Peru se-

lective flotation mill at Wemple, near Deming, operated the greater part of the year on zinc ore from Hanover, and the Empire Zinc Co. mine, Magdalena district, Socorro county, from which was shipped zinc-lead ore to Coffeyville, Kansas, for the manufacture of leaded-zinc pigments. Zinc concentrates produced in and ore shipped from New Mexico in 1934 amounted to 59,081 tons, averaging 53.87 per cent zinc, containing 63,661,916 pounds of zinc.

Increased shipments of gold-silver ore and concentrates were made from the Cooney-Mogollon district, Catron county and from Pinos Altos, Grant county. The Fanney mill at Mogollon was remodeled back to cyanidation from flotation, but the long-idle Last Chance cyanidation mill, at Mogollon, was remodeled to use flotation. During 1934, the Cooney Mining Co. took over a large acreage at Mogollon on the Queen vein system, idle for 30 years. This new company reopened the property, drove development workings, and built a 75-ton mill, which was enlarged late in the year to 200 tons capacity.

Production of placer gold during the year amounted to 2,242 ounces, most of which was recovered by the use of power shovels or draglines and specially constructed washing plants or centrifugal separators in the Hillsboro and Pittsburgh districts of Sierra county, the Central and White Signal districts of Grant county, the Mount Baldy district, Colfax county, and by individuals in the Jicarilla district, Lincoln county.

OREGON

The total value of the output of gold, silver, copper, lead, and zinc from mines in Oregon increased from \$526,188 in 1933 to about \$1,172,000 in 1934, a gain of 123 per cent, according to F. W. Horton and C. W. Merrill of the U. S. Bureau of Mines. The 1934 total value was the highest since 1920 and reflected the increased prices of gold and silver as well as the improved conditions in the industry that encouraged larger production throughout the state. Gold supplied approximately 97 per cent of the total value and silver almost the entire balance. Copper, lead, and zinc production was small and the aggregate value of these metals was less than \$8,500.

The gold output in Oregon in 1934 was about 32,200 fine ounces, valued at \$1,125,390 (\$34.95 a fine ounce), compared with 20,240 ounces, valued at \$517,326 (\$25.56 a fine ounce), in 1933. Placer mining, although hampered by water shortages, contributed the larger part of the output. The Timms Gold Dredging Co. in Grant county, the Howard Investment Corporation operating both in Grant and Baker counties, and the Rogue River Gold Co. in Jackson county were the outstanding producers of placer gold, although the latter company was shut down 7 months of the year due to lack of water. In western Oregon the production of placer gold came largely from Jackson and Josephine counties and, with the exception of the dredge output of the Rogue River Gold Co., was derived largely from small operations and sold to local banks and bullion buyers. In eastern Oregon the Empire Gold Dredging & Mining Co., Prairie City, Elliott placers near Baker, and the Doughty placers near Sumpter were among the principal producers.

The output of lode gold was principally from eastern Oregon, where the Cornu-

(Continued on Page 25)

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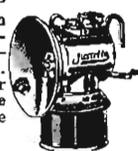
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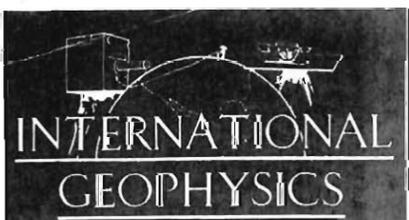
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## SECURITIES COMMISSION REQUIRES COMPLETE COMPLIANCE WITH LAW

The Securities and Exchange Commission announced that it obtained a temporary order restraining Plymouth Consolidated Gold Mines, Ltd., E. Andre Florian, and the Plymouth company from offering for sale any securities issued by Plymouth Consolidated Gold Mines, Ltd., in violation of the Securities Act of 1933. The order was issued by Judge John P. Nields in U. S. District Court for Delaware.

Counsel to the commission alleged that the defendants had been using the mails and channels of interstate commerce for the sale of securities without having on file with the commission an effective registration statement. It was also charged that the defendants sold stock without a prospectus that meets the requirements of Section 10 of the Securities Act.

According to the commission's complaint, the Plymouth Consolidated Gold Mines, Ltd., have been offering their stock for sale on an exchange basis since February, 1934, without having a registration statement on file. The stock was offered to stockholders of the Alvarez Mining Company and other companies, on an exchange basis. By the terms of the offer, the stockholders could exchange each share of their own stock, plus a cash payment of 25 cents, for one share of the Plymouth stock.

Plymouth Consolidated Gold Mines, Ltd., filed a registration statement with the commission on November 12, 1934, proposing to offer 2,000,000 shares of \$1 par stock. The registration statement has not become effective and the commission has begun stop order proceedings to prevent the statement from becoming effective, on the grounds of certain alleged misstatements of fact in the registration statement and the prospectus submitted.

## BIG HORN EXPLORATION INSTALLING EQUIPMENT

The Big Horn Exploration Company, Ltd., W. E. Wilson president and general manager, Essex, San Bernardino county, California, is installing a 200-horsepower Diesel engine, a 100-ton mill, and a 450-foot compressor, all to be electrically driven, at its Big Horn mine in the Providence mountains.

The company, during the past three years, has been building roads, completing underground development, which now amounts to some 2,000 feet, and blocking out ore reserves. In addition, the 20 miles of road leading from the mine to Essex are being improved.

A pilot mill was erected at the mine in 1932 and, by means of test runs of ore, an efficient and simple method of recovery by flotation has been worked out.

## RAVALLI GOLD MINING COMPANY TO ADD TO MILLING EQUIPMENT

The Ravalli Gold Mining Company, which recently completed a 50-ton mill near Hamilton, Montana, has found that some remodeling of the plant is necessary, and plans are being made for installation of a larger Gibson amalgamator. The mill, which is at present handling 25 tons daily, consists of crusher, rolls, Hardinge mill, classifier, Gibson amalgamator, plates and Fahrenwald flotation cell.

The new tunnel being driven in the mine is expected to open a body of mill ore within a few days. Average values are reported as satisfactory, with some high-grade nuggets to be found in the quartz.

Mine operations are directed by James Brickley of Darby, general manager, and Clarence Brown, mine superintendent. They are employing a total of 12 men in mine and mill. Company officials include: H. A. King, president; W. O. Fisk, secretary, and H. C. Packer, attorney, all of Hamilton.

## MINING INDUSTRY NEGLECTED BY FEDERAL GOVERNMENT

Charges that the Federal government has neglected during almost 20 years to capitalize the economic power of the mining industry for the sake of national welfare have been made in a report issued by a special committee of the American Mining Congress.

In the drive for industrial recovery during recent years, the report states, the government's major contact with mining has been through a small bureau which this year has a working fund smaller than those appropriated for 119 other federal agencies.

"Charged with protecting lives and aiding conservation of natural resources, the report declares, 'the United States Bureau of Mines has been neglected despite the fact that it serves an industry which pays federal income taxes at the rate of more than one hundred million dollars annually.

"While money cascades from the federal treasury into the laps of other industries, services essential to operation of the nation's second industry—and services which only the national government can render—are being grossly curtailed. Retention of these services is compulsory under dictates of laws enacted by Congress."

The Bureau of Mines, it is stated, today has less money than at any time during the past 17 years for use in protecting miners, conserving natural resources, providing industries that use raw materials with vital information, and promoting national defense. The sums of money made available annually to the bureau by Congress have decreased each year since 1928, according to statistical tables presented.

The report stresses the point that true economic recovery cannot be effected until full and productive governmental attention is devoted to "the industry which serves virtually all 'heavy industries'."

Continuing, the report declares:

"The mining industry does not seek a 'dole' from the federal treasury; it does not request 'benefit payments' in the meaning of that phrase as it has come to apply to other industries; nor does it ask to be subsidized. Rather, it simply raises the point that the federal government should not overlook its obligation to render services which long have been acknowledged to be vital and which can be rendered only by an agency outside the industry itself.

"The Bureau of Mines was forced by a particularly severe appropriations cut more than a year ago to discharge 15 per cent of its full-time employees and 15 per cent of its part-time employees, or 15 per cent of its entire working staff. Since that major cut in working force took place, other employees have been discharged for lack of funds. Meanwhile, the number of persons on the federal payroll has been increased by approximately 100,000 persons.

"At the same time, emergency units, such as RFC and NRA, like many 'olive-line agencies', have been forced almost entirely to depend upon the Bureau of Mines for basic information relating to mining.

"Valuable laboratory equipment, which at this moment should be serving in the effort to solve vexing and vital problems, stands idle because lack of funds has forced the discharge of trained men who long made productive use of it.

"Nine of the bureau's eleven specially-designed railway cars, utilized in placing mine-rescue crews and equipment with rapidity at scenes of mine disasters and used to provide miners and mine executives with first-aid and mine-rescue training, have been forced out of service.

"In some cases, technicians who have experience and abilities which stand unmatched have been forced to do common labor because the bureau's station staffs have been depleted beyond all reason. By the same token, unskilled men have had to assume tasks involving responsibilities above those they should be expected to face.

"Among the activities which have been and continue to be seriously affected by the pinch of 'economy' are many which have high humanitarian and economic importance. The following branches of the bureau's work are included in this group:

"Studies of falls of roof and coal in mines; investigations of explosions and explosives; first-aid training; chemical and metallurgical research; utilization of waste gas; ventilation research; development of respiratory protective devices, and economic studies.

"In short, the federal government—while it spends thousands of millions of dollars—is willing to spend only one of those millions for the governmental unit which is charged with the advancement and welfare of the industry that is the source from which has come half of the national wealth."

**COLORADO MINE GROUPS  
REPORT SUCCESSFUL MEETING**

The fifteenth annual meeting of the Colorado Mining Association and the annual convention of the Colorado Chapter of the American Mining Congress were jointly held in Denver, in the large auditorium of the Continental Oil Building, January 14 and 15, and were attended by the largest number of representatives of the metal mining industry in the history of these mutually cooperative organizations. Many guests from other mining states were present, including representatives from Alaska.

Jesse F. McDonald, president of the state association, delivered an address of welcome, followed by official report of Secretary Robert S. Palmer. This report showed a progressive condition of the association and a rapidly increasing membership, results which may be largely attributed to Palmer's tireless efforts. The executive officers of the association were re-elected to serve another year—McDonald, president; Palmer, secretary, and Shrive B. Collins, treasurer.

The different meetings were addressed by noted geologists, metallurgists, mining engineers, and successful mine operators, besides explanatory remarks by official representatives of the federal government, including Baldwin B. Bane, executive administrator of the federal securities and exchange commission. His address was particularly enlightening as to the application of the securities act to mine loans.

Charles Henderson, head of the Denver unit of the U. S. Bureau of Mines, presented the statistical condition of the metal mining industry of the several states under his jurisdiction, which revealed the renewed activities in all gold-silver camps during the past year. State Mine Com-

missioner John T. Joyce gave a brief review of Colorado's mining expansion for 1934, incidentally stating that the mine payrolls had increased around 40 per cent during the 12 months. The Colorado School of Mines was ably represented at the various sessions by President M. F. Coolbaugh, Dr. C. A. Heiland, and Dr. M. H. Parker, both of the Geophysical department.

The sowbelly dinner at the Cosmopolitan Hotel was the finale of the two-day session, attended by approximately 700 guests. Serious and comic talks and numerous fun-making stunts and the music furnished by the school of mines silver band added to the prevailing spirit of jollity.

**FIRST BREAK COMES IN  
CALIFORNIA MINE STRIKE**

The Central Eureka Mining Company, Sutter Creek, California, has reached an agreement with mine workers in the strike which has kept the mine inactive since the first of October, and operations have been resumed.

By the terms of the agreement the owners will recognize the miners' union; differences involving wage scales and working conditions will be arbitrated, and workers will return to work pending arbitration. The company will gradually re-employ its 150 miners.

Operators of the Kennedy are still standing pat against union recognition and it is said that the mine has been closed down permanently. The Argonaut and Original Amador have as yet reached no decision, but it is understood the Argonaut management has an agreement under consideration and negotiations with the Original Amador are awaiting word from its owner.

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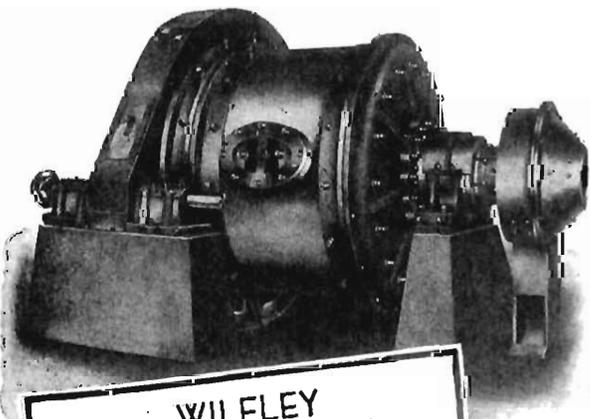
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## Nuggets from the Western States

*Some high spots of the mining industry in the Western United States and Mexico.*

### ARIZONA

A contract has been let for extending the mill tunnel of the **Oro Mine**, in the Oro Blanco district, Ruby, Arizona, to connect with the 150-foot level which was driven from the Julia Shaft. This work, when completed, will drain the old stopes and upper workings at the Oro mine. This connection will also make it possible to unwater the balance of the old workings and keep the mine permanently dry. It is reported that beneath the old stopes an ore shoot, four feet in width and averaging \$8 per ton in gold (at the old price), has been exposed on the 340-foot level. The property is owned by G. B. Williams, of the Geneva Daily Times, Geneva, New York, who has spent much time in its development.

The **Crown King Consolidated Mines, Ltd.**, Crown King, Arizona, reports the shipment of a carload of concentrates the first week of January. W. W. Edward, general manager, states that the last three carload shipments of ore have given net smelter returns of \$4,953.12.

The **Mellgren Mines Corporation** of Tombstone, Arizona, is making plans for the sinking of a 600-foot shaft, work to start within the next six weeks. The announcement was made by V. G. Mellgren, president of the company, who will be in direct charge of the work. Lateral work is scheduled for the 300 and 600-foot levels to open the fissure veins explored by shallow workings, the deepest of which is a 200-foot shaft. The entire development campaign is said to call for 2,500 feet of work. The company has been active in a small way for some time, producing from near the surface. The last car of ore shipped, in September, is said to have carried 47 ounces silver to the ton.

The **Gold Standard Mines Corporation**, Box 632, Kingman, Arizona, is treating ore from its Roadside, Arabian and Frisco mines in its recently constructed mill and is engaged in development work at the Sheeptrail group. The mill is handling approximately 400 tons daily. About 100 tons of ore daily are coming from the Roadside mine, which has been developed to a depth of 300 feet with a network of drifts on the 100 and 200 levels. At the Arabian mine the ore is blasted from the side of the mountain and loaded onto trucks by gasoline shovels. This is an enormous body of low-grade, said to average about \$4 per ton. In addition the Arabian mine has been opened by a 300-foot shaft, with drifts on the 80 and 300 levels. Water stands in the shaft up to the 200 level, but the company plans to dewater the mine and start active underground mining at an early date. About 50 tons of ore daily are being mined from the old stopes in the Frisco mine, nine miles east of the Colorado. It is planned to soon put in a power shovel and begin the mining of the large low-grade ore body, exposed on the surface. At the Sheeptrail group, development is in progress at the Minnie group where new ore bins have been completed. Earl Nieman is general manager of the company.

The **Gold Roads Exploration Company** has announced its decision to open the en-

tire eastern portion of its Gold Road mine to lessees. It is said that leases will be granted at several points where pay ore is known to exist. The 700-foot shaft will soon be unwatered and exploration started on the lower levels toward the west. The Gold Road mine is owned by United States Smelting, Refining and Mining Company. Present work is directed by L. H. Duriez, resident engineer and manager, Box 405, Oatman, Arizona.

Eighteen carloads of ore were shipped during December by the **Tombstone Development Company**, Tombstone, Arizona, production being the result of both company and leasing operations. At present the company is taking out a carload of ore daily from the new ore body recently opened in the Empire mine. According to Ed Holderness, superintendent, arrangements are being made to crosscut from the 500 level to cut this same deposit, opened originally in a crosscut on the 400 level, about 300 feet south of the shaft. During 1934 the property produced more than 1,000 ounces of gold and over 100,000 ounces of silver, as well as being one of the state's leading producers of lead.

A New York syndicate, headed by E. M. Elliott, has taken a bond and lease on the old **Harqua Hala** property, and has just completed a comprehensive geological survey and sampling of the property. About 700 samples were assayed by Chris Johnson of Salome, Arizona. If the examination results prove satisfactory, large-scale operations are planned with open-pit mining by power shovels, and a daily output of not less than 250 tons.

Capt. Jacob Conn, theatre and hotel man of Providence, Rhode Island, who is now located at the Wayne Hotel, Los Angeles, has taken a 25-year lease on the **South Vulture** mine, located directly adjoining the old Vulture property at Wickenburg, Arizona. A contract to sink a 150-foot inclined shaft, following the same pitch as the old Vulture glory hole, has been let to Pete Garcia of Wickenburg, Arizona. L. R. Goldbaum, 582 I. W. Hellman Building, Los Angeles, is consulting engineer and will direct the work.

The Arizona attorney general has asked the supreme court to determine whether \$46,309.20, representing dividends due "unknown" stockholders of the **Hull Copper Company**, shall accrue to the state school fund. The action is an appeal from the judgment of the Yavapai county superior court denying the state's claim. Dissolution of the copper company began more than 12 years ago, the company agreeing to pay all stockholders 27.7 cents a share in settlement. The greater part of the stockholders were located by Robert E. Tally, trustee, and their claims paid. The amount paid amounted to \$518,643.82, while the shares of the "unknown" stockholders are worth \$46,308.20.

The **Octave Exploration Company**, Octave, Arizona, is working the Bishop group of claims. A road is being built from the main highway to the mine and a contract for sinking a 300-foot shaft has been let to W. F. Groves and Sons of Prescott. C. T. Sullivan is general manager of the Octave Exploration, employing a crew of six men.

### CALIFORNIA

Gust Johnson has taken an option on the **Royal, Royal Extension and Gertrude** claims, in the Rossland district, six miles west of Jamestown, California, together with a three-year working lease. The terms of the lease require that operations begin immediately and that the main shaft now down 90 feet, be sunk an additional 100 feet. The lease and option was secured from A. S. and R. J. Anderson, E. G. Bateman, J. J. Merrill and G. A. Murphy.

The **Beebe Gold Mining Company**, Georgetown, California, a property of the Pacific Mining Company, was taken over formally on January 1 by the Alaska Juneau Mining Company, one of the largest mineral corporations in the world. After many years of inactivity, the Beebe mine was reopened in 1931 by the late Alex Wise of Reno, Nevada. It was taken over by the Bradley interests in 1932 and made a part of the Atolia Syndicate, now dissolved. From 1933 to the end of 1934 the property was held by the Pacific Mining Company, of which A. V. Udell, Crocker Building, San Francisco, is president. The Beebe mill, operating three shifts daily, is crushing about 175 tons of ore, 35 tons of which comes from the Alpine mine, also operated by the Beebe company. L. E. Putnam is superintendent.

The **South Fork** mine, Forest, California, has been equipped with a compressor and pump, and the channel recently encountered through a 100-foot shaft will be prospected. Nine men are employed, working two shifts. J. H. Morris is foreman.

The **Bald Eagle** mine at Railroad Flat, California, has been unwatered and extensive development work is planned for the immediate future. The mine is said to show a vein width of from 2½ to 18 feet. George H. Buyck is superintendent at the property.

Milling machinery is being hauled in to the **Mother's** mine, Bear Valley, California, being operated by Philip B. Dolman. An 80 horsepower semi-Diesel engine, a 360-cubic foot compressor and a six-foot Huntington mill are already on the property and a flotation unit is planned to treat the tailings after amalgamation. A new mess hall and cook house are also under construction.

Mill tests are being made at the **Hitchcock** mine near Jamestown, California, by Will Halloran, mining and metallurgical engineer, 303 North Eighth Street, Albuquerque, New Mexico. The tests are being made in a modern 10-stamp mill, equipped with vanners, flotation cells and amalgamation plates. Large scale development is planned soon, according to Halloran, and when sufficient ore has been developed and blocked out, the mill will be placed on an eight-hour basis.

Thomas A. Piper, Columbia, California, and Dan Calcote, Visalia, California, have purchased the **Shanghai** mine, Columbia, California, which they have been operating under lease and option for more than two years. During that time the property has been equipped with complete mining and milling machinery and development has been carried to a depth of 265 feet. An electric transmission line has recently been completed to the mine and operations are to go on a three-shift basis immediately. The shaft is to be continued to the 500 level, and the 232-foot south drift on the 265-foot level is to be ex-

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tended. Ray Dondero is mine superintendent and Al Ogle is mill superintendent. Piper recently acquired title to between 150 and 200 acres of land adjoining the Shanghai.

Rehabilitation of the old Jim mine near Graniteville, California, has been completed by the Jim Consolidated Mines, Ltd., and exploration of promising territory below the 200-foot level is under way. Some good ore is reported to be showing in the old workings, but efforts will be centered on locating the faulted segment of the main ledge. The property is equipped with a 150-cubic inch air compressor, operated by Diesel power, an electric lighting plant, machine shop, boarding houses and office buildings. Operations are directed by C. S. Columbus, president of the company.

The Indian Valley mine, Greenville, California, has completed installation of machinery and has started actual development. George I. Barnett, 2181 Wilcox Avenue, Oroville, California, is in charge of work.

The name of the Empress Gold Mining Company, Grass Valley, California, has been changed to the Republic Gold Mining Corporation, following a reorganization. E. C. Jacobs will continue as superintendent of the new company. A new 300-ton mill was recently placed in operation at this property with Ernest Wm. Ellis as mill superintendent.

The International Mining and Milling Company, Randsburg, California, under the direction of Tom Finnerty, general superintendent, is carrying on work in four mines, the King Solomon, Windy, Rand and Gold Bug. At the King Solomon the output is 65 tons daily, and shipments are also being made from the Gold Bug. The Windy and Rand mines have been cleaned out and renovated preparatory to resumption of work. A. G. Ihseng, 183 North Martel Avenue, Los Angeles, is president and general manager of the company.

The Jumper Gold Mining Company has been organized to take over the Jumper, Mazeppa, Golden Rule and New Era quartz mines in the Stent district near Jamestown, California. The new group is said to be planning large scale development, including installation of a 150-ton mill and cyanide plant. During recent months these mines have been under the management of J. W. Mullin of Jamestown, in association with E. H. Loose, 3615 Avalon Boulevard, Los Angeles.

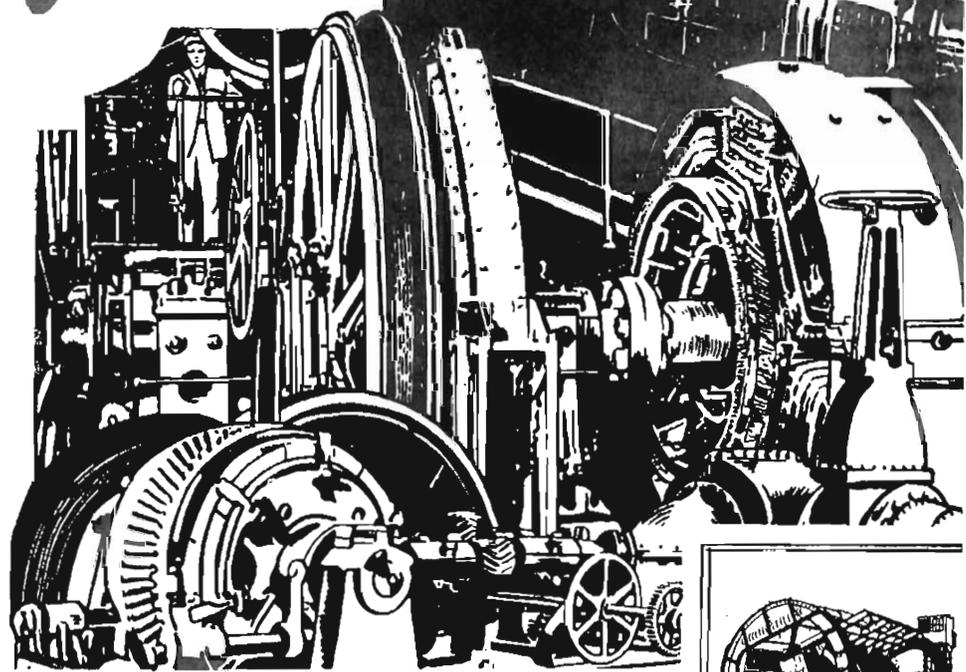
It is reported that development is to be resumed at the Feliciano mine at Midpines, California, which is being operated by the Gold Ledge Mining Company, Ltd. Work was suspended the latter part of November. A total of 1,200 feet of tunnel was driven last year with a view to tapping the vein on a lower level, but it appears that the tunnel was not continued a sufficient distance. H. Z. Peters, 869 Russ Building, San Francisco, is general manager of the Gold Ledge company.

The new 30-ton ball mill at the Juniper, Patricia and Yellowstone properties, Bear Valley, California, is nearing completion and electric power lines are being extended to the mines. Pending completion of this work the crew of 35 men has been reduced, but operations are to be resumed on a more extensive scale when the mill is in operation. Eight bunkhouses, an office building and a cook house have recently been completed. Warren Dutton is superintendent.

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It is reported that the **Mount Ophir** mine, Mariposa, California, which is under option to George I. Barnett and associates, is to be opened soon and placed on a production basis, with the Princeton mill at Mount Bullion, California, handling the ore output. This group is also said to have a lease on the Princeton mill. Barnett, who is located at 2181 Wilcox Avenue, Oroville, California, is also superintendent for the Indian Valley mine at Greenville, California. The Mount Ophir is owned by the Mariposa Commercial and Mining Company, Mariposa, California.

E. H. Wambold, Box 624, Victorville, California, has sold his **Liberty** mine in the Silver Creek district, to Wendall W. White and associates of Portland, Oregon. The new organization has completed a road to the mine and is also completing a 1,000-foot tram line. A compressor and mill are to be installed in the near future. White, whose address is Victorville, California, c/o Silver Creek, will be manager of the company.

Renee Birac, Loew's State Building, Los Angeles, California, who recently took a lease and option on seven claims near Mojave, California, plans to drive a 1,000-foot tunnel on one of the three veins located on the claims, with which a depth of 550 feet will be gained. At another point he plans sinking on one of the veins. Frank P. Baldi, 321 West Third Street, Los Angeles, is directing plans for the development work.

The **Mountaineer Mining Company**, Vidal, California, is installing a 25-ton flotation plant and has contracted with the Southwestern Engineering Company, 4800 Santa Fe Avenue, Los Angeles, for mill equipment, which includes a primary jaw crusher, Southwest ore feeder, Southwest ball mill in closed circuit with a Dorr classifier, a five by five-foot Southwest conditioner and a three-cell Southwest matless flotation machine, followed by a Dorr thickener and an Oliver filter. The plant is expected to be completed by March 1 or earlier. H. E. Olund, 1117 Citizens National Bank Building, Los Angeles, is operating the property under lease. Stewart Bryant is mine superintendent.

A rich silver strike is reported at the **Carbonate Queen** mine near Baker, San Bernardino county, California, which is being developed by Dr. H. M. Benson of Los Angeles and Victor VerBryck of Devore. The mine has been in operation for about three months and was producing a normal profit prior to the strike, which is said to show an average of 50 ounces of silver to the ton. The strike was made in crosscutting the lode at a depth of 40 feet in a 15-foot vein of ore. Gold and lead were also found in varying percentages. The ore is said to lend itself to economical quarrying operations, so that production costs are not expected to be excessive. The partners plan to proceed with development of the Carbonate Queen as a private venture, according to Dr. Benson.

The **Richstrike Gold Mines, Ltd.**, a Canadian company operating in the Redding, California, district, has completed preliminary development at the Pat Holland placer property near Carrville, and is now ready to wash gravel. A gratifying recovery was made last season during development, from overburden and old tailings material. At the Boswell mine, near Redding, a 50-ton mill was constructed and placed in operation during the past year and the company plans to continue

development of a number of old high-grade operations on this property, the principal work to be done on the Miner's Dream, Hercules and Hermit veins. The Richstrike company has also recently acquired the Yankee Jack mine, in the Redding district, and dewatering and reconditioning, which has already reached the 200 level, is to be continued to the 300-foot level.

A small crew of men is engaged in cleaning out the old Prescott Hill mine shaft on Osborne Hill, preparatory to re-opening of the property under the direction of the **Empire-Star Mines Company, Ltd.**, Nevada City, California. The shaft has been unwatered for more than 175 feet and debris is being removed from the shaft, which caved during a long period of idleness. A reconditioned hoist is being assembled over the surface entrance, and will be used until actual production is started. A new headframe was recently completed to replace the headframe and ore bins which were built more than 50 years ago. The old headframe, more than 100 feet in height, was brought down with a small charge of dynamite.

Unwatering and retimbering of the main 1,000-foot shaft at the **Melvina** mine near Coulterville, has been completed, old workings opened, and exploration of new territory begun. New equipment, including a hoist and pumps, has been installed, and surface buildings have been erected. The mine, which has been idle for 30 years, is credited with containing extensive deposits of ore which can be profitably worked at the present price of gold.

Banks and Maginnis, Inc., operating the **Turk** mine in Quartz Valley, near Etna, California, expect to have their 10-stamp mill in operation soon. A large amount of ore is now in the bins, awaiting treatment. Thirty men are employed at the property, which has recently been equipped with electric power by a line from the Morrison-Carllock mine. The ore body being worked is 20 feet in width and is said to assay \$20 per ton.

A second shift has been added to the working force at the **Donella** mine, five miles northeast of Tuolumne, California, and a total of eight men is now employed. The property is being reopened by E. M. Hotze of San Francisco, under bond and lease. The old Conde shaft, 126 feet deep, has been unwatered and substantially retimbered, preparatory to sinking an additional 100 feet and crosscutting to the ledge, a distance of about 75 feet. A new hoist building and headframe have been erected and the machinery and blacksmith shop transferred from the old shaft. J. B. Sivori, Tuolumne, is in charge of operations.

Machinery, including a hoist, compressor, blower and pump, is being installed at the **Hibbing** quartz mine near Soulsbyville, California, preparatory to starting new development work. The east drift on the first level, now 65 feet long, is to be extended. Eighteen inches of milling ore is said to be present in this drift. Raising and stoping from the west drift on the 185 or bottom level, where a body of ore 70 feet long and 30 inches wide is reported exposed, is also planned. Ray N. Irwin is in charge at the property, which is being operated under lease and option by Irwin, and Fred R. Warner.

A five-ton Gibson mill has been placed in operation at the **Diana** mine, near Mariposa, California, and operators report they are running on high-grade ore. Milling follows a development program

which has been carried on steadily since last spring. Newcomb J. McCarthy and associates are operating the property.

Installation of a new 30-ton ball mill is nearing completion at the Cranberry Rutherford mines, Incline, California, which are being developed by **Yosemite National Gold Mines**, John C. McGarry general manager, Box 17, Incline, California. A crew of 12 men is employed, and this number is to be increased when the mill goes into production.

Ten dollar bills amounting to approximately \$8,000 were distributed to employees of the **Empire-Star Mines Company, Ltd.**, Grass Valley, California, as bonuses the day before Christmas. About 800 miners and members of the office staff of the Empire, Pennsylvania and North Star mines at Grass Valley, the Murchie mine at Nevada City, and the Zeibright mine in Bear Valley shared in the gift.

In its program of increased activity, the **Rawhide** mine, Jamestown, California, has added a night shift to its working force and nine men are now employed. Ore bodies are being blocked out on the 200 level of the north shaft under the direction of Curtis Lindley, Jr., mining engineer. This work, it is said, will include drifting both northerly and southerly on the footwall ore body and crosscutting to and through the hanging wall ore body at intervals of 75 feet. The two veins, one 12 feet wide and the other 25 feet wide, are separated by 25 feet of Mariposite. The length of the ore bodies is not yet known. Development on the 300, or bottom level, is planned to follow at an early date and it is understood that a third shift will be added shortly.

The **Oro Grande Milling Company**, R. M. Matthey, superintendent, has completed construction of a 10-stamp mill just east of Victorville, to handle ore which is said to run \$4 to \$20 per ton. Concentrating tables are being installed and water has been piped to the mill. Eight men are to be employed.

The **Arroyo Seco Dredging Company**, which has been prospecting on Dry Creek near Ione, California, during the past year, is making preparations for production. Options are held on several properties, including the Tregaskis, Collins and Nicolini. A new type of steel boat will be assembled at Ione, requiring about 30 construction men. It will be of the pontoon type, manufactured in San Francisco, and will have a monthly capacity of 150,000 yards. Actual dredging work is expected to be started by the middle of May with a crew of about 15 men.

With a crew of 65 men, under the direction of Frank W. Royer, Hollingsworth Building, Los Angeles, vice-president and general manager, the **Kelly Gold & Silver Mines, Inc.**, Randsburg, California, is producing an average of 300 tons daily at the Kelly mine. A large output of low-grade ore has been run through the mill since the price of silver has advanced sufficiently to warrant handling. Several tons of ore mined from the old glory hole have also been run with profit. High-grade ore is being mined from the levels below the fourteenth, particularly the nineteenth, which was freed of water before operations began a little over nine months ago. The ore also carries some values in gold.

Two shifts are now employed at the **Climax** mine, being operated by the **Black Wonder Gold Mines Company**, Pine Grove, California, in developing and stoping ore on the new high-grade shoot recently discovered. A winze has been sunk on the

fig 1/4

for JANUARY 30, 1935

vein and blocking out of ore is in progress. The ore is being hauled to the mill recently erected at the Hardway mine, also operated by the Black Wonder company. A new electric pump has been installed at the Hardway and concentrators and rock crushers are being added to the mill. Frank Garbarini is superintendent of the company, which maintains headquarters at 921 Stock Exchange Building, Los Angeles.

The Golden West mine, 10 miles northeast of Sonora, California, is being reopened by A. Marsicano, 781 Green Street, San Francisco, owner of the property. Rehabilitation of the old 400-foot shaft is under way and upon completion a program of development will be started. Cabins for workmen and a blacksmith shop have been erected and some machinery installed. The property, which has not been worked for 30 years, was at one time completely equipped, including a 10-stamp mill, but none of that equipment is on the ground now.

The Apex Mining Company, W. D. Herzog, Box 96, Twain Harte, California, superintendent, has awarded a contract to A. Parsons, Sonora, California, for construction of a five-stamp mill, with foundations and housing for 10 stamps, at the Geraldine mine near Twain Harte, California. Work is to start as soon as delivery can be made on machinery and materials, a matter which depends on weather conditions, and must be completed within 40 working days after work starts. Charles B. Smith, 1244 University Avenue, San Diego, California, is president of the company.

A depth of 70 feet has been attained in the shaft being sunk at the Enterprise mine, Columbia, California, under the direction of J. E. Wynne, superintendent. The shaft intersected the old drift tunnel at 50 feet and it is planned to establish the next level at 150 feet. Two shifts are employed. Gasoline power is now being used, but it is understood that a change to electric power will quite probably be made in the near future.

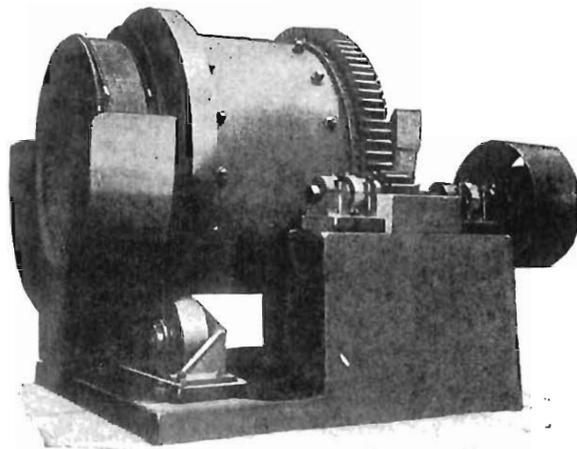
Preparatory to sinking the shaft to the 400-foot level, the California Standard Gold Mines Corporation, Jamestown, California, has bulkheaded the water in the north drift on the 200-foot level, which is the chief source of influx. A. F. Muter, 200 Lankershim Building, Los Angeles, is president and consulting engineer.

The gravel mill at the Iowa Hill Gold Mining Company, Iowa Hill, California, is being assembled rapidly and is expected to be ready for operation on or before February 15, according to A. F. Muter, 200 Lankershim Building, Los Angeles, consulting engineer for the company.

**COLORADO**

Blair Burwell, 1105 North Street, Grand Junction, Colorado, general superintendent of the United States Vanadium Corporation, states that the company has no mill construction under way at this time, despite various reports to the contrary. Plans for a mill near Paradox, Colorado, have been considered by the company, but actual construction will depend upon business conditions. The hydroelectric plant at Naturita has been reconditioned and repaired and a new salt plant built at Paradox.

Sufficient milling ore is reported blocked out at the Lady Eleanora Consolidated Gold Mines Company near LaPlata, Colorado, to justify the construction of a concentration plant, which officials plan to



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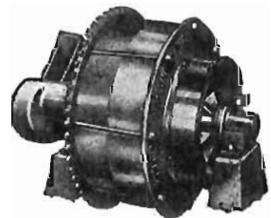
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A shaft is being sunk on a vein of ore at the **Stemwinder** mine, returns from which are reported to pay for operation of the mine. William H. Parr, Box 67, Republic, who is in charge of the property, intends to clean out all three of the old tunnels, and may drive an inclined shaft to tap No. 3 tunnel on the hillside. Nine men are working under Theodore Fassbender, mine superintendent. The property, which Parr holds on a three-year lease from A. C. Perrott of Spokane, is located in the old Phil Sheridan district and yields silver-gold ore.

#### WYOMING

Installation of a mill is being considered by Pete Erickson and Conrad Tranas of Laramie, Wyoming, for their claims on Devil's Gate Creek in the Jay's Roost district of Wyoming. Erickson is in charge at the property.

#### CONSOLIDATED GOLD FIELDS EXERCISES SILVER QUEEN OPTION

The Consolidated Gold Fields of South Africa has exercised its option on the Silver Queen mine, Mojave, California. A group organized by Gold Fields American Development Company, a subsidiary of Consolidated Gold Fields, under the name of the Golden Queen Mining Company of Delaware, has taken over the property and will be the operating company. W. C. Browning, 1214 Pacific Mutual Building, Los Angeles, California, has been appointed engineer in charge of development which, it is understood, is to proceed at once.

The Silver Queen was located by George Holmes in the fall of 1933, and a 60-day option was secured by Consolidated Gold Fields last November. The Silver Queen consists of only one claim, 18 acres, and is situated on the west slope of Soledad Mountain, about seven miles south of the town of Mojave.

Optioning of the Silver Queen by Consolidated Gold Fields brought a great influx of other mining interests, some of which are planning activities in the district. Among these operators is Senator Key Pittman of Nevada, who has optioned a group of claims, including the Soledad Extension No. 1, Hope Extension, Soledad Wedge and a part of the Southern Hope claims, owned by Tropico Mines, Inc. These claims have been assigned by Senator Pittman to the Mojave Soledad Mines Syndicate, Mojave, which is owned by Nevada Syndicate and Partners Mining Corporation.

Senator Pittman also optioned three claims on Soledad Mountain from Bert Fisher and these have been assigned to the Soledad North Extension Mining Syndicate, whose stock is owned by Nevada Syndicate.

The American Smelting and Refining Company has taken options on 400 acres of mineral land at Neenach, 12 miles east of Gorman, California, owned by William Mudget, and the scene of a recent gold strike. The company is also said to have acquired a substantial amount of property adjoining the Silver Queen.

An eastern syndicate, headed by Dr. Herman Baruch of the New York stock exchange firm of Hentz and Company, has acquired by direct purchase from the Southern Pacific Land Company, a subsidiary of the Southern Pacific Company, 600 acres in the Mojave-Soledad district.

The deal was handled through Walter Trent, Whitehall Building, 17 Battery Place, New York City, who has been examining properties in the district since

the recent Silver Queen strike. One of the quarter sections acquired is within 400 yards of the south boundary of the Silver Queen. The same interests have also purchased the Willow Springs ranch, together with all water rights, which is located near Rosamond, California, and adjoins the Rogers-Gentry claims. W. Rowland Cox, mining engineer, 120 Broadway, New York City, is understood to be at Mojave, prepared to start development work for the new interests.

#### NEW PLAN PROPOSED FOR U. S. GOVERNMENT TO DEVELOP MINES

A new measure for unemployment relief, being drafted by Senator James P. Pope of Idaho with the aid and advice of John Wellington Finch, director of the Bureau of Mines, will be introduced into the Senate. The bill is closely patterned along the relief lines laid down by the President in his opening address to Congress, furnishing employment to jobless miners, and is said to have the approval of Secretary of Interior Ickes.

Briefly, the plan of the Senator is to utilize those lands of the public domain now lying idle, shown by special surveys made by the Bureau of Mines to contain deposits of gold, tungsten, tin and chromite as well as certain other metals which are not now produced in sufficient quantities within the United States, for domestic consumption. It will be a non-profit making undertaking.

"Private industry has never sought and probably never will seek to develop these resources," Senator Pope stated. "Therefore it cannot be charged that the government is competing against industry. Further, it is my aim to have these deposits totaling hundreds of millions of dollars mined at approximate cost. If the government invests \$10,000,000 in these mining projects, it will receive \$10,000,000 back. At the same time it will put great numbers of unemployed miners back to work, take them from the relief lists, restore their morale and put back into circulation funds necessary for recovery. I should estimate that potentially a million men might be affected in those states where the public domain has vast areas, Idaho, New Mexico, Wyoming, Montana and other states. Further the work will be an important adjunct to American war-emergency resources."

Senator Pope was emphatic in stating that the wages to be paid to government-employed miners would not disrupt the union wage scale. "Prevailing wages in the vicinity should be the rule," he declared.

While exact details of the bill have not yet been decided upon, Senator Pope said various channels were open either through FERA, by earmarking new relief funds, or by attaching a rider on one of the new bills to be presented by Administration leaders shortly. The program is to be placed under the supervision of the Bureau of Mines with the advice and consent of the Secretary of the Interior.

At the Bureau of Mines, Dean Finch, eminent geologist and former Dean of the School of Mines, University of Idaho, stated that the plan was under his surveillance at the present time. "I think it extremely practical," Dean Finch said. "Large scale operations could be begun promptly and should have a far reaching effect both as a relief measure and as an economic step in the history of the country."

**THE METAL PRODUCTION FIGURES FOR 1934**

(Continued from Page 7)

Cornucopia Gold Mines, Inc., in Baker county, made the largest individual production in the state and did much development work, including driving 2,600 feet of a 6,200-foot tunnel to intersect the Whitman, Last Chance, and Union Companion veins 400 to 1,200 feet below existing workings; the company also erected a 400-ton flotation mill for the treatment of tailings. Concentrates from the Cornucopia ore were shipped to a smelter at Tacoma. The Columbia, Condor, and Red Bird mines in Baker county and the Cougar Ridge mine in Grant county were among the principal producers of lode gold in eastern Oregon. The installation of a 100-ton mill was started at the Oregon Copper mine on Balm Creek, Baker county.

In western Oregon the Chieftain and Huckleberry mines in Douglas county, the Ashland mine in Jackson county, and the Rainbow mine in Josephine county were among the principal producers of lode gold. Development work was carried on by new owners at the Continental and Hall mines in Douglas county. In Lane county new machinery was installed at the old Lucky Boy mine and shipments of ore were made from the Helena mine to a smelter in Salt Lake City. In the Jacksonville district there was activity in both quartz and placer mining and at the Ashland mine additional equipment was installed and a cyanide plant was under construction.

The output of silver in Oregon in 1934 was about 58,900 fine ounces valued at \$38,049, an increase of 38,440 ounces and \$30,783 as compared with 1933. Almost the entire production was a byproduct of gold mining. The Cornucopia mine in Baker county supplied over half the silver.

The output of copper in 1934 was about 41,000 pounds valued at \$3,440, a gain of 31,547 pounds and \$2,707 over the 1933 output. Most of the copper was a byproduct from gold ores from Douglas and Lane counties and from concentrates shipped from the Cornucopia mine, Baker county.

The output of lead from mines in Oregon in 1934 was about 48,000 pounds valued at \$1,776 compared with a production of 9,379 pounds, valued at \$347, in 1933. It was all derived as a byproduct from smelting gold ores and concentrates.

The zinc output in 1934 was about 69,700 pounds, valued at \$2,997, and came entirely from zinc concentrates shipped from Marion county. The production in 1933 was 12,290 pounds valued at \$516.

**SOUTH DAKOTA**

Reports from metal mines and receipts at smelters and the United States mint indicate that the production of mines in South Dakota in 1934 was 481,727 ounces of gold and 100,376 ounces of silver, according to Chas. W. Henderson, United States Bureau of Mines. This compares with the production in 1933 of 512,404 ounces of gold and 125,417 ounces of silver.

The gross value of the South Dakota gold and silver production in 1934 at average yearly prices of \$34.95 per ounce of gold and \$0.646 per ounce of silver

was gold \$16,836,359, silver \$64,843; total \$16,901,202

The Homestake mine, at Lead, Lawrence county, the largest producing gold mine in the United States, was operated continuously. The new 5,000-foot, three compartment, 13-foot by 19-foot Ross shaft, authorized Nov. 30, 1932, was completed and placed in operation during 1934. For 1933, this company's report showed 1,432,195 tons mined; the proceeds from gold-silver bullion by amalgamation followed by cyanidation of sands and slimes and a small quantity of laboratory slag were \$12,900,317; the dividends paid were \$3,767,400. From 1876 to 1933, inclusive, this mine has yielded bullion and concentrates which brought a cash return of \$266,294,806 after freight, express, insurance, mint and smelter charges are deducted, and has paid \$66,420,682 in dividends. Dividends in 1934 were \$7,534,800

**TEXAS**

Reports from metal mines and receipts at smelters indicate that the production of mines in Texas in 1934 was 368 ounces of gold, 816,623 ounces of silver, 30,000 pounds of copper, and 570,000 pounds of lead. These figures compare with a production in 1933 of 160 ounces of silver, 2,000 pounds of copper, and 6,000 pounds of lead.

The gross value of the output of gold, silver, copper, and lead in 1934 at average yearly prices was \$563,890, compared with \$406 in 1933.

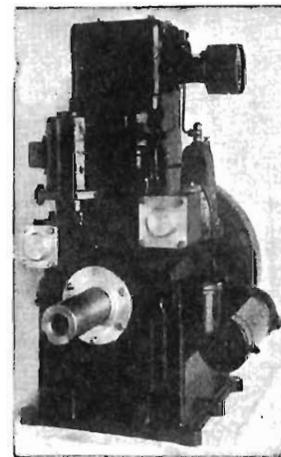
Upon the Presidential Order of December 21, 1933, fixing the price of silver for four years at \$0.646 per ounce, the American Metal Company decided to reopen its Presidio mine at Shafter, which closed June 30, 1930, when silver prices became too low for profitable operation. The mine was reopened January 1, 1934, and production started April 4, 1934. The increased silver price also induced the reopening of the Hazel mine, 16 miles north of Van Horn. Other silver mines near Van Horn and Allamoore were reopened during the year, and yielded smelting ore which was shipped to El Paso.

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Phoenix, Arizona, stock with  
Allison Steel Mfg. Co.**MILL CAPACITY AT BIG  
BLUE TO BE INCREASED**

The Big Blue mine at Kernville, Cali-  
fornia, is reported to be planning an in-  
crease in its mill capacity from 100 to 300  
tons daily, early in the spring. The Big  
Blue, which is being operated under lease  
and option by A. V. Udell, 1022 Crocker  
Building, San Francisco, and associates,  
has been running its 100-ton mill at ca-  
pacity and has been forced to lay off  
miners because of accumulation of ore  
beyond milling capacity.

Good progress is being made in sinking  
the three-compartment shaft, started on  
January 10, at a point 2,700 feet from  
the portal of the adit level. The shaft is  
reported to be in excellent values at the  
present depth of 47 feet. Unwatering of  
the A. S. & R. winze is nearly completed,  
the pumps handling approximately 1,150  
gallons per minute.

From August 1 to December 31 of last  
year, the Big Blue is reported to have  
produced and shipped to the smelter in  
excess of \$80,000 in gold concentrates.  
Byron E. Rowe is general superintendent  
of the company.

**MINES DEVELOPMENT CORP.  
STARTS WORK IN MONTANA**

The Black Friday and Hard Cash claims  
in the Radersburg district of Montana  
have been taken over by the Mines Devel-  
opment Corporation. Six men are at work  
unwatering the Black Friday to the 300-  
foot level, where a drift will be run to  
investigate a vein located by surface show-  
ings. A new hoist and other equipment  
have been installed.

The Hard Cash is being opened by sink-  
ing a winze on ore in the upper tunnel,  
and the lower tunnel is being put into  
condition, so that present operators can  
extend it into a faulted ore body missed  
by former owners.

The Mines Corporation is a new com-  
pany organized under the laws of the  
state of Michigan. Officers include:  
Thomas K. Scott, president, First National  
Bank Building, Boulder, Colorado; David  
H. Ladd, vice-president, 512 Madison Ave-  
nue, Birmingham, Michigan; and Lewis C.  
Kennan, secretary-treasurer, 1501 Semi-  
nole Avenue, Detroit. Herbert C. Shot-  
well, U. S. National Bank Building, Den-  
ver, is consulting engineer for the com-  
pany.

The company can issue 147,000 shares  
of class A stock with a par value of 60  
cents a share, and 147,000 shares of com-  
mon stock, par value one cent a share.

**INTERNATIONAL GOLD MINES, LTD.,  
OPERATES BOUNDARY RED MT. MINE**

A new company, the International Gold  
Mines, Ltd., with offices at 213 Stock  
Exchange Building, Vancouver, B. C., has  
been formed to operate the Boundary  
Red Mountain mine in Whatcom county,  
Washington. This mine was formerly con-  
trolled by George Wingfield of Reno, Ne-  
vada, from whom the new group acquired  
it.

A. H. Westhall, who was superintendent  
under the Wingfield interests, will be in  
charge of operations and the rehabilitation  
of the plant. Officers and directors of  
the company have not yet been definitely  
settled. The financial arrangements are  
being handled by Chalmers & Richardson  
of Vancouver.

There is a crew of 10 men repairing  
the power line and flumes for the power  
plant. The equipment in the plant is re-  
ported to be in good condition and of-  
ficials expect to have the power turned

on within a week or so. The power is  
hydro-electric developing 150 horsepower.  
A 50-ton mill on the ground will be over-  
hauled and put into condition immediately.

The Boundary Red Mountain mine is  
developed entirely by tunnels, with three  
main levels and several sub-levels. The  
property was producing until the first of  
1932. Ore contents are reported as free  
gold and a small amount of tetradymite.

**SMELTER AT TRAIL, B. C., REPORTS  
BIG INCREASE IN METAL OUTPUT**

The Consolidated Mining and Smelting  
Company at Trail, B. C., is reported to  
have had a metal output evaluated at  
\$19,562,173 during 1934. This production  
is said to be the second largest in the  
history of the smelter, and shows a gain  
of about 34 per cent over 1933, which  
was \$14,549,439, and a 65 per cent gain  
over 1932, when the value of production  
was placed at \$11,832,177.

Although the output is higher, lower  
prices prevailed for the smelter's chief  
base metals, lead and zinc. Every one of  
the seven metals produced at Trail showed  
an increase over 1933. Lead topped the  
list with 315,201,000 pounds, value, \$7,  
722,425, which exceeded the company's  
peak figure of 302,994,402 pounds in  
1930. Zinc came a close second with a  
total of 220,659,000 pounds, value \$6,  
818,981.

The gold output rose about one-third  
over 1933 and totaled 35,000 ounces,  
value \$1,201,200. Silver increased about  
30 per cent, amounting to 7,235,000  
ounces, value, \$3,393,215. Production of  
copper jumped nearly 300 per cent; that  
of cadmium, 19 per cent; and bismuth  
over 300 per cent.

The smelter also produced 94,800 tons  
of sulphuric acid, valued at \$897,756,  
showing a gain of 31,300 tons over 1933;  
and 83,700 tons of assorted chemical  
fertilizers, a gain of 23 per cent over  
last year's output.

**SHANGHAI MINE AT COLUMBIA  
PURCHASED BY OPERATORS**

The Shanghai quartz mine on Yankee  
Hill, near Columbia, California, has been  
purchased from the George Morgan estate  
by Thomas A. Piper, Columbia, and Dan  
Calcote, Visalia, California, who have been  
operating the property for some time.  
They have also completed a deal for pur-  
chase of between 150 and 200 acres of  
land adjoining the Shanghai mining prop-  
erty from Mr. and Mrs. E. B. Leonard  
of Sonora.

The Shanghai has been under lease and  
option to Piper for more than two years,  
during which time it has been developed  
extensively and equipped with a complete  
mining and milling plant, operated by  
electric power.

Underground work, which has reached a  
depth of 265 feet, is to be continued to  
the 500 level, and extension of the 232-  
foot south drift on the 265-foot level is  
also planned. The 10-stamp mill, elec-  
trically powered, is to go on a three-shift  
basis at once. The Pacific Gas and Elec-  
tric Company constructed a one and one-  
half mile electric transmission line to bring  
power to the mine, and individual motors  
have been installed for each of the several  
units of the mine plant.

A previously unknown ore shoot, 70  
feet long and three to four feet wide,  
said to run from \$20 to \$25 per ton, was  
encountered in driving the 232-foot south  
drift at the 265-foot level last November.

Operations at the mine are under the  
supervision of Ray Dondero, while mill ac-  
tivities are directed by Al Ogle.

the amount of lead exported with benefit of drawback (for which figures for only nine months are available), the new supply of lead made available for consumption in 1934 is calculated at about 296,000 tons, an increase of 21 per cent from 244,299 tons in 1933.

The average quoted monthly price for lead at New York was 4.00 cents a pound for the first three months of the year and rose to 4.18 cents, the highest monthly average, in April. From that level it declined gradually, reaching the low point of 3.57 cents for the year in November, and recovered slightly to about 3.60 cents for December. In 1933 the average monthly price for lead was 3.00 cents a pound at the beginning of the year, rose to a high of 4.50 cents in August and September, and then declined to 4.14 cents in December.

#### EFFECTS OF COPPER SULPHATE IN OXIDIZED GOLD FLOTATION

By Alfred B. Sabin  
Superintendent, Yellow Aster Mill  
Randsburg, California

In flotation it is quite often the unexpected detail or combination which solves the problem. The plan that changing one reagent may affect various other factors in surprising ways is well demonstrated in what follows.

At one time, the plate tails at the Yellow Aster mill at Randsburg, California, were treated by flotation using a rather complicated system of reagents including pine oil, cresylic acid, 301 xanthate, copper sulphate and a reconstructed oil made by cooking under pressure a mixture of pine oil, coal tar creosote and sulphur. A series of tests was made with these reagents, varying the time of conditioning. The results showed unmistakably that about five minutes gave both the best recovery and the highest grade of concentrate. More conditioning or less conditioning gave poorer results.

Variation in amounts of copper sulphate had a similar effect. Both in mill and laboratory, it was apparent that copper sulphate was a necessity, but in excess was harmful. This is also in accord with published articles dealing with the flotation of oxidized ores. Since the Yellow Aster ore is for the most part oxidized, it was natural, when attempting to simplify the mill operations, to use copper sulphate with other reagent combinations. It was also this use of copper sulphate which nearly sidetracked a simple solution.

A test had been made using Aerofloat No. 25, 301 xanthate and copper sulphate with poor results. Out of curiosity, this test was repeated except that the copper sulphate was omitted. It was gratifying that the results were slightly better than those obtained with the complicated and more expensive reagent combination.

And now again, the unexpected. When a series of tests was made using only Aerofloat 25 and 301 xanthate and the time of conditioning was made variable, it was found that the best results in every way were obtained with no conditioning whatever.

Mill practice has substantiated the laboratory predictions. Not only do the two reagents (as compared to five, originally) make operation simpler, more efficient, and less apt to get out of hand, but there has also been effected a saving on reagents of 2½ cents per ton. The elimination of the conditioner has made a small saving in power and feed equipment for other use. Both economies depend for their success upon the elimination of copper sulphate.

WILLIAM HENRY HARRISON\* discusses

## New Rules Under Security Act, 1933

*There is every reason to believe that the promulgation of the new rules, and especially Form A-2, by the Security Exchange Commission removes the last major objection to the Security Act of 1933. This step was taken a few days ago by the SEC. The old Form A-1, issued in January, 1933, by the Federal Trade Commission, will not be an obstacle to new financing in the future.*

Form A-2 offers some interesting features, which are changes from the old Form A-1. The changes affect the information required on the management and control of corporations, outstanding stock options, legal proceedings pending against companies and contracts outstanding at the time the application for registration is filed. The Form A-2 is much more liberal than Form A-1 with respect to those controlling the corporation and their emoluments and remunerations.

Under Form A-2 the name and remuneration of each director, and the name and compensation or remuneration of the officers receiving the three highest amounts of remuneration are required. The balance of the officers, with their remunerations may be lumped together, without giving their names or the remuneration of each, although the number of the officers, without their names, is required.

The number of employees, other than directors and officers, who received remuneration exceeding \$20,000 during the preceding fiscal or calendar year, must be given. They need not be named, but the character of the service rendered must be stated.

Under Form A-1 there had to be given the remuneration of every officer, director or employee who received in excess of \$25,000, during the preceding year, whereas under Form A-2 it is \$20,000. Under Form A-1 the information must be furnished for each person receiving the said compensation, without lumping them together as in Form A-2.

There appears to be one phase in the new Form A-2 which is more stringent, or exacting, than in the old Form A-1. This is in the option provision, or where persons are allotted more than 5 per cent of the total amount subject to option. They must be named in the new Form A-2, whereas under the old Form A-1 only those allotted 10 per cent need to be reported.

In the case of legal proceedings, however, the new form is much more satisfactory than the old, because it is more liberal. Under the new form only the

pending, and important or material legal proceedings need to be reported. A proceeding involving an amount less than 3 per cent of the assets of the registrant is not considered material. A corporation engaged in a particular type of business of such nature that it is subject to negligence litigation, etc., need not report such litigation, as it is not material. Under the Form A-1 all litigation had to be reported, if the value of the security was affected, that is the security to be offered.

The new form requires a brief and concise statement of certain contracts not made in the ordinary course of business, and of material patents, and royalty rights. Any substantial revaluation of assets on the dates laid down in the form must be submitted, together with information pertinent thereto. The new rules require financial statements be appended, but the requirements of the statement have been simplified sharply, and are made similar to those required in Form 10 of corporations whose securities are listed on the exchanges.

The registrant, under the Instruction Book accompanying Form A-2, is required to give information only in so far as known, or reasonably available. If the information is not reasonably available, either because of undue expense, or because it lies within the knowledge of other parties, the registrant may refer to such circumstances and may enter a disclaimer of responsibility for the accuracy or the completeness of the information given relating to that required by the particular item. This will operate to relieve the issuers, and their officers and directors from a possibility of civil liability in many instances. However, it is undoubtedly true that these statements will be scanned by the commission, and it will insist on the facts, if not given sufficient clarity in the Form A-2.

In these respects the new form is a much more liberal form than the old one, which allowed no leeway, and therefore was a source of complaint.

#### DRAPER MINE IS PREPARING FOR ACTIVE DEVELOPMENT

A crew of 20 men has been engaged in erecting buildings, installing machinery and preparing for active underground development at the Draper mine, Soulsbyville, California, operated by the Draper Vein Syndicate. Steel track and air pipe lines have been installed and the 60-foot winze on the 600 or bottom level has been completed. Following installation of a hoist, which is to be delivered at once, the winze will be sunk to greater depth.

Unwatering and rehabilitation of the mine was completed some time ago and development work in the ore body, exposed on the 500-foot level, is said to have proven the shoot for 80 feet. Assays on this ore are said to have run from \$100 to \$490 a ton, with the vein ranging from 12 to 16 inches in width.

A new compressor was added to the equipment recently and among the buildings being constructed are a compressor room, blacksmith shop and change house. A hoist building has also been completed. Frank L. Mitchell is superintendent at the property.

\*Consulting Engineer, Washington, D. C.

DR. JOHN W. FINCH\* outlines his

## Plans for Bureau of Mines Activities

Following his confirmation by the Senate as Director of the United States Bureau of Mines in the Department of the Interior, Dr. John W. Finch has briefly outlined certain plans for making the bureau a more useful agency, not only in connection with the recovery program of the administration, but also with respect to the mineral industries as a whole.

Because of the seriousness of the current economic situation, Director Finch intends for the immediate present to emphasize the activities of the bureau's economics branch, "which will be reorganized by realignment of facilities within the bureau of mines to concentrate the collection and distribution of economic and statistical data pertaining to the mineral industry in its broader aspects and to meet the requirements of the government's recovery program.

"In attempting to solve industrial problems, the national administration is faced with the necessity of so-called long-range planning—to provide better adjustment of production facilities in relation to consumption and distribution of commodities, the lack of which is generally accepted as the basis of our present-day ills." As Dr. Finch points out, "the success of any such forward-looking program—in which the interests of capital, labor, and the consuming public must be equally protected—will require the assembly of data on a much more orderly and thorough scale than has heretofore been attempted, in order to supply the industry, the government, and the public with all the facts regarding costs, work-hours, wages, selling prices, distribution, and marketing of mineral commodities and their primary manufactured products.

"So far as minerals are concerned, advance estimates of demand for particular minerals over definite periods of time are essential to the intelligent consideration of a planning program." Dr. Finch believes that such advance estimates "can best be made by the government in cooperation with private agencies, rather than by the private agencies alone, because the government can better evaluate and reconcile any differing estimates; the result will therefore command greater confidence. Furthermore, the collection of statistics affecting the mineral industries must be continuous and made on a uniform basis, for which the government is the better equipped. Moreover, conditions abroad are of more vital concern to our industries today than ever before, and the government is in the better position to secure and compare both foreign and domestic data and to make fact-finding studies of tariffs, cartels, and foreign mining laws and decrees, in order to obtain a clear picture of the international situation. And finally, the government—as representing the greatest good for the greatest number—is in a position to define clearly a just policy of conservation that must be an integral part of any long-range planning."

However, the new director does not intend to stress economic studies at the expense of other bureau work. "The mining industry, in general, and in the western

\*Director, United States Bureau of Mines.

mining states in particular, has urged the necessity of increased assistance in meeting problems resulting from low metal prices. The direction this can take is indicated by previous work of the bureau, which has helped in the past to discover or perfect improved processes and methods for the more profitable development of our mineral resources. To meet competition of richer deposits in other parts of the world domestic producers of several metals must in a large measure employ cheaper and better mining and metallurgical methods. New and cheaper production methods for domestic metals, threatened with foreign competition, must be vigorously pushed. New processes must be found, new uses created, new markets obtained."

Dr. Finch called attention to the fact that "the bureau of mines, like other bureaus, has been subject to drastic curtailment of appropriations as part of the general program of Federal economy during the lean years of the depression, which of course is a serious handicap to effective action. At present the bureau's funds are only about one-half of what it had in former times, say in 1929. A year and a half ago, it had to reduce its field activities 40 per cent—by discharging trained employes and discontinuing the many valuable services formerly rendered to the mining industry—to meet a cut of three-quarters of a million dollars." Dr Finch stated, however, that he saw some signs of hope for better times.

"Hundreds of letters have been received by the bureau protesting the discontinuance of many of its important functions and urging a broadening of its services. The bureau is back in the department of the interior where it belongs. It is in a friendly atmosphere. It will be able to carry on its association with the U. S. Geological Survey, and the General Land Office, and other people with whom it has to work. It has the interested cooperation of the Secretary of the Interior and men at his elbow, who are really deeply interested in the mining industry, and President Roosevelt has been developing a more and more interested attitude toward the industry. And so, although there will probably be only a very small increase in funds for the next year, and although the trail back to the old level will be hard and steep, it is undoubtedly true that the bottom has been reached as far as reduction of bureau appropriations is concerned, and that the future will bring increased funds rather than curtailment."

In discussing work which he plans to resume as soon as funds can be obtained, Dr. Finch mentioned explosives research, which was responsible for the development of comparatively safe "permissible explosives" for use in coal mines; recommissioning of the nine mine rescue cars which now stand idle on railroad sidings but which should be placed in service to render aid at mine disasters or to serve as bases of operation for training miners in first aid, in mine rescue and recovery operations, and in safety education; the study of methods of accident prevention, particularly with respect to falls of roof in mines; expansion of first aid training, which has been reduced to about one-half

its former activity; and the resumption of studies of health of miners and of sanitation in mining communities.

In the domain of technology, the Director looks forward to increased bureau activity in petroleum research, particularly in the work of preventing waste of petroleum and natural gas, during production, and in the study of refining methods to obtain new or better products; to restoration of studies of fuel utilization, including those on smokeless combustion, the use of pulverized coal, and the manufacture of gas, coke, and by-products; to extension of fundamental scientific research as a basis for the development of new methods and new processes; and to enlargement of the Bureau's service in the field of mining and milling methods and costs.

Referring to the bureau's functions, Dr. Finch pointed out that "the bureau has no regulatory powers, and desires none. It is not a bureaucratic organization directing the mining people what to do but, on the contrary, is an organization that endeavors to render friendly and cooperative service." To further these aims, the new director hopes to enlist the services of an advisory committee "in which labor, mine operators, and the consuming public will have full representation, and which will outline broad policies and lines of work that will enable the bureau to render truly effective service and assist in stimulating the far-reaching mineral industries and thus aid in national recovery."

### ARGONAUT MINE REOPENS FOLLOWING STRIKE SHUTDOWN

The Argonaut Mining Company, Ltd., E. A. Stent, vice-president and resident manager, Jackson, California, has reopened, after having been closed since October 2 due to a strike of mine workers. The mine was reopened on the same basis as that in force before the strike, with workers receiving the same wages and working under the same conditions. In view of the long shutdown, it is expected that some time will be required to unwater the mine and install ventilating equipment.

In its preliminary statement for the year ended December 31, 1934, the company reports a net income of \$315,189 after expenses and "other income," but before depletion, depreciation or income taxes. This compares with \$187,252 on the same basis in 1933 and \$9,843 in 1932.

After payment of income taxes, the foregoing amount is all available for dividends, inasmuch as the company's plant and equipment have been fully depreciated for several years, so that no depreciation charge against earnings is necessary. Depletion is deducted from capital surplus at the rate of 15 per cent of gross production, with the provision that the amount so charged for depletion is not to exceed 50 per cent of net income from the mine. This depletion policy has been approved for income tax purposes, and on this basis it is estimated that the company's net profit available for dividends ran close to \$290,000, or approximately \$1.44 a share on 200,000 shares of capital stock outstanding. This compares with a profit of \$174,252, or 87 cents a share available for dividends in 1933.

During the first nine months of 1934 the company mined approximately 69,000 tons of ore, the mine being closed down the remainder of the year due to the strike. In 1933, 89,700 tons were mined.

## Mill Heads from Western States

Brief items covering the mining industry in the Western United States and Northern Mexico.

### ARIZONA

The **Swastika Mines, Inc.**, a new corporation, has acquired the Swastika mine at Cleator, Arizona, and has a crew of 14 men engaged in both production and development work. The corporation is headed by H. H. Polk, president, 1200 Des Moines Building, Des Moines, Iowa, with G. M. Peterson, also of Des Moines, vice-president and secretary. O. I. Tawney of Cleator is mine superintendent, with Don S. Carpenter assisting as purchasing agent. The consulting engineer for the organization is Sydney T. Smith, 2611 North Vermont Avenue, Los Angeles. According to President Polk the company is preparing for mill installation at an early date.

**Molybdenum, Inc.**, P. O. Box 985, Tucson, Arizona, is mining and milling 25 tons of molybdenite daily from the property of the Helvetia Copper Company which it is operating under lease. The mine has been developed by tunnel and shaft to a depth of 500 feet, the main shaft having been deepened 100 feet recently, and is equipped with a 25-ton flotation mill. Power is supplied by a 110-horsepower Diesel. Officials of the company include: J. L. Fulton, president and general manager; D. C. Minton, mine superintendent, and V. A. Hanna, mill superintendent. The mine and mill crew totals 19.

The **United States Smelting, Refining and Mining Company**, exploring the Toughnut mine of the Tombstone Development Company, Tombstone, Arizona, is said to have penetrated a promising ore body on the 300-foot level. Two shifts are employed in the present work, directed by R. T. Walker, and a third shift is to be added at once.

**Comstock-Dexter Mines, Inc.**, Hillside, Arizona, completed the sinking of its main shaft, from a depth of 140 feet to 400 feet, on the sixteenth of January. This shaft is a three-compartment shaft, consisting of the hoisting compartment, counter balance, and manway. Since that date the company has been engaged in cutting stations at the 265 and 367-foot levels, which have been completed. Turn sheets, pipe and track are now being installed on all three levels, preparatory to crosscutting to the vein system. According to T. F. M. FitzGerald, manager, by the middle of February the company will start the development of the ore bodies on the lower levels, using two shifts for the work and employing approximately 25 men. Since April 20, 1934, Comstock-Dexter, in addition to the work in the mine, has completed the erection of bunk houses at the mine, placed its 250-horsepower Diesel plant in operation, and developed additional domestic water supply by the sinking of wells.

The **Tyro Mines**, operated by Wm. E. Whalley and C. F. Weeks, Box 257, Kingman, Arizona, are sending from 90 to 100 tons of ore daily to the new cyanide mill of the Gold Standard Mines Corporation. The Tyro has been a consistent shipper since its reopening in December of 1933, except for that period required for the rebuilding of the Gold Standard mill.

A lease on the Commodore mine of the **Commodore Gold Mines Co., Ltd.**,

Octave, Arizona, has been taken by Harold W. Hartman, 809 Orlando, West Hollywood, California. The Commodore, located three miles from the Octave mine which was recently placed on production by the American Smelting and Refining Company, has not been worked since 1909, and the 313-foot shaft is filled with water. A gold content of \$25 per ton is said to be indicated, the result of 29 surface samples taken. Hartman expects to start unwatering the shaft very soon.

At a meeting of the **American Mines and Metals Corporation**, formerly the Big Jim, several Arizona men were elected to the board of directors. Charles B. Flynn, Tucson, Arizona, was elected president; Ed Bohlinger, Patagonia, Arizona, secretary and treasurer, and B. J. O'Neil, Ajo, Arizona, a director. A. G. Keating, 301 Merchants National Bank Building, Los Angeles, who has been president of the company for some time, was made general manager and engineer. It was announced at the meeting that the company had acquired substantial property interests near the Silver Queen strike at Mojave, California.

The **Kullman McCool Mining Company**, Lee Reagan, president, Box 2856, Tucson, Arizona, is making arrangements for the immediate installation of a 25-30 ton capacity milling plant. The company's group of 20 claims is located near Hayden, Arizona, adjacent to the Seventy-Nine mine. Ore values are principally molybdate of lead and vanadium, with some gold and silver.

The **New Cornelia Branch of Phelps Dodge Corporation**, Ajo, Arizona, M. Curley, manager, is shipping from 240 to 250 carloads of concentrates a month to the company's smelter at Douglas, Arizona, making possible the maintaining of normal operations of one furnace at the smelter. New Cornelia is employing approximately 900 men, five days a week.

At the **Tom Reed Gold Mines Company**, Oatman, Arizona, the retimbering of the Ben Harrison has been completed to below the 400-foot level and will be continued to the 900-foot level where the shaft is now bottomed. It is general believed that the company will then let the contract for deepening the shaft to 1,400 feet. The present work is being done under contract by Frank V. Johnson, mining engineer, who is maintaining his headquarters at the Durlin Hotel, Oatman. Retimbering is done only on the night shift, as the shaft is used for ore hoisting during the day shift.

The **Quo Vadis** mine at Cherry, Arizona, reports the discovery of a body of high-grade ore in workings from the old 50-foot level. A carload shipment is being prepared. Development, consisting of two 100-foot tunnels, is being directed by Lloyd L. St. Johns and associates.

Retimbering of the upper portion of the main shaft at the United Western mine has been completed by **Consolidated Gold Mining Company**, and unwatering of the mine is underway. During the first two weeks of operations more than 2,500,000 gallons of water were expelled. The water stood in the shaft, which is 700 feet deep, to the 540 level. It is believed that no further timbering will be necessary. The shaft is being equipped with an

automatic skip, a 100-ton ore bin is being erected, and a new compressor has been installed. In the meantime three shifts of workmen are employed on the 500 level, cleaning out drifts and laying new track and pipe lines. Sampling of the entire mine will be started very shortly. Earl M. Wood, Box 417, Oatman, Arizona, is general manager of the company.

A milling plant is being erected on the **Socorro** mine, by A. B. Gilbert and R. M. Schmidt, Box 703, Salome, Arizona. Some shipments of ore were made last summer to the Phelps Dodge smelter, but during recent weeks efforts have been directed toward mill construction. Gilbert and Schmidt are said to own the largest share of the mine outright, and to have a lease and option on the balance of the property. Gilbert's home address is 3053 Edgely Drive, Los Angeles.

### CALIFORNIA

George C. and Grove L. Tyler, operating as Tyler Brothers, Bishop, California, have leased the **Sierra Vista** mine and 40-ton mill, and will operate the mill as a custom plant for ores from the surrounding mines. The mill will be overhauled and a new flotation plant installed. A number of the mines in the district will start operations as soon as the mill is ready. J. B. Forrester, formerly with the U. S. Smelter, will be mill foreman; Otto Schmidt will be mine foreman. Tyler Brothers also plan to place a number of leasers on the Sierra Vista mine.

Good progress is being made in driving the tunnel at the property of the **Tahoe Treasure Consolidated Mines**, Tahoe City, California, and the ledge of secondary enrichment which is exposed on the surface is expected to be tapped at about 200 feet. It is planned to drive the tunnel at least 800 feet by spring. The tunnel has been in gold bearing ore from the start and tests are said to have shown average values in excess of \$6 per ton in gold. The tests also indicated platinum values in concentrates of 4.26 ounces per ton and iridium, 0.06 ounces per ton. The tests were run by Techow Laboratories and checked by California McVan Company, both of Sacramento, California. A two and one-half mile power line has been completed to the mine and a recently installed air compressor is aiding the crew of eight men in driving the tunnel. S. E. Jones, 1047 Bond Street, Bend, Oregon, is vice-president of Tahoe Treasure Consolidated Mines.

Domingo Rolleri, Angels Camp, California, has taken an option on the **Tulloch** mine on Albany Flats near Angels Camp, which has been under lease to C. R. Watkins of Glendale, California. Rolleri plans to start development this month, the first work to be unwatering of the 800-foot shaft. This will be followed by cross-cutting and other underground work. The property is equipped with a gasoline hoist and several buildings. It is possible that this hoist may be replaced with an electric hoist at a later date.

A crew of four men is engaged in taking ore from the 330-foot level of the **Gracey-Glencoe** mine, Nevada City, California, which is being operated by L. W. Cheney. The 10-stamp mill at the property is to be placed in operation at once.

Operations have been started at the **Blue Light** silver and zinc mine in Silverado Canyon near Anaheim, California, by the **Hughes Mitchell Processing Com-**

ver 1197

pany of Torrance, California, which recently purchased the mine. A crew of 30 men will be employed when activities are under way, with O. H. Pember as superintendent. The mill has also been prepared for reopening at once. The Hughes Mitchell company is particularly interested in the zinc which it will handle at its new \$1,000,000 chemical and paint plant at Torrance.

Exposure of 300 feet of ore, averaging three feet in width, is reported at the Juniper, Patricia and Yellowstone properties, Bear Valley, California. The shaft is now about 80 feet below the adit level and plans call for sinking to a depth of 300 feet. A new 30-ton mill is nearing completion under the supervision of B. J. Godfrey, former superintendent at the Feliciana mine for the Gold Ledge Mining Company. The mill was designed by Godfrey. Warren Dutton is superintendent of the properties.

The 300-foot shaft at the Oro Rico mine near Coulterville, California, has been unwatered to a depth of 270 feet and extensive sampling is said to have given encouraging results. In addition to the shaft, the property is developed by about 1,100 feet of drifts. The mine, more familiarly known as the Pino Blanca, is being operated under option by J. C. Kemp Van Ee, 381 Bush Street, San Francisco, and associates. H. R. Lawson Midpines, Mariposa county, California, is superintendent.

A large body of ore has been blocked out in the Erin Go Braugh mine at Stent, California, property of the California Standard Gold Mines Corporation, Jamestown, California. The ore body is south of the shaft and was struck last July while exploring the middle vein of the Mother Lode. It was encountered on the 200 or bottom level and at that point measures 160 feet in length with an estimated average width of 15 feet. The property is well equipped for development, machinery including a Denver hoist, Chicago Pneumatic compressor and Sterling pump, operated by electric power. The company is still considering plans for installation of a 100-ton mill. A. F. Muter, 200 Lankershim Building, Los Angeles, is president and consulting engineer. Stephen Rowe is superintendent.

The Annie Laurie mine, located on the Foresthill road about four and one-half miles southeast of Colfax, California, has been leased and bonded by a group headed by R. W. Self, who will be in active charge as superintendent. Others interested in the property are A. B. Slater, San Francisco capitalist, and James M. Scarborough. According to Scarborough, a new 30-ton ball mill is being installed to replace a stamp mill which has been in operation for several months. Five men are employed.

The Idaho-Maryland Consolidated Mines, Inc., has paid a dividend of three cents per share on its common stock. The subsidiary company at Grass Valley, California, shipped approximately 43,656 ounces of fine gold for the year 1934 from its own production. New mill installations were in complete operation during December and tonnage handled was in excess of 10,000 tons for the month. Present work is on the 2,000 foot level. The Brunswick mill operated entirely on ore and development rock from the Brunswick property and the company reports sufficient ore is now being developed in that mine to insure a continuance of this operation over an extended period. Employees total 300 men.

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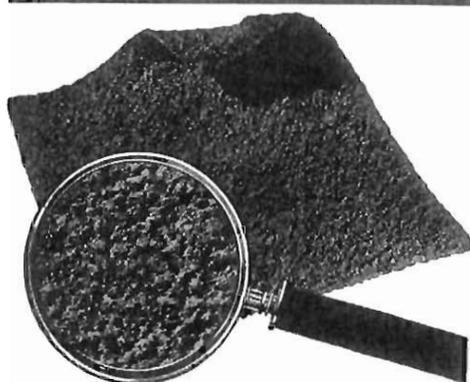
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Production activities have been suspended at the Miners' Hope shaft of the Whitlock Mines Corporation, Mariposa, California, pending complete overhauling of the mill. A new foundation is to be built for the stamp battery. Seven men are employed, under the direction of Martin T. Tressider, general superintendent.

The 1934 production of the Pine Tree and Josephine mines at Bear Valley, operated by the Pacific Mining Company, Bagby, California, is reported to have totaled \$250,000. This record is well ahead of the first two years under the present ownership.

Operations at the TWA mine, Auburn, California, formerly known as the Big Pine mine, are to be placed on a larger scale soon. The headframe has been completed and a reconditioned 65-ton mill purchased. The new mill, which is to go into operation about the first of March, will handle 35 tons of ore from the mine and 30 tons of custom ore. Four men are employed. Arthur N. Sweet is general manager, and Charles Hopper Brown, superintendent.

The Alabama California Gold Mines Company, Auburn, California, has a crew of 26 men working on the 200-foot level, extracting ore from a seven-foot vein. The 10-stamp mill is handling 35 tons daily. The Alabama has recently installed three flotation cells and is experimenting with an automatic feeder for the reagents used in the flotation process. William Anderson, Auburn, is president and general manager. G. B. Phillips, 4300 X Street, Sacramento, California, is superintendent.

A 180-ton cyanide mill is being installed at the Red Cross mine at Dobbins, California, to handle a large tonnage of low grade ore said to have been developed. Fletcher Hamilton, former state mineralogist for California, is in charge of operations.

The Great Butte Mining Company, a California corporation, has purchased the Steep Hollow quartz mine near Dutch Flat, Nevada county, California. Edward J. Mitchell, 1273 104th Avenue, Oakland, California, is president of the company and Percy A. Cannis is secretary. The transaction was handled by Page and Company, mine brokers, Oakland. According to Mitchell, the company will extend the present development program for about three months, following which mining and milling operations will be started. Five men are employed.

A new adit has been driven 320 feet on the vein at the Eller mine, 12 miles northwest of Redding, California. At 165 feet milling ore was encountered, it is reported, the ledge ranging from three and one half to five feet in width, and at 300 feet, high-grade ore was struck. The mine is owned and operated by Howard M. Huse, 1513 Market Street, Redding; G. E. Stone and Melvin Zeis, also of Redding, and C. E. Frishholz of Martinez, California.

Production at the Dairy Farm Gold Corporation, Lincoln, California, is being maintained at 100 to 120 tons a day, mining one shift. Recovery is made by a cyanide precipitation plant, treating gossan ore. All mining is done with trucks and shovels. A crew of 20 men is employed. Orrin P. Peterson, Lincoln, is president and manager.

Under the direction of R. O. Foster of the Hudson River Gold Mines, the Sweetwater mine near Mariposa, California, has been unwatered and cleaned up for examination. The property is equipped with a mill and mining machinery, which have

been rehabilitated for carrying on the exploration work and the development of the mine.

The Calaska mine in the New Year Diggings district near Merced Falls, California, has been acquired by A. G. Keating, 1116 Van Nuys Building, Los Angeles. The property, which was also known as the Mother Lode Extension, is fully equipped with a 10-stamp mill and other modern mining and milling machinery and has been developed by a 200-foot shaft with extensive north and south drifting on the vein. The shaft is being re-timbered and unwatered, under the direction of John Smeddle, superintendent.

An encouraging ore shoot has been encountered on the sixth level at the Central mine of the Lava Cap Gold Mining Corporation, Grass Valley, California, according to Otto E. Schiffner, superintendent. The Lava Cap mill is crushing about 200 tons daily. Additional surface equipment was installed at the company's Banner mine, made necessary by increased underground operations. This equipment included a 75 horsepower compressor, larger electric hoist, new motors and an enlarged skip. Paul Lagerquist is superintendent at the Banner.

The new headframe and 200-ton ore bin erected in conjunction with the trommel mill at the Blue Point gravel mine of the Gold Exploration Mining Company, Smartville, California, have been completed and placed in use. A crew of 30 men is employed. It is planned to have the mill on production by March 1. Milton D. Paine is superintendent.

Machinery and supplies are being shipped to the Gold Queen and Gold Bug properties on Soledad Mountain near Mojave, California, owned by Homer Black, 1364 Justin Street, Glendale, California. An extensive development campaign is planned by Black, who will supervise the work personally.

The Pacific Gas and Electric Company has completed construction of a power line to the Omar mine, Auburn, California, and a hoist and compressor are to be installed. Following this, sinking of the shaft below the present 100-foot level will continue. The project is backed by James W. Neill, 430 West Colorado Street, Pasadena, California, and associates.

A new organization to be known as Devon Gold Mining Company, has been formed by a group of San Francisco men, headed by Major H. Gooding Field of that city, and including Captain J. A. Tiffany, A. F. Gross, John D. Bosch, of Geyserville, California, and H. S. Backus of Los Angeles, for the purpose of developing and working a large porphyry deposit near Weimer, Placer county, California, to be known as the Devon gold mine. Mess hall and bunk house have been completed and other buildings are under construction, preparatory to active development. One side of the property slopes to the American River while the other rises to a considerable elevation. The latter side will be mined first by open quarry method with amalgamation and concentration of the free milling ore. Capt. J. A. Tiffany and A. F. Gross are in direct charge of development work at the mine.

The Virginia Placer Mining Company, headed by Robinson and Tharp, is equipping a \$15,000 drag and dredge near Lincoln, California. The boat contains only the recovery equipment, the gravel being hauled with the drag. Mining is on a 2,000-yard daily basis.

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Activity is noted on all sides in the district around Neenach, via Fairmont, Los Angeles county, California, a new gold district discovered by W. J. Rogers last year. A custom mill is said to be an urgent necessity in the district as only very high-grade ore can be shipped, due to the distance from the nearest available mill, located at Rosamond, California. The new tunnel on the McDonald lease on the McIntyre estate has been advanced to 150 feet and the hanging wall is expected to be cut at 250 feet. On the Phil Smith lease on the McIntyre estate the tunnel is in 180 feet with crosscutting both north and south from this point under way. On the Beach-Clinebell-Stearns holdings a shaft has been sunk to a depth of 65 feet, at which point a two-foot streak of ore has been encountered, said to assay from \$14 to \$25. A hoist and other machinery are to be installed on this operation immediately. Modern equipment has been ordered by the B. A. Young group for sinking a deep shaft on their holdings. They plan to establish their first level at 150 feet. On the Wiley and Reed lease a six-foot vein of sulphide ore was encountered on the 80-foot level, 20 feet south of the shaft, and ore from this vein is said to be running \$30 to the ton.

The Rainbow Mining Syndicate, Neenach, via Fairmont, Los Angeles county, California, operating mining leases on both the Rogers-Gentry and the McIntyre estates, has 16 men employed. The company has installed a second compressor and additional machinery is also planned to speed up work. Edwin H. Bauer is head of the Rainbow syndicate.

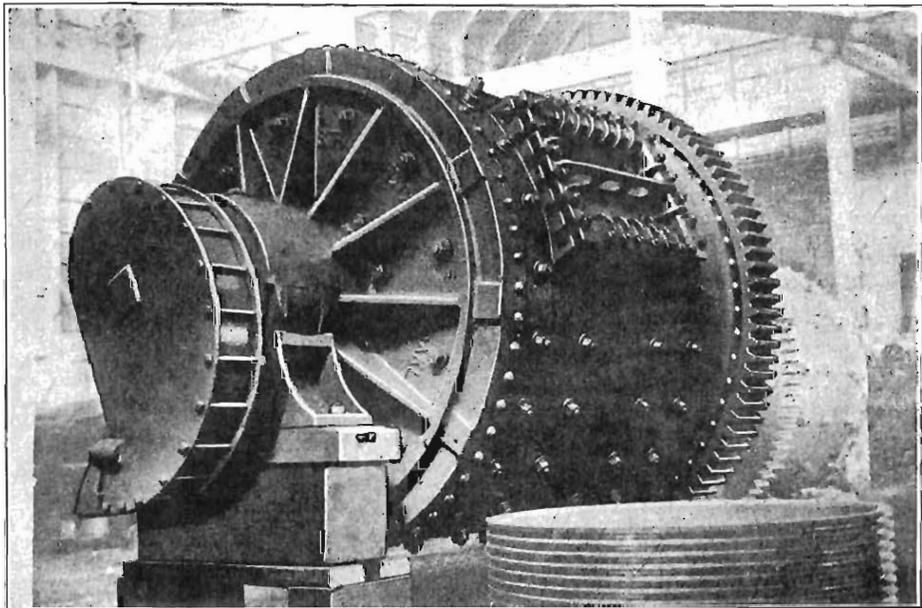
The Big Cliff placers at Chili Gulch, near Mokelumne Hill, California, have been taken over under a purchase option by E. A. Hayhow, 1858 South Sycamore Avenue, Los Angeles, and prospecting of the ground has been started, to be followed by vigorous development. Hayhow, with associates, is operating the Landis, Buffalo and What Cheer mines at Mokelumne Hill, California.

Kern and Kibbey, members of a contracting firm of Portland, Oregon, are operating the Davis placers on the Klamath River at Happy Camp, California. They are working three shifts and are using modern electrical equipment. The Davis property is owned by W. F. Davis, 427 J Street, Sacramento, California.

The Silver Divide Mining Company, Box 790, Las Vegas, Nevada, has acquired two claims in the Mojave, California, district, a short distance from the Silver Queen mine, recently purchased by Consolidated Goldfields of South Africa through the Golden Queen Mining Company.

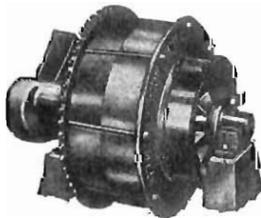
The Mojave Soledad Mining Syndicate, operating the Soledad Extension mine at Mojave, California, has completed a cement foundation for a compressor, which is to be the first of a large amount of new machinery to be installed at the property, according to E. E. Whiteley, superintendent. It is understood that the syndicate is also negotiating for the Tropico mine and the Burton Brothers mill at Rosamond, California. The Soledad Extension property, located on the Middle Fork of the American River, across from the extension was a Burton Brothers property.

A five-ton test run of surface ore has been shipped by the Sky Line Mining Company from claims in the Pine Tree canyon district, 18 miles north of Mojave, California. These claims were located following the Silver Queen strike, by Martin and Verne Moore of Cantil, California.



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2-15-35

The Soledad Consolidated Mines has been organized to develop 11 claims in the Mojave, California, district, and Dr. Roy Vernon, Denver, Colorado, one of the organizers, reports that in sinking a test shaft, a widening vein with good indications was exposed.

The management of the California Copper Corporation, 394 Mills Building, San Francisco, formerly one of the largest copper producers in California, but which has been in liquidation since 1932, has decided to enter the gold mining business. Much of the copper mining machinery is suitable for gold mining operations and the company is endeavoring to acquire a gold mining enterprise without a cash outlay, using its machinery in lieu of cash. Among the many projects which the company has been considering is the old Harvard mine at Jamestown, California. However, no decision will be made until a more detailed engineering study has been completed.

A heavy fall of snow has forced a suspension of activities at the Plumas Eureka property at Johnsville, California, and nothing more will be done until spring. At the mine proper, which is held under option to purchase by parties connected with the Bradley organization, work is expected to start in the spring on the driving of a long development tunnel. Coates and Radil, who have been operating a portion of the placer ground at the Plumas Eureka have completed a successful and profitable season. The gravel, handled by a yard and a half shovel, was put through a trommel screen before going to the sluice boxes. About 150 yards of fines daily were treated with an equal tonnage of oversize being discarded. Returns are said to have been about 90 cents a yard in free gold. An average value of \$5 a yard is said to be lost in the large amount of gold-bearing quartz contained in the gravel. The tailings are being impounded by dams and may later be milled.

The Gold Hill Dredging Company, Folsom, California, has made arrangements to start work on the Laird ranch, three miles south of Loomis. A camp has been established, a dredge pit excavated, and a contract has been given to the Moore Shipbuilding Company of Oakland for construction of a dredge. The Gold Hill company is also employing a testing crew on the Dr. Barton land, adjoining the Laird ranch.

The Cherokee Drift Gold Mining Company, Oroville, California, has completed installation of a 30-ton mill at the Cherokee mine, and a large hoist and 100-ton ore chute have also been installed. The 175-foot mine shaft has been cleaned out, ore bodies opened up, and milling is to start at once, according to C. G. Roth, superintendent.

A gas engine, compressor and water line are being installed at the Lonesome Pine mine, Tuolumne, California, and a crush-

ing plant is to be installed at a later date, according to George D. Connally, superintendent. The property, which is owned by Connally and associates, is being equipped for production. A recent mill test is said to have yielded one ounce of free gold to the ton. The Lonesome Pine adjoins the Paragon mine, in which Connally also owns a one-third interest.

The California division of water resources has issued a permit to the Maben Hill Mine and Milling Company, Auburn, California, for diversion of water from Wolf Creek for mining purposes. Estimated cost of the work is \$1,500.

The Ancho-Erie Mining Company, Graniteville, California, has made application to the California division of water resources for a permit to divert water from Poorman Creek for power and domestic purposes. It is planned to develop 290 H. P. Estimated cost of the proposed work is \$8,000.

The Palmer Corporation has taken a long term option on the Bowman Brothers holdings at Paradise, California. The property consists of an auriferous porphyry dyke which has produced a number of high-grade pockets but no attempt has ever been made to operate the mine except on a pocket hunting basis. A great

deal of prospecting and testing will be necessary to determine whether or no operations can be made profitable. Should preliminary operations indicate that this can be done successfully, the option will be closed and a plant erected of sufficient size to take care of a relatively low grade operation. John H. Bowles, Foresthill, California, is manager.

W. B. Longan, Box 292, Auburn, California, is unwatering and cleaning out the 90-foot shaft at the old Hannaman property in the Mt. Vernon district. The headframe, hoist and compressor being used in unwatering will be used for mining operations also.

The C. M. Langdon manganese property, located 18 miles north of Blythe, California, has been leased by Bradley and Ekstrom, 320 Market Street, San Francisco. It is understood that the lessees will put a force of men to work and start shipments on an extensive scale at once. Several cars of manganese have been shipped from the Langdon holdings.

A group of Los Angeles and Pasadena capitalists, headed by Charles F. Baker of Altadena, California, has acquired a lease and option on the Hope and Excelsior claims of the Grey Elephant mine, Mojave, California, owned by Goodwin J. Knight and associates. Equipment is being purchased in Los Angeles to place the claims on an active production basis and it is hoped to have operations under way early in March. Associated with Baker are R. K. Brudi, formerly of the Cerro Gordo mines, and R. L. Evans, both of Los Angeles.

Remington Hill Placers, Inc., Frank A. Crampton, general manager, Box 830, Nevada City, California, is removing gravel from tunnels where high-grade deposits were encountered in earlier explorations. The gravel is being trammed to the mine entrance and run through sluice boxes.

Lee Greene and a partner have reached a depth of 136 feet at their Top Nest mine, about 10 miles from Twentynine Palms, California, in the Dale district. They have also installed a small hoist and constructed a tramway from the top of the mine to level country where the ore can be loaded in trucks. When the shaft has been sunk to a depth of 200 or 250 feet, a tunnel is to be run in to intercept it, to eliminate hoisting operations. The ore has been trucked to Mojave in the past, a distance of 325 miles, but in the future will be sent to a new mill recently completed in the Dale district, about 10 miles from the mine.

A new vein of gold ore, running \$5 or more to the ton, is being developed in the Union mine at Eldorado, California, by the Goldfields American Development Company. J. E. Boyd, manager, Placerville, California. The vein, 20 feet wide and encountered during horizontal drilling operations, is said to be one of the largest

AVERAGE PRICES OF METALS  
(Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.344	66.781
1925	14.042	9.020	7.622	69.065
1926	13.795	8.417	7.337	62.107
1927	12.920	6.756	6.242	56.370
1928	14.570	6.305	6.027	58.176
1929	18.107	6.833	6.512	52.993
1930	12.982	5.517	4.556	38.154
1931	8.369	4.244	3.638	28.701
1932	5.792	3.181	2.881	27.392
1933	7.276	3.870	4.031	34.728
1934	8.658	3.8595	4.162	47.973
1933				
Jan.	5.000	3.000	3.015	25.400
Feb.	5.000	3.000	2.671	26.085
Mar.	5.256	3.148	2.997	27.928
Apr.	5.684	3.260	3.361	30.730
May	6.932	3.654	3.806	34.072
June	8.000	4.173	4.347	35.663
July	8.909	4.452	4.886	37.630
Aug.	9.000	4.500	4.909	36.074
Sept.	9.000	4.500	4.702	38.440
Oct.	8.253	4.316	4.744	38.190
Nov.	8.156	4.294	4.521	42.974
Dec.	8.125	4.142	4.470	43.550
Ave. 1933	7.276	3.870	4.031	34.728
1934				
Jan.	8.185	4.000	4.275	44.187
Feb.	8.000	4.000	4.452	45.233
Mar.	8.000	4.000	4.370	45.875
Apr.	8.393	4.184	4.871	45.180
May	8.500	4.1404	4.355	44.225
June	8.849	3.975	4.238	45.173
July	9.000	3.770	4.318	46.310
Aug.	9.000	3.7463	4.280	48.986
Sept.	9.000	3.679	4.057	49.484
Oct.	9.000	3.648	3.841	52.375
Nov.	9.000	3.567	3.732	54.255
Dec.	9.000	3.604	3.714	54.390
Ave. 1934	8.658	3.8595	4.162	47.973
1935				
Jan.	9.000	3.6923	3.728	54.418

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bodies of low-grade uncovered in the Eldorado section in recent years. The property is completely equipped for steady production and a crew of 60 men is employed.

Earl Seeley, Los Angeles mining engineer, has purchased the Sunshine group of claims near Redding, California, for a reported price of \$90,000. The claims are on Whisky and Rock creeks, two miles above old Shasta and about eight miles west of Redding, and more than 40,000,000 tons of \$6 ore are said to lie in the eight veins which extend for more than 7,500 feet through the claims. Immediate erection of a 1,000-ton mill is reported to be planned. The claims were purchased from J. F. Heit, Flora C. Snow, F. A. Zimmerman and Homer I. Reynolds of Redding.

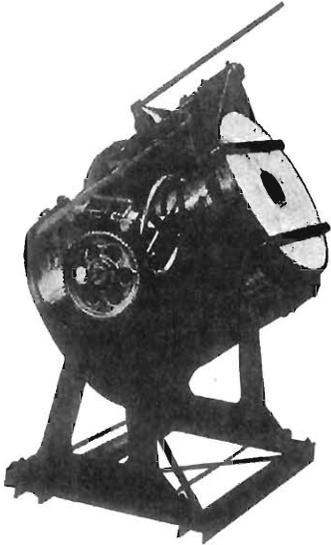
The shaft at the Marble Springs quartz mine, located one mile from Angels Camp, California, has been cleaned out and re- timbered to a depth of 100 feet, under the direction of E. J. Deaver of Vallicita, California. The property is said to show ore through the entire depth of the shaft.

**COLORADO**

Extension of the Black Diamond shaft another 100 feet is being effected by the **Las Gold Mining Company**, Cripple Creek, Colorado. The shaft is below the Sangre de Cristo tunnel and work is being done by Earl Robush, under contract. When completed the total depth will be 600 feet below the tunnel. John F. Shaw, P. O. Box 42, Cripple Creek, is superintendent. Robert E. Hibbert, 4050 Mountainview Boulevard, Denver, is one of the officials of the company.

A promising ore shoot on the Lucky Guss ninth level of the **Orpha May Mining Company**, P. O. Box 26, Cripple Creek, has been opened by Robert Hodges, sub-lessee. At present there are five sets of sublessees working on the Orpha May and 10 men working on company account. The company, of which N. M. Muir is vice-president and secretary, was formed by Muir of Tulsa, Oklahoma; W. R. Hamilton of Boulder; and Chester Naramore of New York. Hamilton, associated with Richard Hodges, obtained a long-term lease on the Orpha May ground from the **Stratton-Cripple Mining & Development Company**. Muir and Naramore interested capital in Minneapolis, St. Paul, and New York. Development operations have been under way during the past year. Johnson, Schone, and Rassmusen recently opened an ore shoot on the 13th level, which is reported to have settled for 1.72 ounces gold per ton.

An income of \$1,201,901 for 1934 is reported by the **Golden Cycle Corporation** at Cripple Creek, Colorado, operating one of the largest gold milling and refining plants in the world, a coal mine, a railroad, and an office building. Net earnings approximated \$6.23 per share on 192,837 shares of outstanding stock. This compares with \$584,624, or \$3.13 a share in 1933, and \$344,152, or \$1.80 a share for the year 1932. The annual meeting of the company was held at Colorado Springs and L. G. Carlton was re-elected president. E. P. Shove was re-elected vice-president and treasurer. Total dividends paid by the corporation up to the end of 1934 are reported to amount to \$12,194,737. During the month of December earnings of the company reached a high point of \$95,655. Tentative estimates of the net income for 1934 showed \$778,188.58, or approximately \$200,000 more than in 1933.



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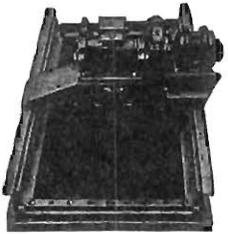
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bella Mining Company and invented a machine for separating flour gold, for which he received patent papers last year. The machine is said to require a third as much water as is necessary for sluicing and to be easily transported.

**John Reeves Goosman** of Fruitland, Washington, assayer for the Perdiver Mining Corporation, has changed his status in the A.I.M.E. from that of student associate to junior member. **Edward L. Heller**, junior mining engineer at the Eagle mine of the Empire Zinc Company, Gilman, Colorado, has made the same change, as has **Fred H. King** of Weeks, Nevada, who is field engineer in charge of operations at the Industrial Minerals & Chemical Company. **Walter R. Landwehr**, chief geologist of the Utah department of the American Smelting Refining Company will join the list of members.

**Major John F. Duling**, consulting mining engineer, 1125 Central Building, Los Angeles, California, has entered into an association with **Dr. G. Grossman**, eminent geophysicist of San Francisco, whereby they will cooperate in making geophysical surveys. Major Duling received his degree in mining engineering from the Mortana School of Mines in 1904 and has been active in mining circles for a number of years. Dr. Grossman is a graduate mining engineer of Heidelberg, Germany, and returned there in 1927 for his Doctor's degree in geophysics. He has since been successful in oil exploration in Oklahoma and during the past two years has entered the western mining field, where he has reported some interesting results in solving sub-surface structural problems. His geophysical equipment has been especially designed and mounted in a Packard car for portability.

#### DISTINGUISHED SERVICE MEDALS AWARDED BY MINING INSTITUTE

Three American engineers were selected by the American Institute of Mining and Metallurgical Engineers as recipients of the highest awards for distinguished service in the fields of mining and metallurgy in 1934. **George C. Stone** of New York received the James Douglas medal, **James MacNaughton**, of Calumet, Michigan, the William Lawrence Saunders medal, and **Francis M. Rich**, of Youngstown, Ohio, the J. E. Johnson, Jr., award. Presentations were made at the annual dinner of the American Institute of Mining and Metallurgical Engineers, February 20, in the Commodore Hotel, New York.

The James Douglas medal, awarded for distinguished achievement in the field of non-ferrous metallurgy, has been awarded in other years to such outstanding engineers as **William H. Bassett**, **Zay Jeffries**, and **Paul D. Merica**, the recognized authorities on alloys of copper, aluminum and nickel. This year's winner has been a member of the Institute since 1880 and from 1882 to 1929, when he retired, was connected with the New Jersey Zinc Company.

Stone's activities have been chiefly in chemistry and metallurgy of zinc, to the literature of which he has been a constant contributor. Eight important patents have been granted to him. He has observed practices in all important foreign plants and has done considerable research and study in the field of uses and marketing of zinc. He is especially interested, as a hobby, in ancient armor and arms, especially that of oriental countries, and is said to have the finest private collection in the world, from which he has contributed liberally to the Metropolitan Museum of Art in New York City.

The William Lawrence Saunders gold medal is awarded for distinguished achievement in mining. It has been awarded previously to **Herbert Hoover** and **John Hays Hammond**. This year's recipient, **James MacNaughton**, accomplished notable results in the field when he made profitable the working of a mine which prior to 1930 produced more than 3,000,000 tons of ore annually from a vertical depth in excess of 5,000 feet and with a copper content of less than 1.8 per cent.

**Mac Naughton** is president and general manager of the Calumet and Hecla Consolidated Copper Company and past president of the Lake Superior Mining Institute. He has also served as former treasurer and director of the American Institute of Mining and Metallurgical Engineers. He was educated at the University of Michigan and has spent most of his professional life in that state. He has had signal success in the development of the low-cost mining of iron ores.

The **J. E. Johnson, Jr.** award is given annually to engineers under 35 years of age who have distinguished themselves in iron and steel work. **Francis M. Rich**, this year's recipient, is connected with the Republic Steel Corporation, Youngstown, Ohio. He is a graduate of the University of Illinois in mechanical engineering.

**Thomas Arthur Rickard** of Victoria, B. C., Canada, was awarded the certificate of honorary membership in the Institute, "in recognition," according to the citation, "of his outstanding achievement as a proponent and preceptor of advanced standards in technical concept and writing, and his brilliant contributions to the literature of geology, mining and metallurgy, as editor, journalist and author."

**Rickard**, who has been a member of the Institute since 1888, combines to an unusual degree the qualities of a broad engineering background with those of journalist, editor, author and teacher of precision in the use of the English language. During his career, he has served as editor of three of the leading mining magazines of the world,—The Mining Magazine of London, The Engineering and Mining Journal of New York City, and the Mining and Scientific Press of San Francisco.

#### NEW CYANIDATION PLANT AT KENNEDY NEARING COMPLETION

Construction of the new 1,000-ton capacity cyanidation plant at the Kennedy Mining and Milling Company, Jackson, California, is nearing completion. Tests have been made in two tanks and lining of the tanks is the final item of construction. Work on this project was begun in July and during the height of construction, 40 men were employed. At present 25 are working.

The plant consists of 18 steel tanks, 42 feet in diameter and 12 feet high, and is 250 feet wide by 750 feet long. It was constructed to treat 1,500,000 tons of tailings which have accumulated during the past 20 years in the Kennedy's tailings dam east of Jackson. The company plans to work the upper tailings first, which contain 787,000 tons.

**Murray N. Colman**, metallurgical engineer of San Francisco, has been in charge of the construction, with **John Tavaskis** as foreman.

The Kennedy mine, closed since October 2, due to the strike of miners, reopened on February 22. The first crew was put to work pumping water out of the tanks on the 500 level, the clearing of water from the lower levels to start later.

#### Deceased

**William A. Udick**, 78, who was associated with **Bob Womack** in the Cripple Creek rush, died in Colorado Springs, January 29. He was a native of Pennsylvania and had lived in Cripple Creek.

**Doyle A. Stout**, 53, chief engineer of the mines and quarries for the Colorado Fuel & Iron Company, died in Pueblo, Colorado, February 10, 1935. Stout had been connected with the company for 23 years.

**Frank Thornton**, 78, owner of the Big Bug Copper Company, died at his home near Mayer, Arizona, on February 16. Death was probably due to injuries received from a fall. Thornton had been a resident of the state since a youth of 20, devoting most of his life to mining.

**Kirby Russel**, American pilot for Mexican Candelaria Mining Company, operating a metals and mail carrying plane service between Contra Estaca and Mazatlan, Sinaloa, met death when fire destroyed his plane. The accident occurred near the Brasiel landing field, San Ignacio.

**Erwin Luther Bartholomew**, mining engineer, died on February 5 at Calabacillas, Sinaloa, Mexico. Bartholomew had been connected with a number of Arizona mines, including the Congress and the Verde Central, and with many properties in Mexico and West Africa. He was operating a gold property at the time of his death. For a number of years he had maintained his home in Tucson, Arizona.

**Michael Murray**, 59, superintendent of the Dayrock Mining Company, operating in the Nine Mile district of Idaho, died at his home in Wallace, Idaho, February 5, 1935, following a three weeks' illness. Murray came west from New Jersey as a small boy, residing in Butte, Montana. He was at one time manager of the Mountain Consolidated mine of the Anaconda Copper Mining Company at Butte, and later was manager of the Morning mine at Mullan from 1915 to 1925.

**Albert Steinfeld**, 81, president of Albert Steinfeld and Company at Tucson, Arizona, died at his home on February 9. While engaging principally in the mercantile business Steinfeld's interests had been varied. He was associated with the Copper Queen Mining Company, before it was sold to Phelps Dodge, and was one of the original shareholders in the Ray Mining Co. He was largely responsible for opening such mines as the Silver Bell, Mowry, and many others. Throughout his 63 years of residence in Tucson, he was a dominant figure in many of the community's business projects.

**Wade A. Siebenthal** died at his home in Tucson, Arizona, on February 16, following a short illness. For a number of years Siebenthal served as safety engineer for the Morenci Branch, Phelps Dodge Corporation, opening consulting engineering offices in Tucson two years ago. He was a graduate of the University of Indiana and at one time was superintendent of mining properties operated by Cambria Midvale Steel Company at Republic, Michigan. During the World War he made extensive search for domestic manganese deposits for the United States Steel Corporation and is largely credited with the development of the Phillipsburgh, Montana, manganese mines. Failing health brought him to the southwest shortly after the World War.

## CALIFORNIA

J. A. Shields, county surveyor, Auburn, California, has four men employed on his **Josephine** mine, six miles southeast of Foresthill, California. A level is being driven to reach a shoot which was worked on four other levels. When this is reached there will be 360 feet of back.

Six men are employed at the **Peckham Hill** placer mine seven miles southeast of Foresthill, California, under the direction of C. L. Rowe, McKeon, California. A bedrock tunnel has been driven 2,540 feet and upraises have been started.

Included in the new underground development program at the **Draper Vein Syndicate**, Soulsbyville, California, will be the sinking of the main shaft an additional 200 feet as soon as development on the 500 and 600 levels has reached a more advanced stage. A crosscut in the foot-wall structure is to be extended to a parallel vein known as the West ledge, said to show good values on the surface. An old rehabilitated tunnel on the Yukon vein is also to be advanced. The Yukon vein parallels the main lode, 450 feet distant. Erection of a mill is also said to be planned for the property. Frank L. Mitchell is superintendent.

The **Dutchess** mine, in the Murphy-Vallecita district of California, has been purchased from the Lilly estate by a group of Long Beach men who optioned the property last April. The purchasers are Dr. John O. Eiler, 4211 Pine Avenue, Ross C. Richey, 117 Belmont Avenue, Long Beach, California, and H. A. DeVaux, vice-president and general manager of **Affiliated Studios, Inc.**, Hollywood, California. Walter B. Lenhart, mining engineer, Murphy, California, who is also interested in the mine, is in charge.

Work is expected to be resumed soon at the **Schwoerer** gravel mine, Murphy, California, under the direction of W. C. West, superintendent. A gravel pump in operation at the property was found to be too small and a larger pump is en route to replace it. Approximately \$10,000 has been expended in bringing in a power line, installing pumps and a washing plant, and in diverting Angels creek. Dick Bardsley is foreman.

The new 30-ton ball mill has been placed in operation at the **Cranberry-Rutherford** mines, Incline, California, being developed by **Yosemite National Gold Mines**, John C. McGarry, general manager, Box 17, Incline. Between 25 and 30 tons of ore a day are being handled and a crew of 12 men is employed. Ore is being stoped from the 100-foot level and a station is being cut at the 200-foot level. Milling operations follow several years of extensive development.

As a result of the discovery of promising ore at a point about 600 feet north of the present shaft at the **Remington** mine, Columbia, California, it is planned to sink a new two-compartment shaft. It is also planned to drive a drift from the proposed new shaft to the present one, which would accomplish the double purpose of developing the intervening ground and ventilating the workings. The five-stamp mill is being kept busy on ore from a stope in the south drift on the 270 level. F. B. Kollberg and D. F. Thompson are the operators.

A mill is to be operating soon at the **Permit** mine in the Whitlock district near Mariposa, California. The property is being operated by Nick Brocke, who has had the mine under development for several months.

After an idleness of several months, the **Guildford** mine at Placerville, California, is preparing to resume operations. The shaft is being unwatered and retimbering of the various levels is under way. The regular force of miners is to be re-employed. P. H. O'Neil is lessee; L. F. S. Holland, engineer and general manager, and William Christian, foreman.

Captain George A. Nihell, Nevada City, California, has bonded his mine property to J. A. Rust of Folsom, California, who has formed a company of Sacramento and Folsom men to operate the property. The new company will be known as the **Deer Creek Union Mining Corporation** with offices in Sacramento. Officers will be Samuel Holsinger, president; E. D. Rasterfer, secretary and treasurer, and J. A. Rust, resident manager. The company is reopening the drain tunnel preparatory to re-establishing the three-compartment shaft. Electric power is to be installed immediately and the mine reopened as rapidly as possible.

Concentrating machinery is to be installed at the **Moulton and Buswell** placer properties near French Corral, California, to facilitate handling of the gold bearing gravel. W. E. Moulton, French Corral, is operating these properties, together with the **Clerkin** gravel property at Birchville. The latter is a hydraulic project, and 2,000 yards of gravel daily are being handled.

Sinking of a 200-foot winze from the 900-foot east drift of the **Spring Hill Gold Mines, Inc.**, Grass Valley, California, is making rapid progress. Fred M. Miller is making surveys for a proposed connection of the Spring Hill workings with the **Golden Gate**, which the company recently acquired. Development of the Spring Hill is being done by H. R. Plate, Bret Harte Inn, Grass Valley, California. Clarence J. Harry is mine superintendent. Twenty-two men are working on three shifts.

The **Soulsby-Belle Mining Company**, Soulsbyville, California, is planning to sink the shaft an additional 200 feet from its present depth of 319 feet, according to Harry Bahl, president. 1921 East Tenth Street, Kansas City, Missouri. Operations at the property are on a two-shift basis with a total of 16 men employed. Between 15 and 20 tons of ore are being milled daily. Mr. Bahl spent some time at the property during January and February. John Brunton is superintendent.

The **Gold Crown Mining Company, Ltd.**, Twentynine Palms, California, is handling approximately 90 tons a day in its new mill, the process being sliming and cyaniding, with returns averaging 96 per cent, according to George A. Novell, president, Petroleum Securities Building, Los Angeles. The mill is at present taking ore only from three company-owned mines, but in future will also accept custom ore from neighboring properties. Edward Novell is general superintendent at the property, with O. M. Bartlett in charge of the mill and C. B. Van Wageningen as underground manager.

Timbering of the main shaft of the **King Tut** mine in the Gold Basin district north of Vidal, California, has been completed and a crosscut is being driven at the 100-foot level. The King Tut is being operated by the **Gold Seal Mining Company**, headed by J. H. Niquette, which, it is understood, holds a 30-year lease on the property. Additional machinery, including a hoist, mine cars and rails, is being purchased for the mine. Ore from the property is said to have averaged an ounce of gold to the ton.

A 90-ton shipment of ore from the **Dollar Bill** mine, located north of Vidal California, in the Gold Basin district, is reported to have brought an average return of \$26.75 per ton. Two shafts have been sunk, 700 feet apart, along the vein, one to a depth of 70 feet and the other, a two-compartment shaft, to a depth of 83 feet. Both are to be sunk to a depth of 100 feet and then connected by a drift. Average width of the ore is three to five feet with a high grade stringer on the hangingwall from three to 12 inches wide. The **Dollar Bill** was located in July, 1932, by W. R. and H. A. Baird and is now owned by A. M. Hall, W. R. and H. A. Baird. Practically no work was done in 1934 but the owners are now planning to finance the property and install machinery. All previous work has been done by hand.

A new Rix compressor and a Cochise jackhammer have been placed in operation at the property of the **Whipple Consolidated Mining Company**, located in the Willow Springs district near Vidal, California. Timbering of the main shaft is in progress and a car of ore is being taken out for shipment to the Salt Lake City smelter. At a meeting of officials of the company recently a new advisory board was elected, composed of William E. Bell, D. M. Siddell and Wilfred Watkins, the latter being appointed manager of the mine. Prosper Sioncke was made mine superintendent.

It is understood that the Securities and Exchange Commission at Washington has approved the application of the **Amador Mother Lode Mining Company**, Jackson, California, for permission to issue 1,000,000 shares of 5 cents par value. This action, it is said, opens the way for continued aggressive development of the company's property. The north drift on the **Pocahontas** shaft, out 280 feet, is to be extended an additional 200 feet, where it is planned to raise to the surface. This will then form the main working shaft for future operations. The **Pocahontas** shaft, now the main operating point, is equipped with hoist, air compressor, air drills, ventilating system, etc. Between 10 and 12 men are employed. Crossing the property is a high tension electric power line, which will be available for expansion of operations when required. E. A. Stent is vice-president and managing director.

The **Backbone Gold Mining Company**, which is leasing the Golinsky Copper Company's mine located three miles from Kennett, California, is planning the installation of additional equipment, including a flotation plant. The **Backbone** company already operates a mill on an adjacent property which it controls. Construction of a road to the mine from Kennett is under way. Nate Lovelace is president of the **Backbone** company, while W. D. Tiltonson owns a controlling interest in the **Golinsky Copper Company**.

Plans are being made for installation of an additional 10 stamps and flotation units at the **Mt. Gaines** mine, Hornitos, California. Ten stamps have already been completed with amalgamating plates and Wilfley tables. The shaft has been opened and retimbered to the water level and arrangements for pumping out the main shaft are now in progress. The mine is completely equipped with compressor, machine shop, assay office, hoist, etc., and a new gallows frame is to be installed over the main shaft. The property is operated by electric power furnished by the local power company, and the company has its own water rights and timber. The mine

is 1820 feet deep and worked through an incline shaft on a dip of about 22 degrees. Ore is free gold with about two per cent sulphides. No stoping has been done between the 900 and the 1300-foot levels and a strong vein is said to be apparent in the bottom of the shaft continuing from the upper levels. The mine began operations in 1870 and operated quite steadily until 1911 when it was closed down due to litigation. Nielsen L. Wagner, consulting engineer, is general superintendent of operations at the Mt. Gaines.

A crew of four men is employed at the Maben Hill Mine and Milling Company, George Peters, lessee, Auburn, California, and production is reported at eight tons daily, averaging \$10 to \$12 a ton. A ball mill located on the property is handling the ore. The mine is located on the ranch of James R. Maben in the Wolf Creek district. The company was recently granted permission to divert water from Wolf Creek for mining purposes, this work to cost approximately \$1,500.

The 70-foot Abe Lincoln shaft, of the Icard Ranch Mines, has been unwatered, and sinking continued to a depth of 100 feet. The present project calls for sinking to further depth to cut the well-defined Abe Lincoln ledge which was explored on the 70-foot level, where a considerable footage of drifts has been run from the main shaft. Equipment on the property is said to be sufficiently heavy for the proposed work. The work is directed by Mrs. Joan Icard Kelly, Route 1, Box 88, Nevada City, California.

The Big Blue Mining Company, Byron E. Rowe, general superintendent, Kernville, California, reports a gross production for December of \$21,104 with earnings totaling \$7,815 after all expenses, but before deductions for taxes and depreciation.

It is reported that E. C. Jacobs, Grass Valley, California, has taken a bond on the Brush Creek mine at Forest, California. The option is understood to be a preliminary one to give an opportunity for examination to determine whether or not a working bond shall be entered into. The Brush Creek was recently acquired by F. F. Cassidy, president and general manager of the Alpha Hardware and Supply Company, Nevada City, California. It had previously been worked by the Kate Hardy Mining Company.

Basil Prescott, 703 Richfield Building, Los Angeles, California, and associates, have taken a lease on the Gold Blossom mine in the Ophir district, about four miles from Auburn, California. B. T. Isgrig, Hotel Auburn, Auburn, California, is in charge of activities at the mine.

The new dredge being constructed by Yuba Consolidated Gold Fields near Biggs, Butte county, California, is to be operated by electric power purchased from the Pacific Gas and Electric Company. The contract for purchase of the power has been approved by the state railroad commission.

Ed Jasted, Merced, California, and Ray Allen have taken a lease on the Duisenbury mine in the Whitlock district near Mariposa, California, and operations at the mine are in charge of Allen. This property is a part of what was formerly known as the Austin Group, now the Golden Key Mining Company. A vein, from 10 to 12 inches wide, and said to mill at around \$40 per ton, has been uncovered by Allen.

As soon as road conditions will permit, 40-ton test shipment of ore will be

made by J. B. Truitt, operator of the Salmon mine, near Nevada City, California. The ore will be sent to the Queen Lil mill at Nevada City. A crew of four men is engaged in pumping out the old shaft and ore is being sampled as unwatering progresses. The Ledbetter shaft is down 160 feet and the Salmon shaft 120 feet.

It is reported that the Keystone Divide Mining Company, located west of Grass Valley, California, which closed down several months ago, has liquidated all former debts and is to start work soon. Melville B. Rapp, 1415 Montana Street, Santa Monica, California, is president and general manager. J. J. Jordan is mine superintendent.

The main incline shaft being sunk at the Pennsylvania mine of the Pennsylvania

Mining and Investment Company, Browns Valley, California, has progressed to the 490-foot level. The work is being done by contract with 12 men employed. Cross-cutting is also under way on the 450-foot level. J. C. Vint is superintendent.

At the annual stockholders' meeting of the O. K. Mining Company, Georgetown, California, plans for immediate reopening of the mine were considered and it was stated that in all probability the mill would be running within a short time. The property is fully equipped with a 10-stamp mill and concentrator, and is electrically operated throughout. P. D. Sprague, Hammonton, California, was elected president of the company. Other officers chosen were: Ward Wilson, Auburn, California, secretary; F. Reedy, treasurer; C. Allen, Marysville, and John Ward, Folsom, directors.

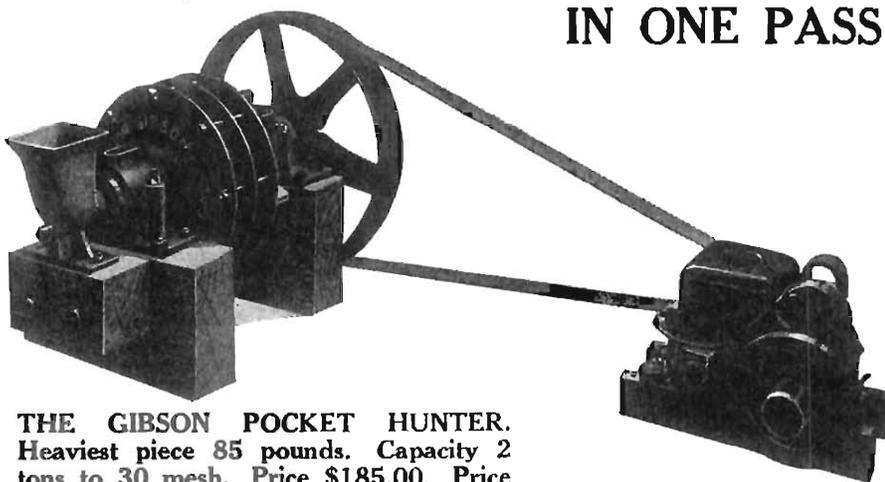
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The **Mountain View** mine, south of Forest, California, which has been closed temporarily due to a heavy fall of snow, is expected to be reopened early in March. J. F. White, superintendent, will arrive at the mine soon to make preparations for a 10-stamp mill. The mine is being operated under lease by J. K. Ownbey of Forest, California.

While preparations are under way for erection of a 200-ton mill at the base of Soledad Mountain for the **Golden Queen Mining Company**, Mojave, California, a tunnel is being driven from that side of the mountain for the purpose of cross-cutting the vein. The tunnel is expected to reach the ore body at about 500 feet, and when this point is reached, drifting on the vein will be undertaken. For purposes of economy, it is said to be the company's intention to drop the ore down from upper levels and take it out through this tunnel to the mill, making hoisting unnecessary. The vein already has been traced to a depth of 400 feet, it is understood. Foundations are being laid for installation of new equipment at the mine, the machinery being installed under the direction of J. H. Watson, mining engineer. Charles Kumke is superintendent at the mine.

Thomas Oliver, Nevada City, California, has leased his mining property on Gold Flat to W. J. Huckins, formerly of Black Hills, South Dakota. The property is developed by a 98-foot shaft and a 500-foot tunnel and a crew has been engaged to clean out these old workings. It is understood that the new operator plans further sinking to develop ore bodies.

The **Kelsey Mining Company**, E. T. Willard, secretary-treasurer, 519 California Street, San Francisco, California, is understood to be planning an increase in the capacity of its mill from 100 to 500 tons daily. The property is located near Placerville, California. According to Willard a half million tons of ore are now blocked out, the main underground work being an 1,800-foot tunnel with 900 feet of backs. F. W. Kracht, San Francisco, is president of the Kelsey company. Ed. J. Willard, Placerville, is mine superintendent and R. G. Hart is engineer.

Frank P. Denman has established a small concentrator at Coarsegold, California, to work the tailings dump at the old **Texas Flat** mine. Denman is understood to be planning to sample the ore dump and hopes that by screening he will be able to crush part of it at a profit.

The Phillips placer property near Lewiston, Trinity county, California, has recently been examined by A. F. Muter, mining engineer, 200 Lankershim Building, Los Angeles, for George S. Anderson of Los Angeles. Samples are said to have yielded an average of 71 cents per cubic yard. The property consists of 200 acres with an average gravel depth of 18 feet. Following completion of examinations, it was decided to pump water from the Trinity River with two direct-connected, electric centrifugal 12-inch pumps which

can be run in series or parallel. A head of 225 feet will be obtainable at the six-inch nozzles. Lumber is to be brought from Redding for a four-foot sluice box, the tailings to be discharged back into the Trinity River. Washing is expected to start early in March. William Gribble is to be in charge.

As soon as road conditions improve, active development is to be started at the **Ethel** mine, 17 miles southwest of Callahan, Siskiyou county, California. The vein has been opened by a 60-foot tunnel, and at the surface ranges from 2½ to eight inches in width. Water and timber are available in abundance on the property. Development will be conducted by a syndicate of eastern men composed of J. C. McDonald and associate who plan to incorporate a company in Nevada. If initial work warrants, the company will install a 25-ton amalgamation mill at an early date. Operations will be directed by J. R. Farrell.

#### COLORADO

Regular shipments of high-grade ore will be made within 60 days from the **Justice Hill Mining Company**, operating the Hall properties in the Central City district of Colorado, according to J. J. Girardet, engineer in charge. In addition to this the company expects to ship mill-grade ore to the custom mill, the ratio being about five tons of mill grade to one of high grade. The property, consisting of 10 claims in Russell Gulch, is being operated through the Bonanza shaft. Walter Martin, who has been leasing on the Mabel tunnel, has opened up several ore bodies, the best of which are reported to have shown a value of 2.5 ounces in gold and 10 ounces in silver. It is the company's intention to operate through both the Bonanza shaft and the Mabel tunnel this season. The Mabel tunnel is expected to cut the Bonanza vein 200 feet below the present workings.

The **Precious Metals Production Syndicate** is reported to have optioned the **Mt. Pleasant** mine in the Jamestown district of Colorado. The Precious Metals company is operating the **Golden Age-December-Longfellow** properties in the same district, with McKay Mitchell, Jamestown, via Boulder, as engineer in charge.

The **Reba-Lee Mining Company**, organized by a group of Colorado Springs men, is pushing development of the **Isabella** and **Mohawk** claims, work being carried on through the School Section No. 8 shaft, according to W. L. Raney, secretary-treasurer of the company. Shipments have started from the second level, where a strike was made recently, and pay ore has been opened on the fourth level of the **Isabella**. W. L. Fitzgerald is president and R. B. Reinhard of Cripple Creek is engineer. Ned Shideler of Manitou is one of the directors.

White and Abercrombie of Salina, Kansas, are reported to have leased the **Gracie** property in Gilpin county, Colorado. William Tregay and associates are

doing the development work under contract. A drift running north on the **Gracie** vein is said to be in good values. A short crosscut to the west is reported to have opened up a parallel ore body. The **No Name** claims, which are also on the **Gracie** lode, are being worked by Dorritt and associates. Tutty and Pearson of Rollinsville are working the lower **Gold Ditch** dump, also in the Gilpin mining district, and expect to install a small mill in the spring.

Ben T. Owen of Idaho Springs, Colorado, and Bert B. Wright are reported to have leased the **Amy C** and **Washington** mines from the **Gem Mining Company**. The property is located in the Gilson Gulch district near Idaho Springs and both mines are reported to have a good production record. Work will begin immediately.

Heavier mining equipment will replace the lighter machinery now in place at the **Cash** and **Rebecca** mines in the Magnolia district, Colorado, according to report. The property was recently taken over by Alexander & Renfro of Boulder. Elmer Hetzer is engineer in charge of the work. Work of repairing and retimbering the workings of the mines will be started immediately.

An air hoist and other equipment was installed at the **Requa Savage** property under lease to the **Commonwealth Gold, Inc.**, Wellington C. Symes of Victor, Colorado, president and general manager, who in turn has leased it to Denver and Cripple Creek interests. The mine is on Beacon Hill in the Cripple Creek district. New equipment was added for the purpose of increased production, the **Mabel M.** ore shoot having been opened in the **Requa Savage** in an old shallow shaft below the main 700-foot shaft. A shipment has gone forward to the smelter. Air is being obtained from the adjoining Commonwealth ground, and it is probable that work will be carried on through the Commonwealth workings. Andy Vidgen is superintendent.

Settlements received by the **International Gold Producers, Inc.**, for shipments from the John Logan property totaled more than \$10,000 for the month of January, according to company figures, and there were at the end of the month 16 cars of ore, either at the mill or en route, for which no settlement had been made. The extensive ore body on the eighth level is opened up for a width of over 50 feet and a length of more than 100 feet, with one of the headings still in values. A raise from the eighth to the ninth level has been completed, facilitating production and solving the problem of ventilation on the ninth. A drift to cut the downward extension of the ore body is under way and is expected to reach its objective some time in March. Ore of varying grades is being stoped on the first three levels of the Logan property and work is being pushed in the **Gold Sovereign** tunnel. C. E. Joslin of Victor is superintendent. Howard E. Davis, U. S. National Bank Building, Denver, is president.

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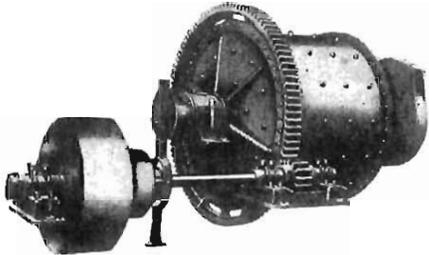
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### SAFETY PROGRAM GIVEN AT UTAH COPPER COMPANY

An extensive safety program was conducted during the month of February at the Utah Copper Company, consisting of first-aid work and safety prevention methods. George Knudsen, safety engineer for the company, stated that the object of the course was to make the employes "safety-minded." The course was conducted by Kessler and Strongquist of the U. S. Bureau of Mines.

All the employes of the company, including the office force, were enrolled and attended classes, which were held in the R. C. Gemmill Club gymnasium. David D. Moffat is vice-president and general manager of Utah Copper.

### TONOPAH DISTRICT SURVEY MAPS RELEASED BY INTERIOR DEPT.

Geology and extensive mine workings in the gold and silver mining district near Tonopah, in Nye and Esmeralda counties, Nevada, are shown in four sets of maps recently completed by the U. S. Geological Survey, department of the interior. These maps are hand-colored photostat copies of office maps showing results of a resurvey of the Tonopah district made in 1929 and 1930 by the geological survey in cooperation with the Nevada bureau of mines.

They have been made available to the public in this form, in advance of their publication by the geological survey, because of the increased interest in the silver-gold ores at Tonopah. Individual maps in each set show the geologic formations exposed in the mine workings for each 100-foot vertical interval explored by mining operations. They are meant to provide a basis for the intelligent prosecution of a search for unknown ore bodies.

A description of the different formations and of the relationships of the ore bodies, based upon the resurvey, was published in 1930 as University of Nevada Bulletin, Volume 24, No. 4, entitled "The underground geology of the western part of the Tonopah mining district, Nevada." This report should be read in conjunction with any study of the maps.

These maps are available at the geological survey offices in the Customhouse Building, San Francisco; the Post Office Building, Salt Lake City; Interior Department Building, Washington, D. C.; and office of the Nevada bureau of mines, Mackay School of Mines, Reno, Nevada. At these places the maps may be consulted by the general public.

### LINCOLN GOLD TO INCREASE CAPACITY OF RECOVERY PLANT

Lincoln Gold Placers, operating in Lincoln county, Jicarilla, New Mexico, is increasing the capacity of its washing plant to between 600 and 1,000 cubic yards per day. The company will use Caterpillar Diesel equipment for both its shovels and washing plant, the plant having units separate so that it will be portable. Some 12,000 feet of water line have already been laid, and the company's well is said to be capable of producing 170 gallons per minute. Through a reclamation and water conservation system officials expect to be able to acquire between 600 and 700 gallons of water for each yard of gravel washed.

Lincoln Gold is also planning to use jigs in the extraction of the black sand. A shipment to the American Smelting and Refining Company at El Paso, Texas, is said to indicate a gold content in these sands of 1.56. The black sands average about 2½ per cent of the total weight,

returning about 40 pounds to the yard. It is believed that the sands have a gold content equal to the recoverable value of the gold reclaimed through the present use of sluices.

The property consists of some thousand acres of placer ground covering three and one-half miles on Ancho gulch and one and one-half miles on Rico Gulch. Each season in the past three years some 30 to 40 men have worked in the district, making extractions from the bench gravels by use of a California rocker. Water is furnished these "high-graders" and a royalty of 15 per cent is charged on the gold recovered, as weighed in at the company's office on the property.

Edward L. Fernsten, Box 2354, Denver, Colorado, has perfected the company's method for handling the gravels, and is directly in charge of operations.

### PENRYN GOLD MINES CO. TO OPERATE IN CALIFORNIA

The Penryn Gold Mines Company has been organized to take over the property formerly known as the Alhambra in the Penryn district of California. Members of the first board will be William Anderson, Auburn, California, president and manager; J. V. Pohlman and Edward Pohlman of the Pohlman Investment Company, Standard Stock Exchange Building, Spokane. Main offices will be located at Spokane, Washington, in which state the company is incorporated.

The Penryn holdings adjoin the Alabama California Gold Mines Company, Auburn, California, of which William Anderson is also president and manager, and are said to be an extension of the same vein. Plans of the new company are to follow the same general mining strategy employed at the Alabama-California, and the property is to be equipped for sinking to a depth of 200 feet. The Penryn vein can be traced on the surface for 2,000 feet, it has a width of two to four feet with values said to range from \$4 to \$30 in gold to the ton.

At the Alabama-California a crew of 26 men is working on the 200-foot level, extracting ore from a seven-foot vein, and the 10-stamp mill is handling 35 tons daily. Plans for the near future include increasing the number of stamps to 20 and stepping the production up gradually to 100 tons per day. A sinking program is also planned which will extend the shaft from the 200 to the 300-foot level. This work is expected to be started by March 10.

Following discovery of a high tailings loss, a flotation unit was installed at the mill which has improved recovery until it is now better than 90 per cent of the gold values, with some silver also being saved. The millheads are reported to average \$11 to \$12 a ton.

Since organization of the Alabama California Gold Mines Company, slightly less than a year ago, the company has milled about 4,500 tons of ore, from which there has been a gross recovery of about \$30,000 by straight amalgamation and table concentration. During this period the stamp battery was increased from five to 10 and a hoist installed which is capable of 1,000 feet of depth. New buildings have been erected, new equipment installed underground, and 675 feet of drifts have been run on the vein from both sides of the shaft, most of the distance in ore. Four stopes have been developed in which there is now stored 6,000 tons of broken ore ready for milling.

**STATE DEPARTMENT MANGANESE ACTION BRINGS HEAVY PROTEST**

The action of the state department in granting a slash of 50 per cent in the tariff on manganese in the reciprocal tariff with Brazil has brought a storm of opposition from congressmen from many parts of the United States against the policy of any move which tends to destroy the raw materials industries which are essential to National Defense. This includes manganese, copper, lead, zinc and numerous other metals.

A committee was appointed, consisting of Murray of Montana, Greenway of Arizona, Miller of Arkansas, Scrugham of Nevada, and Christianson of Minnesota, to confer with President Roosevelt and the state department and lodge formal protests against such action.

It was revealed that 41 senators and 145 representatives, Republicans and Democrats, from 33 states, had registered an appeal to the President against cutting the manganese tariff before the treaty was signed. Resolutions were adopted protesting against the cut, calling attention to the War Department's insistence upon this country's building an adequate reserve of manganese—it is vital in manufacture of steel—and demanding no trade concessions be given to any nation that discriminates against American products.

**PROSPECTING INCREASING IN MOJAVE SECTION, CALIF.**

Notwithstanding the large areas held in private hands in the Mojave mining district of Southern California, there has been a considerable increase in prospecting and development in that section, according to Frank P. Baldi, mining engineer of Los Angeles, who recently made a trip through that section.

Among other activities he reports that D. W. Howard and associates are leasing on the Kimbro property at Hughes Lake, southwest of Lancaster. They are prospecting the ground by booming the gullies. E. T. Zimmerman, working in the same district, is opening up a ledge which is said to show promise. C. T. Gooding is prospecting some claims near the Rogers-Gentry in the Neenach district, and Frank T. Tesch of Mojave is opening up several claims in the Pine Tree canyon. Rene Birac is installing a compressor on his lease at the extreme end of the same canyon.

Ten miles northeast of Jawbone Canyon, W. E. Russell of Mojave is drifting on a 20-inch vein which is said to be showing increasing values in iron and copper. He is putting in a two-drill compressor, and if sufficient ore is developed will erect a small mill.

**U. S. C. OFFERS THREE YEAR MINING CURRICULUM**

Creation of a three-year curriculum in mining engineering within the college of engineering of the University of Southern California was announced by President R. H. von Kleinsmid.

Instruction in the new division began with the opening of the spring semester, February 19. Work in the three year course will lead to a certificate in mining engineering, junior grade. At the completion of the course a student may earn a degree in general engineering by taking a fourth year at U. S. C. or may transfer to any mining college for the final year's work.

Increased interest and activity in mining in the Southwest has prompted U. S.

C. to inaugurate this new mining curriculum so that students of this locality might have an opportunity for training without having to leave home," declared Prof. Philip S. Biegler, dean of the college of engineering.

Prof. Thomas Clements and Prof. John F. Dodge, both mining engineers, will be in charge of the new work, it was announced.

**CONTROL OF UNITED VERDE PASSES TO PHELPS DODGE CORP.**

Control of United Verde Copper Company at Jerome, Arizona, has definitely passed to Phelps Dodge Corporation, following the annual meeting of stockholders in New York City, held February 13.

At that meeting the following new directors, all Phelps Dodge officers, were elected to the United Verde board: Louis S. Cates, president of Phelps Dodge, was elected president of United Verde Copper; Cleveland E. Dodge, vice-president, J. F. McClelland and H. DeWitt Smith, directors. Of the former directors the following remain on the board: Walter W. Aldridge, George A. Clough, Henry Krumb, John H. Hall, Jr., and Rodney W. Williams.

Hall was elected secretary; A. T. Thomson, treasurer; J. E. Fisher, assistant secretary, and George R. Drysdale, controller.

Officials of American Smelting and Refining Company have verified the reports of the purchase of 52,450 shares of United Verde Copper Company stock from the estate of the late William A. Clark, Jr., but following the stockholders meeting announced that they no longer held any stock in the company. The inference was drawn that A. S. & R. had made a bid for control, but failing, had arranged to turn its holdings over to Phelps Dodge.

The sale to American Smelting and Refining netted the Clark estate \$3,233,750 and was approved by the district court at Butte, Montana. Two disposals were made to the smelting company, the first on February 6 when a purchase of 35,000 shares at \$55 a share was approved, and the second sale on February 11 giving the same company 17,450 additional shares at \$75 a share, returning \$1,308,750 to the estate. This transaction brought a price considerably above the appraised value of the stock—\$2,360,000—when the estate was evaluated.

Following the meeting, Robert E. Tally, retiring president of United Verde Copper Company, issued a statement to the effect that production at Jerome would continue on the present scale, and that the acquisition of control of the company by Phelps Dodge would have no effect on operations of the company. The mine was reopened for production the first of the year, and at present, one furnace at the smelter is operating. Approximately 700 men are employed.

This is the third major expansion made by Phelps Dodge in recent years. In 1931 Calumet and Arizona Mining Company was merged with Phelps Dodge, and control of Nichols Copper Company was acquired.

The present expansion places Phelps Dodge second among the American copper producing companies, topped only by Kennecott. The copper code rates yearly capacity of Phelps Dodge mines at 168,000 tons and United Verde at 68,000 tons. This total of 236,000 tons compares with a rated domestic capacity for Kennecott of 366,500 tons and for Anaconda of 225,000 tons.



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**EXPLODED WATER NOW USED  
AS NEW ORE CRUSHING METHOD**

Shattering mineral particles by exploding the water films with which they are surrounded, at 150 to 250 pounds steam pressure, was the subject of a paper presented at annual meeting of the American Institute of Mining and Metallurgical Engineers in New York City by R. S. Dean, chief engineer of the Division of Metallurgy, Bureau of Mines, Washington, D. C.

During the early stages of the process, Mr. Dean explained, coatings of explosives were used on the mineral particles, but the latest development has been the use of a film of superheated water, formed on the surface of the mineral particles by condensation from steam at 150 to 250 pounds pressure, the sudden release of the steam pressure exploding the water films. This new method, according to Mr. Dean, has many advantages over the older methods of crushing rock.

The exact mechanism of the disintegration process has not been determined, although more is involved, Mr. Dean asserts, than the simple impact of the particles on one another and against the chamber. Extensive experiments made by John Gross, of the United States Bureau of Mines, according to Mr. Dean, show that "the crushing is by an explosion wave which results in the breaking down of the mineral particles preferentially along certain planes of low fatigue strength." Since the steam energy is applied directly to the mineral particles, the process is more economical than indirect processes such as ball-milling, where the energy of the steam must pass through the engine and the generator and transmission system.

Outlining the advantages of the process Mr. Dean drew attention to the fact that the estimated power cost of 1.6 cents per ton of hard ground ore is less than one-fifth of the power cost of standard crushing apparatus.

**COLUMBUS RESUMES WORK  
FOLLOWING BRIEF SHUTDOWN**

Operations have been resumed at the Columbus Gold Mining Company, Tuolumne, California, following a two-weeks' suspension of regular activities, the result of a shortage of water for the mill. However, the water which is pumped from the mine is now being impounded and a pipe line has been run from the storage basin to the mill. The mine produces about 14,000 gallons of water daily and this supply is said to be ample to meet all needs.

Three shifts are now working in the mine and mill with a total of 28 men employed. The shaft, which had been sunk from the 400 to the 540 level when operations were suspended, is being continued to 600 feet, and the new shaft will soon be connected at the 500 level with the drift which was driven from the bottom of the 100-foot winze, located 215 feet south of the shaft.

During the suspension of work the 80-horsepower electric hoist was given a thorough overhauling, and a new steel hoisting cable, seven-eighths of an inch in diameter and 1,300 feet long, replaces the old cable.

In addition to the body of milling ore recently encountered on the 500-level drift, a 50-foot raise from the 500 level north of the winze has also exposed a five-foot vein of high-grade ore.

W. A. Hayes, 225 Mallorca Way, San Francisco, California, is general manager of the company.



IN OUR LETTER BOX

February 5, 1935

Editor,  
The Mining Journal,  
Phoenix, Arizona.

Dear Sir:

Your cartoon of the galloping Major in the "Levity Lode" of January 30 was well timed as the Scrugham bill for small loans to mines passed in Congress the next day. Now let's give the Major that ride the horse some spurs.

Results from the original bill authorizing loans to mines have been disappointing. This has been due in part to the fact that the RFC has had to set up the necessary machinery for handling such loans but in far greater part to the applicants themselves through making application when they could not offer satisfactory security and through failure to submit information called for in the application blanks.

Carelessness in making out an application under the original bill authorizing mine loans results in delay only but similar carelessness in making application for primary financing under the later bill may be fatal. The sum of \$10,000,000 is allotted to the latter purpose, to be loaned in amounts of not to exceed \$20,000 each. If each loan is for the limit there can only be 500 made. Undoubtedly the applications will be many times that number and it will be a case of first come—first served and the man whose application is sent back for further information may find himself out of luck.

If the Major is to win his charge against the Depression Front he must have ample support in the shape of reliable data properly prepared, if necessary calling in accountants, lawyers or engineers who are familiar with the requirements and are competent to meet them. The fee for such assistance is a good investment as it will save time in getting action on an application and may make the difference between a favorable and an unfavorable decision.

Yours very truly,  
(Signed) Leroy A. Palmer,  
Consulting Engineer.

**TEXT OF AMENDMENT  
AUTHORIZING MINING LOANS**

The amendment to the Reconstruction Finance Corporation bill, extending the life of that organization for a period of two years, and authorizing loans to small mines for development purposes, was introduced by James G. Scrugham of Nevada and successfully fought through by Scrugham and members of the western mining bloc.

The complete text of the amendment as adopted, follows:

Sec. 14. The Reconstruction Finance Corporation is authorized and empowered to make loans upon sufficient security to recognized and established corporations, individuals, and partnerships, engaged in the business of mining, milling, and smelting ores. The Reconstruction Finance Corporation is authorized and empowered to make loans to corporations, individuals and partnerships, engaged in the development of a quartz ledge, or vein, or placer deposit, containing gold or silver, or gold and silver and, when, in the opinion of the Reconstruction Finance Corporation, there is sufficient reason to believe that, through the use of such loan in the development of a ledge, vein, or mineral deposit, or placer gravel deposit, there will be developed a sufficient quantity of ore, or placer deposits of a sufficient value to pay profit upon mining operations. Provided: That not to exceed twenty thousand dollars shall be loaned to any corporation, individual, or partnership, for such development purposes: Provided Further: That there shall not be allocated or made available for such development loans a sum in excess of ten million dollars.

The rules and forms for these loans have not yet been made public but it will probably be necessary, as in the former loan, to make application directly to the Mine Loan Department, Reconstruction Finance Corporation, 1825 H. St., Washington, D. C. It is to be noted that they apply only to deposits of gold, silver and tin.

**BUNKER HILL ARIZONA PLANS  
FOR SMELTER CONSTRUCTION**

The Bunker Hill Arizona Mining Company has started work at its mine at Embury Butte, Arizona, preparatory to smelter construction. The plant is to have a daily capacity of approximately 200 tons, and will be designed to handle both company and custom ores.

Decision to proceed immediately with construction followed the granting of a petition by the Pinal county board of supervisors for road construction. The present road is inadequate for transportation of heavy equipment. In the agreement between the supervisors and the mining company the latter will pay all labor costs while the county will furnish the necessary equipment for road construction. The highway will start from a point four miles south of the Mammoth crossing on the San Pedro river. County Engineer L. O. Fisel, who will be in direct charge of the road building, expects to have his construction crews on the job by the first of March and to have the work completed in less than 90 days.

During the past year extensive improvements were made at the mine, two small houses constructed, camp facilities erected, and a 160-horsepower Diesel installed. This work has been directed by E. R. Anderson, manager. The company's main offices are located at 867 Empire Building, Seattle, Washington.

**CHIEF CONSOLIDATED ISSUES  
REPORT OF OPERATIONS**

The annual report of the Chief Consolidated Mining Company for the year 1934 contained an interesting summary of the work completed by the company. The report was submitted by Cecil Fitch, general manager, Eureka, Utah.

From the No. 1 and Plutus mines, 22,051 tons of ore were mined during the year, with a net value from the smelters of \$188,196.72, and net value per ton of \$8.56. The total mining cost per ton is estimated at \$7.29. During this time an average of 80 men were employed. A total of 1,984 feet of development work was completed, disclosing a number of small ore bodies, some of which give promise of enlargement.

At the Apex Standard 400 feet of new shaft, from the 500 to the 900-foot level, were necessary in reopening the No. 1 shaft. In the No. 2 shaft on the property a total of 1,023 feet of sinking and drifting was done and 1,500 feet between the two shafts on the 900 level were cleaned out. Narrow but persistent ore shoots were discovered on the 1,000 and 1,100-foot levels, from which 1,059 tons of ore, giving net returns of \$5,514.32, were shipped to the smelter.

The Eureka Lilly property shipped 17,205 tons, with net smelter returns of \$104,046.88. Total cost per ton was \$4.41, leaving a net profit of \$1.65 a ton. An average of 39 men were employed per day, and 577 feet of drifting, raising, and wining were completed. The No. 1 shaft was extended 800 feet, from the 500 to the 1,300-foot level.

Connection was made on the 1,300-foot level of the Eureka Lilly with the workings on that level through the Tintic Standard No. 1 shaft under a former lease to that company. A number of gold-silver-copper ore leads occurring through a length of 600 feet of drift are now being worked.

A small amount of leasing was done in both the Eureka Hill and Gemini mines.

The company reported a net loss on operations for the year of \$45,246 and additional expenses accounted for the net loss of \$65,229, before depreciation and depletion.

**WEST AMERICAN CONSOLIDATED  
MILL GOES INTO OPERATION**

The enlarged mill at the West American Consolidated Gold Mines, Inc., Plymouth, California, is now handling 125 tons daily on a basis of three shifts, according to an announcement by Arthur Hamburger, president. Plans call for increasing the capacity gradually to 500 tons daily, with production at this rate expected to be attained in about six months.

Most of the ore now going through the plant is coming from the company's Amador Star mine and some of the quartz is being furnished from the 300-foot level of the Bay State property. A new vein, about 80 feet from the previous workings, was located in the Bay State early in February. A pump, capable of handling 300 gallons of water per minute, has been installed at the Bay State for the purpose of unwatering the 400 and 500 levels. Hamburger reports that a raise in the Amador Star, driven 130 feet from the 500 level, shows the vein in that property to range as wide as 14 feet in places.

Ray Taylor, formerly with the Alaska Juneau mine in Alaska, has been engaged as mill superintendent.

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From the No. 1 and Plutus mines, 22,051 tons of ore were mined during the year, with a net value from the smelters of \$188,196.72, and net value per ton of \$8.56. The total mining cost per ton is estimated at \$7.29. During this time an average of 80 men were employed. A total of 1,984 feet of development work was completed, disclosing a number of small ore bodies, some of which give promise of enlargement.

At the Apex Standard 400 feet of new shaft, from the 500 to the 900-foot level, were necessary in reopening the No. 1 shaft. In the No. 2 shaft on the property a total of 1,023 feet of sinking and drifting was done and 1,500 feet between the two shafts on the 900 level were cleaned out. Narrow but persistent ore shoots were discovered on the 1,000 and 1,100-foot levels, from which 1,059 tons of ore, giving net returns of \$5,514.32, were shipped to the smelter.

The Eureka Lilly property shipped 17,205 tons, with net smelter returns of \$104,046.88. Total cost per ton was \$4.41, leaving a net profit of \$1.65 a ton. An average of 39 men were employed per day, and 577 feet of drifting, raising, and wining were completed. The No. 1 shaft was extended 800 feet, from the 500 to the 1,300-foot level.

Connection was made on the 1,300-foot level of the Eureka Lilly with the workings on that level through the Tintic Standard No. 1 shaft under a former lease to that company. A number of gold-silver-copper ore leads occurring through a length of 600 feet of drift are now being worked.

A small amount of leasing was done in both the Eureka Hill and Gemini mines.

The company reported a net loss on operations for the year of \$45,246 and additional expenses accounted for the net loss of \$65,229, before depreciation and depletion.

**WEST AMERICAN CONSOLIDATED  
MILL GOES INTO OPERATION**

The enlarged mill at the West American Consolidated Gold Mines, Inc., Plymouth, California, is now handling 125 tons daily on a basis of three shifts, according to an announcement by Arthur Hamburger, president. Plans call for increasing the capacity gradually to 500 tons daily, with production at this rate expected to be attained in about six months.

Most of the ore now going through the plant is coming from the company's Amador Star mine and some of the quartz is being furnished from the 300-foot level of the Bay State property. A new vein, about 80 feet from the previous workings, was located in the Bay State early in February. A pump, capable of handling 300 gallons of water per minute, has been installed at the Bay State for the purpose of unwatering the 400 and 500 levels. Hamburger reports that a raise in the Amador Star, driven 130 feet from the 500 level, shows the vein in that property to range as wide as 14 feet in places.

Ray Taylor, formerly with the Alaska Juneau mine in Alaska, has been engaged as mill superintendent.

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# Nuggets from the Western States

*Some high spots of the mining industry in the Western United States and Mexico.*

## ARIZONA

It is reported that the **Hillside Mines, Inc.**, Hillside, Arizona, is considering plans for the doubling of the capacity of its modern flotation mill. At present the plant is treating 180 tons of ore daily, shipping its concentrates to the Magma smelter. H. L. Williams, Box 1226, Prescott, Arizona, is president and general manager.

A depth of 160 feet has been reached by the new 300-foot shaft being sunk at the Bishop mine at Octave, Arizona, by the **Octave Exploration Company**. At that depth connection was made with an old level, and the shaft is now going down in unexplored territory. The shaft sinking is being handled under contract by W. F. Groves and Sons of Prescott. At another section of the property, where it is believed direct shipping ore can be produced, a portable compressor has been placed. C. T. Sullivan is general manager of the Octave Exploration Company.

The **Leviathan** mine at Congress Junction, Arizona, operated under lease by Earle G. Rogers, is making frequent shipments of high-grade gold ore to the Magma smelter.

Regular production continues at the **Golden Belt Mines, Inc.**, Cordes, Arizona. A. L. Lampton, president and general manager. The mill is handling 40 tons of ore daily, producing high-grade concentrates which are shipped by truck to El Paso, Texas. The Golden Belt was listed by the U. S. Bureau of mines as one of the Arizona properties which produced in excess of 1,000 ounces of gold in 1934. Twenty men are employed in the present work. It is said that Lampton is considering enlarging his operations.

A Denver Unit cell is being installed in the flotation circuit at the mill of the **Golden Turkey Mining Company**, Cordes, Arizona. The mill is treating 75 tons of ore daily and a 94 per cent recovery is reported. Construction of the new boarding house, one of the finest in the state, is about completed. About 40 men are employed under the direction of H. C. Mitchell, manager.

Plans for mill construction are being completed by the **Silver Cord Mining Company**, Cleator, Arizona. The company has been making occasional shipments of high grade. A. D. Roberts is manager.

The **Oro Flame Mining Corporation**, John L. Alexander, superintendent, Box 790, Prescott, Arizona, has started the reconditioning of the shaft, preparatory to ore production. The mill is being revamped and is scheduled to be in operation within the next 60 days. A new power plant is also contemplated. Howard Fields, Box 148, Prescott, is directing the work.

Several hundred yards of gravel are being handled daily by Pantle Brothers at the **Savoy Placers**, Mayer, Arizona. Equipment includes a half-yard shovel and a portable Ainalay centrifugal concentrator. The plant has a capacity of one cubic yards per minute and requires 300 gallons of water per minute.

Initial production of 25 to 35 tons of ore daily is to be started immediately by D. S. Howard, who is directing the work at the **Adams** mine, Kingman, Arizona.

The lessees, Howard and Stipp, have just completed the retimbering of the shaft to the 200 level, constructed a 110-ton ore bin, and installed a complete electric lighting system in the mine. The retimbering of the shaft was handled by Harry Fox, contractor, and was completed in eleven and one-half days. At an early date the shaft is to be cleared to the 300 level and preparations for production made on that level.

Floyd R. Marsh, 725 Yeon Building, Portland, Oregon, expects to resume development work at his **Lucky Strike** claims, near Prescott, Arizona, this coming summer. The group consists of 15 patented quartz claims, on the White Spar highway, eight miles from Prescott. In 1930 Marsh shipped 32 tons of ore from these claims to the Douglas smelter, receiving satisfactory returns.

The **Golden Door Mines Company**, Chloride, Arizona, has recently trucked a carload of concentrates to the U. S. Smelting Company at Midvale, Utah. The mine, equipped with a 75-ton flotation plant, has been producing on a 30-ton per day basis. W. V. Merritt is general manager.

When the 600-foot level of the **Monte Cristo Gold Silver Company**, Constellation, Arizona, was unwatered, it was found that the drifts had caved, practically barring any attempt at ore production on that level. It has been decided to drive a new crosscut 140 feet to intersect the main Monte Cristo lode. This work is now progressing rapidly under the direction of H. B. Browning, superintendent.

Two shifts of miners are employed by the **Ray Southern Mines Company**, Ray, Arizona, rehabilitating the 250-foot tunnel and retimbering the two-compartment shaft. Diesel equipment has been purchased and is being rehabilitated for immediate installation. The mines were acquired last summer by Max Vogel, 601 Parkview Avenue, Los Angeles, who is directing the work.

According to Oscar R. Howard, president of **Tom Reed Gold Mines Company**, Oatman, Arizona, the company has shipped over \$500,000 in gold during recent months. The gold has come from company ores and also from the product milled for lessees and other mining companies operating in the district. It is also stated that a lost segment of the Aztec vein has been uncovered and is producing ore valued from \$50 to \$88 per ton. The company is engaged in re-opening several blocks of ore which were neglected prior to the revision in the price of gold. Mr. Howard maintains headquarters at 514 Security Building, Pasadena, California. Mine operations are directed by Jack Zwinge, mine superintendent.

The **Hassayampa Gold Mining Company**, A. W. Nelson, general superintendent, Kirkland, Arizona, is running a series of mill tests to determine the best treatment method for the ores opened in former development work. When this work is completed and the system of extraction decided upon, milling of present ore reserves and additional development will be undertaken.

**Phelps Dodge Corporation** has announced the sale of **National Electric Products**

to W. C. Robinson & Associates of Pittsburgh, Pennsylvania. National Electric was formed through a consolidation of National Metal Molding Company, makers of steel conduits, metal molding, insulated copper wire, armored cable, etc., with plant at Ambridge, Pennsylvania, of which Robinson was the principal owner, and the American Copper Products Company which was controlled by Wylie Brown. Subsequently, the National Electric Products Corporation was acquired by Phelps Dodge and the name changed to Phelps Dodge Copper Products Corporation. By the present sale Phelps Dodge Corporation has in reality resold that branch of the business which had previously been known as the National Metal Molding Company.

An organization to be known as **Hartman & Johnson** has obtained control of the Colorado Gold Placers Company property at Pierce's Ferry on the Colorado River, Mohave county, Arizona, and plans are being made for extensive mining operations in the immediate future. The group is headed by E. W. Hartman, 809 Orlando, West Hollywood, California, who has been engaged in the construction and promotion of mining and oil equipment in the Los Angeles territory for a number of years. In recent months he has been interested in the development of a placer machine which will probably be used on this project.

**Flowing Gold** is the name given to a new property by Frank Warning, Box 98, Oatman, Arizona. He and his brother, T. H. Warning, have reported the discovery of a ledge said to have a surface exposure of 1,000 feet in length which pans gold freely over the entire outcrop.

## CALIFORNIA

New work planned at the **Hannah** mine, La Porte, California, formerly known as the Keystone placers, includes continuation of the 1,000-foot tunnel another 1,000 feet and erection of a boarding house to accommodate 25 to 30 men. The latter is under way and other improvements recently completed are a washing shed, blacksmith shop and 260 feet of snow sheds. This is a drift gravel mine, equipped with hydroelectric power. P. H. Mason, 881 61 Street, Oakland, California, is general manager, J. H. Grant, La Porte, is mine superintendent. A total of 13 men is employed.

New ventilation raises on the bottom levels are planned at the **Argonaut Mining Company, Ltd.**, Jackson, California. E. A. Stent, vice-president and resident manager. The property is equipped with a 60-stamp mill and is handling approximately 250 tons daily, employing amalgamation and gravity concentration recovery methods. Tailings are sent to a cyanide plant. A crew of 244 men is employed, 200 in the mine, under the direction of Alex F. Ross, superintendent.

The new 35-ton mill at the **German Bar Gold Mines, Inc.**, North Bloomfield, California, is now nearing completion. The old tunnels have been cleaned out and driven ahead, water and electric power brought in and permanent buildings erected, and completion of the mill is now the final step to production. Mine workings total 2,200 feet, consisting of three tunnels. Sixteen men are employed, 10 in the mine and three in the mill. The company is headed by Colonel C. R. Blood, 3111 Eye Street, Sacramento, California, with Thomas E. Stephens, secretary and general manager, North Bloomfield.

very 1935

The West Coast Sulphur Company, which is operating the Crater sulphur mine in Eureka Valley, about 64 miles west of Big Pine, California, is negotiating for erection of a refinery at the mine which would enable the company to mine high grade ores and produce crushed refined sulphur. The company has been producing approximately 1,000 tons per month of high-grade ore, which is condensed into sulphuric acid for oil refiners. The property is owned by Judge Wm. H. Man, Reno, Nevada; F. B. Mechling, Washoe, Nevada; Alex Bonthorne, Paradise, California; G. F. Hicks, Big Pine, California, and Harry D. Moore of San Francisco. Thirty men are employed.

The main shaft at the Big Oak quartz mine, operated by the Paramount Mining Corporation, E. C. Klinker, president and general manager, Colfax, is being recon-structed under the supervision of Frank Manning, mine foreman, 161 Magnolia Street, Auburn, California.

The Goldfield Consolidated Mines Extraction Company, E. A. Julian, general manager, 421 Crocker First National Bank Building, San Francisco, is employing 55 men at the properties of the Mayflower Metal Mines Company, Foresthill, California, recently acquired. The mines, which comprise the Baltimore, Sacramento and Garfield, are gravel properties.

A crew of 60 men is employed at the North Star quartz mine in producing ore for a 100-ton capacity reduction plant. The plant is operated by the Middle Fork Gold Mining Company, Greenwood, California. F. Plumb, 3405 T Street, Sacramento, California, is superintendent.

The Oroville Gold Dredging Company, 1111 Inn Building, Oroville, California, resumed work following a month's lay-off due to a broken digging ladder. J. Fowler is superintendent of the dredger, which is the largest in the Oroville district. It was purchased from the LaButte Mining Company several months ago.

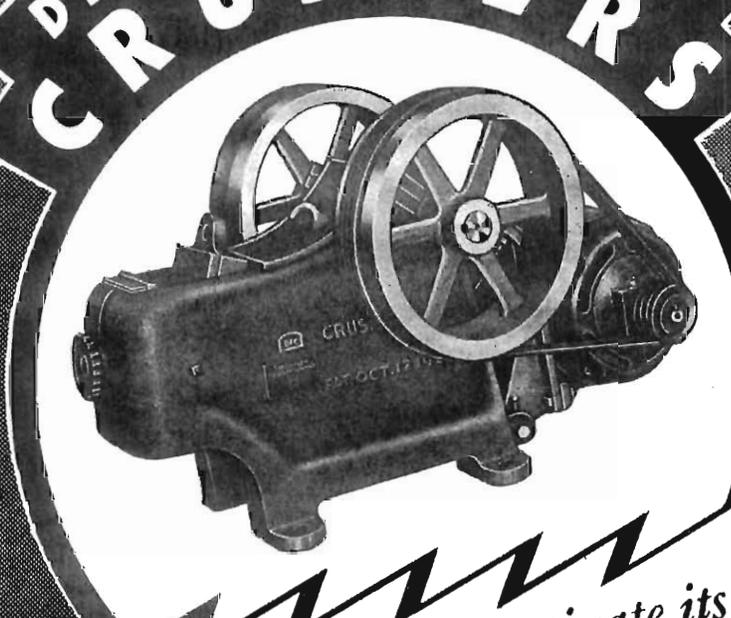
A foundation is being built for the 500-horsepower electric motor to be installed at the North Star mine of the North Star Mines Company, Ltd., Grass Valley, California. The motor will be used for electrification of the North Star hoist, presently operated by compressed air. It is understood that work has started on sinking the 8,600-foot shaft at the North Star an additional 200 feet. F. W. K. is manager of the North Star and other mines. G. A. Kervin is general manager of the company, which also operates the Murchie, Pennsylvania and Mt Hill mines.

A group headed by A. S. (Bert) Parr, Sonoma St., Redlands, California, is organizing the Parr Mining Company to operate a group of gold claims in upper Goler Gulch and Red Gulch, six miles from the Yellow Pine mine at Randsburg, California. Several claims have already been acquired. Applications have been taken on 20 more. Men are employed under the direction of Parr, who is supervising operations.

The Natomas Company, Natoma, California, declared a regular quarterly dividend of 10 cents a share, payable April 1 to record March 12. The Natomas Company is one of the largest gold dredgers in California.

A plan for a small mill is planned at the Sickerjack mine by A. N. Mouglin, Natoma, California. Shaft sinking and other work also continue at the property. George W. Hallock and H. G. Hawkins, of the American Hill hydraulic

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mine, Alleghany, California, expect to start operations during March. The property consists of 110 acres and is said to have 2,000,000 yards of gravel easily available, with very little overburden. Ten miles of ditches have been completed and the pipe line consists of 320 feet of 22-inch pipe, 120 feet of 12-inch pipe and 115 feet of 11-inch pipe connected to an 11-inch monitor with a three and one-half to five-inch nozzle, and a pressure head of 110 feet. Debris is dumped into Wolf Creek, a tributary of the Middle Yuba River. George W. Hallock is in charge of operations.

Operations continue on a small scale at the No. 6 level of the **Sierra Buttes** mine, Sierra City, California, E. A. and J. O. Hayes, San Jose, California, owners. Low-grade ore is being milled at the rate of 25 tons per day while exploration is being carried on in three faces. Arrangements for impounding the tailings were recently completed and a 100-ton cyanide plant at a lower level will probably be remodeled to handle these and other available tailings as soon as the weather permits in the spring. This property has been operated by the present owners since 1902.

The **Myra Mining Company** has acquired the American Bar quartz mine and the Eagle Bar placer mine near Michigan Bluff, Placer county, California. The company's properties embrace 789 acres of mineral land and equipment, including a 20-stamp mill with a daily capacity of 65 tons, complete development equipment, a hydroelectric plant, surface buildings and assay office. According to L. E. Weisenburg, manager, 723 Title Guarantee Building, Los Angeles, California, a test run of 2,167 tons of various grades of ore, made to determine mill practice, yielded returns from the mint totaling \$11,496. It is the intention of the management to shortly increase the working force at the mine above the development crew now at work.

A slight increase in production at the Home Ticket gravel mine is reported by the **Black Bear Consolidated Mining Company**, C. S. McCarthy, superintendent, Michigan Bluff, California. The output for the last two months of 1934 was approximately \$3,333. McCarthy reports that additional equipment has been installed and a dam constructed to impound water for use during the dry summer months, and a substantial increase in monthly gold production is expected this spring.

The **Gold Bar Dredging Corporation**, Lewiston, California, is operating continuously, dredging approximately 200,000 cubic yards per month which average 21 cents per yard. This is a seven-foot dredge of the stacker type, 400 horsepower, with a 100 horsepower motor on bucket line. The company is now drilling on additional ground, consisting of about 800 acres, just below the present workings, and expects to move to the new location about the middle of the summer. The company's first dredge was completed in August, 1932, and operated until December, 1932, taking out \$31,500 (old price) in placer gold. In December it was destroyed by

fire and operations were not resumed until July, 1933. Twenty-two men are employed under the direction of F. B. Reed, general manager and consulting engineer, Lewiston. Floyd R. Marsh, 725 Yeon Building, Portland, Oregon, is president of the corporation.

At the **Aunt Rosa** mine, Caliente, California, a new 50-horsepower engine is being installed. The stamp mill is being remodeled and the compressor and line shaft are being moved so that all equipment will be concentrated under one roof. It is also planned to install a ball mill for use in regrinding after the ore has gone through the stamp mill at ten mesh. A crew of five men is employed under the supervision of R. E. Fransch, general manager, Caliente.

A **Fahrenwald Sub-A** flotation unit is being installed by the **Backbone Gold Mining Company**, Kennett, California, to recover the coarse gold. The power line has been connected and 10 men are employed in rehabilitating the mill, which is to be placed in operation early in March.

The **Snelling Gold Dredging Company**, C. H. Thurman, president, Folsom, California, has placed a second dredge in operation on the Kelsey estate near Merced Falls. The company has had one dredge in operation on the Merced River since 1932. F. H. Estep, Snelling, California, is superintendent of operations.

The **Merced Dredging Company**, Snelling, California, has placed its new dredge

in operation on the Cook and Dale ra located on the Merced River. The Me company is controlled by the **La Gr** Gold Dredging Company, La Grange, (ornia, which owns 50 per cent stock, and the **Natomas Company**, toma, California, which, with a few cpany officials, owns 50 per cent of stock. R. W. Derby is acting in a nagerial capacity for the Merced comp and the dredge which has been placed operation was formerly the **Natomas** 2 dredge which had operated in the l som field.

Ira D. McCoy, Chico, California, announced plans for the construction a modern gold dredge in **Butte Cr** Canyon, about 10 miles from Chico. project will cost approximately \$100, and is said to be fully financed. The di for the dredge has been dug and mate for the frame ordered. The land was tained from the old **Butte Creek G** Dredging Company. Ernest V. Grant v be the engineer in charge of constr tion, and McCoy will act as consulti engineer.

The **American Mines and Metals C** poration, A. G. Keating, general manag 1116 Van Nuys Building, Los Angel California, which is the new name adopt for **Big Jim Mines, Inc.**, is acquiring t Calaska mine at Merced Falls, Californ and the **Double Eagle** mine at **Mojar** California. The Calaska, of which **Jo** Smeddle is general superintendent, ready to go into production, while at t **Double Eagle**, Harvey Hammond, gene superintendent, a development program planned for the immediate future.

Following installation of additional mi ing equipment, **Beauty Mountain** min Winchester, California, will go on a 10 ton per day production basis, according C. O. Carlson, president and general ma ager, Winchester. Five thousand feet development, aerial tramways, water line bunk house and cook house are other im provements planned at the property. W ter has been developed for the mill a considerable ore blocked out. The reco ery process employed in the mill includ gravity concentration, flotation and ama gamation. A crew of 12 men is er ployed.

Shipments of 50 tons daily are beir made from the **Grey Elephant** mine, Jew Knight, operator, Mojave, California. Th mine is employing about 50 men, an preparations for a substantial increase i the daily ore output are said to be sche uld for the near future. Knight denie reports that he is considering any propos tion involving the sale of the **Grey El** phant.

The **Big Cliff** mine at Sawyer's Ba California, has been purchased by Dr. W. W. Barham of Yreka, California. Th property comprises an area of 240 acre and sufficient water is said to be aval able for all power and milling purposes. The mineralized area is understood to cor sist of a zone in the silicious schist of proximating 300 feet in width and some what over a mile in length. In places i

AVERAGE PRICES OF METALS  
(Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.344	66.781
1925	14.042	9.020	7.622	69.066
1926	13.795	8.417	7.337	62.107
1927	12.920	6.755	6.242	56.370
1928	14.570	6.305	6.027	58.176
1929	18.107	6.833	6.512	52.993
1930	12.982	5.517	4.556	38.164
1931	8.369	4.244	3.638	28.701
1932	5.792	3.181	2.881	27.892
1933	7.276	3.870	4.031	34.728
1934	8.658	3.8595	4.162	47.978
1933				
Jan.	5.000	3.000	3.015	25.400
Feb.	5.000	3.000	2.671	26.085
Mar.	5.256	3.148	2.997	27.928
Apr.	5.684	3.280	3.361	30.730
May	6.932	3.654	3.805	34.072
June	8.000	4.178	4.347	35.663
July	8.909	4.452	4.886	37.530
Aug.	9.000	4.500	4.909	36.074
Sept.	9.000	4.500	4.702	38.440
Oct.	8.253	4.316	4.744	38.190
Nov.	8.156	4.294	4.521	42.974
Dec.	8.125	4.142	4.470	48.550
Ave. 1933	7.276	3.870	4.081	34.728
1934				
Jan.	8.185	4.000	4.275	44.187
Feb.	8.000	4.000	4.452	45.233
Mar.	8.000	4.000	4.370	45.875
Apr.	8.393	4.184	4.371	45.180
May	8.500	4.1404	4.855	44.228
June	8.849	3.975	4.238	45.178
July	9.000	3.770	4.318	46.310
Aug.	9.000	3.7483	4.280	48.986
Sept.	9.000	3.679	4.057	49.484
Oct.	9.000	3.648	3.841	52.375
Nov.	9.000	3.567	3.732	54.255
Dec.	9.000	3.504	3.714	64.390
Ave. 1934	8.658	3.8595	4.162	47.978
1935				
Jan.	9.000	8.6923	3.728	54.418
Feb.	9.000	3.5205	3.719	54.602



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been developed to a depth of about feet. The property is so situated that can be developed and worked to a considerable depth by tunnel and much of surface ore can be handled by power.

The Los Angeles Placer Gold Corporation, J. E. Hopper, 5464 Ninth Avenue, Los Angeles, California, has acquired the mineral rights on the Bouquet Canyon property of the late Henry T. Gage, consisting of 240 acres. The new company is understood to be completing plans for installation of equipment capable of handling 1,000 cubic yards per day. The property has been thoroughly sampled for further operations by the new operators and development on a large scale is planned for the near future. Clair Dunbar is an official of the company.

Seventeen men are employed at the Poverty Gulch gold placers on Coffee Creek near Carrville, California, where a shaft has been sunk to a depth of 48 feet. Both fine and coarse gold are being obtained at that level, although bedrock, which is at an approximate depth of 50 to 55 feet, has not been reached. The property is equipped with a 20-foot headframe, gasoline hoist and a 35-horsepower steam engine and boiler, which drives a series of two four-inch sinking pumps and a lighting generator. The gravel is hoisted to an elevation of 12 feet above the surface, where it is dumped into sluices for recovery. The deposit, embracing 100 acres of patented land, is reported to have bedrock values as high as \$27 per acre, and as soon as bedrock contours are established, extensive drifting is planned. The property is owned and operated by Paul C. Roth of Carrville.

Three parallel veins, 10 feet apart, have been intersected by a crosscut tunnel at the Lonesome Pine mine, George D. Conroy, superintendent, Tuolumne, California, and drifts showing high-grade ore have been driven on two of the ledges. Installation of a three-stamp mill is planned for the immediate future. A compressor, steam engine and pipe for a water line have been received at the mine.

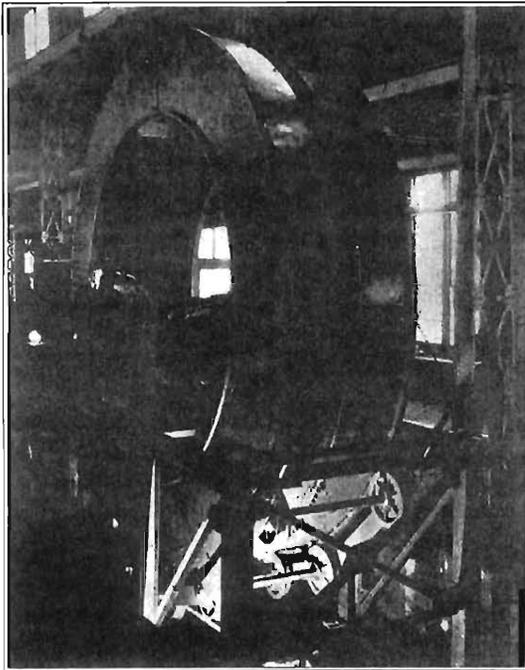
A small test mill has been installed at the Pine, California, to handle samples from the Rumbley mine in the Sherlock district. If the tests prove satisfactory, a full mill will be installed and mining operations begun on a substantial scale. The property is under lease to Elmo Eidson of N. D. Chamberlain from Bob McLean, of Midpines, California.

Albert L. Olmstead and K. D. Gibson, operating the Clipper mine, Georgetown, California, have drained the 100-foot shaft and have encountered a ledge of milling

The three-stamp mill at the Peterson mine, Pine Grove, California, is to be expanded to 10 stamps within a month, according to W. F. and P. F. Peterson, owners.

The increase in mill capacity following opening of an eight-foot vein said to assay \$905.80 a ton. A. F. Muter, Lankershim Building, Los Angeles, is consulting engineer.

The Kennedy mine at Jackson, Amador County, California, owned and operated by Kennedy Mining and Milling Company, closed operations February 22 following a shutdown since October 2, 1934, due to the mine strike. This is the last of the four mines, closed down by the strike, to resume operations. Others were the Argonaut, Central Eureka and Amador mines. The Central Eureka is the only one which has recognized the union, the



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"The Mill has more than met your original recommendations. When we are running at the rate of 50 tons per day, the actual power consumption, including Mill, Feeder and Classifier, is between 28 and 30 H.P. We are grinding to about 5% on 65 mesh. . . ."

". . . We are quite proud of the whole layout, and feel that we have the lowest cost operating concentrator of this size in the country. . . ."

". . . We take this opportunity of expressing our satisfaction with the manner in which your Company has stood behind this Mill and for your cooperation in placing it in the splendid operating condition it is today. . . ."

". . . When the Mill was temporarily closed down a couple times for alterations many rumors were circulated to the effect that the Mill was a failure. From the above report you can readily see that these rumors were groundless. In our opinion the Mill is a distinct advance in the grinding of metallic ores."

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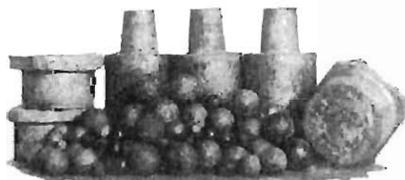
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other three resuming operations on the same basis as that existing before the strike. The first crew at the Kennedy was put to work pumping water from the tanks on the 500-foot level and clearing of water from the lower levels is to start later. Webb Smith is superintendent.

D. T. Schweikert, Glendale, California, and associates, have taken over the Sugarman, Sell and Pedro mines near Sonora, California, and will operate under the name of the **Universal Mining Company**. Roscoe M. Oliver, Sonora, is in full charge of activities and Ralph H. Butler, who, with associates, has been operating the Sugarman for the past four years, is consulting engineer. Plans for the properties include extension of the Pedro tunnel into the Sugarman ground, driving of a crosscut to the Sell vein which will give 300 feet of backs on that ledge, and drifting in a southwesterly direction on the 380 or bottom level of the Sugarman.

The **Montezuma Dredging Company**, headed by J. M. Lucientes, 57 Post Street, San Francisco, California, has resumed activities at its gravel property near Jamestown, California. Work was started on a one-shift basis, but it is planned to go on a two-shift basis soon. A steam shovel is used in operations.

The **Bandarito Consolidated Gold Mining Company**, 111 Sutter Street, San Francisco, California, under the management of C. T. Eastman, is extending the tunnel toward the Goodman shoot, and some promising ore bodies are said to have been encountered. The property is in the East Belt of the Mother Lode near Coulterville, California.

A new 100-ton mill is being erected at the **St. Lawrence** mine near Greenwood, California, according to the Harris Engineering Company, Philharmonic Building, Los Angeles. The mill is to serve as a pilot plant to be used in determining the values in the large block of decomposed porphyry, which is to be mass mined by steam shovel. Should the results prove satisfactory, it is understood that a 250-ton mill is to be added. The machinery has been shipped and a mill engineer engaged to take charge of erection.

A 300-ton cyanide mill is being planned for the **Cherry Hill** mine at Colusa, California. Operations at the property are carried on through open pit methods and the mine is equipped with Diesel power. A crew of four men is employed. This mine is owned by C. B. Conlin, 1107 Bankers Building, Los Angeles, who also owns the Salmon mine at Nevada City, California, the Dart mine at Nevada City, and the Avenisino mine at Placerville. These three properties are also operating with small crews. At the Avenisino a 25-ton mill is being constructed; machinery is being installed at the Salmon, and developing is being done at all three properties. D. J. Miller, 1107 Bankers Building, Los Angeles, is general manager for the four properties, with H. H. Fields, Box 148, Prescott, Arizona, as consulting engineer.

Two new shafts are being sunk on the vein at the **Descanso** mine, Descanso, California, and have reached depths of 55 and 25 feet. Drifting and stoping are also under way. This makes a total of three shafts with the greatest depth attained being 250 feet. The amalgamation mill is handling approximately 12 tons daily. Gas power is used in operations at the mine. The Descanso is owned by the Descanso Mining Corporation of California and is being operated under lease by Will Crosby. Operating officials are Don Hawkins,

mine superintendent; Fred Hackney, assistant mine superintendent; Fred Creese, superintendent; Lynn Duncan, chief mechanical engineer; Cecil Creese, chief electrician, and E. H. Depew, 44 Sefton Street, San Diego, California, is purchasing agent. A total of 15 men is employed on the property, eight in the mine, four on the mill and three in surface operations.

#### COLORADO

A new mill is under construction at Cottonwood Creek, near Saguache, Colorado. The plant will handle ore from mines on the Baca Grant. C. O. Parker, 1901-09 Lawrence Street, Denver, was reported to have taken a blanket lease on the properties of the Baca Grant last year and to have organized the **Sangre de Cristo Mining Company**. A crew is now at the **Louis Maria Baca Mining & Milling Company** in the same district.

Roy Day, leasing on the **Twin Lakes** placer and working on the bank of the Arkansas River, about a mile above Granite, Colorado, is reported to have made an important gold discovery. It is stated that development shows a vein, two feet wide, which carries values ranging from 2.00 to 5.00 ounces in gold to the ton.

The **Anchor** mine, two miles south of Central City, Colorado, is being reopened, after an idleness of 20 years, by the **Willis Gulch Mining Company**, Roy Perry of Idaho Springs, president and general manager. Official headquarters of the company are at Idaho Springs. The 500-foot inclined shaft has been reconstructed to the 400-foot level, and work is progressing to contact known ore showing carrying gold and silver values. The shaft is equipped with an electric power hoist. Ten men are employed and Perry plans to start shipments of the higher grade ore at an early date.

R. G. Sullivan & Company, said to be backed by Chicago capital, sub-leased from the fifteenth to the nineteenth level south of the shaft, on the **American Eagle** property of the **Stratton Estate**, Cripple Creek, Colorado, are reported to be shipping several cars monthly. Ray Sullivan is in charge of the work, which extends beyond the Eagle into Findley and Shurtloff ground. At present the company is driving two stopes which are expected to intersect at the junction of the Findley and the Eagle veins. The mine is under lease to the **Western Mining & Leasing Company**, controlled by Harry Woodman and John Shaw of Cripple Creek.

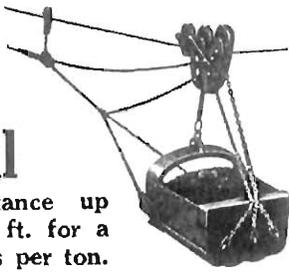
Equipment, including Diesel engines, a compressor, and jackhammers, will be installed at the **New Deal Mining Company** ground at Gateway, Mesa county, Colorado, and operations are scheduled to start around the first of June. The company is owned by Jack Landis and Lee Watts, 1065 Villa Street, Mountainview, California. The principal values in the mine are stated to be in radium.

The **Gregory-Bates Mining Company**, Blackhawk, Colorado, started the reconstructed mill, the Fifty mill, early in January. The 50-ton plant was revamped under the direction of Edward L. Sweeney of Denver, the flow sheet including medium grinding, classifiers, fine and coarse tables, and a carpet plant for slimes. Three shifts are now at work with 10 stamps dropping, John McNeill in charge. The company intends to increase the capacity of the mill in the near future. Herbert C. Shotwell is general manager and Douglas M. Todd is president. Company offices are at 732 U. S. National Bank Building, Denver.

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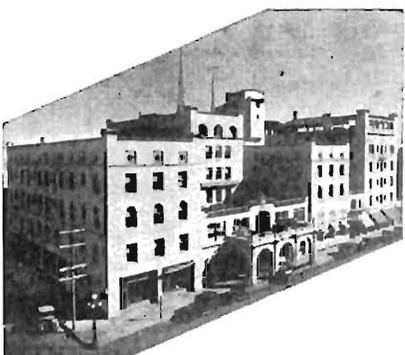
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The usual dividend of 15 cents has been announced by the **Kennecott Copper Corporation**, E. T. Stannard, 120 Broadway, New York City, president. The payment will be made on March 30 to stock of record March 15.

Work has been resumed on the contract, held by Abner Gray of Eureka, Utah, for drifting 400 feet on the main tunnel level of the **Lehi Tintic Mining Company** property in the northern part of the Tintic district, Utah. Development was started last July at the end of old main tunnel, which is in 1,400 feet, but work was interrupted after 152 feet had been accomplished. The drift is intended to cut the Lehi Tintic and Gold Blossom veins at depth in an undeveloped portion of the company's ground. An engine and compressor were installed at the mine in preparation for expanding operations. The company is headed by Carl A. Badger of Salt Lake and is under the management of Ralph A. Badger, 16 West Second Street, Salt Lake.

The A. F. Kipps lease on the **Utah Metal & Tunnel Company** at Bingham Canyon, Utah, is reported to be increasing its weekly tonnage from 500 to 1,000 tons. To take care of this increase trolley haulage will be installed and more men employed. A. F. Kipps of Bingham Canyon holds a three and one-half year lease, extending from May, 1933, on the ground.

### WYOMING

Plans for the installation of a Wedeman mill, or something similar, and modern mining machinery are being drawn up by officers of the **Independence Gold Mining Company** at Centennial, Wyoming. Alvin M. Burhans, president, states that mill-run tests on the complex ores were recently completed and the results were satisfactory, recovery running over \$19 in gold a ton. The test was made in a Wedeman mill at Clifton, Virginia, and is reported to have proved the treatment more satisfactory than other methods used. A large body of \$8 to \$14 gold ore has been opened on the property. Jack Archer of Centennial is mine superintendent.

The 50-ton mill at the **Utopia mine** at Centennial, Wyoming, will be put in operation after the middle of the present year, according to Bernard Holtum of Centennial, who is secretary and manager of the **Commercial Gold Mining Company**. Commercial Gold is subleasing the Utopia property to the **Buckeye Mining Corporation**, M. L. Rogers of Centennial mine manager. This property adjoins the Commercial mine, which is idle at the present time. Holtum states that his company will await royalties from the Buckeye before resuming development. Peter C. Rodgers of Fort Collins, Colorado, is president of the Commercial, and A. C. Dart of Laramie is consulting engineer. The Commercial ground is developed by 1,350 feet of mine workings, the greatest depth of which is 320 feet. The mill is a cyanidation-flotation plant.

### LOS ANGELES GROUPS OPPOSE CERTAIN MINING LEGISLATION

According to a report from John Herman, the well-known assayer and chemist of Los Angeles, the Mining Association of the Southwest, the Los Angeles chapter of A. I. M. E., and the Los Angeles Chamber of Commerce have declared themselves as opposed to all proposed laws taking power away from the California State Mining Bureau and providing political appointees of some other bureau or branch of the government to supplant it.

They are also against the state operation of mining properties.

They have declared themselves, according to Herman, in favor of a civil and mining engineers' licensing law for the state if such a law can be properly drawn and administered.

### RESEARCH FELLOWSHIPS GIVEN BY UTAH AND MONTANA STATIONS

Ten fellowships will be offered by the Utah Engineering Experiment Station of the University of Utah for the year 1935-36, and are open to college graduates who have had the proper training in mining, metallurgy, or chemistry, or who are qualified to undertake research work in some particular branch of engineering.

Fellowship men are exempt from tuition and all fees except the graduation fee of \$10 and laboratory fees in courses taken outside the department.

Fellows will register as graduate students in the University and become candidates for the degree of Master of Science (unless this or an equivalent degrees has been earned). Their class work in the University will be directed by the heads of the departments of instruction, but the greater portion of their time will be spent in research work, on the problem assigned to them, and they will do their work under the direction of a member of the staff of the Utah Engineering Experiment Station or of the Intermountain Station of the Bureau of Mines.

The purpose of the work is to undertake the solution of definite problems confronting the mining and metallurgical industries. For 1935-36 fellowships will be granted in the following subjects:

1. Mine Ventilation.
2. Microscopic Investigations.
3. Ore Dressing Studies.
4. Flotation Fundamentals — Physical chemical investigations of flotation phenomena.
5. Pyrometallurgy — Roasting, smelting, and volatilization in connection with non-ferrous ores.
6. Hydrometallurgy — Leaching of non-ferrous ores; electrodeposition of metals.
7. Thermodynamic properties of sulphides and other compounds of metallurgical importance.
8. Bituminous Coal Research.

Applications, with a certified copy of collegiate record, statement of experience, and names and addresses of three references, will be received up to May 1, 1935. Applications should be addressed to: The Director, Utah Engineering Experiment Station, University of Utah, Salt Lake City, Utah.

The Montana School of Mines of the University of Montana, in cooperation with the state bureau of mines and geology, offers several similar research fellowships and graduate assistantships in geology, metallurgy, mining, and ore dressing.

Fellowships in metallurgy, mining, and ore dressing are for nine months beginning September first and carry a stipend of four hundred dollars. Fellowships in geology are for eleven months beginning July first, and carry a per diem allowance for field work during July and August, and a stipend of four hundred dollars for the remaining nine months.

Assistantships in ore dressing are for two nine-month periods beginning on September first of two consecutive years and carry a stipend of eight hundred dollars for the two periods. Assistantships in geology are for two nine-month periods beginning on September first of two consecutive years and carry a stipend of eight hundred dollars for the two periods.

secutive years, and for the intervening summer. They carry a stipend of eight hundred dollars for the two periods besides a per diem allowance for field work in the intervening summer.

Fellows and assistants will register as students in the School of Mines and become candidates for the degree of Master of Science in geology, mining, or metallurgy. All fees except diploma fee are waived.

Applications with certified copy of college record, statement of professional experience, recent photograph, and three references should be addressed before May 1, 1935, to: A. M. Gaudin, Chairman, Graduate Committee, Montana School of Mines.

**PROSPECTORS' ORGANIZATION MOVEMENT GROWS IN NEVADA**

The idea of organization of the smaller mining people and of those who are "mining minded" seems to be growing, in the opinion of James A. Johnson, corresponding secretary of the White Pine County Prospectors' Association. Johnson recently returned from an organization meeting of miners, prospectors, leasers, and operators at Las Vegas, Nevada. Seventy-eight names appear on the membership list of the new group, which requested a copy of the constitution and by-laws from the White Pine association for what benefit it might be to them in perfecting their organization.

This new group calls itself the Prospectors' and Miners' Association of Boulder Dam District, with A. G. Hillen, 127 South Main Street, Las Vegas, secretary. Another organization for the same purpose was formed at Winnemucca, called the Nevada Prospectors' Association. The Prospectors' Association of Elko County was formed at Elko, with Stanley E. Davis as one of the leading spirits, and the Wells Prospectors' Association, Mabel McElrath, secretary, was started at Wells.

Such activity shows the trend of thought in the world of mining men who hope for mutual benefit through organization. A movement toward a state organization, representative of these various groups in Nevada, is at present in the formative stage, and backers hope to have such a plan perfected within the coming year.

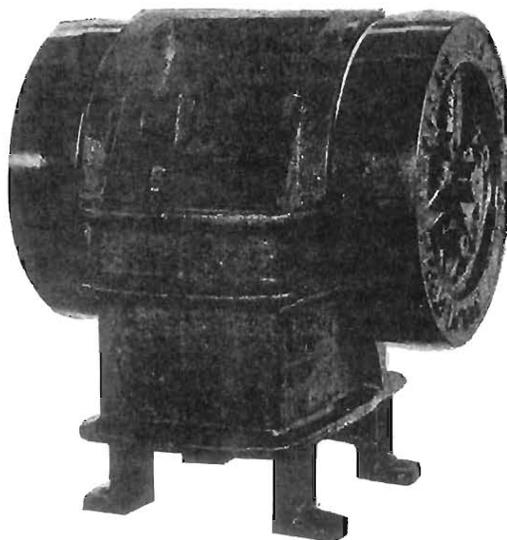
**BURTON BROS. PURCHASE MOJAVE SMELTING PLANT**

The smelter recently completed by the Mojave Smelting Company at Mojave, California, at a cost reported to be in excess of \$70,000, has been purchased by Burton Brothers, Rosamond, California. The new owners plan to dismantle the smelting equipment, which will be used in their mill at the Tropic mine.

The assay office operated in connection with the smelter, and in charge of Earl Whitney, will be maintained at Mojave for custom assaying. It is also planned to operate a sampling works at the Mojave smelter location to handle small lots of ore of smelting character which cannot be properly treated in the cyanide plant at Rosamond.

On the 500-foot level at the Tropic mine, also operated by Burton Brothers, at a point 500 feet west of the main shaft, an ore body has been encountered which is said to run \$56 to the ton across a four-foot face. Another ore body, recently opened in one of the upper levels, has been stoped out and 20 carloads are reported to have run more than \$400. H. Clifford Burton, Rosamond, is directing operations.

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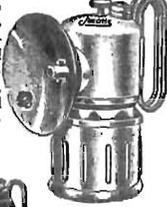
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## SURVEY OF TOMBSTONE AREA SHOWS MANY ACTIVE MINES

Most of the work being done by the 300 men employed by the various active companies in the Tombstone district of Arizona is in the "replacement ore bodies," above the 400-foot level, with little work being done in actual veins. This report is made by Eldred D. Wilson, who is conducting a survey of the Tombstone area for the Arizona Bureau of Mines, in conjunction with the U. S. Geological Survey.

Although the present activity is chiefly in shallow workings, Tombstone is shipping an average of a carload of ore daily. In addition, some high grade is treated in small cyanide plants on the ground.

Many famous old claims are being worked again, such as the Empire, Prompter, Toughnut, Silver Thread, and Oregon. However, the Contention, which yielded millions before the pumps were drowned by water from the lower levels, is still idle. The steam pumps of that day were inadequate to handle the flow, but Wilson states that modern machinery could solve the problem.

## IMPROVEMENTS PLANNED BY K. AND M. MINING COMPANY

The K. and M. Mining Company at Hornitos, California, has mapped out an extensive improvement program for its property which includes complete electrification of the plant by June 1, 1935, and the erection of an office building and new bunk houses at a cost of approximately \$25,000.

The shaft at the St. Mary mine is to be sunk to a depth of 300 feet and the air shaft will be sunk another 100 feet. Drifting, both north and south, is also planned in the Tulito shaft. A vein of broken quartz, 150 feet wide and 1,500 feet long, is to be mined to a depth of 20 feet with a power shovel. This surface ore is said to average \$5 to \$7 per ton.

A 100-ton Denver quartz mill, tables and crushers, have been completed and a four-cell Groch flotation unit has been selected for installation. Plans are under way for completion of the sale of 50,000 shares of stock on the eastern market.

A. R. Mascaro, general manager of the company, is located at 1424 Sixth Street, Santa Monica, California. Other officers are Charles L. Kidwell, president, 6633 Colgate Avenue, Los Angeles; Dr. R. J. Morrison, vice-president, and Darwin Strass, director. D. C. Sargent is mine superintendent and E. E. Caree, mill superintendent at the property.

## DR. FINCH GIVES FAVORABLE REPORT ON POPE-DIMOND BILL

The Pope-Dimond mining and relief bill to provide government operation of promising mining properties where private capital is unavailable has been approved by Dr. John W. Finch, director of the United States Bureau of Mines.

Under the bill, sponsored by Senator Pope (Idaho) and Delegate Dimond (Alaska), a fund of \$100,000,000 would be set aside for the bureau of mines to develop new and work old properties within the United States and its territories.

Dr. Finch appeared as a witness before the subcommittee of the Senate mining committee and said that while he would not anticipate that returns from activities as provided in the measure would show a profit, he believed it would materially aid in decreasing the cost of relief and add considerably to the stocks of precious metals in the United States. He indicated that re-employment under the bill would be most rapid in the gold mines.

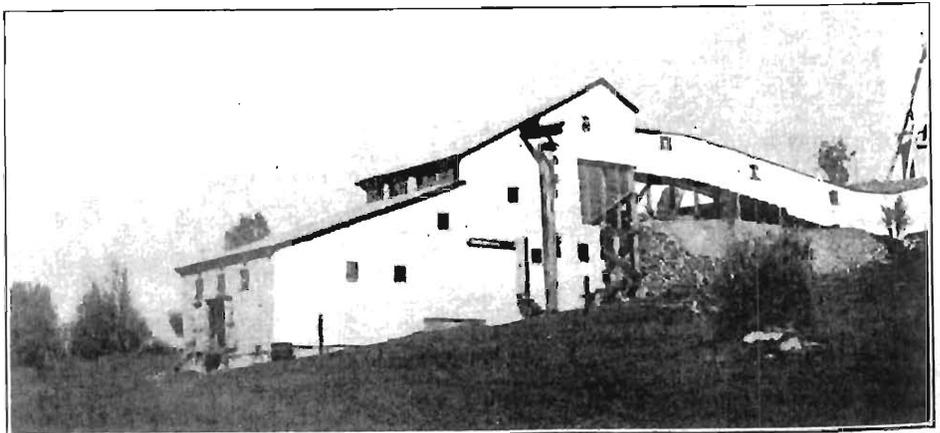
## RUSSELL GOLD ENLARGING THE MILL AT THE VISTA MINE

Another battery of five stamps is being added to the mill at the Vista mine, at Angels Camp, California, by the Russell Mining Company. This will give a total of ten 1,000-pound stamps at the mill. The present stamp mill has been running constantly since last October.

The ore is crushed to 30 mesh, passed over splash and sluice plates, and then routed to a Deister Plat-O concentrating table where recovery is completed. This flowsheet is said to have proved highly satisfactory, due to the high content of free gold in the ore, and to date the tailing losses have not exceeded 60 cents per ton.

The Vista mine is one of the newer mines of the Mother Lode, work having been started there less than two years ago. It has been developed by a 300-foot shaft, sunk on a 65-degree incline. A 10-foot vein has been developed on the lower level and it is from this work that principal production is coming. Underground workings are being extended, and further sinking of the shaft is contemplated upon the completion of the mill.

The Vista mine is owned and operated by the Russell Gold Mining Company, which is composed of a group of Santa Barbara, California, men, headed by James A. Phelps, president. Joe Benthaur is mine superintendent, and J. J. Murray, Box 1058, Angels Camp, is consulting engineer.



The mill and conveyor building of the Vista Mine of the Russell Gold Mining Company. The capacity of the plant is being increased by the addition of five 1,000-pound stamps.

inches in width and is reported to carry 5.00 ounces gold, 6.38 ounces silver, and 28 1/2 per cent lead to the ton.

In the same territory the company has been developing a vein five to eight feet in width which is stated to run from \$6 to \$80 a ton. C. G. Taylor is general manager and chief engineer.

**CUSTOM MILL PLAN PRESENTED RECONSTRUCTION FINANCE CORP.**

Wm. H. Harrison, Denrike Building, Washington, D. C., has presented to the Reconstruction Finance Corporation a plan for the erection of custom mills for the treatment of gold and silver ores which, it is believed, is within the scope of the act. The plan is now under consideration by RFC authorities.

While the details of the plan have not been made public as yet, and cannot be until it is fully determined whether it comes within the original terms of the act, it is stated to be unique and quite different from any form which has heretofore been contemplated by sponsors of such measures. While many such plans have been proposed in the past, it has been found that RFC did not have the authority to act.

**WILSONS PLAN NEW EQUIPMENT AT BLACK OAK MINE, CALIFORNIA**

Edwin W. and Russell J. Wilson, owners of the Black Oak mine at Garden Valley, California, have purchased a complete Diesel power plant, including a.c. generators, etc., of sufficient size to furnish power for the mine and mill and also to supply the immediate district. Arrangements have also been completed for purchase of a 100-ton mill which will be installed near the present shaft.

The mill will be equipped with flotation units and a concentrating table and

will handle ore from the Black Oak, Dav-enport, Shepherd and Safeway mines, all operated by the Wilsons. They are also contemplating applying for a franchise permitting them to furnish electric power to the Garden Valley district from their new Diesel power plant.

A full-size working shaft has been completed on the Black Oak, extending from the 108-foot level of the winze to 20 feet above the surface, to provide sufficient fall for the ore to the mill. The 128-foot shaft was completed in two weeks, working three shifts, and has been timbered for the entire distance. Twenty-eight men are employed under the direction of H. A. Weiler, superintendent.

**MANGANESE OUTPUT SHOWS MARKED INCREASE IN 1934**

Preliminary returns received by the U. S. Bureau of Mines from all present known producers of manganese and man-ganiferous ores in 1934 indicate that the shipments of ore containing 35 per cent or more manganese were 40 per cent more than in 1933; that the shipments of ore containing 10 to 35 per cent manganese were 33 per cent more than in 1933; and that the shipments of ore containing 5 to 10 per cent manganese were 11 per cent greater than in 1933.

Shipments of manganese ore containing 35 per cent or more metallic manganese from domestic mines (exclusive of Puerto Rico) in 1934 were approximately 26,000 long tons valued at \$600,000, compared with 18,558 tons valued at \$452,173 in 1933. Shipments of manganese ore from Puerto Rico to the United States during the eleven months ended November 30, 1934, were 1,461 long tons valued at \$60,500, compared with shipments for the entire year 1933 of 1,638 tons valued at \$66,450.

The total shipments of manganese ore in 1934 (exclusive of Puerto Rico) consisted of 17,100 tons of metallurgical and miscellaneous ores valued at \$305,000 (10,654 tons valued at \$186,407 in 1933) and 8,900 tons of battery ore valued at \$295,000 (7,904 tons valued at \$265,766 in 1933).

Manganese ore was reported shipped from Arkansas, California, Georgia, Mont-ana, Tennessee, and Virginia in 1934 in quantities ranging from about 160 tons in California to about 11,600 tons in Mont-ana. Montana, Arkansas and Georgia to-gether supplied about 23,300 tons, or about 90 per cent of the total shipments.

The imports for consumption of man-ganese ore for the eleven months ended November 30, 1934, amounted to 310,136 long tons containing 152,740 tons of metallic manganese, compared with 288,-187 tons of ore containing 141,458 tons of metallic manganese during the entire year 1933. Of the ore imported in 1934, 115,793 tons were from Soviet Russia, 64,548 tons were from the Gold Coast, 55,834 tons were from Brazil, and 51,478 tons were from Cuba.

Shipments of domestic ore containing 10 to 35 per cent manganese (ferruginous manganese ore) in 1934 were about 17,000 long tons valued at \$71,000, compared with 12,779 tons valued at \$57,837 in 1933. The ferruginous manganese ore shipped in 1934 was from Alabama, Arkansas, Georgia, and Montana.

Shipments of domestic ore containing 5 to 10 per cent manganese (mangan-iferous iron ore) in 1934 were about 198,-000 long tons valued at \$512,000, com-pared with 178,852 tons valued at \$471,-367 in 1933. All the manganiferous ore shipped in 1934 came from Minnesota and Michigan.

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## Geophysics As An Aid In Gold Placer Drift Mining

Every miner knows much of the history of the discovery of gold in California in 1848, followed by the gold rush in '49. Few, however, realize the full economic importance of California's contribution to the gold supply of the world and the relative proportion contributed by the placer mining industry as compared with the production from quartz mines.

The facts are that the state leads all other states in gold production and has contributed 25 per cent of the United States production, two-thirds of which came from placer mining.

The State of California has produced since the discovery of gold in 1848, followed by the historic gold rush of '49, approximately one and a quarter billion dollars in placer gold.

California reached her peak annual production of \$81,274,700 in placer gold in the year 1852, and for the 10 years preceding 1884, produced over 12 million dollars per annum, the greater portion of this production coming from a multitude of small operations.

During the period 1870-1880, the tailings from these larger placer operations were dumped into the nearest streams, the fine material being carried down by the flood waters and washed out upon the farm lands, causing much damage thereto.

This resulted in long and expensive litigation, a bitter fight between the farmer and the miner, finally culminating in 1884 in the famous Sawyer decision restricting the miners from dumping their mine tailings into the Sacramento and San Joaquin rivers or their tributaries.

This action killed the then thriving hydraulic mining industry in this region. In 1893 the Caminetti Act was passed, permitting the resumption of mining provided that suitable dams were constructed to store the tailings. However, the expense of constructing these large dams, together with the strong public feeling against the industry, prevented the early resumption of this form of mining.

The California State Mining Bureau in Bulletin No. 92 reports that there are seven billion cubic yards of commercial auriferous gravel located along the Yuba, Feather, Bear, America, Mokelumne, Cosumnes, Calaveras, Tuolumne and Stanislaus rivers, 60 per cent of which is so located that it can be worked commercially and an expected to produce \$600,000,000 (over one billion new price) in placer gold. In addition to this there are large known auriferous gravel areas on the Trinity and Jamath river basins.

At the point where these streams leave the mountains and spread upon the large central valley of California, extensive deposits of auriferous gravel were formed suitable for dredging purposes. After many failures the ladder type bucket-dredge was developed to a point of commercial success about 1900, and from that time on this type of mining became an important source of gold production. During the year 1932 the placers within the state produced \$4,765,475 in gold, making 41 per cent of the state's total production. This production was divided as follows: 82 per cent dredging; 11 per cent surface placer; 4 per cent drift placer; and 3 per cent hydraulic mining.

Consulting Engineer, Los Angeles, California.

*Difficult geological problems encountered in the development of ancient river channels may frequently be solved by the use of geophysics. The following article illustrates the success of this method, as applied in the Grizzly Flats district in California.*

The recent increase in gold price has greatly extended former dredging areas and has enhanced the value of the state's large auriferous gravel reserves suitable to hydraulic mining. Thus, the latter industry, after 50 years of lying dormant, is attracting renewed attention.

There is one source of placer gold peculiar to the State of California which, although as yet comparatively little developed, gives promise as an important future source of supply.

On the western flank of the Sierra Nevada mountains, extending from Mariposa county on the south to Lassen county on the north, there exists an extensive tertiary river system buried under a volcanic mud flow.

These rivers had their beginnings back in the early Cretaceous time and their life extended down to later tertiary, perhaps more than 100 million years of life as compared with the present stream, whose length of life is less than two millions of years. These ancient streams existed during a period of long, slow erosion accompanied with deep rock decay, making more or less perfect conditions for the accumulation of placer gold deposits. The modern streams, fed by the melting mountain glaciers of the ice age and increased rain and snow fall, cut deep V-shaped canyons by rapid erosion which allowed little or no time for rock decay. As consequence, the ancient placers are generally much richer in placer gold content than the modern streams, except at points where the later have been enriched by the cutting through and re-washing of the ancient channels. These facts make the exploitation of these ancient placers an attractive field of investment.

As to the extent of these deposits, quoting from "Ore Deposits of the Western States," A.I.M.E./33, Page 430, "Existing remnants of the gravel deposits in the tertiary channels have been estimated to aggregate 400 miles in length."

These channels being buried under from a few feet to several hundred feet of overburden, except where exposed by later erosion, have to be developed by underground mining methods.

In placer deposits of this nature two-thirds of the gold content is found on or within four or five feet of bed rock. In practice it has been found that this bottom strip is the only portion of the deposit that contains sufficient values to pay to work by underground methods.

In the past, considerable difficulty has been experienced in locating the ancient buried channels. Drilling, tunneling and shaft sinking have been resorted to, but all have proved to be expensive methods of exploration.

With the advent of geophysics a new tool has been found to aid the geologist in locating and the mine operator in developing these placer deposits. By this means, not only the location, but the depth and cross-section of the channel can be ascertained by a geophysical survey on the surface.

In many cases these ancient channels have been disturbed and distorted by faulting and by later igneous intrusions, making their exploration by the former method of drilling and underground development very difficult and expensive.

The accompanying geological map illustrates how one such problem was solved by geophysics. The channel shown is one of the northern branches of the tertiary Mokelumne River, at Grizzly Flats in Eldorado county, California.

The field work was done in May and July, 1933, under the supervision of the author, as geologist, with the assistance of Dr. G. Grossman of San Francisco, as geophysicist.

In this case the entire width of the tertiary valley had been originally filled with a rhyolitic mud flow to a depth of several hundred feet. The present remnants of this flow range from a few feet to more than 200 feet in depth. The total survey covered approximately two miles in length of channel, only a portion of which is here shown.

Dr. Grossman used high-voltage electrical equipment, basing his determinations of the depth to bedrock on the combined equipotential and resistivity methods by first calibrating his machine through known depth of mud-flow and gravel to bed rock over the old drift tunnels.

Cross-sections of the channel taken at Section 1 and Section 7 indicated an undisturbed grade line. The main shafts, however, encountered a granodiorite intrusion between these two stations.

Additional readings were then undertaken between these two stations of which Sections 10 and 13 are typical. This further electrical exploration disclosed a fault zone, approximately 500 feet in width, with a horizontal displacement of 100 feet and an equal vertical displacement. This had been followed by a later tertiary intrusion of granodiorite in the fault zone. This intrusion did not penetrate to the present surface and was in no way evident in the surface structure.

It is interesting to note the evident tilting to the east towards the fault of the original stream bed in Section 10 and of a corresponding westward tilt in Section 13.

It will be noted that the original Mesozoic bed rock in Section 7 has been leached to a considerable depth below the original stream bed. In this case the original bedrock grade was re-established through early drift working and surface exposures of tertiary channel.

The outline of the recent granodiorite intrusion was determined by electrical

3-30-35

readings and is shown on the accompanying plan.

The more recent development work, as well as the early drift workings, have verified the geophysical findings.

This is a remarkable example of the possibilities of the use of geophysics in solving the problem of developing these ancient river channels. By the intelligent use of this new tool of the geologist great saving can be made in cost of the underground exploration of these tertiary channels.

A complete geophysical party for this work includes a geologist, a geophysicist, with one or more assistants, and a survey party to take the topographical features, together with the necessary equipment.

In addition to locating of buried channels and the solution of faulting problems geophysics is equally a useful tool in the location of ore shoots including their length, depth, thickness and depth below the surface. It is a mistake to undertake the development of any mining property today without consideration of the application of geophysics. Depths of 2,000 feet or more can be investigated. (In oil work depths of 5,000 feet are not uncommon.)

Geophysics must not be confused with the "Doodle Bug" of which there are many varieties floating around; all are entirely worthless.

Geophysics, meaning the application of the science of physics to the solution of geological problems, is entirely scientific and has nothing of the witch-stick of mystery connected with it. It requires skilled interpretation and must be correlated with all known geological facts that can be established through a careful,

detailed geological survey. Wrongly interpreted, it may be misleading and useless.

The immediate future will unquestionably see a greater use of this science in the development of the mining industry.

**ROCHESTER PLYMOUTH MILL DESCRIBED BY CONTRACTOR**

Lou M. Louis of 722 South Bixel Street, Los Angeles, holds the contract for the new 50-ton flotation mill for the Rochester Plymouth Mines Company at Lower Rochester, Nevada. Archer E. Wheeler, 25 Broadway, New York, is doing the designing and metallurgical engineering.

The mill will consist of: 100-ton coarse ore bin; seven-foot grizzly; nine by 21-inch Telsmith-Wheeling jaw crusher; 100-ton fine ore bin; belt feeder; Denver ore sampler; No. 56 Marcy ball mill; four-foot six-inch by 18-foot Dorr duplex classifier; Denver unit flotation cell; five-foot by five-foot Denver conditioner; six-cell Denver Sub A. flotation machine; 12-foot by eight-foot Dorr thickener; simplex Dorr diaphragm pump; four-foot by three-foot Oliver drum filter; one No. 6 Wilfley concentrating table; and a Scobey tailing sampler. Equipment is being furnished by Mine & Smelter Supply Company of Denver.

The Rochester Plymouth company is developing the old Buck and Charley mine, which was opened in the boom days by Charles Mayer of Lovelock, who interested the present owners in the property and is now resident manager. The mine has been worked intermittently, since its discovery, by lessees who have exposed a considerable quantity of milling ore.

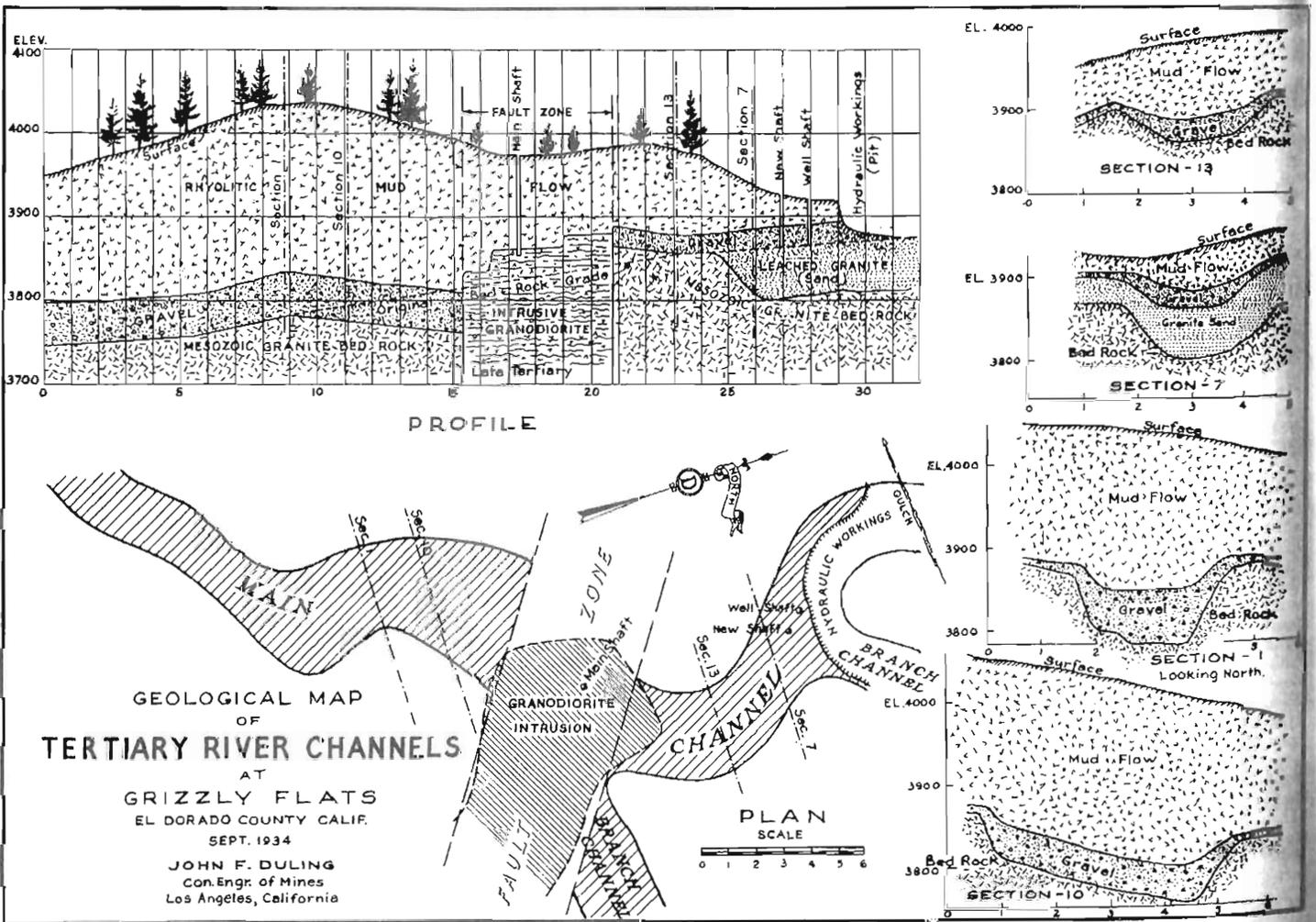
The company recently opened an undeveloped ore body of high-grade sulphide ore on the lower level, and while the quantity is still unknown, Louis states that it looks very promising. A new shaft and crosscut have been put in and connected to the old workings, and will constitute a main haulage way to the new mill. The mine furnishes plenty of water for milling purposes. Westinghouse motors will generate electricity for both mine and mill power.

Charles Oster of Reno is president and general manager. Frank Mulford, Box 191, Lovelock, will be in direct charge of mill operation and metallurgical work, and C. F. Peirano is mine superintendent.

**MILL CONSTRUCTION UNDER WAY AT COMO MINES & TUNNEL CO.**

Construction of the 300-ton flotation unit of the proposed 1,000-ton plant at the Como Mines & Tunnel Company is under way at Dayton, Nevada, where the company holdings are located. Archer E. Wheeler, 25 Broadway, New York City, metallurgical engineer, designed the mill, and Edward L. Sweeney, with offices at New York and in the U. S. National Bank Building, Denver, holds the contract for construction.

Completion of the work is expected around June 1, 1935. Frank C. Mulford, Box 191, Lovelock, is in charge of the mill work for the Como company. Como Mines, Charles Oster of Reno, president, is one of the companies which has received an RFC loan, according to announcement made in January of this year. This month arrangements were completed for the listing of stock on the New York curb



penalty to manufacture products for their export trade by depositing 99 per cent of the duty as drawback. Furthermore, the fabricators and manufacturers are now amply protected by a tariff on their finished products.

In the seventh place, the opponents have stated that the so-called flood of African copper that is pouring into this country is a myth.

It is true that since the enactment of the excise tax there has been no African copper imported into this country for domestic consumption. However, during the months just prior to the enactment of this import duty, African copper was being imported at an annual rate of 35,000 tons.

Finally, it has been maintained that until copper consumption improves from its present low rate, a continuation of the drastic voluntary curtailment program, participated in by the principal foreign and domestic mines, is imperative if a further decline in price is to be avoided. Furthermore, the tariff opponents allege that a tariff or tax would immediately disrupt the present curtailment program and throw the industry into a new state of chaos.

So far as voluntary curtailment is concerned, the only ones who have participated in past attempts to curtail production are the domestic producers. In every instance in recent years where there has been an attempt to gain international cooperation to reduce production and improve the situation, the result has been dismal failure.

International cooperation is impracticable in the copper industry because of the many divergent interests such as: by-product production, political control and subsidizing of copper companies, rivalry of the low-cost foreign producers attempting to obtain as much foreign trade as possible, and also because of the erratic effect of depreciated currencies.

Cooperation in the United States, on the other hand, can be and is being obtained, and as a result, the domestic copper industry has shown substantial improvement since the enactment of the excise tax. In order to maintain this improvement, it is vital that the United States copper industry be afforded ample protection in the form of a tariff.

#### V.—NECESSITY FOR PROTECTION

From the foregoing, it is obvious that protection of some sort is essential if the copper industry is to survive. If the copper industry does not survive, residents and employes in the copper communities, while suffering the most, will not be the only ones who are injured. The indirect effect on people throughout the United States will be both wide and far-reaching since the business of copper mining, smelting and refining is not strictly localized, but is spread all over the country.

Probably the first to feel the influence of curtailed operations are the employes. Thousands of copper miners are still without employment because of the unfortunate situation in the copper industry which is only gradually correcting itself.

The next group to be affected is that composed of the merchants and residents of the copper communities who find that their business drops off due to the greatly reduced purchasing power, and that their taxes rise as the taxes paid by the mines which are forced to curtail their operations decrease.

In 1929, the assessed valuation of mining property in Arizona alone on which they paid taxes amounted to over \$290,-

000,000. In 1934, this figure had declined to \$85,916,712. In 1929, the mines paid over 41 per cent of the state's taxes while in 1934 they paid barely 24 per cent, and the balance had to be paid by those not engaged in mining. This situation is reflected in like relative proportion in all the copper producing states.

The result of this situation in the copper producing states is felt indirectly throughout the United States. The manufacturers who produce mining equipment, the clothing manufacturers, those engaged in agriculture, and many other industries find a greatly decreased demand for their products.

Because of this unfortunate condition, railroad companies have found that their traffic; both in freight to the mines and in hauling copper from the mines to the smelters, refineries, and markets has dropped off greatly. Consequently, they not only have had to release large numbers of employes but have had to curtail their purchases of rolling stock and equipment as well. The effect of the copper industry on the railroads is very marked as evidenced by the fact that the estimated gross revenue of all railroads in the United States attributable to the copper industry in 1928 and 1929 was close to \$60,000,000 per year.

Employes in the oil fields in California and Texas have been seriously affected, as have those working in the forests of Oregon and Washington. In Arizona alone, in 1929, there were 931,561 tons of fuel and 171,625 tons of forest products hauled to meet the demands of the copper industry. In 1933, the corresponding figures were estimated at 126,400 tons and 23,300 tons, a large part of this reduction being due to the development of foreign mines and the dumping of copper in this country by them before the enactment of the excise tax. When it is considered that Arizona produced only 37 per cent of the total output of copper in the United States in that year, the effect of this situation throughout the country can readily be seen.

Fifty per cent of the operating costs of the mines is paid out in the form of payroll which is spent in turn for food and clothing, and 39 per cent is consumed in the purchase of supplies and equipment. Thus, approximately 90 per cent of the operating costs of the mines is spent for consumable goods and is spent in a way that provides employment for thousands throughout the United States.

It has been pointed out that in South America the industry is subsidized as a means of unemployment relief. This competition is felt not only by the employes in the copper industry, but indirectly in the many associated and allied industries which manufacture the products that are consumed as a result of the operation of the copper industry.

The United States producers are asking for no such subsidy. They are merely asking for sufficient tariff protection to equalize the difference between their costs and the costs of producing copper abroad. And protection must be afforded from the point of view of national defense as well as to alleviate the depressed situation in many communities, states, and industries in this country.

In order to have our copper industry prepared for the production necessary in time of war, it must be maintained and developed to a point where it will be capable of expansion to the necessary degree to meet the increased needs that

immediately arise as a result of military activity. If there were no other reason for a tariff on copper, this reason alone would be sufficient.

Foreign nations have encouraged the building up of the copper industry within their control as an essential to their national defense program and their economic independence. In many instances, notably in Germany and Japan, the industry has subsidized their own high-cost producers. In the past war, Germany, having no adequate domestic source of copper, was greatly handicapped.

Secondary copper was recovered from all conceivable sources. Gutters were even removed from buildings in an attempt to supply the requirements. As a matter of fact, a shortage of raw materials contributed materially to Germany's defeat and as a result she is preparing herself for the future by encouraging the development of such essential raw material industries as the copper industry.

It must be borne in mind that the copper mines cannot be shut down for long periods of time and then reopened and put into operation without extensive preparation, delay and prohibitive cost. Moreover, exploration and development work which creates the reserve necessary in case of an emergency automatically stops when the industry in general ceases to be profitable.

An even more serious consequence of the abandonment of copper mines is the great loss of one of our most valuable resources. In many cases, a mine once abandoned can never be worked again, and, in all cases, large parts of the ore body are irretrievably lost due to caving and deterioration.

If the domestic industry is not protected, those mines which are able to remain open will find it necessary to mine only the high-grade ore and pass up the low grade in order to meet foreign competition. Once ore is passed up, particularly in underground workings, it seldom can be recovered. On the other hand, copper once mined is not lost but can be reclaimed again and again in the form of secondary copper.

#### VI.—CONCLUSION

Although the domestic copper industry has shown substantial improvements since congress provided for a four-cent duty on imports, it still has enormous stocks on hand which must be absorbed before the copper companies can take advantage of this improvement and increase their production.

There is no longer a foreign market for our copper and if the United States producers are to retain the domestic market, the United States must continue to provide protection for this industry in the form of an adequate protective tariff.

While the four-cent excise tax has not been wholly satisfactory, it has been directly responsible for the recent improvements and must be maintained if the advantages gained in the past two years are not to be completely lost due to a flooding of the United States market with large quantities of foreign slave-labor copper.

It must be retained if a complete collapse of the United States copper industry, an industry so large and so important that its destruction cannot fail to have a devastating effect on the internal structure of the whole United States, is to be avoided; if bankruptcy in the copper producing states is to be prevented and if thousands now without work are to be employed.

R. W. LINDHURST\* *advocates use of*

# Spectrography In Mine Prospecting

*Spectrography, the new analytical method, should be of interest to prospectors and engineers. The author suggests some of the reasons for its use in the prospecting and extraction fields of the mining industry.*

Today is definitely an era of new materials, especially in the field of metal alloys. The demand for rare metals and non-metals which this has caused must be met by the mining prospector and engineer. Until now he has been distinctly handicapped by the lack of adequate, economical methods of analysis which not only will assure him of finding rare elements when present in a sample, but will do it at a cost commensurable with ordinary analyses.

Recent developments in spectrographic analytical methods with their inherent simplicity, certainty and sensitivity, have now removed this handicap to a great extent. Today, a single spectrographic picture of an ore burning in an electric arc, records permanently the elemental constituents of that ore even if they are present to only one one-thousandth of a per cent. The measurement of that picture, or spectrogram, then allows a qualitative analysis of the sample for all metals, rare earths and most other non-metals. Thus, a complete analysis may be performed, surely and economically, in two operations.

Such a powerful analytical method, put within reach of the mining fraternity, must of necessity open new vistas. Consider being able to test mineral samples not for iron metals, but for all metals, by a method which makes it impossible to overlook any that are present! New finds not only must result, but are resulting from the use of this comprehensive method.

The spectrograph's high sensitivity, or the ability to detect small quantities of a substance, may well open new fields in scientific prospecting. The small quantities can be used as sign-posts to the larger quantities. For example, it has often been pointed out that erosion does more work for the prospector than a million holes sunk into the ground. A less well-known fact is that the water producing that erosion must bear witness to the soluble salts of that region. When it is understood that the salts present in a tumbler of ordinary water are sufficient to be analyzed completely, even to the most minor constituent, by this method, and that these salts reflect to some extent the mineral content of a terrain, some of the possibilities may be appreciated.

Aside from prospecting, the mining engineering field has much to gain from the use of spectrographic analytical methods. As the more common forms of minerals are exhausted, the engineer is faced with the problem of extracting the elements from the rarer forms. To intelligently attack such a problem, complete analyses, in the full sense, are imperative. In other words, methods which will give all the minor constituents as well as the major ones are necessary, for it is the former which compose the potential impurities in the final concentrates, and often limit the value of the ores. It is also these which occasionally cause interference in extraction processes—interference which may be guarded against if the facts are known. The presence of such harmful traces or impurities can be most easily ascertained by the spectrograph because of its recognized status as one of the most sensitive analytical instruments.

Just as the prospector is entering the field of new metals and rare earths, the mining engineer must in turn enter this field for the extraction of these elements. Here older methods of analysis often do not give satisfactory answers. However, the spectrographic method does and so may be employed to check every phase of an extraction process to insure the maximum yield for each step. It is not merely a boon in this connection, but often an absolute necessity.

These are only a few of the possibilities which come to mind when one considers the use of the spectrograph in connection with mining problems. Many more will doubtlessly suggest themselves to workers in this field. To really appreciate the method, its salient features should be discussed so that the mining man can judge it for himself, and better yet profit by the possibilities thus disclosed. It is with this in view that a series of articles concerning the workings of the spectrographic analytical method will appear shortly.

## LARGE CYANIDE PLANT IS COMPLETED AT KENNEDY MINE

A cyanide plant, said to be the largest in the world, has been completed and is ready for operation to work old tailings of the Kennedy Mining and Milling Company at Jackson, California. It consists of 18 electrically welded steel tanks 42 feet in diameter and 12 feet high, occupying a space 250x750 feet.

More than a million and a half tons of tailings are stored behind the dams awaiting the treatment in the modern \$80,000 plant. The tailings range in depth from a few feet to 40 feet and have been stored for some thirty years. Values run \$1 to \$1.50 a ton.

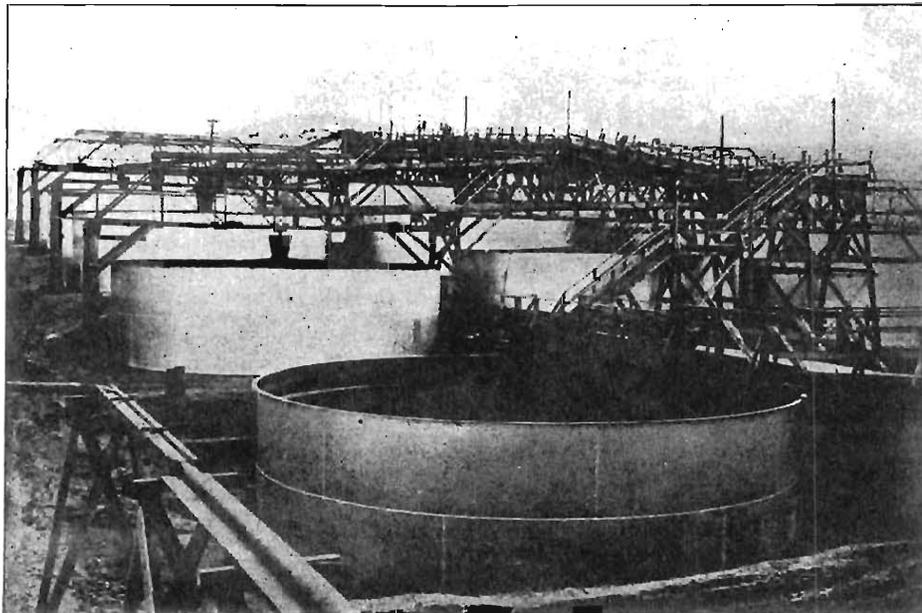
Three shifts, requiring 25 men, will be employed. Plans are to handle approximately 1,000 tons of tailings daily through use of a 125-horsepower centrifugal pump that will raise them from a sump 500 feet away in which they are agitated into a thick slime. Valuable stores of tailings are also to be found at the Plymouth mine, at Plymouth, and the Fremont mine, near Amador City, as the result of a law passed in 1903 compelling mines to impound them.

The Kennedy plant was installed by M. N. Colman, with Jack Trevaskis of Jackson as foreman. The construction was started in July of last year and provided work for 40 men.

## SEC BRANCH OFFICE TO BE ESTABLISHED IN DENVER

A branch office of the Securities Exchange Commission will be established in Denver, Colorado, according to Congressman Lawrence Lewis. First, however, the regional offices in Boston and Chicago will be opened. The Chicago office is under the supervision of Edward E. Barthell, Jr., with headquarters in the Continental Illinois National Bank & Trust Company Building. The Boston office, National Shawmut Bank Building, is supervised by Edmund J. Brandon.

The Denver office will start with a small staff and the size of the personnel will depend upon the volume of business. Announcement will be made later concerning the organization and personnel of this branch, as well as the branch proposed for San Francisco.



A view of the new \$80,000 cyanide plant of the Kennedy Mining and Milling Company at Jackson, California

\*Member of the Staff, Applied Research Laboratories, Los Angeles, California.

## Mill Heads from Western States

Brief items covering the mining industry in the Western United States and Northern Mexico

### ARIZONA

The Arivaca Gold Mining and Milling Company, Arivaca, Arizona, expects to have its milling plant in operation about the first of April. This is a 10-stamp mill with concentrating table and flotation unit. J. D. Murphy is general manager.

Purchase of the Austerlitz mine, two miles west of Ruby, Arizona, by the Eagle Picher Lead Company, operators of the Montana Mines, has been announced. The Austerlitz and Andrews group of 12 claims, two miles west of the Montana, were acquired from Arthur H. Noon, Arivaca, Arizona. These claims were optioned by Eagle Picher last summer and have been extensively sampled. It is believed that these claims hold the extension of the Montana ore body. Diamond drilling of the Austerlitz is to start in the near future. Grover J. Duff is mine superintendent for the Montana Mines, Ruby, Arizona.

Consolidated Arizona Copper Mines Company is operating the Chief mine, adjoining the World's Fair, and the Molly Gibson mine, adjoining the Mowry, both at Patagonia, Arizona. The principal new development to date has been the sinking of a 140-foot shaft on the Chief and lateral exploration at that depth. This work is said to have disclosed a 10-foot vein of lead-silver ore for a length of 25 feet. The geological report on the properties was made by Dwight E. Woodbridge, geologist and mining engineer of Duluth, Minnesota. Fred W. Kochler, 1004 Beaux Arts Building, Los Angeles, California, is consulting engineer, directing the present exploration program.

The Telluride Mining Company, Oatman, Arizona, operated by J. L. McIver, is shipping approximately 200 tons of ore a week to the mill. The ore is being mined on the 600 level. The Telluride mill, under lease to the Big Jim Operating Company, is treating 50 tons daily, since the advent of warmer weather. As a result Big Jim has gone back on a seven-day week schedule, mining 30 tons daily from the 660 level. Rae L. Johnston is general manager of Big Jim.

The Oatman Eastern Mining Company, Oatman, Arizona, is making its second shipment of ore from the Ruth-Rattan mines in the Silver Creek section. This shipment will amount to about 200 tons, mined from the 200 level from an ore body discovered since the present company took charge of the development. J. J. Moss, president of the company, is personally directing the work. Ross Barclay is superintendent.

The Red Horse claim, operated by the Gold Eagle Mine and Milling Company, under the management of L. N. Wombacher, Camp Verde, Arizona, is installing a complete milling plant, capable of handling from 25 to 50 tons daily.

Articles of incorporation have been filed by Scott Lode Mines, Inc., operating under bond and lease a group of two claims near Quartzsite, Arizona. Officers of the company include: G. W. McMillen, president, Quartzsite; Aikman Armstrong, secretary-treasurer, Blythe, California; and C. B. McDonald, Box 1015, Phoenix, Arizona, director. The authorized capital

stock is \$50,000, with shares of \$1 par. The company has erected a small milling plant near the Colorado river, and is treating 25 tons of gold ore daily.

A group of eastern men, in association with Dr. Walter C. Johnson, 586 N. Main, Pomona, California, has acquired the Silver King mine at Superior, Arizona, and plans are being made to start operations early in April. Dr. Johnson will head the company to be organized to conduct the work.

The Derrick Mining Company, Oatman, Arizona, has just completed the installation of 1,000 feet of galvanized air pipe at the mine. The Derrick has been developed by an 813-foot tunnel, and at present lateral work is being done at the 760-foot point. At the annual meeting the following officials were elected. Sam Bayless, president; J. M. Jones, vice-president; C. E. Durlin, secretary and resident agent; W. A. Riley, treasurer. All of the men, except Durlin, who resides at Oatman, are residents of Bakersfield, California.

The Wickenburg Ore Depot, Wickenburg, Arizona, has opened for business and is purchasing gold and silver ore, either high grade or ores assaying \$20 per ton or more. The proposition is backed by William L. Branch, formerly of Tucson, who is in charge. David M. Reck, formerly of Prescott, is assayer. Cash is to be paid for the ore, with a charge of 10 per cent for brokerage commission, plus the usual sampling and assaying charge. This proposition will make it possible for the small operator to take advantage of carload freight rates, and to receive cash for his ore upon delivery at Wickenburg.

C. T. Carpenter, president of Arizona Magma Mining Company, reports that a crew of workmen has been sent to his company's property near Chloride, Arizona, to begin the installation of a 50-mill. It is estimated that the work will involve an expenditure of \$75,000. During recent months extensive tests have been made to determine the equipment and process best adapted to the ore. Company offices are maintained at 618-619 Heard Building, Phoenix, Arizona.

The Apache Silver Mining Company, Superior, Arizona, has reopened its property, after having been inactive since 1930. Complete new surface equipment has been installed, the 200-foot shaft has been retimbered to the 160-foot level, and considerable crosscutting and drifting has been done on the 105 and 160 levels. It is reported that a vein of shipping ore has been opened on the 105-foot level, from which shipments will be made at an early date to the Magma smelter. When this level is on production it is the intention to immediately open the 160 and 200 levels for production. The Apache Silver is an Arizona corporation, largely backed by Los Angeles investors. The company's office is located at 4157 West Fifth Street, Los Angeles, California, with J. J. Malone as secretary-treasurer.

Old Dominion Company of Globe, Arizona, for the year ended December 31, 1934, reports a net profit of \$24,128 after expenses and taxes. In the preceding year the company reported a net loss of \$46,154 after taxes, depreciation, etc., but before depletion. Current assets as of

December 31, 1934, amounted to \$606,008 and current liabilities to \$7,191, compared with \$380,278, and \$9,071, respectively the preceding year.

The report of Shattuck-Denn Mining Corporation, Bisbee, Arizona, for the year ended December 31, 1934, shows a net loss of \$80,135 after taxes, interest, depreciation, depletion, etc. This compares with net profit in 1933 of \$96,491, including \$142,768 inventory credit, equal to 12 cents a share on 798,819 shares of capital stock, excluding stock in the treasury.

The Margarita Gold Mine at Ruby, Arizona, has installed Groch flotation equipment in its mill, to replace the cyanide units formerly used. The company is said to have developed a large body of ore, averaging about \$9 per ton, mining the ore by tunnel and open pit methods. Fred Daniel of Ruby is mine superintendent.

The World's Fair mine at Patagonia, Arizona, may again be listed among the active mines of the state if present plans are completed. The pending option lacks only the approval of the federal court for completion. The World's Fair has been in receivership in federal court for three years, following the death of the original owner, Frank Powers. By agreement of all parties concerned, the mine is to be optioned to Grover Marsteller, banker of Nogales, Arizona, for \$275,000. Hummel and Hummel, attorneys of Tucson, represented the mining company in the deal.

A crew of three men, with pump, sluice box and other necessary machinery, has been sent by Lost Basin Mining District Agency to make further tests of the placer ground along Arizona side of the Colorado River, near Pierce's Ferry. This work will extend over a period of several months, with the results collated by Frank P. Baldi, consulting engineer, Room 509, 321 West Third Street, Los Angeles, who is directing the work. Four pits will be sunk through the gravel, which is said to average 75 to 100 feet above the river level.

The 75-ton mill of the Sterling Gold Mining Corporation, Cordes, Arizona, has been completed and is operating on a 24-hour a day basis. The mill consists of a 5x5 Marcy type ball mill, Dorr duplex classifier, eight No. 18 Denver Sub-A type flotation cells, and a Deister pilot table, together with the usual filtering and thickening apparatus. During the test run just completed, better than 90 per cent recovery was obtained on a mixture of oxide and sulphide ore. The mine is on a two-shift basis, and the discovery of several new and high-grade bodies of mill ore have recently been reported. J. A. Hamilton, president of the company, is in direct charge. George W. Peters is mill superintendent.

### CALIFORNIA

The Alaska Juneau Gold Mining Company plans to add a stamp mill to the plant at the Beebe mine at Georgetown, California. At the present time the Hagedorn mill is crushing 175 tons of ore a day from the Beebe and Alpine mines, with satisfactory results. Steady development is being carried on in both these mines, and the ore on the 500 level of the Beebe is said to be particularly good. P. R. Bradley, 1022 Crocker Building, San Francisco, is head of the organization. L. E. Putnam is superintendent of the Beebe.

3-50-35

According to L. A. Meinecke, the **Little Anna** mine at Minersville, in Trinity county, California, is being reopened. The mine is fairly well equipped, including a 200-ton ball mill. It is being operated under bond by John Sandburg of Los Angeles.

**Duleeke, Inc.**, plans to reopen its 40-ton mill at Groveland, California, about April first. The plant had been closed during the winter. A good grade of milling ore is being opened in the main vein, and exploration is to be started soon on a vein of ore opened recently while crosscutting south from the 100 level on the main vein and at a point 150 feet to the east of the shaft. Offices for the company are maintained at 323 Fidelity Building, Los Angeles. F. W. McRae is president. Edgar A. Smith is superintendent at Groveland.

Harley A. Sill is designing a mill for construction on a portion of the tailings from the **Kelly** mine at Randsburg, California. Plans call for a plant that can take 200 tons of tailings a day. Mr. Sill estimates that 350,000 tons are available for treatment, and his interest there does not include some 80,000 tons of tailings stacked at the Kelly mill. He may be reached at 1011 South Figueroa Street, Los Angeles.

Frank J. Channing, 161 Magnolia Avenue, Auburn, California, is reconditioning and retimbering the main shaft in the **Big Oak** quartz mine at Colfax. Mr. Channing is operating under lease and bond from the owners, Joseph Werry and the Elizabeth Russell estate, of Colfax.

The San Joaquin Light and Power Company has completed construction of a power line to the **Juniper** and **Patricia** mines, near Bear Valley, Mariposa county, California. The new 30-ton mill, designed and built by B. J. Godfrey, will be placed in operation in a few days with the completion of a few minor details. Warren Dutton is mine superintendent.

The 10 stamps at the **Shanghai** mine on Yankee Hill, near Columbia, California, have been placed in part-time operation, with a crew of 15 men. Milling is to be increased to a 24-hour schedule with the completion of shaft sinking to the 400 level. Sinking is now well below 300 feet. Thomas A. Piper of Columbia, and Dan Calcote of Visalia own and operate the mine. Power is furnished by the Pacific Gas and Electric Company and individual motors have been installed for the various mine units.

The **West American Consolidated Gold Mines, Inc.**, at Plymouth, California, plans to replace its Diesel plant with electrical energy, and to enlarge both its mining and milling departments. According to Arthur Hamburger, president, the enlarged mill is working full time and treating 125 tons of ore a day. The ore body at the 800 level of the **Amador Star** mine has been crosscut more than 10 feet and good ore is in evidence. Excellent ore continues to be mined on the 500 level. At the **Bay State** mine, a massive ledge is being developed at the 300-foot level.

J. C. Edwards, American Trust Building, Berkeley, California, is reported to have taken an option to purchase the **Golden Dream** mine in the Jawbone district, near Columbia, California. The property is owned by Alfred Anderson and Loren J. Taylor.

The **Idaho-Maryland Mines Company** at Grass Valley, California, plans the installation of a crusher for operation on the 1,400-foot level of the **Brunswick** mine. According to Harold Lynn, superintendent, the work will be accomplished in about 60 days. The shaft is being sunk and the ore pocket widened. The new tramway has been completed at the Idaho-Maryland old mill. It eliminates the belting system in conveying ore to the mill. The old mill is being used exclusively to treat the **Bullion** mine ore. The **Bullion** mine, which is not connected with the Idaho-Maryland company, pays the latter company a percentage on gold extracted from the 60 tons of ore milled daily. Errol MacBoyle is general manager of the Idaho-Maryland. The company employs 525 men, of whom 100 are working at the **Brunswick**.

The **Kennedy Mining and Milling Company** at Jackson, California, resumed milling on Monday, March 11. Only 20 of the stamps were placed in operation at first, but milling will be increased as soon as the lower levels are unwatered and ore can be removed. Between 60 and 70 men have been given employment, and another 10 men are engaged in removing water from the mine. Wm. Sinclair is superintendent.

John Federwitz of Auburn, California, has bonded the **Isabel** and **St. Lawrence** mines in the vicinity of Garden Valley, Eldorado county. Work is expected to start as soon as the weather will permit.

Los Angeles men have taken a bond, lease and option on the **Red Hill** mine in the Garden Valley section of California, according to announcement of J. G. Lewis of San Jose, the owner. The mine adjoins the **Taylor**, a former heavy producer.

A new mill house is to be erected at the **Pine Tree** mine, Tehachapi, California, for the 18-ton mill, in operation at the property. It is also planned to clean out and retimber 400 feet of old tunnel, as soon as weather conditions will permit resumption of activity, according to Myron H. Vaughan, in charge of operations. The mine is opened by approximately 4,000 feet of workings, most of which have caved. The greatest depth attained is 600 feet on the vein. James D. Brengman, 11638 Mayfield Avenue, Brentwood Heights Station, Los Angeles, California, is associated with Vaughan in operation of the **Pine Tree**.

New mining machinery has been purchased for the **Contention** mine at Sonora, California, recently acquired by the **Kappel Mining Company**, 208 Financial Center Building, Oakland, California, preparatory to active development work. The mine is opened by 300 feet of shaft and 1,200 feet of tunnel, with the greatest depth reached being 225 feet. Power for operations is

being purchased from the Pacific Gas and Electric Company, 250 horsepower being available. A dam is to be built to assure permanent water for all-year operations. As soon as development has advanced sufficiently to determine the type of ore to be handled, it is planned to install a mill of at least 150 tons capacity. Rudold N. Kappel, president, at present located at 1623 Walnut Street, Berkeley, California, plans to move to the mine shortly. Edward L. Morgan, 3401 Haley Avenue, Oakland, California, is general manager. Between 25 and 40 men are employed.

Five men are employed in preliminary work at the **Crandall Mining Company**, Auburn, California, which has included construction of a new headframe, retimbering of the shaft and sinking an additional 100 feet. Sam S. Denman, Auburn, is president and general manager; Jack Dunn, assistant mine superintendent, and Bert Chase, mill superintendent.

The **Poe** mine at Railroad Flat, California, has been unwatered to the 90-foot level and good showings of ore have been found in the old stopes. New machinery is to be installed and shaft sinking undertaken at once, according to George H. Buyck, superintendent.

J. A. Coos, owner of the **Shedago Queen** mine in the Shedago Indian mining district near Bishop, California, is preparing to install a compressor and hoist and to erect a bunk house. He plans to be ready to produce ore as soon as the **Tyler Brothers** custom mill at Bishop is in operation.

Ground is being broken for a two-compartment shaft at the property of the **Penryn Gold Mines Company**, Auburn, California. Erection of buildings and delivery of supplies and equipment were started February 18. The **Penryn** company will develop the **Alhambra** mine, which is a continuation of the **Alabama-California Gold Mines Company's** vein. William Anderson, Auburn, California, president of the **Penryn**, is also president of **Alabama-California**. The property is being equipped for sinking to a depth of 200 feet, which is the depth at which the vein was located at the **Alabama-California**.

The **White Eagle Mining Company, Ltd.**, has been organized under the laws of California to operate a placer property in Shasta county, California, and expects to have the mine in production about the middle of April, according to John H. McHaffie, president, 1223 Oxford Street, Berkeley, California.

As soon as snow will permit, it is planned to complete installation of the mill at the **Hamm and Birney** mine, located in the Yankee Hill district, north-east of Columbia, California, according to D. B. Woodruff, operator, Sonora, California. Most of the necessary machinery and supplies are already on the ground.

Electric haulage and mechanical loading equipment are planned at an early date for the **Mammoth Channel Mining Company, Ltd., Inc.**, Chico, California, ac-

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according to I. N. Dally, president and general manager, Box 274, Chico. The mine is developed by tunnel workings and 500 horsepower is available for operations. A crew of 10 men is employed.

Development work continues at the Ruby mine, Alleghany, California, under the direction of E. C. Montgomery, general manager, with a crew of 26 men employed. A 30-ton pilot mill, equipped for amalgamation, gravity concentration and flotation, is in operation to determine whether or not values will warrant erection of a 200-ton mill this summer. L. L. Huelsdonk is mill superintendent.

In its official report for 1934, submitted to stockholders by President Thomas McCormack, Natoma Company, gold dredging operator, Natoma, California, revealed a net profit of \$922,004 after depreciation, depletion, loss on disposition of capital assets and provision for bad debts, and also including \$117,853 federal income tax. The net income available for dividends is equivalent to 98 cents per share on 995,820 shares outstanding. This compares with a net of \$553,821, equal to 56 cents per share on the same number of shares for 1933. During 1934 the company handled 18,443,253 cubic yards of gravel and other material by dredge, from which 59,437 ounces of gold were recovered. This compares with 18,290,841 cubic yards of gravel and other material and recovery of 69,425 ounces of gold during 1933. Although the recovery in ounces was greater in 1933, the increase in the price of gold made the returns for 1934 larger than 1933. Current assets of the company at the end of 1934 totaled \$1,475,886, including cash or equivalent to the amount of \$1,242,943. Current liabilities at the end of 1934 totaled \$217,631. During 1934 a total of \$846,447 was paid in dividends and the earned surplus at the end of 1934 was \$265,314. Of the company's \$11,391,600 in assets, gold dredging equipment and properties represent \$1,303,554, and farm lands and improvements represent \$7,620,797. The land holdings total 63,243 acres. President McCormack reports that the new dredge will be in operation near Folsom, California, the latter part of April.

Construction of a concrete pit for disposal of calcine, to replace present sluicing methods, is planned at the Sulphur Bank quicksilver mine, Clearlake, California. A new condensing plant, consisting of Sirocco dust collector and blower, and tile pipe condensers, has been completed and placed in operation. The mill is handling 45 tons daily under the direction of Worthen Bradley, general manager, 922 Crocker Building, San Francisco, California. A. F. Wolbert is general superintendent at the property with P. Pluth, Jr., mine foreman, and R. E. Boyce, plant foreman. A total of 26 men is employed, of which 12 are working in the mine and 11 in the smelter.

A new electric hoist has been installed at the property of the Woodhouse Mining Company, West Point, California, and six new Gibson flotation cells will be added to the milling equipment shortly. A contract is being negotiated for an additional 100 feet of shaft sinking, which will bring the total depth attained to 265 feet. The mill is handling 100 tons daily, the ore treated by amalgamation and gravity concentration. Eleven men are employed in the mine and four in the mill under the direction of W. W. Gibson, general manager, 112 Market Street, San Francisco.

The Aladdin Gold Mining Company, Ltd., C. N. Miller, president and general

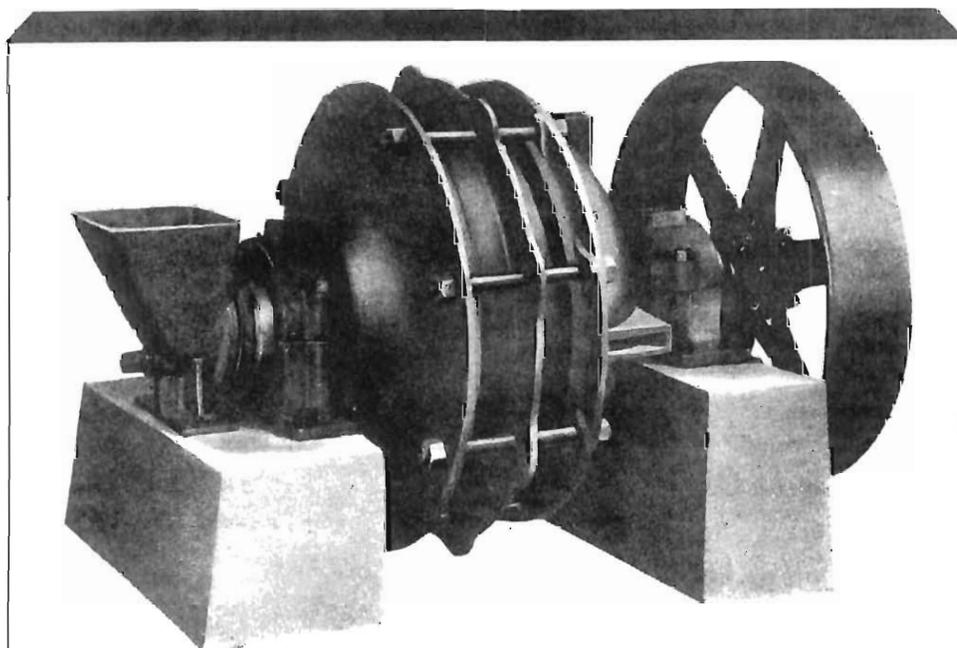
manager, 549 Holbrook Building, San Francisco, California, has taken over the Sweet Vengeance mine at Browns Valley, California, located one mile from the Pennsylvania Mining and Investment Company. The main shaft is 350 feet deep and at present is unwatered to the 200 level. The Aladdin company plans to install a larger plant and to unwater the entire shaft. The south drift is said to be in a good grade of mill ore. Four men are employed at the present time under the direction of J. C. Vint, general superintendent. Miller is also general manager of the Pennsylvania Mining and Investment Company's operations, with Vint as superintendent there, also.

A 100-ton ball mill is being installed at the Greenwood quartz mine, Greenwood, California. Wheeler Carpenter of

Los Angeles is superintendent at the property and J. McCormic is in charge of the mill. Fifteen men are employed in installing the milling equipment and the mine is expected to be ready for operation early in April.

E. B. Skeels, Auburn, California, has taken a lease on 40 acres in the Rocklin district and is working the property with a dry land dredge. It is estimated that approximately two years will be required to work the property. Eight men are employed on the dredge, which has a capacity of 50 yards an hour. Power is furnished by gasoline motors, but it is understood that the plant will be completely electrified. Recovery is made through a system of sluice boxes.

Ore which is said to run five ounces of gold to the ton has been encountered.



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in a stope at the 800-foot level of the TWA mine in the Ophir district near Auburn, California, according to Charles Hopper Brown, superintendent and one of the owners of the property. Due to a surplus of ore, all underground work has been temporarily discontinued, until milling operations are under way. The mill, of the Joshua Hendy balanced rod type, handles 75 tons in 24 hours. Fifteen men are employed, but when milling starts, 30 men will be employed with two shifts in the mine and three in the mill. The mine has been opened and cleaned out to a depth of 400 feet. Arthur N. Sweet, Penryn, California, is general manager and one of the owners of the property.

Plans for completion and operation of the mill at the Gold Lode Mines, Inc., will be laid before stockholders at the annual meeting to be held April 8 at the offices of the company, 705 Oviatt Building, Los Angeles. The company operates the Burcham mine at Barstow, California. The new ore body, recently encountered in a crosscut on the main level, has been found to extend over 50 feet and drifts are being run in both directions to determine the length of the shoot. Three test shipments made from this development are said to have averaged \$38 per ton. W. D. Moriarity is president of the company and J. E. Little is mine superintendent at the property.

Complete mining and milling equipment is being installed at the Roosevelt mine near Jamestown, California, by G. B. Laws, Box 180, Jamestown, and Lester Hamberger, Riverside, California. The property is expected to be on production by early spring. The milling plant will consist of jaw crushers and rolls and a 75-ton ball mill with amalgamation and concentration units. Ore is being extracted from an open pit on the vein, said to be 30 feet wide, while horizontal development proceeds on the 100 or bottom level.

The Operator Consolidated Mining Company, through its president, George S. Clack, has requested the Shreve Gold Engineering Company, 450 Jessie Street, San Francisco, California, to furnish plans and specifications for a 200-ton plant. The Operator property is reported to have a 30-foot body of mill ore which is amenable to flotation.

A contract has been awarded by the Relief Hill Mining Company, North Bloomfield, California, to Fred Zanocco, Nevada City, California, for construction of a dam at the mine to impound water for hydraulic operations. About three months will be required for completion of the dam. C. E. Clark, North Bloomfield, is manager of the Relief Hill.

Installation of a five-foot Huntington mill and accessory equipment is contemplated by the Hart mines, Charles M. Hart, superintendent, Caliente, California. The property has been producing sufficient ore, handled by a small mill, to cover all overhead expenses and development operations are said to be showing good mill values.

The Dale Milling Company, a limited partnership, has completed its 75-ton mill at Dale, Riverside county, California, making the first test run February 14, and is now on a regular production schedule. H. F. Nelles and C. E. Tullock both of Twentynine Palms, California, are the general partners, with H. F. Nelles acting as general manager and mill superintendent. The mill flow sheet consists of a Wheeling crusher, Hendy rolls, sampler, Denver quartz mill, Dorr classifier, thickener, con-

ditioner, and four Groch flotation cells. Construction of camp and office buildings is underway. A crew of nine men is employed at the mill.

T. R. Turner, Mack C. Spaw, Irvin and H. S. Phillips, operating the Norris mine at Silver Creek, via Victorville, California, are planning to add concentration and flotation equipment to their 25-ton ball mill. They also plan further shaft sinking to develop a body of ore recently encountered.

The Big Blue Mining Company, Byron E. Rowe, general superintendent, Kernville, California, is planning the installation of ore bins, headframe, primary crushers and double-drum hoist at the surface opening of the mine shaft to eliminate the 3,000-foot tram through the water tunnel. The Big Blue produced gold ore valued at more than \$100,000 during the six months from August 1 to February 1, according to Rowe, who also reports good progress in sinking the three-compartment shaft from the water tunnel.

A 12-foot body of ore, of undetermined length, was encountered in driving the first crosscut to the hanging wall vein on the 300-foot level of the Rawhide mine, three miles west of Jamestown, California. Across half the width of the shoot the ore is said to average \$10 per ton. Large bodies of ore have also been blocked out on both the hanging wall and footwall veins on the 200 level. The property is owned and operated by J. D. Patterson, with Curtis Lindley, Jr., mining engineer, in charge of work at the mine.

Ore, reported to average \$9 per ton in free gold, is being mined from a wide, shallow opening on a 30-foot vein at the Roosevelt mine near Jamestown, California, which is being operated under lease and option by G. B. Laws and N. A. Swingle, formerly of Placerville. Approximately 20 tons daily are extracted and are sent to the Omega mill, a mile distant. A 100-foot drift at a depth of 40 feet is said to be all in ore.

Idaho-Maryland Consolidated Mines, Inc., Grass Valley, California, on March 20 paid regular quarterly dividend of three cents a share and an extra dividend of two cents a share.

The Republic Gold Mining Company, E. C. Jacobs, manager, Grass Valley, California, reports the discovery of a body of ore on the 800-foot level of its Empress mine. The ore shoot is said to be 800 feet in length with an average width of not less than eight feet. It is understood that a new ball mill is being erected to augment the present milling facilities, construction to be completed early in April. The new mill will increase the capacity of the present 300-ton mill by 75 tons daily.

The mill at the Yellow Aster mine, Randsburg, California, is reported handling approximately 150 tons of ore and 150 tons of tailings daily, the ore coming from the Yellow Aster and the Big Dyke properties. Construction of the first 800-ton unit of the new 1,500-ton capacity cyaniding plant at the mine is under way. The new plant was designed by Hamilton, Beauchamp and Woodworth, Inc., 564 Market Street, San Francisco. The Anglo-American Mining Corporation, Ltd., 1005 Mills Building, San Francisco, is operating these properties. A. W. Frohli is in charge of the mine work and Alfred E. Sabin is in active charge of milling operations.

The Anaconda Mining and Milling Company, Edward S. Smith, president, Stock Exchange Building, Los Angeles, California, will undertake development of the

Beltzer estate gold placers in Bouquet Canyon, Los Angeles county, which have been acquired by the company.

Working claims which are a portion of the Roward mine, about 12 miles north of Lone Pine, California, Jim Wightman, Box 38, Lone Pine, has made a strike which is said to have shown assays of \$156.45 in gold and 31 ounces in silver, valued at \$20.10 to the ton. The ore assayed was average mine run, all rock showing free gold being kept out of the samples. A 15-ton mill is said to be included in plans for the near future.

Construction of a larger mill at the Blakely mine near Volcano, Amador county, California, is planned by Charles Hendricks and Robert Wilson, operators. Ore recently uncovered is said to sample \$20 per ton.

Dr. J. Lee Wood, 610 South Broadway, Los Angeles, California, L. W. Smith, also of Los Angeles, and William Pedro, Sonora, California, have acquired control of the Hope mine by lease and option. Rehabilitation of the main tunnel, 1,600 feet long, is under way, and preliminary work will include retimbering, laying of a new steel track and installation of machinery. It is also planned to sink a winze to a greater depth. A 10-stamp mill on the property was destroyed by fire about two years ago, but other buildings are reported to be intact and in good condition.

The Draper Vein Syndicate, Soulsbyville, California, has leased the mill of Crown Mines, Inc., located just north of Sonora, for a period of one month and will treat its ores there in an experiment to determine the type of mill best suited for its own property. The Crown Mines plant is equipped with amalgamation, concentration and flotation facilities. Fred W. Watts, Soulsbyville, is in charge of the milling operations for the Draper organization.

The Carlin mine, Jamestown, California, is being cleaned out for a thorough examination and sampling. The work is being done for a group of San Francisco men and is directed and supervised by E. D. Brown. A Gardner-Denver compressor has been installed to facilitate the work which, it is believed, will require two or three months for completion. The openings to be cleaned out are the main tunnel, 450 feet in length, and a 64-foot winze, located about 350 feet from the mouth of the adit.

George Koch, leasing on the Edith E placer mine, owned by Mrs. C. J. Teagle, Johannesburg, California, and associates, has taken out nearly \$3,000 in nuggets and grains since November 1, 1934. The mill and a half of channel has produced around \$6,000 during the last six months, the largest nugget having weighed nearly seven ounces.

The Barstow mine at Johannesburg, California, has been reopened with a crew of six men employed. Operations are expected to be on a regular production basis soon.

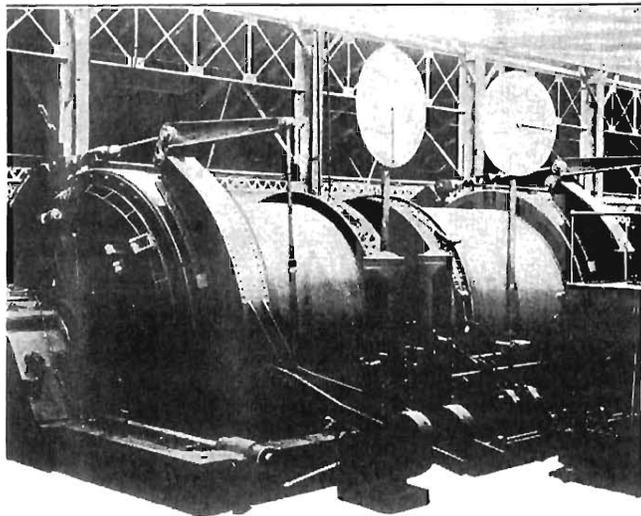
**COLORADO**

The Specie Payment mine at Lawson, near Idaho Springs, Colorado, has been taken over by the King-Kong Mines, Inc., according to A. W. Rockwell, connected with the Horace Bennett interests, which include King Kong activities. Bert Trembath is superintendent of the mine, which is shipping about 30 tons of ore daily to the Argo mill, under lease to the company. The Argo mill also receives ore from the P. T. mine, which is sending

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# Concentrates from the Western States

*Some high spots of the mining industry in the Western United States and Mexico.*

## ARIZONA

**United Verde Extension Mining Company** at Jerome, Arizona, has posted the following notice for its employees: "Anticipating that under the NRA the United Verde Extension Mining Company will be forced to go on the five-day week after April 25, and an inevitable complete shutdown within a few months, the company has decided that starting April 1 there will be an increase in wages of approximately 10 per cent." United Verde Extension closed its smelter the first of March, in order to accumulate an adequate ore supply, and stated at that time that smelting operations in the future would be spasmodic. George Kingdon is general manager.

**Miami Copper Company**, Miami, Arizona, reports for the year 1934 a net loss of \$425,629 after charges and taxes, but before depletion. This compares with a loss of \$477,530 in 1933.

Concentrates from the mill at **Keystone, Inc.**, in Mohave county, Arizona, are being shipped to Torrence, California, for smelting. The Keystone product is a heavy iron-copper concentrate with fair values in gold and silver. Mine operations are directed by J. B. Goodwin, superintendent, Chloride, Arizona. A. C. Dundas, Box 133, Chloride, Arizona, is mill superintendent.

A dividend of 10 cents a share on the outstanding capital stock, payable May 1, to stockholders of record April 3, has been declared by **United Verde Extension Mining Company** of Jerome, Arizona. The announcement was made by C. P. Sands, treasurer, 233 Broadway, New York City.

**Portland Mines, Inc.**, Kingman, Arizona, is making arrangements for the immediate installation of a 50-ton flotation mill at its property in the Katherine district. J. A. Potter of Kingman will be in charge of mill construction. The mine is held under bond and lease by a Texas group, headed by James A. Wood of Dallas. According to articles of incorporation, recently filed, the capital stock consists of 250,000 shares without par value. Development of the mine has been directed by Clyde M. Becker, geologist, of 224 South 14th Street, Chickasha, Oklahoma.

**Gold Roads Exploration Company** is making regular shipments of ore to the Tom Reed mill. The 700-foot shaft is being unwatered and exploration of the lower levels toward the west started. L. H. Duriez, Box 405, Oatman, Arizona, is resident engineer and manager.

**Magma Copper Company**, Superior, Arizona, has declared a dividend of 50 cents a share, payable April 15 to stock of record April 1, 1935. In the four preceding quarters similar distributions have been made.

The annual report of **Iron Cap Copper Company** and subsidiaries shows a net loss for 1934 of \$59,424, after taxes, expenses, interest and other charges, but before depletion and depreciation. In 1933 the net loss reported was \$59,135. No depreciation or depletion allowances were taken as the company's properties were idle throughout the year.

The **Arivaca Placers, Ltd.**, Ruby-Star Route, Tucson, Arizona, under the management of Winfield Covey is operating

steadily with a force of 20 men employed. The gravel is mined by gasoline shovels and transported to the washing plant in 8-yard trucks. The company's digging and trucking capacity is approximately 5,000 cubic yards per day, while the capacity of the washer is 6,000 cubic yards.

The mill tailings and mine dumps at the old Congress mine, Congress Junction, Arizona, have been taken over by the firm of W. S. Wasserman of Philadelphia and the future operations will probably be conducted under the name of the **Congress Arizona Mining and Milling Company**, now being organized. G. M. Colvocoresses, 1108 Luhrs Tower, Phoenix, is serving the Wasserman company as a professional capacity, while D. M. Barringer, Jr., is their local representative in Phoenix. A thorough investigation of the tailings has been made, a 300-ton cyanide mill is being designed, and construction is to be started as soon as certain legal matters are settled.

The annual report for **Consolidated Gold Mines Company, Ltd.**, Dos Cabezas, Arizona, shows that mine development during the year amounted to 2,010 feet, bringing the total development on the property to approximately 7,000 feet. There were 10,545 shifts of eight hours each worked at the mine and mill, necessitating a payroll of \$41,828.21. The company received in cash from 1934 shipments \$32,606.43, and estimates the value of ore in bins and concentrates on hand at the end of the year at \$11,600.00. According to C. W. Gabrielson, president, Box 279, Bisbee, Arizona, plans are being made to increase mine and mill efficiency. To accomplish this the mill is being remodeled so that high-grade ore shipments to the smelter can be avoided and a large percentage of the gold recovered as bullion, to be shipped direct to the U. S. mint at Denver. These improvements are to be completed this month. In the mine a six-inch air line, graduating to five and then four inches, has been installed, the retimbering completed, and rail ordered to completely relay the main track in the Adit with heavier mine rail. At the annual meeting the officers and directors were reelected for the ensuing term.

The power line built by **Mammoth-St. Anthony, Ltd.**, and **Molybdenum Gold Mining Company**, of Mammoth, Arizona, has been completed, and starting the first of this month electric power will be furnished continuously. The power line is 24.3 miles in length, extending from Hayden to the mines at Mammoth, and was erected in 45 days by J. W. White of Casa Grande under contract. The cost was approximately \$60,000. Foster S. Naething of Tucson, Arizona, vice-president and managing director of Mammoth-St. Anthony, Ltd., acted as agent for both companies on the project. The new 200-ton mill of Molybdenum Gold Mining Company, Fred Marston, manager, was scheduled to start April 10, and will treat ores from its own New Year and Mohawk mines, and a minimum of 100 tons per day from the Mammoth mine, which is under lease to Mammoth-St. Anthony, Ltd., Edwin A. Stone, superintendent.

A contract has been signed by **Arizona Molybdenum Corporation**, Copper Creek,

Arizona, for securing electric power from the government over the recently constructed power line from Hayden to Mammoth, Arizona, and the contract has been forwarded to Washington for final approval. If granted, actual construction will be started at once, and will involve a 12-mile branch line, surveys for which are now being made. This company, under the management of H. Hendrickson, is employing over 100 men and treating 150 tons of molybdenum ore daily in its flotation mill, turning out 97 per cent concentrates. It is also proposed that power will shortly be furnished to the towns of Oracle and Mammoth.

After several months of controversy a compromise has been reached between **Kennecott Copper Corporation** and the county and state tax authorities as to the valuation of its mining property in Pinal county, Arizona. According to the agreement the assessed valuation of the mines was reduced from \$5,800,000 to \$4,500,000, and the tax levy from \$213,151.48 for the year down to \$172,932.38. As a result Kennecott has tendered its check in the sum of \$89,348.40 to cover the tax for the first half-year, and interest since delinquent in November.

A 10-ton pilot mill is to be erected by **Grannis Mines Company** of Kingman, Arizona, at its Lost Cabin group of mines. The company is headed by W. D. Grannis, president, who is in direct charge of the work. Associated with him is M. B. Chandler, vice-president of the company, who has recently come from Michigan to assist in the construction program.

Work on retimbering and dewatering the shaft of the **Monte Christo Gold Silver Company**, Constellation, Arizona, has reached the 800-foot level. It was previously thought that work would have to be abandoned on the shaft and a cross-cut driven to the vein from the 600 level where a heavy cave-in was encountered. The mill is being operated on dump ore which is being fed by a tram to a Denver Equipment ball mill, then passed to Fagergren flotation cells after classification. A 90 per cent recovery is reported from the mill, which has a capacity of 40 to 50 tons daily. H. B. Browning is superintendent at Constellation, and Ernest Woolley, Quincy Building, Los Angeles, California, is president of the company.

A small milling plant is being installed by M. G. Tarr of Mammoth, Arizona, to treat ore from his various holdings in the district. The plant will consist of a battery of three 500-pound stamps, a concentrating table, and six horsepower gas engine.

An important ore strike has been reported from the 400-foot level of the Toughnut mine of the **Tombstone Development Company** at Tombstone, Arizona, under lease to the United States Smelting, Refining and Mining Company. According to R. T. Walker, superintendent, the find appears very encouraging, and while the extent of the ore body has not been determined he believes it to be the deposit for which his company has been searching for the past 11 months.

## CALIFORNIA

The **Aladdin Gold Mining Company, Ltd.**, is lifting water from the lower levels of the Sweet Vengeance mine at Browns Valley, in Yuba county, California, which it leased about the middle of last month. Plans of J. C. Vint, superintendent, and Consulting Engineers Oscar H. Hershey of San Francisco and Albert Burch of Medford, Oregon, are to thoroughly explore below the surface, as they are doing in

the Pennsylvania, blocking out the ore and estimating the tonnage to be handled, and then to build a mill suitable to these requirements. The same interests are working the Pennsylvania, as the Pennsylvania Mining and Investment Company, and it is believed that the one mill will take care of the output from both mines. In the Pennsylvania mine, diamond drill exploration has been started in all directions from the ends of each of the present tunnels. A two-inch drill is being used.

A new concern, known as the **Delta Tailings Company**, will soon be in operation at Ione, California. It is sponsored by E. M. Hamilton, S. E. Woodworth and F. A. Beauchamp, of the firm of Hamilton, Beauchamp and Woodworth of 564 Market Street, San Francisco; and Dr. B. C. Kern of Jackson, W. P. F. Brawner of Hillsborough, Charles R. Blyth and Platt Keent of San Mateo, Maxwell Milton of Oakland, E. M. Mills of San Francisco, and Roy L. Shurtleff of Piedmont. The major point in their construction program is the installation of a large cyanide plant, near Ione, where the deposits of gold-bearing tailings carried there by Jackson Creek from the stamp mills of the Amador gold mines will be treated.

J. A. French has started work at the **Pajaro Queen** mine on Cock Robin Point, near Volcanoville, California, with a small crew. The property was temporarily shut down because of the heavy snow in that section.

During its first month's operation on the Cook and Dale ranch, on the Merced River, near Snelling, California, the **Merced Dredging Company** recovered approximately \$20,000. Their only medium of recovery is a small dredge, purchased last year from the Natomas Company, which incidentally has an interest in the Merced Dredging operations. The dredge was the smallest and oldest that the Natomas people had, and had been recovering around \$15,000 monthly on the Natomas property. Thus it is indicated that values in the new territory are higher than on Natomas ground. R. W. Derby is manager of operations.

The old **Lucky Strike** mine, located between Perris and Elsinore, Riverside county, California, is being reopened by a group of Los Angeles men under the direction of Ralph L. Meade, mining engineer of Laguna Beach. As soon as a hoist and pump can be installed, the old shaft will be cleared and unwatered. Exploration will be started on the ore body productive in the '90s.

The **Idaho Maryland Consolidated Mines, Inc.**, made a net profit of \$550,611 during 1934, or 31 cents a share. By way of comparison, the company reported a net profit of \$336,041, equal to 19 cents a share, for 1933. Dividends paid during 1934 amounted to 15 cents a share, as compared with 10 cents a share paid during the preceding year. During 1934 a total of 80,257 tons of ore was produced. The average yield was \$18.35 a ton and the tailings yielded \$1.25 a ton.

The **Sierra Consolidated Mines, Inc.**, is working 50 men at its Silverado mine at Sweetwater, California, and is running its 100-ton cyanide plant at 50 per cent of capacity. The mill is connected with the mine by a mile of tramway and thus escaped destruction early in March by a fire which consumed the headquarters buildings. Several days' delay in operations was necessary until temporary quarters could be provided for the men. D. C. McKay, 419 Ralston Street, Reno, Nevada, is general manager.

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R. Bryant, former city manager of Alameda, California, is working the C. H. Spaggin quartz property at Soulsbyville, California. Installation of a hoist and compressor has been completed and the 60-foot shaft is being sunk to 200 feet, from which point lateral exploration and development work will be started. The shaft is of two compartments. Mr. Bryant has taken over 40 acres, which is said to cover a number of quartz veins as wide as eight feet.

According to Cooley Butler, 745 Rowan Building, Los Angeles, California, the Black Bear mine at Grass Valley, California, will be on production in about 30 days. Equipment, including amalgamation, gravity concentration and flotation processes, has been installed to treat 200 tons of ore a day. Underground work is all being done by lessees.

The Gold Hub Mining Company expects to reopen its mine at Downieville, California, about May 20, according to A. D. Hinton of Dobbins, manager of operations. Contracts have been let for drifting on the vein and the work will be started as soon as weather conditions permit. A complete electric plant is to be installed. Walter Schmitzer, 1055 Forty-third Street, Oakland, is president of the company. E. W. Smith, 645 Richmond Street, El Cerrito, California, is chief mine engineer and is secretary.

Upon the recommendation of Julian Boyd of Los Angeles, the Kimball Kempe Syndicate is sinking its 60-foot shaft in the Middle Buttes, near Mojave, California, deeper. Lateral work will be started after the shaft has reached a hundred feet. Major Boyd's address is 510 West Sixth Street.

The program planned by the Abacada Mining Corporation calls for another 500 feet of sinking in the American mine at French Gulch, California. According to N. D. Bertram, general superintendent, a crosscut will be made between the lowest daylight adit and the bottom of the winze or incline shaft. A Dorr thickener is to be installed in the mill and a batch cyanide plant installed for concentrates; and an assay office is to be built and fully equipped. Superintendent Bertram has a crew of 42 men, and is producing at capacity of the 60-ton amalgamation and flotation plant. Tom Jones has charge of mine operations and W. A. Heidrich has charge of milling.

Some work is being done at the old Altaview property, located six miles northeast of Camptonville, California, under the direction of Henry Clay. Excellent returns were reported from tests, which in-

cluded 63 cars of gravel from the bottom of the shaft, and 103 cars from a channel intersected by a tunnel from the west rim of the Mt. Alta channel. According to Manager Clay, 300 feet of tunnel is being driven along the west rim of the channel. Plans for the early future call for the construction of a new cookhouse, bunkhouse, storage for ore, timber shed, for the purchase of 30 new 2-cubic foot dump cars, and for laying 3,000 feet of new track using 20-pound rails. Present work is being done under lease from Dr. Clyde Wayland, 140 North Third Street, San Jose, California, the owner of the mine.

After several years of buying up and optioning outstanding stock in the Golden Center mine at Grass Valley, California, Cooley Butler has acquired title to the property in his own name. Conveyed in the deed were 125 parcels of land. Mr. Butler has operated the mine many years as the Golden Center Mines, Inc. It is understood that L. S. Wincapaw will remain as superintendent of operations. Butler's office is 745 Rowan Building, Los Angeles.

According to W. P. Henry, president, the Central Eureka Mining Company at Sutter Creek, California, will extend one of its mine levels into the Wildman and Mahoney property, just to the north of the Central Eureka holdings. Development work is the reason for this extension. Mr. Henry also announced the sale of approximately 79,000 shares of the company's treasury stock at 40 cents per share net to the company. No commission was paid in the transaction, all of the money going into the company's treasury. Eighty men are on the payroll now, and the mill is treating 75 tons of ore a day, with half of its 40 stamps dropping.

In spite of the fact that the Argonaut Mining Company was forced into idleness by reason of labor difficulties during the last quarter of 1934, its annual report shows higher earnings than for the preceding year. The tonnage figures were 69,000 and 89,700, respectively, but the larger profit is attributed to the higher price for gold and to a sharp increase in the number of ounces of gold recovered. The net profit for 1934 is \$271,726, after income taxes and reserves, but before depletion, and is equal to \$1.36 a share. For 1933 the company reported a net profit of \$176,396, or 88 cents a share. Dividend payments were resumed in 1934, and \$200,000, or \$1 a share, was paid during the year.

Announcement has been made by Edward S. Smith, president, Stock Exchange

Building, Los Angeles, California, that the Los Angeles Placer Gold Corporation has acquired the Texas Canyon gold placer deposits consisting of 230 acres in Texas Canyon, 10 miles north of Saugus. The ground has been prospected by a series of shafts sunk to bedrock, tunnels and open cuts, over a period of years, and the gravels were run through sluices when water was obtainable, and hand rocked with dry washers when the river was dry. Mr. Smith states that an ample supply of water is now available for continuous operations and that equipment adequate to handling 250 yards of gravel a day will be installed.

Announcement has been made by E. T. Chase, president, that the National Exploration Company has purchased the East property in the Ophir district, on the Mother Lode. A small crew, under the supervision of Hubert H. Lee of Penryn, California, is cleaning out and retimbering the shaft. A sample of ore from the 35-foot level is reported to have assayed \$285. Another crew is working the Mary Len Extension mine, near Auburn. The old workings extend to a hundred feet and have been cleaned out to about half that depth. At the old price for gold, a test run returned \$15 a ton. Headquarters for the company are 525 Security Building, Los Angeles.

The Pacific Gas and Electric Company has built a power line to the Spenceville gold mine at Spenceville, Nevada county, California. This property was reopened late last summer by Sidney Wood and Louis Hinds of Grass Valley and a crew of 16 men is employed now. Foundations are being laid for a mill to cyanide the old dump, from which assays average \$3.

The Green Mountain mine to the east of the Murchie mine at Grass Valley, California, will soon be on production on a small scale. In preparation, Charles and Norman Kistle, the owners, have cleaned out and retimbered the old 150-foot tunnel, which was badly caved, and have put in five stamps.

Harold S. Munroe, geologist and mining engineer, with the Newmont Mining Corporation, 14 Wall Street, New York City, is making an examination of the Zeibright mine, near Nevada City, California. The mine is one of the properties being operated by the Newmont corporation and employs 30 men. Around 150 tons of ore is being mined daily.

Walter M. Hoover, Darwin, California, reports a rich strike made by an old Death Valley prospector, Jack Stewart, in the Skidoo district, California. Reports state that the ledge is from six to eight feet wide,



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C. W. Richmond has acquired a lease, with option to purchase, on the Washington-Jenny Lind property near Hornitos, California. An Anza mill and a McCartney amalgamator and concentrator have been installed, and are in operation 24 hours a day. Electric power is being furnished by the San Joaquin Light and Power Company. Mr. Richardson estimates 50,000 tons of tailings are available.

The Kayvin Mining Company is doing some development work at its property in Butte county, California, and shipping what ore comes from one drift. It will be some time in May before more extensive work can be undertaken on account of snow conditions, according to James A. McKay, manager of operations. The tunnel from through which the ore is being removed is in only 280 feet and gives a depth of 480 feet on the vein. The work was started late last fall and one shipment of five and a half tons sent to Selby which netted 1.3 ounces gold, 192.7 ounces silver, 9 per cent lead and 8.7 per cent copper. The vein is about 10 feet wide, with a high-grade streak averaging 12 inches in width. Shipments at the present time are after the ore has been sorted on the dump and only the highest values are being shipped. The corporation is closed and fully financed by F. A. W. Myrin, who may be reached at Hotel Utah, Salt Lake City; and A. C. Ridgway, 4022 Eighth Street, Chico, California.

Claud M. Wolgamott of Garden Valley, California, has purchased the Sam Collins mine adjacent to the Old Taylor mine in the Garden Valley district. The deal was closed with Mrs. H. G. Stacey, of Pasadena. Considerable exploration and development work is in progress.

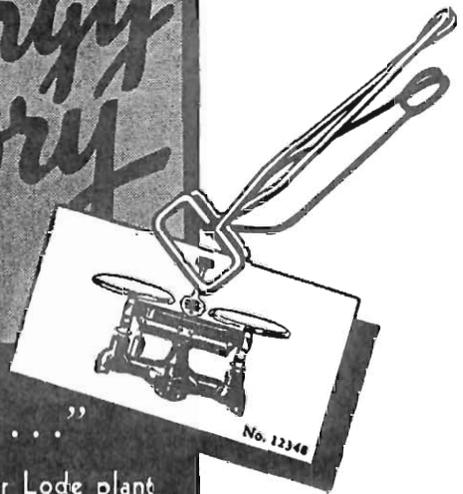
The massive ore body recently uncovered in the lower tunnel of the American Bar mine at Michigan Bluff, California, is showing a consistent width of eight feet, with assays ranging from \$8 to \$33. The mine is opened by five tunnels, and extensive reserves of profitable ore are reported in sight. Equipment includes 20 stamps, with capacity to crush 56 tons of ore a day, a compressor and hydroelectric plant. L. E. Wisenburg, 723 Title Guarantee Building, Los Angeles, is managing the property for the Myra Mining Company, a former Nevada mine operator.

The Mayland Mining Company is milling a good grade of ore at the White Bear mine at Sawyers Bar, California, and is developing a strong ledge of ore at 350 feet, which is the lowest level of the mine. Ten men are employed. The small mill, of 15-ton capacity, has been brought up to date with ball mill, amalgamation, flotation and gravity concentration equipment. Diesel engines furnish power. Arthur J. Theis of Sawyers Bar is manager, W. A. Harvey is mine superintendent, and Otis Fait is mill superintendent. The White Bear mine is owned by Harry Kemp, Medical Arts Building, Seattle, Washington, and is being operated under lease.

R. L. and Hugh Milligan are making plans to go a hundred feet deeper on the large deposit of low-grade ore in the Eudropha mine at Big Oak Flat, California. The small mill has been shut down for some time and repairs will be necessary before it is again placed in operation.

A small crew, under the direction of R. Black, has started cleaning out and re-embering the shaft in the Solid Oak mine at Big Oak Flat, California. The

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shaft is 300 feet deep. Dr. John Roberts of Monterey, California, owns the mine.

Frank P. Baldi, Room 509, 321 West Third Street, Los Angeles, California, has been retained as consulting engineer and metallurgist to the **Lady Lou Mining Syndicate**, developing mining claims in the Panamint district. He reports a good showing of gold, silver and copper. The syndicate also owns 160 acres on Panamint Lake, near the reported mercury strike, but has not yet made any tests for either gold or mercury.

The **Rainbow Mining Syndicate**, Edwin H. Bauer, Fairmont, California, is installing a second compressor and other machinery on the Rogers-Gentry property in the Neenach district. Plans are to increase the present crew of 16 men to take care of the larger work planned.

The famous old **Ballaclava** gravel mine in the Wade Flat district, near Vallicita, California, is reported to have been bonded to Anton Johnson, 921 Monterey Road, South Pasadena. The report follows that work is to be started at once with a crew of a dozen or more men. The mine property embraces 40 acres, owned by the Tryon estate, and was last worked about 40 years ago by Moyle & Moffitt. Two shafts were sunk, one on an incline to 240 feet and the other to a vertical depth of 160 feet.

The **Newmont Mining Corporation** has declared a dividend of 50 cents, payable April 30, to stock of record April 15, 1935. Similar amounts were paid October 31, and April 30, last. The company has issued the following statement: "The board of directors requests that this distribution be regarded simply as a return out of earned surplus and not the establishment of a dividend basis or policy for the future, formulation of which should not in the opinion of the board be attempted at this time."

The **Stewart** mine near Sonora, California, a pocket producer with a good record, has been leased by Harry Bowerman and R. H. Hallock, miners of the district, in association with W. H. Clark of Ventura. A compressor and other equipment for small-scale mining have been put in. Mining and exploration will be carried on through a 1,000-foot tunnel.

Otto Swarz, W. W. Jones, Leo Poleem and Fred Thompson, all of Sacramento, California, are sluicing on 500 feet of the **Fossati** channel in the Newtown district, near Smithflat. The gold is exceptionally coarse, and varies in value from \$2 to as high as \$15 a yard. Mrs. S. A. Fossati is reported to have closed a working deal with the **Eldorado Channel Mines, Inc.**, on the Fossati property, and in turn the company has leased portions of the ground. Meanwhile, the company is doing some development work, testing and opening up new tunnels on bedrock, under the supervision of R. W. Waterman, formerly of Oroville, California. The Fossati property covers a width of about 3,500 feet of

the channel and is claimed to be in one of the best gold-bearing sections of Eldorado county. Directors of the new **Eldorado Channel Mines, Inc.**, are Robert H. Schwab, Forum Building, Sacramento, secretary; T. A. Kelly, former deputy real estate commissioner, of Sacramento; Oliver B. Schmidt and R. B. Ettlenger, both of Chicago.

The development program of the **Sixteen-to-One Extension Gold Mines, Ltd.**, at Alleghany, California, which had been retarded by the heavy snow on the high Sierras, is getting underway. George W. Hallock, president and manager, says that the 40-foot gallows frame and the collar for the proposed two-compartment shaft, together with the bins that will receive the milling ore encountered in sinking, have been completed; and that the mining equipment, including compressor, cable, etc., will be brought in from storage in Nevada City as soon as the roads are passable. The objective of sinking is the Sixteen-to-One vein, which they expect to open between 300 and 325 feet. The home office of the company is 925 Market Street, Wilmington, Delaware, and R. Smith Bassett is vice-president. The office of the secretary is 60 Wall Street, New York City.

The Division of Mines, Department of Natural Resources, at San Francisco, California, reports considerable activity in

mining in the Cargo Muchacho and Chocolate Mountains in Imperial county. **La Colorado**, owned by J. M. Mueller of Calexico, California, is working. The **Desert King** mine, in the Tumco district, owned by C. S. Walker of Ogilby is being operated under lease by F. M. Connor and J. Fields of Yuma, Arizona. They have a 25-ton flotation plant in operation. Ed Riggs and Russell Hogan of Randsburg are working a 30-ton cyanide leaching plant on the Tumco tailings, also owned by Mr. Walker. In the Chocolate range, the **Mesquite** lode is being developed by Robert Patterson and Stanley Johnson of Holtville. The later embraces eight claims and is located 10 miles to the east of Glamis.

Frank W. Williams of Graniteville, California, is installing five stamps at the **Von Humboldt** mine on American Hill, and upon completion of the work will put in a small compressor that can run two or three drills. Water furnishes power and has been stepped up from five to 25 horsepower.

The **White Eagle Mining Company, Ltd.**, will have its placers at La Moine, Shasta county, California, ready for production April 10, according to John H. McHaffie, 1223 Oxford Street, Berkeley, president. Flume, sluice boxes, washer, grizzlies and tailings stacker have been installed, adequate to handling between 400 and 500 yards of gravel daily. A gasoline shovel will be used to move the gravel to the sluice boxes. This company was organized only a few weeks ago by a group of Berkeley men. Clarence M. Beard, 2701 Fulton Street, is vice-president; and Harry E. Barke, who may be reached through P. O. Box 101, La Moine, is secretary and treasurer. Wallace MacGregor, 1962 Yosemite Avenue, is their consulting engineer. Charles W. Carr, of Oakland, is master mechanic in charge of equipment.

Fred Buechner, Los Angeles mining man, and George W. McBride, 639 South Spring Street, Los Angeles, are installing a new milling unit at the **Christian** mine, near Placerville. The machinery was built by T. H. Brunius of the Crown Welding and Machine Works at Placerville.

The **Person Bros.**, owners and operators of the **Lotus Bar** gravel property near Placerville, California, are reported to have disposed of their property to Los Angeles mining people. The report follows that the southern group have started work preliminary to installation of heavy equipment.

The **Natomas Company** is completing construction of a 16-cubic foot all-steel gold dredge in the Salsbury district of California, and expects to place it in operation late this month. The assembling of the machinery began last November, giving employment to around a hundred men. Many new features are embodied in its design, including a direct-driven bucket line, speed reducer units in place of belt drives, and automatically controlled machinery. Main drive and bow line motors will be driven by direct

**AVERAGE PRICES OF METALS**

(Figures by American Metal Market)

	Copper Per Lb.	Lead Per Lb.	Zinc Per Lb.	Silver Per Oz.
	Conn. Valley	New York	St. Louis	New York
1924	13.024	8.097	6.344	66.781
1925	14.042	9.020	7.622	69.066
1926	13.795	8.417	7.337	62.107
1927	12.920	6.756	6.242	56.370
1928	14.570	6.305	6.027	58.176
1929	18.107	6.333	6.512	52.993
1930	12.982	6.617	4.566	38.154
1931	8.369	4.244	3.638	28.701
1932	5.792	2.181	2.881	27.892
1933	7.276	3.870	4.031	34.728
1934	8.658	3.8695	4.162	47.973
1933				
Jan.	5.000	3.000	3.015	25.400
Feb.	5.000	3.000	2.671	26.085
Mar.	5.256	3.148	2.997	27.928
Apr.	5.684	3.260	3.361	30.730
May	6.932	3.654	3.805	34.072
June	8.000	4.173	4.347	35.563
July	8.909	4.452	4.886	37.630
Aug.	9.000	4.500	4.909	36.074
Sept.	9.000	4.500	4.702	38.440
Oct.	8.253	4.816	4.744	38.190
Nov.	8.156	4.294	4.521	42.974
Dec.	8.125	4.142	4.470	43.560
Ave. 1933..	7.276	3.870	4.081	34.728
1934				
Jan.	8.185	4.000	4.275	44.137
Feb.	8.000	4.000	4.452	45.233
Mar.	8.000	4.000	4.370	45.875
Apr.	8.383	4.184	4.371	45.130
May	8.600	4.1404	4.355	44.226
June	8.843	3.976	4.238	45.173
July	9.000	3.770	4.318	46.310
Aug.	9.000	3.7483	4.280	48.988
Sept.	9.000	3.679	4.057	49.484
Oct.	9.000	3.648	3.841	52.375
Nov.	9.000	3.567	3.732	54.255
Dec.	9.000	3.604	3.714	54.390
Ave. 1934..	8.658	3.8595	4.182	47.073
1935				
Jan.	9.000	3.6923	3.728	54.418
Feb.	9.000	3.5295	3.719	54.602
Mar.	9.000	3.5783	3.896	59.048

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current. The hull measures 114x64x11 feet, the digging ladder is 95 feet long, the two stackers are each 95 feet long, and the trommel is nine feet in diameter with a screen section 36 feet in length. The dredge represents an expenditure of approximately \$400,000, and is capable of moving 350,000 yards of gravel a month. R. G. Smith of Natoma is general superintendent.

It is reported that milling facilities will be provided in the near future for the group of mining claims located between the Argonaut and Plymouth mines at Jackson, California, taken over early last summer by E. A. Stent and associates. The property has been operated continuously as the **Amador Mother Lode Mining Company** and the continuity of the ore vein has been proven below 300 feet.

One of the largest mining projects to get underway in the Nevada City area in the last few months is that on the **Federal Loan and St. Louis** mines in the Willow Valley district, northeast of town. The property was leased a short time ago by E. M. Symes and associates from the G. H. Mellon estate of San Francisco, W. B. Celio of Nevada City, E. J. Hennessy of Grass Valley, and others. A small crew has been working since the deal was closed and it is planned to place the 80-ton mill there in operation shortly. The old workings include a 2,500-foot tunnel on the St. Louis and a 1,600-foot shaft on the Federal Loan. Mr. Symes is also operating the Black Bear or Schroeder mine, near Rough and Ready, for the Cooley Butler interests of Los Angeles.

The **Kennedy Mining and Milling Company** at Jackson, California, is working on tailings carrying \$1 to \$1.50 a ton in gold, and the work will be increased until the plant is treating 1,000 tons of tailings a day. Over a period of years more than a million tons of tailings have been impounded. About 25 men are engaged in the tailings operation.

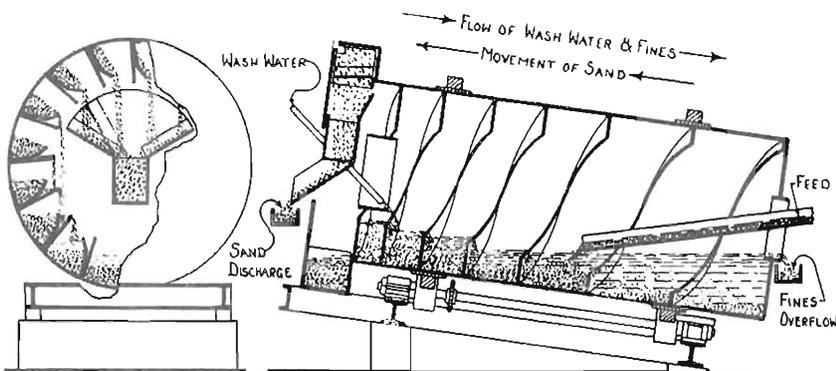
F. R. Purinton of the **Purinton Mining Company** has moved to Angels Camp, California, and will devote his full time to the operation of the mine. Mr. Purinton had offices at 4096 Eighteenth Street, San Francisco. This is a drain tunnel proposition.

**COLORADO**

As soon as connections are made for the power the **Corporation of American Mines**, operating near Dumont, Colorado, is ready for further development work. New power equipment, compressors, and about 6,000 feet of pipe have been installed during the past year in preparation for increased activity. About 150 feet of tunnel work, 300 feet of drifting on the veins, and approximately 150 feet of stoping were done in 1934. A. R. Specht, Brown Palace Hotel, Denver, president of the company, says that the rebuilding and widening of the U. S. highway No. 40 has hindered operations somewhat during the past three months, and delay was caused by the company's change from electric to air drills. A considerable tonnage of valuable ore has been proved in the past two years, Specht states.

During 1934 the **Venir Lease**, John Cortellini of Leadville, Colorado, manager, is reported to have shipped 15 cars a month for three months and 12 cars monthly for nine months, ore running from \$12 to \$40 a ton and values being almost entirely in gold. Cortellini, who has many mining interests in the Leadville district, is said to be connected with the group which is reopening the **Jennie**

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+ 60	1.2 %	1.5 %	0.5 %
+100	2.5 %	1.9 %	2.0 %
+150	4.2 %	2.3 %	3.5 %
+200	5.0 %	2.9 %	6.9 %
—200	50.2 %	12.0 %	87.2 %

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clude shaft, tunnel, and open pit. Additional shaft sinking will be done on the Eagle Nest vein to a depth of 506 feet. Seven men are working at the mine.

The East Stockton Consolidated Mining Company has been organized to operate the old General Connor mine in Soldiers' Canyon, about three miles east of Stockton, Utah. The group behind this venture includes C. A. Harker, A. M. Zabriskie, I. A. Nelbauer, and Gene Dell of Salt Lake City; Hugh and Roger McPolin of Eureka; and John W. Lamb of Provo. The company owns 19 claims, six of which are patented. This property was worked 60 years ago, when it produced high grade silver-lead ore that was shipped to Wales for treatment. Development includes a 1,652-foot tunnel and the company plans to open the old General Connor shaft at a depth of 487 feet.

**WASHINGTON**

The Sun group of claims adjoining the Boundary Red Mountain mine, being operated by the International Gold Mines, Ltd., has been acquired by that company for a reported sum of \$20,000. Examinations of the ground are said to show it to contain the same conditions found in the Red Mountain mine. The property is located in Whatcom county, Washington, near the Canadian border. A. H. Westall of Sardis, British Columbia, is in charge of work at the mine.

The Wenatchee tunnel of the Azurite Gold Mining Company, under lease to the Federal Smelting and Refining Company, has reached its objective at a point over 1,300 feet from the portal and at a vertical depth of over 1,000 feet. The Wenatchee cuts the Azurite lode 600 feet below the Tinson drift. A drift has been started from the lower tunnel toward a point under the Tinson orebody in which high-grade milling ore was developed 500 feet above. It is estimated that the drift will progress at the rate of 10 feet daily. The property is located in southeastern Whatcom county, near Wenatchee, Washington, and is under the management of Roy Walters of the Federal Smelting and Refining Company, F. G. Washburn of Wallace, Idaho, general manager.

Work on 15 gold-silver claims on Boulder Creek near Maple Falls, Whatcom county, Washington, is scheduled to start within three months. In the meantime work on a road to the property will be undertaken. James M. Stine, 1437 West 70th Street, Seattle, and Fred Shea, City-County Building, Seattle, are two of the associates interested in the mine. A rich strike of high grade is reported to return 61 ounces of gold and 181 ounces of silver to the ton.

**APPEALS FROM MINE RULING TO BE HEARD**

Appeal from the unfavorable ruling of the War Department on government assistance in construction of debris dams to permit resumption of hydraulic mining on the American, Bear and Yuba rivers in California is to be heard on April 15, according to announcement by Harry D. Englebright, congressman, who is leading the fight for reversal of the ruling.

The army board of engineers has reopened the case and undoubtedly a number of witnesses will be called to Washington from the area involved. The petition or federal assistance was turned down because of failure to show "reasonably definitely the amount of gold-bearing gravel in the areas."

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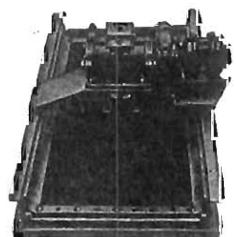
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**NEW TYPE DREDGE PUTS  
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Sherman Tharp, former airplane engineer, is credited with designing the doodle bug type of dredge in use at the Virginia Placer Company holdings, six miles from Lincoln, California. He incorporated his airplane engineering experience into the production of the dredge, with the result his equipment weighs only a fourth as much as other types of dredges of similar capacity.

The Tharp arrangement has a normal capacity of a hundred yards an hour. It is powered by a 235-horsepower gasoline engine. The main water pump for sluicing the dirt has a rating of 1,500 gallons a minute. The reserve pump has a rating of 800 gallons per minute. The trommel screen is of special design and is built of high carbon steel to insure wearing qualities.

The barge draws only 14 inches of water when the apparatus is in operation. The digging apparatus is a power shovel with long boom and dragline bucket of one and three-fourths yards' capacity. The bucket is of such strong construction that blasting or other loosening of the soil is unnecessary. The present dredge is digging to a depth of 10 feet.

T. E. Robinson of the Robinson Tractor Company, of San Francisco, is associated with Mr. Tharp. Plans call for the construction of similar dredges for the Lincoln area.

**U. S. SMELTING & REFINING  
PAYS QUARTERLY DIVIDEND**

A quarterly dividend of \$1 on common stock, payable April 15 to stock of record as of April 5, 1935, has been declared by the U. S. Smelting, Refining & Mining Company. In January, 1935, the company paid a dividend of \$3, while in October and July of 1934 dividends of \$2 were disbursed.

The report for the company for the year ended December 31, 1934, shows a net profit of \$6,052,968 after federal taxes, depreciation, depletion, etc., equal, after preferred dividends, to \$8.35 a share on 528,765 par \$50 common shares. This compares with a net profit of \$5,169,875, or \$6.68 a share on 528,765 common shares in 1933.

Net profits for the two months ended February 28, 1935, were \$511,864 after taxes, depreciation, depletion, etc., equal, after preferred dividend requirements, to 45 cents a share on 528,765 common shares, against \$397,238 or \$1.18 a common share in the first two months of 1934.

**SURCEASE MINE, CALIFORNIA,  
ENLARGES OPERATIONS**

The Surcease mine at Yankee Hill, Butte county, California, is now employing 33 men, with two shifts underground and three in the mill. Milling capacity of 800 tons a month, (six days a week,) is being increased approximately 50 per cent by the addition of three new sand tanks and another slime agitator in the cyanide plant. Other plans call for the addition of another concentrating table and a complete concentrate reduction system to obviate present shipping out of concentrates to the smelter.

A new Gardner Denver six cylinder, two-stage compressor has recently been installed and three new rock drills put into service. A new air line has been laid underground, and a 1,000-foot air line is under construction connecting the new No. 4 shaft with the main compressor unit. Electric power is used, 160 horsepower in motors being in service besides a gasoline operated portable compressor.

In 1934 a geological survey was made of the area including the Surcease and other major veins in the vicinity, and 1,200 feet of diamond drill exploration was done. Now, much more extensive exploration and development work is in progress. In the Surcease workings, the No. 1 tunnel is being driven north to clean up the upper end of the ore zone near the surface. The 300-foot level is being driven north beyond the fault formerly bounding the pay zone in that direction. The vein has widened to 10 feet on the first raise beyond this faulted zone, which is about 30 feet wide, and some free gold has been encountered, whereas the Surcease is ordinarily a sulphide ore. The 400-foot level is being driven south, also into new ground.

Outside the Surcease, 1,000 feet to the east of its portal, the new No. 4 vertical shaft is down 120 feet while drifting is being carried on north and south along the fissure which has been found to be faulted on the 100-foot level. This No. 4 vein is comparatively high-grade ore, with relation to the Surcease ore.

The Surcease is owned by Hoefling Bros., Inc., of Chico, California. A. E. Jones is superintendent, and E. A. Nicolai is in charge of underground work.



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### FEDERAL M. & S. COMPANY MAKES IMPORTANT DECISION

The decision of the Federal Mining & Smelting Company, H. C. Washburn of Wallace, Idaho, general manager, in regard to future action has been announced, following recommendations by F. H. Brownell, 120 Broadway, New York City, president, and the board of directors.

The Morning mine at Mullan, Idaho, and the Page mine at Page, owned and operated by the company, will go on a straight five-day week basis, effective at once. This order will affect 650 men, 525 at the Morning and 125 at the Page. Under the new regime the men will work an average of 22 days a month instead of the present 15.

President Brownell is reported to have favored the larger output and steady production for at least a three-year period, borrowing money if necessary to carry the surplus stocks, rather than the plan to operate the Morning mine at half capacity, selling the ore, and depleting company ore reserves. The increased metal tonnage that results will be stored. This change in the operating schedule is being made in an effort to reduce costs of production as much as possible and to enable the company to continue its operation and employment under the present low prices. The wage scale, which is uniform in the district, will remain unchanged.

The annual report of the company for the year ended December 31, 1934, shows a net profit of \$55,455 after charges, but before depletion. This is equal to \$1.94 a share on seven per cent preferred stock, on which there is an accumulation of unpaid dividends. For the previous year a net profit of \$356,825, equal to \$12.53 a share on preferred, was reported.

For the quarter ended January 31, 1935, a net loss of \$72,914, after charges were deducted, was announced, against a net loss of \$18,417 in the previous quarter, and a net profit of \$106,825 in the January quarter of the previous year.

The earnings of the Morning and Page mines of the company are reported at \$126,250 for the year 1934. Gross production of the two mines totaled \$3,308,821, with production, freight, treatment, and royalty costs of \$3,092,938, leaving a net operation profit of \$215,837, according to statements. Other earnings raised it to \$260,791, but general expenses, profit and loss charges, including a zinc adjustment, reduced net earnings to \$126,250. Lead concentrate averaged 77.1 per cent lead and the zinc concentrate is reported at 55.3 per cent. Ore reserves at the Morning mine are estimated at 1,455,000 tons, an increase of 120,000 tons over last year. The Page-Blackhawk mine is reported to show an increase of 55,000 tons over 1933.

### HEAVY CONSTRUCTION AT MURCHIE MINE IS POSTPONED

Reluctant to suspend operations at its main shaft for the month or six weeks which would be required to install the steel headframe and powerful hoist already shipped to Nevada City, the Empire-Star Mines Company, Ltd., is going along with its present somewhat ancient surface equipment at the Murchie mine, a mile or two east of the Nevada City townsite.

Underground equipment has been modernized and it is planned to further advance an extensive development program before installing the new surface equipment. The possibility of upraising to the surface at a different point for the main shaft is seen. Under the supervision of George A. Kerwin, veteran mine superintendent, and who has operated mines in

various parts of the world, a staff of 300 men is engaged at the Murchie, and from 300 to 350 tons of ore from stopes and development work are going to the mill. The plant is without large storage bins, thus making mining and milling virtually a hand to mouth process. The surface equipment to be installed later was shipped by rail from western Arizona, where a large plant was purchased and dismantled.

### CONTRACT IS AWARDED FOR YELLOW ASTER CYANIDE PLANT

The Anglo American Mining Corporation, Ltd., has awarded the contract for the new 1,100-ton cyanide plant on the Yellow Aster tailings at Randsburg, California, to the Western Machinery Company and the J. E. Knapp Company, both San Francisco firms. Excavation for the tanks, etc., is to start in a few days, and the job is to be completed during August. Roy Marcellus will have charge of construction. Hamilton, Beauchamp and Woodworth, 564 Market Street, San Francisco, are the metallurgical engineers.

The contract calls for a slime-sand cyanide plant. Tailings will be sluiced to a hydro-separator and Dorr classifier where the separation of the sands from the slimes is made. The slime plant will consist of five 60x12-foot Dorr thickeners with the usual diaphragm pumps, etc. The sand plant will be eight 45x12-foot leaching tanks with the usual pumps, solution tanks, etc.; and the precipitation plant will include three 14x14-foot filters, classifiers, precipitation equipment, vacuum pumps, etc.

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#### POSITIONS OPEN

Large established successful mining company in Mexico has opening for **GENERAL SUPERINTENDENT**. Must have wide experience in mining and milling. Knowledge of Spanish preferable. Submit references and complete details of experience. Good salary and living conditions. All communications will be kept confidential. Reply to: Box R-12, The Mining Journal, Phoenix, Arizona. 4-15

#### MINES WANTED

**Gold Mines Wanted**. Full information required. Attractive propositions offered mining men for acceptable mining properties. Inquiries invited. Page and Company, Financial Center Building, Oakland, California. tf

**WANT MINING PROPERTY**. Developed, or otherwise. Anywhere. Suite 616, Idaho Bldg., Boise, Idaho. tf

#### MINES FOR SALE

**BOULDER COUNTY, COLORADO, TUNGSTEN PROPERTY** for sale. A fine property in a splendid district. D. W. Schmitt, Boulder, Colorado.

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**FOR SALE**: About seven hundred acres patented mining ground located on highway, between Miami and Inspiration companies and Magma Copper Company. Several rich copper veins have been developed from which over \$80,000 ore mined and shipped. Geologists state formation indicates gold vein runs through property. Address: S. D. Crenshaw, Richmond, Virginia, or Frederic A. Shaffer, Globe, Arizona. 6-30

#### CAPITAL WANTED

**WANT TO CONTACT** man with capital (only principal) to lease and bond gold prospect, \$10 to \$100 per ton, increasing with depth. Development outlay of \$10,000 honestly expended and sensibly managed can open productive mine. To one who can escrow this amount for development a lease and bond can be given. Address: Edward R. Havens, 1264 First Avenue, San Diego, California. 4-15

Have small developed gold producing property. Twelve thousand dollars development. Want three more to cut larger ledges. Interest given. Blg producing gold, silver, lead property. Shipper. Smelter tests. \$2,500.00 down, pay balance out of mine. C. W. McKee, 702 North Seventh Ave., Phoenix, Arizona. 4-15

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**GOLD LOCATED** in mining, bullion form recognized elec-radio method. Details Box No. 1169, San Francisco, California. 4-30

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**PUMPS FOR EVERY PURPOSE** from "The Pump House." A complete pump service. Send us your old pumps to rebuild. Allsteel Pump Co., 1756 E. Slauson Ave., Los Angeles.

### FEDERAL M. & S. COMPANY MAKES IMPORTANT DECISION

The decision of the Federal Mining & Smelting Company, H. C. Washburn of Wallace, Idaho, general manager, in regard to future action has been announced, following recommendations by F. H. Brownell, 120 Broadway, New York City, president, and the board of directors.

The Morning mine at Mullan, Idaho, and the Page mine at Page, owned and operated by the company, will go on a straight five-day week basis, effective at once. This order will affect 650 men, 525 at the Morning and 125 at the Page. Under the new regime the men will work an average of 22 days a month instead of the present 15.

President Brownell is reported to have favored the larger output and steady production for at least a three-year period, borrowing money if necessary to carry the surplus stocks, rather than the plan to operate the Morning mine at half capacity, selling the ore, and depleting company ore reserves. The increased metal tonnage that results will be stored. This change in the operating schedule is being made in an effort to reduce costs of production as much as possible and to enable the company to continue its operation and employment under the present low prices. The wage scale, which is uniform in the district, will remain unchanged.

The annual report of the company for the year ended December 31, 1934, shows a net profit of \$55,455 after charges, but before depletion. This is equal to \$1.94 a share on seven per cent preferred stock, on which there is an accumulation of unpaid dividends. For the previous year a net profit of \$356,825, equal to \$12.53 a share on preferred, was reported.

For the quarter ended January 31, 1935, a net loss of \$72,914, after charges were deducted, was announced, against a net loss of \$18,417 in the previous quarter, and a net profit of \$106,825 in the January quarter of the previous year.

The earnings of the Morning and Page mines of the company are reported at \$126,250 for the year 1934. Gross production of the two mines totaled \$3,308,821, with production, freight, treatment, and royalty costs of \$3,092,938, leaving a net operation profit of \$215,837, according to statements. Other earnings raised it to \$260,791, but general expenses, profit and loss charges, including a zinc adjustment, reduced net earnings to \$126,250. Lead concentrate averaged 77.1 per cent lead and the zinc concentrate is reported at 55.3 per cent. Ore reserves at the Morning mine are estimated at 1,455,000 tons, an increase of 120,000 tons over last year. The Page-Blackhawk mine is reported to show an increase of 55,000 tons over 1933.

### HEAVY CONSTRUCTION AT MURCHIE MINE IS POSTPONED

Reluctant to suspend operations at its main shaft for the month or six weeks which would be required to install the steel headframe and powerful hoist already shipped to Nevada City, the Empire-Star Mines Company, Ltd., is going along with its present somewhat ancient surface equipment at the Murchie mine, a mile or two east of the Nevada City townsite.

Underground equipment has been modernized and it is planned to further advance an extensive development program before installing the new surface equipment. The possibility of upraising to the surface at a different point for the main shaft is seen. Under the supervision of George A. Kervin, veteran mine superintendent, and who has operated mines in

various parts of the world, a staff of 20 men is engaged at the Murchie, and from 300 to 350 tons of ore from stopes and development work are going to the mill. The plant is without large storage bins, thus making mining and milling virtually a hand to mouth process. The surface equipment to be installed later was shipped by rail from western Arizona, where a large plant was purchased and dismantled.

### CONTRACT IS AWARDED FOR YELLOW ASTER CYANIDE PLANT

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This solution of the problem appears although it had not occurred to others who had visited the mine after the ore was lost. It emphasizes the importance of studying control. In this case there was no change in the direction of the control that had been established for the ore body, consequently there could be no change in the real direction of the ore body. This led to an examination of the cause of the apparent change of direction that occurred below the cave and discovery of the true course of the ore beneath the cave.

**Case 2**—An ore body that had contained about 200,000 tons of ore had collapsed and was inaccessible. It lay in the flank of a sharply folded anticline and occupied a thick dolomite bed which overlies a bed of shale. The ore body had been assumed to be a chimney and extensive search was instituted beneath it for a continuation. This search revealed lead sulphides which were interpreted as an uneconomic downward continuation of the chimney ore body. This interpretation was concurred in by all the geologists who had visited the property and no alternative theory was suggested.

Looking for a control for the ore body, a point which no geologist's report had touched upon, it was surmised that the probable control was the intersection of the dolomite bed, where anticlinal flexing in that bed was maximum, and a fault system parallel to the axis of the anticline. One hundred meters of work based on this assumption found new ore, not below, as had been previously assumed, but to one side of the original discovery. The writer explained the sulphides found below the original ore body as halo mineralization for the reason that the sulphides observed had they oxidized in situ, could never have produced oxidized ore of richness comparable to that found in the oxidized ore body itself. This illustration further emphasizes the importance of the principle that all ore bodies obey dynamic control.

**Case 3**—A persistent mantle of silver ore occurred in a bed of carbonaceous limestone. Its control was a slight anticlinal folding accentuated by a north-south vertical fracture which paralleled the axis of the fold. As the limestone bed was persistent and as other north-south fractures traversed the structure, it was inferred that they too might control ore bodies where they intersected the bed. A crosscut 70 meters long, driven in the favorable bed, led to the discovery of a new ore body. The ore body was blind.

This case exemplifies the principle that dynamic controls, similar in character to ones which ore is known to follow, exist in the vicinity of such ore, new ore may be found by exploring such controls despite the fact that no outcrops exist.

**Case 4**—A blind ore body existed at the intersection of a fault and a parallel fracture which dipped toward and abutted on the fault. The fault and fracture traversed adjacent undeveloped ground so that the identical control was present in both properties. Sinking to the intersection of the fault and fracture in the unproved ground discovered a new ore body. In this case the discovery of the first blind ore body by accident led to the discovery of a second blind ore body by intent after the dynamic control of the first ore body had been determined.

**Case 5**—A known ore body occurred in a vein in porphyry at a certain distance from the point where the vein abutted a transverse pre-mineral fault of large throw. Another presumably sterile vein abutted the same fault. It was reasoned

that the ore occurrence in the known case corresponded to the part of the vein that had suffered maximum flexing from the drag of the transverse fault movement. It was inferred that the sterile vein might contain ore at the place where it too had suffered maximum flexing, due to the same cause. Fifty meters of drifting discovered an ore body at the predicted locality on the second vein.

No work had ever been done on the second vein before because its barren gangue at the surface displayed high-temperature quartz and it was reasoned that this quartz indicated too high a formation temperature to make the existence of argentite probable. In this case the controls, the plane of weakness of the vein itself plus flexing, had never been realized and the further ideas that a vein could be invaded by mineralizer every time movement occurred in it, that these movements would occur repeatedly and that some of them would happen while the vein was cool enough for silver to be deposited, had never formulated themselves in the minds of previous examiners. They did not picture the vein as a plane along which recurrent movements would be likely to occur during cooling, contraction, and subsidence, nor did they realize that in 95 cases out of 100, gangue minerals precede instead of accompany metals into a vein.

Accepting the principle of dynamic control enforces conscientious observation because it is essentially a geometric method of analysis. It is an adequate method for the reason that it has been shown that the crustal subsidence movements that are woven into the present geometrical structure pattern, were contemporaneous with deposition and hence the study of control movements in a structure furnishes the key to the understanding of such ore deposition as may have occurred in the structure while the movements were taking place. The geometric method is a practical method because the cost of reaching a favorable new ore location, that can be geometrically demonstrated, is susceptible of accurate estimation.

The seeker who enters a mine, intent upon finding new dynamic controls that can be geometrically expressed, has already solved half his problem because he knows for what he is searching.

#### MAGMA PROFITS SHOWED AN IMPORTANT INCREASE IN 1934

A net profit of \$647,181, equal to \$1.58 a share on its 408,000 shares of capital stock, was reported for the year 1934 by Magma Copper Company, Superior, Arizona. This figure was obtained after making deductions for depreciation, rents and federal taxes, but before depletion charges, and compares with net profit in 1933 of \$5,770, equal to 1 cent a share on the capital stock.

The company's smelter metal production for the year from all sources, after deducting all losses including refinery, totaled 32,023,059 pounds of copper, 947,211 ounces of silver and 30,310 ounces of gold. The average net cost of producing copper after deducting gold and silver values and excluding allowance for ore depletion or federal income taxes was 5.73 cents a pound against a cost, similarly figured, of 7.80 in 1933.

The average net selling price on all copper delivered during 1934, in excess of all commissions and charges, was 7.85 cents a pound, compared with 6.767 cents in 1933. During the year the company exported 10,593 tons of refined copper, part of which was 1933 production.

#### ALASKA JUNEAU REPORTS INCREASED GOLD RECOVERY

Gold recovery by Alaska Juneau Gold Mining Company during March was greater than for any month since October, 1933, and is estimated to have amounted to 12,988 fine ounces, against 10,575 in February, 11,079 in March of last year, and 13,377 ounces in October, 1933. Increased recovery was due to improvements in values of milled ore rather than to the increased tonnage being handled. A substantial tonnage is now being mined from the lower levels of the mine, where values average higher than in the upper portions.

Gross income for March aggregated \$453,500, giving an operating profit, including other income, but before depreciation, depletion or income taxes, of \$241,000. The March profit brought the total for the first quarter of 1934 to \$540,000, against \$599,650 in the first quarter last year, and \$270,000 in the first quarter of 1933.

P. R. Bradley, early in March, expressed the opinion that 1935 would result in a gold production sufficient to maintain Juneau's dividend—\$1.20 a share a year—provide for some abnormal capital expenditures, and permit an increase in cash. The regular quarterly dividend of 15 cents a share and the usual quarterly extra of 15 cents a share were voted, payable May 1 to stock of record April 10.

#### CALIFORNIA DREDGE OPERATORS GET BREAK ON TOP SOIL BILL

The bill designed to require gold dredgers to replace soil removed by dredging operations so that all rocks and stones are covered to a depth sufficient to permit farming operations has been tabled by the California assembly agriculture committee.

Opponents of the measure, headed by Daniel Burbank of Yuba Consolidated Gold Fields, said the proposed law is impractical in that it would cost \$150,000 to rebuild each dredger, with no assurance all topsoil would be replaced.

Assemblyman Earl Desmond of Sacramento, author of the bill said: "While we appreciate gold mining is an important industry, we must remember destruction of the soil can never be overcome. This bill, even if tabled, should be a warning to gold mining interests that they should make some effort to protect the land."

#### KAPPEL MINING CO. INCREASES HOLDINGS AT SONORA, CALIF.

Page & Co., mine brokers of Oakland, announce that the Kappel Mining Company which recently purchased the Contention mine near Sonora, in Tuolumne county, California, has greatly enlarged its holdings by the purchase of adjoining properties.

From George B. Lynn and J. E. Williams, the company purchased four claims known as the Yellow Rock, Granite Boulder, Fraction mine and Burnham mine. On the east and south the company purchased 600 acres, including the Keawana mine. On the west, 15 claims, recently located, were taken over. Many of these properties have splendid past production records.

At the present time the Kappel company is engaged in installing complete up-to-date mining equipment on the Contention mine. It is expected that mining operations will be commenced within 30 days. Headquarters for the company are 208 Financial Center Building, Oakland, California. R. N. Kappel, president, resides at 1623 Walnut Street, Berkeley. Edward L. Morgan, 3401 Haley Avenue, Oakland, is general manager.

OUR WASHINGTON CORRESPONDENT analyzes

## New RFC Mine Loan Regulations

The regulations as embodied in Circular No. 14, Revised February 1935, have been issued by the Reconstruction Finance Corporation, Division of Mining Loans. The act quoted in the said regulations shows that the Scrugham amendment was changed substantially on the feature pertaining to loans to development enterprises, and it also leaves out prospects.

Any one can secure a copy of the Regulations Circular No. 14, and the accompanying form L-197, revised February 1935, by writing direct to the Reconstruction Finance Corporation, Division of Mining Loans, Washington, D. C. Ask for five copies of the form, and one of the regulations. One copy is to be kept by the applicant for his own file use, while four copies, including the original of form L-197, are to be filed. This is quite a job as a brief examination will reveal. It is highly important information that should be filled out by the examining engineer, familiar with the procedure.

The task does not end there, however, because that is only the beginning, since a legal review of the application will be had at the Washington end after RFC engineers have completed their investigation, and given their approval as to the engineering information furnished. For the average applicant there will be in a great majority of cases a request for additional security.

A mistake made by many applicants is to assume that because they have a mine that is under water, but at the same time is alleged to have blocked out ore in place, of uncertain tonnage or dimensions, that it is easy to support a request for a loan. It matters not whether it is a major blocked-out ore body, or a development proposition with attractive history and possibilities, the mine has to be made accessible before consideration for a loan can be obtained. The expense and actual performance of the work of making the mine accessible must be worked out by the owner before he reaches the stage where a discussion of the loan can be obtained. This is so because the RFC insists that the owner, or lessee, must make his property accessible so that it can be examined.

Variations in the above procedure will be exceedingly few, if any. Thus, if an owner had his property reported on prior to its filling with water, in recent years, and the party making the report is one known to the RFC, it would appear that consideration to the applicant's request would be given part way, but it would still be necessary to see what was below water level. Any progress by reason of said report would not go far enough to bring a satisfactory culmination to the request for a loan prior to dewatering and making the mine accessible.

There are some gaps in general mine development that seemingly will fall to the lot of added legislation to correct, but which will not come under RFC. It is unfortunate that at this particular time there is no wide-spread diversion of FERA funds into prospecting, and development work. There is undoubtedly an immense waste of FERA funds in the cities and on the farms that will never be redeemed. But in prospecting and development, the use of FERA funds should be carefully checked as to the ability and knowledge

*The regulations for securing mining loans, as embodied in Circular No. 14, of the Reconstruction Finance Corporation, present a number of difficulties for the small mine owner. The following discussion points out some of the features in the new regulations and suggests the procedure by which the applicant may secure action more promptly and avoid some of the pitfalls others have encountered.*

of the parties engaged in prospecting, and their work should be directed by federal advice and control—somewhat as provided in the Pope measure.

Regulations in Circular 14 take up the loans by RFC under two categories of the act, namely the "proven mine," and the "development proposition" that is in the course of being proven. The data required for one are just as elaborate as for the other, which raises the question as to what expense a development proposition can go in order to obtain a \$20,000 loan. It cannot go very far, which is another handicap, yet full data are required.

Thus, if the applicant pays out \$1,000 for the necessary data, including examinations, exhibits, assays, etc., he will still have to face the expense of a government examination. This has no need to be as extensive as the work for filling out the form but will be extensive enough to warrant the applicant to wonder whether he should gamble on the chance of getting a loan if the expense is to be so substantial. If additional expense is incurred by reason of inadequate service or advice, it may well be disastrous.

The principal impediment in the entire matter is the burden of expense that is placed on the mine owner. The law does not say that the mine owner shall pay for this examination, according to Section 14 of the RFC act. This, unless qualified elsewhere, is apparently an administrative ruling outside of the act and which appears to have been made to head off an abundance of applicants and to keep administrative expense low. This does not seem necessary. The RFC can decide just as effectively without this provision as with it, for the data are there from which to determine whether the examination by the government is justified.

It is not the practice of the banks to make the borrower pay for the bank's examination, and it is directly contrary to business principles for one who is to make a loan to have the one who is asking for it to pay for the former's examination. Nothing is seen in the act as quoted in

Circular 14 that requires the mine owner to pay for the government's examination, other than the administrative rule laid down in the regulations, which is not law unless authorized specifically by the act, and Section 14 does not do that.

The other proviso in the regulations as to the NRA, of course, is entirely out of the picture. A gold mine is not an interstate operation. Section 14 makes no provision for NRA, and the thing has been stuck in there entirely in conflict with the statutes, and by court decision after decision ruled out as unconstitutional.

It will be well for the applicant to carefully consider the purposes of a loan as outlined in the regulations. The money has to be spent for the purpose for which it is loaned, unless permission is granted by RFC to make a diversion, all of which takes a lot of time, and calls for more examinations, etc. The purposes are:

(1) Fixed Capital—which is construction, and improvement, repair and equipment.

(2) Working Capital—which is the means to finance operations.

(3) Loans for tax payments—which allow an "incidental" portion of the loan to be so applied.

Therefore, the applicant should have accurate engineering knowledge before allocating the loan to the three subjects above listed under "purposes." Do not ask for a loan to build a smelter, when a mill will answer for the purpose, for a smelter is rarely needed. The question is one of finding out the exact metallurgical difficulty involved.

The flowsheet that is contemplated must be known in order to determine the amount of the loan applicable for that purpose. This in itself is enough of a problem and requires the best of engineering advice. Many years ago a smelter was thought the answer to thousands of complex ore problems, but advances in wet methods of ore dressing have been so great that the need for a smelter at the mine is practically obsolete in most cases.

The working capital need is also obvious, and lastly, the mine is the foremost factor. The mine comes ahead of the mill, but some owners still build mills before the ore body is sufficiently exposed. Manifestly, a mill is not needed until the mine is definitely known to be worthwhile and to be capable of supplying the mill. These three items will all come under the survey of the government engineer, and he may make drastic changes as to allocation of the loan.

Finally, we come to the development proposal. The maximum loan available is \$20,000, and the regulations make little change in the treatment of these over the proven mine. Adequate security is required, and this the mine owner or development proposition owner will have to supply.

In short, there is a severe demand as to all these matters, and serious consideration must be given to all tangible and intangible factors, following a complete survey of all details. The owner of the property will do well to get the best available advice, which may be not to ask for a loan.

## Concentrates from the Western States

*Some high spots of the mining industry in the Western United States and Mexico.*

### ARIZONA

Under the direction of Tom Frazier, mine superintendent, the main shaft at the **Morgan Mine**, Sells, Arizona, is being sunk to a depth of 600 feet. The shaft is now down 400 feet, having been sunk on the incline, and is said to be in ore the entire distance. The vein has been opened up on the surface for about 3,000 feet in length. Fourteen men are employed on the present work. The mine has been completely equipped for the work in progress. A milling plant has been purchased and paid for, but not erected as so far the company has been unable to procure sufficient water in the immediate vicinity, and mill erection will be delayed until an adequate supply is located. The ore testing and metallurgical work were done by the late Arthur Crowfoot of Tucson. The Morgan mine has been held under bond and lease by an eastern group for the past two years.

Due to furnace conditions, the **United Verde Extension Mining Company**, Jerome, Arizona, did not close down its smelter until April 6, 1935, instead of March 1 as originally planned. The No. 1 reverberatory is being repaired, preparatory to another short campaign, but the date for starting up again has not been decided. Mining operations are being continued without interruption. March production for United Verde Extension totaled 2,021,016 pounds of copper, compared with 2,803,708 in March of 1934. George Kingdon is general manager of the company.

The **Lost Basin Gold Mining Company**, with property located 70 miles northeast of Kingman, Arizona, is considering equipping its mine with milling facilities. Joseph Hensen is superintendent, and H. A. Jensen, 1102 First National Bank, Salt Lake City, is general manager of the company.

**James E. Wilson** of Phoenix, Arizona, has acquired a placer property on Big Bug creek, Mayer, Arizona, and is employing 12 men in preliminary and construction work. He is arranging for installation of machinery capable of treating 300 yards of gravel daily. Burt Roby is engineer in charge.

The **Back Bone Mining Company**, whose property is located two and one-half miles north of Arivaca, Arizona, is said to have placed a number of additional men on the payroll and to be continuing development work. Houston L. Walsh, 122 North First Avenue, Phoenix, Arizona, is one of the principals on the company.

A refund of \$2,470 in 1934 taxes was ordered for the **Shattuck Denn Mining Corporation**, Bisbee, Arizona, in a judgment rendered by Judge Wilson Ross of the Cochise county superior court. The assessed valuation of the mining company was reduced from \$450,000 to \$389,000 in the judgment, a reduction of \$61,290.

The annual report for **Inspiration Consolidated Copper Corporation** for 1934 shows a net loss of \$1,283,481, after charges but before depreciation and depletion against net loss of \$1,506,213 similarly figured in the previous year. No depreciation was written off during either year, as this provision is calculated on the basis of units of production and operations at the company's mines at Inspiration, Arizona, were suspended for both periods.

### ANNOUNCES NEW PRICE BASED ON 77.57 U. S. SILVER

The El Paso Smelter of the American Smelting and Refining Company has announced that "the price to be used in settlement for silver mined on and after April 24 is 77 cents which represents the mint price, less delivery costs, adjustment for fineness and added company expense incidental to compliance with Treasury requirements."

**Crown King Consolidated Mines, Ltd.**, Crown King, Arizona, is employing an operating crew of 27 in the development work in progress at the mine. During recent months the company has completed its 150-ton cyanide-flotation mill, hoist house, office, shops and laboratory, and housing facilities for 50 men. The management expects to go on a regular production basis at an early date. The mine has been opened to a depth of 100 feet, with mine workings totaling 1,800 feet. It is planned to dewater and open the entire mine to the 500 level. The operating staff includes W. W. Edwards, general manager; C. O. Vowell, mine superintendent, and E. J. Farley, chief electrician. Victor L. Smith, president of the company is also located at the mine.

The contract for the construction of a 25-ton flotation plant on the **Johnson** group of claims in the Weaver mining district, Octave, Arizona, has been let to the Oil & Mining Equipment Company at Los Angeles, California. The property is owned by Frank S. Gochenour, Loyd E. Gale, Ralph Rosenberry and Isaac D. L. Williams, of 610 I. W. Hellman Building, Los Angeles.

**Fletcher Merrill** and **F. W. Moody** of Thatcher, Arizona, in association with Max Cohen of New York, have taken an option and lease on the old **Casterson** property in the Tonto Basin, near Payson, Arizona. Merrill, who is in charge of the work, states that for the past four months he has been drifting on the vein, which is from two to eight feet in width, assaying from \$8 to \$30 per ton. The vein has been opened for a length of 250 feet and to a depth of 125 feet. Plans are being made for installation of a 25-ton mill in the near future.

The **Gold Basin Mines, Inc.**, Prescott, Arizona expects to soon start construction of its 50-ton daily flotation plant. Snows and rains have delayed plans somewhat, but in the meantime all ground work is being laid out for immediate action as soon as conditions are advisable. Now that the raise is completed, it is estimated that 12,000 tons of ore are ready for actual mining. The Gold Basin Mines rebuilt the old stamp mill last year, and for a while produced about one ton of concentrates daily. Robert N. O'Brien, vice-president and general manager, is en route from Detroit to Prescott to settle the final details of mill construction and production.

### CALIFORNIA

The report of the **Walker Mining Company** at Walkermine, California, covering the year 1934 shows a net loss of \$59,853.83. The mine and mill were closed throughout the entire year, and only a

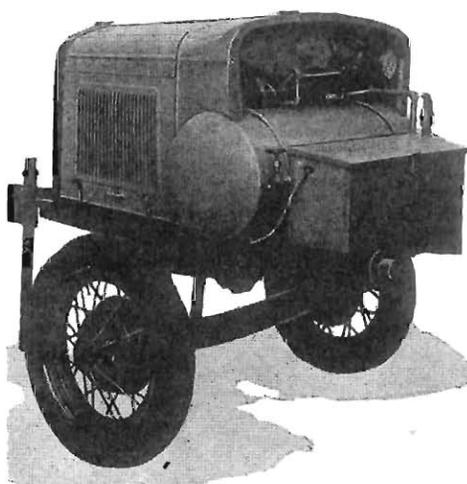
skeleton organization was retained to keep the premises in condition. Thirty tons of 60-per cent copper precipitate were recovered from mine water and stockpiled. A 375-horsepower Nordberg double drum hoist was purchased from the Engels Copper Company and carried to warehouse stock. The balance sheet as of December 31, 1934, shows current assets of \$488,946.26; ore and concentrates on hand at cost, \$268,784.63, and accounts receivable, \$2,263.70. Current liabilities were listed at \$7,749,308, in accounts and wages payable. The directors are J. E. Walker, B. R. Howell, R. May, J. O. Elton, J. B. Whitehill, H. A. Geisendorfer and Robert E. Dwyer.

The **Montezuma-Apex Mining Company** is mining and milling approximately 200 tons of low-grade gold ore a day at the Montezuma and Nashville mines near Placerville, California. Nearly all of the production is coming from the Montezuma mine, and work at the Nashville is largely development and shaft cleanup and repair. Since work began in 1932 the Montezuma shaft has been sunk to 1,500 feet from a depth of 900 feet on the incline. The Nashville mine has been unwatered and rehabilitated to a depth of 1,000 feet on the incline. The unwatering was accomplished when the Montezuma 1,200 level tapped the old lower Nashville workings. J. A. Norden, formerly general manager for the Utah Apex Mining Company, at Bingham Canyon, has been in charge of operations through the entire period. F. L. Wideman is chief engineer, and R. S. Cockle is his assistant.

**Harry F. England** of Oroville, California, gold dredge operator, and **Bing Clark** have leased the Wortel ranch, in Placer county, from George McAulay, Auburn banker. Equipment is being installed for the recovery of the gold contained in the gravels. England has three dragline dredges working in central California, handling in the neighborhood of 2,000 yards of gravel a day. One of these is working on the F. F. Ford land to the east of Palermo, Butte county. He operates as the **Wyandotte Gold Dredging Company**.

**E. E. Myers**, Route 4, Box 127, Chico, California, is building a portable dredge on Butte Creek, eight miles east of town, for **L. E. McLain**, channel miner of the Magalia district. A rather unusual feature is being carried out in that the recovery unit is not on the dredge and the boat does not float. It is being built on skids. An ordinary shovel will be used to move the gravel. It will be dumped into a hopper, and into a mixing chamber, consisting of a double trommel, the inside one having the larger mesh. The fines work down to the lower end, all material up to 5/8-inch going into a sump box. From here a sand pump lifts it to the sluices which are detached from the dredge. Gasoline engines will be used for power until such time as Diesels can be installed.

Litigation involving the **Hoge Development Company**, **Henry Hussey**, West Mines Corporation and the **California Sierra Gold Mines, Inc.**, has been settled out of court. Announcement is made that the **Wiljobar Corporation**, controlled by substantial New York interests, has entered into an agreement to operate the Hussey mine, of the Hoge Development Company; and to operate the Queen Lil mill of the **California Sierra Gold Mines, Inc.**, for treating the Hussey ores. **John D. Bardill**, president of the Wiljobar Corporation, is remaining at Nevada City, California, to direct operations; and **G. M. Bettles**, under whose engineering guidance the Hussey has been



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on profitable production, will be superintendent. A larger compressor is being installed, and Mr. Bettles is considering contracts for sinking the Hussey shaft another 200 feet. The new levels are to be established in the mine from the new depth of shaft. It is probable that the Queen Lil plant will continue to take custom business until such time as the Hussey mine demands full capacity.

Weekly shipments of bullion are being made from the Aunt Rosa mine, in the Caliente Canyon section, near Caliente, California. Five stamps are being used for crushing. The property has been active since late last fall, with R. E. Frasch as general manager.

Walter E. Trent, vice-president of the Trent Process Corporation, Whitehall Building, 17 Battery Place, New York City, and associates are reported to have purchased the smelter at Mojave, California, built last summer by the Mojave Smelting Company. The smelter is large enough to treat 50 tons of ore daily and since last fall has been accepting custom business.

By the end of May the Republic Gold Mining Corporation expects to be milling an additional 75 tons of ore from the Empress mine at Grass Valley, California, and to have added another 30 men to its payroll. The new ball mill brings milling capacity up to 375 tons a day. The eight-foot vein of ore opened on the 800 level a few months ago is holding well to a good milling grade. E. C. Jacobs is manager of operations.

The Golden Queen Mining Company, Charles Kumke, superintendent, has completed the foundations for its 200-ton mill at Mojave, California. George Zapp is construction engineer. The company employs 30 men.

The Sierra Consolidated Mines, Inc., operating the Silverado and Kentuck mines at Sweetwater, California, has let a contract to the Truscon Steel Company, of Youngstown, Ohio, for the erection of three all-steel buildings, including boarding and bunkhouses. These will be built at the head of the tramway a mile above the mill, and will replace those burned a few weeks ago. D. C. McKay, 419 Ralston Street, Reno, Nevada, has charge of operations.

New living quarters have been completed at the Bessie mine, north of Vidal, California. The operators are George B. Roberts, formerly of Grass Valley, and D. C. Wray of Vidal. They expect to have the mine in operation early in May.

E. M. Niquette has leased the Silver Moon Nos. 1 and 2 groups of mines, in the vicinity of Vidal, California, and is bringing in lumber and supplies to begin construction and development work. The property is owned by W. R. Baird.

Messrs. Applegate & Sutton have sold their respective interests in the Prosperity group of nine claims and the Prosperity Extension group to J. M. Niquette and Charles Milton. Exploration and development work is scheduled to begin soon.

Work has been resumed in the New York mine on Indian Creek, near Ft. Jones, California, following several months' shutdown on account of litigation. J. W. E. McCulley, superintendent, has a crew of 16 men. The working program calls for sinking the shaft from the 400-foot level to a point 128 feet vertically below; for the development of about 1,400 feet of new tunnel; and for the installation of an 85-ton ball mill. Hydraulic concentration and flotation units will be installed by the American Cyanamid Company.

T. H. Hilborn, who has been developing the Phoenix mine in the Hurlston district, near Oroville, California, for the last three years, reports he has a crew of 20 men working three shifts a day. Work centers on the 200-foot level from the main shaft. Harris & Rooker, Chicago truckers, have a contract for hauling the concentrates to a smelter at Pinole.

G. J. Linsey of Oroville, California, has taken a lease on the Jennie May mine, near Jack's Ranch, in the vicinity of Magalia. Work is to start at once.

Mining has been resumed in the lower workings of the famous old Plumbago gold mine at Alleghany, California, by the Plumbago-Eldorado Gold Mining Company. Areas long closed to production have been unwatered and reconditioned and the management is seeking continuations of veins that once yielded substantial profit. The 20-stamp mill is running on a good grade of ore from the upper levels. In the Eldorado mine, a 600-foot raise has been driven to the surface from the main tunnel and the opening of new ground is progressing favorably. Arthur B. Campbell, formerly of Grass Valley, is superintendent of operations.

According to Harold Lynn, superintendent, the Idaho-Maryland Mines Company at Grass Valley, California, has just installed new pumping equipment that can lift 1,000 gallons of water a minute at the Brunswick mine. Another large garage has been built, directly back of the office; and a 32-ton shovel has been taken to the mine for use in excavating reservoirs and stacking timber.

The Newmont Mining Corporation reports a net income for 1934 of \$1,076,270. This includes \$207,780 net gain realized on securities sold, and after expenses, taxes, etc., equivalent to \$2.02 a share on the 531,646 shares of capital stock outstanding. For 1933 the company reported a net income of \$155,410, including \$92,537 realized on the sale of securities, equal to 29 cents a share.

R. Black & Sons, who a few weeks ago bonded the Solid Oak mine at Big Oak Flat, California, have cleaned out the shaft. According to Dr. John Roberts of Seaside, California, who has owned the property 35 years, several tons of high-grade galena sulphides and free gold have been produced but the vein yet requires a great deal of development work.

The Jumper, Golden Rule, New Era and Mazeppa groups of mines at Stent, about four miles south of Jamestown, California, are being operated under lease by a group organized in March of this year as the Federal Mining and Milling Company. The agreement also includes an option to purchase the ground. Malcolm Crowe, for 21 years vice-president of the Commercial National Bank, is president. Ralph Arnold, of the Arnold Exploration Company, is vice-president and consulting engineer; Edward L. Fries, treasurer and chief financial officer; John M. Bowen, secretary and counsel; and Albert Somkin, vice-president and assistant treasurer. Altogether the lease covers 174 acres, extending some 5,300 feet on the Slate or Jumper, Bull Quartz, Middle and the West veins. Crushing and grinding and cyanide equipment, adequate to treat 150 tons of ore a day, is being added to the 40-ton stamp mill. The installation of this is being rushed so as to place the mine on production in the minimum of time, the company reports. The compressor, hoists, blacksmith shop, assay shop, ore bins, flotation machine and pumps are ready for use.

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The new 200-ton trommel of the **Gold Exploration Mining Company** at Smartville, California, has been in operation since April 1. A special feature is the installation of a vibrating feeder, which controls the flow of the gravel from the bin into the mill. Ore bins and building structures have been completed. The two shafts are being controlled from a single source, a double-drum hoist operating both skips which dump into the main bin. Air capacity has been increased with the setting up of a second compressor. Drifting up stream in the virgin channel is progressing and additional gravel is being blocked out for development. M. D. Paine is in charge. C. H. Carmichael is engineer.

Harley Sill, consulting metallurgist, 1011 South Figueroa Street, Los Angeles, has made a complete examination of the Golden Treasure mine, located on the Amargosa Mountains on the east side of Death Valley. This mine and the Standard are being operated by the **Gold Reservation Corporation, Ltd.**, sponsored by G. M. Ottis and B. S. Dennison, 408 South Spring Street, Los Angeles. Plans include replacing the old Lane mill with ball and flotation machinery.

B. T. Isgrig and Basil Prescott have taken over the **Or-ar** gold mine, located a half mile below the P. G. & E. power house in the Ophir district of California. Sampling and testing is being done with a view to mill installation. Both men are engineers with a great deal of experience in mine operation in the western United States, Canada and Mexico. Mr. Isgrig is making Hotel Auburn, Auburn, headquarters; and Mr. Prescott's office is 703 Richfield Building, Los Angeles.

Announcement has been made by W. S. Russell, vice-president, that the **Mojave Neenach Mining Company** has acquired the Russell-Myler lease, consisting of 15 acres of the Rogers-Gentry holdings in the Neenach mining district, near Mojave, California. The lease has been operated to a depth of 150 feet by an incline shaft, from which 400 feet of drifts have been driven. The oreshoot varies from three to seven feet in width, and is yielding 20 tons of \$40 ore daily. This is being treated in the Burton Bros. mill at Rosamond. The Mojave Neenach company was reported recently to have purchased the **Rosamond** mine at Tropic Hill from the Burton Bros.

It is reported that a definite program will be outlined for the **Icard Ranch Mines** at Grass Valley, California, with the early return from the Philippines of George Icard, the man responsible for the project. Several drifts are being driven from the 110-foot level of the Lincoln shaft. The West drift has cut a ledge of pinkish quartz very different in character from the Abe Lincoln ore. Encouraging results are being found in trenching the Fox Cover area of the ranch acreage. H. L. Henderson is foreman of mining.

The old Peabody shaft on the townsite of Grass Valley, California, is being reopened by the **Golden Center Mines, Inc.**, under the direction of L. S. Wincapaw. This shaft was caved years ago for safety reasons. The shaft will give a depth of 225 feet on a vein, believed to be closely related to the Gold Hill vein system.

The **Telegraph** mine, nine miles north of Downieville, California, has resumed operation under the management of Engineer John M. Sheedy. The program includes the development of a vein partially opened last fall before the mine was closed for machinery installations. Diesel power has been installed.

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Fifteen men are engaged in construction of a 3,500-foot flume, which will bring water from the Scott River for the mining of the townsite of historic Scott Bar, California. The work is contracted to Jack Gilmore of Redding by the **Scott Bar Mining Company**, John Williams, superintendent. Two huge turbines will be set just below Salmon Hole in the river. It will be several months before construction is completed and actual mining can be started.

George H. Bergin, former superintendent for the **Canyon Placers, Inc.**, at Dedrick, California, has leased a part of the company's property and has a crew of eight men working. His lease includes the old Clarke property, formerly owned by Julia Clarke of Canyon Creek. Since it was purchased by Canyon Placers two years ago a large sum of money has been invested in flumes and ditches to furnish water to work the upper mines near Dedrick.

The **Keysville Sunrise Mining Company** has been granted permission by the Commissioner of Corporations for California to issue 1,200 shares of its 2,500-share capital. Per value is \$10. The directors of the company are James B. Agnew, 225 South Rossmore Avenue, Los Angeles; Charles E. Moore, R. G. Boyd, Philip B. Heckler, Joseph S. A. Smith and Harry Miller.

The Oil and Mining Equipment Company, 2027 Santa Fe Avenue, Los Angeles, has contracted to furnish and install equipment for mine development at the **Top Mast** mine in the Dale mining district, near Twenty Nine Palms, California. The property is owned by E. Garcia Nunez and Joe Block of the Podolor Motor Company, 3700 South Broadway Place, Los Angeles.

L. W. Sockman has obtained a lease on the **Montezuma** silver-lead mine, located south of Big Pine, California. He is the owner of the concentrating plant on the McCain place, east of the river.

R. E. Dillon, district supervisor; R. L. McKenzie, superintendent of Riverside county highways; and James L. Davis, managing secretary of the Riverside County Chamber of Commerce, are investigating the possibilities of better roads in the county connecting with the **Gold Crown Mining Company, Ltd.**, cyanide plant, located just south of the Riverside-San Bernardino county line, in the Pinto Basin area. The chamber of commerce has adopted as one of its objectives the obtaining of state aid for improving and surfacing of the Amboy Cutoff, which forms a link between the old Santa Fe trail at Needles and Highway 60 near Whitewater. Such a road will permit the cyanide plant to accommodate mines for 50 miles. The Gold Crown operates four shafts of its own besides handling ore from several other mines. Its water is piped 10 miles from the Dale mining area. Thirty men are employed. George A. Novell, Petroleum Securities Building, Los Angeles, is president of the company.

The City of Sonora, California, has received a 10 per cent royalty from the

**Sonora Belle** property southwest of town. The shipment was 10 tons of ore that returned \$184.50. J. W. Bates, Box 323, Sonora, and F. E. Martin, the operators, are sinking on a vein 10 to 20 inches wide, of free gold and sulphides. They will continue to ship to Selby until such time as they can build their own reduction works.

The **Belmont Osborn Gold Mining Company** at Angels Camp, California, is starting to reopen new territory below the 200-foot level, center of present operations. According to H. H. Poch, superintendent, the mine has been on production since it was reopened in January of last year. Seven men are working one shift in a drift at the 200 level and provide ore sufficient for the five-stamp mill.

The **Natomas Company** has made formal application to list its 995,820 shares of no par capital stock on the New York Stock Exchange, and it is expected the application will be acted upon at the next meeting of the Exchange's stock list committee. Application entails presentation of the necessary records and statistical data both to the Exchange in New York and the Securities & Exchange Commission at Washington. In view of the company's success in all preliminary negotiations, it is anticipated that formal listing will be forthcoming shortly.

J. F. Springer and Fred S. Owen are installing complete mining and milling equipment on the **Mina Oro Grande** mine near Jamestown, California, and have started sinking a shaft. Two veins have been prospected by shallow openings, with assays reported as high as \$30 in gold. A Straub mill of five to eight-ton capacity will be equipped with amalgamation plates and a Deister concentrating table, and should be in operation by June. A cabin has been built and a four-room house is planned. Mr. Springer is a geologist, graduate of the Royal Academy of Science, in Vienna, and has been identified with mining in various parts of the United States.

Installation of additional equipment for increasing the capacity of the **Carson Hill Gold Mining Corporation's** plant at Melones, California, from 600 to 1,000 tons per day is to be completed by the middle of April, according to President Charles H. Segerstrom of Sonora. A 37-inch Kennedy gearless gyratory crusher was added to the battery of two 12x26-inch Sturtevant jaw crushers in the primary crushing plant, and a new, strong magnetic pulley for removing all tramp iron from the ore was also installed in that department. Important additions were made in the mill proper and in the cyanide plant as well.

An important announcement has been made by the **Comanche Mining and Reduction Company** at Benton, California, to the effect that it will equip its mine for the milling of a hundred tons of gold-silver ore a day. Installation of all equipment is expected to be made within 120 days. According to George W. Adams of Los Angeles, president and general

manager, no recent development work has been done. The company ceased operations in 1930, on account of the low price of silver. Mine development will be resumed along with production. Headquarters are 725 Title Insurance Building, Los Angeles. Williams B. Tucker, State Building, in that city, is their consulting engineer.

The **Elephant-Eagle Mines** is rebuilding its 50-ton mill at Mojave, California, with enlargements. Amalgamation and cyanide have successfully treated the gold-silver ores produced on both company account and by lessees. Some 20 leases are being operated at the present time. Twenty-one men are employed under the management of Jess Knight, veteran mine operator. Goodwin J. Knight, 821 Bank of America Building, Los Angeles, is president of the company; L. C. Penhoel, of that city, is consulting engineer; Allen Hymes, Edw. Moser and G. Remington are mine superintendent, master mechanic and chief electrician, respectively.

Engineers of the staff of the **Idaho-Maryland Mines Company** at Grass Valley, California, are making a geological survey of the underground workings of the **Auburn-Chicago** mine at Penryn. The mapping is being done by Glen Waterman, assistant geologist for the Idaho-Maryland, and Ken Wilson, chief engineer at the Auburn-Chicago. Both are graduates of Stanford University.

Exploration and development work have been started on the **Mary Len** property, two miles east of Penryn, California, and covering what is believed to be an extension of the Auburn-Chicago vein. A compressor and hoist have been completed and construction of the headframe and ore bin is nearing completion. Plans are to lower the shaft 150 feet. This property is under lease to G. H. Scannel and Joe Demchok of Auburn; Harry Owen of Penryn; Kenneth Wilson, chief engineer for the Auburn Chicago Mining Company; and L. D. Shaves of Sacramento.

Thomas E. Campbell, former governor of the state of Arizona, and a few associates have become interested in mining property in the Rock Creek district, near Auburn, California. Their lease covers 710 acres, taken over with the understanding that they may purchase the ground; and their project is the **Lombardi Gold Mines, Ltd.**, organized under the laws of Arizona. Living quarters are being built and preparations made to sink a new shaft. They plan to use the old 70-foot shaft for ventilation, and the old mill to test the ore in preparation for a more modern plant. The mine is one that the famous Pike Bell made a rich strike in in early days. Indications are that it has not paid because of lack of knowledge of mining rather than due to lack of mineralization. Mr. Campbell is at 1525 North Van Ness Avenue, Los Angeles.

Patrick Spillane has resumed work on his **Big Gold** mine near Randsburg, California. Several tons of ore have been blocked out for mining. The last work done on this property was when it was

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A survey has been made of the Black Cloud group of mines in the vicinity of Johannesburg, California. Plans are to resume work within a few weeks. Charles Norman, Box 347, Randsburg, has been closely identified with this mine for several years.

The Punch Bowl gravel mine, which embraces three-quarters of a mile of the ancient river channel under Table Mountain, southwest of Jamestown, California, and which has recently been operated by Malcolm B. Woods from Los Angeles and associates, is reported to have been taken over by Theodore A. Cappel of San Francisco and New York; W. C. Broadwell of New York; and E. A. S. Whittard, 627 Mills Building, San Francisco. The report follows that machinery for conducting work through an incline shaft that will tap the channel some distance upstream from the face of the main drift tunnel, nearly 1,000 feet long, has been purchased. The shaft will be continued to bedrock and from the bottom a crosscut will be driven to the west rim of the channel, which has not yet been explored, and search made to locate the trough or deepest part of the old stream course, where the heaviest concentration of gold is expected. Gravel that has so far been mined has produced fair returns. Two shifts will be used at the start.

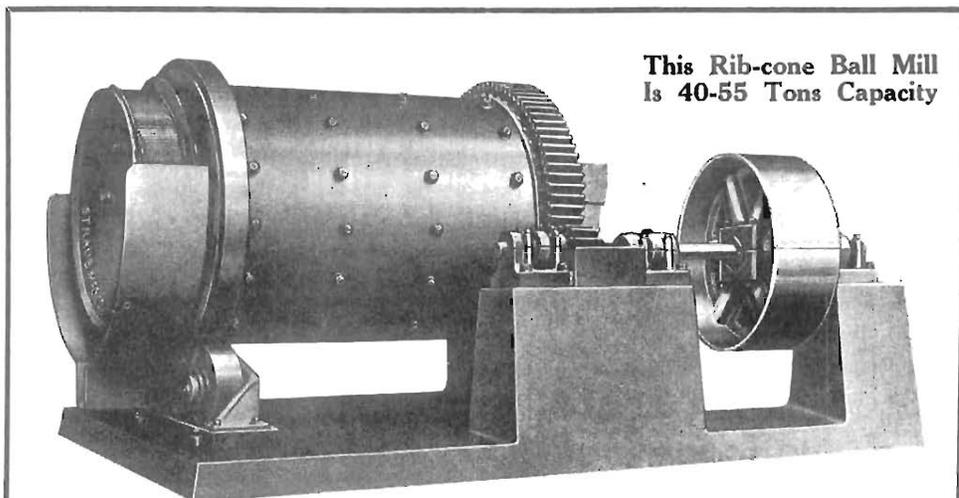
**COLORADO**

William H. Camp, Box 135, Independence, Colorado, is in charge of operations for the Atlanta Mining Company, which is reopening and equipping the Atlanta mine at Independence. Surface buildings and a gallows frame have been built on the property, the shaft repaired throughout its entire length, and new machinery installed. The company is fully organized and has been chartered under the laws of Colorado. A group of Salina, Kansas, investors is behind the project and includes Dr. F. W. Shaffer, 122 1/2 South Seventh Street, and Dr. J. M. Gaume.

A force of four men is reported to be doing development work at the Sporting Times mine on Griffith Mountain, under Cy Colburn of Georgetown, Colorado. The 700-foot crosscut tunnel is being cleaned out and retimbered and 400 feet of drifting has been completed, according to reports.

The new Golden Conqueror Company, organized by Albert de Marconnay, Box 12, Manitou, Colorado, is reported to have taken a long-term lease on the Moon anchor mine at Cripple Creek, a part of the Stratton Estate, which was reported to have been placed in the hands of a receiver as a result of a suit brought by the United Gold Mines Company. The Golden Conqueror has over 35 acres. de Marconnay says that old buildings have been repaired, new ones erected, the mine has been completely electrified, and that bins are being constructed. Sampling is reported to have been satisfactory and production is expected to start in a few weeks.

F. R. Drummond, 1627 North Genesee Street, Hollywood, California, manager of Zenda Leadville Mining Company, reports for the year 1934 that the company shipped 1,109 tons of ore, for which 174 tons was received, giving an average of 87 cents a ton. The shipments averaged 57 ounces in gold, 1.87 ounces in silver, 14.44 per cent lead a ton. During the year a total of 1,348 feet of development



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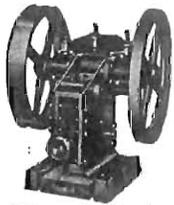
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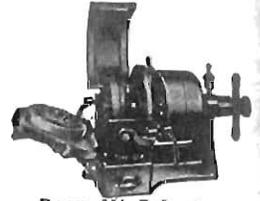
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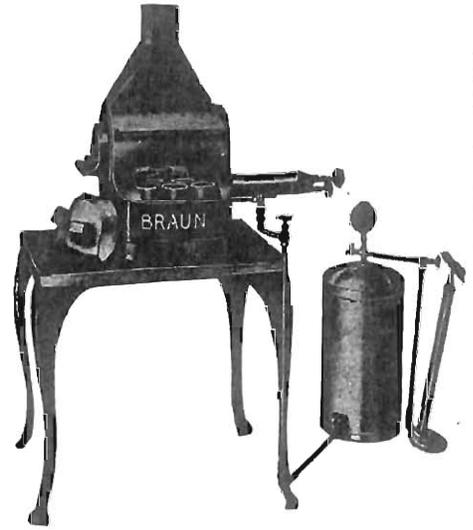
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**MONTANA MINING ADVANCING TO DIVIDEND PRODUCING BASIS**

The past winter has seen definite progress in Montana mining with very little interruption of the major operations which began last summer and fall. At the same time, the past season has seen one or two new mining ventures grow from the development stage into the dividend class. While it is impossible to devote the amount of space to which they are all entitled, one considers that there are 147 shipping mines in Madison county alone — yet there are some outstanding producers in the state worthy of note, because they are typical of the mining now going on.

The placer areas were one of the most important sources of gold in Montana last year. Particularly outstanding from the point of successful operation is the El Dorado Gold Placer Company, operating in Washington Gulch, near Finn. This company paid no less than seven dividends in 1934.

The operation is directed by P. F. Rogers of Finn who designed an unusually efficient dry-land washing machine to handle the clay gravel of the district. Running eight hours a day, they handled from 600 to 1,000 yards of pay dirt and overburden daily. This year they will operate three shifts, materially increasing the amount of yardage.

A few miles distant the giant Yuba dredge on Pioneer Creek steadily washed 30-cent gravel throughout the winter. It was the largest producer of gold in Montana last year.

Foremost among the dividend payers among the quartz mines is the Boaz production in the Red Bluff district near Morris. The Boaz Gold Mining Company recently paid a 50 per cent dividend on its \$1.00 par value stock. Sufficient excess funds are reported in the treasury to enable the company to pay a 300 per cent dividend, if so wished. The Boaz is a small company shipping ore which ranges in value from \$100 to \$500 per ton.

Adjoining the Boaz property is the Josephine mine of the Josephine Gold Mining Company whose last 30-ton shipment went \$96 per ton. A. Doornbos of Bozeman is president and general manager.

At the Virginia City Mining Company's camp, Rupert Garrison has installed a 50-ton mill and has several thousand tons of ore in sight.

The historic old camp of Bannack is yielding gold from every nook and cranny, including an old chimney from which \$8,000 in dust and nuggets was taken recently. Presumably hidden by road agents, it remained undiscovered until a new owner decided to repair an old log cabin.

The Thompson Gold Mining Company, operating the I. B. mine at Bannack, has uncovered new ore reserves on the 700-foot level in limestone and is operating its 100-ton mill at capacity. J. F. Hancock of Bannack is general superintendent.

Close on the heels of the discovery of four feet of ore, averaging better than \$180 per ton in the Bob Honska mine, came the purchase of the property by the engineering group of Knight and Copeland of Chicago. They will double the size of the 50-ton mill now operating.

At Argenta, the Groundhog Mines Syndicate is rapidly completing its mill which will serve as a custom plant. Final capacity will be 300 tons daily. Elliott R. Henderson of Dillon is a company official.

Over at Jardine, Harry C. Bacorn is shipping bullion and concentrates from the Jardine Mining Company.

Near Basin, the Basin Montana Tunnel Company has boosted its concentrating plant to 200 tons a day, treating ore from both the Comet and Grey Eagle mines.

Marysville will shortly see the reopening of the famous Drumlummon, St. Louis and Nine Hour under the St. Louis Drumlummon Mines, Inc.

In the same district the Standard Silver-Lead Mining Company, operating the Jay Gould, has added another 100-ton unit to its mill, making it the largest producer in the state.

In the Little Rockies the Little Ben Mining Company, near Landusky, recently shipped five carloads of ore which went \$300 per ton. The company declared a \$24,000 dividend on its 120,000 shares of \$5 par stock.

It is readily apparent from the amount of interest being taken by outside capital in the further possibilities in both placer and quartz mining, and from the prospects that have been opened, awaiting only money for final development, that 1935 will be a bonanza year in mining circles over Montana.

**BUNKER HILL & SULLIVAN ISSUES ANNUAL STATEMENT**

A net profit of \$119,336, after income taxes, depreciation, and depletion, was reported by the Bunker Hill & Sullivan Mining & Concentrating Company, Stanley Easton of Kellogg, Idaho, president. After regular preferred dividends of \$56,296, this equals 19 cents a share on 327,000 shares of common stock. In 1933 the company reported a net loss of \$508,948 and a net loss of \$1,044,028 for the previous year.

All the preferred stock is owned by employes and regular dividends have always been maintained. The report shows total current assets, including inventory, of \$2,970,142, cash of \$84,050, and current liabilities of \$1,263,775. This compares with the 1933 report of \$2,521,954 in current assets, cash of \$120,975, and current liabilities of \$1,292,762.

Continued low prices for lead and zinc made it impossible to resume production from the mines of the Sullivan Mining Company, where only maintenance work and a small amount of prospecting were done during the year. The smelter of Bunker Hill was operated through 1934 on a one-furnace basis, with the exception of 33 days when a two-furnace basis was maintained. All departments of the company were operated on a reduced scale, with the year's output of lead from the company's mines amounting to only about 50 per cent of normal.

The company had 2,555,250 tons of ore blocked out at the end of 1934, a slight increase as compared with 1933. The new ore exposed is largely in the Flood-Pike area, Easton reports.

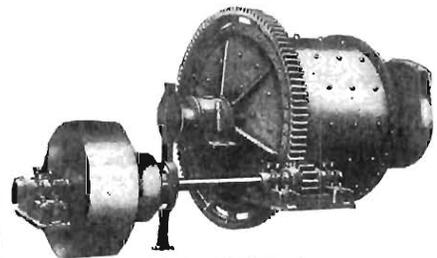
**SAN FRANCISCO MINT REPORTS LARGE RECEIPTS OF GOLD**

According to Peter J. Haggerty, superintendent of the San Francisco mint, from \$10,000,000 to \$12,000,000 worth of new gold is being received monthly in the mint. During February, in excess of 150,000 ounces of new gold, most of it mined in northern California, were received. During the same period more than 12,000 ounces of scrap gold were taken in.

In Mr. Haggerty's opinion, as soon as the snow leaves the Sierras all previous records of "depression miners," operating in the placer and lode mining districts of the northern part of the state, will be broken. In the Mother Lode section, hundreds of men are already at work panning gravel of the streams

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**MINING ENGINEER**, young technical graduate, experience in surveying, mapping, sampling and construction. Go anywhere. Address: Box E-11, The Mining Journal, Phoenix, Arizona. 4-30

**GRADUATE DIESEL POWER SCHOOL** with some experience wants permanent position with Mining Company. Address Box J-14, The Mining Journal, Phoenix, Arizona. 5-15

**ENGINEER**, 13 years underground experience, 5 years as superintendent in copper and gold. Familiar with prospecting, development and production. Age 35. Married. Excellent references. Address: Box S-32, The Mining Journal, Phoenix, Arizona. 5-15

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**WANTED**—Experimental Metallurgist for Flotation and Cyanide testing. Must have permanent, valid Mexican passport. Address: Box S-31, The Mining Journal, Phoenix, Arizona. 5-15

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**WANTED**—Party with hydraulic equipment for placer mining. Or will consider sale of property containing three million yards. E. C. Hardesty, Helena, Montana. 4-30

**OWNER** wants party to operate proven gold placer property on strictly royalty basis. Patented claims in Emigrant Mining District, Montana. C. H. Hefferlin, Livingston, Montana. 6-15

**FOR SALE ON BOND AND LEASE**—Several gold properties in the Payson, Arizona, district. One property (13 claims) ready for immediate production on 4 to 16-foot vein of \$20 ore, depth 200 feet, by unwatering only. Other properties are promising prospects in proven district. For further details write: T. F. Russell, Tonto Basin, Arizona. 5-15

**FOR SALE**: About seven hundred acres patented mining ground located on highway, between Miami and Inspiration companies and Magma Copper Company. Several rich copper veins have been developed from which over \$30,000 ore mined and shipped. Geologists state formation indicates gold vein runs through property. Address: S. D. Crenshaw, Richmond, Virginia, or Frederic A. Shaffer, Globe, Arizona. 5-30

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### LISTS

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## The Manufacturers Tell Us

**Mine Pumps Catalog**—A catalog descriptive of the Incline and Vertical Mine Pumps manufactured by the Byron Jackson Company, Fifth and Carlton Streets, Berkeley, California, has recently been issued. This is known as Bulletin No. 359 and is devoted to the problem of selecting the best type and design of pumping equipment to fill a particular requirement.

Among the pumping equipment covered by the bulletin is the two and four-stage Multiplex incline mine pump, the Type S single stage mine pump, the Vertical Multiplex mine dewatering pumps for perpendicular shafts, the Deepwell Turbine mine pumps and the Bilton general purpose pump which is adapted to many problems of the mining industry.

**New Motor Bulletins**—The Louis Allis Company, Milwaukee, Wisconsin, has just issued three new bulletins describing various motors of their manufacture. These are bulletins No. 507 describing their line of direct current motors; bulletin No. 510 describing their totally-enclosed fan-cooled motors; and bulletin No. 514 describing single phase capacitor motors.

These bulletins are attractively printed in colors and are complete with engineering and other important data pertaining to these types of motors.

**Why Bell-Shaped Crushing Heads**—A circular recently put out by the Traylor Engineering and Manufacturing Co., Allentown, Pennsylvania, explains why bell-shaped crushing heads must be used with curved concaves for efficiency in crushing. The circular is descriptive of the Traylor Original, Patented, Non-Chokable Bell-Head and Curved Concaves which are now used on some 300 gyratory crushers.

They can be used to convert any gyratory, of any make, style or age, into a first class fine reduction crusher with large receiving opening. Only the head and concaves of the old crusher need be changed. All other parts will be strong enough, because there is no added work, simply a transference of effort from useless and damaging packing or choking to the proper duty of crushing.

**Robins Develops New Screen**—A new vibrating screen designed to size fine materials accurately and having a uniform motion, an instant angle adjustment, as well as self-absorbed vibration and a construction which permits mounting on horizontal or inclined supports or by cable suspension, has been developed by the Robins Conveying Belt Company, Park Row Building, New York.

The features claimed for it include substantial construction, no rivets being used in the heavy steel frame, but all connections being either welded or bolted; protection of moving parts by a cast alloy tube and a steel drum housing; quick and easy slope adjustment, achieved by loosening two bolts on each side of the screen; a simple method of changing the cloth, involving only the slackening of the tensioning bolts and the substituting of a new panel for the old; high capacity attained by virtue of the uniform circle-throw action over the entire screening surface; low power requirements, varying with screen size but not exceeding that of a 3 hp. motor; and controlled vibration, effected by a simple adjustment of the unbalanced weights.

**Motorized Reducer Catalog**—Recently off the press is a 20-page illustrated Catalog No. 1515 published by Link-Belt Com-

pany, Philadelphia, Chicago, San Francisco, devoted to its newly developed line of motorized speed reducers, in which the motor is mounted directly on the side of the reducer housing, thus making a shaft coupling or a motor base plate unnecessary.

It shows by means of an example how the proper reducer can be selected from the tables, which give dimensions, capacity ratings, and speed ratios. The book will be sent to anyone requesting it on business letterhead.

### NEW EXPLOSIVE MANUFACTURING PLANT OPENED IN CALIFORNIA

Southern California's first explosive plant was opened to the public the week of April 22. At that time engineers and users of explosives were afforded one of the rare opportunities of inspecting in its entirety a complete powder manufacturing plant.

The new plant just completed by the Halifax Explosives Co., near Saugus, California, is now ready to produce a full line of explosives. These range from low strength, free running, to the higher nitro-glycerin equivalents. The plant represents an investment of close to one-quarter of a million dollars. Financed by western capital and directed by western executives, the Halifax Explosives Co. is in every way a California institution.

Halifax powders are declared by the manufacturers to be the most outstanding advance in explosive chemistry in the history of the American industry. By reason of the fact that the explosive is a departure from any previous type insofar as its field application is concerned, preliminary design of the factory units brought to light many problems. As a result, the Halifax factory contains many plant methods and equipment new to the industry.

Prior to plant erection, five years were spent in testing Halifax explosives. Most of 1933 was taken up with exhaustive tests in Mexico. Final field and engineering determinations were made in 1934 in the contracting, mining and quarrying industries of California. Halifax powders are declared to be insensitive to sudden changes of temperature, virtually unaffected by freezing and by extreme heat.

In common with the gravity system used in other powder factories, the raw material for Halifax powders is delivered to a warehouse and storage quarters located at a point higher than that of any process unit in the plant. From separate material storage to dry batch, thence to explosive mix, shell pack, and on to final pack house, through successive stages, the product is carried by gravity until it is delivered at the lowest point in the plant, the site of the magazine.

### RALPH HEMPHILL PLEASSED WITH RESULTS OF DIESEL SHOW

Many California and Nevada mine operators and engineers were attracted to the annual Diesel engine show which opened at 2121 San Fernando Road, Los Angeles, Saturday, April 13. It was open to the public from 10 a. m. until 10 p. m. daily and continued through the evening of Saturday, April 20. Ralph Hemphill of the Hemphill Diesel Engineering Schools was in charge.

One of the most interesting engines on display was a 10-ton, 150-horsepower, six-cylinder power plant. It is of the type being used to operate conveyors in dredging work and also to provide power for generating electricity for mines in remote places.

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Full particulars and best of bank and business firm references given as to reliability. No middle men considered. Address

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Used Standard Pipe & Screw Casing. Asphaltum dipped, tested, guaranteed. Valves Fittings. Write for new low prices. G. Welasbaum & Co., 167 Main St., San Francisco

JOHN D. MITCHELL\* relates the story of

## The Lost Mexican Mine

Mr. Mitchell, author of "Lost Mines of the Great Southwest," has gathered together the stories of many of the early day mines, stories which he has investigated and authenticated as far as it is possible to check such tales.

Carlos Cruz, a resident of Casa Grande, Arizona, has a piece of rich gold ore that would probably assay around \$200,000 per ton. The specimen has been in the possession of the family for many years, in fact ever since old Maricopa Wells was a stage station.

Many a desert rat has journeyed to Casa Grande to view the ore and hear the story as it was handed down to Mr. Cruz. One good look at the rock is enough to start a prospector into the hills with a meagre supply of sowbelly and beans to search for the vein. The fact that all of them have returned empty handed does not deter others from traveling to Casa Grande to see the ore. The writer was invited thither some months ago by Herb Sutherland, steamshovel engineer, prospector and "Doodle Bug" operator, of Goodyear, Arizona.

We found Mr. Cruz seated before the fireplace in his little adobe office ready and anxious to tell us the story of the wonderful gold ledge out there just off the southern point of the Estrellas.

"My wife," said Cruz, "is the granddaughter of the old Mexican that discovered the vein from which this ore was taken. She was married the first time to a son of Billy Stiles, well known to pioneer Arizonans, and when he died she married me and that is how I came to have the ore and hear the story."

"Mounted on his horse the old man always left Maricopa Wells about daylight and headed in a southwesterly direction past the point of the Estrellas and through the pass in the hills that dot the plain just a few miles south of the Estrella Mountains. He always returned about dusk with a small sack filled with the rich gold ore which was disposed of in Phoenix. The mine could not have been located more than 15 or 20 miles south of Maricopa Wells.

"I talked to many old Indians," said Mr. Cruz, "that could, I believe, disclose the location of the vein if they were not afraid to do so. Now and then an Indian comes here and offers to show me the mine for a stated sum of money, but usually requires two or three days rest and food before starting to the hills. Finally, when everything is ready, he gets sick and refuses to go. There are streaks in the Indian makeup not to be understood by the paleface. They believe that if they disclose a secret of the tribe, such as the location of a lost mine, they will die. A little intelligent prospecting out in that country might disclose the old workings."

\*Mining Engineer, Chandler, Arizona.

Cruz never tires of telling the tale and showing the ore. He has worn the end off one of his fingers pointing out the direction the old Mexican always took when he left Maricopa Wells to go to his mine. The formation around the southern end of the Estrellas, while not very promising for ore from a geological standpoint, nevertheless shows some small stringers that contain coarse gold. Ore that runs \$200,000 per ton is well worth looking for and no doubt the price of a Rolls Royce could be taken out every few minutes from such a vein as the old Mexican must have had.

### NATOMAS COMPANY AGAIN HAS SIX DREDGES WORKING

The newest and most modern of the Natomas Company gold dredgers has been completed and last month started digging in the Salsbury field, near Folsom, California. Natomas' fleet now numbers six dredges, which is the number it operated a year ago.

The new dredge represents an investment of approximately \$400,000. It is designed especially to eliminate lost time and waste motion, and such new features as direct-driven bucket line, speed reducer units in place of belt drives, and automatically controlled machinery are embodied. Main drive and bowline motors will be driven by direct current. Leland S. Rosener, in cooperation with the operating department of Natomas, worked out details.

The hull measures 114x54x11 feet. The digging ladder is 95 feet long, the two stackers are each 95 feet long, and the trommel is nine feet in diameter with a screen section 36 feet in length. Capacity is approximately 350,000 yards of gravel a month, and its operations is expected to increase the total gold extraction capacity of the company by about 25 per cent.

The operation of the new dredge, which is larger and of more modern design than the one it supplanted and which was sold last year to the Merced Dredging Company, will be reflected in the company's earnings for the second quarter of this

year. Production for the first quarter of this year was less than in the first three months of 1934, due to only five dredges operating, but other income increased slightly and with a reduction in expenses brought the net profit for the period to a little in excess of the profit in the like 1934 period.

Gross returns from gold dredging in the first quarter of this year amounted to \$465,941, as compared with \$496,807 in the corresponding 1934 period. Net profit for the first three months of the current year was \$227,298 after deductions for interest, depreciation, depletion and income taxes, or 23 cents a share. During the first quarter of last year the company earned 22 cents a share.

### BEEBE BUILDS 400-TON MILL AT NEW SHAFT AT GEORGETOWN

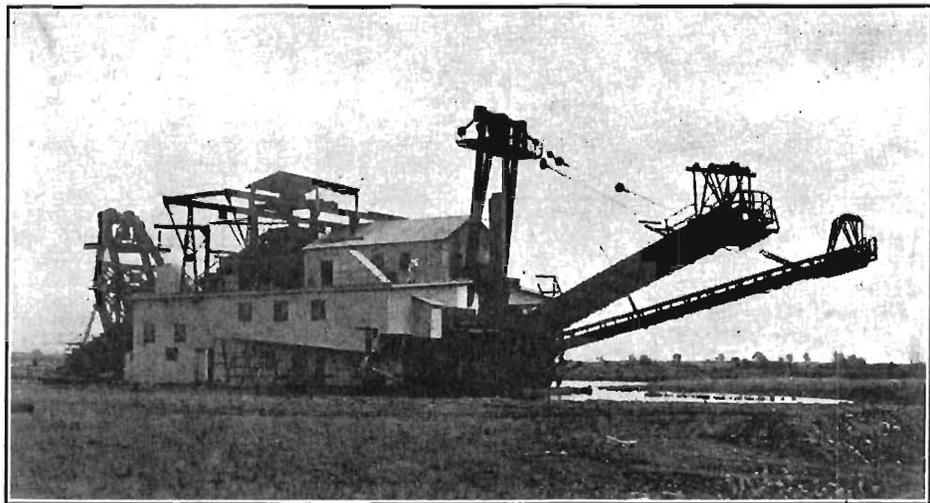
The Beebe Gold Mining Company at Georgetown, California, a subsidiary of Alaska Juneau, operating the Beebe, the Eureka and the Alpine mines, is sinking a new shaft and will move its milling plant to the new location.

The new mill will be equipped with a new 20x5-foot Hardinge-Hadsel mill, two 7x36-foot Hardinge conical ball mills, two Hardinge 5x12-foot counter current classifiers and one Dorr 4x20-foot classifier.

The Hardinge-Hadsel mill will take mine run feed, broken to pass a 12-inch grizzly and grind it to 65 mesh in one operation, in closed circuit with a Hardinge classifier. The feed for the ball mills will be broken to ¾-inch, by use of primary and secondary crushers; and the ball mills will grind to 65 mesh, operating in closed circuit with classifiers. Kraut flotation machines will make flotation concentrates that will be cyanided in a plant built for that purpose.

The completed plant will have a daily capacity of 400 tons, with a very flexible arrangement for treatment of the several ores. Some interesting data comparing the relative merits of the various machines are expected when the plant goes into operation.

The Beebe company will continue work while the new construction is in progress, using the present shaft and the old mill. The latter is equipped with a 24x4½-foot Hardinge-Hadsel mill that has been extensively used in the development of this principle of grinding. L. E. Putnam is superintendent of operations.



Natomas Company's new gold dredger at Salsbury, near Folsom, California. The cost of the plant was approximately \$400,000.

**Thomas T. Gordon** of Neihart, Montana, is one of the incorporators of the Silver Mining & Milling Company, along with C. G. Cameron and E. Sanquist. This company is erecting a 40-ton flotation plant on the Hartley mine to run dump ore.

**Ben E. LaLonde**, a former resident of Ishpeming, Michigan, has been appointed to take charge of the manganese properties of the United States Steel Corporation in Brazil, and sailed for Rio de Janeiro on April 27. He succeeds the late William P. Curley who died in Brazil the first of April.

**T. W. Schmidt** of Coeur d'Alene, Idaho, recently visited the property of the Palisade Mining & Milling Company, of which he is president and general manager. The property, which consists of 22 claims and a mill site, is located near Cataldo, Kootenai county, Idaho, and is reported to be in good condition.

**Thomas V. Channing**, 25, graduate of the Colorado School of Mines with the class of 1932, a member of the Kappa Sigma and Tau Beta Pi fraternities, will leave his home in Denver for Taiyuda, Korea, where he has accepted the position of metallurgical engineer for the Oriental Consolidated Company.

**J. T. Shimmin** has completed the construction of a 500-ton flotation mill for the Sunshine Mining Company, at Kellogg, Idaho, which is now producing in excess of 425,000 ounces of silver monthly. On April 1 Shimmin returned to Telluride, Colorado, where he is manager of the San Juan Metals Corporation.

**Mark Fowler**, civil engineer of Aguascalientes, Aguascalientes, Mexico, is directing mining operations of Cia. Minera Leonera y Huerta, S. A., near Jalpa, Zacatecas. Mr. Fowler will be remembered as the engineer who was kidnapped last March by a group of bandits, but released ten days later unharmed.

**F. A. Waller** of Fallon, Nevada, is developing the Silver Zone group of six claims adjoining the Manitowoc claims near the Churchill-Nye county line, which the Gold Metals Extension Company recently optioned. Waller is also reported to have the contract for a 150-foot shaft in the Dixie Valley district.

**E. E. Sprague**, formerly general manager of the Federal Mining & Engineering Company, which operated the Moho mine at Mina, Nevada, is now connected with the Gold King Mining & Milling Company, which is developing three groups of claims at Pine, Idaho. The Moho mine is reported to have changed hands.

**Alex Walker**, interested in the El Oro Mining Company, which is operating the Eldorado group of mining claims in the Copper Canyon district of Nevada, recently returned to the property from his home in Colorado Springs, Colorado. The company, headed by **Willard A. Walker**, is opening high-grade milling ore.

**James R. Davis**, pioneer miner in the Goldfield district of Nevada, is reported to have returned to Goldfield to engage in mining once more. He was one of the locators of the old Sandstorm mine and one of the early owners of the Round Mountain mine, now being operated by the Nevada Porphyry Gold Mines, Inc.

**Ralph Baverstock** of the chemical and assaying firm of Baverstock & Payne, 552 South Figueroa Street, Los Angeles, California, has been examining several properties in Nevada with **C. M. Hanselman**

## ERROL MACBOYLE REPRESENTS GOLD INTERESTS IN WASHINGTON



Errol MacBoyle

Errol MacBoyle of Grass Valley, California, has been appointed to the national advisory board of the United States Bureau of Mines as the sole representative of the gold mining interests. Immediately after accepting the appointment, he left for Washington by airplane for the meetings of the board which opened the fifteenth of April.

Mr. MacBoyle's chief accomplishment as a mining engineer has been the making of the Idaho-Maryland mine the third largest producer of gold in California, after other engineers had spent millions on it and then turned it down. Today, he is vice-president and general manager of the Idaho-Maryland Mines Company, which is grinding out some \$100,000 in gold each month. He is also chairman of the California Mining Board.

Prior to coming to California, Mr. MacBoyle had a varied career. It is forty-some years since he decided to become an engineer—at that time a schoolboy in the city of Denver and surrounded by the talk of mines and mining.

Later, he was graduated from the University of California. As an engineer for the California Department of Mines he prepared a complete report of the mines of Nevada county, which is today looked upon as the most authentic record issued.

When the late Harry Payne Whitney ceased operations at the Idaho-Maryland in 1925, after spending two and a quarter million dollars, MacBoyle, who had been consulting engineer, still believed that the other engineers had been wrong. Backed by his friends and after years of persistent effort, he has now the satisfaction of knowing he was right.

of Inglewood, California, who is developing the Siwash group about 90 miles north of Winnemucca in the Pine Grove Range.

**Oscar Hershey**, 924 Crocker Building, San Francisco and **J. H. Causten** of Lovelock, Nevada, are inspecting the Valmy silver-lead property of the Consolidated Mines Corporation of America on behalf of an English group, according to reports. Causten has been connected with the property for several years.

**Louis S. Cates**, president of Phelps Dodge Corporation, has just completed an inspection trip which took him to his company's properties in Bisbee, Douglas, Ajo, and Jerome, Arizona, returning to his New York City offices the last of April. This was his first visit in Jerome since Phelps Dodge acquired the United Verde Copper Company.

**Robert C. Druessedor**, Omaha National Bank Building, Omaha, Nebraska, one of the officials of the Marlin Mining, Milling & Power Company, reports that work on the Marlin and Hercules mining properties in the Montezuma district of Colorado, is being pushed with a view toward bringing these mines to production in the near future.

**George Light** of Idaho Springs, Colorado, is president of the newly-incorporated Two-Sunsets Mines, Inc., which is operating the Columbine group of ten claims, located about seven miles west of Idaho Springs up Fall River in Hamblin Gulch. **M. R. De Lano**, also of Idaho Springs, is secretary-treasurer of the company.

**Jay A. Carpenter**, professor of mining in the Mackay School of Mines at Reno, Nevada, is preparing a report on the ground of the Goldfield Yellow Cat Mining Company, **J. W. Van Winkle** of Tonopah, superintendent. Recently a group of stockholders inspected the property, accompanied by Carpenter, Van Winkle, and **John Connolly, Sr.**, of Tonopah.

**John T. Waldis**, formerly of Tonopah is now superintendent in charge of the work at Gold Metals Extension Company operating the Manitowoc group of claims in the extreme northwestern part of Nye county, Nevada, not far from Fallon. **A. T. Zeller** of Reno is reported to have purchased a substantial interest in the new company, of which he will be manager.

**T. H. Oxnam**, formerly of the Southwestern Engineering Company of Los Angeles, California, is employed now by the Tweedy Bros. at Deer Lodge, Montana where he is superintendent in charge of construction of the 150-ton flotation plant designed to treat gold, silver, lead, and zinc ores from the Emery mine. Oxnam will remain after completion of the plant as operating superintendent.

**W. P. Hammon**, pioneer in the gold dredging business in California is spending considerable time in the vicinity of Oroville. He is president of the Hammon Engineering Company, whose headquarters are 351 California Street, San Francisco. **W. C. Hammon** is vice-president and general manager of the Hammon Engineering Company. **George I. Barnett** is the engineer in charge of the Indian Valley mine in Plumas county, an operation managed by the firm.

**Judge John Hausserman**, president of the Benguet Consolidated and of the Balatoc Mining Companies; in the Philippine Islands, recently spent several days in San Francisco and other U. S. cities. His trip included business in Washington, D. C., where he attended a conference called to discuss economic clauses incorporated in the act giving independence to the Philippines. In his opinion the Filipinos are not able, either financially or politically, to govern themselves.

**Walter W. Bradley**, mineralogist for the state of California, has returned from Washington, D. C., where he arranged through Senator Johnson and Congressman Englebright for the army board to rule as soon as possible regarding the correctness of its adverse report regarding the building of debris dams in northern California. Mr. Bradley reports that he has the promise of the army board that they will review the case within the next few days and take testimony from experts on the gold content of the placers.

**W. W. Harritt**, Nevada and California mine operator, has joined the staff of the Burm-Ball Mining Company at Tuolumne, California, as superintendent of operations. The company was organized late last fall to work the Baker, Paragon and Comer mines, aggregating 480 acres in the Confidence district, near Tuolumne. **John Burmeister** is manager. Mr. Harritt has been general superintendent for both

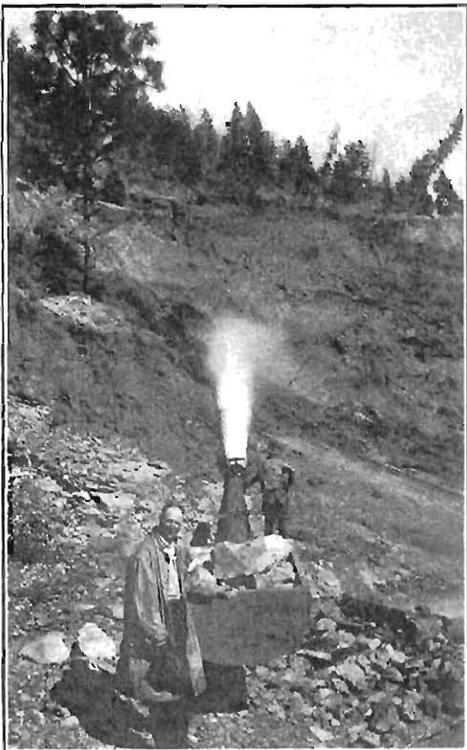
### CALIFORNIA HIGHWAY MAKES NOVEL USE OF HYDRAULICKING

A year has passed since the California highway department started hydraulicking a cut through Oregon Mountain for highway purposes, and in that time 1,557,000 cubic yards of material have been moved. This is slightly more than the million and a half cubic yards they had expected to move, and but a third of the water they had hoped for was available, according to F. W. Haselwood, highway engineer for that district. So far, the work has cost 2.73 cents a cubic yard.

A gash through the mountain, which is on the route determined between Weaverville and Junction City, must be cut to a depth of from 200 to 300 feet. Water, equipment and land of the famous LaGrange Placer Mines, Ltd., are being utilized in the work. For every 100 cubic yards of water rushing through the nozzle, 21 cubic yards of earth have been moved.

The water used in coming from West and East Weaver Creeks and is stored in a four and a half million gallon reservoir. When the reservoir is filled, the giant goes to work and can operate two and a half to three hours before exhausting the supply of water. At the present time the reservoir fills about twice a day and as there is a good snow pack in the mountains, prospects are favorable for a good run during the next few weeks.

Twenty-one men are at work on the project. Hydraulicking is being started on the west side of the mountain, with the men working toward the summit. The work is stopped between July 15 and October 15, during the fishing season. Although the debris law does not apply to Trinity county, the miners have a "gentlemen's agreement" with the sportsmen not to do hydraulicking during these three months.



Hydraulic method in use in construction of state highway through LaGrange mine, near Weaverville, California. The nozzle is eight inches in diameter, discharges 60 cubic feet of water per second at a velocity of 200 feet per second.

### Deceased

**William S. Allen**, 60, watchman for the Shattuck Denn Mining Corporation, died on April 19, from a heart attack. He had been connected with the mining company for 12 years.

**F. R. McArthur**, Redding mining engineer, was killed April 22. Mr. McArthur was chief engineer for the Igo Mining Corporation and for the Shasta Hydraulic Gold Company, Inc., both Stratton enterprises. He was 43 years of age.

**John Erickson**, 79, pioneer miner of Goldfield, Nevada, died at a local hospital March 16. Born in Sweden, Erickson came to Montana, where he was naturalized in 1883. For the past 30 years he has been a resident of Goldfield.

**Edward Traveso**, miner at the Kennedy mine at Jackson, California, was killed instantly April 18, when he slipped and fell 20 feet in a raise between the 2,600 and 2,700-foot levels. Mr. Traveso was native of Italy and had been a resident of Sutter Creek for a number of years.

**L. P. Wherry**, 52, died at his home in Gainsville, Texas, following a lingering illness. He was a native of Lawrence, Kansas, and in 1899 went to Utah after graduating from the Colorado School of Mines. For several years he was connected with the old Yampa mine at Bingham, Utah.

**Carl A. Printz**, machinist in the employ of Magma Copper Company, died at Superior, Arizona, on April 15. Before going to Superior he had been a resident of the Globe-Miami district for a number of years, having been employed both at Old Dominion and Inspiration Copper companies.

**Al Kelliher** of Nevada City, California, died of a heart attack. He came to the state from Nevada, and for several years contracted the building of headframes, camp buildings, etc., for mine operators of the Mother Lode. He was for several months at the Blue Point gravel property at Smartsville, also with the Auburn Chicago Company at Penryn.

**Fred A. Fair**, mining engineer and geologist, died in St. Lukes Hospital, Denver, April 22, 1935. Death is said to have been caused by a leg infection. Fair had made his home in Boulder for 32 years, was county engineer, and consulting engineer for many mining companies. He was also consulting engineer for the Colorado State Planning Commission.

**O. W. "Toby" Lewis**, 53, prominent mining man of the Coeur d'Alene district in Idaho died April 2 in his home in Wallace. Lewis came to the district in the fall of 1907, where he has lived until his death. He was interested in the Idaho Motherlode gold mine and was one of those instrumental in the development and promotion of the Golconda mine, among his many other mining interests.

**J. R. Hall** of Sheridan, Montana, placer miner, known throughout the state and one of the owners of the Fairview mine in Wisconsin Gulch, was killed April 19 in a cave-in at his placer property about two miles from the Fairview property. Before coming to Sheridan, Hall had worked for 20 years in mines in the Butte district. Associated with him in the placer work were R. W. Rossiter and his brother, Charles Hall, who will carry on the work. This same group owned the Fairview mine, under lease to the Fairview Syndicate, which is now beginning to pay substantial royalties.

### MRS. MAY B. LINDLEY



May B. Lindley

Mrs. May B. Lindley, international known metallurgist, died at the Providence Hospital, Oakland, following a brief illness.

She was the widow of Morto Lindley, an eminent mining engineer, metallurgist, chemist and geologist, who accompanied her husband on trips to many mining districts where she studied and experimented with ore.

She is credited with the invention of a method of extracting all metals from certain complex ores, a method which saved millions of dollars worth of ore previously regarded as of no value.

Mrs. Lindley also brought about reform in milk purification and was largely responsible for laws for the pasteurization of milk on the Pacific Coast.

She was an active member of the executive committee of the Women's Board of the Panama Pacific International Exposition, a member of the Humane Society of California, of the California Writers' Club and of the Berkeley Short Story Club.

### WALTER JAMES PIKE



Walter J. Pike

Walter James "Jimmie" Pike, well known Nevada mine operator, died in Manila, Philippine Islands, on April 18, 1935. He was 55 years of age. Born in the old camp of Silver Reef, Utah, where his father edited a newspaper, he was reared in the state of Utah, going to Tonopah, Nevada, as a young man to work in the

mines there.

He soon rose to positions of consequence as an operator. In 1916 he was in charge of the Spanish Belt mine near Belmont, Nevada. He entered the army in 1917 and was an officer of the Coast Artillery under Colonel Scragham, now congressman from Nevada.

After the war he was in charge of the Jim Butler mine for the Tonopah Belmont and remained with that company for several years. He was successively in charge of a property in Lower Rochester, of the Johnnie mine in southern Nevada, of the silver mine at Calistoga, California, and was mine superintendent for several years of the Gold Circle Consolidated Mines, under the management of Eric J. Schrader.

In 1930 he went to the Philippines, joining the staff of the Benguet Consolidated Mining Company, where he contracted tropical fever and returned to the States on sick leave. He resigned his position of mine superintendent for Benguet Consolidated when James Greenan resigned, and at the time of his death was connected with the Equitable Exploration Company, operating in the same district.

He was a competent mine operator, a loyal friend, possessed of a charming personality, and will be missed by the many who knew him.

Bird's experience in gold metallurgy has added much to the organization. The old Hart plant has been remodeled and is now equipped to handle 70 tons daily, with 25,000 tons of tailings yet to be worked.

A compromise has been reached between the state tax commission and the **United Verde Extension Mining Company** of Jerome, Arizona, relative to the assessed valuation of the company's mining property. The property had been assessed at \$1,565,000 and the company had brought suit seeking a valuation of \$800,000. The compromise resulted is an assessment of \$1,100,000, the company agreeing to dismiss its suit.

The **Arizona Magma Mining Company**, C. T. Carpenter, president, 618-619 Heard Building, Phoenix, Arizona, has completed the excavations for the foundation of the mill, being installed at the company's property, near Chloride, Arizona. The mill, when completed, will treat 50 tons of ore daily by the flotation process. Cement foundations for the crushing equipment have been poured, and the lumber to be used in construction of the building has been received. A. C. Dundas is directing mill construction.

The **Oatman Eastern Mining Company** of Oatman, Arizona, operating the Ruth-Rattan mines under lease and option to purchase, shipped 900 tons of ore during the month of March, and expected shipments for April to exceed 1,000 tons. J. J. Moss, president of the company, is personally directing the work. Ross Barclay is mine superintendent.

The **Mellgren Mines Corporation** of Tombstone, Arizona, V. G. Mellgren, president and manager, has made its first shipment of ore, sending out a full carload of ore said to run \$35 to the ton from its Bonanza claim. A second carload ran 30 ounces silver. The ore came from the 200-foot level where a five-foot vein was recently encountered. A new stoper and some other miscellaneous mining equipment have been installed. Much ore has previously been shipped by lessees.

#### CALIFORNIA

The **Aetna and Great Mines, Inc.**, which nearly two years ago took over the quick-silver operations of the Bumsted Mining Company at Middletown, California, is running about 20 tons of cinnabar ore through its furnace daily. According to E. J. Bumsted, president and general manager, 17 men are maintained regularly—12 in the mine and five in the recovery plant.

According to F. D. Garbarini, engineer in charge, the **Black Wonder Gold Mines Company** at Pine Grove, California, is considering adding flotation machines to its equipment. The ore is gold-silver. It is being treated at an average rate of eight tons a day, using the usual amalgamation-gravity concentration recovery, with 10 stamps for crushing. Thirteen men are employed. Carroll Holmes and Frank E. Strong, 921 Stock Exchange Building, Los Angeles, are president and secretary, respectively.

The **Bon Ton Mining Company** at Sheep-ranch, California, is driving 1,200 feet of tunnel, to contact three east and west veins with backs of 650 feet. Plans for underground work call for raising to the surface 285 feet, and for sinking the 125-foot shaft another hundred feet. Five men are employed. The operators are T. R. Knudsen, 1957 Santee Street, Los Angeles, who is president of the company; and Charles W. Way, vice-president and general manager of operations at the mine. The company owns 50 acres and is leasing 60 acres from George Taylor.

Miles A. Rozelle, 5041 Santa Fe Avenue, Los Angeles, has a half-dozen men working the **Brown Monster** and **Reward** mines in the Russ mining district, 12 miles north of Lone Pine, California. Rozelle purchased the lease of J. F. Brackett, et al, the group responsible for bringing the claims into prominence following a rich gold strike in January, 1934. Since that time seven 50-ton carloads of ore have been shipped to the Salt Lake Valley and have each netted around \$1,800. Actual mining is slowed up at the present time because milling facilities are being provided.

The **California American Mining Company** has built a 25-ton mill at its property at Hornbrook, California, complete with concentrating table and amalgama-

tion plates. Arrangements are yet to be made for power. According to P. J. McCavick who is general manager of operations, ore is showing on all sides in the 85-foot incline tunnel, 25-foot shaft and 150x20-foot open cut. He further states that this ore contains good milling values in gold and silver and is easily handled.

**California Goldfields, Ltd.**, plans to enlarge its operations at the **Lucky John** mine at Paradise, California, according to Glenville A. Collins, general manager, 1305 Balfour Building, San Francisco. This is a drift gravel proposition, with some 6,000 feet of workings. At the present time a small crew is producing about 20 tons of gold ore daily. B. W. Black of Oakland is president.

**Canyon Placers, Inc.**, at Dedrick, California, expects to soon start building five miles of flume to bring water from Canyon Creek to the lower mine. The upper mine is on production, water also coming from Canyon Creek through a like length of flume, ditch and syphons. A. J. Brandt, 416 Stormfelta Lovely Building, Detroit, Michigan, is president of the company. H. G. Kenworthy is general manager, C. M. Hannum, assistant general manager, and G. H. Bergin, general superintendent, all of Dedrick.

The **Yellow Jacket Consolidated Gold Mining Company, Ltd.**, has resumed work at its property at Alleghany, California, after a shut down during the extremely heavy winter weather. The work is concentrated on the Osceola section of the property. William Lichtenberger remains in charge as superintendent.

It is reported that the **Gold Reservation Corporation, Ltd.**, will build a mill at the Golden Treasure mine on the southeast side of Death Valley, California, under the advice and supervision of Harley A. Sill, 1011 South Figueroa Street, Los Angeles. Plans call for an initial capacity of 50 tons, to be raised to 75 tons a day as further ore is developed. A ball mill is to be used for grinding, and flotation concentration installed.

The 200-ton cyanide plant being built at the **Kelly** mine at Randsburg, California, by Harley A. Sill, 1011 South Figueroa Street, Los Angeles, is scheduled for completion the last of the month. It is being built on a portion of the tailings from the mine. His interest does not include some 80,000 tons stacked at the Kelly mill. Mr. Sill estimates that he has 350,000 tons available for treatment.

Arlo V. Turner of Modesto, California, plans to sink the 240-foot shaft in the **Porto Fino** mine at Tuolumne another 300 feet. He has been working this mine since the middle of last summer, under lease with option to purchase.

Installation of a ball mill with flotation equipment is reported completed at the **Eagle Shawmut** mine at Chinese Camp, California, now held by A. W. Ellis, 619 East Tenth Street, Long Beach, and associates. Ore will be mined above the main

#### AVERAGE PRICES OF METALS (Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.344	66.781
1925	14.042	9.020	7.622	69.055
1926	13.795	8.417	7.337	62.107
1927	12.920	6.755	6.242	56.370
1928	14.570	6.305	6.027	58.176
1929	18.107	6.883	6.512	52.998
1930	12.982	5.517	4.556	38.154
1931	8.369	4.244	3.638	28.701
1932	5.792	3.181	2.881	27.892
1933	7.276	3.870	4.031	34.728
1934	8.658	8.8595	4.162	47.973
1938				
Jan.	5.000	8.000	3.015	25.400
Feb.	5.000	8.000	2.671	26.085
Mar.	5.256	3.148	2.997	27.928
Apr.	5.684	3.260	3.361	30.730
May	6.982	3.554	3.805	34.072
June	8.000	4.178	4.347	35.663
July	8.909	4.452	4.886	37.630
Aug.	9.000	4.500	4.909	38.074
Sept.	9.000	4.500	4.702	38.440
Oct.	8.253	4.318	4.744	38.190
Nov.	8.156	4.294	4.521	42.974
Dec.	8.125	4.142	4.470	43.560
Ave. 1933	7.276	3.870	4.031	34.728
1934				
Jan.	8.185	4.000	4.275	44.187
Feb.	8.000	4.000	4.452	45.233
Mar.	8.000	4.000	4.370	45.875
Apr.	8.893	4.184	4.371	45.180
May	8.500	4.1404	4.855	44.226
June	8.849	3.975	4.238	45.178
July	9.000	8.770	4.318	46.310
Aug.	9.000	8.7463	4.280	48.986
Sept.	9.000	3.679	4.057	49.484
Oct.	9.000	8.648	8.841	52.375
Nov.	9.000	8.567	3.732	54.255
Dec.	9.000	8.604	3.714	54.890
Ave. 1934	8.658	8.8595	4.162	47.973
1935				
Jan.	9.000	3.6923	3.723	54.418
Feb.	9.000	3.5295	3.719	54.602
Mar.	9.000	3.5788	3.896	59.048
Apr.	9.000	3.6923	4.029	67.788

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tunnel level and from a small vein of assertedly rich ore discovered recently on the surface. Interested with Mr. Ellis are: Thomas L. Woodruff, L. T. Perkins and N. Miller of Los Angeles. G. W. Neece is superintendent. A separate project—a 100-ton cyanide plant—has just started operating, treating the old chlorination and mill tailings of the Eagle Shawmut property. This is conducted by the Southwestern Engineering Company, 4800 Santa Fe Avenue, Los Angeles, and is employing seven men.

The Amador Mother Lode Mining Company reports that a three-compartment shaft, cemented instead of timbered, will be sunk in its property at Jackson, California. Also, plans are being made for the construction of a 400-ton mill. Some thousand feet of shaft, crosscuts and drifts have been completed, opening up and partially blocking out approximately 45,000 tons of gold ore. The workings are at present 300 feet deep. O. E. Chaney, 150 North Virginia Street, Reno, Nevada, is president; E. A. Stent, National Hotel, Jackson, is vice-president and general manager; Fred W. McKechnie, Jr., publisher of the Nevada State Journal, Reno, is secretary; and Thomas Hedgepath of Jackson is treasurer. E. C. Bradshaw of Plymouth, California, is general superintendent. Fourteen men are employed.

An ore body, representative of both quantity and quality, is reported to have been opened in the Silver mine in the Greenwood district of California. The Middle Fork Gold Mining Company has been operating the mine for a number of years, but recently lost the ore body through a fault and for a time suspension of operation was feared. The vein is said to be 40 feet wide and to run an ounce of gold to the ton. C. W. Plumb, 3405 T Street, Sacramento, is engineer in charge of the operating program.

Major John F. Duling, consulting mining engineer of Los Angeles, has just returned to Los Angeles from the examination of a gold prospect in the Gold Bend district west of Needles, in San Bernardino county, California. He reports renewed interest in the district, and that a small mill is being built for the treatment of the ores of the Golden Eagle mine. The work is under the supervision of W. R. McKenzie of Needles. Mr. Duling's office is 1125 Central Building.

Two monitors are in operation at the Pine Tree placers on Indian Creek, near Weaverville, California, according to Frank L. Upham, engineer in charge. The nozzles are of five and six inches, respectively. Fourteen men are employed. Indications are that they will have plenty water this season.

Leroy A. Palmer, consulting engineer, 445 Russ Building, San Francisco, has made a thorough examination of seven mining claims in the Whitlock district of California, on behalf of J. K. Tobin and a group of Salinas men, who hold the option. The mines are the old Whitlock, North Whitlock, Alabama, Westward, North Star, Columbia placer, and other ground. Present work consists of cleaning out a tunnel and drifting into new ground to determine values at depth. Lumber to carry on the work has been delivered to the property.

The Empire-Star Mines Company, Ltd., at Grass Valley, California, reports a net profit for 1934 of \$1,312,029, from which \$872,160 was paid out in dividends. The annual report shows that ore reserves were substantially increased during the year in review.

The Relief Hill Mining Company at North Bloomfield, California, has started washing gravel. C. E. Clark is manager of operations and has a crew of 20 men. Relief Hill enjoyed a successful season last year and, with the abundance of water from last winter, prospects are bright for this year.

C. O. Dorman of Roseville, California, is working a small crew on the Little Otter group of mining claims, located eight miles east of Georgetown, on Otter Creek.

L. P. Reischman of Bakersfield, California, with Los Angeles and Kern county associates, is reported to have taken over the property of the Poso Mining and Milling Company, located approximately 40 miles northeast of town. Consideration is reported at \$50,000, with terms extending over a five-year period. A small crew is

engaged in preliminary work under the direction of J. M. Reynolds, local mining engineer. The program calls for the purchase and installation of crushers and other equipment. Former operators took one of the tunnels 800 feet into the side of the canyon, practically all the way in ore that averages \$12 a ton in gold and silver. The vein runs from one to four feet wide.

The Mayflower gravel mine near Forest Hill, California, is on production again, and the first cleanup is reported as satisfactory. More than 60 men are employed and water for a long run is assured. The Mayflower group embraces some of the largest gravel deposits in Placer county and is credited with yielding more than five million dollars. Present work is being done under bond and lease by the Goldfield Consolidated Exploration Company,

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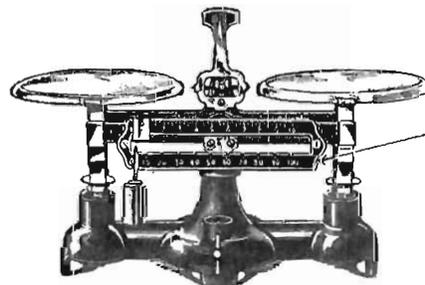
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of which E. A. Julian, 421 Crocker First National Bank Building, San Francisco, is general manager. An extensive acreage of virgin territory is being worked and powerful equipment has been installed.

The Shanghai mine at Columbia, California, is showing a new vein of excellent ore, discovered late in April on the 400-foot level, in crosscutting in the hanging wall structure of the main ledge. Yet but little explored, the vein is reported to be 18 inches wide in the opening made and to carry a high percentage of sulphide, with galena and free gold visible in some of the pieces of the rock broken. During 16 days in April, with three shifts employed, the shaft was sunk from 300 to 400 feet. Development is under way on the bottom level and is expected to provide a large tonnage of ore from shoots that produced well in the early day operations and which were opened up on the 300 level. The mine has a 10-stamp mill, built last year, and recently its entire surface plant was electrified. Steve Evanich is superintendent of operations.

Work preliminary to mining has been started in the Old Diggings area near Redding, California, a famed mining center of the old days. John Sandburg and C. O. Benson of Redding are in charge. So far, the work is being done on the Evening Star and the Reid mines, two of several properties they hold under option. A mill is being built, as are sleeping quarters, a dining room and offices. The Evening Star is owned by the Bayha Land Company and W. D. Tillotson of Redding; and the Reid is owned by the McCormick-Saeltzer Co., of Redding.

The W. W. Johnson Engineering Company, 351 California Street, San Francisco, has completed construction of a gold dredge on the Frank Collins place, near Lone, California, for the Arroyo Seco Dredging Company. Thirty men were used during construction, according to Mr. Johnson, who is also the president of the mining company. The dredge is rated at a capacity of 150,000 yards a month. It can dig to 40 feet, and is equipped with five-yard buckets.

The Pine Leaf mine, near Quincy, California, is being reopened by H. B. Wolfe and E. Christianson. Rather extensive work is planned. The property has been idle several months.

A \$200,000 gold dredger has been launched at the Laird ranch, near Loomis, California, by the Gold Hill Dredging Company. It is known as the Loomis No. 1. The dredge was built by the Moore Shipyards of San Francisco, and required 300 tons of steel for the hull and 75,000 rivets to join the steel plates together. W. W. Johnson, designer and builder of dredges, 351 California Street, San Francisco, is president of the Gold Hill company, and expects to have a crew of 25 men to carry on actual gold recovery. It will probably require five years to work the ground that has been leased. The Gold Hill people are operating another dredger in the vicinity of Folsom, California.

Ten stamps have been moved to the Manzanita gold mine, two miles southeast of Kelsey, California, and will begin work at once on a substantial quantity of \$4 ore that has been developed. The main ledge is 40 to 50 feet wide and has been proven for a length of a hundred feet. W. D. and L. L. Moody have been working this mine under lease for two years. The stamps mentioned above were moved from the Kelsey mine, where heavier equipment has been installed.

The Magna Exploitation Corporation, Ltd., has sold mining property at Jackson-

ville, California, to C. V. Riccardi, 1032 Bank of America Building, San Diego. The transfer included the Republican, Orcutt and Mammoth patented claims, other real property and a water right on Woods Creek.

It is reported that John Hutt of Oakland has leased the Alpine quicksilver mine at Hollister, California, and will try out a new type of retort. Plans are to employ about five men regularly. The property is owned by Harry A. Leonard of Hollister. Mr. Hutt has moved to Hernandez and is in charge of the work.

The Mountaineer Mining Company at Vidal, California, has completed its power plant and mill and has started mining and milling operations. Its mill is up-to-date in the way of flotation machines, etc., purchased through the Southwestern Engineering Corporation of Los Angeles. The personnel includes H. E. Olund, 1117 Citizens National Bank Building, Los Angeles, general manager; Stewart Bryant, mine superintendent; Alvin W. Gearheart, chief chemist and metallurgical engineer; L. T. Gaines, mill superintendent; W. J. Cardnell, master mechanic and chief engineer.

The Union Associated Mines Company has started development work at Dutch Flat, California. This is a gold quartz and placer proposition in which they became interested in the early summer of 1932. It covers three acres and is reported to have produced more than \$250,000. The last 60 days have been given to developing a water supply and to testing the gravels. S. A. Parry, 608-509 Felt Building, Salt Lake City, Utah, is president and general manager.

The Northern California Mines Company has 37 men working in three shifts at the Red Hill placer, near Junction City, California. Three six-inch giants are being used in the John Day pit, where there is enough water to work 16 hours a day. Two six-inch giants are being used on the River pit. W. C. VanAntwerp, with E. F. Hutton, 160 Montgomery Street, San Francisco, is president of the company. J. A. Gilzean is superintendent of operations at Junction City.

It is reported that an RFC loan of \$350,000 has been granted to Guy M. Standifer of Folsom, California, for the construction of a gold dredge to be used in the operation of a proved gravel deposit in the Sebastopol district of Sacramento county, California. This is reported as the eighth loan made since the inauguration of the mining division as provided under the Scrugham amendment, and the second extended an individual applicant. It is also said to be the second largest granted by the division. The first individual loan was granted Thomas Hanna of California last fall to work the old May Lund tailings dump in the high Sierras.

A 250-ton mill is working at the Yellowstone mine on Black Creek, near Couplerville, California. Jack Stevens of Mariposa, California, is superintendent.

Control of the Bader mining property in the vicinity of Magalia, California, has been acquired by the Butte Standard Mining Company. Negotiations for financing development work and mining are in progress. Harry Gardiser, 1059 Russ Building, San Francisco, is attorney; and Lewis F. Johnson, 816 Bush Street, San Francisco, is engineer for the company.

According to A. E. Westover, 161 Ellis Street, San Francisco, Western Gold Products, Inc., will resume the operation of its property at Cecilville, California, as soon as the snow goes.

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H. A. Luther is resuming work on the Whitmore property on Humbug Gulch, near Volcano, California. The proposition is the **Vol-Amador Mining Company**. Luther's address is 616 Phelan Building, San Francisco.

H. R. Levick, Hobart Building, San Francisco, will soon have a small crew at work on his property at Forks of Salmon, in Siskiyou county, California. All surveying has been done.

The **Kimball-Kempe Syndicate**, which began work in the Middle Buttes, near Mojave, California, in March of this year, has been renamed the **Cactus Queen** mine. The vertical shaft has been sunk a hundred feet and a crosscut, started to pick up the vein opened by the shaft between 50 and 60 feet, has cut the vein which is approximately 18 feet wide. Headquarters are Ojai, California. Julian Boyd, 510 West Sixth Street, Los Angeles, is consulting engineer, and George W. Kimball is manager at the mine.

Plans are in their early stages that may result in the establishing of a 200-ton mill for gold ore at Needles, California. Back of the plan is S. A. Brown, Box 246, Needles, an associate in the operation of the **Cherokee** group of claims 10 miles southwest of town. A test shipment of 55 tons of the ore was recently sent to the Tom Reed mill at Oatman, Arizona, and is reported to have averaged better than \$10 a ton. Associates in the operation of the Cherokee mines are M. Currant of Hollywood; F. E. Miller, Vic Ingram and Pete Dorman, all of Bakersfield, and Jack Vetter of Hawthorne. Anyone who has ore and would like to have it treated in the proposed mill is asked to get in touch with Mr. Brown.

The **California Comstock Gold Mines, Ltd.**, is shipping from the old Louisiana California mine. The ore carries vanadium and molybdenum. Headquarters are Suite 5, Fox Theatre Building, San Bernardino, California. The officers are M. H. Collins, president; A. Sandler, vice-president, and J. H. Doran, secretary.

Following a satisfactory test of ore in the flotation machines at the Amazon mine, flotation is being added to the 50-ton ball mill at the **Greenwood** quartz mine at Greenwood, California. The crushing of ore has been suspended while installations are being made. Twelve men, working three shifts, are employed. R. B. McConney, of Los Angeles, is superintendent of the property. Ownership rests with F. A. Carpenter and family of Los Angeles.

**Yuba Consolidated Gold Fields** is putting the finishing touches on its large gold ledge under construction in the Rio Benito district, near Biggs, California. It is expected that the big boat will start digging by the last of May. Dredging will start on the Walter Smith ranch, near the Feather River, and will continue to the south on lands under option or sold to the gold dredging company. F. C. Van Deirse, at headquarters, 351 California Street, San Francisco, is vice-president in charge of operations; John B. Bubb has charge of construction.

A. G. Mahan, president of the **Mammoth Mines Corporation**, 224 Board of Trade Building, Los Angeles, is at Mammoth Lakes, California, with a crew of mechanics to rebuild the compressor and repair damage wrought by the recent fire. Mine operations are expected to be resumed in May.

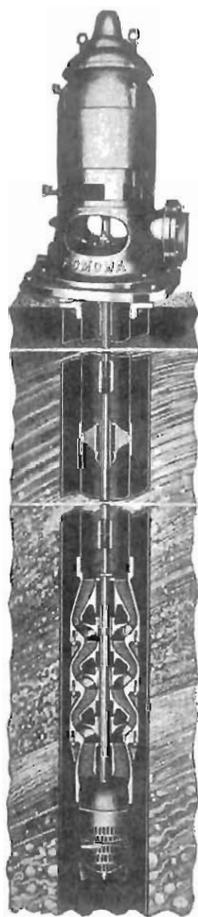
Announcement is made by the **Silver Lead Syndicate, Inc.**, that its mines at Keeler, California, will be reopened be-

fore the first of May. The syndicate has a lease on the Cerro Gordo Mines Company, the Estelle Mines Company and La Despresiada Mines Company, all silver-lead producers. It was organized in Los Angeles in January, 1934, and only a few days ago the offices were moved from that city to 502 Scott Building, Salt Lake City, Utah. The Cerro Gordo mine is one of the oldest silver and lead producers in the state, with a record of production in the neighborhood of \$15,000,000. In recent years this mine has not been extensively operated, due to difficulties caused by a complex faulting problem. President J. J. Beeson, following a study of the geology covering two years, is now ready to start operations on the property with the objective of opening projections of the original ore bodies. Charles E. Trezona of Los Angeles is vice-president, and D. S.

Beeson of Salt Lake is secretary-treasurer. The other directors are A. E. Helvy of Los Angeles and Norman Blye of Salt Lake.

The **You Bet Mining Company** is blasting two drifts in its property northeast of Nevada City, California,—one on the Brown's Hill and the other on the Red Dog property. Two monitors are at work. Fourteen men are employed. Ogden C. Chase, 633 Roosevelt Building, Los Angeles, is president and general manager. J. W. Scott is superintendent.

A 12-ton Chilean mill has just been installed at the **Rising Star** mine, on the Mokelumne River five miles east of Pine Grove, California, and work started on a ledge that was developed by Roy Leightman and the Tupps Bros. This ledge carries good values. An upraise is being started in a vein averaging slightly better



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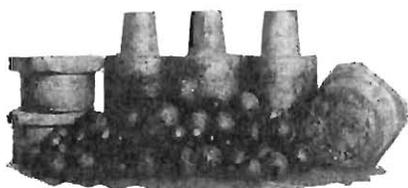
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than 30 inches in width, and work will be started in the near future on a nine-foot winze that has opened an eight-foot vein below the present tunnel. The ore is sulphide and carries a valuable silver content along with the gold. A Deister Plato table is used for concentration and is giving satisfactory results.

J. E. Belden and A. L. Meyers, Los Angeles mining men, have purchased 30 acres of mining ground from Walter N. Clark, 40 1/2 Maine Street, Vallejo, California. This property is in the Garden Valley mining district about five miles south of Georgetown, Eldorado county, California. It adjoins the famous Black Oak mine on the east and the Lone Star mine of Morgan & Kyle on the north where the recent big strike was made. Mr. Belden was in Placerville recently and contracted with Tom Smith to sink a 125-foot shaft. This shaft will contact or come close to the ledges of the Black Oak and Lone Star mines, and which cross the Belden property in a southerly direction.

### COLORADO

The Onondaga Mining Company is cleaning out the Doric tunnel in preparation for development which will be carried on through this tunnel rather than through the Capital Prize tunnel as was done heretofore. George Leece of Georgetown is in charge of the work at the mine. Dr. Charles E. Rowland, Onondaga Bank Building, Syracuse, New York, is president of the company.

Increased activity is reported by the Boston Gold Mining Company, C. W. Fisk of Idaho Springs, Colorado, president. The company is preparing its properties for steady production. The Boston mine in the Leadville district, William Sherman, superintendent, is expected to show an increase in production this season. Two well-defined veins are reported to be open in the property. At the Port O'Gold mine in the same district the company plans to sink a 100-foot winze in the main tunnel, from which point drifting will be started. A section of this mine is under a short-term lease to Anderson & Johnson.

The Egyptian mines, comprising eight lode claims on Quartz Hill, near Central City, Colorado, are reported to have been leased to the Terminal Gold Mining Company by the Gold Mines Consolidated, Inc., of which G. R. Harkness, Johnson Building, Denver, is general manager. Michael Cercek and associates, representing Cleveland, Ohio, capital, are said to be backing the Terminal Gold company. The new operating company is repairing, retimbering, and unwatering the 800-foot shaft, preparatory to undertaking work on the seventh level, where a continuation of the chalcopryite ore body is reported to be uncovered. Main interest is manifested in the radio-active content of the uranium ore. Other values are reported to be in gold, silver, lead, and copper.

The Philip Cary Mining & Milling Company, which has been operating a concentrating mill at St. Elmo, Colorado, recently shipped a carload of concentrates said to carry 8.00 ounces in gold. The company is working the dump of the old Pioneer mill, which was operated 40 years ago. Philip Cary of St. Elmo is president.

Gold ore is reported to have been opened in the Great American claims in a shaft at a depth of 40 feet. Martin Van Voorhis of Iola, Colorado, and James Darter are operating the mine, which is located near Iola.

Construction of a 25-ton flotation mill at the Cross Gold Mining Company in the Caribou district of Colorado, will be started in June or July, according to George H. Teal, Box 37, Boulder, president and general manager. Ore is said to be opened in three levels, which makes a large tonnage available for the mill.

The Brumell Leasing Company, headed by R. L. McCartney of Cripple Creek, Colorado, is reported to have taken over the 1,300-foot Frankenburg shaft of the old Modoc mine near Victor, and to have installed new machinery. The development program already under way includes sinking the shaft, which has been retimbered, an additional 300 feet. A new galloway frame and ore house have been built and a large hoist was installed. The company plans to do extensive drifting. Jack Livingston is consulting engineer. The Rig shaft of this mine is reported to be leased to Roosevelt interest.

Stoping has been started on an orebody recently opened by the May B. Gold Mining Company, of which H. J. Vanderveer of Victor, Colorado, is president and general manager. Indications are that ore from this vein will be of medium grade. The new stopes are located about 35 feet from the shaft. The company recently completed two ore chutes.

Mining machinery is reported to be ready for installations at the Doctors Gold & Silver Syndicate, which is operating a group of seven claims near Lawson, Colorado. A. J. Ahlberg is in charge of the work.

Small lots of high grade are reported to have been shipped by the McKinley Bros. of Silverton, Colorado, who are leasing on the Silver Bell at Ophir. A new strike on the property is reported to carry from 200 to 400 ounces of silver and between 1 and 2 ounces of gold, with streaks of higher silver content. This strike was made while mining tungsten, a recent car of which ran 10 per cent. J. M. Belisle of Ophir is in charge of the property.

Work on the new 50-ton mill to be erected at the Congress mine near Breckenridge, Colorado, is expected to start soon, as all arrangements are reported to be completed. A crew of men has been at work during the winter blocking out ore. The property produces silver-lead ore. E. P. Moe of Breckenridge is in charge.

The Mystery Gold Mining Company, Warren C. Prosser, 430 U. S. National Bank Building, Denver, president, is reported to have cut the Champion vein in the Mystery tunnel at the Silverton property, where work was continued during the winter. The vein is said to be about four and a half feet wide, to contain a grey copper ore, and to show assays of 0.13 ounce in gold and 266 ounces in silver. The company reports that the ore mined by former owners of the ground came from a spur of the Champion and not from the vein itself, so the company now has an additional length of 800 feet on this vein to the north, as well as several thousand feet to the south. The Mystery and the Thunder tunnel, which is located over 300 feet below, have been connected by the Thunder raise. The older workings on the Alletha vein have been restored, Prosser reports, and large quantities of shipping ore are exposed. Work at Silverton was suspended for the winter.

The Colorado-Juneau Mines, Inc., operating in the La Plata Mountains, 17 miles northeast of Durango, Colorado, in the California mining district, has com-

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FRANK A. CRAMPTON\* discusses

# The Placer Damage Suit in California

Recently the Pacific Gas and Electric Company has filed an action requesting an injunction against hydraulic mining on the Bear River watersheds. The suit names among the principal operators, three major producing hydraulic mines, those at You Bet, Liberty Hill and Remington Hill. Altogether thirty individuals and companies are named in the complaint.

This suit brings up the long discussed subject of hydraulic mining which in 1883 was stopped by the Sawyer decision. At that time there were nearly five hundred hydraulic placer mines employing thousands of men and having a collective investment running around fifty million dollars. By that decision the mines, their investment and the labor employed were wiped out over night.

Within recent years under the Caminetti Act, under the supervision of the California Debris Commission, hydraulic mining has been resumed. A considerable investment and employment of labor has followed. Recently the gold production from these mines has been of great benefit to the surrounding communities.

Unlike the controversies in the late 1870's and early 1880's when the matter was one largely of debris silting up river beds making irrigation difficult, the present suit is based upon the pollution of the streams whose waters are used by some of the communities and farmers in the valley for domestic purposes and drinking.

Unfortunately, the subject of pollution in this regard is debatable, not that the hydraulic mines do not discolor the water, which they do, and which is admitted, but whether the quartz mines whose mills discharge their tailings into the Bear River or its tributaries do not discharge equally objectionable material. The tailings from both placer and quartz mines are added to water which, to some extent, has undoubtedly been contaminated and polluted by cattle, sewage from camps, municipalities and other factors incident to the growth of civilization.

Undoubtedly both sides, that is the Pacific Gas and Electric Company and the placer miners with the quartz miners, are probably equally to blame for the situation now existing for both have neglected to take into consideration the factor of the growth of each of their individual industries and have permitted measures which would remedy or allay the situation to remain undone. This is particularly true on the part of the Pacific Gas and Electric Company which it is understood, is under contract with the mines at Liberty Hill to permit debris from hydraulic operations to be emptied into the Bear River, thus discoloring the water. In this regard it may be said that there was at one time a ditch line which, had it been maintained, could have by-passed the debris area of the stream and conveyed clear fresh water to the users in the valley below.

On the other hand, the placer miners must realize the situation is as it is, probably through neglect on their own part as well as the neglect of the Pacific Gas and Electric Company. However, it is probable that both are equally guilty or at fault and it is most difficult to forecast what the court's decision would be in a matter so complicated and technical.

\*Mining Engineer, Nevada City, California.

Both the Pacific Gas and Electric Company and hydraulic miners should take lesson from the past and not become headed as did the mining interests fifty years ago when the debris question was being settled in the courts. Today, efforts such as the public utilities and mining, particularly gold mining, are of vital interest not only to the near-by communities but the state and nation as well, for through them employment is made possible and new wealth created.

Whatever the personal opinions are, does not seem right that either the interests of the utility company or the miners should be jeopardized at this time. Regardless of the controversy between them the fact remains that the water served to certain valley communities for domestic and drinking purposes, though not polluted by the miners, is certainly discolored and more than likely unpleasant to drink.

A long drawn-out legal controversy could serve no purpose other than to be a deterrent to gold mining in California and the resulting subsequent loss of gold production to the state.

Both the Pacific Gas and Electric Company and the hydraulic miners are aware of solutions to the controversy and it is to be hoped they will get together and adjust their difficulties before entering into a bitter and long drawn-out fight.

## NATIONAL SURVEY OF MINERALS PLANNED BY U. S. MINES BUREAU

Plans for a national survey of minerals by the newly appointed Advisory Board to the U. S. Bureau of Mines were presented at a meeting of the board held in Washington.

Errol MacBoyle, on the behalf of the Gold Mining Association of America, contributed all the discussion had on the subject by the gold mining industry. He, it appears, proposed the plan at the meeting, that immediate steps be taken to impress upon the FERA officials at Washington the necessity for this work of a national survey of minerals being done under the direction of the U. S. Bureau of Mines.

A resolution was drafted by Cleveland Dodge, representing the copper industry, and with the board's unanimous approval was entered on the minutes of the Advisory Board, and thereafter submitted to the director of relief, Harry L. Hopkins, by the Gold Mining Association of America as a plan for re-employment of the present unemployed "white-collared" worker now on relief.

It would include a careful study of the national and state mineral resources by the U. S. Bureau of Mines, and a study of their relationship to the national and state wealth. Presumably this would call for some coordination with the same information on file with the United States Geological Survey, which carries much valuable information in its volumes on Mineral Resources.

It is also reported that the California State Mining Board filed a request that the work of this survey, presumptively made possible by the funds in the hands of the FERA, be directed by the U. S. Bureau of Mines as the coordinating agency between the federal agencies and the state agencies charged with supplying the statistics sought.

IN OUR LETTER BOX

RECONSTRUCTION FINANCE CORPORATION

Washington

April 29, 1935.

Mr. Charles F. Willis,  
Editor and Publisher,  
The Mining Journal,  
Phoenix, Arizona.

Dear Sir:

The April 15th issue of THE MINING JOURNAL carries, on page 24, an article encouraging persons interested in applying to this Corporation for mining loans to communicate with one William Henry Harrison, Dendrike Building, Washington, D. C., and advocating the organization of an association which can act as a so-called "Clearing House" for applications. It is also to be noted that a membership fee of \$25.00 is contemplated and a "service charge for the successfully completed loan equal to 6 per cent on the amount obtained."

For your information, and in order to prevent useless expense to subscribers of your magazine who may be interested enough to follow the suggestions made in the article referred to, we hasten to advise you that the statements therein and the inferences which will necessarily be drawn therefrom are not founded in fact. There is no need for a Clearing House for applications; all applications receive prompt attention; and no difficulty is experienced by mine owners in "getting together" with the Reconstruction Finance Corporation "on common ground."

Further, Circular No. 14 of this Corporation, containing information regarding mining loans (a copy of which we enclose) points out the fact that payment of bonuses, fees based upon a percentage of the loans, or commissions for the purpose of, or in connection with, obtaining loans is expressly prohibited. If any such arrangement is made by a prospective borrower and it comes to our attention, the Corporation will refuse to disburse the loan.

In fairness to your readers we suggest that you print this letter as prominently as may be necessary in order to insure its reaching the attention of those misled by the former article.

Very truly yours,  
(Signed) Charles B. Henderson,  
Director.

Editor's Note:

The use of the name of William Henry Harrison as suggesting the clearing house in Washington for mine loan applications was due to a misunderstanding, as Mr. Harrison had the thought of such a clearing house but had no intention whatsoever of being sponsor for it or no time to give it attention. This portion of the article was added without the knowledge or consent of Mr. Harrison in an effort to be helpful to readers who might make applications for mine loans.

BULLETIN COVERS METHODS OF TREATMENT OF GOLD ORES

The University of Arizona bureau of publications has issued the second edition of bulletin No. 138 of series four, on the "Treating of Gold Ores," written by Dr. T. G. Chapman, professor of mining engineering and metallurgy.

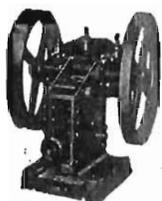
The bulletin is prepared to acquaint mine owners of relatively small holdings with the various processes for the treating of gold ores which are available, and with the advantages and disadvantages of each of them; and not to enable the miners to decide what process should be used in extracting the gold from their ores, according to the author.

BIG CANYON GOLD MINE MAINTAINS STEADY PRODUCTION

The new 300-ton flotation plant at the Big Canyon mine of the Mountain Copper Company at Shingle Springs, California, is working at capacity and making regular shipments of concentrates. All construction was completed December, last.

The flowsheet is similar to that of some of the flotation mills erected recently on the Mother Lode and in Grass Valley. The primary and secondary crushing is done in an Allis-Chalmers jaw crusher and a four-foot Symons cone crusher, respectively. This is followed by fine grinding in two 7x6-foot Allis-Chalmers ball mills, operating in closed circuit with two Dorr mechanical classifiers. The 60-mesh classifier overflow is treated successively in a conditioner tank, a five-cell Fagergren flotation machine, a one-cell Fagergren cleaner, a Dorr thickener, and an 11 1/2 x 6-foot Oliver filter.

In the mine, development work proceeds according to formulated plans, which include considerable diamond drilling. The new surface plant is perhaps the most modern in the state. All buildings are of steel frame construction and fire-proof. J. M. Basham, for several years assistant general superintendent at the company's property at Matheson, California, has charge of the Big Canyon unit.

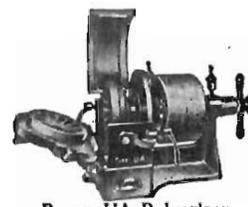


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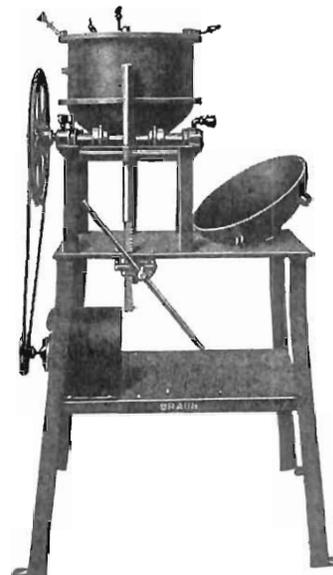
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**INFORMATION REGARDING  
RFC MINE LOANS PUBLISHED**

There is much misinformation, regarding the RFC small mine loans, being published in western newspapers which, if believed, can only lead to dashed hopes and criticism of RFC. Among the most far-reaching is the statement that the provision, that loans could be made only when the recovery of gold, silver or tin were the principal values, had been withdrawn.

Inasmuch as this restriction was a part of the law and not of the regulations, The Mining Journal immediately contacted Mr. Henry Harrison, Denricke Building, Washington, D. C., who has been the "angel" of Mining Journal readers in keeping them accurately informed on mine requirements. Mr. Harrison promptly investigated and reports as follows:

"The prior procedure as to metals as contained in the original Regulations 14, which have been revised as of February, 1935, along with Form 197 (application), is still in effect. That is, loans above \$10,000 can be made to any metal mine that comes within the provision as to property security, and collateral. In short lead, zinc, copper, tin, gold, silver, iron, antimony, manganese, etc., etc., are included in the first division of Sec. 14 of the RFC Act as amended covering loans above \$10,000.

"In connection with the second division of the RFC Act, that is loans for development on gold, silver, and tin not to exceed \$10,000, the RFC is not at this time accepting as a routine administrative practice other metals such as copper, lead, zinc, antimony, manganese, iron, etc., etc.

"Also see footnote on page 10, Form 197 Revised, February 1935, which implies the same thing. Where base metals are included with gold, silver and tin, and are recovered by the operation that involves the recovery of said gold, silver, and tin, there has been no definite decision, or ruling opinion that provides for the inclusion of the said base metals in determining the security value of the mine for the purpose of a development loan.

"Development loans in accordance with the footnote page 10 of Form 197 Revised cannot be used for any plant expenditure involving the treatment, or smelting of the said gold, silver, and tin ores. It can be used for a plant to aid in the development, such as a gasoline hoist, compressor house, etc., that is not being applied to a mill, or smelter.

"The question of what happens when an applicant for a development loan who is in addition to gold, silver, and tin in the ores the said base metals of copper, lead, and zinc, etc., is one that is to be left to the directors of the RFC themselves to solve. Administrative rulings at this time have not met with this situation, but when it does arise, the directors will be presented with this problem by the engineers of the RFC, and it will be up to the directors of the RFC to decide then. At this date the necessity for the decision has so far not arisen.

"Therefore, the proper procedure would naturally appear to be this, although this is not an instruction from any official source, namely, that the details be set forth in the application for development loans, and the metal contents with their values be identified separately. Prepare application form just as though the base metals were to be included in the development loan, and if any ruling decision later is made the values of the metals that will be included by RFC will be on record."

**IDAHO MARYLAND REPORTS**

**NET PROFIT OF \$523,090**

The report of the Idaho Maryland Consolidated Mines, Inc., and subsidiary, for the year ended December 31, 1934, shows consolidated net profit of \$523,090, after all expenses, minority interest and provision for federal taxes, but before making any provision for depletion, depreciation or amortization of stock discount. Net profit is equal to 30 cents a share on 1,726,932 shares of \$1 par outstanding and compares with a profit of \$336,041, or 20 cents a share on the 1,701,592 shares outstanding in 1933.

During 1934 the company produced 80,237 tons of ore from which it recovered gold with a value of \$1,472,902, against 68,233 tons in 1933 from which was recovered \$866,246.

The total cost of recovery last year,

including development work, overhead, compensation, insurance, taxes, metallurgical experiments and cost of alteration and repairs to plant and equipment, was \$884,944, or \$11.03 a ton. This compares with \$586,396, or \$8.59 a ton in 1933.

The increase in operating costs last year was due principally to an increase in wages in August, 1933, and a second increase of 50 cents per man per day in June, 1934. Errol MacBoyle of Grass Valley, managing director, says the number of men employed now is 473, which is about the number employed a year ago.

Last year \$358,935 was spent on development work; \$231,343 on additions to plant and equipment; \$258,221 or 15 cents a share was distributed in dividends; and a substantial amount was spent for acquisition of additional stock of the sub-



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capacity of 300 tons daily. The mill is now handling 250 tons daily, the ore coming from company owned mines and from leasees in the district. Plans are now being considered by the Gold Standard, Earl F. Nieman, general manager, Box 632, Kingman, Arizona, for increasing the plant capacity. The Portland mine is held under bond and lease by a Texas group, headed by James A. Wood of Dallas. Mine development is directed by Clyde M. Becker, geologist, formerly of Oklahoma.

In his annual report William Koerner, general manager of **Magma Copper Company**, Superior, Arizona, makes reference to the encouraging results obtained from a drill hole that cut the ore body at the elevation of the 3,900-foot level, and also to the 31 winze being sunk to check this result. Since the date of Mr. Koerner's report the winze has been completed and a crosscut driven across the vein on the 4,000 level from this winze. He states that this crosscut shows the vein to be 44.8 feet wide at this point and to carry for this distance the following average values: Copper 3.73 per cent, silver 0.34 ounce, gold 0.006 ounce per ton. When this ore is extracted a narrower width of higher grade ore will be mined.

In a recent decision Federal Judge Fred C. Jacobs refused to declare the **National Gold Corporation** of Prescott, Arizona, as insolvent, and further ruled that the creditors' claims and stockholders' interests should stand as reported by the trustee with few exceptions. W. W. Linesba, Box 432, Prescott, president of the company, states that a reorganization plan will be presented June 6, one which he believes will be satisfactory to creditors and stockholders and which will assure the resumption of operations at an early date. National Gold was forced to cease operations in 1934 when drought conditions created a water shortage for the mill. The property is equipped with a 250-ton mill.

The **Morning Glory** and **High Grade** gold claims, belonging to George Grimes of Payson, Arizona, have been leased to W. D. Boardman of Payson. A 50-foot shaft has been cleared of water and ore is being taken out. These properties are east of the Verde, near White Mountain, about 12 miles from Payson. The low-grade ore is said to assay about \$30 per ton, while high-grade runs over \$100 per ton.

The **Snell Mining Company** of Miami, Florida, has purchased the old Grand Prize mine from Wm. Craig and Walter Lovelady of Payson, Arizona. The shaft, over 125 feet deep, is being cleaned out and a small mill installed. The road to the mine has been cleared to connect with the Pine-Payson highway, about a mile below the East Verde bridge. It has been about 34 years since the Grand Prize was worked, and the shaft has caved and partially filled with water. At present a crew of four men is employed under the direction of Tom J. Russell, manager, Tonto Basin, Arizona.

It is reported that the **Bullion Gold Mining Company**, Prescott, Arizona, has completed negotiations for the acquisition of the old **Climax** gold mine, located 14 miles south of Prescott in the Hassayampa district. The Climax gained fame some forty years ago due to very rich ore, although the bulk of production has been from milling ore of \$30 a ton value. Recently the mine has been under lease to George Schwabland, who has now become associated with Bullion Gold. It is expected that mining and milling will be resumed by the first of June. Bullion Gold is

headed by C. V. Riccardi, 1032 Bank of America Building, San Diego, California, associated with him are J. E. Russell, mining attorney, and Henry Blachford, both of Prescott.

**CALIFORNIA**

The **General Mining Company**, organized by James G. Pierce of Detroit, Michigan, and associates, has taken over the Ambrose Madden property at Alleghany, California. R. E. Covert, mining man of San Francisco and who operated a property near Blythe some years ago is vice-president; and Carl G. Genter is secretary. A truckload of tools and equipment has been taken to the mine where a small crew is already at work. Like all Alleghany properties, values occur in streaks and pockets in the ledges. Mr. Madden is said to have shipped 25 pounds of gold ore to Selby from one pocket alone that returned \$1,466 at the old price for gold.

The Tyler Bros., Grove L. and George C., expect to add cyanide tanks to the 40-ton mill at the **Sierra Vista** mine near Bishop, California. They leased this property a few months ago, sub-leased sections of the mine and plan to operate the mill themselves on ore produced from the leases and on custom ores from nearby mines. Among the new equipment that has recently been installed are a classifier, pump, flotation, bins, generator, etc. Fred Henderson has charge of mechanical work.

The **United States Aluminum-Silica Paint Mining Company** will begin construction of a new plant at Sam Dimas, California, this summer, according to John H. Stratton, executive vice-president and general manager, 325 Empire Building, Milwaukee, Wisconsin. Plans call for a plant costing in the neighborhood of \$65,000, and for one that will pulverize to 200 to 300 mesh. Construction is to start in either August or September. Shipments will be made in dry form, from Long Beach. This company is owned by the same people who own and operate the North American Consolidated Mining Company, whose placer mines are located at Deer Lodge, Montana.

**Duleke, Inc.**, which recently resumed work at Groveland, California, is working both its mine and mill on a one-shift basis. Edgar W. Smith is general superintendent and C. H. Sebenius is mill superintendent. The milling plant consists of an 8x12 jaw crusher; a Marcy ball mill of 25 to 30-ton daily capacity, operated by a 60-horsepower Holt engine; a Dorr classifier and Kraut flotation cells.

Preparations are being made to operate the **Ruth Pierce** mine, located four miles from Hornitos, California, under the direction of A. Stevenot, manager of the Tioga Hotel at Merced. The mine is one of the old producers of the district. Work ceased when the old mill burned down a few years ago. The tailings dump has been worked by the cyanide method for the last year or more at a very good profit.

The 50-ton ball mill installed at the **Mother's** mine at Bear Valley, California, has been placed in operation. It is being operated from a Diesel engine. The property has been under extensive development the past year by Phillips B. Dolman, who has a bond and option from the Mariposa Commercial and Mining Company. It was formerly known as the Oylet vein, and later as the Alice Bartlett mine. A new gasoline hoist and other machinery has been installed. The shaft is down 200 feet. Ten men employed.

Preparations are being made to enlarge the mill at the Yellow Dog mine at Mojave, California. Control of the property passed a few weeks ago to M. B. Dudley, once prominent in mining affairs in Arizona. It is equipped with a small mill, hoisting machinery and compressor. Rather extensive underground work will also be undertaken.

The Golden Queen Mining Company at Mojave, California, is making rapid progress driving the long transportation tunnel into Soledad Mountain to cut the main vein at a depth of 700 feet. Some development work is being done in the shaft workings in preparation for stoping after connection is raised from the tunnel to the shaft. Extensive improvements are being made at the surface, some of which are already completed, and include a business office, assay office, 200-ton mill and camp buildings. W. C. Browning, 1214 Pacific Mutual Building, Los Angeles, is general manager; John H. Wattson is general superintendent; Charles Kumke, mine superintendent; Dwight L. Sawyer, chief mine engineer; Otto Wartenweiler, designing engineer; L. Giroux, chief electrician, and W. H. Cayley, purchasing agent.

The California Gold Lode Mines, Inc., at Big Oak Flat, California, is reported to have entered into a contract with the Collins Pacific Company, Glendale A. Collins, president, 1305 Balfour Building, San Francisco, to increase the capacity of the Longfellow mill to 300 tons a day. The job will involve an expenditure of about \$45,000. According to George L. Davis, 122 East State Street, Redlands, president, California Gold Lode has been registered with the Securities and Exchange Commission and 800,000 shares of stock un-

derwritten by J. T. Conner & Company of New York and Charles Rees, 1104 Vermont Avenue N. W., Washington, D. C. The company also controls the Mack and Wooten mines.

The Newmont Mining Corporation is reported to have increased its holdings in California by the acquisition of the Pennsylvania mine at Browns Valley. Ernest A. Cole, who has been active in the management of Grass Valley-Nevada City mines for a number of years, has been named superintendent, and will immediately begin reopening the property with a crew of 11 men. During the last year this mine has been operated by the Pennsylvania Mining and Investment Company, headed by John C. Higgins, and operated under the management of C. N. Miller, 549 Holbrook Building, San Francisco. Production, according to the old records and reports available, is estimated at four million dollars. The deepest shaft is 1600 feet.

T. W. Carpenter of Auburn, owner of the Amazon mine in the Garden Valley district, California, announces that test runs completed on ore show that profit can be made and that he will proceed at once with plans for production on a larger scale. The tests were made in a 65-ton mill. Plans call for a stamp mill and flotation plant.

Announcement has been made by the Auburn-Chicago Company that its entire mine equipment will be enlarged and a new 100-ton mill built. The existing milling plant, featuring amalgamation, gravity concentration and flotation, has been in operation nearly two years and its efficiency has been proven. At the present time it is treating 25 tons of ore a day. The larger mill will resemble it. Three

shifts are working in the mill and two in the mine, altogether 33 men. A. N. Sweet of Auburn is president and general manager. A. Tonkins, J. N. McLellan and K. Wilson, all of Penryn, are mine superintendent, mill superintendent and chief mine engineer, respectively.

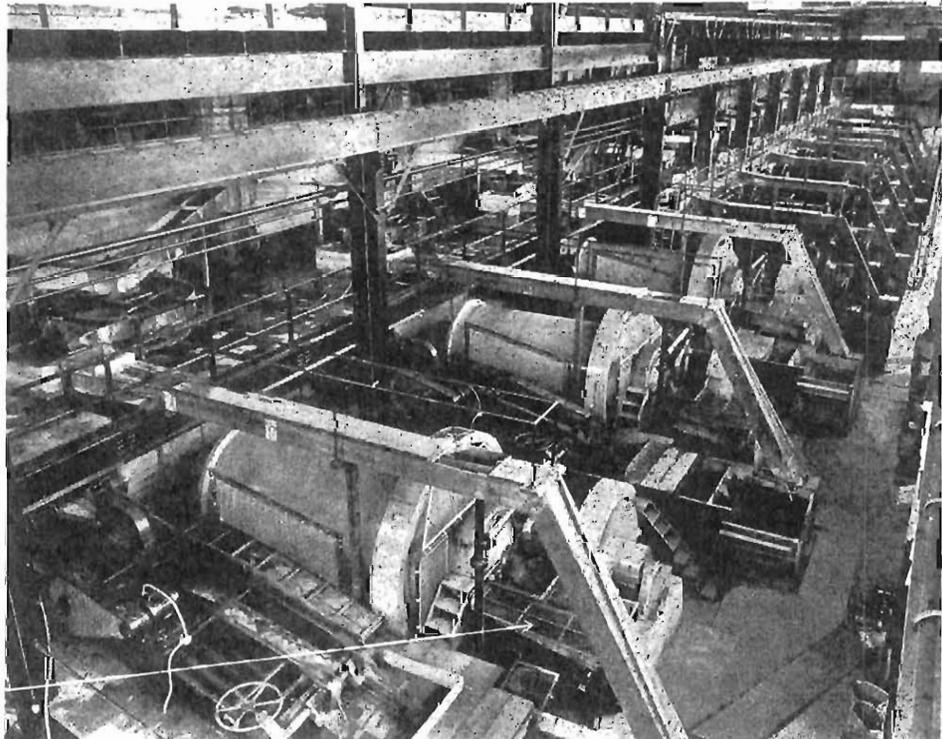
The construction of a mill is planned for this summer by the Hayden Hill Consolidated Mines, Inc., operating the Blue Bell, Golden Eagle, Evening Star and Juniper mines at Hayden Hill, California. A 30-foot ledge of \$8 ore is exposed in the 1,000-foot tunnel in the Evening Star and a large deposit of good milling values has been opened on the 200-foot level of the Blue Bell. An 18-inch oreshoot, said to run \$50, has been opened in the drift below the old glory hole in the historic Juniper, and a crosscut is being run from this point to connect with the main shaft and to facilitate the mining of known ore reserves. Drifting from the Blue Bell is advancing to explore territory thought to contain the extension of the Juniper vein, which produced a large amount of gold in the early years of the district. The company dominated by Idaho capital, started rehabilitation of the mines about two years ago and has developed substantial ore bodies in new ground.

W. E. Wilson, Essex, California, is on the coast buying machinery for the Big Horn mine in the Providence Mountains. When this mine was operated by Tom Gannon several years ago it was a pocket producer, one pocket alone reputed to have produced more than \$65,000. Extensive exploration and development work has been carried on the last two years, and the vein explored for nearly two miles. Five shafts have been sunk to depths from 150 to 200 feet, disclosing a large body

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of ore worth between \$10 and \$15 a ton in gold. Twelve miles of new road have been built to the mine; and a water system of several miles of pipe laid, tapping various sources of supply and bringing the water to a reservoir on the mountain-side above the mill now under construction. The supply is sufficient for domestic needs, for the mine and mill and for fire protection. Construction is also progressing on a machine shop, 50x70 feet, and much of the equipment for it has already arrived at the mine.

The **Ancho-Erie Mining Company**, sponsored by H. C. Lewis, G. S. Barnhart, and associates, has resumed full operation near Graniteville, California. Work had been tied up for some time owing to the breaking of some of the machinery.

The River Placers, near Columbia Hill, California, have been reopened for the season. A. D. Hughes of Nevada City is superintending the work for the **American Zinc, Lead and Smelting Company**. Water in the South Yuba River is still quite high. The large excavation made last year is to be cleaned out and preparations made for production.

Three winzes are being sunk on the 1,700 level of the **Pennsylvania** mine at Nevada City, California, to develop virgin territory. Ore is being mined from this level. W. C. Jeffrey is superintending the work for the **Newmont Mining Corporation**, and has a crew of 130 men.

Hydraulic operations of **Remington Hill Placers, Inc.**, at Nevada City, California, are reported to have been suspended for this season. A series of unfortunate circumstances, including accidents to employes and illness and floods which damaged flumes, has made repair work and a general rehabilitation necessary. Work will be confined to preparations for next season's operations, and the only work which will be done is prospecting and breasting high-grade gravel. Some sluicing may be done along the channel rim. Frank A. Crampton is general manager.

New debris dams have been built at the **Paragon** mine at Foresthill, California, to replace those washed out by heavy rains a few weeks ago. The repair work involved an expenditure of \$10,000. According to Charles Jenkins, superintendent, twenty-five men are employed and are washing approximately 250 yards of gravel an hour. A monitor is in operation at both the lower and upper ends of the pit. The larger having a length of 14 feet, a six-inch nozzle and can wash gravel for a distance of 600 feet.

The famous **Cargo-Muchacho** mine, near Ogilby, California, has been purchased by K. A. Holmes and E. A. Nicholson of Mojave. The mine has produced many thousands of dollars in gold and silver, and will again be operated rather extensively. Holmes & Nicholson also closed a deal for the **Padre** and **Madre** claims both well known to miners in that section because of their former production. It is reported that a 100-ton mill will be built

in the near future to treat ore from their various properties.

**Golden Center Mines, Inc.**, reports the development of excellent ore in the new workings of the Golden Center mine at Grass Valley, California, and the 80-ton mill is treating an average of 65 tons of ore a day. Recent work has increased the reserves, added new territory to the productive area and demonstrated the persistence of the principal ore bodies. Cooley Butler, owner, has offices at 745 Rowan Building, Los Angeles. L. S. Wincapaw is mine superintendent at Grass Valley. More than a hundred men are employed on the various Butler projects.

The **Drumar Mining Company, Ltd.**, P. O. Box 442, Oroville, California, is sinking new prospect shaft in the Table Mountain property. The shaft is down to 125 feet. Equipment includes as air compressor, steel sharpener, Ingersoll Rand jackhammers, two air receivers, a Huelsdonk concentrator, dump truck with pneumatic lift, mine cars, track, three pumps, three 20-horsepower gasoline engines, one 45-horsepower gasoline engine, blacksmith and machine shop, tools, etc. The company has three properties; the Donnie Lee, including 220 acres at Thompson Flats; the Table Mountain property, 660 acres on South Table Mountain and Thompson Flat, and the Pilot property of 140 acres on Sycamore Ravine, all near Oroville. Emery J. Martin is president. V. Dale Martin is secretary-treasurer of the company and general manager of operations.

**Big Jim Mines, Inc.**, has a crew of 15 men employed at its property at Merced Falls, California, and is handling an average of 30 tons of gold ore a day. Mine work is being directed by John Smeddle, and C. D. Pickering, formerly in charge of mill operations for the company at Oatman, Arizona, is mill superintendent. Charles B. Flynn of Tucson, Arizona, is president of the company, and A. G. Keating, 1116 Van Nuys Building, Los Angeles, California, is consulting engineer and general manager of operations. For a time this company functioned as the **American Mines and Metals Corporation**, but on April 15 of this year the name was changed back to Big Jim Mines, Inc.

The **Republic Gold Mining Corporation** will seek new depths in the **Empress** mine at Grass Valley, California. A depth of 300 feet is planned from the 1,000-foot level west drift, where most of the activity of the property is located. The winze sinking will mark the first downward activity in the **Empress** in more than a year, when shaft development was halted at the 1,000 level until milling capacity could be brought in line. With the moving of the former 75-ton ball mill from the old millsite to the new building for regrinding purposes, the **Empress** mill now has a capacity of 225 tons per day or better.

The cyanide plant installed at the **Spenceville** gold mine, Spenceville, California, early in the year by Sidney Wood and Lewis Hind of Grass Valley, has made a test run. Results are reported as

satisfactory. Plans are to grind and cyanide the old waste dump, estimated to carry an average gold content of \$3 a ton, at the rate of 120 tons a day.

The **Lancha Plana Gold Dredging Company** is planning to rebuild both its dredges at Comanche, California. According to C. G. Patmon, president and general manager, all land available has been dredged and ten men are in the field prospecting new ground.

The **Madre de Oro Mining Company** at Yankee Hill, California, has completed construction of a building 55x105 feet, to accommodate milling machinery with capacity of 50 tons a day, and is installing a ball mill, Diesel engine, Dorr simple classifier, No. 6 Wilfley concentrating table and one Diester slime table of the same size. According to R. M. Fremont, the mine has been under development for the last three years. A tunnel has been driven to 1,200 feet, opening a vein that will run between \$7 and \$10 free gold. This adit will be driven farther, and the shaft will be sunk to 600 feet, with laterals. The present face of the tunnel is in three feet of ore and the bottom of the shaft is in a five-foot vein. J. E. Fritz, 2202 Queensberry Road, Pasadena, is president of the company. W. E. Plank, 7 Seventh Avenue, San Francisco, is consulting engineer.

The **Mon-Arch Gold Dredging Company** is handling 400 yards of gold-bearing gravel daily, according to F. N. Peyton, P. O. Box 446, Smartville, California, owner and operator. A small dredge is being used and only four men employed.

Plans are being made to reopen the **Nugget Bar** holdings on the north fork of the Trinity River, near Minersville, California, according to L. A. Grange, 5216 Cole Street, Oakland, secretary of the **Nugget Bar Placers, Inc.** The new work is to include flumes, etc., to bring in additional water for hydraulic purposes, new houses and some new equipment. W. F. Neal, 711 Myrtle Street, Oakland, is vice-president of the company.

Although details are lacking, a rather extensive program of underground development is planned by the **Santa Rosa Development Company** at Keeler, California, according to J. R. LeCyr, president and general manager. Present work has reached a depth of 375 feet. Development work is being carried on by a crew of approximately ten men under the supervision of Ben Stevens. When the mine was shipping, the ore was trucked 26 miles to Keeler at a cost of \$2.60 a ton, loaded on narrow gauge cars of the Owens Valley railroad and at Mina, Nevada, transferred to standard gauge. The average grade of ore ran about 25 per cent lead and 15 ounces silver.

The **Argonaut** mine at Jackson, California, which was flooded after closing down during the recent miners' strike, has been pumped out to the 6,000-foot level. The work of clearing the tunnel at this level is proceeding rapidly. This tunnel gives access to the rich deposits uncovered last

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fall just before the mine was shut down. Mining has been resumed on the 5,500 and 5,700-foot levels and it is expected that the mine will be in full operation again by June 1. Alex F. Ross is superintendent.

The Early Gold mines, located in the Jerseydale district, Mariposa county, California, were sold at public auction in front of the Mariposa courthouse on April 27. They were sold through the Abstract Title & Investment Company of Merced to satisfy a promissory note for \$16,842.50. Philip A. Kazen of Laredo, Texas, bought the property for \$16,000. The group includes the Early, Revel, Revel No. 2, Louisa and George patented claims, and the Felix unpatented mining claim.

Golden Opportunities, Inc., has installed a new compressor and hoist at the Manilla Gulch mine on Hall's Gulch, near Mariposa, California, and retimbering of the shaft has been started. W. C. Seavey is superintending the work. Lumber is being hauled from the Cross Lumber Yards, in Merced, and construction of a cottage for the superintendent and of living quarters for a crew of a dozen men will be started as soon as weather conditions permit. The shaft is being sunk on a four-foot vein, said to average \$10 a ton in gold. Recently, while the shaft was being widened, a streak of high grade, estimated to run \$100 a ton, was opened. T. H. Jenks, consulting engineer, 1237 Lucerne Boulevard, Los Angeles, is to make an examination of the mine shortly.

A. A. Jankowsky of Fenner, California, reports the sale of his Desert Chief mine to T. J. Micallef, who resides on Palmetto Street, Fontana, California. This property is yet a prospect. Gold and silver values have been found in two shafts sunk for exploration purposes.

The Allied Petroleum and Mines, Ltd., with headquarters at 111 West Seventh Street, Los Angeles, has leased and bonded the Sugarman, Sell-Stonewall, Sell Extension and Full Moon mines near Sonora, California. Of these, the Sugarman is producing. A 600-foot tunnel is being reopened on the Stonewall (Mexican vein) and driven 1,400 feet to the 380-foot level of the Sugarman. This tunnel cuts oreshoots on both the Mexican and Sugarman veins and will provide gravity water drainage for the Sugarman and Sell mines. It gives 380 feet of backs on the Sell vein, equal backs on 300 feet of the Sugarman and slightly greater backs on the Mexican. Buildings are being constructed on the Stonewall dump and compressor equipment at the portal of the tunnel. The Sugarman is completely equipped. Operations are in the upper works until the tunnel is completed to drain the lower levels. This mine has produced approximately \$1,000 a month net for the past five years, according to Ralph H. Butler, consulting engineer for the firm. The Sell has a production record of nearly \$1,500,000—all from the upper workings. The heavy flow of water has been the factor that shut these mines down. Fourteen men are employed. W. F. Schweikert, of Los Angeles, is president of the company. Roscoe M. Oliver is general manager.

The Piute Mining Company at Cantil, California, has opened a 12-foot ledge and is drifting in both directions for the oreshoots, which should be opened very shortly, according to W. J. Quackenbush, manager, 917 Ronan Avenue, Wilmington. An 800-foot tunnel is also being driven which will cut the other ledge on the property 300 feet below the upper tunnel

and provide another 500 feet of backs. When this work is completed the management plans the installation of a mill of about 100 tons a day capacity. Mr. Quackenbush has purchased a one-third interest in the Skline property, near Mojave, from Martin Engles. A shaft is being sunk in the latter ground and at 60 feet is in two feet of ore that samples \$500 a ton in gold. The remainder of the five-foot vein is believed to run close to \$12 a ton.

Work is being pushed to have the Spring Hill mine at Grass Valley on production by September. According to H. R. Plate, general manager, the program will begin by straightening of the first 300 feet of the shaft to a 45-degree pitch, thus making the entire shaft the same incline. A

hoist, ore bins and crusher are to be installed at the shaft, and a belt conveyor used to transfer the ore from the crusher to the proposed mill to be built where the office now stands. Construction of the building itself has been started, allowing twice the space necessary for the 100-ton ball mill and flotation system to be installed for the present. Mr. Plate will divide his time between the Grass Valley property and the Young America, Euclid, Phoenix and Mountain claims on Sardine Lake, in the vicinity of Sierra City. These mines were acquired last year by the Spring Hill Gold Mines, Inc., and will be reopened early in June. Early work will be chiefly prospecting with diamond drills and, if results warrant, a long tunnel will be driven to tap the ore at depth.

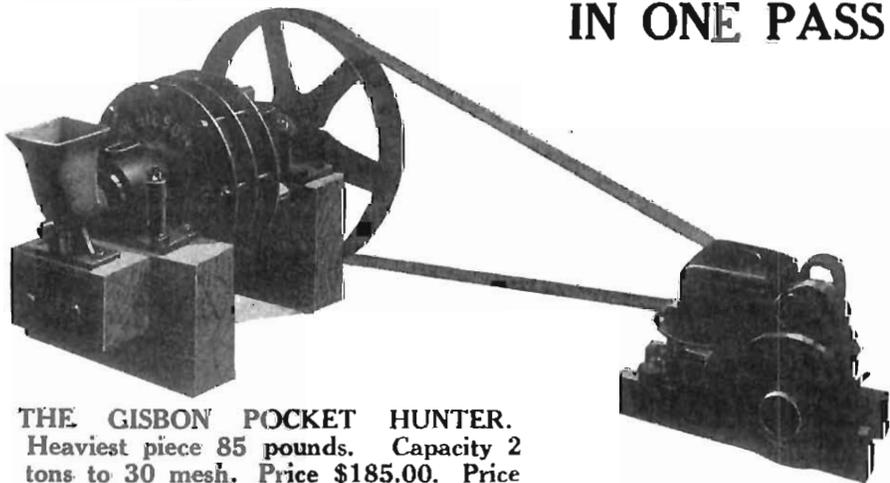
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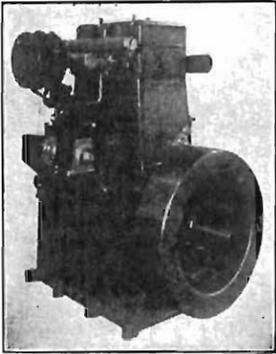
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The Yucca Metals Company in the Clark Mountain mining district, near Nipton, California, is responding most satisfactorily to development work, according to Walter H. Voyles, president and general manager. Mr. Voyles is spending some time at the mine, giving his personal attention to the work. This is a silver-lead-copper proposition, with some gold also found in the ore.

Robert Hathaway, millwright of Grass Valley, California, and a crew of a half dozen carpenters have started work on surface buildings at the Sixteen-to-One Extension mine at Alleghany, California. The construction of a hoist and other out-buildings was started last fall but the work was discontinued when the snow became too deep. George W. Hallock, is president and general manager of the Sixteen-to-One Extension Gold Mines, Ltd.

The historic Plumas Eureka mine at Johnsville, California, is reported to have been acquired under bond and option by H. O. Harrison, automobile dealer, 1625 Van Ness Avenue, San Francisco, on behalf of Detroit capitalists. The report follows that extensive operations will start shortly. The old workings contain commercial gold ore and several veins are reported near the surface in new sections of the property. Under the quartz ledges are extensive gravel deposits. Placing of these will be resumed shortly by Radill & Coates, who operated the gravels profitably last year. They use a power shovel and sluices.

S. E. Chiapella, 2233 Wellington Road, and Thomas Thorkildsen, 2100 North Canyon Drive, both Los Angeles, are reported to have taken over the Snail, Snail Fraction and Tip Top mining claims, located in the Soledad Hill district, a little west of the famous Golden Queen operations. Several good leads are reported. Machinery is being moved in. The property had been controlled by Sol Camp and S. D. Peppin.

Morris Albertoli has taken over Goodwin J. Knight's Starlight mining claim in the Soledad Hills, near Mojave, California. The lease is for a year and gives Mr. Knight a 20-per cent royalty on all ore produced. Mr. Knight is a Los Angeles attorney.

The Gold Gravel Products, inc., at Wallace, California, is washing an average of 3,000 yards of gold-bearing gravel a day, according to W. R. Clark, general superintendent. Thirty-three men are employed on the project. The gravel is moved by a Link-Belt power shovel from an open pit, 20 feet deep at the lowest point. Some silver is associated with the gold in the ore. Warner Clark, Standard Oil Building, San Francisco, is president and general manager. G. C. Gester, also of that city, is consulting geologist.

According to Walter R. Woock, engineer and general manager, the Gray Eagle Mining Company is making a geophysical survey of the channel system intersecting the Gray Eagle property. With favorable results, the mine will be equipped for production. Eight men are employed. H. Stewart is mine superintendent. Mr. Woock's address is P. O. Box 126, Auburn.

Liston L. Early and Louis Musante have the former Gray Eagle Mining Company's property at Coulterville, California, on production. They are operating it as the Black Spider mine. A 45-ton mill has been installed, complete with crusher and bins, and an average of 25 tons of ore a day is being treated. Some 3,000 tons on the dump and another thousand tons stored in the mine are immediately

available for milling and is expected to run \$7.50 a ton. Five men are employed. A vein of gold ore has been opened for a length of 250 feet and has an average width of 18 feet. Average value of this ore is reported at \$7 a ton.

### COLORADO

The Peerless Mining Company of Como, Colorado, after a successful operation in 1934 on Park Gulch about seven miles east of Como, has resumed operations for this season in the same location. Work was started on April 27 of this year and since that time recovery has averaged about 11.00 ounces of gold per shift of 10 hours. About 500 cubic yards of material are handled during a shift and values run approximately 60 cents a yard, with a recovery of around 97 per cent of the free gold content. The operating expense, including upkeep and wear, was less than 12 cents a yard during the past season. Separation is made by the use of four Ainalay 36-inch centrifugal bowl units of the removable rubber type. The plant weighs 25 tons without the power shovel, and requires but three men to operate it and the shovel.

The Tonopah Mining Company is reported to be planning the resumption of operations at the Vertex Mining Company's holdings in the Stony Pass district, near Silverton, Colorado, where production was suspended in 1930. Activity is expected to be under way early in June. H. A. Johnson of Tonopah, Nevada, general superintendent of the company, has been in Colorado recently. Besides its Colorado and Nevada properties, the company has Canadian property at Gowanda. Thayer Lindsley, Canadian Bank of Commerce Building, Toronto, Canada, is company president.

Two mills are being planned by the Big Ben Mines, Inc., according to reports. One is to have a 300-ton capacity and the other a 50-ton capacity, and the company expects to have 100 men working before the end of the season. Henry McCarthy of Pueblo, Colorado, is president. The company is operating the Corsair and other claims in the Creede mining district.

The Associated Originators, Inc., H. H. Nicholson, president and general manager, has established research and experimental laboratories at 2800 Spruce Street, Boulder, Colorado, where investigations are being made of the ore treatment problems of Boulder county. This group has been experimenting on the ores for the past several years and is perfecting a roaster, designed by Nicholson, to reduce complex ores by oxidation and render them more amenable to any of the several reduction methods. Other officers include F. B. Beard, secretary, and George A. Hall, treasurer.

Keith Andrews and J. F. Wakefield, owner, who are operating the Lucky Boy mine about 10 miles south of Gunnison, Colorado, are reported to have uncovered high-grade gold ore. The 20-ton mill recently erected on the property is ready for operation and the shaft is down 95 feet. Andrews and Wakefield have been carrying on work throughout the winter.

The Austin Milling Corporation of New Jersey is now erecting a 100-ton custom mill on the recently-purchased Nelson ranch at Nederland, Colorado. William T. Todd of Nederland and associates are promoting the venture. The mill is designed so that the capacity can be increased whenever production of the district warrants it.

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**The Mining Journal**  
Phoenix, Arizona

since its reopening, as better than \$80,-  
000 in bullion was shipped that month.

Plans for the coming year include the immediate installation of a new six-foot ball mill, which will increase the grinding capacity by 50 tons per day. This addition will bring the large cyanide tanks into their maximum production of from 250 to 275 tons per day. The mill reported a net recovery of 95.2 per cent of the values, tailings assaying only 55 cents.

In the mine it is planned to deepen the shaft, unwater and repair the 500, 600 and 700 levels. It is from these levels that the larger amount of ore is expected to be mined during the coming year.

In his annual report to shareholders, Bemis Phelps, general manager, stated that the results of past year had been most gratifying. He reported that the company had cleared over one hundred thousand dollars of indebtedness and that arrangements have been made to meet the remaining indebtedness, that of taxes due Mohave county.

A compromise has been reached between the board of supervisors and the mining company, whereby the company agrees to pay by June 15 the sum of \$27,500 in full payment for the \$34,300 assessed against the company. The compromise is the result of a suit filed at the request of the supervisors who asked that a receiver be appointed for the company in view of the fact that the mine was sold to the state in December 1933, for non-payment of taxes, and that no effort had been made to redeem the mine, but that the company had continued operations and production. Because of the delay and expense which would result from further prosecution of the suit, the supervisors agree to accept \$27,500 as full payment.

**SAN FRANCISCO TO GET  
NEW U. S. MINT BUILDING**

Peter J. Haggerty, superintendent of the United States mint at San Francisco, has been named custodian of the new mint building to be constructed shortly in that city. This is in addition to his regular duties.

Site of the new mint was purchased last summer for \$82,500, and is located more than a mile west of the present mint building, which has stood in the heart of the retail business district for 65 years. The government will call for bids on the structure about June 1.

According to plans sent to Haggerty, the new mint will be four stories, entirely above ground, with no vaults below the pavement surface. This is due to the most prominent feature of the site, a solid rock formation extending in height equivalent to more than four stories. Steel and concrete will be used in construction—probably with a granite facing.

The new mint will face on four streets, the sole occupant of a block. Congress has already made a preliminary appropriation of \$1,220,000 for it.

**RESEARCH FELLOWSHIP IS  
OPEN AT MISSOURI SCHOOL**

A research fellowship in ore dressing or metallurgy is open at the Missouri School of Mines and Metallurgy, Rolla, Missouri, in cooperation with the United States Bureau of Mines. The candidate must have obtained his master's degree and be prepared to pursue work for a doctorate. He must present an acceptable problem. The stipend is \$800 for 10 months.

**ASSESSMENT WORK SUSPENSION  
BILLS PROGRESS IN CONGRESS**

Bills providing for an additional year during which assessment work on mining claims may be suspended have been reported favorably by the mining committees of both the House of Representatives and the Senate, and the measure has been passed by the Senate. Separate bills were introduced by Ayers of Montana in the House and by Hatch of New Mexico in the Senate.

The bills are similar and provide that a person who paid no income tax in 1934 could apply by July 1, 1935, at the office where his location notice is filed for exemption from the \$100 worth of assessment work required on six unpatented claims. Partnerships, corporations and companies could obtain exemption on 12 claims under the same circumstances.

While until last year a blanket moratorium had been extended by congress on mining claim assessment work, Congress at that time adopted the policy of waiving the assessment work only in cases where there was need of limiting the number of claims on which exemption could be given. This year's moratorium bill carries forward that policy.

Although there seems to be no opposition to their passage, there is still some doubt about Congress getting to them and making them into laws prior to July 1. They would be ineffective after that date as assessment work must be done at that time.

**RECOVERY OF COPPER FROM  
OLD COPPER QUEEN SMELTER**

When the smelting activities of Phelps Dodge Corporation at Douglas, Arizona, were transferred from the old Copper Queen smelter to the Calumet and Arizona smelter, after the merger of the two companies, there was started a clean-up of copper on the grounds of the old Copper Queen. The program has been going steadily forward for a little more than three years, with the result that the corporation has recovered from the Copper Queen grounds more than 5,000,000 pounds of copper metal.

The clean-up of a closed smelting plant consists of reclaiming the metal bearing products which are normally tied up in the smelting process when the plant is in operation and which are available only after a complete shut-down and partial dismantlement. Beds on the roaster hearths, furnace bottoms, converter linings, copper molds and quantities of flue dust are all in this class of product. The clean-up also includes the reclaiming of the minor accumulations of metal-bearing material in and around the grounds of the various smelting units. The cooling ponds as well as the settling ponds and the bottoms of the ore storage beds also yields some material.

Before any material is moved, it is accurately sampled to determine whether the copper content is sufficient to pay for the total expense of cleaning up and converting it into salable form. The principal yield, in the case of the Copper Queen, has been from the reverberatory furnaces, where the bottoms of the furnaces gave considerable tonnage.

The clean-up crew has consisted of about 11 men, and has accounted for a production of something over 100,000 pounds of copper per month since the work has been in progress. At the present time it appears that the work will probably be completed in three or four months.

**REPORT OF TINTIC STANDARD AND OWNED SUBSIDIARIES**

The report for the year 1934 of the Tintic Standard Mining Company and its subsidiaries, by James W. Wade, 1111 Walker Building, Salt Lake City, Utah, general manager, shows that production was maintained at a slightly higher rate than the rate of production maintained during 1933. However, due to the low prices of silver and lead which prevailed during the period, production was curtailed to approximately 50 per cent of full capacity.

The net profit of the Tintic Standard Mining Company, and its wholly owned subsidiaries, including the dividends received from the Eureka Standard Mining Company, was \$427,793, compared with a net profit of \$383,438 for the previous year. Dividends paid by the Eureka Standard Consolidated, however, exceeded that company's net profit for the year. The combined net profit of the Tintic Standard Mining Company, its wholly owned subsidiaries, and the Eureka Standard Consolidated Mining Company was \$456,709, of which amount \$412,405 was applicable to the minority stockholders of the Eureka Standard Consolidated Mining Company. This compares with a net profit of Tintic Standard and its wholly owned subsidiaries for 1933 of \$321,800, showing an increase in net profits for 1934 over those of 1933 of 28.15 per cent.

During the year the Tintic Standard mine produced 32,883 tons of ore and the Iron Blossom mine produced 38 tons, with combined gross proceeds from all metals sold during the year of \$1,048,640. After freight and smelting charges of \$432,726, the net smelter returns were \$615,913. With \$246,345 from interest

and dividends on securities owned and from other sources, including the net income of wholly owned subsidiaries, the total income for the year was \$862,259. Deducting mine operating expenses, mill and experimental expenses, general administrative costs, taxes, depreciation, and miscellaneous expenses and losses, resulted in a net income carried to surplus of \$427,793. Four quarterly dividends were declared and paid in 1934.

At the Tintic Standard mine, 3,128 feet of drifting and 148 feet of raising were accomplished. The Gold Exploration Mining Company, a wholly owned subsidiary organized in 1933, continued development work at its optioned property at Smartville, California. During the year an addition was made to the mill. The property produced 264.446 ounces of gold in 1934.

During the year 1934 the Eureka Standard Consolidated mine produced 19,060 ounces of gold, sold for \$666,143; 283,437.43 ounces of silver, sold for \$181,754; 1,089,154 pounds of lead, sold for \$41,524; and 349,024 pounds of copper, which were sold for \$28,983. The total mine output aggregated 38,743 tons and gross proceeds amounted to \$918,405. Smelter and freight charges amounted to \$285,748. The company paid four quarterly dividends, amounting to \$149,959, during the year. Development work to the extent of 4,047 feet of drifting, 565 feet of raising, and 140 feet of shaft sinking was completed. The East Tintic Consolidated Mining Company, a subsidiary of the Eureka Standard produced 1,366 tons of ore, for which the company received net smelter returns amounting to \$10,168.

At the properties of the Iron King Consolidated and the Provo Mining Com-

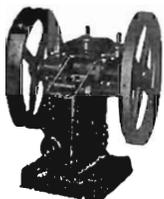
pany, only maintenance work was done. At the property of the Colorado Consolidated Mines Company, no development work was done during the entire year, except for small leasing operations which were carried on at the Beck tunnel and on the Salvator claim, producing 651 tons of ore. At the Sioux mine, a subsidiary of the Colorado Consolidated, small leasing operations were carried on in the Sioux tunnel, resulting in a production of 132 tons.

**CALIFORNIA MAKES OFFER OF ASSISTANCE TO PROSPECTORS**

The state of California, which has a Blue Sky Law in connection with security issues, has inaugurated a so-called California Grubstake Permit, which allows the prospector or mine owner to raise funds to the amount of \$5,000 without the necessity of organizing a corporation, as heretofore required in order to raise that amount of money for prospecting and mining.

In his application for the permit, the prospect owner is required to show that he needs the money, and also to show whether he needs all or only a part of it. Blanks are supplied by the state, which asks a few pertinent questions about the needs of the applicant and the purposes as a prerequisite to the issuance of the permit.

It is presumed that the applicant after having spent the \$5,000 or such fractions thereof as needed will make application for a charter and right to organize into a corporation under the laws of that state, although nothing is said in the permit as to this obligation.



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**CRIPPLE CREEK TO HAVE  
500-TON MILLING PLANT**

Arrangements for construction of the new 500-ton custom mill at Cripple Creek, Colorado, have been made by the Cripple Creek Mining Company, reportedly at a cost of \$400,000. The plant is to be located on Bull Hill of the Stratton Estate. Edward L. "Pat" Sweeney, 537 U. S. National Bank, Denver, holds the contract for design and construction.

The plant is to include: 10 50-ton capacity receiving bins; complete primary and secondary crushing plants; complete smelter "custom-type" sampling plant and assay office; one 275-ton flotation section with bins, etc., consisting of a 7x10 ball mill, eight-foot wide classifier and Denver Sub-A flotation; a 125-ton flotation plant with 7x8 mill for ores which need finer grinding and six-foot wide classifier and Denver Sub-A flotation, all flotation concentrates to go to a 35-foot thickener and six foot six-inch disc filter.

There will also be a separate fine crushing plant, crushing to one-fourth inch for roaster ores, 100 tons of raw ore plus the filtered flotation concentrates going to a 72-spindle Edwards roaster plant; roaster calcines go to a 125-ton cyanide plant, with regrinding mill and classifier and table in this circuit. The regular cyanide circuit will have thickeners, agitators, Merrill-Crowe clarification and precipitation, and final washes in two six-foot six-inch disc filters in series. Cyanide tails will pass over tables also.

Buildings to house this milling plant are to be of steel construction and Sweeney states that completion is expected in 90 days' time.

**ASK IMMEDIATE ALLOTMENT OF  
\$25,000,000 FOR MINING RELIEF**

A congressional committee, consisting of Scrugham of Nevada, Murdock of Utah, Greenway of Arizona, Werner of South Dakota, and White of Idaho, has made a request to Secretary Ickes for an initial allotment of \$25,000,000 for relief of the "stranded metal mining population," and the granting of that request is now up to Ickes.

A congressional committee which has requested a \$75,000,000 program from work relief funds for development of mining made the new proposals in an effort to provide immediate relief in mining districts of the west, with assurance to Ickes that the proposal would be self-liquidating.

"Due to the peculiar character of the unemployment and the highly technical methods required," said a letter to Ickes from the committee, "in our opinion, the customary state setups will not operate in nearly so efficient or satisfactory a manner as a federal project supervised and directed by agencies such as the U. S. bureau of mines and the U. S. geological survey."

The proposal, the letter said, would involve the production of newly-mined non-competitive metals such as gold, silver, tungsten, molybdenum, antimony, quick-silver, nickel, and tin.

"The production of the mining, milling and sampling machinery required," the committee said, "will give additional employment to large numbers of people engaged in such manufacture."

"The major feature of the plan presented lies in the immediate location of sampling plants in properly selected mining areas, for the purchase and cash payment for such small lots of newly mined ores as may be offered."

UNITED STATES BUREAU OF MINES reports on

**Copper Statistics for 1933 and 1934**

Conditions in the copper industry in the United States in 1934 showed some improvement over 1933. Domestic mine and smelter production were higher than in the preceding year, but in 1933 activity at both mines and smelters was at the lowest level in more than 30 years. Stocks at smelters and refineries were substantially reduced and the average price for copper improved during 1934. Imports into the United States made large gains, although over 90 per cent of the quantity imported was for treatment under bond and export. Domestic refinery production from imported ores and unrefined materials was strikingly higher in 1934 and was almost as large as output from domestic sources, and the proportion of refined copper from foreign materials to that from domestic sources was the highest ever shown by the statistical record. The very great increase in shipments to foreign countries reflects the large increase in exports of material treated under bond as well as a notable increase in exports of domestic copper. Apparent domestic consumption of primary copper was lower in 1934 than in 1933.

The average quoted monthly price for copper (electrolytic, f.o.b. refinery) was 7.9 cents a pound in January, 1934. It held at virtually that level until April when it began to rise in anticipation of the approval of the copper code, which was signed April 21 and became effective April 26, 1934. The average monthly price for April was 8.2 cents, for May 8.3 cents, and for June 8.6 cents. From June 14 until the end of the year the average price for Blue Eagle copper (copper produced and sold under conditions laid down by the Code Authority), delivered Connecticut points, was 9 cents a pound, equivalent to 8.775 cents a pound f.o.b. New York refinery.

Detailed statistics and a summary of developments in the copper industry during 1934 will appear in the MINERALS YEARBOOK 1935, to be issued in August.

**Summary of Features of the Copper Industry in the United States in 1932-1934**

	1932	1933	1934
<b>Production of copper—(pounds):</b>			
Smelter output .....	544,009,948	449,999,143	488,454,107
Mine production .....	476,221,076	381,285,194	478,640,000
<b>Refinery production of new copper:</b>			
Electrolytic .....	373,492,550	421,318,802	414,020,483
Lake .....	53,815,281	59,497,370	51,681,901
Casting .....	17,770,043	521,859	355,976
Total domestic .....	445,077,874	481,338,031	466,058,360
Total domestic and foreign .....	680,867,734	741,578,652	890,719,865
Total new and old copper .....	1,177,000,000	1,418,000,000	( <sup>1</sup> )
<b>Copper ores, old tailings, etc:</b>			
Produced, short tons .....	12,320,194	8,387,612	( <sup>2</sup> )
Average yield of copper, per cent .....	1.83	2.11	( <sup>2</sup> )
Copper ores, old tailings, etc., concentrated, short tons .....	10,964,749	7,475,988	( <sup>2</sup> )
Average yield of copper, per cent .....	1.51	1.63	( <sup>2</sup> )
Copper ores smelted, short tons .....	758,623	872,033	( <sup>2</sup> )
Average yield of copper, per cent .....	6.98	6.30	( <sup>2</sup> )
Average price per pound, cents.....	6.3	6.4	8.0
Imports (unmanufactured), pounds .....	391,991,342	287,433,540	35,012,487
Exports of metallic copper <sup>3</sup> , pounds....	295,356,719	303,825,790	592,718,891
<b>Withdrawn from total supply on domestic account—(pounds):</b>			
Total new copper .....	519,202,768	678,699,324	608,860,256
Total new and old copper, pounds .....	1,016,000,000	1,355,000,000	( <sup>4</sup> )
Stocks of refined copper <sup>5</sup> , pounds .....	1,004,000,000	813,000,000	569,000,000
Stocks of blister and materials in solution <sup>6</sup> , pounds .....	378,000,000	388,000,000	389,000,000
Value of smelter production from domestic ores .....	\$ 34,273,000	\$ 28,800,000	\$ 39,076,000

<sup>1</sup>Preliminary figures. <sup>2</sup>Some Michigan copper was electrolytically refined at an eastern refinery and is included under electrolytic copper. <sup>3</sup>Not yet available. <sup>4</sup>Imports for consumption"; "general" imports not available. In addition to the quantity shown 364,015,977 pounds of copper were imported for smelting, refining and export. <sup>5</sup>Total exports of copper, exclusive of ore, concentrates, composition metal, and unrefined material. <sup>6</sup>At the end of the year.

**Smelter Production**

The smelter production of primary copper from domestic sources during 1934 amounted to 488,454,107 pounds, an increase of approximately 9 per cent. The value of smelter production increased approximately 36 per cent in 1934. The average price of copper delivered during the year, as reported to the Bureau of Mines by selling agencies, was 8.0 cents a pound, f.o.b. refinery.

In the following table the production is apportioned to the States in which the copper was mined. The figures represent the content of fine copper in the blister produced and the smelter output of ingot copper from Michigan.

(Continued on Page 28)

brother, was the discoverer of the famous Torpedo mine, the Texas Canyon and Galloway mines.

**Morris Grabowski**, age 65, a resident of Detroit, Michigan, died at Kingman, Arizona, May 28, from acute appendicitis. Grabowski, with his brother, Max, had motored to Kingman to make an examination of the work in progress at the King Tut placers and in which they were interested with James Townsend and Portor Munson, a nephew.

**Arthur E. Pretty**, Seattle resident and a mining man well-known in Washington and in Alaska, died recently at Kenmore at the age of 70. Pretty was mayor of Ballard, now a part of Seattle, from 1892 to 1894, and four years later he joined the gold rush to the Klondike. For many years in Alaska he was an agent for the Guggenheim interests there.

**LeRoy Taft**, fire chief for Magma Copper Company, Superior, Arizona, died very suddenly the last of May from a heart attack. Born in Brooklyn, New York, in 1858, Taft was nearing his seventy-seventh birthday, having spent 27 years of his life in Arizona. He had been prominently identified with the civic activities of Superior for a number of years.

**Benjamin E. Bennett**, mining engineer and member of the engineer corps in France during the World War, died on June 14 at Tucson, Arizona. Born in France, Bennett came to this country when an infant. He resided in Kingman, Arizona, for a number of years, being connected with some of the larger mining companies. As an engineer he established the first camp in the Boulder dam project four years ago, but was compelled to relinquish his position because of

ill health. Following the World War he was awarded a four-star victory medal as the result of his participation as master engineer sergeant in four major conflicts. For the last several months he had been a patient at the U. S. Veterans' hospital.

**ANSON HUBERT SMITH**

Anson Hubert Smith, 75, mining man, newspaperman, and one of the greatest individual forces in the development of Mohave county, died at his home in Kingman, Arizona, June 19. His death was the result of a fall suffered on April 28 when he slipped on the sidewalk, breaking his hip and leg. The fall occurred in the very early morning as he was on his way to his newspaper office, and he lay exposed to the cold and damp for more than two hours before discovered and aid summoned. He had seemed to improve until about a week before his death when a relapse occurred.

Smith was a native of New York state where he received his public school education. His first connection with his chosen profession was in Bradford, Pennsylvania, where he was a pressman and later a reporter for the Daily Era. Later, he was employed for a year on the New York Times. He came to Arizona in the early days and for a short time worked in the mines in Tombstone, Yuma, Wickenburg and Globe district, finally acquiring mining property in Mohave county.

In 1882, in association with James J. Hyde, he established the Mohave County Miner. He is believed to have been the dean of all American newspaper men from the standpoint of length of service with one paper—a total of 53 years as owner, editor and manager.

Boulder dam was Smith greatest vision, and for more than a score of years he had worked untiringly for the project. What he described as one of the high points of his life came in 1933 when he stood in the dry bed of the Colorado, its waters flowing through diversion tunnels on each side, and saw the dam about one-third completed.

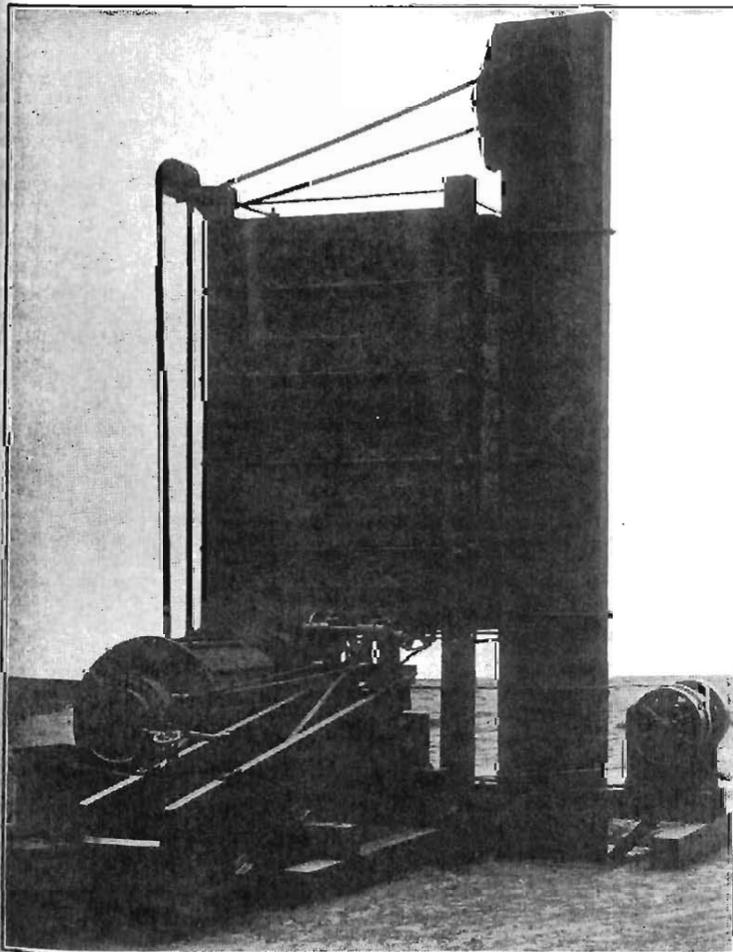
**RICHARD A. PARKER**

Richard A. Parker, 79, retired mining engineer of Denver, Colorado, died June 9. In 1933, when the trustees of Columbia University awarded him the University Medal, he was described as "A pioneer among Columbia's mining engineers, who, during a long life passed in our western country, has won for himself a place in the foremost of his profession."

Parker was a native of Manchester, England, and in 1878 was graduated from Columbia University, later receiving an honorary degree of doctor of science from the Colorado School of Mines. His degree of mining engineer was earned in Johannesburg, South Africa, where for many years he was engaged professionally.

Perhaps his chief mining interest was in copper mining, especially the handling of large ore bodies. His general enthusiasms extended over a wide area. Only a few years ago he listed his hobbies as etchings, water colors, and golf.

He was a member of the American institute of Mining and Metallurgical Engineers, Mining and Metallurgical Society of American, and other scientific organizations. His affiliations with social groups included his membership in Sigma Xi.



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announced by officials of the **Fremont Gold Mines, Inc.**, operating a solid block of 13 blocks claims and fractions, including the Duncan and Mary Ellen mines, in the South Pass-Atlantic City district of Wyoming. During the past year work involving construction and new equipment was carried on mainly at the Duncan property, but during the coming months the company plans to give the Mary Ellen mine more attention. With a crew of around 40 men, the property is now operating on a 24-hour daily basis. The company has filed registration papers with the Securities and Exchange Commission at Washington, D. C. O. F. Swenson, president and general manager of the company is in personal charge of all operations.

A clean-up bringing over \$5,000 in gold is reported by the **E. T. Fisher Company** operating on Rock Creek, near Atlantic City, Wyoming. This is the first clean-up of the current year. The company holds about 14 miles along the creek, and is reported to have worked two in the past two years. There are at least five other placer operations in the vicinity which expect to operate through the summer. C. S. Crawford of Atlantic City is in charge of the Fisher interests.

**\$6,945,000 IS VOTED FOR MINE DAMS IN CALIFORNIA**

After 50 years the way is opened for the resumption of hydraulic mining in California. The house flood control committee has approved an appropriation of \$6,945,000 for the construction of four dams on the Yuba, Bear and American Rivers, to be used for the storage of debris in hydraulic mining. The bill authorizes a total appropriation of \$340,000,000 for flood control activities throughout the country.

The Army Board of Engineers, over the signature of General A. H. Markham, has recommended specifically the construction of dams at the Upper Narrows site on the Yuba River, at Dog Bar on the Bear River, at the North Fork site on the North Fork of the American River, and at the Lower Ruck-a-Chucky site on the Middle Fork of the American River. The army board's report is a reversal of the recommendations of Colonel T. H. Jackson and the California Debris Commission.

**IDAHO MARYLAND CONSOLIDATES PARENT AND OPERATING UNITS**

The Idaho Maryland Consolidated Mines, Inc., has called a special meeting of stockholders for July 16 to approve a consolidation of the parent company and its operating subsidiary, the Idaho Maryland Mines Company. The consolidation is to be effected through formation of a new company, the Idaho Maryland Mines Corporation.

Stock in the new company will be exchanged on a share-for-share basis for the stock of the Idaho Maryland Consolidated and for five shares of the present Idaho Maryland Mines Company. Following exchange of the stock, the new company will have 1,743,000 shares of \$1 par outstanding, of an authorized issue of 2,500,000 shares.

The move to consolidate is no surprise. At the annual meeting on March 27 President E. L. Oliver told stockholders that the parent company had acquired all but 0.5 per cent of the outstanding capital stock of the operating company and that a consolidation would simplify management and accounting and result in a saving in income taxes.

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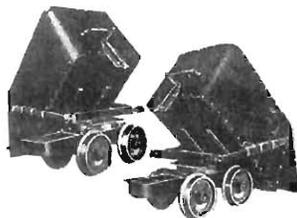
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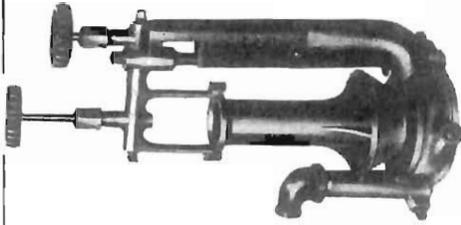
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### EASTERN GROUP IS SUCCESSFUL AT GAYLORD WILSHIRE MINE

The old Gaylord Wilshire mine at Bishop, California, which proved a puzzle in the hands of earlier operators, seems in a fair way to make a real gold property in the hands of the Cardinal Gold Mining Company. The operators are Bernard Smith, Walter Haggerty, and associates, with offices at 52 Wall Street, New York City. W. Val DeCamp, once general manager for the United Verde Copper Company at Jerome, Arizona, and later in charge of the Yellow Aster mine, one of California's leading gold propositions, is their general manager.

A great deal of work has been done in the mine and a 150-ton mill has been built in the two years that have elapsed since the New York group became interested. The main vertical, two-compartment shaft is being converted to a three-compartment compound shaft, vertical to 90 feet and inclined below that point. It is being lowered to the 500-foot level, and skips and a double-drum hoist are being installed.

By fall development will be in progress on the 300, 400 and 500 levels, and in a tunnel to the east, 500 feet above the collar of the shaft. Diamond drilling eastward from the 300 level opened a strong flow of water, calling for additional pumping apparatus. The shrinkage method of mining is used.

The milling plant, of fireproof construction throughout, has capacity for 150 tons of ore a day. It was completed last September and placed in operation immediately. Through the winter months, and in spite of the heavy snows at that altitude of close to 10,000 feet, it operated 99 per cent of the time and a recovery of 90 per cent was reported.

It is complete with coarse ore bin and pan feeder, crusher, gyratory, fine ore bin, 4x10 rod mill, classifier in closed circuit, 5x6 ball mill, thickener and flotation machines. The concentrates go to an American filter and to an electric dryer, are sacked and shipped to Salt Lake.

Earnings for the month of April were the highest since the mill was placed in operation. This was due to a new power contract secured, giving a much lower rate. For the eight-month period, ended April, 1935, gross earnings totaled \$296,727 and the net, before depreciation and depletion, was \$93,139. Net earnings for April, alone, amounted to \$16,855. Close to a hundred men are employed and an average slightly over 140 tons of ore are being handled daily.

Special features characterizing the operation include a lead bath machine where the drill steel is tempered, constant weight feeders and complete automatic sampling of heads, tails and concentrates. Recently, the flotation equipment was doubled and a cone crusher will soon replace the gyratory.

### SUNSHINE MINING COMPANY INCREASES DIVIDEND RATE

An increase in its quarterly dividend rate has been announced by Sunshine Mining Company of Idaho, this increase bringing the dividend to 30 cents a share. The disbursement was payable June 29 to stockholders of record June 15.

In December, 1934, Roy M. Hardy of Yakima, Washington, president of Sunshine Mining, stated that the organization was paying the largest dividend in its history. The disbursement at that time amounted to 20 cents a share, and a duplicate dividend was declared for the March quarter.

### SOUTHERN CALIFORNIA MEN LEASE GOLDEN GATE MINE AT SONORA

The Golden Gate mine, located a mile southwest of Sonora, California, has been acquired under lease and option by Byron E. Rowe, of Sonora, on behalf of Los Angeles interests. Plans call for the immediate unwatering and thorough sampling of the old workings.

The mine is credited with a production of over three million dollars. It was discovered and worked with arrastres by Mexicans to water level, where the ore came base. Between the '60s and the '80s it was operated intermittently, using a 10-stamp mill.

When the Golden Gate Sulphates Mining and Development Company obtained control, a 20-stamp mill and chlorination plant were built. This operation continued until 1905 and during the 20-year period the company was active a production of one and a half million dollars is said to be on record. The millheads averaged \$16 and high values went into the tailings.

Past work has been done on the main vein, which is as wide as 30 feet but which has been mined across a width of only seven to 14 feet. Basing conclusions on what information is available, the ore left in place has a value of close to \$8.50 a ton at the present price of gold.

The main workings are 500 feet deep and a winze has been sunk 200 feet below that point. The oreshoot that has been explored shows a length of 2,000 feet.

### A CORRECTION

It is seldom that The Mining Journal is called upon to make a correction, especially when the statement in question appeared in an obituary notice. However, exception has been taken to a portion of the article which reported the death of W. J. Young, Jr., on May 31, in Tucson, Arizona.

In that item, The Mining Journal stated that W. J. Young, Jr., organized the Great Western Copper Company which was largely responsible for the flourishing settlement of Courtland, Arizona, in the early boom days of copper, but that "Courtland's history as a copper producer was brief, for as soon as the workings were carried to a depth of 300 feet, the ore body disappeared and hard, barren limestone was encountered. Young's Great Western made a profit of a few hundred thousand dollars out of the Mary, then lost it in hunting for more ore." This account of mining in the Courtland district was secured from the book, "Romantic Copper," by Ira B. Joralemon, mining engineer and geologist of San Francisco.

Exception to this statement is taken by William Holmes, president and manager of the Leadville Mining Company, Courtland, Arizona. The Leadville property adjoins the Great Western on the north, and according to Mr. Holmes, has been developed to a depth of 400 feet, with 8,000,000 tons of copper ore blocked out—this ore running 3 per cent copper with important values in gold and silver. Mr. Holmes presented as proof of his claims the reports of several mining engineers, and the smelter returns from ore shipped. He also states that the account of the Great Western is incorrect, as commercial ore is still available in the mine.

The people of the Courtland district regard the experience of Mr. Young, as reported by Joralemon, as being contrary to the results proven by subsequent development.

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**Consumption**

The new refined copper withdrawn from the total year's supply on domestic account in the United States in 1934 and the method employed in determining it are shown in the following table, which does not include stocks of copper held by consumers.

**New Refined Copper Withdrawn From Total Year's Supply on Domestic Account, 1933-1934, in Pounds**

	1933	1934
Total supply of new copper .....	752,441,910	909,136,878
Stock at beginning of year .....	1,004,000,000	813,000,000
Total available supply .....	1,756,441,910	1,722,136,878
Copper exported <sup>1</sup> .....	264,742,586	544,276,582
Stock at end of the year .....	813,000,000	569,000,000
	1,077,742,586	1,113,276,582
Withdrawn on domestic account .....	678,699,324	608,860,296

<sup>1</sup>Includes refined copper in ingots, bars, rods, or other forms.

**Stocks**

**Stocks of Copper January 1, 1931, 1932, 1933, 1934, and 1935, in Pounds**

Year	Refined copper	Blister and material in process of refining <sup>1</sup>
1931 .....	615,000,000	450,000,000
1932 .....	924,600,000	348,000,000
1933 .....	1,004,000,000	378,000,000
1934 .....	813,000,000	388,000,000
1935 .....	569,000,000	389,000,000

The amounts stated in the last column in the table above do not include copper in stock at foreign smelters or in transit from foreign smelters to refineries in the United States.

**Imports and Exports**

The figures of imports and exports of copper reported by the Bureau of Foreign and Domestic Commerce are shown in the following tables:

**Copper Imported for Consumption in the United States in 1934, in Pounds<sup>1</sup>**

Country	Ore (Copper content)	Concentrates (Copper content)	Regulus, black or coarse copper (Copper content)	Unrefined black blister and converter, in pigs or converter bars	Refined in ingots, plates, or bars	Old and clippings for re-manufacture
<b>Africa:</b>						
Mozambique .....				862	1,343,490	
Canada .....				280,103	525,992	14,777
Chile .....				2,112,323	6,922,404	
Cuba .....	17,822	12,488,880				33,160
Ecuador .....			494			
Mexico .....				1,142,795	8,404,471	
Netherlands .....					783,702	
Peru .....				504,024	436,954	
Yugoslavia .....	159					75
	17,981	12,488,880	494	4,040,107	18,417,013	48,012

<sup>1</sup>"General" imports not available. In addition to the quantities shown in the table 864,015,977 pounds of copper were imported under bond for smelting, refining and export.

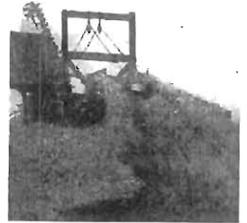
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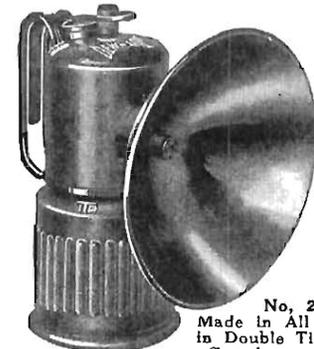
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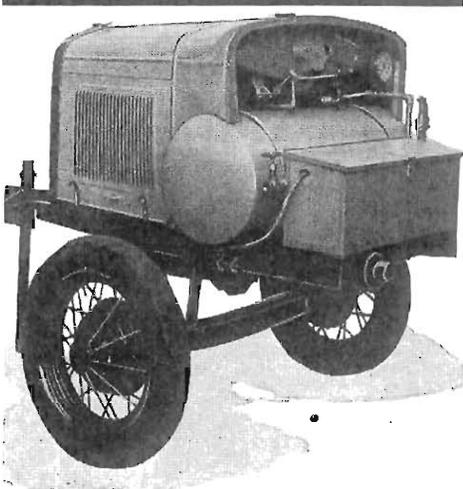
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**COPPER STATISTICS FOR 1933 AND 1934**

(Continued from Page 5)

**Copper Produced in the United States from Domestic Ores, 1932-1934  
(Smelter Output, in Pounds Fine)**

State	1932	1933	1934
Alabama			10,972
Alaska	13,297,443	1,575,936	130,284
Arizona	201,136,276	122,697,035	168,408,450
California	5,514,045	632,049	232,845
Colorado	8,976,169	8,882,397	13,046,759
Idaho	662,957	2,183,284	1,717,895
Michigan	63,898,656	72,340,852	51,681,901
Missouri		181,703	46,276
Montana	97,918,141	94,262,651	67,005,217
Nevada	32,616,050	42,507,400	41,922,506
New Mexico	32,914,883	24,948,272	26,994,219
North Carolina	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Oklahoma			10,723
Oregon	36,890	9,301	41,422
Pennsylvania	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
South Carolina		408	421
Tennessee	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Texas	8,588	2,137	32,956
Utah	76,402,502	65,655,914	96,223,463
Virginia			384
Washington	2,521	87,199	33,393
Wyoming	607	46	3,390
Undistributed	10,624,220	14,032,559	20,910,631
	544,009,948	449,999,143	488,454,107

<sup>1</sup>Included under undistributed. Bureau not at liberty to publish.

**Refined Copper**

The total production of new refined copper in 1934 was 891,000,000 pounds, an increase of 149,000,000 pounds, or 20 per cent, over that in 1933.

**Primary and Secondary Copper Produced by Regular Refining Plants and Imported, 1933-1934 in Pounds**

	1933	1934
<b>Primary:</b>		
Domestic: <sup>1</sup>		
Electrolytic	421,318,802	414,020,483
Lake	59,497,370	51,681,901
Casting	521,859	355,976
	481,338,031	466,058,360
Foreign: <sup>1</sup>		
Electrolytic	260,048,594	424,523,995
Casting	191,927	137,510
Refinery production of new copper	741,578,552	890,719,865
Imports of refined copper	10,863,358	18,417,013
Total new refined copper made available	752,441,910	909,136,878
<b>Secondary:</b>		
Electrolytic	170,878,078	243,189,320
Casting	160,214	720,514
	171,038,292	243,909,834
	923,480,202	1,153,046,712

<sup>1</sup>The separation of refined copper into metal of domestic and foreign origin is only approximate, as an accurate separation of the amounts at this stage of manufacture is not possible.

<sup>2</sup>Some copper from Michigan was electrolytically refined at an eastern refinery and is included as electrolytic copper.

<sup>3</sup>Imports for consumption; general imports not available.

In addition to their output of metallic copper the regular refining companies produced bluestone (hydrous copper sulphate) having a copper content of 6,333,000 pounds, as compared with 6,479,000 pounds in 1933.

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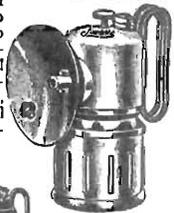
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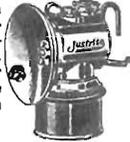
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Copper Exported From the United States, 1934, in Pounds

Country	Ore, concentrates composition metal and unrefined copper. (Copper content)	Refined		Old and scrap	Pipes and tubes	Plates and sheets	Wire (except insulated)	Insulated wire and cable
		Bars ingots, or other forms	Rods					
Belgium .....	3,357,305	18,522,193	3,543,233	1,586,113	7,109	.....	.....	57,989
Canada .....	5,563	161,596	429,897	46,410	249,385	160,892	34,079	330,613
China .....	.....	3,755,398	.....	55,422	82,237	3,569	686,646	298,357
Denmark .....	.....	2,731,869	224,020	22,828	2,749	.....	.....	11,032
France .....	10,910,746	116,318,397	282,960	2,985,811	7,750	52,624	7,147	20,118
Germany .....	112,689	72,761,664	.....	10,126,806	23,537	69,853	45,166	28,127
India (British) .....	.....	1,015,541	1,905,387	.....	2,611	8,211,097	710,948	161,368
Italy .....	11,532,415	43,041,104	269,295	70,675	1,735	3,637	1,679	14,489
Japan .....	118	113,769,412	123,380	4,827,634	77	12,158	50,231	18,237
Netherlands .....	560,180	21,781,872	3,391,777	1,558,188	11,817	329	1,640	28,730
Norway .....	.....	1,897,124	3,590,273	.....	661	.....	5,298	4,583
Spain .....	.....	22,405	.....	2,367,666	5,006	.....	200,488	96,258
Sweden .....	.....	28,386,207	.....	224,250	1,002	.....	.....	26,764
United Kingdom .....	27,492	82,415,204	70,041	1,235,122	13,504	363,941	310	27,231
Other Countries .....	6,259,675	18,152,578	5,713,755	83,463	1,058,416	643,649	2,472,916	6,923,079
	32,766,183	524,732,564	19,544,018	25,190,388	1,467,596	9,521,752	4,215,548	8,047,025

#### WHITE URGES INTERNATIONAL CONFERENCE REGARDING MONEY

A joint resolution of Congress, introduced into Congress by Congressman Compton I. White of Idaho, requests the President to enter into negotiations with foreign countries looking to the stabilization of international bi-metallism. The resolution cites and repeats a policy of this country enacted into law in 1893 and never repealed. This policy, to be found in Section 311 of the United States Code of Laws, reads as follows and is repeated in the present resolution:

"It is hereby declared to be the policy of the United States to continue the use of both gold and silver as standard money, and to coin both gold and silver into money of equal intrinsic and exchangeable value, such equality to be secured through international agreement, or by such safeguards of legislation as will insure the maintenance of the parity in value of the coins of the two metals and the equal power of every dollar at all times in the markets and in the payment of debts. And it is hereby further declared that the efforts of the government should be steadily directed to the establishment of such a safe system of bi-metallism as will maintain at all times the equal power of every dollar coined or issued by the United States, in the markets and in the payment of debts."

Pointing out the chaotic condition of world currencies, with most countries off gold, and the "gold-bloc" countries in severe economic distress, the author of the resolution, Congressman White, expressed confidence that a monetary conference called by the United States would meet with an instantaneous and favorable response abroad. This joint resolution, therefore, declares that "in order to effectuate the policy expressed in Section 311 of the United States Code of Laws, and in order to assist in bringing about world economic recovery, the President of the United States is respectfully requested to enter into discussion and negotiation with other governments looking to the use of both gold and silver as standard monetary metals at a fixed ratio so as to stabilize the exchanges and facilitate international trade."

#### FIVE DREDGES RECOVER GOLD IN LINCOLN DISTRICT, CALIF.

The J. F. Knapp Company of Los Angeles, California, has placed its new dredge on the C. E. Gulliford Ranch, near Lincoln, in operation. The dredge is small insofar as dredges go, with a deck only 24x40 feet. In design it is similar to the Tharpe & Robinson development which recently entered the Lincoln district, and which is said to be bringing splendid gold returns.

Knapp is reported to have leased 160 acres on the Gulliford Ranch and a similar acreage on the Lovely place adjoining. Ten men are employed. Initial work involves the handling of approximately 600 yards of gravel in 18 hours, but within a few weeks they expect to be on full-time operation. This is the fifth dredge to go into operation in the Lincoln district.

The other dredges are: the Bing Clark boat, fed by a steam shovel; the Chittenden dry-land proposition, where the gravel is taken from a pit and trucked to the trommel and sluice boxes; the Comstock dredge, similar to Bing Clark's, and the Tharpe-Robinson dredge, which is working on the Virginia placers.

#### LEAD INDUSTRIES ASSOCIATION ORGANIZES AND ELECTS BOARD

At a meeting held in New York on June 13, the members of the Lead Industries Association elected the following board of directors:

Clarence Glass of Anaconda Sales Company; B. N. Zimmer of the American Metal Company, Ltd.; F. H. Brownell of American Smelting & Refining Company; Stanley A. Easton, Bunker Hill & Sullivan Mining & Concentrating Company; E. A. Bendelari, president of Eagle Picher Lead Company; Ivan Reitler of the Federated Metals Corporation; James F. McCarthy, Hecla Mining Company; T. E. Sprague, Metals Refining Company; F. M. Carter, president of National Lead Company; George W. Lambourne, Park Utah Consolidated Mines Company; W. Y. C. Hunt, Reynolds Metals Company; Clinton H. Crane, president, St. Joseph Lead Company; W. Mont Ferry, Silver King Coalition Mines Company; J. W. Wade, Tintic

Standard Mining Company and F. Y. Robertson of the U. S. Smelting, Refining & Mining Company.

The directors reelected the following officers: Clinton H. Crane, president; F. H. Brownell, vice-president; Fred M. Carter, vice-president and F. E. Wormser, secretary-treasurer.

#### LET'S TAKE PRESIDENT ROOSEVELT'S TIP

(Continued from Page 26)

played by Walter Davenport in the issue of Collier's Weekly of June 15, 1935, under the pithy title, "My Country, 'Tis from Thee."

Incidentally, if you'll read that Collier's article it will help me, prodigiously, to get you into the fighting mood necessary to produce results and get action out of the Washington Mill . . . from Mr. Roosevelt down the line.

Reverting to those seven presidential words "We must look to the nation's mines":

Give thought to this, you long-suffering mine executives with financing problems haunting the feet of your beds o' nights . . .

They opened up another chink in the Chinese Wall (that pun was quite unintentional, I assure you) that Wall Street and the foreign bond bankers have flung up about even legitimate mining investment. And through that breach we who know the difference between honest, primary-yield investment, with the dividends coming from Mother Earth's fruitful womb, and that damned Frankenstein market-gambling which, masked and costumed as "investment" by Wall Street, precipitated five years of economic hell, can hurl bombs and grenades of honest mining investment facts. Facts that will straighten out the American investing public in its still-warped ideas on the world's safest and most profitable primary-yield industry!

First, however, we've some housecleaning and delousing to attend to. Might as well face the job, take off our coats, roll up our sleeves, spit on our hands and go to it. God helps those who help themselves.

present time, and the company plans to continue mine development work until conditions warrant installation of proper milling and reduction facilities.

William Linden, president of **Linden Mines, Inc.**, Prescott, Arizona, reports that his property is being equipped for the mining and milling of 100 tons of gold-copper-silver ore daily. He expects his mill to be ready for production by August 1 of this year.

The mill construction contract which was recently given to the Oil and Mining Equipment Company, Los Angeles, by the **Johnson Gold Mines, Inc.**, at Congress, Arizona, for a 25-ton plant has been enlarged to cover a 50-ton mill, and construction is being pushed for completion by July 1. According to J. K. McGraw, who has recently been made sales manager for the Oil and Mining Equipment Company, Denver Sub-A (Fahrenwald) flotation cells will be used, his company having the agency for that line in the southwest. McGraw also announced that his company is planning to open a branch at Phoenix, Arizona, shortly, in order to give better service to its many friends in that section.

Carpenter and Lewis, mill designers and builders, 408 South Spring Street, Los Angeles, have signed a contract to design and erect a dry concentrating plant for **Rusk Air Flotation Company** of Gold Basin, via Kingman, Arizona. The initial plant is to have a capacity of 10 yards per hour. Should the results justify it an additional plant of a capacity of 30 yards per hour is to be added.

**United States Smelting, Refining and Mining Company** is said to be giving further consideration to plans for erection of a milling plant at the Goldroads mine at Oatman, Arizona. The company has been making regular shipments of ore to the Tom Reed mill for some time, and if exploration of the lower levels show ore values of equal grade to that being mined on the upper levels, a plant of 300 tons' capacity may be erected. In that event the company will also engage in custom milling, it is understood. L. H. Duriez, Box 405, Oatman, Arizona, is resident engineer and manager.

A two-year lease has been secured by Lloyd Faulkner on two high-grade gold claims owned by George Grimes. These claims are situated on Maryville Hill, about four and one-half miles southwest of Payson, Arizona. Maryville Hill was the scene of the first gold discovery in the Payson area in 1879.

R. L. Taylor, who has a small mill near the property, has taken a working lease on the **Planet** mine, an extension of the Excursion, six miles southwest of Payson, Arizona. The lease was granted by George Grimes. The Planet is a gold claim and is producing ore running about 2 ounces gold to the ton. The ore is being treated by Taylor in his mill.

Production from the Herron and Laster lease on the **Lake Superior and Arizona** mine at Superior, Arizona, is running 50 tons of gold-silver ore daily. All ore is shipped to the Magma smelter. Thomas D. Herron and Con Laster, both of Superior, are the partners who hold the lease. A. A. Snyder is mine foreman, heading a crew of 38 men.

A 50-ton test shipment of ore is being made by J. E. Layton and associates from the **Narrow Gauge** mine, a short distance from the Cyclope, north of Chloride, Arizona. The ore is being trucked to the Tom Reed mill, a haul of 90 miles.

Over 20 lessees are at work at the **Pioneer** mines, formerly the German American, Oatman, Arizona. While not all of the leases are producing, over 400 tons of ore monthly are being sent to the Tom Reed mill for treatment. George Moser is in charge of the property.

Two shipments of ore have been made to the United Verde smelter at Clarkdale by the **Eastslope Mining Company**, Lloyd L. St. John, general manager, Box 282, Cottonwood, Arizona, the first going forward March 21 and the second May 20. This group of claims, known in the early days as Quo Vadis mine and now called the Wyoming group, was purchased from W. A. J. Snell of Cherry in September 1934 by a group of Hollywood interests. The first work undertaken was the building of two and one-half miles of trail over which all supplies are transported by burro train. Three tons of ore a day can be moved out with a train of 15 burros. Actual mining operations were started in January of this year, and all work to date has been done by hand, with production averaging one ton daily. Last month a hoist engine and hoist were installed and a compressor is to be put in immediately. H. F. Scheerer, for many years with the Stratton interests in both Colorado and Arizona, is mine superintendent in direct charge of the work. He is employing a crew of five men. As soon as the new equipment is installed the drift from the present workings is to be started and production increased to a minimum of 100 tons of shipping ore monthly.

The **United Verde Branch, Phelps Dodge Corporation**, Jerome, Arizona, is receiving for treatment at its smelter at Clarkdale custom ores mined in that vicinity. According to W. M. Saben, manager, most of the ore shipments so far received have come from the Cherry Creek district.

The **Arizona Central Mining Company**, Groom Creek Route, Prescott, Arizona, is starting its proposed development program, by which the present 175-foot shaft is to be carried to a depth of 500 feet, and drifts run at each 100-foot level. The ore values are principally in gold, with some silver and copper. Bill Harrison is mine superintendent.

The **Grace Leasing Company**, W. W. Grace, manager, Tombstone, Arizona, has taken a lease on the Junieta mining claim and expects to begin reopening the mine this month. The mine has not been worked since 1908. The shaft is to be reumbered, a hoist and compressor and miscellaneous equipment installed before drifting and crosscutting is started. The shaft is 160 feet deep and mine workings total approximately 600 feet.

## CALIFORNIA

George W. Clemson and Horace G. Miller, 4800 Santa Fe Avenue, Los Angeles, have acquired a lease on the **Eagle Shawmut** mine, near Chinese Camp, California, together with an option to purchase the property at the price of \$150,000. It is understood that the agreement calls for installation of a mill of a minimum capacity of 200 tons and that it designates September 1 as the latest time for commencing this work. According to a recent bulletin issued by the California State Division of Mines, the Eagle Shawmut produced \$5,380,000 from 1897 to 1926. It has been idle since the later year.

The **Etiopha** mine at Big Oak Flat, California, has been taken under a five-year lease and purchase option by R. S.

Tice and J. C. Bassford of Monterey. The installation of a 50-ton mill within 90 days is said to be planned. This property owned by Robert L. and Hugh Milligan at Big Oak Flat, who have worked intermittently for some time. They treated the ore in a small Kincaid mill.

The **Penryn Gold Mines Company** is making rapid progress in sinking the two-compartment shaft in the Alhambra mine at Penryn, California. Stations will be every 100 feet. The strike of the vein is the length of the property which is 1,900 feet. William Anderson of Auburn is president and general manager.

The **Deer Creek Union Mining Corporation** has started work at the Union mine three miles south of Nevada City, California. A. G. Skidmore is superintendent of operations. The mine is one of the oldest in the state. Electricity is being installed to pump water from the lower levels. At a recent meeting of the stockholders, E. D. Rastorfer, Peter Maciel and E. F. Lindberg were added to the board of directors. The officers were re-elected: Samuel J. Holsinger, president and chairman of the board; Henry Holsinger, vice-president and attorney, and E. D. Rastorfer, secretary and treasurer.

Negotiations are in progress for financing the reopening of the main Pacific mine at Placerville, California. The property is held under lease by L. F. S. Holland. It is 2,000 feet deep and has considerable development work on the 500 and 700-foot levels. The Epley, Texas Hill and the Albright portions of the Pacific group have been under development for the past year.

A gold strike is reported from the **Black Beauty** claim of the Gus DeSteiger group at Danby station on the Santa Fe Railway. Fourteen tons have been shipped to the Midvale smelter that are said to have returned \$80 a ton. At point of discovery the vein is four feet wide. Selected samples of the rock are reported by R. J. MacCausland of Danby to have run as high as \$300 a ton. The strike has been checked by Branch Smith of Tonopah, Nevada.

W. W. Crosby of **San Diego Gold, Inc.**, is considering the installation of fine grinding and flotation at his 50-ton milling plant at Descanso, California. At the 185-foot level the vein is four feet wide and is yielding ore that runs \$40 a ton in gold.

The **Mother Lode Central Mines, Inc.**, is sinking a three-compartment shaft in the footwall of the vein, according to M. A. Maher, general manager and superintendent of operations. This property is located on the Mother Lode, about a mile south of Angels Camp. It is equipped with a 750-cubic foot Ingersoll Rand compressor and air hoists and power is supplied by the Utica Power Company. The main office is 216 Pine Street, San Francisco.

Preparations are being made to unwater the **Tulloch** mine, near Angels Camp, California. The shaft extends to a depth of 800 feet. This property is being operated under bond and lease to C. R. Watkins of Palo Alto and J. F. McKlish of Glendale, California.

Charles H. Cook and J. Williams of Los Angeles have examined the **Eric** property southwest of Eagle Pass, near Needles, California. A gold strike was reported a few days ago. The ground was located by E. B. Wilkin and S. A. Brown, local men; E. L. Kohlhauser of El Monte, and V. E. Ingram of Bakersfield. Brown and Kohlhauser are on the ground in charge of development work. At 20 feet their shaft was re-

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ported in two feet of ore that assayed \$226.80 in gold and \$1.69 in silver. Values in vanadium and molybdenum were reported also.

The **Texas Gulf Sulphur Company**, probably the leading sulphur producer of the world, is said to be negotiating for the operation of the **Leviathan Sulphur Company's** property in Alpine county, California. As opposed to the regular semi-hydraulic extraction employed in most sulphur production, the Leviathan deposit requires regular mining operations. The operating company is headed by H. E. Bierce, 1010 Richfield Building, Los Angeles, and was planning for the milling of 300 to 500 tons of ore a day. For sometime they have been operating a small experimental plant that treated four tons of sulphur ore in an hour and 40 minutes. For the last two years John Hays Hammond, internationally known mining engineer, has held more than a 25 per cent interest in the Leviathan.

The **Kimball-Kempe Syndicate**, of Ojai, California, has optioned the **Blue Eagle** gold mining claims on the west side of Middle Butte in the vicinity of Mojave, California. The property was taken over from Fred Wright and J. A. Otto, at a reported price of \$140,000. In addition they took over a bond and lease held by Burton Brothers, Inc., of Rosamond, California, and George G. Wright for \$21,000. The Blue Eagle includes 130 acres adjacent to the Cactus Queen mine, which the syndicate is already working.

The **Trinity Gold Mines, Inc.**, P. C. Stoess, president, 611 Colman Building, Seattle, Washington, is making plans to reopen the Golden Jubilee mine at Carrville, California. The property includes 10 claims, opened on seven levels by some 7,000 feet of workings. The repairing and modernizing of buildings and equipment began last July. Under the direction of the Downie-Wright Manufacturing Company the mill was equipped to handle a hundred tons of ore a day. The cyanide plant was enlarged and gold recovery increased about 30 per cent. Power is supplied by water, and the plant has been enlarged to meet the additional demands.

The wages of 400 workers are to be raised eight and one-third per cent with the opening of the Selby, California, plant of the **American Smelting and Refining Company**, according to a recent report by the company. This plant after having been closed for several months will reopen shortly.

The central shaft of the **Lava Cap Gold Mining Corporation**, Grass Valley, California, is being deepened to the 1,600 foot-level. The company expects to open two new levels shortly and is busy developing new ore bodies in the Central and Banner mines. This company employs over 150 men, and the mill is handling approximately 200 tons of ore daily. Otto E. Schiffner is in charge.

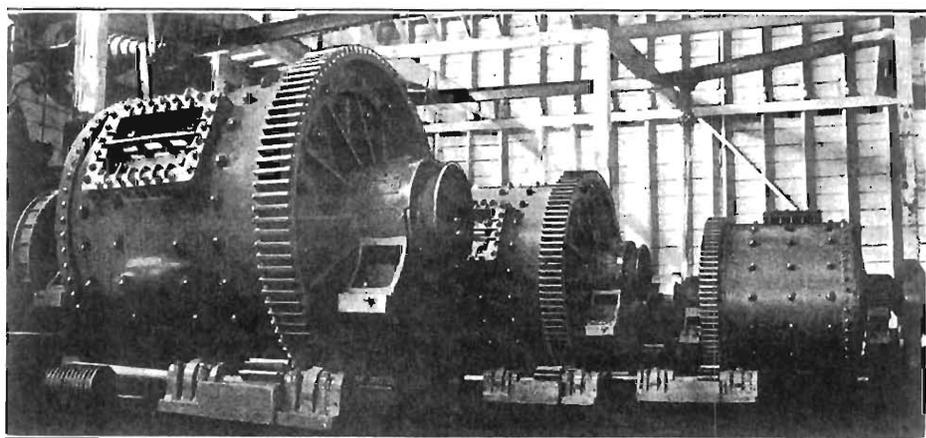
Recent discoveries of ore in the leases on the property of the **Rivera Mining Company**, in the Neenach district, southern California, have led to the installation of equipment for small-scale milling. Such equipment is being provided by the **Martin Milling Company**, of Long Beach. Ore from the **Fishel-Tuttle** lease is said to be worth 47 a ton, and to date has not been developed below 50 feet. Ore of similar grade has been opened on the **Smith** lease and is said to be an extension of the **Rogers-Genery** property, adjoining, which is yielding thousands of dollars in gold ore. Charles Andrews of Fairmont, California, is general manager of the Rivera company.

The **Empire Star Mines Company, Ltd.**, operating unit of the **Newmont Mining Corporation**, is providing milling facilities for the **Zeibright** mine in Bear Valley to the extent of 300 tons a day. The equipment includes a ball mill and flotation machines, and replaces the stamps now on production at the rate of 150 tons a day. The new unit is being built so that if the occasion demands the capacity can be doubled by the addition of primary crusher, an additional ball mill, classifier and additional flotation machines. The ore from the **Zeibright** mine is very low grade and is workable only because of the great width of the vein system. E. R. Bennett of Nevada City is superintendent of operations.

The **Mutual Gold Corporation**, operating the old **Log Cabin** mine at Leevining, Cali-

fornia, has elected the following officers: J. E. Stiegler of Naches, Washington, president; J. A. Vance of Seattle, Russell F. Collins and R. P. Woodworth of Spokane, vice-presidents; Ben L. Collins of Spokane, secretary; Dr. J. F. Hall of Spokane, treasurer, and E. Fuson, assistant secretary. The lower crosscut tunnel has been driven 1,050 feet and is within 130 feet of a point beneath the shaft, and drifting and mining ore will begin immediately with the completion of tunnelling. No work is being done on the company's property in Idaho.

The latest mining deal reported from the camp of Mojave, California, is the lease of the **C. C. Calkins** property located on the east side of the **Desert Queen** mine. The lessee is the **Four Star Mines, Inc.**, with offices in the Board of Trade Building, Los

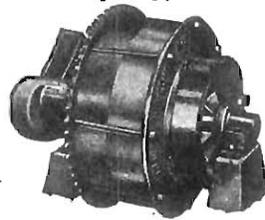


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Angeles, and who has taken over the ground for a 20-year period. A crew has started erecting a compressor, hoist and putting in Diesel power.

Work has been started on the **Golden Queen** gravels at Angels Camp, California, recently taken over by A. D. Malchus and Luke Cepenich of Angels Camp and George Schnauder of San Francisco. They have installed gasoline hoist and pump and are lowering the 110-foot shaft to the channel. Aside from intermittent work, this property has not been active for five years.

The **Federal Mining and Milling Company**, Ralph Arnold, vice-president and consulting engineer, 812 Subway Terminal Building, Los Angeles, reports that cross-cutting on the 200 level of the Jumper quartz property at Jamestown, California, has proved the downward continuation of the ore body in the middle Mother Lode vein. Full width has not been determined, but is believed to be as great as at the 100 level and the ore is reported as a good milling grade. Next month work will be started on foundations for a 150-ton mill.

John Coulston of Altadena has added a 30-ton flotation and concentration unit to the pilot mill on his silver property on Erskine Creek, near Bodfish, California.

J. W. Bodes is reported getting a nice profit from a pile of tailings, generally considered of too low grade to pay, at the **Duncan** mine at Hornitos, California. The tailings are run through a 15-ton ball mill and the gold recovered by amalgamation. Equipment is electrically operated.

Judge Frank D. McClure, 742 South Hill Street, Los Angeles, has purchased a 30-ton flotation and amalgamation mill from the Maine Machinery Company, 1230 East One Hundred and Ninth Street, Los Angeles. Judge McClure expects to have the plant in operation on his gold property near Quincy within three weeks.

The **Backbone Gold Mining Company** has added five Denver flotation units to its plant at Kennett, California. The mill is now running three shifts, and the cyanide plant is soon to start treating tailings. Walter B. Lenhart was made superintendent of mill operations June 1.

It is expected that the **Lukens** custom mill near Auburn, California, will resume operations soon, as a result of settlement of litigation. The superior court, Judge Landis presiding, declared that ownership rests with Earl Lukens and not the First National Crandall Mining Company.

The recent landslide at the **Paragon** mine at Foresthill, California, is said to have damaged the property to the extent of \$50,000. A cleanup had just been made before thousands of tons of dirt crashed down on the pit and buried practically all of the equipment. One death and one injury case resulted. The report follows that the tool house, which is approximately 200 feet from the top of the pit, is under 40 feet of dirt; the compressor and two monitors are buried, the sluice boxes are ruined and the sluice tunnel filled. King C. Gillette, 1417 San Remo Drive, Pacific Palisades, California, is the financier and operator of this mine. Charles Jenkins is his mine superintendent.

The April report of the **Argonaut Mining Company** shows a net loss of \$9,722, after all charges but subject to year-end adjustments. The report for May will show a small net profit—probably just about enough to counterbalance the loss in April—and June earnings would be normal were it not for the fact that the company must utilize some of its shaft and hoisting capacity to further recondi-

tion its underground workings, made necessary by flooding and long idleness following the strike of last summer.

The **Tahoe Treasure Consolidated Mines**, of Homewood, California, has been registered with SEC. The company is authorized to sell stock to the value of \$147,130. Harvey C. Winslow, P. O. Box 1188, Bend, Oregon, is president of the company.

Under the management of the **Wiljobar Corporation**, the Frederic shaft east of Nevada City, California, has been sunk to 350 feet and will be bottomed for the present after another 50 feet of depth has been gained. A station is being cut at the 350-foot point. Construction was completed a few days ago of a modern change house. Gordon M. Bettles is superintendent. He has 18 men employed.

The **Goldfield Consolidated Mines Company** is sampling the Hart mine at Garden Valley California, and prospecting in new territory. This is one of several properties in the vicinity that Goldfield Consolidated optioned some time ago. E. A. Julian, with headquarters at 421 Crocker First National Bank Building, San Francisco, is general manager of Goldfield Consolidated. The Hart mine has produced considerable gold ore of excellent quality, and is equipped with an eight-stamp mill and mine plant. During the past year the stamps were used in custom work. J. A. Flink of Garden Valley is the owner.

A bar of gold weighing more than 100 ounces gold and valued at between \$3,000 and \$3,500 has been sent to the San Francisco mint by A. H. Clark of Ventura and two associate operators of the **Stewart** mine, near Sonora, California. This is the first shipment they have made. Periodic shipments are anticipated. The Stewart mine is an old pocket producer, located on Bald Mountain. These men made the strike less than two months after commencing work, on a shoot exposed but overlooked by former operators. They report 300 feet of backs above the tunnel and have proven that the ore extends below the tunnel.

The **Myra Mining Company** is making preparations for the operation of the Eagle Bar placers adjacent to its American Bar quartz mine at Michigan Bluff, California. The American Bar is equipped with a good mine plant and 20-stamp mill. It has been a good producer for several years. Under Walter Barkhaus, superintendent, vigorous mine development is being carried on in new territory. L. E. Wisenburger, 723 Title Guarantee Building, Los Angeles, is managing director.

The **Lookout Mountain** gold mine at Mokelumne Hill, California, is again on production. Electric motors have been installed, power extended to the mine and mill and all connections made. The mill can handle 50 tons of ore a day, and gravity water is available. E. T. Prather is manager.

Dr. R. E. Maxwell and R. B. MacBride, automobile dealer, both of Modesto, California, have acquired the mining rights to 17,000 acres of scattered tracts in Tuolumne and Mariposa counties, California. A part of the holdings of T. M. "Tim" Carlin are included, and much of the land involved was mined during the early days of California mining.

The **Walker Mining Company** has 20 men making repairs at its mine at Walkermine, California, and on the 1,600-ton flotation mill. The Beckwith-Walkermine road has been opened and is now in excellent condition. J. J. Lillie of Salt Lake City, Utah, is superintendent of operations.

Stamps will soon be installed to treat the porphyry ore of the **Devon Gold Mining Company** near Auburn, California. Trestle has been built across the rail from the main deposit, 24-pound rail and an ore bin installed. According to L. R. Menzies, superintendent, the delias between walls 1,000 feet apart assays \$4 to \$7 for the average material and \$21 for the high.

W. B. Walton, operator of the **Sunol** property, two and a half miles from Foresthill, California, reports a cleanup of 40 ounces of gold. He has seven men working. This is the old Gavin mine.

The **Alabama California Gold Mining Company** has followed the vein for 100 feet at the 200-foot level of the Alabama mine at Penryn, California. Gold content is holding well to \$11 a ton, and the vein is close to seven feet wide. The 10-stamp mill is being enlarged by a battery of same capacity. William Anderson of Auburn is president and general manager.

The custom mill built at Rackerby, Butte county, California, by Clayton McNeil of San Francisco, is receiving orders. The first run was a small shipment from the **Lucky Boy** mine, operated by A. Angeli. It returned 3 ounces gold.

A group of Seattle men, organized **Rio Escondido Mines, Inc.**, is reopening the Ball mine in Eldorado county, California. C. H. Barkdull, consulting mining engineer, with permanent headquarters at 3646 Thirty-sixth Avenue, Seattle, is in charge of the work. He has eight men on the job. The property is three-quarters of a mile west of Omo Ranch. In the neighborhood of 2,000 feet of underground work has been done, and equipment includes a trommel, 75-horsepower gas engine and compressor. Production will be started this month at the rate of about 20 yards daily of \$5 gold-bearing gravel. The old dump is also to be worked with a drag.

An 18-inch vein of high-grade gold ore is reported to have been found in the **Tullis** mine at Diamond Springs, Eldorado county, California. The discovery is the result of a geophysical survey of the property made by the firm of Isham & Isham, 230 Redwood Avenue, North Sacramento. Charles A. and C. Buford Isham are the owners of the North Sacramento firm.

The recently organized **Honcut Dredging Company**, with offices at Honcut, California, has begun dredging operations on Little Honcut Creek two miles east of town. The new dredge is of the drag line type. The directors of the organization are W. H. H. Wandisforde, Tom Norton, Al Blomster, Beth H. Gibbs and George F. Jones of Honcut. Thomas Gharity is dredgemaster.

#### COLORADO

The **Brumell Leasing Company** is installing a new six-drill compressor and is sinking a shaft 300 feet, from which point a drift will be run south to cut the Captain vein system of the Portland ground, which the company is operating under lease from the United Gold Mines Company. Robert L. McCartney of Cripple Creek, Colorado, is president and general manager. J. L. Livingston, 1936 South Lincoln Street, Denver, is consulting engineer. A total of 11 men are employed at the property.

One 25-ton unit is to be installed at the **Christy Milling & Refining Company**, J. M. Geier, 1710 Grant Street, Denver, Colorado, president. Company offices are at Mancos. At present a 10-ton plant is being operated and is equipped for flotation.

Comp. with part of 1917  
sales \$1.5 billion through  
reduce debt, and

mill and 9 on surface work. Howard H. Fields, Box 148, Prescott, Arizona, is president of the company.

Approximately two tons of gold ore are being produced daily by **Lost Basin Gold Mining Company** from its property 70 miles northeast of Kingman, Arizona. The mine is developed by two 100-foot shafts and two tunnels, of 85 and 109 feet, respectively. A flotation and cyanide mill is in course of construction. The Lost Basin company is headed by the following Salt Lake City, Utah, men: H. A. Jensen, president; Keith Holbrook, secretary and general manager; J. C. Heddon, consulting engineer, and Joe Hansen, mine superintendent. Main offices are located at 1102 First National Bank Bldg., Salt Lake City.

**Mammoth-St. Anthony, Ltd.**, Foster S. Naething, vice-president and consulting engineer, Mammoth, Arizona, has entered the ranks of Arizona producers, mining 100 tons of ore daily. This ore is treated in the mill of the neighboring Molybdenum Gold Mining Company, which has been enlarged to handle this additional tonnage. Electric power is supplied over a new power line constructed from Coolidge Dam to the Mammoth district at a cost of approximately \$60,000, the necessary funds being supplied by the two mining companies. E. A. Stone is mine superintendent, and S. R. Burdick, chief mine engineer, employing a crew of 25 men.

**El Torro Gold Mine** is producing eight tons of gold ore daily, this ore being treated in a 25-ton rod mill, followed by flotation and gravity concentration. This is an open pit and tunnel operation, sponsored by T. A. Phillips, general manager, 1501 East First Street, Tucson, Arizona. In active charge at the mine are: K. H. Phillips, assistant general manager; F. C. Phillips, mill superintendent, and Jack Fitzgerald, mine superintendent. The company's headquarters are located at 321 Jefferson Street, Miami, Arizona.

At the **Monarch Mines**, located in the southern part of the Oro Blanco district, a tunnel is being driven to connect with the bottom of the shaft and underhand stope on the vein which is reported to be six feet in width. During recent weeks, several large truckloads of gold-silver ore, running about \$40 per ton, have been shipped. Don Dale of Ruby, Arizona, is owner of the mines.

Experimental deliveries of flotation concentrates by **Margarita Gold Mines Company**, Ruby, Arizona, are said to indicate an assay value of over 15 ounces gold per ton. The Margarita mill is equipped with Groch flotation units, which replace the cyanide equipment formerly used. The remodelled plant is expected to be in full operation within the month. In addition to a large body of milling ore, the company is said to have developed considerable high-grade ore which is at present being marketed through the Tucson Ore Buying Company. H. A. Kennedy, Ruby, Arizona, is resident manager of the company.

**CALIFORNIA**

The **Trinity Gold Mines, Inc.**, at Carrville, California, has been on a producing basis since the first of May, according to word from L. Kracke, secretary, 654 Colman Building, Seattle, Washington. This is the Golden Jubilee property, including 10 claims, and opened on seven levels by some 7,000 feet of workings. The mill and conveyor apparatus installed last year proved inefficient and has been scrapped. In its place the company installed a roller mill, and enlarged the cyanide plant, with the result that gold recovery is about 30 per cent higher than formerly, Kracke further stated. Power is supplied by water, and this plant in turn has been enlarged to meet the additional demands. An average of 30 tons of ore is being handled every day in the week.

Extensive surface work is reported in progress at the **Oxford mine**, northeast of Downieville, California. Major projects are the building of two miles of power line, a mile of aerial tramway and the construction of a 100-ton mill. This is a quartz proposition.

The **Consolidated Metals Company**, organized by H. B. Morse, mining engineer, and associates of New York, is making preparations for rather extensive work on the Goering Ranch and the Manuel Marz

property a mile west of Lake Vera, California. Plans call for sinking the two-compartment shafts, with drifts at and 500 feet; and for the installation of a complete Diesel plant. Morse will live the mine and will maintain an office Nevada City, California. The new company is capitalized at a million dollars, organized under the laws of Delaware.

It was recently announced that the **Verginia Dale mine**, Dale, San Bernardino county, California, was sold by Harry Hess of Los Angeles to Pasadena Exploration & Development, Ltd., of Pasadena. Development work is being rushed and it is hoped to have the mine producing within a month. New machinery being installed and additional housing facilities are being erected. C. W. Geary, vice-president of the corporation, in charge of operations, has stated that the company intends to have the mine operating within a 30-ton daily capacity. Lewis S. Gambel, Pasadena, is president of the Pasadena corporation.

It is expected that active mining operations will be resumed at the **Mountain Young America mines** in the Sierra Butte district of northern Sierra county, California, immediately. Mr. H. R. Platt, Sierra City, California, general manager of the H. R. Platt Operations, is in charge of the development work.

The **Idaho-Maryland Mines Company**, Grass Valley, California, has started installing a 350-ton mill at its New Brunswick mine. The grinding unit will consist of a 350-ton capacity Marcy mill. Some of the present equipment of the Brunswick plant, which is nearby, will be used in the Idaho-Maryland plant. Errol MacBoyle, Grass Valley, California, is vice-president and general manager. Harold Lynn is superintendent.

The new cyanide plant of the **Mountain Mines Syndicate**, Randsburg, California, has just been completed and has started working the tailings of the old Kelly mine. This plant has a 200-ton capacity and was built by Harley A. Still, 1011 S. Figueroa Street, Los Angeles. Still has estimated that there are 350,000 tons available for treatment.

According to a recent report, the **TWA mine** in the Ophir district near Auburn, California, is now working two shifts in the mine and two in the mill. There are 28 men employed at this mine and the mill is running at its 65-ton capacity. Charles Hopper Brown of Auburn is superintendent and one of the owners of the property.

The **Golden Triangle Mining Company** has resumed the operation of its property near Graniteville, California. Some additions are being made to the camp, and in the mine work will include the straightening of the Schepp shaft and tunnel repair in some of the other properties. A new crosscut tunnel, estimated to require 500 feet of work, will be driven. Charles Mason, and W. W. Esterly of Grass Valley are president and secretary-treasurer.

**AVERAGE PRICES OF METALS**  
(Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.844	66.781
1925	14.042	9.020	7.622	69.066
1926	13.795	8.417	7.337	62.107
1927	12.920	6.756	6.242	56.370
1928	14.570	6.805	6.027	58.176
1929	18.107	8.838	6.512	52.993
1930	12.982	5.517	4.556	88.154
1931	8.569	4.244	3.638	28.701
1932	5.726	3.181	2.881	27.892
1933	7.276	3.870	4.081	34.728
1934	8.668	3.8595	4.162	47.978
1933				
Jan.	5.000	3.000	3.015	25.400
Feb.	5.000	3.000	2.671	26.085
Mar.	5.256	3.148	2.997	27.928
Apr.	5.684	3.260	3.361	30.730
May	6.932	3.654	3.805	34.072
June	8.000	4.173	4.347	35.663
July	8.909	4.452	4.888	37.630
Aug.	9.000	4.500	4.909	36.074
Sept.	9.000	4.500	4.702	38.440
Oct.	8.250	4.318	4.744	38.190
Nov.	8.166	4.294	4.521	42.974
Dec.	8.125	4.142	4.470	43.550
Ave. 1933	7.276	3.870	4.081	34.728
1934				
Jan.	8.185	4.000	4.275	44.187
Feb.	8.000	4.000	4.452	45.233
Mar.	8.000	4.000	4.870	45.875
Apr.	8.393	4.184	4.371	45.180
May	8.500	4.1404	4.856	44.226
June	8.849	3.975	4.228	45.178
July	9.000	3.770	4.318	46.310
Aug.	9.000	3.7468	4.280	48.986
Sept.	9.000	3.679	4.057	49.484
Oct.	9.000	3.648	3.841	52.375
Nov.	9.000	3.567	3.732	54.255
Dec.	8.604	3.804	3.714	54.890
Ave. 1934	8.568	3.8595	4.162	47.978
1935				
Jan.	9.000	3.6923	3.728	54.418
Feb.	9.000	3.5295	3.719	54.602
Mar.	9.000	3.5788	3.898	59.048
Apr.	9.000	3.6923	4.029	57.788
May	9.000	3.962	4.225	74.356
June	8.880	4.022	4.30	71.940

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respectively. Esterly and L. E. Freeman, also of Grass Valley, are at the mines. The company's property embraces the individual claims known as the Schepp, Lucky Strike, Stonewall Jackson, Contact Vein and Contact Vein Extension.

R. T. French is making arrangements for the installation of a dry-land dredge at the Boulder Placers on Pilot Hill, El-dorado county, California. French is of Glendale, California, address 1638 Santa Barbara Avenue. He began work on Pilot Hill last year but for lack of proper equipment and finances was forced to close down early this year. On 350 cubic yards of material tested, 53 cents a yard was recovered and 20 cents a yard was shown in the tailings. Three old reservoirs have been repaired and are kept filled with water by a gravity flow through 3,200 feet of pipe.

T. W. Carpenter of Auburn, California, owner of the Amazon mine, which is being operated by Mine Properties Corporation, is installing a 300-ton cyanide plant at Greenwood. Four of the tanks were in place when the report was made and the plant is expected to be ready to receive ore by the middle of July. Thousands of tons of low-grade ore are available for treatment. The ore will be crushed in a ball mill and conveyed to the recovery equipment.

The Carlyle Mining Company, working in the vicinity of Twentynine Palms, California, plans the installation of a cyanide plant and other equipment. Gold and silver ore are being blocked out in the tunnel workings. W. A. Dorman, 324 Roosevelt Building, Los Angeles, is general manager, and R. M. Gammell of Twentynine Palms is superintendent of field operations.

The Gold Crown Mining Company, Ltd., has purchased the Luhrman mine, a mile south of the Supply mine and east of Twentynine Palms, California. The 100-foot shaft has been widened and is being sunk deeper. According to George A. Novell, president, some high-grade ore is being opened while carrying on the shaft work. Headquarters are in the Petroleum Securities Building, Los Angeles.

The Empire-Star Mines Company, Ltd., is sinking the main 1,600-foot shaft in the Murchie mine at Nevada City, California, to 2,000 feet. According to George A. Kervin, manager of that property, the shaft work will be followed by opening new levels and the development of a large acreage believed to contain continuations of the vein system. Three hundred men have been employed at this mine for many months.

Exploration and development of the Meek's Flat mining claims in the Dale district, 25 miles east of Twentynine Palms, California, is reported showing up nicely. The bottom of a 20-foot shaft, sunk on a one-foot vein that assayed a little over 2 ounces gold, is reported to show 18 inches that assay \$500 and over. Jack Meek, the operator, is planning the construction of camp buildings and the installation of a plant of mining machinery to include compressor and hoist.

Announcement is made by W. B. Perry, owner, that 10 stamps are being installed at the Swiss mine at Greenville, California, and that production will be under way during the month of July. Fifteen men are employed and plans call for the employment of two shifts. Eight feet of ore, that averages \$8 a ton, has been opened. Lawrence Zonker and Herbert Woodward are superintendent and foreman, respectively.

The Scott Bar Townsite mine, which is one of the most spectacular placer mines in Siskiyou county, California, and one which has been drawing wide attention because of the methods employed, is making satisfactory progress and will be in operation by October 15, according to John Williams, superintendent for the Scott Bar Mining Company. Original plans to have the mine in operation by July 15 have been abandoned because the California laws prohibit placer operations between July 15 and October 15. Finishing touches are being made on the 3,500-foot flume. It begins near the sluice boxes of the Quartz Hill mine and extends about a mile down the stream to the power plant being built at that point. A drop of 30 feet

will generate sufficient power to operate two pumps, which supply the water under pressure to hydraulic nozzles. Property in the town of Scott Bar has been purchased and soon many of the old landmarks will be razed.

C. J. Petger, mining engineer of New York, is reported to have acquired the Sunnyside mine in Plumas county, California. Petger is at Johnsville, California, and expects to begin work on the Sunnyside shortly before the middle of July. The mine is a part of the property of the Plumas Gold Mining Company, and was last operated under the management of Victor S. Barber of Oakland and Charles S. Roe.

## SAVES GOLD OTHERWISE LOST

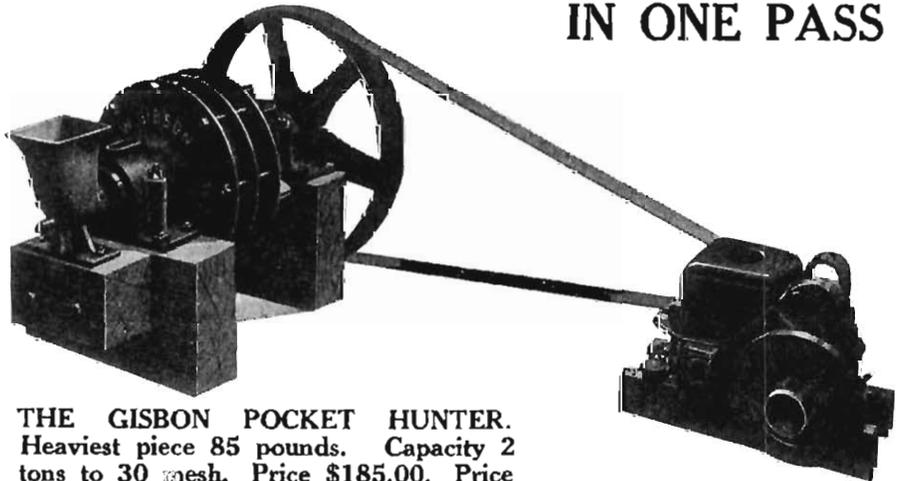


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San Francisco, California

The directors of the **Newmont Mining Corporation** have declared a dividend of 50 cents a share, payable August 15 to stock of record August 2, 1935. This is the same rate as was paid April 30 of this year.

Dr. Joseph Monteleone, 714 West Tenth Street, Los Angeles, is reported to have taken a lease and bond on the **Arctic** group of mining claims east of Trona, California, and to have put a few men to work. The property is owned by Charles E. Bagwell of Lone Pine. It is a gold proposition.

Construction of a 35-ton flotation plant for the **Desert Gold Mining Company** at Mojave, California, is under consideration, according to J. K. McGraw, sales manager for the Oil-Mining Equipment Company, Los Angeles. This property is stated to be within a few hundred yards of the famous Silver Queen discovery which has been making mining history. McGraw recently made an installation of a 35-ton plant for **Duleeke, Inc.**, at Chinese Camp, California, and of a 50-ton mill on the H. McCombs property at Mogollon, New Mexico.

The **Dutch-App** group of mines at Jamestown, California, once among the most noted producers in that section of the Mother Lode, has been taken under a long-term lease and option by M. Van Wyck of Palo Alto. The complete rehabilitation of the property through the Dutch shaft, 2,350 feet deep, is planned. The several claims now included in the group have an estimated production of about \$12,000,000.

J. E. King of Sonora, California, and associates, have three shifts driving the 750-foot tunnel in the **Quail** property, 11 miles from Coulterville. At an ultimate length of 1,350 feet the tunnel will give backs up to 1,200 feet on the vein. A boarding house, bunkhouse, change house and blacksmith shop have been built and a compressor will be installed.

The **Buckeye** gravel mine, consisting of 147 acres and embracing a stretch of the ancient river channels under Table Mountain, two miles southwest of Columbia, California, has been leased and optioned to L. E. Whitney, 1562 Russ Building, San Francisco. It is reported that a 1,950-foot tunnel through which one of the channels was worked years ago will be reopened and driven to another channel some distance ahead.

S. Bernard Lehigh, from Los Angeles, is reopening and retimbering the collar of the 530-foot shaft in the **Dreisam** property at Tuolumne, California, which he leased a few weeks ago. The shaft is to

be dewatered and examined with a view to restoring it to production. The **Dreisam** ground was last worked about 20 years ago, employing from 20 to 30 men, and is credited with having produced more than half a million dollars.

George D. Connally of Tuolumne, California, and associates are sacking ore for a trial shipment to Selby from a six to 10-inch vein in the **Lonesome Pine** mine. Two other veins are available for development. A compressor and 12-horsepower gasoline engine have been installed, and a small mill is to be built before long.

It is reported that the **Cherokee Drift Gold Mining Company** will increase its crew at the Cherokee mine at Oroville, California, to probably 50 men. The company is headed by Alexander Logie, 230 California Street, San Francisco, and has been working 15 men. This ore-bearing channel has been reached and is being worked. The directors elected to serve for the coming year are W. W. Williams and H. J. Guicksburg, both of San Francisco; George F. Jones and Dr. C. B. Griggs, both of Oroville; and Dr. Logie. A. B. Toller is mine superintendent.

Since June 1 the **Golden Plume Mining Company** has been driving a 250-foot tunnel to tap the main ancient channel of the Gibsonville-LaPorte channel system. The company owns 2,080 acres of this channel, which produced such mines as the Oakland placer and the Richmond Hill. Recently six nuggets were removed from a test pit only four feet deep and are reported to average \$7 each. E. O. Fitzpatrick, 3821 Cascadia Street, Seattle is interested in this company, and states that recent reports show the surface gravel of the channel crossing Golden Plume mines to carry \$2.40 per yard in gold.

It is reported that the **Seneca Plumas Gold Mining Company** is preparing for large-scale operations, to employ probably 50 men by fall. The company controls four properties at Seneca, Plumas county, California, that have been owned by the McMillan family for years. Financing is said to have been arranged to the extent of \$200,000. W. J. McMillan is president of the company. Charles S. Haley, 318 Crocker Building, San Francisco, is consulting engineer.

Control of the **Droege, New York** and **Arcade** mines at Greenville, Plumas county, California, is reported to have been acquired by J. W. Prentiss of New York City and associates, owners of the Indian Valley mine. Both the New York and the Arcade have been reopened and are being sampled. Plans include the retimbering of

the lower tunnel in the **Droege** and extending the bore about 600 feet to tap the ledge under the old workings. The work is being done by the **Hammon Engineering Company**, with headquarters at 351 California Street, San Francisco, and who have been working the Indian Valley mine for the Prentiss group.

It is reported that the **Sierra Consolidated Mines, Inc.**, D. C. McKay, 419 Railroad Street, Reno, Nevada, will soon resume production at the Silverado and Kentuck mines at Sweetwater, Mono county, California. Three all-steel buildings providing accommodations for 56 men have been constructed, to replace those that burned several months ago. Showers and all modern conveniences have been included, and enlargements can be made as required.

Considerable interest is being displayed in a new type mill being installed at the **Carpender** gravel property at Smith Flat, Eldorado county, California. A 50-foot revolving steel cylinder is being installed through which the gold-bearing gravel will be washed. Work is being conducted under the direction of U. A. McGinley of Los Angeles. Francis H. Clark is superintendent. Bert Carpender, Sr., is owner of the property.

The **Yellow Jacket Consolidated Gold Mining Company, Ltd.**, at Alleghany, California, is raising from the main drift to the surface of the **Yellow Jacket** claims in order to provide the necessary second opening before sinking. According to Charles Trezona, president and general manager, who has lately visited the property, a new plant of mining machinery has been installed at the Osceola mine and the main tunnel has been driven to a length of 1,600 feet on the vein. No sinking or other development work will be done on the Osceola for some time, because all effort will be directed to the **Yellow Jacket** section of the property. Headquarters are 525 Security Building, Los Angeles.

Paul Thomas, Steve Rider and Charles Kakac, all from Los Angeles, are reopening the **Morning Star** mine, north of Nevada City, California. The 50-foot shaft has been cleaned out and retimbered and will be sunk to 100 feet. Assays taken as the work progresses indicate that they will have a substantial tonnage of milling ore. The **Morning Star** includes 45 acres and is located near the Salmon mine.

The **California Sierra Gold Mines, Inc.**, is unwatering its **Ragon** property near Nevada City, California. The work will require about two weeks. According to



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Orlando McCraney, president and general manager, a sump will be sunk below the 225-foot shaft, the drifts cleaned out and drifting to the north resumed. The Ragon ground covers 150 acres, on the Merrifield vein, which is being worked profitably in the Champion mine.

James Allen is reopening the Foss gravel mine at Lowell Hill, out from Nevada City, California. Machinery, including a compressor and drills, is being provided. Considerable development was done last year and results reported as satisfactory, but the wet winter put a stop to the work. J. P. Muscardini, also of Nevada, is associated with Allen.

Early resumption of mining operations is seen for the Big Blue mine of the Bullion Gold and Silver Mining Company at Kernville, California. An enforced shut-down was caused last April when the creditors attached the gold and silver concentrates. The case is in the U. S. District Court in San Francisco and it is believed will be settled soon. According to the agreement worked out, the creditors will accept installment payments over a period of 10 months. Just before the shut down a three-compartment incline shaft was sunk 100 feet below the 260 level and preparations were being made for stoping ore. Three new and distinct veins were opened during shaft sinking, and with the reopening of the mine four faces will be available for drifting at the new low point. While sinking was going on a raise was made from the 260 level to the surface through which ore from both above and below the 260-foot level will be drawn to the surface for the mill. The mine is equipped to handle 100 to 130 tons of ore a day.

Work is being pushed at the Little Otter mines, east of Georgetown, California. A 25-ton Tetrault rotary mill is being installed on the Little Otter No. 2, and will be operated from a Pelton wheel. In the mine the drift is following a seven-foot vein and assays are reported as satisfactory. Charles Dorman is in charge of operations.

It is reported that the Cardinal Gold Mining Company will replace the gyratory crusher at the old Gaylord Wilshire mine at Bishop, California, with a cone crusher. The mill is working at the rate of 140 tons a day, and production for April was the highest of any month since the New York men, headed by Benard E. Smith, 52 Wall Street, took charge. The figure was \$16,855 net earnings and, according to W. Val DeCamp, general manager, was due in part to a new power contract secured. Close to a hundred men are employed. The 300-foot shaft is being sunk to the 400 and then to the 500-foot levels. Skips and a double-drum hoist will be installed. By fall they expect to be carrying on development work on the three low levels and in a tunnel to the east and 400 feet above the collar of the shaft. Recent diamond drilling is said to have revealed ounce gold ore in the eastern section.

The office, a 20x20-foot structure, at the Delhi mine at North Bloomfield, California, burned to the ground. Ten acres were covered before the blaze could be extinguished. The mine is idle at the present time. It is owned principally by Louis Nonnenmann, 575 Dewey Street, San Francisco. A caretaker is on the ground.

The California Comstock Gold Mines, Ltd., began the extraction of ore from the old Louisiana California mine, near Fenner, California, on June 17, and will soon

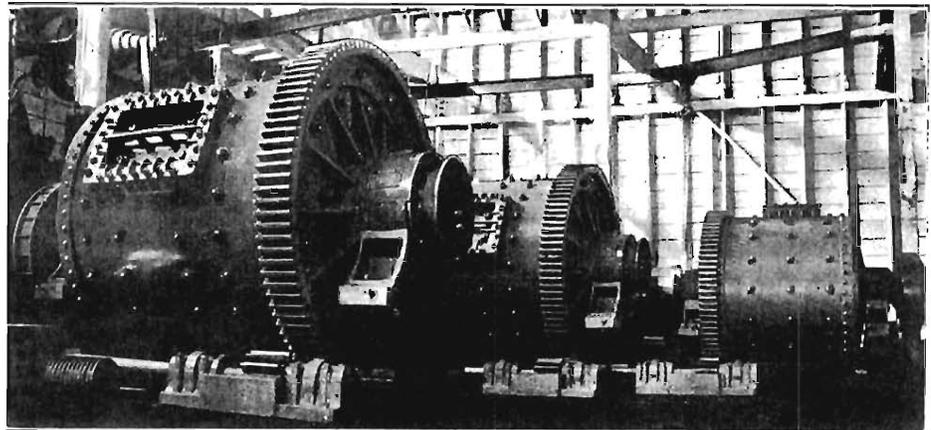
be shipping to the United States smelter at Midvale. The 900-foot shaft has been timbered and new equipment has been installed for mining, together with complete new buildings. J. H. Doran, secretary, is also in charge of mining and has a crew of 10 men, which number will be increased shortly. The management reports that over 16,000 tons of \$18 ore is blocked out. Headquarters are Suite 5, Fox Theatre Building, San Bernardino.

The ore from the Mary Len mine at Penryn, California, that was run through the Auburn-Chicago mill returned an average of \$50 a ton, according to Kenneth Wilson, chief engineer for the Auburn-Chicago Company and one of the operators of the Mary Len. One shift of only two men is working, and they expect to mine 25 tons of ore a month. The shaft has

been sunk 55 feet and is well equipped with hoist, compressor, ore bins, etc., but no mill. Excepting the original investment, the mine has paid its development all the way.

**COLORADO**

Equipment from the El Oro mill near Hillboro, New Mexico, has been purchased by the Cripple Creek Milling Company and will be reassembled, with additional new machinery, on the Stratton Estate, Cripple Creek, Colorado. Edward L. Sweeney, U. S. National Bank Building, Denver, who holds the contract for the mill, was the constructor for the El Oro mill, which was sold to present owners by the Railway & Mining Supply Company dealing in cooperation with the Denver Metal & Machinery Company. James

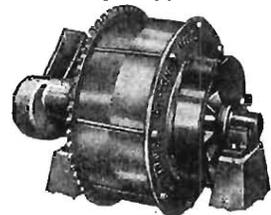


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ROBERT C. ALLEN\* relates a few highlights from

## Hydraulicking In California In Early Days

Avalanche gold! Truly a fitting designation for that most spectacular of mining methods—hydraulicking. By that means millions of cubic yards of rock, dirt, gravel, were literally torn from their deposits, leaving to this day leering gashes, barren wastes, and high-rimmed pits.

Perhaps never again will the earth's face be gouged and mutilated to the extent achieved during the period from 1862 to 1893. The passage by Congress in March 1893 of an act entitled: "An act to create the California Debris Commission and regulate hydraulic mining in the State of California," sounded the death knell for the huge mining operations which had changed the topography and blanketed many square miles of arable lands in the San Joaquin and Sacramento valleys with gravel tailings.

The term hydraulic mining applies to alluvial mining operations where water under pressure is used for excavation, transportation, washing and disposal of tailings. Primarily, the gravel is struck with sufficient force to be disintegrated and broken up so that it can be carried by the current into the sluice, if the bed rock has sufficient grade.

The inception of this methods of mining is generally accredited to Edward Mattison of Connecticut. However, recent facts uncovered nominate one John Icard for a share in the esteem held by Mattison. A Texas ranger, Indian fighter and sailor, Icard drew on his store of practical knowledge to force the gold from its fortress by this means. While he may have been preceded by Mattison in another section, his method was original with him and first used at Rough and Ready.

He conceived the idea of directing a stream of water, under pressure, against the gravel bank from a nozzle and by so doing eliminated the pick and bar necessary in ground sluicing and flume waterfall work. The water was conveyed through a hose of stitched cow hides, with a cow horn for the nozzle. While the method was certainly not an engineering feat and may seem a trifle ludicrous, it carries the distinction of having been the first attempt.

Others soon took up the system and the size of the nozzles rapidly increased. But difficulties here arose. Cow hide and canvas pipes had been all right for a starter, because of the small scale of operations. The demand for greater force soon showed the weaknesses in the equipment, for an excess water volume burst the pipes, caused them to buck, resulting in injury to men and in general disorder.

Stovepipes next replaced rawhide. These were followed by barrel staves and finally the more modern piping arrangements, plus the perfection of the nozzle, were accomplished.

Mining camps which had been made up chiefly of small panning and Long Tom operations were transformed into large communities—working entire banks, digging miles of ditches to carry the water, and developing improved sluices and means of recovery. Such towns as Rough and Ready, Timbuctoo, Sucker Flat,

*The recent approval by the Army Board of Engineers of the proposed construction of debris storage dams for use in hydraulic mining has awakened interest in that method of mining in California. Over fifty years ago the western slopes of the Sierra Nevadas witnessed the outstanding attempt at wholesale gold recovery.*

Smartsville, You Bet, Red Dog and others, teemed with activity. Outlawry held its sway much of the time for, after all, actual civilization was far away and temptation strong.

A brief resume of hydraulic methods in their transitional period proves instructive.

Cow horns and wooden nozzles being found impractical for any considerable volume of water, the next step was a goose-neck arrangement of two elbows turned in opposite directions. To the end was affixed the nozzle. High pressure again caused leakage, and after many serious accidents, coupled with losses of life, newer smoothly working affairs were developed. They were called in the order of their advancement: Globe monitor, hydraulic chief, dictator, little giant, and the hydraulic giant. Each carried additional power and safety devices.

Early in the game an apparatus known as a distributor came into usage. It consisted of a large metal case with one inlet from the supply pipe and numerous out-

lets to which the monitors could be connected, thus washing in three or four different positions from the one source. Its draw back was that it could never be used on a large water head.

Banks ordinarily were caved by turning two or more streams against a point in such a manner as to undermine them. When the water was delivered with a force from 150 to 200 pounds pressure to the square inch it rapidly undermined the mass, washed away the material and carried the debris into the sluice. If the wall was fairly soft and caved readily one pipe could be used for cutting while the stream from the other washed the gravel through cuts in the bed rock to the sluice. When the men at the pipes saw that the bank was about to cave the water was immediately diverted, for if the cave should fall on water a rush of debris was almost certain to follow, burying the pipes and forcing the men to run for their lives. Woe be to the luckless unfortunate who stumbled!

Usually washing was continuous, 24 hours running, in order that no water was wasted. It was desirable to have several working faces or openings so that the streams might be diverted from one to another.

It was a thrilling sight to view the streams of water, carrying heads of two, three and four hundred feet, tearing into colossal banks with an impact sufficient to throw huge boulders as easily as a garden hose tosses pebbles. Following the undermining, came the "cave," as this mass trembled and fell in slithering avalanche!

Considerable trust was placed in the man at the controls of the "giant," as he must at all time keep the situation in hand. A false move and the huge stream might sweep the pit clear of workmen and equipment. If the bank contained a stratum of clay, together with a considerable



A photograph, reproduced from an old print, of one of the earliest hydraulic operations. The hose in use is of stitched canvas. Also, note the tripod arrangement employed.

\*Smartsville, California.

quantity of large boulders, it was possible to cut the clay in such a manner that it would lubricate the way for the boulders and they would slide over the bed rock and into the sluices as though the way had been greased. So an experienced and heady pipe man was invaluable as he took advantage of the different classes of material in such a manner as to get the most work out of the water.

Now and then a pipe blew up. Usually anyone within a close radius was instantly obliterated and a story is told of an entire crew being annihilated at a gravel bank in the La Porte district, Plumas county, when a monitor broke loose.

Some miles to the southeast of the Grass Valley sector, most consistent of all California gold mining districts, is situated the town of Smartsville. Here many of the original steps in hydraulicking were developed. This district, combined with the adjoining sites of Sucker Flat and Timbuctoo, accounted for a known production record exceeding 15 million dollars, in a comparatively short period.

Hand driven tunnels, in which procedure one man held a steel and turned it while another smote it with a sledge, were pushed through solid bed rock and mountain for a distance of 2,200 feet, attesting to the courage and ingenuity of these old timers—most famous of whom was Paddy Campbell.

The latter gentleman was a great transgressor of the law and usually kept one jump ahead of the sheriff. His acute trickery and adeptness gained him several million dollars, all of which was squandered characteristically.

Paddy Campbell's methods of mining were often unique. Upon the passage of the anti-debris act, prohibiting hydraulic mining because of its damage to the lower country and cluttering of the streams, the old gentleman did considerable "moonshining," which is to say he piped behind the back of the law, stole water at night from the ditches, etc. Official permits were occasionally issued to move a certain amount of dirt under extenuating circumstances. Therefore, Campbell would innocently involve himself in huge debts with various concerns and then inform them he had no more money, and that they would have to secure for him a permit to pipe a certain number of yards so he could run enough dirt to pay. The merchants would then resort to politics, securing the necessary permission. Surveyors set stakes on the banks marking the point to which he might wash, while he sallied forth in the darkness to move the stakes a little farther back. Often the Marysville sheriff attempted to catch him on some charge and many a time one friend engaged the sheriff in conversation, or in some manner delayed his progress, while another took a short cut to Campbell's dwelling to warn him, on which occasion he promptly repaired to the hills until official wrath quieted down.

As the 300-foot banks at the Smartsville Pit were of a cemented gravel formation and of undue hardness, it was necessary to shoot and blast them down. Usually a drift-tunnel was driven in for a distance equivalent to about two-thirds the height of the bank. Crosscuts projected from this—the whole forming a Block T. Giant blasting powder had not as yet been developed so the crosscuts were loaded with kegs of black powder, these extending partly down the drift as well. Upon withdrawing, several strong bulkheads were thrown across the drift and

fuses carried out. The fuses were lit and the resulting explosion disintegrated the bank, broken gravel being piped.

It was here and in this fashion that operators set off the mightiest charge of explosives in the history of hydraulicking. Seven thousand kegs of black powder and pure nitro-glycerine were packed into the drifts and exploded, bringing down thousands of cubic yards of gravel.

Along with methods previously mentioned there were many details which went into the program of working the gravel. Bull-dozing was a common procedure and was effective in breaking up boulders too large to wash into the sluice or dispose of by stacking. A quantity of powder was plastered to the rock and fused. This might be done to as many as a score of boulders. The fuses were then lit in succession, the men withdrawing until the fireworks subsided. In this practice it was necessary to keep ones head clear of flying projectiles.

But the drama and developments were not alone confined to the hydraulic pits, themselves. Many times in order to furnish the required capacity of water for carrying on workings, long ditches and flumes had to be constructed a distance of many miles. The water from the melting snows of the high Sierras must be caught as an almost unlimited supply and volume was necessary.

Visualize the construction of these ditches and flumes, 20, 30, sometimes even 40 miles long. Around precipitous angles and turns, across high, rocky gorges—danger and unending hardships. Picture the driving, beating, and cursing of the labor bosses; the clear, cool camps at night—early California!

Probably the longest ditch on record, a portion of which is known as the China ditch, winds more than 50 miles from the high peaks, finally emptying into the Smartsville workings. It was built in sections and drawn upon all along its course.

Construction of the last 15 miles brings to light another old character of the district who rivalled Paddy Campbell for ingenuity. A typical, hard-hitting Irishman of the old school, James O'Brien, chipped, blasted and earthed the final portion of the China ditch. He was what might be termed a practical engineer, being unable to read or write. He maintained, however, a confidence in his ability which time and again gave him contracts over his more technical opponents. Underbidding all comers on the section of ditch mentioned, O'Brien employed Chinese labor and Irish shift bosses, completing the work in good time at an extremely low figure.

A remarkable degree of respect must be maintained for these old builders as most of the ditches are in use to this day and water from the snows is impounded in reservoirs for irrigation purposes.

Synonymous with the history of hydraulic mining, the name Malekoff stands forth as the greatest of all operations. Located in the North Bloomfield district, out of Nevada City, are the remains which are today magnificent testimony to the mining that was. Banks of 600 feet were worked in three benches with perhaps the most systematic and well-organized operating arrangement carried out by any of the numerous pits.

Giant monitors ejected streams of water carrying 500-foot heads into the cliffs, eating them away with calculated efficiency. The plan, of course, was to move

as much dirt and yardage as possible with a minimum of working effort.

Another noteworthy enterprise with the La Grange operations is Siskiyew county. Controlled by a French concern this was an extremely low-grade proposition averaging not much over 5 cents per ton and its success was due to excellent grading and the free running gravel type of that section. An average of nearly 1,000 yards a day was run, the huge quantity overbalancing the deficiency of water. This operation ran for some time, no interference being encountered as water went down the Trinity river to the ocean.

It must be understood, however, the methods used in the La Grange and North Bloomfield districts, where unlimited yardage was run, were in direct contrast to operations employed in the Smartsville where the hard, cemented gravel with capping of lava and heavy overburden necessitated more costly procedures. As it may be pointed out that values in the harder gravel ran higher, compensating a measure for the difficulties encountered.

Today, with the present price of gold, attention is again being directed toward the feasibility of resuming work on some of the old hydraulic properties. While tall dams running into high figures must be stalled to impound waste, a number of enterprising concerns are attacking the gravel with much of the old-time fervor.

Outstanding among these operators is the You Bet Mining Company, near Grass Valley, whose courageous efforts to overcome existing disadvantages marks them as pioneers in modern hydraulic rehabilitation. During the past two years hard-rock tunnels for elimination purposes have been driven, sluices installed, latest type monitors purchased and a good deal of yardage moved. Powerful arc lights facilitate 24-hour piping operations. A saw mill was erected and the heavy timber of the surrounding forests utilized in the construction of an up-to-date, comfortable camp. Through all the driving personality of Ogden C. Chase has pervaded and ultimate success should be assured.

The ancient Smartsville sector has been neglected and while no site is available for erection of a tailings dam, the eliminating present hydraulicking attempts and other and interesting methods are being employed by the Gold Exploration Mining Company, subsidiary of Tintic Standard Drifting in under the banks, worth while values have been encountered and a development program is in process which includes mill construction and complete surface plant. M. D. Paine, superintendent, spent his early youth in the North Bloomfield district. His varied mining experience and ability to cope with unusual conditions make him adapted for this departure from drift mining.

So it is once again we find history repeating itself and as the stimulus of present activity revives interest in those early day methods we must view with feeling the great gashes of the hydraulic mines, and long dead echoes of the past seem momentarily awakened.

#### HOMESTAKE MINING COMPANY PAYS BONUS TO ALL WORKERS

On July 2 each employe of the Homestake Mining Company at Lead, South Dakota, received a bonus of \$50, according to an announcement made by B. Yates, general manager.

As the company has approximately 2,200 employes, the funds thus distributed amounted to \$110,000. Since the increase in gold prices, Homestake has added more than 500 men to its payroll.

**RFC MINE LOAN POLICIES**  
(Continued from Page 27)

ect, NW, Washington, D.C. Circulars are obtainable giving "Information Regarding Mining Loans." They are known as Circular Number 14. Any of these offices are also willing to answer questions and give advice as to the preparation of applications but, at this stage, the supervising engineers do not fill out applications nor do they make examinations.

The applications must be then sent to Washington to the above address (not to the district office) where they are checked by the engineering staff and a report made on them to the RFC board. The engineering staff has no power of approval or rejection, they do nothing but make a report and analysis and the power to act lies exclusively with the RFC Board who may approve or reject or refer back for more information.

If approved, the applicant is so notified and it is then that the district supervising engineers first come into the picture. Only those which have received approval of the RFC Board based upon the evidence presented by the applicant come to the supervising engineers and it is their duty to make their own examination of the properties to check the statements made upon the original application, to verify ownership and location, to check ore estimates and to make their report.

The cost of the examination and checking by the government engineer is paid by the applicant but is done by deducting a reasonable amount from the loan to cover the cost of any field work which may be necessary in connection with the examination of the property of the applicant."

**Again To Washington**

This report is made directly to Washington and a favorable report of the supervising engineers does not necessarily mean that the loan will be made by the RFC Board when the question again comes before them. The local engineers have no power of approval or disapproval, their function being solely to have a government engineer report and check upon statements and reports submitted by the applicant.

This again goes to the engineering staff who analyze and report, and it is then submitted to the legal staff who work it out from a legal viewpoint, gather the required legal information, make out the necessary papers and return the reports and files of both the engineering and legal departments to the RFC Board who may or may not make the loan. Their judgment is final, there is no appeal from it and they may or may not form their conclusions in accordance with the recommendations in the reports submitted. That they have the power to reject at this time even though all reports have been favorable.

When a loan is granted and the money made available, the supervising engineer again enters the picture because he has to approve and supervise all work done at the properties on which government money is being spent. All bills have to be approved by him, even payrolls, and no expenditures can be made without his O.K. The policy, however, is not to be restrictive upon the property owner or borrower but will give him as much leeway as is possible consistent with good mining practice.

That supervising engineers are going to have much to do and there is no intention

in the plan, that these engineers will make examinations other than at the time when they come into the picture in routine procedure, i.e., after applications have received approval by the RFC Board at Washington, this approval being based upon evidence submitted only by the applicant. An approval is not a grant.

**Board Has Sole Power**

While offices and supervising engineers have been appointed to handle Class B loans in the western states, they have nothing whatsoever to do with the approval of the loans. Neither have members of Congress, and influence brought upon either members of Congress or RFC supervising engineers is a useless procedure, for the sole power to grant loans lies with the RFC board in Washington who personally act upon each application.

Members of Congress have been flooded with letters from their constituents asking assistance in getting mine loans and there is little they can do about it except to be sympathetic regarding delays. They cannot actually help to get them for there is a defined route and a certain procedure to be followed and "red tape" to be unwound before any loan is granted.

The applicant can help himself the most by being sure that he knows what is necessary, knowing that his property is within the rules for which loans are granted and supplying the information that must be given before any loan is granted. Failure to supply the necessary data is responsible for most of the delays and the fault can generally be traced back to the applicant himself.

The supervising engineers have nothing whatsoever to do with Class A loans. Their work is to be entirely confined to Class B loans made on properties "when there is sufficient reason to believe that there will be developed a lode, ledge, or vein, or mineral deposit, or gravel deposit containing a quantity of ore or placer deposits of sufficient value to pay a profit if mined."

**NEW CALIFORNIA LAWS MAKE RADICAL CHANGE IN RIGHTS**

For many years all of the western mining states except California and Utah have required certain "location" or "discovery" work when taking up a claim. This requirement greatly curtails the indiscriminate location and holding of numerous claims for speculative purposes and tends to prevent jumping of claims due to lack of proper monumenting. Walter W. Bradley, state mineralogist, announces that a new California statute, patterned after those of Nevada and Arizona, has just been signed by Governor Frank F. Merriam and will become effective on September 14, 1935.

This act, introduced in the legislature by Senator Andrew Pierovich of Amador county, and known as S. B. 529, provides that within 60 days after location each corner and the center of each end line shall be marked by a post not less than four inches in diameter or a stone monument not less than 18 inches high. Within 90 days a shaft 10 feet deep must be sunk or an adit or open cut made exposing the deposit 10 feet below the surface.

On placer locations of more than 20 acres the locator within 90 days must perform \$1 worth of development work for each acre in the claim. The "location work" must be done on relocations of old claims by doing new work or deepening the workings.

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### EQUIPMENT TO BE INSTALLED BY KAPPEL MINING COMPANY

The Kappel Mining Company, which greatly increased its holdings recently through the purchase of the Contention mine and adjacent properties at Sonora, California, is planning extensive additions to its plant and equipment in the near future. The company has already constructed a saw mill, a 52x36 boarding house and has cleared the ground for other buildings. Buildings in the course of construction are a compressor house and a blacksmith shop, and plans call for the erection of a building to house an assay office, mine office and mill office. In addition, it has been stated that the company will erect a warehouse, a carpenter shop, a change house and a bunk house.

The details of a mill of at least 200 tons daily capacity are being worked out. The type of grinding unit to be used has not yet been determined, but Superintendent Edward L. Morgan has stated that both flotation and cyanidation equipment will be included. Four compressors are to be installed in the compressor building as soon as it is completed and another is to be placed at the entrance of the east tunnel. At present, a Laidlaw compressor of 510 cubic feet capacity is operating the machine drills and the shoveling machine. The company also intends to add either a Diesel or an electric locomotive to the equipment soon.

Electric power has been made available, and water for mine purposes is pumped from a 10,000-gallon tank. The company intends to construct a reservoir to add to this water supply by constructing a 35-foot dam across Knights creek.

A third shift has been added to the mine force, bringing the total number of employes to nearly 40 and work is progressing in the tunnel at the rate of about 15 feet per day. A second tunnel is being driven from the opposite side of the mountain, 1,500 feet away, and will eventually be connected to this one by a 150-foot raise. Headquarters for the company are located at 208 Financial Center Building, Oakland, California. Rudolph N. Kappel, president, resides at 1623 Walnut Street, Berkeley. Edward L. Morgan, 3401 Haley Avenue, Oakland, is general manager.

### IMPORTANT STRIKE REPORTED IN CEDAR MOUNTAIN DISTRICT

The Governor mine, located in the Cedar Mountain mining district, near Acton, California, has begun operating its new 40-ton ball mill. The mine is controlled by the Governor Mine Company, of which Charles H. McWilliams, 725 South Figueroa Street, Los Angeles, is president. Charles L. Hilliard and Robert J. Powell of the same address are also interested.

Francis Gage, in charge of operations at the mine, reports that a vein of white quartz assaying from \$25 to \$800 per ton has recently been discovered. This discovery has been confirmed and characterized as an important one by W. B. Tucker, district engineer for the California Mining Bureau, and by C. Colecock Jones, who has acted in an advisory capacity to the Governor Mine Company.

The mine is developed by a 310-foot tunnel, a 205-foot winze, a 140-foot drift and other workings. It is equipped with an electric hoist, a 120-horsepower Diesel engine and a blacksmith shop at the mine, and a 120-horsepower Diesel engine at the mill. Both engines are equipped with electric generators. Twenty men are employed at the property, 12 working in the mine, five in the mill, three on the surface.

### NEVADA STATE GOLD COMPANY PLANNING MINE DEVELOPMENT

By an order from the federal court at Carson City, Nevada, the plan of organization submitted by the Nevada State Gold Mines Company, operating the Seven Troughs property near Lovelock, is reported to have been approved, and the company is now awaiting the outcome of an application for appeal made by opponents, according to Stuart Williams, Lovelock, secretary-treasurer. Approval also being sought from the Federal Securities & Exchange Commission.

Under the company's plan, one share of second preferred and one-half share of common stock will be exchanged for one dollar of bond and note principal and interest outstanding. The company thereby is relieved of its outstanding indebtedness.

The common stock has been exchanged on one share of new for five of the old. On this basis 4,755,000 shares out of 23,775,000 have been exchanged. A company is reported to have been entered into the underwriting of \$400,000 worth of first preferred stock to carry out a comprehensive mine development program which has been outlined by the company's engineers, Oscar Hershey, Crocker Building, San Francisco, and R. C. Eisenhart, 1778 Tacoma Street, Berkeley, California. The mine development program as planned is estimated to cost \$300,000.

The property, which embraces 2,500 acres in the Seven Troughs district, is equipped with a 100-ton cyanide mill, a 720-horsepower Diesel electric plant, and the usual necessary shops and mine buildings. A 1,000-foot tunnel and all other underground workings are reported to be in excellent condition. J. P. Gray, Peyton Building, Spokane, Washington, is president, and J. H. Causten of Lovelock is manager.

### AMERICAN SMELTING SUBMITS FINANCIAL STATEMENTS TO SEC

Financial statements of the American Smelting and Refining Company submitted to the Securities Exchange Commission with the registration statement disclose that the gross income of his company for the year 1984 amounted to \$68,797,714, while net income derived from operations was \$18,453,769. Inventories of marketable securities at the end of 1984 constituted nearly half of the tangible assets, amounting to \$52,908,072, against which there was a reserve of \$14,069,425. Intangibles were listed at \$80,946,839 before reserves of \$32,805,008, while property, plant and equipment were valued at \$116,791,451 before reserves of \$64,704,851.

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120 feet. The development planned proposes to sink the shaft another 150 feet and develop both on the present 120 level and on the 270 level.

Diamond drilling operations will be started in the near future by the **Derrick Mining Company**, Oatman, Arizona, in order to supplement the development work which is now in progress. The purpose of the diamond drilling is to determine the slant and location of the known veins.

The final papers, giving complete control of the Bunker Hill property to the **Tombstone Development Company**, Tombstone, Arizona, were filed today. Tombstone Development took this property over from Phelps Dodge in 1933 and has been operating it since that time. The final payment was made June 1, and all arrangements have been completed giving full title to Tombstone Development, according to Ed Holderness, superintendent.

According to Pima County, Arizona, records, the equipment on the **Gunsight, Eastern, Silver Girt, and Gunsight Millsite** mining claims, located 16 miles east of Ajo, is now the property of John G. Butler, for many years watchman at the old Gunsight property. The bill of sale, filed for record July 8, was signed by Walter S. Wheeler, Detroit, Michigan. Butler's address is Ajo, Arizona.

The **Montana** mine, Ruby, Arizona, is reported to be producing at an average rate of 10,000 tons of ore per month and employing 275 men. E. D. Morton is general manager of the mine.

A depth of 130 feet has been reached with the vertical shaft which the **Back Bone Mining Company** is sinking at its claims, two and one-half miles north of Arivaca, Arizona, and a 45-foot crosscut is being driven at that level. Where cut on the 80-foot level, the vein is said to show a value of \$24 in gold, silver and lead. All work is being done by hand drilling. Seven men, working on two shifts are regularly employed. Houston L. Walsh, 122 North First Avenue, Phoenix, Arizona, is in direct charge of the work.

The **United Verde Branch, Phelps Dodge Corporation**, Jerome, Arizona, is producing at a rate of 3,800,000 pounds of copper monthly. The ore is being taken entirely from the open pit, there being no underground production. William M. Saben is manager at Jerome.

Robert Bacon and J. B. Tenney have taken a long term lease on the **Leviathan** mine in the Hualpai district near Kingman, Arizona. This property is primarily a molybdenum producer, copper also being obtained. There are 200 feet of ore exposed in the tunnels and at the present time, the mine is being unwatered preparatory to starting operations. J. B. Tenney may be reached at 1070 Mountain Avenue, Tucson, Arizona.

The **Treasure Hill** mine, Kingman, Arizona, is being reopened and the shaft has been unwatered to a point several feet below the area that is to be developed. Drifting along the vein is expected to commence shortly. A small amount of ore is being taken out, but is being held until there is sufficient to make a shipment. The lease on this property is held by Harry Drake and Arthur Hawkins who have sold one-half of their interest to Joe Baer and Cliff Canon.

It was recently learned that the **Banner** mine, located in the Papago mining district, 40 miles southwest of Tucson, is being reopened by Paul C. Fernald, Box 877, Tucson, Arizona.

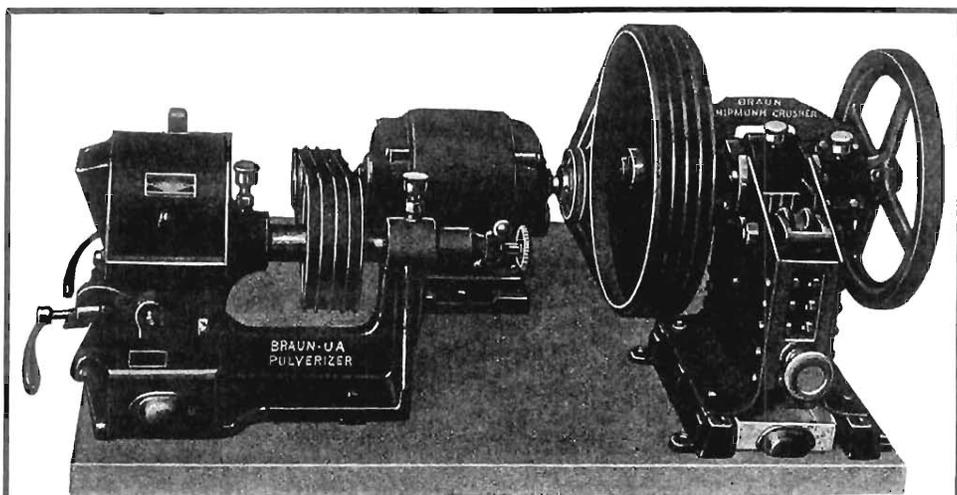
#### CALIFORNIA

The **Charles M. Fuller Company**, 5125 Santa Fe Avenue, Los Angeles, California, which was reported to have been acquiring placer claims in the Red Rock Canyon area is not operating in that district. The company has spent about \$10,000 on properties in the Atollito district.

It has been reported that the government will engage in mining near Weaverville, California, at an initial cost of \$15,000 with transients furnishing the labor. George Woods, director of federal transient camps for the Weaverville district, stated that the movement is a relief project. The mines that are expected to be operated are owned by the Humboldt Mining Company, Majestic mines, and the Buckeye Mining Company. All are placer

holdings. The main camp will be established at Buckeye, near Stewart's fork, and 250 men are expected to start working immediately building the camp. They will also build a flume and dig a ditch to carry water to the operations from Stewart's Fork. Active operations are scheduled to begin December 1, when it is planned to have water on the property.

Charles and Norman Kistle, operators of the **Green Mountain** mine, Grass Valley, California, are negotiating for a new mill. The five-stamp mill they now have is not considered to be worth reconditioning. They are said to have encountered a very high-grade vein recently at the end of their 400-foot tunnel. Mail addressed to Grass Valley will reach the Kistles.



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C. N. Schuette and Company, 533 Call Building, San Francisco, California, is reported to have acquired the mineral rights to 1322 acres on the Peter J. Curtis property at Skaggs Springs, California. This property is a quicksilver producer and plans have been announced for placing a large crew of men at the property and developing and operating it intensively. The discovery of a new mineral on this property which has been named curtisite, has been of great interest to mineralogists.

The Old Dominion mine, located eight miles west of Elsinore, in the southeast portion of Orange county, California, has been leased to a group of engineers and chemists, according to N. H. Hilton, a member of the group. The mine is a gold producer, but in addition is stated to carry good values in rare minerals and metals. According to Ralph L. Reade, mining engineer of Elsinore, and another member of the group, preliminary assays have shown excellent values. Hilton's address is R. D. 1 Box 257, Anaheim.

Preparations are being made at the Oxford mine of the Oxford Consolidated Mines Company, Downieville, California, for the installation of the first 50-ton unit of the ultimate 150-ton mill. The first unit will be a Hardinge ball type mill. Flotation, by the Sub-A process, will be used to recover the values and an unusually high percentage of recovery is expected. J. A. Pizzoati, president, and J. E. Hinkley, superintendent, Downieville, have stated that reserves of ore available total 85,000 tons, and that the average values are estimated to be high enough to warrant a safe margin of profit.

The operators of the Cherokee mine, Needles, California, are planning to install a 25-ton mill in the near future. They are reported to have encountered an eight-foot vein carrying excellent values at a depth of 80 feet in the shaft. S. A. Brown, Box 246, Needles, California, is a member of the group that is operating the mine.

W. R. Woock, manager and consulting engineer for the Forest Hill Divide Company, Forest Hill, California, has announced that a plant will be installed in the near future to work the gravel channel which was recently discovered by the use of a McCormick geophysical machine. Woock, whose address is P. O. Box 126, Auburn, California, has stated that a dam has already been built to supply water and that it will not be long before the property will be actually producing.

The Lancha Plana Gold Dredging Company, having recently worked out its property at Comanche, California, where it operated for 10 years, is testing gravel at the Lester mine and on the Frank Horton and Mrs. Julia Sohn ranches, four miles south of Lone. If sufficient values are found, a small dredge will be set up. C. G. Patmon is president and general manager of the company; H. L. McPherson is secretary.

L. H. Kryer and Company, a dredging firm formerly operating near Oroville, California, has moved to a new location in Happy Valley, south of Redding. Several hundred acres are reported to have been acquired by the company on Dry Creek, the area being dredged consisting of the Manuel Reece holdings, the Bowerman tract, and the Cassad ranch. The dredge is designed to handle 1,000 yards per shift of eight hours and the operation is planned to extend over a period of five years. Headquarters of the company are located at 639 South Spring Street, Los Angeles.

Four Star Mines, Inc., which recently leased the Calkins property located on the east side of the Desert Queen mine at Mojave, California, is now engaged in sinking a 500-foot shaft. A compressor, hoist, and Diesel power plant have been installed. Offices of the company are located in the Board of Trade building, Los Angeles.

A five and one-half mile water flume is being constructed by the Scales Placer Mining Company, Marysville, California. Water right permits have been obtained by the company from the Division of Public Works. A large crew is reported to be at work preparing for mining operations

which are not expected to begin on a large scale until next spring when water will be available. T. J. Andersen of Strawberry Valley is superintendent of the company.

W. A. Kingdon, Crescent Mills, California, has announced that he intends to develop the June Day mine at Crescent Mills. He is at present negotiating for capita necessary to the enterprise.

The Zantgraf mine, Auburn, California which was closed down in January for repairs, will be reopened soon according to W. B. Longan, P. O. Box 292, Auburn, one of the partners.

The operators of the Heslop mine on Quartz mountain, near Jamestown, California, who recently announced plans to erect a 50-ton mill, also intend to install a compressor, hoist, and other machinery, according to recent reports. The ore plant will consist of a large ore bin, jaw crusher, ball mill, classifier, and two concentrating tables and flotation cells. All machinery will be electrically driven, a transmission line of 2,000 feet having been completed. The new 100-foot shaft is said to expose a body of ore, 160 feet long with an average width of 12 feet. Roy K. Brown, San Francisco mining engineer, is in charge of operations at the mine.

The Soulsby-Belle Mining Company of Kansas City, Missouri, has launched a new 200-foot sinking program below the 319-foot level at the Soulsby-Belle mine, near Soulsbyville, California, and plans to drive two new levels. Because the sinking work is being given preference over all other activities, milling will be on a reduced scale for the time being. A new change house and a new blacksmith shop have recently been completed. Harry Bahl, president and general manager of the company, 1600 East 15th Street, Kansas City, has been at the property since the middle of July and plans to remain until the end of the summer.

The board of directors of Gold Ledge Mining Company, Ltd., has called a special meeting of the stockholders of the company on August 14 to consider a plan for reorganizing the company. The proposed plan provides for the sale of Gold Ledge Mining Company, Ltd., to Gold Ledge Mining Company, a new corporation, with an authorized capital of \$500,000 divided into 500,000 shares with a par value of \$1 each. Stockholders will receive one share of stock in the new company for each four shares they hold in the old company. Approximately 300,000 shares of stock of the new company will be issued in making the exchange. Additional shares of capital stock in the new company will be sold in order to raise funds with which to satisfy the current obligations and to carry on future operations. Company offices are located in the Russ Building, San Francisco, California.

George McAuley of Auburn, California, has announced that the Jasper-Stacy Company, 216 Pine Street, San Francisco, California, will have the dredge it is con-

AVERAGE PRICES OF METALS  
(Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.844	66.781
1925	14.042	9.020	7.622	69.056
1926	18.795	8.417	7.337	62.107
1927	12.920	6.755	6.242	56.370
1928	14.570	6.805	6.027	58.178
1929	18.107	6.893	6.512	52.993
1930	12.982	6.517	4.556	88.154
1931	8.359	4.244	6.638	28.701
1932	5.792	3.181	2.881	27.892
1933	7.276	3.870	4.031	84.728
1934	8.658	3.8595	4.162	47.973
1933				
Jan.	5.000	3.000	3.015	25.400
Feb.	5.000	3.000	2.671	26.085
Mar.	5.256	3.148	2.997	27.928
Apr.	5.884	3.260	3.381	30.730
May	6.932	3.654	3.805	34.072
June	8.000	4.178	4.347	35.663
July	8.909	4.452	4.886	37.630
Aug.	9.000	4.500	4.909	36.074
Sept.	9.000	4.500	4.702	38.440
Oct.	8.253	4.816	4.744	38.190
Nov.	8.156	4.294	4.521	42.974
Dec.	8.125	4.142	4.470	43.550
Ave. 1933	7.276	3.870	4.031	84.728
1934				
Jan.	8.185	4.000	4.275	44.187
Feb.	8.000	4.000	4.462	45.233
Mar.	8.000	4.000	4.370	45.875
Apr.	8.893	4.184	4.871	45.180
May	8.500	4.1404	4.855	44.226
June	8.849	3.975	4.238	45.173
July	9.000	3.770	4.818	46.310
Aug.	9.000	3.7463	4.280	48.986
Sept.	9.000	3.679	4.057	49.484
Oct.	9.000	3.648	3.841	52.375
Nov.	9.000	3.667	3.732	54.255
Dec.	9.000	3.804	3.714	54.890
Ave. 1934	8.658	3.8595	4.162	47.973
1935				
Jan.	9.000	3.6923	3.728	54.418
Feb.	9.000	3.5295	3.719	54.602
Mar.	9.000	3.6788	3.896	59.048
Apr.	9.000	3.6923	4.029	67.788
May	9.000	3.962	4.225	74.355
June	8.880	4.022	4.30	71.940
July	8.000	4.1281	4.328	68.216

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Station A, Dept. M.J., Kansas City, Mo., U. S. A.

structing near Auburn completed the latter part of August. Fifteen men are reported to be employed building the dredge and shelter house, and clearing the land.

The new 150-ton mill and cyanide plant at the Greenwood Quartz mine, Greenwood, California, has been completed and has started production. A counter current decantation circuit is used. T. W. Carpenter of Auburn, purchased the Greenwood Quartz mine last December. W. W. Harritt of Greenwood, is superintendent of the Greenwood mine and is also interested in it financially. Mining is done by a drag line in an open pit, the ledge being estimated to be between 200 and 300 feet in width and about 1800 feet long. It is expected that 15 men will be employed when the property is operating at capacity. An assay office, operated in conjunction, is in charge of R. W. Prince.

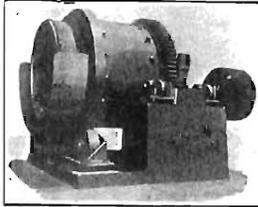
The **Burm Ball Mining Company**, Tuolumne, California, which has been operating on the J. L. Gibbs ranch near Confidence and on the Baker property at Tuolumne, has acquired control of the Sunny Side property at Tuolumne. At present, development operations are being carried forward on the 200-foot level to locate a ledge that shows good ore on the surface. Future plans provide for the installation of a mill. John Burmeister, Tuolumne, is manager of the Burm Ball Mining Company. Charles Harris, who was formerly superintendent at the Baker property, is in charge at Sunny Side. Claude Scanavius has taken Harris's place at Sunnyside.

It has been reported that the **Carlotta mine**, Tuolumne, California, is being reopened by Will A. Hayes, 225 Mallorca Way, San Francisco, California, and that a crew of six men is employed. Work in the immediate future will be confined to cleaning out the Carlotta and Pennsylvania shafts, and to drifting to open up and further develop the Pennsylvania, Carlotta, and Columbus veins. The property is now equipped with a hoist, compressor, and a mill. Electric power is furnished.

The **Elephant-Eagle mine group**, Mohave, California, is reported to have been purchased by John Pell and associates. Goodwin J. Knight, 821 Bank of America Building was former president of the company.

Dr. W. J. E. Dillabough, operating the **Monte de Oro mine** on Table Mountain, Oroville, California, states that the mine should be on a paying basis very soon. Gravel from the development tunnel is now being washed, very satisfactory results being obtained, and it is expected that high-grade gravel will be reached shortly. Ore taken from a quartz vein in the tunnel has brought returns of over \$20 per ton. The surface buildings, ore bins, sluice boxes and shop buildings have been completed. A seven mile ditch from a lake, which is under lease, carries the water necessary to the operation of the mine.

Operations at the Boston mine at Mokolunne Hill, California, which was under option to R. T. Mishler and in which project it was understood the **Lucky Tiger-Combination Gold Mining Company**, 761 Board of Trade Building, Kansas City, Missouri, had an interest, have been discontinued and the option surrendered. The rumor that the operation was discontinued because of an injunction asked for by the East Bay Utilities District to prevent the dumping of tailings in the Mokolunne River is wholly without basis. We are informed that strictly business reasons dictated the giving up of the option.



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PP16-B

**Pacific Minerals Company, Ltd.**, is erecting a new gallows frame at its property at Angels Camp, California. At this property, greenstone, which occurs as amphibolite schist, is mined, milled and shipped for building purposes. Charles Renwick, Jr., P. O. Drawer B, Richmond, California, is reported to be manager of the company.

H. E. Williams, formerly of Kingman, Arizona, is reported to have taken a lease and option on the **Williams Ranch** mine, Standard, California. A new shaft is to be sunk for which an electric hoist has been purchased. He has also secured a three-drill compressor.

Operations have been reported to have resumed at the **Enterprise** mine, Columbia, California, after a shut down of four months. A great deal of development work was done at the mine prior to the temporary cessation of activities and the shaft was sunk to a depth of 100 feet. It is expected that the next level will be established at 150 feet, 100 feet below the old drift tunnel. Activities will be confined for the time being to further development work with a crew of five men. The property is controlled by F. A. Beauchamp of Berkeley, California; and J. E. Wynne of Oakland is superintendent of operations at the property.

Construction of the 10-stamp mill by the **Mutual Gold Corporation** at its Simpson mine, Bridgeport, California, is progressing steadily. A tunnel, 280 feet below the collar of the shaft, is in 1150 feet and is nearly completed. It is being driven in order to drain the lower workings. Intensive mining is expected to start on the 165-foot level as soon as the shaft is completed. Charles Horner is superintendent of the mine. Ben L. Collins, 322 Fernwell Building, Spokane, Washington is secretary of Mutual Gold Corporation.

The new 550-foot shaft at the **Tahoe-Maryland Mines Company** mine at Grass Valley, California, has been completed. This shaft has attracted a great deal of attention because it was sunk by means of a boring machine. The machine is reported to have operated very efficiently in hard rock, but difficulty was said to have been encountered in boring through unstable and shattered rock. Some of the cores of solid rock taken from the shaft were stated to have run as much as nine feet in length. The circular shaft is five feet in diameter and was sunk in order to provide an air connection and an emergency outlet from the mine. Erroll MacBoyle, Grass Valley, is vice-president and general manager of the company. Harold Lynn is superintendent.

Raymond Feagans, Nevada City, California, has taken a five-year lease on the **Lady Bug** quartz mine near Washington. The property is comprised of 14 claims, covering approximately 300 acres. Feagans states he has already located an immense body of low-grade ore and that he is driving a crosscut expecting to tap another vein. He plans to enlarge the present five stamp mill to 20 stamps. For a number of years this mine was worked by its owner, Frank Dillon of Nevada City.

The 35-ton mill of the **German Bar** mine, North Bloomfield, California has been put into operation. The property is located on the Middle Yuba River, about 10 miles from Alleghany, and is operated by **German Bar Gold Mines, Inc.**, with Colonel Charles R. Blood of Sacramento as its president. The mine is said to have produced \$200,000 in gold in the early days, but it was shut down and never reopened because of the difficulty of getting machinery and supplies to the property. The recent construction of a cable tram, 700 feet above the river, is said to have eliminated this difficulty and a three-drill compressor has just been installed at the property. Twelve men are employed at present under the supervision of Thomas H. Stephens of Sacramento, whose present headquarters are at North Bloomfield.

The **California Sierra Gold Mines, Inc.**, Nevada City, California, has completed the unwatering of the shaft of the **Ragon** mine. Fourteen men are employed and the shaft has been sunk an additional 30 feet under the supervision of Orlando McCraney, president and general manager of California Sierra. A development program of drifting and cross cutting has been started to block out additional bodies of ore. Colonel O. B. Perry of Nevada City is also interested in the reopening of this mine.

The 10-stamp mill of the **Alabama California Gold Mines Company**, Perryn, California, has recently been enlarged to 20 stamps, and it has also been announced that the operators have just bought the mineral rights on the adjoining **Sweezy** property which consists of 40 acres. The gold content of the ore in the main vein is reported to be holding well to \$11 per ton, and the vein has recently widened about five feet, the outer ore running between \$4 and \$5. William Anderson of Auburn is president and general manager.

The **Tonopah Belmont Development Company** has entered into a contract with Dr. G. Grossman, geophysicist, San Francisco, California, and Major John F. Dul-

ing, mining engineer, Central Building, Los Angeles, for a geophysical survey of the **Vallecita Western** mine at Angels Camp, California. This company has been a steady gold producer and an operating profit of \$20,655 with a gross profit of \$98,705 was reported for 1934. The company expects to handle a larger tonnage, following the opening of an additional large body of gravel. **Frederick Bradshaw**, Angels Camp, is general manager of Vallecita Western.

In a recent report, the Los Angeles Chamber of Commerce stated that it is expected that the **Keys** mine, near Kernville, California, will be reopened and operated by the **Kern River Mining Company**, 2238 San Fernando Boulevard, Los Angeles.

The **Jeannine** mine of **Dulee, Inc.**, 323 Fidelity Building, Los Angeles, California, has now run its main tunnel 200 feet and is in silicified schist showing pyrites in the fracture planes. The **Jeannine** mine is located at Stent, near the **Jumper** mine, and, according to F. W. McRae, president of Dulee, the tunnel is expected to cut the vein in approximately 50 feet.

The **Mack** mine of **Mack Mines, Ltd.**, Nevada City, California, has recently been reopened after having been closed for the winter. This mine, also known as the **McCutcheon** property, is located in the **Banner** Mountain district. At present, the shaft is being unwatered and as soon as this is completed, development operations will commence, where they left off last fall, under the direction of Bruce Wallace, mine superintendent.

Sinking in the central shaft of the **Lava Cap Gold Mining Corporation**, Grass Valley, California, has progressed 100 of the projected 200 feet, and is now down to the 1700-foot level. Enlarging and retimbering operations in the drainage tunnel are progressing steadily. The mill is reported to be treating 190 tons of ore per day and a 40x50 foot all steel blacksmith shop is being erected. According to a recent announcement, the property has been enlarged to 1300 acres by the purchase of the 227 acre **McDonald** ranch, adjoining the property to the west. **Otto E. Schiffner** is mine superintendent, in charge at the property.

Development work is progressing at the property of **Tahoe Treasure Consolidated Mines, Inc.**, Homewood, California. The tunnel has now been completed for a distance of 285 feet where it is reported to have tapped the ore body. A second tunnel

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is to be started soon at the north dome to connect with the one from the south in order to provide ventilation and to facilitate operations. Additional men will be added to the present 15-man crew in order to accomplish this work. Equipment at the mine includes an air compressor plant, a blacksmith shop and assay offices. Installation of a ball mill and crusher, a classifier, and flotation, concentration and tabling apparatus is planned for the near future, according to C. B. Malone, manager at the mine. Harvey C. Winslow, P. O. Box 1188, Bend, Oregon, is president of the company.

**COLORADO**

Arrangements are being made by the King Solomon Mining Company for the reopening of its property early in 1936, according to S. H. Alexander, 526 Mining Exchange Building, Denver, Colorado, president and general manager. The company's property is said to be adequately equipped for extensive development and is located near Frisco, Summit county, Colorado. A 6,250-foot tunnel and about a mile of drifts, etc., develop the ground. The company states that it will probably construct a pilot mill for the treatment of low-grade ores when operations are resumed.

If the core-drilling program now in progress at the Orphan Boy property in the Wallstreet district of Boulder county, Colorado, shows it to be justifiable, the More Minerals Mining & Milling Corporation plans to erect a milling plant. At present seven men are employed and the daily gold production varies from 3 to 8 ounces. Albert More of Junction City, Kansas, is president, and Alva B. More of Wallstreet, Colorado, is general manager.

Plans for reopening the property at Georgetown, Colorado, are being made by the New East Argentine Mining & Milling Company, Earl F. Crowl of Georgetown, president. The property contains gold, silver, and lead values, and is stated to be developed by 4,000 feet of mine workings. M. Sidney of Georgetown is general manager and Edward J. Digerness is chief electrician and mechanic. Clyde Cordner of Georgetown is consulting engineer.

The Williams Mining Company, Box 52, Buena Vista, Colorado, has just completed a 25-ton mill which will be in steady operation at capacity from now on. The property, leased from Mark Leonhard, has lead, copper, zinc, gold, and silver values, and is stated to be opened to a depth of 1,300 feet. C. H. Williams, 1012 North Santa Fe, Pueblo, and J. J. Williams of Buena Vista are operating in partnership. Eight men are employed.

The Gold Bond Development Company, employing nine men and producing around 30 tons daily from its property near Cripple Creek, Colorado, is headed by Albert W. Ward of Cripple Creek, who is also in charge of operations, assisted by Pete Eberman, Cripple Creek. About 2,000 feet of workings, including a 400-foot shaft, develop the ground. Present work consists of running a stope 20 by 40 feet from the 100-foot level to the surface. Ward states that this stope is all in ore and high-grade values in gold and silver are consistent. The company plans to equip another shaft with an electric hoist and compressor and the erection of new buildings. Opening of undeveloped ground is also scheduled.

The Texas Chief Mining Company, Milton G. DeLuche, Box 78, Durango, Colorado, is completing the construction of

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### ARIZONA

The August output of **United Verde Extension Mining Company**, Jerome, Arizona, dropped to 834,542 pounds of copper, compared with a July production of 2,289,138 pounds. Temporary shutdown of the company's smelter to permit refilling of ore bins accounted for the sharp drop, according to George Kingdon, general manager.

The **Tip Top Mines, Inc.**, with property at Tip Top Camp, Phoenix, Arizona, has granted a lease on its holdings to **La Bajada Exploration, Engineering and Equipment Corporation** which is conducting a general survey of the district to determine custom milling possibilities. Frank C. McDonald, 4022 West Pine Boulevard, St. Louis, Missouri, is president of the La-Bajada group.

The cyanide annex to the flotation plant at the **Octave Unit of American Smelting and Refining Company**, Octave, Arizona, has been placed in operation. According to M. E. Pratt, superintendent, there is a considerable volume of flotation tailing to be returned for treatment, and while this product is being handled there will be a reduction in the mine output. However, mine development will be increased and there will be but small reduction in the crew employed.

Twenty-one carloads of ore were shipped during the first 19 days of September from the Tombstone district of Arizona, breaking all records for ore shipments from the camp. The **Empire mine** of Tombstone Development Company, together with production by lessees, shipped 15 of the 19 cars. The **Tombstone Extension** and **J. H. Macia** were also included in the shippers. The **Tombstone Development Company**, Ed Holderness, superintendent, has cleaned out the Little Joe double-compartment shaft to the 160-foot level, following erection of steel headframe and erection of hoist house. The shaft will probably be sunk to the 400-foot level.

Settlement of the differences between the former management of the **Monte Christo Gold Silver Company**, Constellation, Arizona, and representatives of the stockholders' association is announced in a letter being sent to stockholders by the newly elected board of directors. The new board consists of: Frank D. Kimball, 242 South Second East, Salt Lake City, Utah, president; Valentine S. Snow, 282 Canyon Road, Salt Lake City, secretary-treasurer; M. N. Thackaberry and Frank T. Wells, business men of Los Angeles and members of the stockholders' association, directors, and James E. Ellison of Layton, Utah, vice-president and director. The delinquent date of the assessment of 2 cents per share, which was levied on June 29 on all outstanding stock, has been extended to October 7, and the sale date to November 7, this being done to give shareholders additional time to pay and to protect their interests in the company.

It is understood that the operating crews at the **Copper Queen Smelter**, Phelps Dodge Corporation, Douglas, Arizona, have been placed on a 48-hour week, instead of the 40-hour week which has prevailed for several months. The crews involved in the change include the service, mechanic and electric groups. Harry Clark is manager of the smelter division.

The cyanide plant of the **Smuggler Gulch Gold Mining Company** was completely destroyed and washed away on August 31 by a cloudburst. The mill, located in Warsaw Canyon about three and one-half miles southwest of Ruby, Arizona, had been placed on a very steep slope about 100 feet above the bottom of the canyon. Above the mill site another cliff rises about 40 feet and above this was located a dam, 60 feet long, 11 feet high, at the discharge of a natural amphitheatre. This reservoir thus formed was the mill tank, or low pressure water supply. The dam was still somewhat "green" and the rush of water was so great that the entire structure was pushed over, debouching the 300,000 gallons of water on the cyanide plant over the 40-foot drop. Classifier, amalgamating plates, blanket tables, etc., were torn from the main 25-ton grinding plant and lower part of that building was washed away and buried under thousands of tons of debris from the mountain side. The ore bins, ball mill and power plant escaped. The accident occurred at noon while workmen were off-duty. According to D. H. Fairchild, president and manager, 1031 North Third Avenue, Tucson, Arizona, rebuilding of the plant on a smaller scale, is now underway.

The **Western Diatomite Products Company** is opening for production its property in Greenlee county, Arizona. The holdings consist of 120 acres, said to be covered by a six-foot vein of diatomite. According to D. D. Hardesty, Buckhorn, New Mexico, who is in charge of operations, as soon as the mill is completed his company will clean and grade the products on the ground. Office and shipping point will be at Silver City, New Mexico, the nearest railway point to the mine. Associated with Hardesty is W. H. Pollard of El Paso, Texas.

William S. Segar and associates of Cincinnati, Ohio, have taken over the **Lead Carbonate and Columbus** properties in the Hualpai mountains, near Kingman, Arizona. Segar has located in Kingman and is making arrangements to start active development of the claims by the end of the month.

It is understood that arrangements have been completed for the purchase of the Portland mine of the **Portland Mines, Inc.**, by the **Gold Standard Mines Corporation**, Kingman, Arizona. The Portland has been shipping 50 tons of ore daily to the Gold Standard mill, the ore being broken, then mined with steam shovels and trucked to the mill over the new road completed the middle of the summer. According to present plans the capacity of the Gold Standard mill is to be increased and the tonnage shipped from the Portland will be increased gradually from the present 50 ton daily to 100 tons, then to 200 tons. Only recently Gold Standard also purchased the Katherine Gold mining property. Richard DeSmet, Box 4, Kingman, Arizona, is general manager of the Gold Standard company.

The **Eldorado mine** in the Gold Basin of Mohave county, Arizona, has received the federal "approval" for a Class B government loan. The property will now be inspected by W. B. Gohring, state engineer

for Reconstruction Finance Corporation. Application for the loan was made by Clarence B. Burcham of Kingman, Arizona, owner of the mine. Some 30 years ago the Eldorado was a producer, the ores being reduced at the O.K. mill, but following the destruction of that mill by fire in 1906, the mine has been idle. Development is said to total about 2,000 feet of drifts and tunnels.

### CALIFORNIA

Milling operations have started at the **French Corral Mining Company**, French Corral, California, following installation of an eight-inch pump to lift water to the mill. The plant has a capacity of 500 yards daily. Hector Delure is superintendent, with five men employed.

A crew is engaged in opening a shaft and in retimbering at the **True Grit mine** nine miles north of Camptonville, California, and a hoist house is being built. The property is to be worked by the drift method. M. O. Carlson is in charge.

C. McIntosh is preparing to reopen the **Golden Star mine** in the Forest Springs district near Grass Valley, California, for B. Hensley, Sacramento, California, and A. Mackey, Washington, D. C., who are leasing the property. The mine, which is said to have two distinct veins, has been opened by a 175-foot shaft.

A new stamp mill is being installed at the **Ralston mine** near Dedrick, California, owned by George Cordes and F. C. Meckel. The mine crew has recently completed a new road to the property.

The new 75-ton mill at the **Heslop mine**, Jamestown, California, has been placed in operation and is reported to be working satisfactorily. The plant includes a jaw crusher, Straub Rib-cone mill, Dorr classifier, two concentrating tables and four flotation cells with a gold trap installed between the mill and the classifier to catch the free-gold content of the ore. Open-cut mining methods are being used on a level with the mouth of the shaft, on the same shoot which has been developed and blocked on the 100-foot level. This source of supply is expected to keep the mill in continuous operation for many months. Structures to be erected at the mine include a building to house the mill, compressor house, hoist house, blacksmith shop, assay office and a manager's and superintendent's office. A new and larger headframe with ore bin is also to be erected at the mouth of the shaft. Following completion of the surface improvements, work in the mine will be resumed. When operations are in full swing, a crew of between 30 and 35 men will be employed. Roy K. Brown, San Francisco mining engineer, is in charge at the mine.

New leases, with options, have been taken by the **Western Merger Mines Company**, 156 Montgomery Street, San Francisco, on approximately 160 acres of mining land near Soulsbyville, California, owned by John Yost, and on the **Golden Dawn mine**, owned by John J. and R. A. Nicholls. Western Merger has acquired control of the Junction and Armario properties near Soulsbyville, and has organized the **Junction Gold Mines, Inc.**, to operate that property.

J. A. Matley and associates are equipping the **Big Stiff gravel mine**, near Sonora, California, with machinery, preparatory to development. A long tunnel is to be driven in an attempt to tap the mine the gravel of an ancient river channel believed to run through the property.

A new shaft, to serve as a second exit from the mine, is being sunk on the foot

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wall vein some distance south of the main shaft, at the Columbus mine of the Columbus Gold Mining Company, Tuolumne, California. A new headframe and ore bin are planned for the main shaft soon. Drifting on the 400 and 600 levels is in progress and this work provides ore for the mill, which is running on a 24-hour schedule. W. A. Hayes, 225 Mallorca Way, San Francisco, is general manager; John B. Sivori, Tuolumne, mine superintendent.

The Cinco Mineros Company, Chico, California, has started dredging operations near Oroville, California, under the superintendency of C. E. Cummings. The dredge and a dragline unit are being operated three eight-hour shifts daily and 10 men are employed. The equipment handles 2,000 yards of material a day and operations are expected to extend over a period of about three years. The dredge was purchased from the Palermo Dredging Company.

The Greyatone Mining Corporation of California is preparing to open the Poor Man's mine near Redding, California, according to V. E. Lundberg, 812 Riverside Drive, New York City, who is to have charge of the work.

A new company has been organized to develop the Climax mine, Pine Grove, California, with W. H. Wise, 639 South Spring Street, Los Angeles, as president. It has been decided to proceed at once with opening of the Climax shaft, construction of a half mile of electric power line and the installation of equipment capable of sinking 1,000 feet. The property had been opened to a depth of 225 feet in previous operations. Frank Garbarini is superintendent at the mine.

Natomas Company, Natoma, California, gold dredging firm, has declared a regular quarterly dividend of 20 cents a share, payable October 1 to stock of record September 16.

A 50-ton Huntington mill is being installed at the property of the Gold Company, Ltd., near Garden Valley, California. According to Edgar Willis, superintendent, the plant will be equipped with amalgamation jig and concentration tables. For the present the mill will be worked by the open pit method, ore being hauled to the mill in mine cars. The property is owned by Robert Veerkamp of Garden Valley, and is held under bond and lease by the Gold Company, Ltd.

The firm of Isham and Isham, geophysical engineers, 230 Redwood Avenue, North Sacramento, California, has been engaged by John Burmeister, manager of the Burn-Ball Mining Company, Tuolumne, California, to conduct a geophysical survey of the company's property.

A 10-foot vein containing high grade has been struck on the 900-foot level of the Malvina mine, one mile west of Coulterville, California. The Malvina is being rehabilitated by the Boston California Mining Company under the direction of Charles H. Segerstrom, president of the Carson Hill Gold Mining Corporation, with Ed McMahon, Jr., Sonora, California, in charge of operations. The 1,000-foot vertical shaft has been cleaned out and rehabilitated and drifting on the 900 was the first new development work started. A raise is being run from the 900 to the 600 and the latter is being reconditioned. It is understood that erection of a 100-ton mill is planned as soon as ore production warrants.

A total of 1,000 tons of ore was produced and milled at the Carson Hill mine of the Carson Hill Gold Mining Corpora-

tion, Melones, California, making a new time record run for the famous product in one day, reports Charles H. Segerstrom, president of the company.

A mill and other machinery have been installed at the Blue Glory mine in the Devil's Gulch district near Mariposa, California. The property is being operated by Henry Peterson and Lee Marshbank, Mariposa.

Maybert Gold Mines, H. E. McClellan, president, 206 Sansome Street, San Francisco, California, will reopen the Maybert property in the Washington, California, district. Plans call for installation of machinery and beginning of operations early in October. The mill on the property was burned about four years ago and the company plans to install a new one. The are about 860 acres in the Maybert holdings.

H. E. Drake, Twain Harte, via Sonoma, California, has purchased the Golden Son mine at Soulsbyville, California, from William Fuller. Mr. Drake reports a 30-foot pay shoot and he is down 60 feet on a four-foot ledge which runs \$44 a ton, mostly free milling. He plans to install a 100-ton mill at this property soon. The East Belt and Trilby mine has also been purchased from Howard Longenecker and sinking has reached a depth of 50 feet, where a 10-foot ledge of \$15 a ton with a streak of high grade has been encountered. This mine was prospected years ago but was never worked below the water level.

Work has started on a long tunnel to connect the Central and Banner mines, operated by the Lava Cap Gold Mining Corporation, Grass Valley, California. The tunnel, with its adit at the Central, will be 5,500 feet long and will follow the vein, connecting with the banner at the 600 level. Shaft sinking operations at the Central have been completed for the present. The shaft was recently sunk 200 feet to the 1,600-foot level. Otto E. Schiffner is mine superintendent, I. O. Proctor, mill superintendent.

Preparatory to reopening of the mine, the shaft at the Keystone Divide Mining Company property near Grass Valley, California, is being unwatered by lessees who have a two-year lease on part of the property. No company work, however, is being done at this time, the mine having been closed down last February. Melville B. Rapp, 1415 Montana Street, Santa Monica, California, is president and general manager of the company.

Work is under way on deepening the shaft at the Belmont Osborn Gold Mining Company, Altaville, California, from the 225 to the 350-foot level, which is expected to be reached the latter part of November, according to Cyril Stevenson, vice-president and general manager, 133 Montgomery Street, San Francisco, California. The main shaft follows a well-defined vein and crosscuts have been driven at the 70 and 150-foot levels. There are also two auxiliary shafts situated north and south of the main shaft. The property is equipped with a 15-stamp mill, driven by a 75-horsepower motor, four concentrating tables, a rock crusher, two compressors, machine drills, electric hoist, complete blacksmith shop and miscellaneous mining equipment. A. C. Noble, Altaville, California, is superintendent at the mine. The Belmont Osborn is controlled by the Engels Copper Mining Company, 333 Montgomery Street, San Francisco.

It is reported that the Amargosa Gold Dredges Properties, Ltd., J. R. Pemberton, president, 530 West Sixth Street, Los

Los Angeles, California, has purchased the rights on the extensive alluvial gold-bearing deposits on the Amargosa and Mojave rivers in San Bernardino county, formerly controlled by the H. F. Alexander Exploration Company, 617 South Olive Street, Los Angeles. For the past two years the Alexander company has carried out a systematic development program by means of churn drilling and shaft sinking and the deposit is understood to be 40 feet in depth and to average better than 70 cents per cubic yard. Mr. Pemberton was identified for many years with E. H. Doheny and is now oil umpire in California. He is a mining engineer of many years experience and associated with him in this enterprise are Rasco F. Oakes, San Francisco; V. R. G. Wilbur, Pasadena, and R. R. Bush, Long Beach.

The old Sweetwater mine near Midpines, California, has been taken over by Frederick Reel, Midpines, and Philip J. Lauten under lease with option to purchase at the end of one year. A crew of five men is engaged in cleaning out the property, following which the mine shaft is to be sunk another 500 feet in order to get below the ore body, which will give 250 feet of backs. The mine is equipped with 10 stamps, 25-ton Chilean mill and full amalgamation system. The new operators are understood to be planning installation of flotation equipment at an early date. F. L. Valmadre is mill superintendent; Gus Ellison, underground superintendent; Frederick Reel, general superintendent and manager; Frederick Reel, Jr., junior engineer and assistant manager.

New equipment, consisting of a gyratory crusher, jaw crusher and a trommel screen, have been purchased by the Kelsey

Mining Company, E. T. Willard, general manager, 823—45th Avenue, San Francisco, for installation in the company's milling plant at Placerville, California. New ore bins are being built and a new trestle is being erected at the property. The mine has been in steady production for several months. Ed. J. Willard, Placerville, is mine superintendent, and I. D. Hubbell, also of Placerville, is mill superintendent.

Spring Hill Gold Mines, Inc., H. R. Plate, operator, Grass Valley, California, has purchased the Prisk and Shaw properties across the road from the Spring Hill acreage, consisting of 174 and 47 acres respectively. In addition, the company has purchased all mineral rights underlying Glenbrook and Olympia park. The recently completed 100-ton mill is now in operation, under the supervision of Don Carlos Billick, Main and Commercial Streets, Nevada City, California. C. J. Harry is superintendent at the mine.

Drifting along the main vein from the tunnel level is under way at the Ethel mine, 17 miles southwest of Callahan, Siskiyou county, California, which is being operated by the Exploration Gold Corporation, a Nevada company. J. R. Farrell, president and general superintendent, is directing the work with headquarters at Callahan.

F. M. Sutton, Pine Grove, California, and associates, have taken over the Belden mine in the Pioneer district northeast of Jackson, California, under an option agreement, and are planning immediate operation of the property. A gasoline hoist is being used at present and a portable compressor is to be installed immediately. Following a program of prospecting work this will be supplemented with electrical equip-

ment. Sutton and associates are also operating the old Mexican mine, now known as the Sutton, which is equipped with a small mill, and for the present, ore from the Belden will be handled through the Sutton mill. A crew of five men is employed at the Belden.

James Russell of Seattle has taken over the old San Antonio mine in the Red Rock Canyon district near Mojave, California, and is engaged in rehabilitating the 10-stamp mill. The property, which was discovered in 1893 and said to have a production record of \$65,000, has been opened by five shafts, sunk across a 2,000-foot strip, the deepest shaft being 170 feet. Recent assays have shown returns ranging from \$20 to \$200 per ton.

#### COLORADO

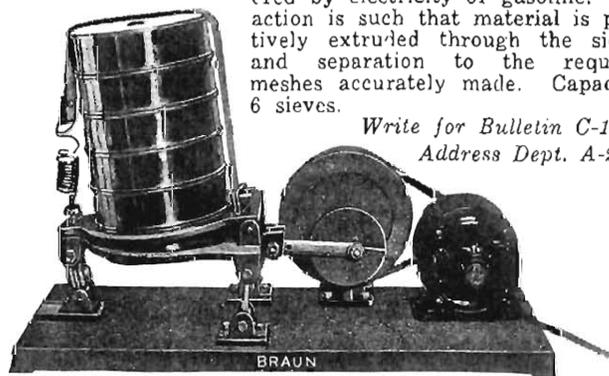
Thirty-six men are reported to be employed by the Gold Dirt Mining & Milling Company, operating the old Gold Dirt mine in the Empire-Lawson district of Clear Creek county, Colorado. Four trucks are engaged in hauling ore from the dump to the mill. The company is headed by Frank E. Kistler of Littleton, also president of the Diamond K. Mining Company, which is operating the Capital Prize mine near Georgetown.

An electric haulage system with two electric locomotives is being installed at the IbeX property, under lease to M. A. Nicholson of Leadville, Colorado, and associates, who are subleasing portions of the mine. With this new equipment production will be speeded up. There are said to be 35 sub-lessees working the IbeX group, beside the company work which is being carried on. Newly mined and dump

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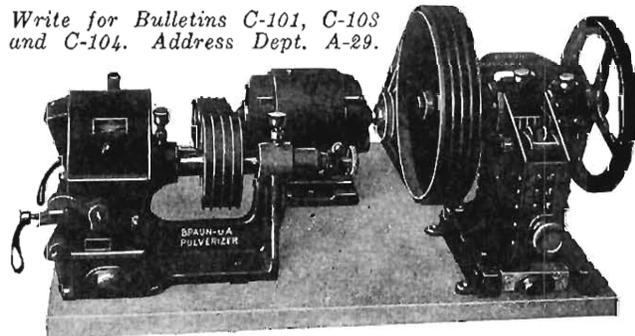
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Howard K. Ward and his son, Thomas W. Ward, Grass Valley, California, have purchased the assay office and equipment of Quenton L. Brewer at Auburn, California, and have also assumed the Durfee gold buying business. They will combine the two and will add equipment for smelting of gold ore. Howard R. Ward is a member of the firm of Ward and Eastman, mining engineers, of Grass Valley, and his son was employed in the assay office of the Idaho-Maryland Mines Company prior to entering the Auburn business.

Robert L. Thorne, Duthie, Idaho, who is employed by A. S. & R. at the Jack Waite mine, has been proposed for junior membership in the American Institute of Mining & Metallurgical Engineers. Thomas Barker, Jr., mill operator for Utah Copper at Magma, Utah, has changed his status from student associate to junior member, as have E. L. Klebba, metallurgical engineer with the McLaren Gold Mining Company, Cooke, Montana; Arthur C. Melting, Orogrande, Idaho, assayer and engineer with the Penman Mines Corporation; and Roy E. Swift of Cooke, Montana, who is assayer for the Glengarry Mining Company. Robert A. Perry, assistant superintendent of the Murray plant of A. S. & R. at Murray, Utah, is now listed as a member of the Institute. Oran M. Anderson of McMinnville, Oregon, who is junior engineer and acting mill superintendent at the Milkmaid mine at French Gulch, California, has become a junior member.

#### A. I. M. E. REGIONAL MEETING TO BE HELD AT SAN FRANCISCO

A regional meeting of the American Institute of Mining and Metallurgical Engineers is scheduled for October 3 to 6 at the Palace Hotel, San Francisco, California. In addition to the papers being presented some interesting side trips are provided to include inspection of the new bridges; the largest bore vehicular tunnel; the Yuba Dredge No. 17; and a trip through Grass Valley.

The program includes papers on the following:

The Present-day Milling Plants on the Comstock Lode. By Jay A. Carpenter and Percy Gardner.

Economic and Strategic Importance of Philippine Metals to the United States. By C. M. Eye.

Electrocapillary Amalgamation. By O. C. Shepard.

A Successful Dragline Gold Dredging Plant. By James F. Magee.

Preliminary Study of the Composition of Native Metallic Gold. By W. J. Crook.

Tungsten and Molybdenum. By F. W. Horton.

Application of Boulder Dam Power in Nevada to the Reduction and Treatment of Metal-bearing Ores. By J. A. Fulton.

Gold in Partly Petrified, Carbonized Wood, Nevada. By V. P. Gianella.

Milling Practices at the Spanish Mine. By B. D. Harden.

Silicosis as Affecting Mining Workmen and Operations. By Daniel Harrington.

Gold Mines in the Mojave District, Kern county, California. By W. B. Tucker.

Present Status of Hydraulic Mining Debris Disposal in California. By Walter W. Bradley.

Legislation's Effect upon the Mining Industries. By J. F. Callbreath, Jr.

Ventilation of Small Metal Mines and Prospect Openings. By Oscar A. Glaeser.

Wollastonite as Raw Material for Rock Wool. By John T. Thorndyke.

The Andalusite Deposits in the White Mountains of California. By C. D. Woodhouse.

Diatomite Deposits at Lompoc, California. By Henry Mulryan.

Mineral Contents of the Dry Lakes. By David Scott.

Mining of Clay. By Robert Linton.

Bulk Cement Handling and Transporting of the Santa Cruz Portland Cement Company. By Robert A. Kinzie.

Mining Activities of the United States Potash Company. By C. A. Pierce.

H. A. Buehler, president of the Institute, accompanied by A. B. Parsons, secretary, will attend the regional meeting. Immediately preceding and following the San Francisco gathering they will visit the various local sections and mining schools in the western states. The itinerary will include stops at Colorado Springs, Leadville, Salt Lake City, Butte, Wallace, Seattle, Portland, Tucson, and El Paso, as well as Trail, B. C.

#### HIGHLAND MINE BEING REOPENED AND MILL REHABILITATED

A crew of 30 men is reported to be employed at the Highland mine, owned and operated by Claire D. Schlemmer, Baker, Oregon. Mine workings of the former gold-silver producer are being cleaned out and the mill will be completely rebuilt. Mill capacity will be around 70 tons daily.

Both mine and mill are expected to be ready to operate by October. Power will be brought in from the Eastern Oregon Light & Power Company's transmission line, where connections are now being made. Ray E. Wimber recently went to Haines, Oregon, where he is in charge of the work.

#### Deceased

Joseph J. Schoener, 84, well-known mining man in the Elk City district of Idaho, died August 31. He had retired about a year ago, moving to Spokane, Washington.

H. Norris Lynch, 68, pioneer Colorado mining man, died in Denver August 25. He was born in Philadelphia, coming to Colorado in 1888 and engaged in mining in the Aspen and Cripple Creek districts, and in Mexico.

Edward Jackson, 58, owner of the Golden Eagle mine at Dragoon, Arizona, died on September 12. Death was indirectly due to tropical fever contracted during his service in the Spanish-American war and from which he had never fully recovered.

Ben L. Collins, Spokane, Washington, secretary and treasurer of Mutual Gold Corporation, was killed in an automobile accident a short time ago. Collins, who was also connected with General Mines Corporation, was 58 years of age at the time of his death.

William Torpey, 70, passed away at his home in Sacramento, California, August 27, following an illness of several months. He was a native of Rough and Ready, California, and had followed mining in the Nevada county, California, district and Tonopah, Nevada, district, practically all his life.

Ben Richardson of Tonopah, Nevada, died recently at the Mine Operators Hospital in Tonopah where he was taken after a serious mine accident. Pneumonia is said to have developed. Richardson was a well-known Nye county mining man, his mine being the Silver Leaf in the Hannapah district.

Mrs. Nettie A. Karsten and Charles Rones, both actively interested in the S. Copper Company, near Silver City, Mexico, were victims of an automobile crash in Wisconsin. At the time of the death they were engaged in bringing about a reorganization of the copper company which has been in receivership for several years.

Bill Phillips, who was a builder contractor by training, but a mining man according to his own listing and according to his later life, died September 10 following a fall down a shaft on the Goldfield Florence property near Goldfield, Nevada. Phillips was speaking that particular section of the mine which he had formerly held under lease with the view of releasing it.

Thomas Brown, chemist at the El Paso Smelting Works of American Smelting Refining Company at El Paso, Texas, died on September 10 following a brief illness. Brown was born in Princeton, New Jersey, February, 1868. He was graduated from Princeton University with academic and scientific degrees. For several years engaged in the assaying business in Terrell, Mexico, locating in El Paso in 1900.

Harald Boedtker, chief chemist American Smelting and Refining Company at El Paso, Texas, died on September 8, following a brief illness. Boedtker was born in Bergen, Norway, February 17, 1870, coming to America upon graduation from the University of Oslo, Oslo, Norway. For a number of years he was employed as mining and chemical engineer for American Smelting in Mexico, but since about 1915 had made El Paso his headquarters.

W. K. Jewett, 1201 Arden Road, Pasadena, California, died August 27, at his summer home at Santa Barbara. Coming to Colorado Springs about 40 years ago for his health, Jewett took charge of the New London gold mine at Alma, which he had inherited from his father, a which he continued to manage after moving to California some 15 years ago. The present operating company is known as the London Gold Mines Company, which Jewett was president. He was 70 years old at the time of his death.

Earl Edwards, 45, was crushed to death when a cave-in occurred at the Henrietta mine, a few miles south of Humboldt, Arizona. Edwards and his partner, Brad Breckenridge, were working 200 feet back in a tunnel and 75 feet beneath the surface when the ceiling dropped in. Breckenridge caught on the edge of the cave-in and escaped unhurt and summoned aid, more than 100 miners in the district volunteering to aid in the recovery of Edwards' body. The two men had recently purchased the Henrietta at sheriff's sale and were working it for gold.

Alan P. Stramler, mining engineer, passed away at Round Rock, Texas, on August 22, 1935, death being due to heart attack. Stramler was a graduate of John Tarlton College, and also of the University of Texas. He served in both the Spanish American war, in Cuba and the Philippine Islands, and in the World War. His mining activities had been centered in the western United States and in Mexico, but for the past several years has had been associated with Dr. E. P. Schock, chemistry department of the University of Texas, in the development of potash deposits in Texas. During recent months he had been directing the sinking of the first shaft to be put down by Texas Potash Corporation in the development of its deposits near Midland, Texas.

**ENTIRE TOWNSITE OF SCOTT BAR, CALIFORNIA, IS TO BE MINED**

Scott Bar Mines, Inc., John F. Williams, resident engineer and superintendent, Scott Bar, California, is making final preparations to start operations October 15, which will eventually wash away the entire site of the historic town of Scott Bar.

The dam and 3,500-foot flume, which will carry 11,200 miner's inches of water, are now completed and the pipe which will carry the water from the two huge pumps to two giants is being put in place. The pumps, operated from a low head reaction turbine, will deliver 900 miner's inches of water to the giants at a pressure equal to a 225-foot head.

It is planned to strip the hillside to the level of the flume, which is several feet higher than the river, and then continue to bedrock through the use of hydraulic elevators, using a maximum elevation of 400 feet.

The work is expected to require four years for completion and an average crew of 24 men will be employed. William C. Van Antwerp, c/o E. F. Hutton, 160 Montgomery Street, San Francisco, is president of Scott Bar Mines, Inc.

**IDAHO COURT GIVES DECISION ON 3 PER CENT MINE TAX**

The third district court of Idaho is reported to have handed down an opinion to the effect that the 3 per cent tax on the net income of mines in Idaho was unconstitutional and void. This came as a result of an action to test the constitutionality of the law, brought by United Mercury Mines Company, J. J. Oberbillig, Eastman Building, Boise, president and general manager. The United Mercury property is being operated by the Yellow Pine Company, a P. R. Bradley enterprise, with Lloyd C. White of Stibnite, manager.

The first step, after the last legislature passed the 3 per cent mine tax law, was taken when the United Mercury company and the Yellow Pine company procured a restraining order halting collection of this tax, and requested that collection be permanently halted on grounds of unconstitutionality.

This tax which both companies, joined by others throughout the state, protested, was expected to produce an estimated \$100,000 to \$200,000 annually for public school purposes.

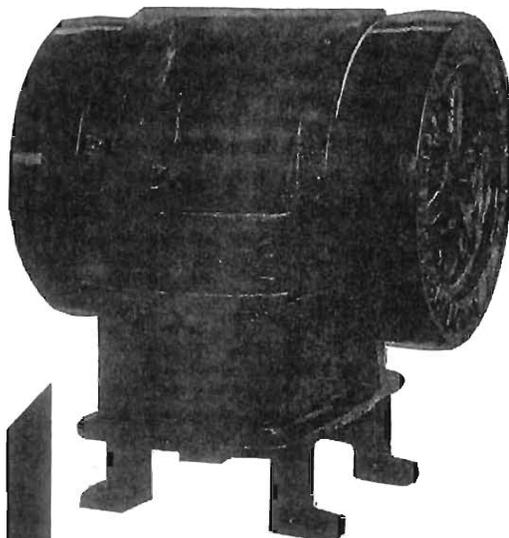
**SOCORRO MINES MAINTAINING ITS PRODUCTION SCHEDULE**

Socorro Mines, Inc., 12 miles southeast of Salome, Arizona, is running its 30-ton flotation plant and making regular shipments of concentrates to the smelter. This mill, formerly known as the Harrisburg custom mill, was purchased by the Socorro organization some time ago and reconditioned for regular operation.

At the mine, the old portable compressor has been replaced with a larger machine, making possible the use of two shifts in the tunnel, with three machines running part of the time. The face of the tunnel is said to be in mill grade ore, and a stope is being opened up to keep the mill supplied. This ore body is to be crosscut at regular intervals to determine its width which was estimated at over 100 feet by engineers for Lucky Tiger organization which sampled the mine a few years ago.

The development program to be undertaken on Socorro Peak has been mapped

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out by A. J. Balmforth, consulting engineer, 3511 Elliot Street, San Diego, California. The Socorro shaft, 780 feet deep, has been partially dewatered and samples taken from the old workings. As a result the management is planning to reopen this section of the property for production.

A. B. Gilbert, formerly of Los Angeles, is located at Salome, Arizona, in direct charge of the work and is employing a crew of 14 men. Ed Halley, a Nevada and Utah mill man, is in charge of the milling plant.

### PHELPS DODGE TO INCREASE PRODUCTION 25 PER CENT

According to an announcement by P. G. Beckett, vice-president and general manager, Phelps Dodge Corporation will immediately increase production at its Arizona copper mines by 25 per cent. This new production schedule will apply to the corporation's Copper Queen Branch at Bisbee, the New Cornelia Branch at Ajo, and the United Verde Branch at Jerome, as well as the smelters at Clarkdale and at Douglas.

The operating crews at the Copper Queen Smelter have already gone on a 48-hour week, instead of the 40-hour week which prevailed for several months. The 25 per cent increase in production is to be maintained for at least the balance of the year.

The New Cornelia mines resumed production on Labor Day, after a two months' summer vacation. One thousand men went back to work at that time. The United Verde joined the ranks of producing mines the first of January, after having been closed since May of 1931. Output of copper from this division has been reported at 1,900 tons of copper monthly, all from ore mined from the open pit, there being no underground production at this time. At its various properties Phelps Dodge is employing close to 3,600 men.

### SELBY SMELTER REOPENS FOLLOWING STRIKE SETTLEMENT

The strike at the Selby, California, plant of the American Smelting and Refining Company has been terminated following conference between the employees' committee and the management, in the presence of Walter G. Mathewson, commissioner of conciliation, U. S. Department of Labor, San Francisco, and John A. Miller, sheriff of Contra Costa county, California.

As a result of the understanding reached, the management posted a wage increase of 2 cents per hour and assured the employees that an open shop policy will be maintained, union and non-union employees securing equal consideration. The employees' committee receded from its demands for union recognition in the form of a written agreement and the check-off system, and for a period of one year will make no demands for further union recognition or for wage increases. There is to be no coercion or intimidation by either employees or the company to force men to join or not to join any union, and an arbitration committee is to be appointed to deal only with claims of discrimination, intimidation and coercion.

Approximately 450 employees of the plant were idle during the strike, which was called August 18.

The understanding reached was put in memorandum form by Sheriff Miller and witnessed by Commissioner of Conciliation Walter G. Mathewson.

### L. S. CATES SEES CONTINUED IMPROVEMENT IN COPPER TRADE

The improvement in copper consumption which has continued since 1932 is likely to continue, according to Louis Cates, president of the Phelps Dodge Corporation. In an interview with M. Rukeyser, appearing in the New York American, Mr. Cates discusses the position of the copper industry and states:

"In general, there has been a progressive betterment in consumption of copper both in the United States and abroad since 1932. There is no apparent reason why this betterment should not continue. There is a decided note of optimism in the industry which extends to the fabricating branch. The upward trend in automobile production is significant in the welfare of the copper industry."

New developments which may add copper consumption were cited by Mr. Cates. He said that considerable progress is being made in the application of copper to the construction of pre-fabricated houses, adding, "Much attention is also being given to economy in farm electrification. A new type of small cable has been developed which lends itself to a mere laying in a plough furrow, thus avoiding expense of pole suspension."

Recent legislation on utility companies was commented on by Mr. Cates, who stated:

"There is no question that the recent persecution of the public utilities has caused them to stop all but absolutely necessary expansion and purchases of all kinds. In my opinion, this has been directly responsible for the decreased demand for certain copper products such as wire and cables, and has caused direct injury to the copper industry. I doubt that the mere defeat of the 'death warrant' part of the legislation would restore confidence to the public utility industry and lead to any immediate expansion."

Mr. Cates, in commenting on the federal spending policy, stated that it is difficult to measure the exact extent to which the broadening of public works program and increase in residential construction is helping the copper industry. "That it is helpful to some extent," Mr. Cates stated, "is beyond question." Mr. Cates found no threat to over-production in the government's silver policy. In this connection he stated:

"The silver program presents no threat toward overproduction of copper. Regardless as to any height to which the government might conceivably raise its silver price, silver will remain of secondary importance to all of the important copper mines in the United States."

Mr. Cates explained how the industry had adjusted itself after the abolition of the NRA and the codes. In this connection he said:

"The industry has merely agreed to continue the existence of the United States Copper Association, an organization of industry members formed at the outset of code operations, and through it to continue the collection and distribution among the members of general copper statistics. The organization will also function otherwise to bring about such cooperation in the industry as is permissible under law."

"It is entirely possible, in my opinion, for the industry to work out its problems without the NRA," Mr. Cates continued. "The real problem of the industry reduces itself to a combination of low consumption and excessive stocks. It is questionable whether the functioning of industry under codes was solving the problem of copper consumption. As to surplus stocks, I