

## SOME STATISTICS ON 1934, 1935, AND 1936 PRODUCTION OF COPPER, GOLD, SILVER, LEAD, AND, ZINC IN THE WESTERN UNITED STATES

State	Gold—in Fine Ounces			Silver—Ounces			Copper—Pounds		
	1934	1935	1936	1934	1935	1936	1934	1935	1936
Alaska	458,000	455,430	518,460	168,868	286,600	468,000	114,000	15,056,000	39,740,000
Arizona	167,024	241,755	310,000	4,448,474	6,601,280	8,125,000	178,082,213	278,029,289	409,200,000
California	719,064	869,400	.....	844,418	1,117,700	.....	569,068	2,552,000	.....
Colorado	324,923	349,281	364,713	3,475,661	4,696,064	5,814,119	11,294,000	14,654,000	17,578,000
Idaho	84,817	83,823	80,000	7,394,143	10,240,953	14,400,000	1,531,625	2,095,867	2,850,000
Montana	97,446	151,088	179,000	4,006,468	9,322,951	11,235,000	63,265,000	154,957,470	218,618,000
Nevada	144,275	178,800	.....	3,057,114	4,280,000	.....	41,611,119	70,018,000	.....
New Mexico	27,307	33,435	38,298	1,061,775	1,061,902	1,141,000	23,630,000	4,505,000	6,618,000
Oregon	33,712	51,800	.....	46,560	112,000	.....	38,373	397,000	.....
South Dakota	486,119	567,230	590,679	99,741	151,047	135,600	.....	.....	.....
Texas	359	518	675	854,442	1,000,960	1,383,000	29,000	28,000	52,000
Utah	136,582	184,838	224,500	7,111,417	9,227,673	10,115,000	86,024,925	129,531,241	263,290,000
Washington	8,302	9,739	11,400	44,120	52,338	58,000	13,900	86,699	50,000
Wyoming	4,871	3,715	2,180	710	1,152	1,217	3,500	1,000	.....

recorded in the state, and an increase of 68,245 ounces over the output in 1935. The average annual output for the last decade was 175,588 ounces. The value of the 1936 gold output, at \$35 an ounce, was \$10,850,000, compared with \$8,461,411 in 1935, at the same price per ounce.

About 61 per cent of the gold output in Arizona in 1936 was recovered in copper bullion produced at the four copper smelters at Douglas, Clarkdale, Clemenceau, and Superior; 23 per cent was recovered as gold bullion and precipitates sold to mints and refining plants; most of the remainder was recovered in copper bullion and lead bullion by the smelter at El Paso, Texas. Gold from the lode mines in 1936 was approximately 303,000 ounces compared with 236,597.60 ounces in 1935, and about 7,000 ounces of gold were recovered from placers compared with 5,157 ounces in 1935. The gold recovered by the floating dredge with dragline digger on Lynx Creek in 1936 was nearly double that in 1935 which accounts for the increase in placer production.

The largest producers of gold in Arizona in 1936 were the Copper Queen mine at Bisbee, United Verde mine at Jerome, and New Cornelia mine at Ajo (all operated by the Phelps Dodge Corporation); these three properties produced nearly half of the state's gold production. Other large producers of gold were the Tom Reed at Oatman, Hillside near Hillside, Magma at Superior, Pilgrim (Pioneer) near Chloride, Portland near Katherine, Octave at Octave, Eagle-Picher at Ruby, Mammoth-St. Anthony at Mammoth, Gladstone-McCabe (Harbord) near Humboldt, Gold Standard at Katherine, Lynx Creek Dredge east of Prescott, United Verde Extension at Jerome, Shattuck-Denn at Bisbee, Pioneer and Ruth-Rattan at Oatman, Gold Road at Gold Road, Vulture tailing near Wickenburg, New Year-Mohawk group at Mammoth, and Golden Turkey at Cordes. These properties each produced more than 3,000 ounces of gold.

The recoverable silver output was 8,125,000 ounces, the largest yearly output that has ever been recorded in the state and 1,523,720 ounces more than the output in 1935. The average annual output for the last ten years was 5,361,630 ounces.

More than 73 per cent of the total silver output in Arizona in 1936 was recovered from copper ore, chiefly from the Copper Queen, United Verde, Magma, and New Cornelia mines, and most of the remainder was recovered from lead-zinc ore and siliceous ores. The Copper Queen and United Verde mines of the Phelps Dodge Corporation produced more than 56 per cent of the

## EDITOR'S NOTE

At the time The Mining Journal went to press, the production figures for 1936 for the states of California, Nevada, and Oregon had not been released by the United States Bureau of Mines. When these reports are available the tables showing the production of gold, silver, copper, lead, and zinc in the western states will be printed again, with all figures included. We will also carry the review of mining activities in those states.

state's silver. Other large producers of silver were the Eagle-Picher, Magma, New Cornelia, Hillside, United Verde Extension, Tombstone, Reymert, Miami, Shattuck-Denn, Swastica, and Arizona Magma properties.

The recoverable copper output in 1936 was 409,200,000 pounds, the largest output since 1930 when 576,190,607 pounds were produced, and slightly greater than 1931, when the production was 401,344,909 pounds. The largest yearly production was in 1929, with 830,628,411 pounds, and the next largest was in 1918, with 764,855,874 pounds. The increase in 1936 over 1935 was 131,170,711 pounds and the value increased from \$23,076,431 to \$37,646,400. The copper smelters at Douglas, Clarkdale, and Superior continued operations during 1936 and the receipts of ore and concentrates were considerably more than in 1935. The smelter at Clemenceau operated intermittently, but the smelters at Clifton and Hayden remained idle. The New Cornelia mine of the Phelps Dodge Corporation at Ajo was again the largest producer of copper in Arizona; it was followed by the United Verde mine at Jerome and the Copper Queen at Bisbee (both operated by the Phelps Dodge Corporation), the Inspiration mine at Inspiration, the Miami mine at Miami, and the Magma mine at Superior. These six properties produced approximately 387,600,000 pounds of copper or nearly 95 per cent of the state total, and each one produced more than 30,000,000 pounds of copper. Other large producers of copper were the United Verde Extension, Shattuck-Denn, Morenci branch of the Phelps Dodge Corporation, and Bagdad properties. The entire output of copper from the United Verde mine came from steam-shovel operations in the open pit as no attempt is being made at the present time to mine ore from the deep levels.

The Globe (Inspiration-Miami) district was the chief copper-producing district in Arizona in 1936 as the output increased from 37,359,120 pounds in 1935 to 109,150,000 pounds in 1936; the Ajo district with an increased production ranked second; the Verde district with a greatly increased production ranked third; the Warren (Bisbee) district with a production of 78,600,000 pounds ranked fourth; and the Pioneer (Superior) district with a production of 30,150,000 pounds ranked fifth.

The lead production in Arizona increased from 15,566,100 pounds in 1935 to 20,275,000 pounds in 1936, the largest production since 1926 when 23,258,274 pounds were produced. The value of the lead output in 1936 was \$932,560, an increase from \$622,644 in 1935. The Eagle-Picher Mining & Smelting Company in 1936 was again by far the largest producer of lead in Arizona; it was followed by the "79", Trench (Gold Canyon Mining Company), Tennessee-Schuylkill, Shattuck-Denn, Tombstone (Bunker Hill property including Toughnut lease), Hillside, Flux, and Copper Queen mines. These nine properties produced 91 per cent of the state's lead.

In 1934 and 1935 nearly all of the zinc produced in Arizona came from the Montana property of the Eagle-Picher Mining & Smelting Company at Ruby, Santa Cruz county, but in August, 1936, the Tennessee-Schuylkill group at Chloride, Mohave county, was reopened and in September the 150-ton flotation-concentrator started treating lead-zinc ore. The output of recoverable zinc in Arizona in 1936 was about 7,800,000 pounds, valued at \$387,100, compared with 6,673,932 pounds valued at \$293,653 in 1935. As usual, the Eagle-Picher Mining & Smelting Company was the largest producer of lead and zinc in Arizona and third in the production of silver. The company operated its 250-ton flotation-concentrator continuously, treating more lead-zinc ore in 1936 than in 1935.

The output of ore and old tailings in Arizona in 1936 was approximately 12,800,000 tons, an increase of 6,029,950 tons over 1935. Copper ore increased from 6,011,755 tons to 11,880,000 tons, gold (ore and old tailings) and gold and silver ore combined from 578,405 tons to 705,000 tons, silver ore from 26,239 tons to 32,000 tons, lead ore from 16,749 tons to 29,000 tons, and lead-zinc ore from 129,772 tons to 155,000 tons.

## COLORADO

Reports of mine operators and smelting companies covering actual production for the first 11 months of 1936 with estimates

**SOME STATISTICS ON 1934, 1935, AND 1936 PRODUCTION OF COPPER, GOLD, SILVER, LEAD, AND, ZINC IN THE WESTERN UNITED STATES**

State	Lead—Pounds			Zinc—Pounds			Total Value in Dollars		
	1934	1935	1936	1934	1935	1936	1934	1935	1936
Alaska	1,679,000	1,630,000	1,850,000	.....	.....	.....	16,178,800	17,460,900	22,287,000
Arizona	6,877,216	15,566,100	20,275,000	1,810,279	6,673,932	7,900,000	23,292,150	37,198,809	56,072,400
California	828,168	1,384,000	.....	721,719	248,000	.....	25,784,183	31,534,999	.....
Colorado	8,435,000	11,345,000	13,657,000	1,544,000	2,403,000	2,511,000	14,884,969	17,875,938	19,610,264
Idaho	142,648,216	158,040,250	180,400,000	49,598,651	62,105,568	92,500,000	15,277,669	19,522,704	26,981,000
Montana	20,010,000	31,177,525	37,322,000	61,442,256	109,561,477	98,820,000	14,439,363	30,918,228	41,587,700
Nevada	21,981,874	25,484,000	.....	27,880,790	30,459,000	.....	12,859,826	17,718,626	.....
New Mex.	18,729,000	14,578,000	14,307,000	53,043,000	44,252,000	41,551,000	6,505,002	4,837,590	5,346,977
Oregon	41,603	48,500	.....	73,184	9,000	.....	1,216,075	1,981,358	.....
S. Dakota	.....	7,000	.....	.....	.....	.....	17,054,337	19,961,902	20,778,177
Texas	719,000	1,042,000	1,049,000	.....	.....	.....	593,828	781,614	1,141,573
Utah	116,153,945	127,051,200	135,860,000	56,896,279	62,815,614	68,360,000	22,975,534	31,676,748	48,547,930
Washington	581,298	206,150	1,790,000	3,852,419	2,157	8,630,000	506,945	394,041	953,470
Wyoming	2,000	5,000	.....	.....	.....	.....	171,067	131,136	77,237

1934—Average metal values: Gold, \$34.95 per ounce. Silver, \$0.64646+ per ounce. Copper, \$0.08 per pound. Lead, \$0.037 per pound. Zinc, \$0.043 per pound.

1935—Average metal values: Gold, \$35.00 per ounce. Silver, \$0.71875 per ounce. Copper, \$0.088 per pound. Lead, \$0.04 per pound. Zinc, \$0.044 per pound.

1936—Average metal values: Gold \$35.00 per ounce. Silver, \$0.77 per ounce. Copper \$0.092 per pound. Lead, \$0.046 per pound. Zinc, \$0.049 per pound

for December indicate that the production of gold, silver, copper, lead and zinc from Colorado lode and placer mines, in terms of recovered metals, was 364,713 ounces of gold, 5,814,119 ounces of silver, 17,578,000 pounds of copper, 13,657,000 pounds of lead, and 2,511,000 pounds of zinc, according to Chas. W. Henderson and A. J. Martin, of the Denver office of the U. S. Bureau of Mines. These figures compare with an output in 1935 of 349,281 ounces of gold, 4,696,064 ounces of silver, 14,654,000 pounds of copper, 11,345,000 pounds of lead, and 2,403,000 pounds of zinc, and show increases in 1936 of 15,482 ounces of gold, 1,118,055 ounces of silver, 2,924,000 pounds of copper, 2,312,000 pounds of lead, and 108,000 pounds of zinc.

The gross estimated value of the output of these metals in Colorado in 1936 is: gold, \$12,764,955; silver \$4,476,872; copper \$1,617,176; lead \$628,222; and zinc \$123,039. The number of producing lode mines in Colorado in 1936 is estimated at 750 compared with a final count of 870 in 1935. The decrease in 1936 was in the number of mines, prospects, and dumps that yielded only small lots of ore usually derived from small-scale mining or sampling operations, each of which is called a producing mine. The number of ore reduction mills active all or part of 1936, excluding small stamp amalgamation-table concentration and pilot mills of less than 20 tons daily capacity, was 75, of which 58 treated company ore only, 10 accepted custom ores from neighboring mines to supplement the owning company's tonnage, five were operated on custom ores on the basis of a fixed charge per ton, and two purchased outright all the ores treated. Of the 75 mills, 47 had a capacity under 100 tons daily, 26 ranged from 100 to 1,000 tons, and two over 1,000 tons.

There was successive reduction in each of the years 1935-36 from 1934 in the number of miners engaged in small-scale placer mining. The estimated number in 1936 was 700 compared with 842 in 1935 and 967 in 1934. The production of gold from all placer operations decreased from 19,363 ounces in 1935 to around 14,000 ounces in 1936. Nearly all the decrease was accounted for in the smaller quantity of gold recovered in 1936 by dredging and small-scale sluicing, hydraulicing, and drift mining operations. Production by dragline and

power-shovel excavators with sluices or special amalgamators totaled about the same in both years.

Cripple Creek is the principal gold-producing district in Colorado, yielding 140,670 ounces of gold in 1936, compared with 124,324 ounces in 1935. The total output of ore from mines and dumps in 1936 was 602,000 tons, of which 110,000 tons were sold to or treated at mills in the district and 492,000 tons were sold to the Golden Cycle mill at Colorado Springs. Although the chief source of ore for the Golde Cycle plant has always been the Cripple Creek district, the plant also furnishes a market for a considerable quantity of gold and silver ores from other districts in Colorado and small lots from northern New Mexico, South Dakota, and Wyoming. Operating at the highest tonnage rate the plant treated 50,132 tons in October, or an average of 1,617 tons per day; the average for 365 days in 1936 was 1,477 tons.

The new 500-ton flotation-roast-cyanidation custom mill of the Cripple Creek Milling Company at Cripple Creek was operating during the first part of 1936 on less than capacity while adjustments were being made in the equipment and flow sheet with which the company started operations on November 19, 1935, and while the remainder of plant equipment was being installed and tested. By November the mill was handling an average of 400 tons daily; the total treated in 1936, including some low-grade dump material used on initial runs late in 1935, was approximately 90,000 tons. The ores treated comprised all the output (purchased under contract) of mines on the Stratton Estate, and part of the production, bought on open schedule, of various independent operators in the district; also the mill purchased concentrates produced at Florence, Fremont county, by a new mill operated part of the year on old tailing from ores originating in the Cripple Creek district. The 100-ton cyanide leaching plant at the Iron Clad mine was run continuously throughout the year, but not at full capacity.

Ranking second among Colorado counties in output of gold in 1936, Park county also produced substantial quantities of lead and silver and some copper, largely as a by-product of gold mining. The chief producers were the London Gold Mines Company from the London and London Extension

groups. Fairplay Gold Mines Company from the "North London" group, and London-Butte Gold Mining Company from the Butte group (new mill placed in operation in May),—all of which treated the bulk of their ore by flotation-concentration and shipped concentrates and some high-grade ore to the Leadville smelter. Shipments of high-grade crude ore were made throughout the year from the American mine, but the mill was not run. A 50-ton custom flotation concentration mill, built by the Alma Milling and Metals Corporation near the Hock Hocking mine, principally for the treatment of ores from the Hock Hocking group, was placed in operation in October.

Increased production in 1936 over 1935 of copper-iron-silver-gold sulphide ore shipped to Utah smelters from the Empire Zinc Company's Eagle mine put Eagle county still further ahead of other counties in the state in output of copper and silver and placed it among the important gold-producing counties.

The only mill to continue active in San Juan county in 1936 was the Shenandoah-Dives Mining Company's selective flotation mill near Silverton, having a rated capacity in 1936 of 600 tons daily. In 1936 the company installed sampling equipment and offered its milling facilities to a larger number of operators. Besides carrying on its mining and milling operations, Shenandoah-Dives contracted with the American Smelting & Refining Company to drive a 3,000-foot crosscut from the main haulage tunnel of the Shenandoah-Dives property to a point in the Silver Lake group, owned by the latter company.

Metal production in Ouray county, especially gold, was adversely affected by a snow slide in February, 1936, which crushed the mill of the King Lease, Inc., the largest producer of gold in the county, mining the upper levels of the Camp Bird mine. However, the company reconstructed the building, repaired damaged equipment, made improvements where practicable, and had the mill running again within 90 days. Silver and lead production was maintained at a higher rate than in 1935, largely by continuous operation of the G. A. Frantz flotation mill on ores from company mines including the Pony Express and Upper Bachelor groups.

The Telluride Holding Corporation, operating the Smuggler Union mine and 300-

mine, near Constellation, Arizona. While engaged in this work he will maintain headquarters at Wickenburg, Arizona.

**James H. Ward**, former Diesel-electric power plant superintendent for Blackhawk Consolidated Mines Company, Mogollon, New Mexico, has joined the electrical department of the Inspiration Consolidated Copper Company. He is making his home at 1107 Arthur Street, Miami, Arizona.

**W. Thomas Henderson**, former mill superintendent for Cia. Minera La Quimica, S. A., Sultepec, Mexico, has established headquarters at Nuevo Leon 278, Mexico, D. F., Mexico. Henderson was for a number of years, a partner of the late P. A. Babb and active in the mining industry of Guanajuato.

**Carl O. Larson**, who has been in charge of the Boulder Ore Sampler for the St. Joe Mining and Milling Company at Boulder, Colorado, for years is now at Hurley, New Mexico, where he has joined the metallurgical staff of the Nevada Consolidated Copper Corporation. He is being replaced at Boulder by **A. C. Carey**.

**E. D. Flynn**, who has been in charge of the Chicago office of Oliver United Filters, Inc., has been appointed chief engineer of the company with headquarters at the Oakland factory. Flynn, a native of Michigan, is a graduate of the University of California and has been continuously associated with Oliver United Filters, Inc., since 1917.

**Ernest Ph. Herivel** has taken the position of general superintendent of Cia. de Inversiones del Oro, S. A., Sombrerete, Zacatecas, Mexico. He succeeds **L. W. LaMontagne**. Herivel was former assistant manager of the Mexican Corporation's Teziutlan Unit, and more recently with Cia. Santa Gertrudis, S. A., at Pachuca, Hidalgo, Mexico.

**J. P. Hart**, who has been director of the Tonopah School of Mines, has returned to Austin, Nevada, to resume his work as general superintendent of the Austin Silver Mining Company. **O. D. Welch**, assayer of Millers, will carry on Hart's work in Tonopah. **S. Ford Eaton**, who has been in charge at the Austin company for the past few months, will return to New York.

**Louis Gence**, formerly with the Suyoc Consolidated Mining Company at Suyoc, Mountain Province, has been transferred by Marsman and Company and is now in charge of the Dulong mine for the Dulong Mining Company, San Nicolas, Pang., Philippine Islands. Before going to the Philippines, Gence was with the Republic Gold Mining Corporation at Grass Valley California.

**William L. Zeigler** of Wallace, Idaho, in charge of milling operations for the Hecla Mining Company, has been granted a United States patent for his improved type of mineral separator, which has four features of originality and improvement, comprising concentric rotating chambers of a rotary aerating device for creating spirally traveling currents to aid in the mineral separation process. Two cells have been used in the Hecla mill for two years and one in the Hercules plant for about a year.

**Sam Morris**, Globe, Arizona, attorney was appointed chairman of the five-man copper tariff board by Governor R. C. Stanford of Arizona. Morris, originally appointed by the late George W. P. Hunt, was the only one of the previous board to be retained. The other members named were: **Foval A. Smith**, consulting engineer, Phoenix; **Cleve Van Dyke**, Miami; **Jack Flynn**, Bisbee, manager of Shattuck Denn Mining Company; and **Lin B. Orme, Sr.**, president

#### ANUNDSEN TO HAVE CHARGE OF ARIZONA MINE RESCUE STATION

**E. A. Anundsen**, associate mining engineer of the United States Bureau of Mines, will have charge of the central mine rescue station for Arizona, headquarters for which will be located in the old federal building, Phoenix. The rescue station will have a specially designed and equipped truck for transportation of oxygen breathing apparatus and instruments for measuring gas in mines.



E. A. Anundsen

The special function of the new rescue station will be to render assistance in case of any mine disaster. Fully equipped rescue stations, with trained personnel, are maintained at Globe, Bisbee, and Jerome by the larger mining companies. The current enlarging of the bureau's activities in mine safety and rescue work is in line with the need which mine operators have felt for a number of years and which is especially important at this time of increased mine activity in the state.

Anundsen is a graduate of the University of Minnesota, class of 1928. After a few months spent in the Jerome district of Arizona, engaged in actual mine operations, he joined the staff of the United States Bureau of Mines, specializing in safety engineering. He has been assigned to duty at a number of the bureau's divisions, including work in the copper and iron fields of northern Michigan and Minnesota, the coal district of Illinois, mining throughout the southern states, and with the Denver division.

On July 1, 1935, he established headquarters in Phoenix, Arizona, to represent the bureau in field safety activities. He has been largely occupied in giving first aid and safety training and has issued certificates to approximately 3,000 Arizona miners who have enrolled in safety-first classes. His work also includes the prevention of accidents and ill health in the mining and allied industries.

of the Salt River Valley Water Users Association, Phoenix.

**Karl A. Strand** has returned to Santa Rita, New Mexico, where he is employed in the engineering department of Nevada Consolidated Copper Corporation. Until the re-opening of the Chino mines Strand had been acting as superintendent of mines for Peru Mining Company, Hanover, New Mexico. Upon his resignation the employees of the mine presented him with a handsome watch. Strand was formerly a consulting geologist for the Empire Zinc Company at Hanover, but in 1928 went to Nevada Consolidated where he was employed until that company's operations were closed down. He later accepted the position with Peru Mining.

**Donald M. Young**, who has held a number of responsible positions with mining companies in Mexico, has recently taken the position of mine shift boss at the United Paracale Mining Company, Paracale, Camarines Norte, Philippine Islands. Young is a graduate of the College of Mines, University of California, class of 1926. His first position after leaving college was with

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Phelps Dodge Corporation at Morenci, Arizona, where until 1929 he was test engineer and metallurgist on the Morenci concentrator. He was later employed as research metallurgist with Treadwell Yukon Manufacturing Company, and in 1934 was test engineer on special work for American Cyanide Corporation in New Jersey. More recently he has been with Pacific Gold Mining Company at La Chapalota, and with the Negociacion Minera de Guadalupe de Los Reyes, S. A., Guadalupe Los Reyes, Sinaloa, Mexico, as mine superintendent.

#### WILLIAM R. BAIRD DIRECTS OPERATIONS AT DOLLAR BILL

**William R. Baird**, Vidal, California, is in charge of operations at the Dollar Bill and Bessie mines in the Gold Basin district near Mt. Savahai, 10 miles north of Vidal. Work has been resumed following a two-month lay-off. The property, which is owned by Baird and A. M. Hall of Needles, has been operated for the past year under bond and lease by the Dollar Bill Mining Company, D. C. Wray, Vidal, president. This company has been reorganized under the name of the Consolidated Gold Basin Mines, with Wray again heading the organization as president, and the bond and lease arrangement is to be continued and an extensive program of development carried out under Baird's direction.

In addition to development of the Dollar Bill and Bessie groups, work is to begin immediately on two other groups controlled by the Consolidated organization in the immediate vicinity. The Dollar Bill has shipped a little more than \$3,000 in gold during the past two years and several hundred feet of development work has been completed. It is opened by approximately 500 feet of shafts and tunneling. At the Bessie, a 160-foot shaft has been sunk, but no lateral work has been done. Crews of three men each are employed at the two properties, which will be increased as soon as preliminary timbering is completed.

Baird, who started his mining career as a mucker in the Cripple Creek district of Colorado in 1910, has engaged in various branches of the work in Idaho, Utah, Nevada, and Arizona. In addition to the Dollar Bill group, he also owns the Independence silver mine in the same district, which he is prospecting and preparing for development.

#### ASSESSMENT WORK ON MINING CLAIMS DEBATED IN CONGRESS

Opposition is developing in the western congressional delegation toward a continuing moratorium on the annual government assessment work on unpatented mining claims. For several years congress has voted to suspend the requirement that public land mineral claim holders improve their claims to the extent of \$100 yearly.

The expression of opposition came after Representative James F. O'Connor of Livingston, Montana, introduced a bill to extend the moratorium through the next year. Representative Lewis of Colorado and Representative Grever of Wyoming stated that they believed the measure should be defeated, as it permits claim holders to continue their rights without making improvements and such a situation is not conducive to mining development. Grever also added that the moratorium removed an opportunity for many mining laborers to obtain employment. Representative White of Idaho also voice his opposition.

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## The Sampling Mill by Fisher Vane

\*\*\*In hoc anno Domini et gratiae MCMXXXVII sursultamus esperandi ad astra. Which in our crude modern lingo reads: In this year of our Lord and of Grace 1937 we hop off hopefully towards the stars. (Note: That's original Latin, believe it or not; I didn't crib it). So . . . let's hop!

\*\*\*Hop No. 1: On February 1 about 8,000 Arizona miners get a 5 per cent hike-up in wages. The added \$650,000 lifts the state's copper-mining payroll to \$18,000,000. Nice going! Take it with a parallel smile over the gain of almost \$19,000,000 in Arizona's 1936 metal output (\$56,072,400) over that for 1935—reported by the United States Bureau of Mines. The Arizona copper production hop, itself—from 278,029,289 pounds in '35 to an estimated 409,200,000 pounds in '36—was enough to hop up all good Arizonans, and make metal miners of Good Neighbor States sympathetically happy.

\*\*\*Hop No. 2: Both foreign and domestic copper prices hit new post-depression highs in the week ending January 16. The domestic base hopped to 13 cents, keeping abreast of the foreign market where speculative buying was done at 13.05 cents.

\*\*\*That's enough hops for one column, especially as the impetus has been in part the prospect of warfare in Europe. But they'll fight any, so we who dig and sell war metals may as well grin and win.

\*\*\*Comes now Roger Babson with a Babson Park dispatch January 18 which in effect is a piercing shriek acent a situation this writer has discussed many times in this column. "My figures," wails Roger, "show that there are more than a billion dollars seeking reinvestment at the present time. Investors are perplexed. They are asking: 'Is it wiser to hold investment funds liquid, hoping for lower prices and better yields in the future, or are bond returns going to remain at current levels indefinitely?'"

\*\*\*Poor old Roger! Why doesn't some close friend whisper in his ear as to the attractive investment aspects of the legitimate metal-mining industry? He needs but turn to Dun-Bradstreet statistics to satisfy himself and his satellites and followers that there have been fewer failures in legitimate mining enterprises than in any other field of business in this country over a long period of years.

\*\*\*But keep that word LEGITIMATE in your mind's eye, brethren. In the blunt phraseology applied to the subject in previous articles in The Mining Journal, we within the mining industry must, ourselves, clean house—literally delouse the industry. Otherwise not a dime of that huge hoard of investment-hungry dollars will find its way into mine development. We can't sit supinely and let state and federal bodies wash our dirty linen—as was done in an assertedly noisome case in San Francisco and Los Angeles as lately as January 7 when the SEC had two mining-stock salesmen-promoters arrested in Los Angeles.

\*\*\*Publication of that sort of thing in financial pages isn't likely to stimulate movement of any bank-hoarded funds into mine-development. . . now IS IT?

\*\*\*Will the American Mining Congress take the bull by the horns and set up an official Delousing Committee for the industry?

## Concentrates from Western States

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

### ARIZONA

The Sunbeam Gold Mining Company, Florence, Arizona, operating the Silver Bell-Martinez mines, shipped its first car-load of concentrates to the El Paso smelter on January 12, and expects to make a car shipment every 10 days. The mill is handling 40 tons of ore daily. The road from the mine to Superior is being rebuilt and when completed will make it possible to ship from Superior, a distance of 10 miles, instead of from Florence, a distance of 19 miles. Construction of the new road will also mean the opening of several properties in the neighborhood. H. A. Derrer is in charge as mine superintendent. Operations are directed by Glenville A. Collins, 490 Bay Street, San Francisco, California.

On January 15 the United Verde Extension Mining Company permanently closed its smelter at Clemenceau, Arizona, announcing that the mine at Jerome was not producing sufficient ore to warrant continuation of operations. George Kingdon, general manager of the mining company stated that the closing of the plant resulted in discharge of 125 employes, 50 being retained at the smelter for the necessary cleaning up. In the mine at Jerome the company will employ 125 men and ship the ore produced to the Phelps Dodge smelter at Clarkdale.

A 10-ton Cottrell plant is being installed by F. C. Clark of San Diego on a quicksilver property in the Mazatzal mountains of Arizona. The property is two and one-half miles off the new Bush highway between Mesa and Payson, Arizona. A vein of ore has been cut at a depth of 100 feet. H. Haueter, Box 27, Mesa, Arizona, is in charge of operations.

Miami Copper Company, Miami, Arizona, has been gradually increasing production until late in 1936 the company was mining and milling at the rate of approximately 300,000 tons of copper ore monthly. A further gradual increase in production may be made in the early part of the current year. A. S. Winther is manager of Miami Copper.

Shipments of ore during December by the Shattuck-Denn Mining Company, Bisbee, Arizona, are officially stated to show a copper content of 7.34 per cent, with slightly more than \$5 a ton in the precious metals. It is expected that the January figures will show production approaching 10,000 tons of ore. The ore body, which has shown 28 per cent copper ore, has been developed on the 2,400 level for a distance of 500 feet, and the present face is said to show 13.5 per cent copper. J. G. Flynn is general manager. Two hundred and fifty men are employed.

The St. John Gold and Copper Company, Cleator, Arizona, expects to begin ore shipments by the end of the current month, shipping ore having recently been encountered on the 84-foot level. The vein is said to be 40 inches wide. At the annual meeting of the board of directors, January 5, the following officers were elected: John Slak, re-elected president and general manager; P. J. Gokee, vice-president; E. D. Newcomer, executive secretary; and A. F. Slak, re-elected treasurer and assistant secretary.

Properties of the Tombstone Extension at Tombstone, Arizona, are to be operated by the Tombstone Mining Company, headed by C. M. D'Autremont of Tucson, Arizona, president, and Harry Hasselgren of Tombstone, vice-president. The Tombstone Mining Company has leased the Gallagher mill in the Charleston district and will complete the milling of the Tombstone Extension dump, as well as the low-grade ore now mined and lying in the drifts of the mine. According to Hasselgren, the mine is to be cleaned up first, then regular mining operations undertaken. The mill was leased from the Gallagher Vanadium Company of San Antonio, Texas. The Gallagher mill was reconditioned about a year ago and has a daily capacity of 50 to 75 tons.

The Slick Mining and Refining Company, Tombstone, Arizona, R. W. Stuler, general manager, is the organization which is handling the erection and operation of the 50-ton flotation mill at the Escapule ranch. Vanadium and molybdenum ores from the Dragoon mountain area are to be treated.

Ventura Mines, Inc., Nogales, Arizona, filed a registration statement with the Securities and Exchange Commission at Washington, D. C., on November 20, 1936, for the issuance of 500,000 shares of common stock at \$1 par value. The commission allowed this registration to become effective on December 18, as of December 10, 1936. The company is making arrangements to have this issue underwritten in New York and expects to have it completed sometime during the month of January, 1937. The proceeds are to be used for the development of the property, purchase of machinery and equipment, and for working capital. Joseph A. Michel, Hotel Montezuma, Nogales, Arizona, is president of the company.

Stockholders of Monte Christo Gold Silver Company, Constellation, Arizona, in a meeting held at Salt Lake City, Utah, elected a new board of directors. The new board includes A. L. Chase, Dr. J. G. Dodge, August Greenhagen, and Charles Ford, all of Los Angeles, California, and Ross Black of Ventura, California. Francis D. Crable, attorney of Prescott, Arizona, was appointed receiver for the company in October.

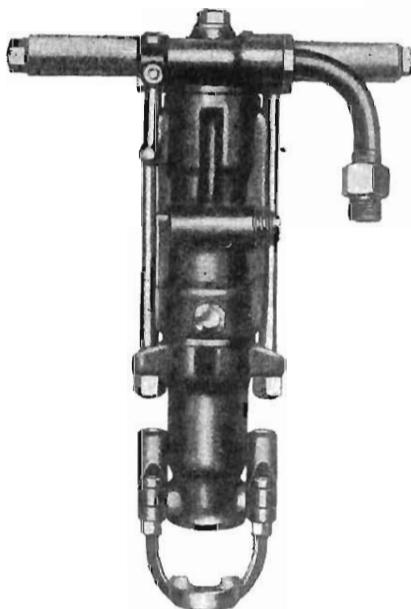
### CALIFORNIA

A crew of men is engaged in tunnel development work at the James Quayle property, about four miles north of Placerville, California. Crosscutting and drifting is being carried on from the main adit to determine the extent of ore bodies. James Quayle, Placerville, is the owner of the property.

Two shifts of men are carrying on a development program at the Crystal mine, three miles south of Shingle Springs, El Dorado county, California. Prospecting is being carried on in the main tunnel and a two-compartment winze from that level is being deepened. At the winze station a 20-horsepower hoist brings the rock from the winze, which at present is down about 300 feet from the adit level. Ore is then trammed from an ore bin to the dump. Although several smaller operators have attempted development work, it was not until July, 1936, that operations were taken over.

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by eastern capital. Since that time, several buildings have been constructed and a two-machine vertical-type compressor, powered by a 75-horsepower electric motor, has been installed. J. R. Elmendorf is mine superintendent.

James Beyers and Earl Hamilton, Sonora, California, are repairing a road to the Half and Half pocket mine at Browns Flat preparatory to development. They will recondition the 120-foot incline shaft, install machinery, and proceed with exploratory work.

Dr. Ralph Wagner, Rancho Chihuahua, Saugus, California, is reported to have located a group of mining claims in the Shoshone district of Death Valley which yielded gold samples assaying from \$6.50 to \$14 a ton up to \$22,424 for pocket material.

Mining and milling operations continue at the Big Blue and Lady Bell mines, properties of Kern Mines, Inc., Kernville, California, under the direction of Ivan Knudsen, superintendent. Driving westward on the hanging wall vein of the Big Blue on the 360-foot level, the ore shoot has been penetrated more than 200 feet, maintaining its width of 20 feet and its 100-foot backs of around \$9 ore. As this shoot continues downward, it is possible that several years' operations are in sight. The Lady Bell, at 425 feet, is furnishing most of the ore for the mill. The drift is being pushed forward, blocking out an extensive body of ore, said to be richer than that of the Big Blue.

W. H. Clark and Ted E. Hunt have sold their interest in a lease on the Stewart pocket mine in the Browns Flat district near Sonora, California, to their partner, Harry Bowerman, Box 16, Sonora. The mine is owned by Joseph Wainwright.

Fortuna Mines, Inc. has released to Domingo Scanavino, all rights to the Fortuna mine, near Sonora, California, acquired by it through leases, options, or other agreements. The property is located in the Bellevue district and consists of the Fortuna, Indiana, and Bella Italia lode claims.

A concentrating table may be installed soon at the Good Luck mine's five stamp mill in the Sawmill Flat district, three miles north of Sonora, California. The mill is handling ore from the Over mine in the same district, which is being operated by Earl Mapes, Roy Schaffner and Herb Larson.

Operations have been discontinued at the Corner Stone mine, Callahan, Siskiyou county, California, by M. C. C. van Loben Sels and B. L. Eastman, both of Nevada City, California, who held the property under bond and lease.

Unsatisfactory progress in returning California Engels Mining Company, 333 Montgomery street, San Francisco, to a profitable basis has resulted in another change in the company's management, the third in two years, and F. Emerson Hoar, civil engineer, has been appointed president to succeed Cyril Stevenson, who has headed the company since November, 1935. Retiring from active management with Stevenson are J. J. Dunlop, vice president and director, and John R. Gwynn, director. In addition to Hoar, newcomers into the company's management are Frederick L. Harrington, mining engineer, Walter G. Swart, consulting engineer, and Oscar Hershey, mining geologist. The latter three compose an advisory board, newly created for the purpose of promulgating plans for converting California Engels' unprofitable mining operations into more prosperous channels. The company recently was denied permission to

obtain new capital by selling additional capital stock. The company holdings include the Belmont Osborn and Gold Hill mines at Angels Camp, California, and the Morning Star, near Hodson, via Copperopolis, California. The Belmont Osborn is operated by the Belmont Osborn Mining Company, and the Gold Hill and Morning Star by the California Osborn Mining Company, both subsidiaries of California Engels.

The Mutual Gold Corporation, operating the Simpson mine at Leevining, California, at an altitude of 10,000 feet, has suspended operations with the advent of winter weather. Plans had been laid for winter operation, but the company was forced to abandon work before supplies could be brought in. Charles Horner, Leevining, is manager of the property.

Twenty men are employed at the Greenhorn mine near Redding, California, which is being reopened by the Greenhorn Mining Company under the direction of A. L. Brown, following a five-year shutdown. The company recently was granted a \$20,000 RFC loan for development purposes, and it is understood that plans are being considered for installation of a reduction plant at the property. Frank H. Proctor, 109 Crocker Avenue, Oakland, California, is president of the company.

A four by seven Eimco mill has been added to the mill equipment at the Big Canyon mine of the Mountain Copper Company, J. M. Basham, superintendent, Shingle Springs, California. Present equipment consists of two 150-ton ball mills.

Hamilton, Beauchamp and Woodworth, consulting metallurgical engineers, 564 Market Street, San Francisco, are designing the first unit of a milling plant for the Columbus Gold Mining Company, Robert P. O'Brien, manager, Tuolumne, California. The new plant is to be planned in such a way that the capacity can be stepped up as mine development proceeds. A crew of 60 men is employed at the property.

The Fine Gold mine at Vallecita, Calaveras county, California, is reported to be on a production basis, under the direction of Horace Taylor. A crew of 22 men is employed at the property.

Five men are employed at the Daisy Blue mine, Nevada City, California. The shaft has been sunk 100 feet and drifts are going forward. The shaft was sunk on the ore on an incline. The mine is equipped with a hoist and compressor. The Daisy Blue Mining Company was recently incorporated by John Marks and J. P. Muscardini of Nevada City, and James L. Bates of Gridley.

Effective January 1, the Golden Queen Mining Company, Mojave, California, has established a salary increase of 25 cents per day for all employes who are working on a daily wage basis. This will bring the base rate for miners to \$5 and for muckers, \$4.50. Additional bonuses are also given for tonnage. William C. Browning, 1214 Pacific Mutual Building, Los Angeles, is general manager of the company.

A five-stamp mill is in operation at the McClean-Hudson mine, near Coulterville, California, handling ore which is said to average from \$10 to \$15 in gold per ton. A compressor and other mine machinery have also been installed at the property, and the development of territory beyond the old workings is proceeding. The property was abandoned until two years ago, when the present owners accidentally discovered mill ore and some high grade apparently overlooked by pioneer miners. Old stopes

were found filled with profitable material, and recent work has demonstrated the persistence of ore shoots into new territory.

The Golden Triangle mine at Graniteville, California, is to be operated throughout the winter, and efforts made to block out ore during the next few months for milling in the spring. W. W. Esterly of Grass Valley, California, is superintendent of the property, which is operated by the Golden Triangle Mining Company.

Herbert Shaw, Sonora, California, and Wiley Williams are developing a drift tunnel at the Buckeye gravel mine in the Buchanan district which is reported to be showing a vein of ore four to five feet in width, with a six to eight-foot streak running high in free gold and containing good values in sulphides. Shaw is also working the Chaparral mine near Sonora under lease from E. G. Wenzel, Sonora, owner.

The old Boyle mine, 18 miles west of Yreka, Siskiyou county, California, and now known as the Second Chance, is being rehabilitated. Old veins are being opened up and new tunnels driven to open the ledges in new areas. The mine is owned by John W. Luttrell, Yreka, who is acting as manager, and Dr. Paul W. Sharp, Klamath Falls, Oregon, is an operating partner. James E. Kirk of Yreka is superintendent. Operations have been temporarily suspended pending the securing of outside capital. The mine, which was operated about 45 years ago by a Mexican company, is said to have produced \$200,000 on the upper level. The second level tunnels have never been completed. The ledges, said to be free milling, have been mined on the upper level for a distance of about 1,800 feet.

The Butte Central Milling and Mining Company, W. F. Downie, president, 482

Miller Building, Yakima, Washington, is installing a 50-ton custom mill on the portion of the Bootjack mine near Oroville, California, held by the Sierra Pacific Mining and Milling Company. The mill will handle ore from the Sierra Pacific property, as well as that from other mines in the Forbes-town district. The Sierra Pacific holdings consist of seven claims on the south end of the Bootjack property which were deeded to the company by Frank Bennett, Oroville, about a year ago. The Butte Central has a lease and bond on five claims on the north end of the Bootjack property.

Unwatering and repairing of the 1,250-foot shaft at the Norambagua mine, Grass Valley, California, has been completed under the direction of Marshall D. Draper, Auburn, California, and work is under way to determine the extent of the ore bodies. This property, together with the Perrin, was recently taken over under lease and option by the Campbell California Mining Company, organized by R. Potter Campbell, Inc., 84 Williams Street, New York City. Immediate plans for the property call for developing the veins and possibly connecting the Norambagua shaft with the Perrin mine to the west. The Campbell company has announced that if results of the examination work are satisfactory, a 100-ton mill will be erected.

The Bullion Gold and Silver Mining Company, operating the McKinley gravel mine near Jamestown, California, has let a contract to Arthur Selberg for driving a crosscut from the east rim to the trough of the ancient subterranean river channel, an estimated distance of 300 feet. Two shifts of men are being employed in the work and, according to E. L. Beck, Sonora, California, company superintendent, progress is being

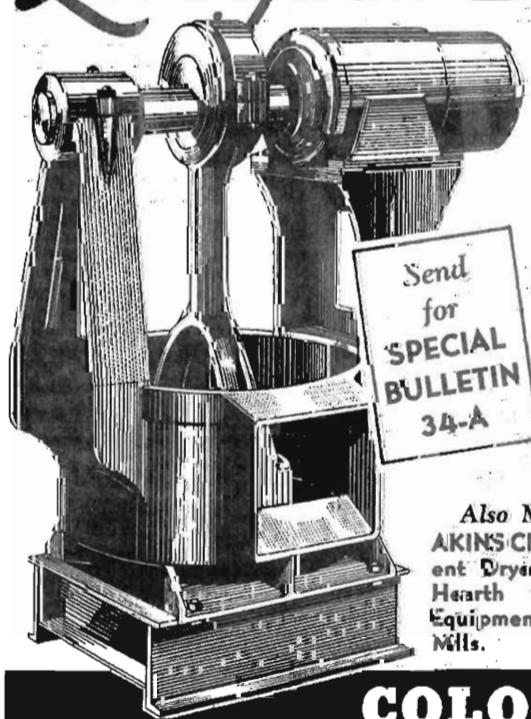
made at the rate of five to seven feet per day. The Bullion Gold and Silver Mining Company, Charles T. Neely, president, maintains headquarters at 348 Russ Building, San Francisco.

A recent crosscut in the Quail mine, 11 miles south of Coulterville, California, revealed an additional width of 16 feet of high-grade ore, after cutting through a false footwall from the original 12-foot vein. The 28-foot vein, on which there are 700 feet of backs, is said to average \$18.50 per ton in gold. The mine is operated by Quail Gold Mines, Inc., H. B. King, president, and J. E. King, Sonora, California, is in charge of operations at the property. The company is engaged in blocking out ore by raising and expects in the spring to be ready to build a mill of 200 to 400 tons capacity, according to H. B. King.

The Lava Cap Gold Mining Corporation, Otto E. Schiffner, general manager, Nevada City, California, has purchased a new 300-horsepower double-drum hoist and a 1,700-cubic foot compressor, the latter to be used in the new shaft which is being projected from the tunnel level on the Banner property. The company has doubled the capacity of the change house at the Central shaft. Three hundred tons of ore per day are being treated in the mill.

Installation of a 100-ton plant is to begin immediately at the Cuddeback quicksilver property near Tehachapi, California, according to Dan Murphy, Rosamond, California, who is directing operation at the property. Two new veins have recently been opened carrying from 2 to 5 per cent cinnabar. Plans are being prepared for a new type of electric furnace to handle the concentrates from flotation operations. Percy Blodget, Rosamond, is supervising engineer.

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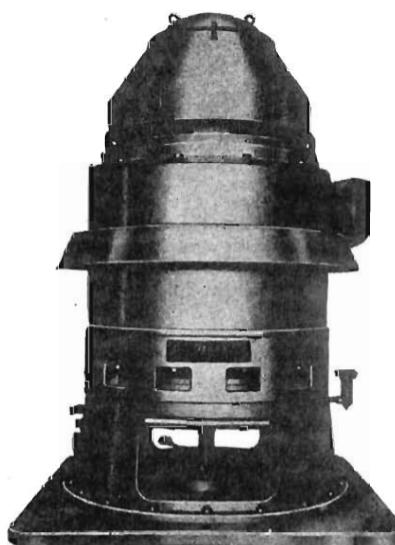
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Work is on a three-shift basis at the **Plumbago** mine at Alleghany, California, operated by **Socorro Mines, Inc.**, and an extensive program of sinking and drifting on ore bodies is being carried out. Andrew Carey of Nevada City is in charge of the mill at the property. Ralph Yountz, Alleghany, is resident manager.

The **Idaho Maryland Mines Corporation**, Grass Valley, California, has equipped its main shaft with a powerful pumping plant and will shortly abandon the old Canyon workings. Mill repairs were made during the Christmas vacation, and development of ore bodies from the lower levels of the Brunswick and Idaho Maryland mines is stated to be proceeding favorably at several points. Errol MacBoyle, Grass Valley, is general manager; Albert Crase, assistant general manager; Harold Lynn, superintendent.

Milling facilities, recently installed at the Pennsylvania mine in Browns Valley by the **Empire-Star Mines Company, Ltd.**, Grass Valley, California, have been connected with electric power and following satisfactory test runs, the 50-ton stamp mill has been placed in steady operation on the ore from the company's properties in that territory. G. A. Kervin, Nevada City, California, is manager at the Pennsylvania.

From seven to ten men are employed at the **Bigelow** mine, Sierra City, California, and milling is being carried on at the rate of about 25 tons per day. So far, little in the way of modern equipment or processes has been installed, but some advance along these lines is expected during the present year, it is reported. Samuel A. Gillespie of San Francisco and New York is the lessee and operator, and R. J. King, Grass Valley, California, is superintendent. Milling ore is coming from around the 1,200-foot station in the 1,400-foot tunnel development of former operators, which follows a wide and strong ledge formation the entire distance. The present operators are making only a low recovery, but are storing quantities of material for possible flotation treatment later.

The King Solomon mine, Randsburg, California, is being reconditioned and is to be put on production again in the near future, it is reported. Machinery from the Gold Bug mine is being moved back to the King Solomon and L. E. Netherton is to be in charge of operations. The King Solomon is being operated by the **Mount Gaines Mining Company**, A. G. Ilseng, president, 183 North Martel Avenue, Los Angeles, which also operates the Mount Gaines mill in Mariposa county, California.

The Atolia Rand Placers, Inc., one mile southwest of Atolia, California, is undergoing electrification, and operations are expected to be resumed as soon as the power lines have been completed and hooked up. H. H. Morse, Atolia, is general manager.

The Mojave Smelter at Mojave, California, has been taken over by Marion Steele, 100 Wilcox Building, Los Angeles, and associates, who are preparing to place it in operation. W. J. (Bill) Blake, manager for M. Steele Company, will be in charge of the plant.

The Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, estimates its December operating income at \$210,700, including other income, but before providing for depreciation or income taxes. While results were \$46,900 less than in November, December nevertheless brought the full year's operating income to \$2,625,700, a new high record, which compares with \$1,928,-

800 in 1935 and surpasses the previous record year, 1934, by \$379,150, or approximately 17 per cent. December operating income of \$210,700 compares with \$156,000 in December, 1935.

Edward Lynch and P. Ault are setting up a small mill at the **Lynch** quartz mine on the south fork of the Salmon River near Cecile, California. They plan to make a mill test of the ore from the mine.

Burton Brothers, Rosamond, California, are rebuilding a cyanide plant at the **Ruth** mine near Trona, California, preparatory to working an old tailings pile at the mine. At the same time, ore is being developed in a winze which is being run from the tunnel located about 200 feet below the old glory hole. A favorable showing has been found at the bottom. Rolls are to be installed in the mill to handle the mine ore, which does not require fine crushing but responds readily to cyanidation after being reduced to one-quarter-inch. The mine proper is being developed by Nelson W. Sweetser and George Wyman.

The 180-foot shaft at the **Little Wonder** mine near Big Oak Flat, California, is being pumped out preparatory to sampling. The mine, which is equipped with a Lloyd ball mill, is owned by Mr. and Mrs. W. C. Seavey of Coulterville, California. It was purchased originally by M. Lebec and Seavey from Daniel and William Corcoran, Lebec later selling his half interest to Mrs. Seavey.

Gravel yielding from \$4 to \$7.50 per yard has been reported at the **Lone Star** property near Chinese Camp, being operated by Fred and George Razzano and Douglas C. Ferrie. Drift methods are being used and hundreds of feet of openings have been driven during the past four years.

By quitclaim deed, George F. King, Sonora, California has released all interest in the **Leap Year** gravel mine near Jamestown, to Chief Caupolicán, Hans Peters and W. H. Campbell, who have been operating the property under a lease and purchase agreement during the past year.

The old Cherokee mine at Oroville, California, operated by the **Cherokee Drift Gold Mining Company**, is reported to be responding well to development of new territory. The company is headed by Alexander Logie, 230 California Street, San Francisco.

Operators of the **Blue Gravel** mine near Oroville, California, are reported to be working in gravel sampling at 60 cents a cubic yard. The long tunnel is apparently nearing the main channel, where a large deposit of rich gravel is anticipated. The property covers two and one-half miles of the channel.

### COLORADO

Production has been started by the **Gold King Gold Mines Company**, S. T. Weller of Cripple Creek, Colorado, manager. The old property was recently reopened and equipped with modern machinery by eastern interests, represented by R. B. Nichols of Binghamton, New York. During rehabilitation and construction work, dump ore was being sent daily to the Cripple Creek plant.

A total of 238 carloads of ore from the Victor mine of the **Hidalgo Gold Mines, Inc.**, had been settled for up to December 26, giving a total tonnage of 6,932 tons of dry ore, with a stated gross value of \$51,998, or \$7.50 a ton. All shipments were taken from above the tenth, or 650-foot, level. In addition to newly mined ore, the company shipped 905 tons of dump ore. A. F. Woodward of Cripple Creek, Colo-

ducing 50 tons of ore daily, employing 29 men at the mines at Keetley. Frank Rivers of Keetley is mine superintendent. Values are in silver, lead, gold, and zinc. C. T. Van Winkle, Dooly Block, Salt Lake, is chief geologist for the company. About 30 additional men are employed by lessees, who are operating on New Park ground.

A 25-cent wage increase is reported to have been granted 1,300 workers at the Garfield and Murray plants of the **American Smelting and Refining Company**, William J. O'Conner, 700 McCormick Building, Salt Lake City, Utah, manager of the Utah department. This is said to boost daily wages of skilled workers to \$6.25 a day and an average worker to \$5. The company increased all day-pay employees at the Garfield and Murray plants 5 per cent September 1, 1936. This recent raise is in keeping with the 25-cent hike announced as the major agreement in the recent strike settlement.

#### WASHINGTON

Operating a diatomite deposit in Adams county, Washington, Charles Sassaman and Ralph Streeter of Ritzville, Washington, are planning to install a small crushing plant. Development work is said to be progressing.

New hoisting equipment will be required by the **Shamrock Silver Lead Mines, Inc.**, Guy B. Walker, Moore Hotel, Seattle, Washington, president, upon completion of the double compartment 550-foot shaft, now down about half way. An extensive development program has been under way at the property, located near Keller, Washington, under the direction of Robert S. Wells of Colville. Walker was reelected president; A. A. Bowman of Yakima, vice-president; J. E. Angle, secretary-treasurer; and Lloyd B. Walker and J. R. Abraham, trustees.

Increasing shipments to the Tacoma smelter from eight to 15 carloads of ore a week, the **Mountain Lion** mine near Republic, Washington, is now producing about 3,000 tons monthly. A crew of 25 men is employed by C. M. Trevitt and A. B. Thomson, both of Republic, who operate the property under lease from the Mountain Lion Mining Company.

Between 60 and 70 men are employed in three shifts by the **Pend Oreille Mines and Metals Company**, Charles A. R. Lambly of Metaline Falls, general manager. The company recently received federal and state permission to develop 2,200 horsepower on the Pend Oreille River at Metaline Falls. Specifications for the power house provide

for the installation of an additional 2,200 horsepower unit at a future time. Machinery will be installed during February and March. In the meantime, Diesel power for the driving of the 12 by 20-foot tunnel has been installed and work will be prosecuted from both ends. The 300-ton mill is to be enlarged to a rated capacity of 1,000 tons. Because of the hardness of the material treated, the present plant has not handled 300 tons of ore daily.

It is possible that the **Bunker Hill and Sullivan Mining and Concentrating Company**, Stanly A. Easton of Kellogg, Idaho, president, will start diamond drilling operation in the spring in the Kettle River district of Washington. The company owns some mining property in the district jointly with Miles McNally of Spokane. T. D. O'Neill has been granted a three-year lease on a portion of the ground. The Bunker Hill company is also carrying on development work at the Mammoth mine near Dixie, Idaho, which it holds under lease and option from the Mammoth Mines Corporation.

The **T. S. and L. Company** has been incorporated in Washington by O. E. Brady, 1318 West Mansfield Avenue, Spokane, Washington. The new company is reported to have acquired two properties: the Tungsten mine from O. M. Kimmel of Deer Park and Kemp of Loon Lake, and a silver-lead quartz mine on the Columbia River, 14 miles south of Northport, from Dr. Weils of Colville. Operations are to start immediately at the Tungsten mine, located about 12 miles north of Deer Park in Spokane county.

Continuous operation is expected at the **Deer Trail Monitor Mines Company**, operating near Fruitland, Washington. Three shifts are being employed in the mine and at least two in the mill. The company, J. R. Brown, 409 Metals Building, Spokane, president and general manager, recently made arrangements for three months for the sale of all molybdenum concentrates, which will be shipped from the company mill to Spokane.

#### MONTANA ORGANIZES TO HELP MINING INDUSTRY IN STATE

In order to publicize Montana mines and the mineral wealth of the state, an organization, known as the **Minefinder, Inc.**, has been formed, with W. M. Hall of Helena, Montana, president. A six-column, four-page newspaper, containing data on the mining districts, is to be published monthly for free distribution. All aspects of mining in Montana are to be studied and discussed, including the geological, historical,

economic questions; kinds and types of minerals; payrolls; and the prospects and opportunities afforded by various mines and districts.

A fact finding commission, headed by geologists and engineers, is to be appointed, with C. C. Coulter of Denver, Colorado, in charge. Metallurgy and assaying will be directed by Brunner and Perey of Helena, and publicity will be handled by Don Gleed.

#### DE KEYSER CORPORATION TO MOVE TO BAKER, OREGON

Michel De Keyser of the **M. De Keyser Ozone Corporation**, 3237 Southeast Stark Street, Portland, Oregon, reports that he is planning to move the combination chemical, mechanical, and electrical processing plant from Portland to Baker, Oregon, which is more centrally located with respect to mines.

The De Keyser process and plant is said to be compact, with a capacity for treating 1,200 cubic yards of alluvium every 24 hours. It is also planned to install a plant for the treatment of sulphide ore and concentrate from the Baker district. The product of the De Keyser process is shipped directly to the U. S. mint in Seattle, Washington.

#### LUCKY JOE MILL HANDLES

##### 110 TONS OF ORE DAILY

The mill at the **Lucky Joe Gold Mining Company**, Jackson, California, is handling 110 tons of low-grade ore a day, by straight flotation methods, with the heads averaging \$5 and tails, 0.006 ounce, according to William A. Crowfoot, mill superintendent. Recovery is about 95 per cent, producing a 4.50 ounce concentrate with a 2 per cent insoluble. It is hoped to step up the tonnage soon, at which time an entirely new unit will be built to handle the increase. However, no definite plans have yet been made.

The company's crushing plant, which is a separate unit, consists of a 12 x 24-inch Universal jaw crusher, a Symons vibrating screen, and a Teismith gyratory. The mill itself is composed of a 5 x 4-foot Hendy grate type ball mill, in closed circuit with a Dorr Simpex classifier. Flotation cells are of the Fagergren type. A connected load of 410 horsepower is available at the property, the power being supplied by the Pacific Gas and Electric Company.

Ray Pass, formerly with the Gold Standard mine at Congress Junction, Arizona, has recently joined the staff of the Lucky Joe company as assayer and chemist.

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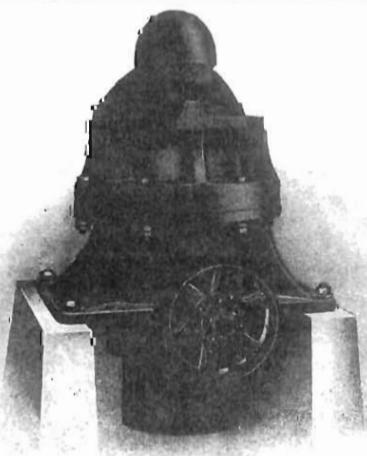
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The Golden Harvest Mining Company, of which Frank E. Smallidge of Wenatchee is president, is a small, but steady producer, sending from 10 to 20 tons of ore to the Blaine-Republic mill daily. The Morning Glory, renamed the Old Gold mine, in which Paul B. Chapman of Republic is interested, is also a consistent producer.

An increased output of gold and silver from the district during the last year is attributed to the reopening of the Mountain Lion property. More than half the gold production of the state comes from the Republic camp, and with the Blaine-Republic, Quilp, and Knob Hill mines again in production, the output for the coming year ought to exceed all previous records.

#### **INSPIRATION CONSOLIDATED IS USING NEW TREATMENT PROCESS**

Inspiration Consolidated Copper Company, Inspiration, Arizona, now has in operation its new treatment process by which all ores mined, both oxides and sulphides, are first treated in the leaching plant, which extracts the oxides. The remaining slime which contains the sulphides is then treated in the concentrating plant, the same as crude ore. Formerly the oxide and sulphide ores were treated separately. The new process, it is believed, will increase the copper recovery as well as materially lower production costs.

Inspiration has recently increased its copper output to approximately 11,000,000 pounds of copper monthly. The leaching and concentrating plants are operated on a seven-day week, while the mine crews are on a six-day week.

For the 11 years, 1922-1932, the company's yearly costs averaged 12.082 cents a

pound of copper, including depreciation, but exclusive of depletion, federal taxes and shutdown expenses. However, in 1931 costs were reported at 8.428 cents, the lowest in the company's history, on an annual production of 61,368,033 pounds of copper. Although no statement has been issued by the management as to the effect which the new treatment process is expected to have on costs, it is currently estimated that with production at the present rate the company may be able to reduce costs to approximately the 1931 figure. Inspiration's year of heaviest production was 1916, when the output amounted to 120,772,637 pounds of copper. The year 1929 ranked second with a production of 107,307,067 pounds of copper.

#### **DUCHESS MINE IN VALLICITA DISTRICT TO BE REOPENED**

Resumption of mining operations at the famed Duchess mine in the Vallicita mining district, two miles northwest of Carson Hill, California, has been announced by J. S. Ward, president of the Duchess Mining and Milling Corporation, Ocean Center Building, Long Beach, California.

The first work to be undertaken will be rehabilitation of the 1,700-foot main working tunnel, and following that the adit will be extended another 500 feet to find the orebody, which is reported to have yielded a large fortune in the upper workings. Large tonnages of mill ore were left standing by the early operators as only ore sampling \$50 per ton or better was extracted.

The Duchess history has been a turbulent one. In the late nineties several pockets of sensational high-grade ore were un-

covered which records show netted the owners a fortune. The surface was prospected closely, and trenches dug across the entire width of the property revealed several outcrops carrying excellent pay. A long adit to tap the veins at depth was started in 1905, but while this work was progressing a rich pocket was uncovered near the surface. This disclosure started a number of lawsuits which kept the property closed for 31 years. About 18 months ago a number of Long Beach men, headed by J. S. Ward, Roy Cooper, and Dr. J. O. Eiler, purchased all the interests of the litigants.

#### **HOUSE EXECUTIVE COMMITTEE OF METAL MINING BLOC NAMED**

Members of the United States House of Representatives who have been appointed to the executive committee of the house metal mining bloc were recently named by Representative James G. Scrugham of Nevada, chairman of the committee. Those appointed include: Compton White, Idaho; J. J. O'Connell, Montana; Abe Murdock, Utah; and John R. Murdock, Arizona.

Extension of the 4-cent excise tax on copper for another two years was among the objectives named by the committee at its first meeting at which the group tentatively agreed on an 11-point program to be submitted later to the entire bloc.

Continuation of Reconstruction Finance Corporation loans on their present basis, opposition to the application of reciprocal trade agreements to minerals, advocacy of the extension of the present gold and silver legislation, federal aid to prospectors, and opposition to any change in the regulations governing the location of mining claims on the public domain, have been listed as the principal work of the committee.

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**DENSMORE BLOCKS ORE IN  
PREPARATION FOR NEW MILL**

Two shifts are engaged in extending the main level, known as the Ogden tunnel, at the Densmore mine, Columbia, California, and two eight-hour crews are blocking out two large bodies of ore which were opened up in the first 600 or 700 feet of the tunnel. Blocking out is being carried on in preparation for a 50-ton mill to be constructed on the property in the near future.

The Densmore property has four levels started below the Ogden tunnel which are said to reveal other pay shoots. The lowest of these, which will eventually become the main adit level, and immediately below which the mill will be located, will give nearly 400 feet of additional backs on the ore bodies exposed in the Ogden tunnel. Hence, it is pointed out that no sinking will be required for many years.

The ore body being opened by the Ogden tunnel, known as the New York shoot, is reportedly proving to be even better than was expected. Not more than a foot wide when it made its appearance in the face of the adit, according to B. A. Ogden, manager, it widened to three feet in the first 26 feet of advance made, and the first cut sample taken from it is said to have assayed \$378 per ton.

The Densmore is operated by the Densmore Gold Mines, Inc., and the principal owners are Ogden and E. A. Julian. W. Coburn Cook, 6 Berg Building, Turlock, California, is secretary. The company was recently granted a \$20,000 RFC development loan for its property.

**AJO QUADRANGLE SUBJECT OF  
RECENT ARIZONA PUBLICATION**

James Gilluly, geologist with the United States Geological Survey, has completed a detailed geological study of the great copper ore deposits at Ajo and his report is now available in a University of Arizona Bulletin, entitled "Geology and Ore Deposits of the Ajo Quadrangle, Arizona." This bulletin is a condensation of a publication which will eventually be issued by the United States Geological Survey.

Aside from brief notes of early reconnaissance in the Papago country and incidental mention in the mining press of the geology immediately surrounding the mining district at Ajo, published information on the geology of the Ajo quadrangle has been limited to the reports of two men. Ira B. Joralemon, at the time he served as geologist for the New Cornelia Mining Company, published a description of the geology of the mine at Ajo at an early stage in its development. In 1917 Kirk Bryan made a reconnaissance of the entire Papago country.

The current report by Gilluly, a highly technical discussion, gives a complete description of the geology, physiography, and ore deposits of the entire Ajo quadrangle, the total area of which amounts to more than 200 square miles. As the New Cornelia mine is the only one that has thus far been productive in the Little Ajo area, that property is covered in detail. He estimated that the developed reserves of the deposit are adequate for a life of 30 to 40 years at a rate of production in excess of 50,000,000 pounds of copper a year.

As it is usually about two years after a manuscript is completed before the United States Geological Survey can issue it as a bulletin or professional paper, those interested in the Ajo quadrangle will welcome this publication of Gilluly's report so soon after the field work is completed.

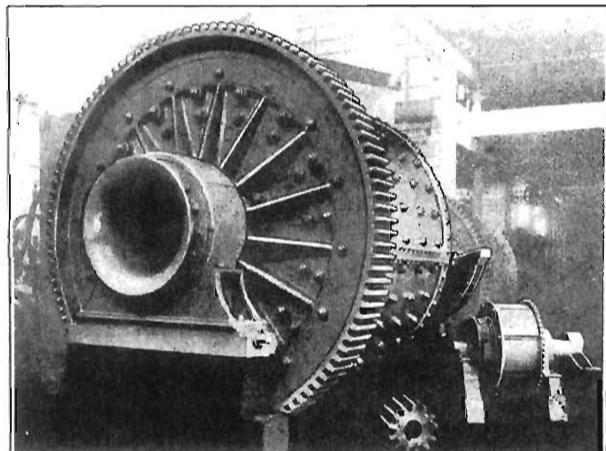
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METAL PRODUCTION FIGURES  
FOR 1936

(Continued from page 7)

from the Orphan Girl, Emma, Trout, Comet, and Josephine mines, and the remainder came from the slag-fuming plant at East Helena. The Anaconda Copper Mining Company operated the Orphan Girl and Emma mines and the slag plant at East Helena, and the Josephine mine was operated by lessees from the company.

The output of ore and old tailings in 1936 was about 3,567,000 tons compared with 2,412,113 tons in 1935. Most of the increase was in copper ore and old tailings. About 67 per cent of the total was classified as copper material and 15 per cent as lead-zinc ore. Most of the remainder was siliceous gold ore. The number of properties operating in 1936 was about the same as in 1935 when 681 lode mines and 551 placers, a total of 1,232 producers, were operated.

**NEW MEXICO**

Mine production for the first 11 months with an estimate by mine operators for December indicates that the output of gold, silver, copper, lead, and zinc from New Mexico ores and gravels in 1936, in terms of recovered and estimated recoverable metal, was 33,298 ounces of gold, 1,141,000 ounces of silver, 6,618,000 pounds of copper, 14,307,000 pounds of lead, and 41,551,000 pounds of zinc, according to Chas. W. Henderson and A. J. Martin of the Denver office of the United States Bureau of Mines. These figures compare with a production in 1935 of 33,435 ounces of gold, 1,061,902 ounces of silver, 4,505,000 pounds of copper, 14,578,000 pounds of lead, and 44,252,000 pounds of zinc.

The gross value of the New Mexico production in 1936 was gold \$1,165,430, silver \$878,570, copper \$608,856, lead \$658,122, and zinc \$2,035,999, a total of \$5,346,977, an increase of \$509,387 or 10.5 per cent over 1935.

The continued shutdown since October, 1934, of the Chino mines at Santa Rita, which since 1848 and particularly from 1910 has produced the bulk of the state's total copper, seriously affected the value of the 1935-36 output.

The number of producing lode mine operations in New Mexico in 1936 was approximately 140 counting, in addition to developed and equipped mines, all prospects and dumps that yielded any quantity of recoverable metals. The final count in 1935 was 150. The little importance statistically of many of the operations counted in both years is revealed by the fact that the nine largest producers, all of which were active in 1936, in 1935 yielded 78 per cent of the state's total gold from lode mines, 93 per cent of the silver, 96 per cent of the copper, 98 per cent of the lead, and all of the zinc. The estimated number of producing placers in 1936 is 220 compared with the actual count of 234 in 1935. As in the case of lode mines, 78 per cent of the placer production of gold came from a few operations equipped for large-scale mining.

A circumstance that reduced considerably the output of all five metals in 1936 was the interruption of production by a miners' strike during part of February and all of March and April at the Pecos mine, on Willow Creek, San Miguel county, the

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**WYOMING**

Receipts at smelters and the United States mint for 11 months with an estimate for December indicate that metal mines in Wyoming in 1936 produced, in terms of recovered metals, 2,180 ounces of gold and 1,217 ounces of silver, according to Chas. W. Henderson and A. J. Martin of the Denver office of the United States Bureau of Mines. These figures compare with an output in 1935 of 3,715 ounces of gold, 1,152 ounces of silver, 1,000 pounds of copper, and 5,000 pounds of lead.

The gross value of the gold and silver produced in Wyoming in 1936, at average yearly prices of \$35 per ounce of gold and \$0.77 per ounce of silver, was \$76,300 for gold, and \$937 for silver, a total of \$77,237. The value of the output of gold, silver, copper, and lead in 1935 was \$131,136.

The decline of 41 per cent in output of gold in Wyoming in 1936 from 1935 was due largely to a shorter period of operation in 1936 of the E. T. Fisher Company's dragline and traction amalgamator, the principal producer in the state since 1932, and the idleness during most of 1936 of the Duncan lode mine and mill, both in the Atlantic City district, Fremont county. Of the 2,180 ounces of gold produced in Wyoming in 1936, approximately 1,800 ounces were recovered by placer operators.

**NEWLY EQUIPPED SISSON MINE TO GO ON PRODUCTION**

The Sisson mine, Sierra City, California, operated by the Sisson Gold Mining Company, 456 Subway Terminal Building, Los Angeles, California, is expected to be in actual production by February 1 according to John E. Sisson, president of the company. The mine was fully equipped during the fall months for winter operations, and activities will continue throughout the winter.

A complete ore transportation system, consisting of tram line and ore cars, has been installed, and a 35-ton rod mill, with amalgamation barrels, plates, concentrating tables, and miscellaneous equipment, is nearing completion. A complete compressor unit likewise has been purchased and delivered, and assembly of this equipment is now practically complete. A large building, combining living quarters, store rooms, and mining headquarters has also been erected at the mine.

Another recent improvement is the completion of a direct hydraulic water power system, consisting of a dam, with six and eight-inch pipe lines, approximately 3,000 feet in length, connecting with a Pelton wheel.

**EMERGENCY DECLARED BY NAVY TO SECURE COPPER REQUIRED**

After declaring an "emergency" need, the United States navy has signed two contracts for copper which were exempted from provisions of the Walsh-Healy act requiring government contractors to conform to certain labor standards. The contracts called for 200,000 pounds of copper at 12.175 cents a pound from Kennecott Sales Corporation of New York, and for 200,000 pounds at 12.205 cents a pound from the Calumet and Hecla Consolidated. The navy took this method to secure the copper required after twice calling for bids on 2,600,000 pounds of copper and receiving not a single reply.

While no statement was made by copper producers, it was generally understood that the Walsh-Healy Public Contracts Act, passed at the last session of congress, was

responsible for the lack of bids. The law, which applies to all government purchases in excess of \$10,000, exclusive of transportation, communication, or construction contracts, requires that the bidder pay prevailing wages, adhere to an eight-hour day and five-day week, employ no child or convict labor, and maintain safe and sanitary working conditions. The copper companies' difficulty in conforming to this legislation lies in the regulation as to hours of labor. The law permits suspension of the rules when an "emergency" exists, and it was under that provision that the current contracts were let.

**OPEN SCHEDULES FOR GOLD AND SILVER ORES AT SMELTERS**

Operators of small gold and silver mines in the western United States are always faced with the question of marketing their ores and concentrates. A paper of unusual interest to these operators is that recently compiled by E. D. Gardner, supervising engineer, and Paul T. Allsman, assistant mining engineer, both of the mining division, Southwest Experimental Station, Tucson, Arizona. The paper has been issued by the United States Bureau of Mines as Information Circular 6926, entitled "Open Schedules for Gold and Silver Ores and Concentrates at Western Custom Smelters." The report discusses smelting schedules, general smelting practices that have a bearing on rates, and the reasons for penalties or credits for certain constituents of ores.

Smelting companies throughout the west furnish copies of their open schedules for publication, and a large number of small producers submitted smelter settlement sheets to the authors for inspection. The

paper goes into a thorough discussion of the classification of gold and silver ores, and smelting of the ores at both copper and lead smelters, sampling and assaying, and freight and trucking rates.

The circular concludes with the statement that as the smelting business is competitive, rates more favorable to the shipper than those shown in the open schedule usually can be obtained by contracting to furnish a specified monthly tonnage. Before making a smelting contract a shipper should have complete knowledge of the approximate analyses and grade of his ore, and freight rates to competitive plants, and their needs for his particular type of ore.

**AUTHORIZATION OF SURVEY GIVEN BY WAR DEPARTMENT**

Authorization of a mineral survey of the northwest area is reported to have been given by Colonel Thomas M. Robins, war department division engineer. The survey is for the purpose of investigating minerals which will be used by the electrometallurgical industries, drawing power from the Bonneville dam in Oregon and the Grand Coulee in Washington.

The survey will include iron, bauxite, coal, chromite, asbestos, nickel, borax, limestone, and kindred materials. A considerable amount of work has been done in the northwest and elsewhere by the U. S. Bureau of Mines and various educational institutions on the problems of the extraction of values from the various ores. Reports of work being done by engineers and geologists on refractory materials in northeast Washington are being released, as soon as they are available, from the district office at 523 Pittock Building, Portland, Oregon.

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## METALS PRODUCED IN

# California, Nevada, and Oregon in 1936

**CALIFORNIA**

The mine production of gold, silver, copper, lead, and zinc in California in 1936, in terms of recovered metals, is estimated to be 1,049,600 fine ounces of gold, 2,026,700 fine ounces of silver, 10,320,000 pounds of copper, 1,490,000 pounds of lead, and 40,000 pounds of zinc, valued in all at \$39,316,499, compared with \$32,242,872 in 1935, according to preliminary figures by Charles White Merrill of the San Francisco office of the United States Bureau of Mines. These figures compare with a production in 1935 of 890,430 ounces of gold, 1,191,112 ounces of silver, 1,954,000 pounds of copper, 1,134,000 pounds of lead, and 322,000 pounds of zinc.

The quantity and value of each of the metals, with the exception of zinc, showed an increase in 1936 over the production of 1935; the total value of the five metals in 1936 exceeded that for 1935 by 22 per cent. Gold provided over three-quarters of the total increase in value of 1936 over 1935. The value of the production of copper was almost six times as great in 1936 as in 1935, silver production was nearly double, lead production increased over 50 per cent, and gold production was up 18 per cent.

California continued to hold its position as the leading gold-producing state of the United States; its output in 1936 was greater than that for any year since 1916. In value, the state's output exceeded that for any year since 1862. The remarkable recovery of the California gold industry since the onset of the depression has resulted from the expansion of output at working mines, old producing mines reopened, and prospects and new discoveries brought into production. The Grass Valley-Nevada City district continued to be the center of the gold-producing industry.

Although data are not available at this time to segregate exactly the source of gold production into lode and placer properties, it appears that about three-fifths of the state's gold was derived from lode mines and two-fifths from placer operations. This ratio of productivity between the two types of mines has not varied greatly in recent

years. At the placer mines the principal mining method used was dredging. During 1936, 63 dredges were reported in operation. Of these 22 were floating dredges using the connected-bucket type of excavator; 32 were floating washing plants to which gravel was delivered by dragline excavators; and nine were stationary washing plants to which gravel was delivered after being excavated by power shovels. Although exact figures are not available, it is estimated that 30 per cent of the state's gold or 75 per cent of the placer production of the state came from dredging. Of the dredge production about 90 per cent came from connected-bucket type dredges and most of the rest from dragline outfits. Some hydraulicking was carried on, and the large army of small-scale gold miners continued to work the creeks in lieu of employment of other kinds. It appeared, however, that better conditions on the farms and in the industrial centers of California caused the small-scale gold miners to abandon their depression activities and return in increasing numbers to their former occupations.

The silver output of California was largely a by-product of the mining of other metals, principally gold. In 1936 silver production increased 70 per cent in quantity over 1935. One of the large contributors to this increase was the expanding output of the Mojave district in Kern county, where the gold mines produce a large quantity of by-product silver. The Golden Queen Mining Company in this district was the leading producer of silver in the state for the first time. Dry gold ore was the principal source of silver in California.

The continuation in 1936 of operations at the Walker mine in the Spring Garden district of Plumas county, which was reopened during the latter months of 1935, was the principal reason for the increase from 1,000 tons of recoverable copper in 1935 to 5,000 in 1936. The ore of the Walker mine was treated in the company's flotation mill and the concentrates were shipped for smelting. Small quantities of copper were contained in concentrates produced at many of the gold mines where concentration was applied to ores.

The metal production of Nevada county continued to have a higher value than any other county in the state; by far the greater part of this output was accounted for by the gold mines of the Grass Valley-Nevada City district. The Empire Star Mines Co., Ltd., continued to be the leading producer of the district. The Idaho Maryland Mines Corporation was the second most important producer in the district. This company increased its milling capacity during the year and carried on further development work at its Brunswick mine, placing it on a production of 600 tons a day. Much interest was taken in the circular shaft being bored on Idaho Maryland property. The Lava Cap Gold Mining Corporation, another large producer in the district added to its equipment and did a considerable amount of development work underground during the year. Nevada county's gold mine payroll averaged over one-third of a million dollars per month throughout the year.

The Mother Lode district, extending through Eldorado, Amador, Calaveras, Tuolumne and Mariposa counties was one of the most important producers of lode gold in California in 1936. In Eldorado county the Big Canyon mine of The Mountain Copper Co., Ltd., near Shingle, continued to be one of the leading producers of lode gold.

In Amador county the Argonaut Mining Company, Ltd., operating the deepest mine in the state, reported a good year for 1936. Additional ore was opened up in the lower levels and much new equipment was added on the surface. Air compressor capacity was increased over one-third and the stamps formerly used in the mill were replaced by a large ball mill. The adjoining property of the Kennedy Mining and Milling Co. operated throughout the year; the new cyanide plant treated 1,000 tons of tailings a day. The Central Eureka Mining Co. at Sutter Creek operated throughout 1936.

In Calaveras county the Carson Hill Gold Mining Corporation at Melones continued its program of expansion of production. Additional equipment was added to the mill and production continued from the open pit at the property as well as from underground. The Calaveras Central Gold Min-

SOME STATISTICS ON 1934, 1935, AND 1936 PRODUCTION OF COPPER, GOLD, SILVER, LEAD, AND ZINC IN THE WESTERN UNITED STATES

State	Gold—in Fine Ounces			Silver—Ounces			Copper—Pounds		
	1934	1935	1936	1934	1935	1936	1934	1935	1936
Alaska	458,000	455,430	518,460	168,868	286,600	468,000	114,000	15,056,000	39,740,000
Arizona	167,024	241,755	310,000	4,448,474	6,601,280	8,125,000	178,082,213	278,029,289	409,200,000
California	719,064	890,430	1,049,600	844,413	1,191,112	2,026,700	569,068	1,954,000	10,320,000
Colorado	324,923	349,281	364,713	3,475,661	4,696,064	5,814,119	11,294,000	14,654,000	17,578,000
Idaho	84,817	83,823	80,000	7,394,143	10,240,953	14,400,000	1,531,625	2,095,867	2,850,000
Montana	97,446	151,088	179,000	4,906,468	9,322,951	11,235,000	63,265,000	154,957,470	218,618,000
Nevada	144,275	188,031	284,700	3,057,114	4,393,426	4,970,000	41,611,119	74,266,000	135,650,000
New Mexico	27,307	33,435	33,298	1,061,775	1,061,902	1,141,000	23,630,000	4,505,000	6,618,000
Oregon	33,712	54,160	59,900	46,560	110,385	83,800	38,373	397,800	540,000
South Dakota	486,119	567,230	590,679	99,741	151,047	135,600	.....	.....	.....
Texas	359	518	675	854,442	1,000,960	1,383,000	29,000	28,000	62,000
Utah	136,582	184,838	224,500	7,111,417	9,227,673	10,115,000	86,024,925	129,581,241	253,290,000
Washington	8,302	9,739	11,406	44,120	52,338	58,000	13,900	86,699	50,000
Wyoming	4,871	3,715	2,180	710	1,152	1,217	3,500	1,000	.....

ing Co., Ltd., a heavy producer of gold during the early months of 1936, ceased production in the middle of May, awaiting arrangements for and completion of a new plant. The Tonopah Belmont Development Co., the operator of the largest drift mine in the state, near Angeles Camp, suspended operations at the end of September, 1936. The leading operators of dredges in the area were the Comanche Gold Dredging Company, the Lancha Plana Gold Dredging Company, and the Atlas Gold Dredging Corporation.

One of the principal sources of gold in California was from the large dredge operations carried on in the valley and foothill counties of the state. In Sacramento county the Natomas Company and the Capital Dredging Company were the outstanding operators. The Natomas Company opened the year with six boats in operation. On the first of May one of the dredges, which had been in operation for more than 20 years, capsized and this boat was abandoned. The company decided to replace the lost boat with a new and larger dredge. The Capital Dredging Company operated three boats in the vicinity of Folsom.

To the north in Placer county a number of dredge companies were operating. A short distance southeast of Loomis the Gold Hill Dredging Company operated a special dredge designed for handling partly cemented gravel. This company had three other dredges in operation during 1936. The Antelope Creek Dredging Company also dredged in this area. In the vicinity of Lincoln the Fay Placer, the Lincoln Gold Dredging Company, the Oakwood Placer Mining Company, and the Jasper-Stacy Company all worked gold-bearing gravels. Still farther north in Yuba county is an area comparable with the one around Folsom with respect to the great extent and depth of the gravels and the large size of the connected-bucket type dredges used to recover the gold. The largest operator in the area was the Yuba Consolidated Gold Fields.

Among the larger producers in Butte county were the Yuba Consolidated Gold Fields, the Wyandotte Gold Dredging Company, and the Penn Dredging Company.

A few miles above and below Snelling in Merced county large areas of auriferous

gravel suitable for dredge operations have been found along the Merced River. The Snelling Gold Dredging Company operated two dredges, the Yuba Consolidated Gold Fields, two dredges, and the Merced Dredging Company one dredge in this district. The San Joaquin Mining Company had a large dredge of the connected-bucket type under construction during the latter part of the year and expected to start operations early in 1937. A few miles north of Snelling on the banks of the Tuolumne River below La Grange and in Stanislaus county the La Grange Gold Dredging Company had a large dredge in operation during 1936.

The Mojave district in Kern county continued to be the most important source of metal production in the southern part of the state. The leading operation was that of the Golden Queen Mining Company on Soledad Mountain. This company had a very large gold output and advanced during 1936 to the rank of leading silver producer of the state. This production record is the result of development of a property discovered in 1933. Other important producers in the same district were the Lodestar Mining Company, the Desert Gold Mining Company, and the Soledad Mojave Mining Syndicate, in the Soledad Mountain section of the district. In the Rosamond Hills section of the same district the Burton Bros., Inc., produced large quantities of gold and silver from the Tropico and Fairview mines during the year. The same company also operated one of the leading custom mills of the state. In the Randsburg district in Kern county the principal operation was that of the Anglo-American Mining Corporation, which reopened the old Yellow Aster mine. This company screened large quantities of old stope fill and found that the finer material carried enough values to be treated profitably at its stamp mill. The stamp mill tailings, together with large quantities of old tailings, were treated in the company's cyanide plant.

By far the most important operation in Plumas county was that of the Anaconda Copper Mining Company, operating the Walker mine through its subsidiary, the Walker Mining Company. It was the leading producer of copper in California in 1936. In Inyo county the leading producer of gold was the Cardinal Gold Mining Company.

Production was also reported from about one-half the remaining counties of the state.

#### NEVADA

The production of gold, silver, copper, lead, and zinc in Nevada in 1936, in terms of recovered metals, is estimated to be 284,700 fine ounces of gold, 4,970,000 fine ounces of silver, 135,650,000 pounds of copper, 24,610,000 pounds of lead, and 31,570,000 pounds of zinc, valued in all at \$28,950,190 compared with \$18,284,186 in 1935, according to preliminary figures by Charles White Merrill of the San Francisco office of the United States Bureau of Mines. These figures compare with a production in 1935 of 188,031 ounces of gold, 4,393,426 ounces of silver, 74,266,000 pounds of copper, 25,352,000 pounds of lead, and 31,072,000 pounds of zinc.

The quantity and value of each of the metals showed an increase in 1936 over 1935, with the exception of lead, which increased in value but declined slightly in quantity. The total value of the five metals increased 58 per cent in 1936 compared with 1935.

In 1935 gold was the leading source of revenue to Nevada miners, but 1936 saw copper regain its position as the most valuable mineral product of the state. Nevertheless, 284,700 fine ounces of gold estimated to have been produced in 1936 was valued at \$9,964,600, a higher value than the output for any year since 1915. Although preliminary figures do not segregate the production from lode and placer operations, it is known that practically all Nevada's gold output came from lode mines during 1936. Renewal of activities at the Nevada Consolidated Copper Corporation properties in Robinson district resulted in the great increase in the quantity of gold derived from copper ores. Smaller quantities of gold were recovered from lead and lead-zinc ores during 1936. Gold production classified by methods of recovery appears to have been divided fairly evenly between treatment in gold and silver mills using either cyanidation or amalgamation, smelting of concentrates derived either from straight concentrating mills or from gold and silver mills, and direct smelting of crude ore.

(Continued on page 44)

#### SOME STATISTICS ON 1934, 1935, AND 1936 PRODUCTION OF COPPER, GOLD, SILVER, LEAD, AND ZINC IN THE WESTERN UNITED STATES

State	Lead—Pounds			Zinc—Pounds			Total Value in Dollars		
	1934	1935	1936	1934	1935	1936	1934	1935	1936
Alaska	1,679,000	1,630,000	1,850,000	.....	.....	.....	16,178,800	17,460,900	22,287,000
Arizona	6,877,216	15,566,100	20,275,000	1,810,279	6,673,932	7,900,000	23,292,150	37,198,809	56,072,400
California	823,168	1,134,000	1,490,000	721,719	322,000	40,000	25,784,183	32,242,872	39,816,499
Colorado	8,435,000	11,345,000	13,657,000	1,544,000	2,403,000	2,511,000	14,884,969	17,375,938	19,610,264
Idaho	142,648,216	158,040,250	180,400,000	49,598,651	62,105,568	92,500,000	15,277,669	19,522,704	26,981,000
Montana	20,010,000	31,177,525	37,322,000	61,442,256	109,561,477	98,820,000	14,489,363	30,918,228	41,587,700
Nevada	21,981,874	25,352,000	24,610,000	27,880,790	31,072,000	31,570,000	12,359,826	18,284,186	28,950,190
New Mex.	18,729,000	14,578,000	14,807,000	53,048,000	44,252,000	41,551,000	6,505,002	4,837,590	5,846,977
Oregon	41,603	59,575	160,000	73,184	9,000	90,000	1,216,075	2,010,343	2,222,476
S. Dakota	7,000	.....	.....	.....	.....	.....	17,054,337	19,961,902	20,778,177
Texas	719,000	1,043,000	1,049,000	.....	.....	.....	593,828	781,614	1,141,573
Utah	116,153,945	127,051,200	135,860,000	56,396,279	62,315,614	68,860,000	22,975,534	31,676,748	48,547,930
Washington	581,298	206,150	1,790,000	3,852,419	2,157	8,630,000	506,945	894,041	953,470
Wyoming	2,000	5,000	.....	.....	.....	.....	171,067	131,136	77,237

1934—Average metal values: Gold, \$34.95 per ounce. Silver, \$0.64646+ per ounce. Copper, \$0.08 per pound. Lead, \$0.037 per pound. Zinc, \$0.043 per pound.

1935—Average metal values: Gold, \$35.00 per ounce. Silver, \$0.71875 per ounce. Copper, \$0.083 per pound. Lead, \$0.04 per pound. Zinc, \$0.044 per pound.

1936—Average metal values: Gold \$35.00 per ounce. Silver, \$0.77 per ounce. Copper \$0.092 per pound. Lead, \$0.046 per pound. Zinc, \$0.049 per pound

testing station at Eskmeals, Cumberland, England, on the correlation of methods of testing explosibility of coal dust employed in the two countries. In 1926, he was appointed supervising engineer in charge of the Experimental Mine section. In 1927, he planned and supervised a series of full-scale tests on the use of auxiliary fans in mine ventilation.

His later work included the supervision of tests for the determination of the compressibility and bearing strength of potash salt from mines on the public domain in New Mexico, and studies of the movement of and stresses in the roof of operating coal mines.

Greenwald holds the degree of Bachelor of Science in electrical engineering from Carnegie Institute of Technology. He is the author of numerous technical reports published by the bureau of mines and of papers appearing in scientific journals.

#### MAGMA COPPER TO INSTALL AIR-CONDITIONING EQUIPMENT

The Magma Copper Company of Superior, Arizona, has purchased from the Carrier Company of Newark, New Jersey, two Carrier refrigeration units which will be installed on the 3,600-foot level of the Magma mine. The company is now engaged in cutting stations for the placement of this machinery, delivery of which is expected by the first of May.

Each of the units has a capacity of 142 tons of refrigeration, and this refrigeration is supposed to be sufficient to reduce the wet bulb temperature 10 degrees for 30,000 feet of air per minute, which is the amount of air that is provided in the Magma mine for the stoping area of each level. One unit will provide refrigeration for the 3,600-foot level—the other for the 3,400 level.

According to present plan the machinery will be in place by the first of July and in full operation August 1.

This installation is in the nature of an experiment to see what can be done toward improving working conditions by means of air-conditioning. It is the first installation of major size made in a copper mine in the United States, and the results of this experiment will be watched with unusual interest.

The Carrier Company has handled two of the major air-conditioning installations made by mining companies. The first was the installation in the Morro Velho mine of the St. John del Rey Mining Company in Brazil, in 1929. The second was at the Robinson Deep in South Africa, the deepest mine in the world, where installation of equipment was started in 1934.

Ventilation only, or the moving of a large volume of air at high velocities, is of little value when the temperature and humidity of the air is as high as found in some of the deep mine workings. Studies of working efficiency in atmospheres of high temperatures and various humidities are reported to indicate that only 30 per cent as much work can be accomplished in air at 100 degrees F. and 100 per cent relative humidity as in air at 100 degrees and 60 per cent relative humidity. Such studies have shown the value of actual air cooling and de-humidifying as compared with simple ventilation or air circulation.

The installation of the equipment at the Magma mine will be largely handled by the company's own staff, under the supervision of the Carrier Company.



The Grover-Fremont mine, near Drytown, has rehabilitated the above surface plant. The new headframe is over the Grover shaft, through which mining in both the Grover and Fremont properties will be conducted.

#### AMADOR MOTHER LODE STARTS MILLING AT GROVER-FREMONT

Milling operations have been started at the reconditioned Grover-Fremont mine near Drytown, California, which is being operated by the Amador Mother Lode Mining Company, Jackson, California. The plant, with its reconditioned stamp mill and ball mill, has a capacity of 200 tons and will be operated on dump ore until mine production starts. About 60,000 tons of commercial ore is said to be available in the dumps.

The mill is located in a valley between the two mines and is connected to both by an elevated railway. Flotation cells have been installed to handle recovery.

The old Grover headframe has been torn down and a new one erected, and the shaft has been dewatered and retimbered to the 400 level. The station on that level has been completed and the drifts have been started. The Grover and Fremont shafts are connected on the 800 level and all operations will be carried on through the former.

The company controls properties on more than two miles of the Mother Lode between Drytown and Amador City, its holdings including, in addition to the Grover-Fremont, the California and Seaton claims. E. A. Stent, Jackson, is general manager of the company.

#### MOUNTAIN CITY COMPLETING NEW ADDITION TO MILL

After several months of profitable operations, Mountain City Copper Company, which owns properties at Mountain City, Nevada, 90 miles northeast of Elko, has launched a program of expansion, it was learned in Salt Lake City early this month.

A new unit is being added to the flotation plant which was completed at the property last fall. The new unit is scheduled to be ready for use during the latter part of February and will increase the capacity of the plant from 300 to 400 tons daily. Originally the mill cost in the neighborhood of \$300,000 and another \$50,000 is being expended on the new addition.

After thoroughly exploring the upper levels where considerable new ore was added to the already large reserves of the company, deep development work has just been resumed. The main triple-compartment shaft is being extended from its present depth of 500 feet to 800 feet. Prior to discontinuing the deep development operations, the main ore body at the Mountain City was proved to the depth of 600

feet by sinking a winze from a 500 to the 600-foot level.

At the present time Mountain City Copper is producing approximately 4,000,000 tons of copper per month. The lower grade ore is treated in the company's milling plant, while the high grade is shipped from Mountain City, via Mountain Home, Idaho, to Tooele, Utah, as the road from Mountain City to Elko, Nevada, has been closed during the past two months because of adverse weather conditions.

Mountain City is controlled by the Anaconda Copper Company through its subsidiary, the International Smelting and Refining Company. J. O. Elton, 818 Kearns Building, Salt Lake City, Utah, is president and general manager, and James J. Lillie is in charge at Mountain City.

#### PHELPS DODGE DECIDES TO ABANDON ITS TAX LITIGATION

The Phelps Dodge Corporation has decided to abandon its tax suits against the State of Arizona and has paid the state and counties the delinquent taxes and accrued interest which have been involved in the stubbornly fought litigation of the last three and one-half years. Formal announcement of the corporation's decision was made by Louis S. Cates, president.

In making this announcement President Cates stated:

"Since the entry of the decision by Judge Albert M. Sames in the United States District Court, and particularly since our motion for rehearing was overruled, we have given thorough consideration to the situation of the tax litigations brought by our company and by our predecessor, United Verde Copper Company.

"We have decided now to pay all of our taxes with interest and thus dispose of our long controversy with the taxing authorities of the state, particularly the state tax commission.

"These suits were filed in the full belief that our corporation and its predecessor had been unjustly treated in the matter of tax assessments. A full trial of all the issues was had. The court has decided against us and denied our motion for rehearing.

"We, therefore, now close this chapter of litigation and do so in the hope that we may not hereafter have occasion to feel that we have been treated unjustly in the assessment of our properties for taxation purposes."

On January 25, 1937, Federal Judge Sames refused to grant the mining corporation a rehearing in its lawsuits to avoid payment of \$1,700,000 in allegedly discriminatory taxes. In an opinion handed down last November the court refused to grant an injunction to restrain authorities from collecting the taxes, ruling that no discrimination had been shown. The taxes in that litigation applied to the valuation of Phelps Dodge properties at Bisbee, Ajo, and Morenci in 1933 and 1934, the corporation contending that it had been assessed many millions of dollars over and above the full cash value of its properties.

In addition to taxes involved in this litigation, the taxes for 1935 and the first half of 1936 were also delinquent. The cash payment made by Phelps Dodge amounted to \$5,196,075.39. This sum was divided between the state of Arizona and the four counties of Pima, Cochise, Yavapai, and Greenlee where the corporation's New Cornelia, Copper Queen, United Verde, and Morenci branches are located.

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## The Sampling Mill

by Fisher Vane



\*\*\*As Prosperity continues to edge into full visibility around that celebrated Corner, the financial pages of the daily press carry more and more headlines such as: "TRADING IN COPPERS ACTIVE," or "MINING ISSUES CLIMB MANY POINTS." Guess it's about time to emit my periodic yowl to the effect that buying Horsefeathers, Pfd., today at \$2.75 to hold it a fortnight and (if you bet on the right horse) sell it to some less-wise (or less-lucky) guesser at \$2.98 (less the broker's pound of flesh) is not investment, but just as pernicious a form of gambling as is betting on the turn of a faro card, or on the "lay" of a pair of celluloid cubes in a game of Harlem golf.

\*\*\*You can not, however, get that across to the Average Wise Guy who dedicates his spare cash (if any) to that sort of thing and fondly and fatuously refers to his winnings (if any) as "successful investment."

\*\*\*When I hear my fellow-travelers on cars, trains, boats, driveling about that sort of thing, guessing audibly as to whether Balloonjuice Common is going up or down as the tickertape ticks . . . and then think of the good clean, legitimate mining development enterprises struggling along for lack of operating capital to swing them into major primary-yield production—i.e., PRODUCTION OF NEW AND INDESTRUCTIBLE METALLIC WEALTH . . . I always have a hell-of-a-time to control a mad impulse to go berserk and bite the nearest stock-market gambler.

\*\*\*Tucked away on Page 10 of The Mining Journal for January 15 was a little, quiet news-article about Senator "Fighting Pat" McCarran and his militant attack on "Holy" Harold Ickes' attempt to relegate to the bow-wow's present Federal mining laws relative to location of mining claims.

\*\*\*Up on page one of the same issue was a ringing letter from an Idaho mining man, Frank Johnness, spotlighting the danger to the mining industry, as we of the western states know it, if this man Ickes should by some fluke fail to be laughed down, and should somehow work his wilful way to have mining ground in the Public Domain put under a leasing system. Both articles are warning signals waved across the Metal Mining Highway because of this nefarious attempt to stifle the American non-ferrous mining industry to death.

\*\*\*While such a glittering example of blithering Federal bureaucratic idiocy and plain dumb hogwashness would raise immediate and merry hell with the capital end of the metal mining industry, it would do infinitely worse to that column of canny vertebrae of the industry—to wit, its backbone, the great and persistent group of American prospectors.

\*\*\*Under time-honored existent mining laws, Federal and State, the prospector who uncovers a deposit of valuable ore is rewarded for his time and his effort by that essentially American institution of Proprietary Ownership. Secretary Ickes would kill that vital incentive to the development of new mineral wealth, at one blow, by nullifying present mining laws and giving the hardy prospector nothing but a lease—and, at that, a lease subject to arbitrary bureaucratic whims.



## Concentrates from Western States

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

Operations at the **Kay** mine at Canon, Arizona, have been started by L. E. Foster, Box 776, Phoenix, Arizona, and associates. The ownership of the mine is now in the hands of Foster and two associates who obtained tax titles. A few men are engaged in cleaning up the property with a view to early production on a small scale. Foster is in charge of the work. The mine was formerly operated as Kay Copper Corporation, but has been idle since 1929.

**American Smelting and Refining Company** has applied to the SEC for registration of 365,988 shares of authorized but unissued common stock, which shares will be offered in the ratio of one share for each five held at a price of \$70 a share. The issue will not be underwritten. The proceeds of the sale of this stock are to be used principally for the retirement of the entire stock outstanding on June 1, 1937, at \$105 and accrued interest. The balance of the funds obtained will be used for other corporate purposes, including extensions, improvements, and additions to plant and equipment. It is stated that at the present time there are roughly 184,000 shares of 6 per cent preferred stock outstanding.

A fire at the **Gold Bar** mine, Constellation, Arizona, destroyed all living quarters and caused damage estimated at \$40,000. While the mine buildings proper were not damaged, the fire spread to the commissary, bunk house, and other quarters. Frozen water pipes prevented checking the fire. Ward Twitchell was in charge.

**The Gold Standard Mines Corporation**, Box 151, Kingman, Arizona, has announced plans for increasing the capacity of its milling plant from 300 tons to 500 tons daily. Arrangements for increasing by 100 tons are to be made this month, and the second increase will follow at a later date. Mines now supplying ore to the mill are the Portland, Arabian, Arabian Dyke, Thumb Butte, and Philadelphia, all controlled by the mining company. Richard de Smet is vice-president and general manager.

**The Copper Giant** mine at Kingman, Arizona, is being sampled by Henry Galbraith, the owner. A carload test shipment was recently made. It is reported that the mine, a producer of over 20 years ago, has 50,000 tons of low-grade ore blocked out. Work is being done at present in the 850-foot shaft.

L. E. Foster, P. O. Box 776, Phoenix, Arizona, is employing a crew of five men at his quicksilver property in the Sunflower mining district of Arizona. Production is running at the rate of 30 tons daily, the output being treated in a furnace of Foster's own design. Very satisfactory results are reported.

**The Gray Eagle-Oroville Mines, Inc.**, Crown King, Arizona, has been forced to shut down temporarily due to the recent heavy snows. Work is to be resumed as

soon as the road can be opened sufficiently to permit transportation of fuel and other supplies. Two shifts have been employed in driving the Extension tunnel which is now in 600 feet. Fred Estes, who is associated with John A. Wood in directing the development of the mine, has gone to Los Angeles to consult with other company officials concerning future operations.

Although the heavy snow has made impossible ore shipments from the **War Eagle-Gladiator** property at Crown King, Arizona, a crew of men is still employed in underground work. Several cars had been shipped before roads became impassable. The work is directed by E. M. Moores.

**The American Smelting and Refining Company** is reopening its **Clara-Swansea** mines, near Bouse, Arizona, according to current reports. It is expected that a minimum crew of 50 men will be employed. The Swansea mines have been closed since 1930, due to the low price of copper. Shortly before the shutdown a 250-ton flotation mill was completed and for a few months handled ore averaging 3 per cent copper. The mines are located about 21 miles northeast of Bouse, to which concentrates will be trucked for rail shipment. Ernest C. Lane of Bouse is mine superintendent. Operations are directed by B. R. Hatcher, manager of the southwest mining department, Box 2028, Tucson, Arizona.



Installation of two additional five-stamp batteries at the mill of the **Operator Consolidated Mining Company**, Johannesburg, California, has been completed, and the 15 stamps are dropping on ore at the rate of 60 tons daily. Two concentrating tables have been added to the plant also for the purpose of recovering the tungsten content of the ore, and this tungsten concentrate is expected to pay all expense of metal production, it is said. The bulk of the ore being run through the mill is coming from the Phoenix shaft and is said to be averaging around \$10 per ton in gold. George S. Clark, 28 United Nevada Bank Building, Reno, Nevada, is president of the company. George Silveria, Box 155, Randsburg, California, is superintendent at the property.

**The Argonaut Mining Company**, Jackson, California, earned a net profit of \$27,273 in December, more than doubling the November net of \$11,414. In December, 1935, the net was \$28,507. Operations for the year netted \$209,858 against \$175,432 in 1935. December ore recovery was \$7.10 per ton. The November average was \$8.79 per ton. J. T. Smith, 251 West 57th Street, New York City, is president of the company.

**The Walker Mining Company**, Walker-mine, California, L. F. Bayer, superintendent, is producing approximately 1,200 tons of ore daily, with a force of 450 men employed. The four units of the concentrator are operating at capacity, and development

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of new territory from the series of long tunnels is said to indicate persistence of the ore bodies. Concentrates and supplies are shipped over a nine-mile tramline during the winter months, as the camp is snow-bound. Ore from a wide vein in the lower tunnel is reported to be running 4 per cent copper and \$5 gold per ton. The Anaconda Copper Mining Company, through its subsidiary, the International Smelting Company, controls the Walker Mining Company by a 51 per cent stock ownership.

The 7,000-foot tunnel at the Plumas Eureka mine, Johnsville, California, closed since 1885 by cave-ins, has been cleared and retimbered for a distance of approximately 700 feet by the Plumas Eureka Mines Company, which is reopening the historic old mine. A 20-stamp section of the old 60-stamp mill was reconditioned about a year ago and has been operated on dump ore until deep snow and cold weather temporarily halted this work. Extensive operation of the property and development of new territory are understood to be planned by the present management, of which H. O. Harrison, 1625 Van Ness Avenue, San Francisco, is president.

The 90-foot shaft at the Rising Sun mine, Colfax, California, which has been entirely cleaned and renovated, is being kept free of water while L. A. Hughes of New York is seeking additional capital for operation of the mine. A new 60-foot headframe and two 50-ton bins have been erected at the property also. Thomas N. Coan, Colfax, is superintendent.

Blanket wage increases of approximately 5 per cent for 865 miners have been announced by the Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco. The increases apply to miners in the Alaska Juneau mine at Juneau, Alaska, and became effective February 1. In the lowest bracket, sorters were raised 40 cents a day from \$4.85 to \$5.25, and in the highest bracket, skilled workmen were raised 15 cents a day from \$8.35 to \$8.50. Increases for groups between the high and the low averaged 30 cents a day. The new wage scale will boost the mine's payroll about \$85,000 annually, it is estimated.

The Dia-Crete Manufacturing Company, developing a large diatomaceous earth deposit near Casmalia, California, will shortly expand its plant from the 25-ton pilot unit now in operation, to a 100-ton mill. Crampton and Crampton, 1151 South Broadway, Los Angeles, are engineers for the project.

The Geraldine mine near Confidence, California, is producing approximately 1,000 tons of ore monthly, with the outlook reported to be favorable for a long period of profitable operation. The vein uncovered recently on the 245-foot level continues to yield excellent ore, it is said, with a 12-inch seam carrying high values. Fifteen men are employed on a two-shift basis, under the direction of Earl C. Belding, superintendent. Frank Wheeler, Confidence, is manager.

The Kimball-Kempe Syndicate, Ojai, California, has exercised its option on the Blue Eagle gold mining claims on the west side of Middle Butte in the vicinity of Mojave, California, according to papers filed recently. The property was taken over under option from Fred Wright and Joseph A. Otto early in 1935. It is understood that the transaction involved the sum of approximately \$122,000. The Blue Eagle claims adjoin the Cactus Queen mine of Cactus Mines, Inc., which is a subsidiary of the Kimball-Kempe Syndicate.

Development work has been resumed at the Keyes mine, located near Kernville, California. As soon as pumping operations have reduced the level of water in the old workings, timbering will be completed with a view to opening up new ground. The work is under the direction of Harry Lucas, Los Angeles operator, with Roswell Tibbets, Kernville, acting as foreman.

The Standard Gold Mining Company, Mojave, California, A. J. Bruce, superintendent, is shipping approximately 50 tons of ore per week to the Burton Brothers mill at Rosamond, California. The ore, which is being taken out in the process of routine development work, is coming from a winze on the 500-foot level of the Exposed Treasure mine, operated under lease by the Standard company. The vein has

a width of approximately five and one-half feet with dacite foot and hanging walls.

Unwatering of the Juniper shaft of the Hayden Hill Gold Corporation, F. H. Brown, superintendent, Adin, California, is now nearing completion, and is to be followed by deepening of the shaft below the 400 level. Extension of the drift on the 300 level is expected to reveal the downward continuation of the ore shoot now being mined on the 200 level. Equipment recently installed at the property includes a rock crusher, air compressor, drill sharpener, and two rock drilling machines.

According to the annual report of the Utah-Apex Mining Company, holding company for the Montezuma-Apex Mining Company, Placerville, California, an extensive development program was carried out during the past year at the Union mine, taken over by the company in March, 1936. When taken over, the vertical shaft was 2,000 feet deep and levels down to 1,600 feet were accessible, but little exploration work had been carried on below that depth. Exploration of the property resulted in discovery of a new ore body on the 800 and 1,200 levels and of deeper extensions of several old ore bodies. During the year, approximately 2,965 feet of development work was done in the company's properties: 1,202 feet in the Montezuma; 1,241 feet in the Nashville; and 522 feet in the Union mine. J. A. Norden, Box M, Placerville, California, is manager of the California company. The Utah-Apex company also operates properties at Bingham, Utah.

At a meeting of directors of the Sierra Consolidated Mines, Inc., held recently in Reno, Nevada, a substantial amount of class A stock was retired at \$10 a share. The company owns the Silverado and Kentuck mines in Mono county, California, near the town of Wellington, Nevada. The hydroelectric installation which conveys power from Green Lake over a 20-mile line to the workings is also owned by the company. The cyanide plant at the property is handling 100 tons daily with the chief value in silver. A winze from the 500-foot level, from which ore is said to have been stoped years ago, has been unwatered, and what appears to be a face of good ore has been disclosed in a south drift. A crew of about 90 men is employed in the mine, mill, and hydroelectric plant. T. S. Davey, Wellington, Nevada, is manager of the company. Frank Humphrey is mill superintendent.

Twelve men are employed at the Spring Hill mine, Grass Valley, California, under the direction of Don C. Billick, manager. A drift is being run on the 1,100-foot level and the ore taken out in these operations is being run through the mill on the property.

The Empire Star Mines Company, Grass Valley, California, is reported to have acquired the North Banner group of claims, located south of the Murchie mine, and also the Bridges property. The latter gives the company new holdings between Nevada City and the mine.

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A large body of ore has been blocked out at the **Giant King** mine near Washington, California, Jack Rondoni, Nevada City, superintendent, and as soon as weather permits, shipments will be made to the Queen Lil mill at Nevada City. A total of 500 tons of ore per month is to be handled by the mill.

Charles B. Behr of Kansas City and Long Beach has acquired the **Alpine Extension**, also known as the Baldwin Ranch, three miles southwest of Georgetown, California, and as soon as a water supply can be arranged for with the Georgetown Divide Water Company, development work will begin. Present plans include a 200-foot drift on the main crosscut in the tunnel, following which erection of a mill may be considered. J. C. McDonald is to be in charge.

The **Rifle** quartz mine, located three miles northeast of Columbia, California, is now owned by Charles Murphy and Robert O. Greeves, who acquired it from the state, to which it had passed for non-payment of taxes.

W. E. Muse has been granted a one-year lease on a tract of land 600 by 3,000 feet, located near the Stanislaus River, two miles northwest of Columbia, California. The terms of the lease require that work must start on the property not later than February 1, and that at least 20 shifts of labor per month must be performed throughout the life of the agreement. The owner will also receive 10 per cent of the gross proceeds.

Installation of new ore bins at the portal of the 200 tunnel at the **Middle Butte** property near Rosamond, California, is nearing completion, and raises connecting the tunnel with the upper levels will permit shipments to be made from a centralized location, as well as eliminating costly hoisting operations and a long haul from the top of the butte by truck. Heavy shipping to the Burton mill is expected to be resumed in the near future. The Middle Butte and the Burton Brothers lease are being operated jointly by Walter Trent, Rosamond, and associates. Al Smith is in charge as superintendent.

**Cactus Mines, Inc.**, Roy W. Moore, 1206 Pacific Mutual Building, Los Angeles, general manager, expects to start construction during February on its new 100-ton daily capacity milling plant. The new mill will be a combination cyanide and flotation plant. Activities at present are centered on developing a sufficient water supply for operation of the mill. New steel sharpening machinery has been installed at the property and is now in operation. B. C. Staiger, general superintendent, and Frank V. Johnson, mine superintendent, make their headquarters at Rosamond, California.

The **Ragon** mine at Nevada City, California, is now shipping 30 tons of ore daily to the Idaho Maryland custom mill for treatment. A crew of 24 men is working two shifts. The Ragon is operated by the **California Sierra Gold Mines, Inc.**, Orlando McCraney, general manager, Nevada City.

As soon as weather conditions permit, work is to begin on construction of a 60-ton flotation plant at the Columbus mine near Tuolumne, California, which is operated by the **Columbus Gold Mining Company**, D. J. Murphy, president, One Montgomery Street, San Francisco. Construction of a cyanide plant also is being considered. The new mill will replace a 10-stamp plant which has been handling de-

velopment ore almost constantly on a 24-hour basis, since November of 1933, some six months after rehabilitation of the property began. The improvement program will also include erection of a new 60-foot headframe and an ore bin. Two new 25-horsepower Sterling automatic pumps are being installed, one on the 400 and the other on the bottom level. Since taking over the property, the company has completed several thousand feet of development, which includes sinking the shaft from 400 to 850 feet, extensive drifts on five levels, crosscuts, raises, and a 100-foot winze below the 800 level. The working force has been gradually increased from about 20 to 45 at the present time. Robert P. O'Brien, Tuolumne, California, is manager; J. B. Sivori, Tuolumne, superintendent.

Operations are to begin in the spring at the properties of **Valley Gold Mines, Inc.**, located in the Willow Valley district near Nevada City, California, according to Thomas F. Cole, mining engineer, 1230 South Oakland Street, Pasadena, California. Cole and associates have under option the Belfountaine, LeCompton, St. Louis, Constitution, Federal Loan, and Any Port in a Storm properties. The Belfountaine shaft has been unwatered and repaired and it is planned to mine from this property and mill at the St. Louis, which has a stamp mill equipped with amalgamation and flotation machinery. The two mines will be connected by a tramway. Valley Gold Mines, Inc. maintains offices at 417 Market Street, San Francisco, and in Grass Valley, California. J. M. Hoff is in charge of the property.

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The Orleans Lode Mining Company, which operates the Gracey-Glencoe mine at Nevada City, California, is being reorganized, and the only work being done at the mine is to keep the shaft clear of water. The Gracey-Glencoe shaft was recently sunk an additional 300 feet below the 430-foot level and a new 50-ton ball mill was installed at the property last fall. George Tett, San Francisco engineer, was in charge of activities.

Sulphur Diggers, Inc., operating sulphur properties in Eureka Valley near Zurich, Inyo county, California, expects to be in a position to begin production by February 1, and will have for the market a considerable daily production of high grade sulphur. Heavy snows recently cut off communication with the mine for two weeks and it was necessary to drop supplies of food and fuel from airplanes, but steps are being taken to eliminate the recurrence of this situation. Offices of Sulphur Diggers, Inc., are located at 3923 West Sixth Street, Los Angeles, and a branch office is maintained in the Smith Building, Big Pine, California. Sidney B. Wood, Jr., president, maintains headquarters at the Los Angeles office. He is also president of Gold Diggers Syndicate, Inc., which operates the App-Heslop mines near Jamestown, California. W. N. Wilkinson is general manager of Sulphur Diggers with headquarters at the Los Angeles office.

Development operations at the Harvard mine, Jamestown, California, are expected to be under way by the end of February, according to P. A. McKenzie, manager. The mine is being rehabilitated by the Harvard Gold Mining Company, 1250 Crocker First National Bank Building, San Francisco. The 150-horsepower double-drum hoist has been connected up with electric power, the headframe has been erected, a larger pump installed, the concrete collar of the shaft enlarged to three compartments, and dewatering of the extensive mine workings, which had already been accomplished to the 200-foot level, has been resumed.

Development of the vein uncovered at the Russell mine, Sutter Creek, California, is said to be disclosing ore sampling approximately \$45 per ton across a width varying from three to five feet. The ore body was found at an approximate depth of 35 feet, is apparently persistent, and occurs in virgin territory. The property is operated under lease by S. J. McCoy of Rocklin, California, and is equipped with a hoist, compressor, and small mill.

James Keaton has taken over the old Jessup Gulch mine located across the Sal-

mon River from Sawyers Bar, California, and has run a 150-foot drift into new material. This property was first opened in 1885 by Mike and Ted Luddy and Jimmy Noonan, and is said to have been a rich producer.

The K.B.K. mine, located on the 1,300-acre Clapton ranch, four miles from Cool on the Georgetown-Auburn highway, is being opened, and a shaft, now down more than 18 feet, is said to be showing good values in a six-foot ledge of ribbon quartz. A compressor is to be installed as soon as weather conditions permit. Kenyon, Buck, and Kelley, all of Auburn, California, are operating the property.

The new mill at the Descanso mine is nearing completion and power connections will be made soon. Approximately 1,000 tons of ore are on the dump awaiting completion of the milling plant, in addition to ore broken underground. The Descanso, located near La Mesa, San Diego county, California, is being reopened by Frank B. Burns and associates, 706 Pacific National Building, Los Angeles, who are also operating the Suffolk mine at La Porte.

The old Nelson mine near Orleans, Humboldt county, California, credited with a production record of \$600,000, is to be developed by a group of Seattle men who have organized the Carol Placer Mining and Milling Company, Inc., with Major W. H. Warren as president, and George Jennison as vice-president. Equipment is being moved to the property, preparatory to beginning operations on or before March 1. The mine holdings consist of 230 acres of claims and patented ground, situated on the Klamath River, seven miles from Orleans and three and one-half miles from Somesbar. Values are said to run well over \$1 per cubic yard. There are five creeks in the immediate vicinity, and four reservoirs with some 36 miles of ditches. Two hydraulic giants are already on the property, and a third is to be installed immediately. It is reported that other holdings, the McBride, McPherson, and Mueller groups, are in various stages of development also.

The Gross and Street mines in the Tuttletown district near Sonora, California, under option to F. E. Yoakum, 472 Vernon Street, Oakland, California, are being unwatered under the direction of E. A. S. Whittard, Jamestown, California. The Street shaft, which is 300 feet deep, has been retimbered to a depth of 50 feet, and water is standing at the 200-foot level. Underground workings include a 900-foot drift north at the 300 level of the Street shaft and several sidehill openings. Eight men are employed.

Operations continue at the Sierra Buttes mine, Sierra City, California, owned by the Hayes Brothers, widely known publishers of San Jose, California. Operations are in charge of Lloyd Hayes, a younger member of the family, and activities are centered in the 2,000-foot tunnel, where extensive upraising is under way. Milling is intermittent at present but fair production is understood to have replaced several years of more or less "dead" work.

Development work has been resumed, extending north and south beyond old workings, at a depth of 5,400 feet in the Kennedy mine, Martell, Amador county, California, operated by the Kennedy Mining and Milling Company. William Sinclair is superintendent.

Because of inability to obtain necessary machinery and equipment, due to the maritime strike, it has not been possible to complete the work of enlarging the cyanide plant at the Melones mine of the Carson Hill Gold Mining Company, Melones, California, according to Charles H. Segerstrom, Sonora, California, president of the company. However, the new units are expected to be completed in February and they will make possible the milling of 1,200 tons of material daily. John A. Burgess is general superintendent at Melones.

A raise is being driven from the 100-foot level of the Golden Queen mine, near Mojave, California, to connect with the tunnel which was driven from the company's holdings on the northeast quarter of section seven. This connection will provide the mine with ventilation as well as additional emergency exits, and will facilitate exploration and development of the acreage to the south. Diamond drilling operations are being continued on the company holdings on the south slope of Soledad Mountain also. The mine is operated by the Golden Queen Mining Company, W. C. Browning, general manager, 1214 Pacific Mutual Building, Los Angeles.

The Soledad Mojave Mining Syndicate, Mojave, California, is completing arrangements with the Continental Diamond Drilling Company for a program of diamond drilling at the Soledad Extension mine, for the purpose of developing new ore bodies. Regular shipments of ore from development activities continue, the ore going to the Golden Queen mill. Walter Schauss, Box 41, Rosamond, California, is engineer in charge of operations.

The new 1,500-foot compressor of the Lodestar Mining Company, Mojave, California, is now furnishing air for the Starlight mine of the company and also for lessees of the company's Soledad Mountain

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holdings south of Mojave. Under a recent contract, ore from the Lodestar property is being milled at the plant of the Golden Queen Mining Company, Mohave, and that being shipped to the mill averages approximately 100 tons daily. John M. Rogers is directing activities at the Lodestar, assisted by W. H. Benham, engineer, and Morris Albertoli, mine foreman.

Construction of ore bins, installation of a portable compressor and hoisting equipment, and the laying of an incline track down the mountainside, have been completed at the Four Jacks lease on the north slope of Soledad Mountain, near Mojave, California, and shipment of development ore to the Burton mill at Rosamond has been resumed. Installation of the new equipment widens the scope of activities at the property, permitting the working of several faces on three levels at the same time. J. V. Creath, Box 92, Rosamond, is in charge of operations at the property, which is being developed by Creath and associates.

The Vandalia mine, located near Shingle Springs, 15 miles southwest of Placerville, California, has been taken over under bond and lease by the Page Consolidated Mining Company, a closed corporation, headed by R. L. Koomler, Placerville, California, formerly superintendent of the Gnome Gold Mining Company of Elk City, Idaho; Alfred Page of Spokane, Washington; and R. C. Hamilton and A. W. Shelledy, both of Pullman, Washington. The Gnome Gold Mining Company is reported to have acquired a quarter interest in the mine also. The ore is stated to assay from \$3.50 to \$17.50 per ton in gold, and also carries some silver. The mine is opened to a depth of about 200 feet with approximately 2,000 feet of drifts, raises, and crosscuts. Under the direction of Koomler, a 150-ton cyanide plant is being erected at the property, which is expected to be ready for operation in March.

Work is on a three-shift basis at the Plumbago mine at Alleghany, California, operated by Socorro Mines, Inc., and an extensive program of sinking and drifting on ore bodies is being carried out. Ralph Youtz, Alleghany, is superintendent; W. O. Traves, mine foreman; Roy V. Goodhue, master mechanic; and Ray Gallagher, chief millman.

**COLORADO**

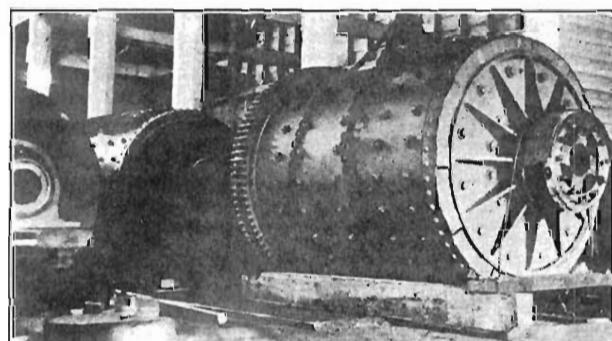
A quarterly dividend of \$1 a share on outstanding stock has been declared by directors of the Golden Cycle Corporation, L. G.

Carlton of Colorado Springs, Colorado, president. Payment will be made March 10 to stock of record February 27 and will total \$240,000. This dividend comprises a regular disbursement of 40 cents and an extra payment of 60 cents.

Settlement of the litigation which has been hindering operations of the Russell Gulch Mining Company is expected soon. The company mined and milled dump ore from the Golden Wedge and Pittsburg mines in 1935 and part of 1936, the ore being treated in the company's 200-ton mill. Unwatering of the Pittsburg shaft was started in June, 1936, but work was suspended when litigation began. The company holds patented claims in Russell Gulch, near Central City, Colorado, including the Pittsburg, East Notaway, Golden Wedge, and Calumet and Hecla mines. Resumption

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WILLIAM B. MCKINLAY\* analyzes

**The Indexing of all Mining Literature**

*Discussion of an article by Homer D. Erwin by engineer-indexer of 40 years' casual and nine years' consecutive experience in digesting such literature. The disadvantages and problems involved in such a task are pointed out.*

As evidenced by his article as published in the September 30, 1936, issue of The Mining Journal, Homer D. Erwin must certainly be interested in obtaining information about published material. Otherwise, he would not have launched his suggestion that the United States Bureau of Mines should undertake the task of indexing, which is a specialty unto itself.

Indexing simply means pointing out where specific information may be found. Good indexing not only shows where information may be found, but also gives at least a hint as to what the information is about and to what sort of persons or groups the information is likely to be of casual or permanent interest. The mere caption or title of an article, often altered in reprints and re-hashes to suit the typographical convenience or other purpose of a publisher, does not invariably convey any clear idea of the substance within the article. The use of an inefficient index generally involves expensive waste of time by searchers, verifying duplications.

Complete, exhaustive, and perfect indexing of technical or scientific literature, showing any searcher how he may find immediately any information he may desire or any given subject, is but a dream. It never has been and never will be done, continuously, because the expense is prohibitive.

Indexing costs money. Editors, typists, and printers must eat, or die. If indexing is conducted by a paternal government, it inevitably benefits the few at the expense of all. It would involve another increase in taxation. Such policies, carried to the extreme, lead to ultimate stagnation through stifling of private initiative.

Indexing should be paid for, almost directly, by those who first use it. If conducted on a non-profit basis, as it should be, it becomes less and less expensive to each user as more and more intelligent people use it.

Highly specialized indexes have been started, subsidized, and contributed to in an editorial way by altruistic volunteers who eventually tire of working for nothing, or for a fee equivalent to an insult. Such indexes usually fade into dignified inactivity.

When a general engineering index continues to function after more than 50 years of continuous service, there must be

\*Engineering Index Service,  
New York City

some valid and potent reasons for its persistence. Conducted as a non-profit organization, any increased revenue is automatically applied to the improvement and extension of the service. Demand for specialized break-down of edited matter can always be supplied. In fact, it is already supplied in card form, as stated by Erwin.

Preparation of an annual book specializing in mining is a simple matter of clerical routine work. But the printer, also, must be paid for his work. Advance subscriptions in sufficient number would take care of this expense.

It would be unwise for a mining operator to erect a 200-ton milling plant before blocking out a tonnage sufficient to justify the overhead of capital amortization. It would be impossible for him to erect the mill until capital is available. Assured demand for product, such as a long-term smelter contract on a favorable basis, would aid him in securing the necessary capital. One sure, but slow, way to success would be to sell hand-sorted high-grade ore. But even if he had slaves to sort the ore, those slaves must be fed to give them strength to sort more ore. Indexing is like that, also.

Narrowing the field of vision restricts opportunity for engineering achievement.

Science is classified knowledge.

Engineering is applied science.

Mining is mining. An old Spanish proverb asserts that a mine is a hole in the ground, opened by a liar and worked by a damn fool. But scientific mining demands engineering skill and information derived through the proper indexing of many branches of literature, chiefly engineering literature. Much of such information comes from sources that might be unsuspected by any agency that puts on blinders to restrict its vision to narrow fields.

The most valuable form of indexing is that which classifies published matter by subject headings and subheads (amply cross-referenced), by authors, and further by division classifications representing industrial groups or specialists, presumably interested in learning about published matter which in some manner may affect their financial welfare. All other published scientific matter should be regarded as pure science; interesting, of course, but not engineering until applied to some useful purpose.

Progress in industry is usually the result of applying principles and/or methods, and/or materials that have been tried and proved successful in other fields of industry.

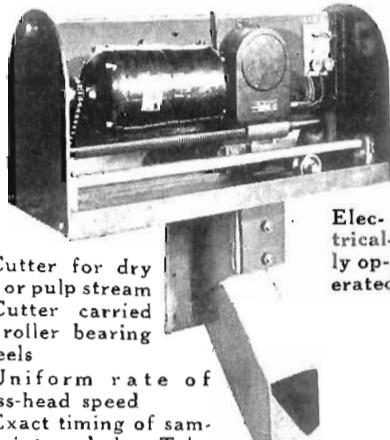
Even the pioneers in any industry borrow some of their ideas from whatever sources that seem likely to be productive.

A mining man who believes that he must derive his information exclusively from other mining men is simply wise in his own conceit.

"Go to the ant, thou sluggard," Solomon is reputed to have said.

Paraphrasing this, I suggest that it always pays to read more or less about the other fellows' trades.

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### A REVIEW OF THE ZINC INDUSTRY IN 1936

(Continued from page 4)

don market and the persistent efforts made to revive the European Cartel.

During the last two months of the year the London price varied between £15-8-9 and £20, or a fluctuation of approximately one cent per pound; and this perhaps, together with the unusually heavy purchases, prompted the report that considerable speculation was responsible. Under such conditions, it is obvious that there would be real danger if the American market attempted to follow London too closely; but it is evident that the producer here is fully aware of this fact and is following a conservative course, consistent with the sound condition of the United States statistical position behind him.

#### New Developments

Additional industries are constantly being added to the list of consumers as the possibilities of zinc alloy die castings are realized and production methods are improved. The use of special high-grade zinc continues to present the most spectacular development among the uses of metallic zinc.

The year's new applications of zinc alloy die castings are due to a general realization of the savings possible through their use. While the 1937 automobiles are using more die castings than ever before, the die casting industry is less dependent on the automobile industry because of the more widespread adoption of die castings by other industries.

Faster and more automatic die casting machines have extended the field of very small zinc alloy die castings while larger machines, some of them capable of holding a die 48 inches square, have made possible die castings larger than ever before made.

At the same time, the galvanizing industry, which for years has been zinc's best customer, has been quietly but persistently accumulating more and more technical knowledge regarding zinc coatings and seeking improved methods of application. Until very recent years, new developments in this field were conspicuously absent; but, partly due to the more general acceptance by both producer and consumer of the desirability of heavier zinc coatings, considerably greater activity in this field has taken place of late. Furthermore, galvanizing technique in the sheet mill has probably required increased attention and some revision since the development of the cold rolled mill and consequent changes in the character of the base sheet.

Patents relating to new methods of hot galvanizing have been issued and news is current of developments in hot galvanizing practice which may ultimately prove to be of definite importance. Further development along several lines in the electrogalvanizing field is also taking place. In both hot galvanizing and electrogalvanizing the aim is to produce heavier coatings that are ductile, adherent, and uniform in thickness over the area coated.

With the general improvement in business and the promise of continued demand for its products, the zinc industry hopes to enjoy better times in 1937. The higher price level, if maintained, will be an incentive to further development and exploration work in the mining division, and will help to offset recent advances in labor rates.

### THE MINING JOURNAL

#### FIRST YEAR IS ACTIVE ONE FOR CALIFORNIA HYDRAULIC ASSN.

The California Hydraulic Mining Association, Grass Valley, California, which was organized in February, 1936, and incorporated as a non-profit organization, has had an active year in promoting various ideas for the betterment of the mining industry, particularly hydraulic mining.

One of the most important activities of the organization was the filing of assurances with the war department, through the California Debris Commission, in sufficient yardages, to obtain an appropriation of \$100,000 for preliminary work at the Yuba and American River hydraulic debris dam sites. This action practically assures the construction of these dams.

The association is also endeavoring to secure reductions in the present compensation rates and elimination of the silicosis surcharge for hydraulic mining. Improvement of roads into the mining district is another important project which the association is promoting.

Officers and directors of the association are J. P. Hall, president, Auburn; C. E. Clark, vice-president, North Bloomfield; W. W. Esterly, secretary, Grass Valley; George McAuley, treasurer, Auburn; J. O. Ziegler, Sacramento, Harvey Davidson, Roseville, and A. H. Turner, Colfax, directors.

#### IN OUR LETTER BOX

Searchlight, Nevada  
February 1, 1937

Charles F. Willis, Editor  
The Mining Journal  
Phoenix, Arizona

Dear Sir:

I refer to your editorial, in the January 30 issue, relating to Secretary Ickes' corporation-born idea of leasing public lands.

No one in this area takes kindly to any such proposal, as we, individually and collectively, protest against being deprived of the opportunity to starve to death in the way to which we have been accustomed. The mining law of 1872 provides a way for a prospector to do this with the full sanction of the government, as we do not feel that a "sod-buster," with no knowledge of our peculiar problems and the lowly conditions under which we live, has any right even to propose to deprive us of this great privilege.

We all feel that Uncle Sam would be a great partner. If he proposed to grubstake, examine, encourage, support, and share the losses, on a particular piece of mining ground, gladly would we share the rewards (if any).

Another thing, the proposed extension of the so-called moratorium law, by Montana interests again, (as last year), meets with bitter objection in this area. If we can't drag investing capital away from old waste dumps, tailing piles, and from rooting for marginal ore in old ground, into the broad highway of opening new ground and exploring promising prospects, we could at least interest owners again in doing a little work on their prospects, and thereby perhaps something would show up to justify capital expenditure.

Sincerely yours,  
(Signed)  
J. WARREN RICHARDSON.

erators. Large quantities of zinc, lead, silver, and gold were produced, and much exploration and development was carried out. This area of Nevada looked forward to the completion of the power line from Boulder Dam, which the operators hope will supply the mines at Pioche with cheap electric power.

A few miles northwest of Pioche in the Jack Rabbit district, the Bristol Silver Mines Company continued to be one of the leading silver producers of the state.

In Lyon county the most productive mine was that operated by the Dayton Consolidated Mines Company in the Silver City district. The South Comstock Gold Mines, Inc., increased its holdings by the purchase of adjacent claims. The company's output of gold and silver was mined both on company account and by lessees. Underground developments were reported as very encouraging and additional surface equipment was installed. The Donovan and the Trimble mills were important factors in extracting the gold and silver from the ores of the district. In the Palmyra district in the Como Mountains the Como Mines Company and the Stone Cabin Mines Company were large operators, but during the latter part of the year operations were suspended at both properties. Before closing down, however, the shipments of gold and silver from this area had been large.

The mines of Nye county were particularly active during 1936. The Goldfields of America, Ltd., the operating subsidiary of the A. O. Smith Corporation, obtained an option on the Round Mountain properties of the Nevada Propphyry Gold Mines, Inc., in June and spent the remainder of the year testing and sampling the lode and placer deposits there. Earlier in the year a considerable output of gold and some silver was produced by the Nevada Propphyry Gold Mines, Inc., from both its lode and placer workings. At Manhattan the Goldfields of America, Ltd., carried on a

very extensive exploration campaign to determine the advisability of opening its properties on a large scale. In addition to the activities of the company, the Reliance Mining Company operated and further developed the Verden mine, which produced a large quantity of gold and some silver. The White Caps mine was an important producer of gold in this district. The Treadwell Yukon Company, Ltd., operated its property in the Tybo district and was one of Nevada's leading producers of lead, zinc, and silver.

In Storey county the Arizona Comstock Corporation working the group of mines in Virginia City referred to as the Middle Mines, was the leading producer of gold and silver in the county. Most of the ore was mined by open pit methods and was treated in the company's flotation plant. The Consolidated Virginia Mining Company continued development work throughout the year and in the closing months made shipments from its old dumps to the mill of the Consolidated Chollar Gould & Savage Mining Company at Gold Hill. In the Gold Hill section of the Lode the Consolidated Chollar Gould & Savage Mining Company operated on the dumps at the Overman mine and later carried on the custom mill work for the Consolidated Virginia. The Sutro Tunnel Coalition, Inc., produced a large quantity of gold and silver from the Crown Point mine, which it treated in a new mill recently completed at the property with the help of Reconstruction Finance Corporation funds.

By far the most important producer in White Pine county was the Nevada Consolidated Copper Corporation, an operating subsidiary of Kennecott Copper Corporation. In the earlier months of the year the property was operated on a sharply curtailed basis, but the improvement in the copper market permitted expansion of operations as the year progressed. Ore was mined from both the great open pit at Cop-

per Flat and the Ruth mine at Ruth. Its smelter at McGill not only treated company ore but also large quantities of purchased ores, accepted largely for their fluxing qualities. At the properties of the Consolidated Coppermines Corporation a number of lessees worked throughout 1936. Their operations were confined to the precious metal sections of the mines; the company's copper properties continued to remain idle. At Cherry Creek the Nevada Standard Mining Company completed its unwatering operations of the Exchequer mine through its newly driven tunnel and shipped ore to the McGill smelter. In addition to being the leading producer of copper in the state, White Pine county was also the leading producer of gold and a very large producer of silver.

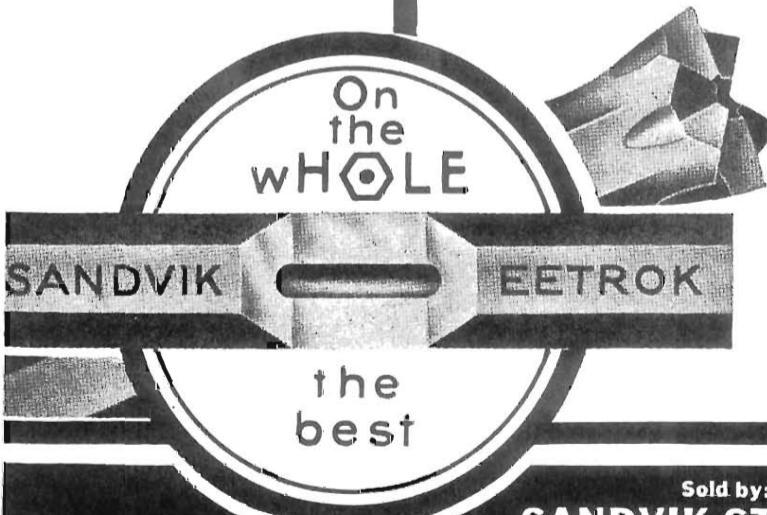
#### OREGON

The mine production of gold, silver, copper, lead, and zinc in Oregon in 1936, in terms of recovered metals, is estimated at 59,900 fine ounces of gold, 83,800 fine ounces of silver, 540,000 pounds of copper, 160,000 pounds of lead, and 90,000 pounds of zinc, valued in all at \$2,222,476 compared with \$2,010,343 in 1935, according to preliminary figures by Charles White Merrill of the San Francisco office of the United Bureau of Mines. These figures compare with a production in 1935 of 54,160 ounces of gold, 110,385 ounces of silver, 397,800 pounds of copper, and 59,575 pounds of lead.

The quantity and value of each of the metals, with the exception of silver, showed an increase in 1936 over the production in 1935; the value of the five metals in 1936 exceeded the total for 1935 by 11 per cent.

In 1935 in Oregon a total of 115 lode and 268 placer mines were producing all or part of the year and as the year 1936 progressed a larger total number of active properties was indicated. The expected increase of output, however, was materially

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reduced for toward the close of the year drought conditions in the mining counties of western Oregon greatly reduced operations at placer mines and in some cases curtailed output from lode properties, due to lack of water for power and milling purposes.

Gold continued to be the principal source of revenue to metal miners of Oregon. Preliminary figures indicate that this metal provided 94 per cent of the total value for the five metals. In 1935, about two-thirds of Oregon's gold was derived from placer operations and the remaining one-third from lode properties. Although preliminary figures do not segregate the two types of operations, it is probable that no substantial variation occurred in this ratio in 1936. Baker county continued to be the leading producer of lode gold, where the Cornucopia Gold Mines was the largest producer. Most of the placer production was divided among Grant, Baker, and Josephine counties, in each of which one or more dredges provided the bulk of the output.

In Baker county the Cornucopia Gold Mines was the leading producer of silver and lode gold in the state. During the year the Coulter tunnel reached its objective, and raises and other development work were started to reach the old workings above. Toward the close of the year the new flotation mill at the portal of the tunnel was started and the Coulter tunnel became the principal operating entry. The Balm Creek Gold Mining Company shipped some crude ore to smelters as well as treating part of its ore in its flotation mill. Gold was the principal product at the mine, but copper and silver were also recovered. At the Record property in the Bull Run district near Unity part of the ore was shipped and part of it treated in the company's flotation mill. One of the largest gold producers in the state was the Sumpter Valley Dredging Company, which operated throughout the year in the Sumpter district. The Pioneer Gold Dredging Company, also of Baker county, operated for seven months in the early part of the year, and the Harrison Gold Dredging Company also operated during 1936.

In Grant county the Campbell Oregon Mining Company worked the Ben Harrison mine near Granite. The new flotation plant, which was put in operation during the spring, made a concentrate that was sent to smelters for its gold and silver content.

The largest producers in the county were the dredges; the Ferris and Marchbank dragline outfit was a leading producer of placer gold. Another substantial producer was the connected-bucket dredge of the Monarch Gold Dredging Company. The Timms Gold Dredging Company operated throughout the year and its production expanded considerably in the latter months. The Constitution Gold Mining Company succeeded the Granite Gold Mining Company as operator of the Buffalo mine, where work was started late in the year.

The most important metal producing counties in western Oregon are situated near the southwest corner of the state, where the mines of Jackson, Josephine and Lane counties accounted for the major part of the output. The Pacific States Mines, Inc., was a large producer during the earlier months of the year, but in late summer reported its supply of developed ore exhausted. At the Ashland mine milling was curtailed because of water shortage, but development work was pushed and equipment installed. The Shorty Hope mine was operated during the summer and in addition to new equipment being placed on the surface, the underground workings were reopened and retimbered. Results of development work were reported as encouraging.

In Josephine county the water shortage was also acute, which was a major hindrance particularly to the placer operators. Toward the close of the year no large-scale placer mine, with the exception of one large dredge in the area, was operating. The Rogue River Gold Company operated its first full year on Grave Creek after moving its dredge there from Foothills Creek, Jackson county. Two dragline outfits were reported on Coyote and Wolf creeks, tributaries of Grave Creek. The Leonard placer, one of the large hydraulic operations of the county, was shut down by the close of spring because of lack of water.

In Lane county the principal scene of mining activity was in the Bohemia district. Several of the properties were under development and some new mining equipment was installed. The Minerals Exploration Company near Disston was in production, and the Bohemia Gold Mines Company expanded its output. The latter company after installing new machinery and developing underground during 1935 joined the ranks of larger operators in 1936.

#### SEEK AMENDMENT OF JOSHUA TREE NATIONAL MONUMENT ACT

The Mining Association of the Southwest and the mining committee of the Los Angeles Chamber of Commerce, both have adopted resolutions recently in favor of early amendment by Congress of the Joshua Tree National Monument act, which applies to portions of San Bernardino and Riverside counties, California.

Under date of August 10, 1936, the President of the United States set aside an area of 825,480 acres, or 1,290 square miles in the two counties as the Joshua Tree National Monument, prohibiting further entry therein under the public-land laws. The new monument includes within its boundaries the principal mineral sections of Riverside county, among which are the Twenty-nine Palms and Virginia Dale districts, on the boundary between the two counties. The Gold Crown Mining Company, whose property is in this district, is operating a 50-ton cyanide plant at full capacity, it is reported.

Another district included in the area is the Pinto Mountain, known as the Pinto Basin mining district, which includes such properties as the Desert Queen, El Dorado and Lost Horse. In the Eagle Mountains the principal deposits are of iron, and in this district are the Iron Chief mine, which was a former producer of copper and gold ores, and the Black Eagle mine, which is at present under production, and has a 100-ton daily capacity mill in process of construction.

While the proclamation recognizes valid existing claims, and to that extent will not prevent continued operations of active properties noted above, the national monument status will prevent location of any new mining claims, of claims covering extension of ore bodies now being worked in existing claims.

The same situation existed several years ago when the Death Valley Monument was created, but was subsequently corrected by a Congressional amendment, permitting location and operation of mining claims within the withdrawn area. The resolutions adopted by the Mining Association of the Southwest and the mining committee of the Los Angeles Chamber of Commerce ask that a similar amendment be passed by Congress for the Joshua Tree National Monument act.

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Feb 28, 1937

J. B. NEWSOM\* and C. F. JACKSON\*\* describe

## Shaft Sinking With a Shot Drill

A NEW SHAFT was required at the Idaho-Maryland mine to serve for ventilation and supply purposes. A circular shaft is ideal for ventilation because it furnishes for a given area a minimum of rubbing surface and hence, a minimum frictional loss. For cage purposes, where one compartment only is to be employed, a circular shaft often gives, except for handling rectangular containers, a maximum ratio of useful cage area to the total area of the shaft.

J. B. Newsom previously had considerable experience drilling with shot drills and had sunk one large-diameter hole in connection with wire-saw work. With deep holes of large diameter, a great deal of trouble was experienced because of the drill rods whipping in the hole. Considerable time was lost connecting and disconnecting the rods, and a long string of rods is expensive. These considerations led Newsom to design a drill with drive-mechanism and core barrel close-connected so that they could be lowered into the hole together. The third purpose of this shaft, then, was to develop equipment and operating technique based on this design.

At the site selected for the shaft, it was expected that the ground to be penetrated would be mostly serpentine. A log of the formations penetrated is as follows:

Feet
0— 44 Alluvium, mined by hand and square-set.
44— 180 Gabbro.
180— 182 Fault.
182— 415 Serpentine, blocky, increasingly treacherous at greater depths and containing several diabase dykes.
415— 470 Ankerite, very heavy and treacherous.
470— 710 Serpentine, generally firm.
710— 750 Fault material, streaked with heavy gouge seams.
750— 1,080 Serpentine.
1,080— 1,110 Treacherous serpentine.
1,110— 1,125 Serpentine.

The serpentine as encountered in the mine generally stands well except where shattered by faulting or highly altered, and it was believed that a drilled shaft would have an additional advantage in that there would be no heavy blasting to shatter the walls of the shaft, and that, therefore, the drilled shaft would probably stand for the most part without lining.

Drilling characteristics of the various materials were as follows:

Gabbro—Drilled six to 10 inches per hour, producing cuttings which packed firmly and caused some difficulty in removing cores.

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U. S. Bureau of Mines.

\*\*Chief Engineer, Mining Division,  
U. S. Bureau of Mines.

Reprinted from U. S. Bureau of Mines Information Circular No. 6923.

*The sinking of a circular shaft, 60 inches in diameter, at the Idaho Maryland mine, Grass Valley, California, involved a great deal of pioneering work and experimentation. Although it was necessary to overcome many difficulties and develop an operating technique, costs compared favorably with those of more conventional methods.*

not over five feet, due to the slipping of blocks.

THE job was started with an ordinary tripod and an air hoist on the surface, and with only the drill and core barrel for the drilling operation. As the work progressed, various needs for auxiliary equipment developed and were filled. When the job was in its last stages, the equipment employed included the following major items:

Standard Wooden Headframe—Consisted of 12 by 12-inch timbers; height of headframe, 83 feet.

Hoist—150 horsepower, double-drum; rope speed, 600 feet per minute.

Power Cable Reel—A converted steel hoist with a 20-horsepower motor, the flanges built up so the reel carried 1,150 feet of three-conductor, rubber-covered power cable.

Core-handling Arrangements—Consisting of a drawbridge which could be lowered over the drill hole, and a wooden platform car. In operation, the cores were hoisted above the collar, the drawbridge was lowered, and the car was pushed under the core, which was then lowered onto the car and pulled to the dump.

The drill consisted of the two parts, the driving mechanism and the core barrel. These were assembled as a single unit which was lowered into the hole. The drive mechanism was assembled in a circular cab which contained room for the drill runner, and the cab was kept from rotating by screw jacks which could be set against the walls.

The unit was driven by a 40-horsepower motor, with reduction gears to give a core-barrel speed of 60 revolutions per minute. The core barrel was 15 feet long, with a cutting shoe one and one-half inches thick by 12 inches high attached to the lower end. The outside diameter of the shoe was 59-9/16 inches.

The actual cutting was done by chilled shot. No attempt was made to use other cutting media, such as insert teeth, or angular abrasives.

In addition to the regular core barrel, there were two other core barrels, as follows:

The hole deviated from vertical in the heavy ground at a depth of 450 feet. Since deviation in a vertical shaft must be avoided, it was necessary to devise a method of bringing the hole back on line. This was accomplished with a short core barrel, which was fitted with a standard-size shoe, but was enough smaller on the upper end so that the upper end could be held to one side of the drill hole, thus changing the direction. This device proved simple and satisfactory in operation.

The other special core barrel was an experimental barrel built to extract cores when the machine was hoisted to the sur-



One of the cores which was removed during the drilling of the circular shaft at the Idaho Maryland mine at Grass Valley.



J. B. Newsom

face directly after the drilling was completed. This special barrel was not delivered until the job was so nearly completed that experiments with it were not finished. However, enough work was done to demonstrate that such a barrel can be employed and will probably be used on future work in blocky ground.

In addition to the drilling mechanism and core barrels, there was a core puller consisting of a tapered ring and a number of fluted dogs. This was designed in such a way that it could be lowered around a core and when hoisting pressure was put on the core puller, the dogs would contract and grip the rock.

After cores were removed there was always a certain amount of loose rock in the bottom of the hole. This was removed in an ordinary half-ton mucking bucket fitted with a safety hood. The hood was attached to the bucket in such a way that the bucket and hood were a unit, and the hood could not be lowered onto a man in the bucket or standing beside it.

Water was handled with an ordinary clack-valve bailing bucket holding about 150 gallons of water. When the drill was in the hole, men were raised or lowered in a torpedo-shaped steel shell, 22 inches wide by 14 inches thick by seven feet long, pointed on each end. A supply of fresh air in the bottom of the hole was required, and this was furnished by running compressed air through a one-half-inch hose which was lowered and raised by hand. An ordinary bell-signal system was used, with special signals to fit the job.

The drilling cycle was as follows:

1. Lower and line up the drill.
2. Drill.
3. Hoist drill from hole and move to one side.
4. Bail water and cuttings.
5. Lower core lifter, break off core, and hoist and dump core.
6. Bail water and cuttings.
7. Inspect and clean the bottom of the hole.
8. Run in eight feet of water in preparation for next drilling cycle.

**S**AFETY precautions consisted mainly of continual care in training men. For example, there was always an apprentice on the crew. Safety belts were worn whenever men were riding up and down the shaft. Blasting, occasionally required to break the cores, was all done by electricity, with the men on the surface.

No men were ever hoisted with heavy loads. The walls of the shaft were inspected and tested once each week from top to bottom for loose ground, and the general rule was never to do anything else when something could be done to increase the safety of the operation.

Where loose ground was encountered, it was made safe before any operations were

carried below. The result of these policies was to complete the hole with but one accident, and this only a simple leg fracture. Due to the small number of men, it was possible to supervise the entire operation closely and give thorough training to each man employed.

FOLLOWING is given the total cost of the 1,125 feet of shaft, including the plant (materials and labor of installation and erection) and the direct sinking cost, as taken from the books of the company:

#### Surface Plant

Headframe, hoist house, and change house.....	\$ 4,670.10
Transformers and 40-horse-power motor.....	576.31
Two-inch and four-inch air pipe.....	660.24
150-horsepower hoist (second hand) .....	3,681.16
One double-drum tugger hoist .....	285.00
Tugger hoist.....	152.29
Lighting and signal systems....	229.88
 Total plant.....	\$10,254.98
Shaft Boring Equipment.....	\$ 5,333.58

Total plant and shaft boring equipment.....	\$15,588.56
Shaft Boring Operation.....	\$42,114.41

Following is the cost of actual sinking operations:	
Labor .....	\$17,368.96
Supplies .....	4,847.54
Power .....	1,061.11
Miscellaneous .....	3,248.24
 Total operation .....	\$26,525.85
 Grand total plant, equipment, and operation.....	\$42,114.41
Shaft Boring Operation, cost per foot. (Depth of shaft, 1,125 feet).	

	Cost per foot
Labor .....	\$15.44
Supplies .....	4.50
Power .....	.94
Miscellaneous .....	2.89
 Total .....	\$23.57

The above direct operating cost per foot does not include depreciation on the equipment. It does include the following items:

1. All direct labor and supervision, including hoistmen—also including the labor spent in supporting the walls where necessary.
2. Supplies—Includes all direct drilling supplies, such as shot, drill shoes, small tools, oil and grease, and sand and cement for concrete.
3. Power—This item was taken from the company's distribution sheets. The power was not metered. The various motors in use have been mentioned.
4. "Miscellaneous" consists principally of repair parts to the drilling and other equipment, and shop costs.

In considering the probable future costs, it must be remembered that the total costs covered the experimental periods, as well as the more satisfactory sinking periods. The experience gained in sinking this shaft covered so many types of ground that with holes five feet in diameter this ex-

perimental lost time should be greatly reduced in the future. The direct sinking costs should be further decreased by the use of heavier, better-powered equipment, and improvements in handling technique.

DURING the 35-day period from July 23 to August 27, 1935, the operation was comparatively free from experimental lost time and equipment failures. The figures obtained during that period follow:

Depth sunk: 160 feet (545 to 705 feet). Material: Blocky serpentine, with some ankerite.

Labor and Supervision:	Cost per foot
Setting and removing drill	\$1.39
Drilling .....	2.21
	———— \$3.60
Bailing .....	.98 .98
Mucking cores .....	\$2.20
Removing cores with core puller .....	1.44
	———— \$3.64
Drill maintenance and repairs .....	.20
Cementing walls .....	.51
Lost time.....	1.17
	———— \$1.88

Total labor and supervision .....	\$10.10
Crew cost per hour, including bonus .....	\$1.92
Other Expenses (see note).	
Drill shoes .....	\$1.03
Power .....	.50
Shot .....	.60
Concrete and steel for wall support .....	.17
Lights, small tools .....	.15
Repair parts, experimental supplies and miscellaneous .....	1.24
	———— \$3.69
Total direct cost.....	\$13.79

Note: The charges marked "Other expenses" are taken from averages of longer periods, as the books were not balanced at the beginning and end of the drilling period under discussion.

The labor cost in crew-hours per foot of shaft during this period was as follows:

Crew-hours per foot	
Setting and moving drill.....	0.723
Drilling .....	1.150
Bailing .....	.509
Mucking broken cores .....	1.150
Removing cores with core puller .....	.750
Drill maintenance and repairs .....	.104
Cementing walls .....	.265
Lost time .....	.609
Total .....	5.260

Those most familiar with the work feel that an average sinking rate of well over five feet per day should ultimately be obtained. That this expectation is not entirely unreasonable is indicated by the results for a three-day period in good ground, as follows:

Footage, three days.....	21 feet
Direct labor, per foot.....	\$6.41
Other charges, per foot.....	3.74
Total per foot.....	\$10.15

(Continued on page 44)

### RICHARD V. AGETON

Richard V. Ageton, 49, deputy mining supervisor with the U. S. Geological Survey, died at the Veterans' Hospital, Albuquerque, New Mexico, on March 2. Ageton was considered one of the leading authorities in America on potash, and had been in charge of the Carlsbad, New Mexico, office of the geological survey for several years. He supervised the prospecting, development, and production of potash on the government lands near Carlsbad.

Ageton received his degree of B. S. in mining engineering from Washington State College in 1911, and from then had a varied experience in mining, engineering, and geology in Idaho, Montana, Washington, Alaska, and Utah. From 1915 to 1917 he worked up from miner to shift boss at the Leonard mine of Anaconda Copper Mining Company at Butte, Montana. His mining career was interrupted by the World War, from August 1917 to February 1919. At the time of his discharge he held the rank of captain in the U. S. air service.

Immediately following his discharge he joined the United States Bureau of Mines and for five years was in charge of car work in Utah, Wyoming, Eastern Colorado, and Idaho, then in the Michigan copper county, Wisconsin, and the Minnesota iron districts. He later acted as deputy mining supervisor of mining on Indian lands at Miami, Oklahoma.

From August 1924 to December 1928 he was accident and prevention engineer for the Tri-State Zinc and Lead-Ore Pro-

ducers Association, working out of Picher and Miami, Oklahoma. In May of 1929 he became deputy mining supervisor of the U. S. Geological Survey, with headquarters first in Miami, Oklahoma, then Washington, D. C., and later at Carlsbad, New Mexico.

### GEORGE A. MORRISON ACCEPTS IDAHO POSITION

RESIGNING as superintendent of mines and crushing for the West Penn Cement Company at Butler, Pennsylvania, George A. Morrison has accepted the post of manager of the Oroganade-Frisco Mines, Inc. Morrison received his bachelor's and his master's degree from the Michigan College of Mines in 1904 and later did graduate work at the Massachusetts Institute of Technology. His first position was in Cripple Creek, Colorado, where he spent a year. The next nine years he spent in Mexico with various companies, and then went to Copper Cliff, Ontario, as superintendent of the Creighton mine, remaining with that outfit for five years. The next four years he spent in Keene, New Hampshire, as manager of the Golden-Keene Company. It was after this that he became affiliated with the West Penn Cement Company.

In speaking of his present work, Morrison says that gold ore is being mined from the hillside with Diesel power shovels. The next problem is to get a good extraction from low-grade ore, carrying some values in sulphide, without fine grinding of the whole mine-run. Until operations are a

little more advanced, the company will continue to use the old 500-ton cyanide plant, which was recently remodeled. Future plans also call for replacing the present power plant with a modern Diesel and the installation of a new mill.

The Oroganade-Frisco property comprises six patented and 40 unpatented claims in the Elk City district of Idaho county, near Oroganade. About 40 men are employed.

### WORKMEN'S COMPENSATION INSURANCE RATES LOWERED

FOR the first time in some years the rates for workmen's compensation insurance in California have been appreciably reduced. The new rates, to be effective on April 1, 1937, show a decided downward trend which will be welcomed by the mine operators.

The new rates are, for underground mining—\$9.44, with a surcharge for silicosis of \$2.24; for surface mining—\$7.72, with a silicosis surcharge of \$0.56; for surface employees at mines (not engaged in mining)—\$7.72 with no surcharge. Ore milling also receives a reduction from \$2.84 to \$2.41 with a silicosis surcharge of \$1.40. Mine commissary employees receive a slight increase to \$1.77 from \$1.43.

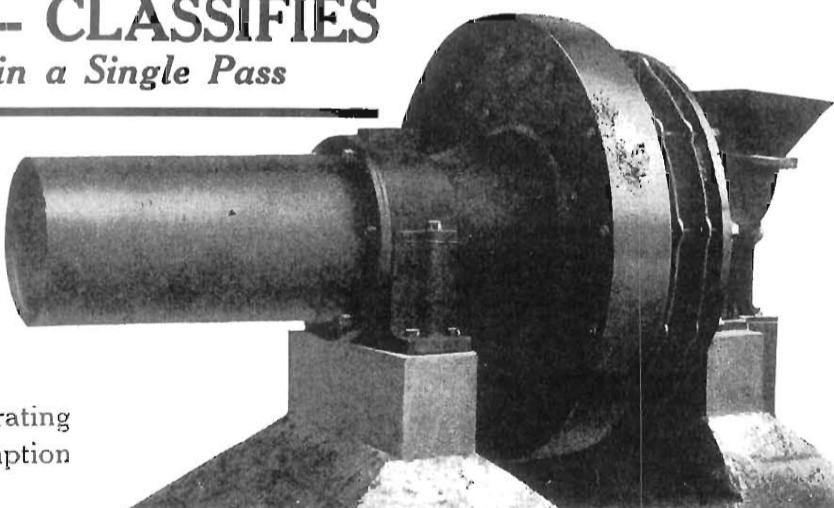
These rates compare with the old rates of \$10.97 for underground and \$9.15 for all surface employees. No change from the 1936 silicosis surcharges was made. The reductions approximate 15 per cent lower than those previously in effect. The new

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Capacity Per 24 Hr.	Feed	Power Required
100 tons	12 inch	35 hp.
50 tons	10 inch	18 hp.
25 tons	8 inch	12 hp.

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## The Sampling Mill

by Fisher Lane



\*\*\*February faded with a feverish feeling permeating the copper industry, and non-technical magazines featuring the fandango of the red metal. March literally "came in like a lion" as far as copper is concerned; and as this is written, apparently even the heads of major copper-producing organizations are not entirely sure just what the near future may develop.

\*\*\*By the time this is in type not even a soothsayer can say at what price export copper will sell. And while this writer has previously felt that European war-scare demand, and various huge national defense (and offense) armament activity had been the chief cause for the export-price climb, recent disclosures lead to belief that European economic recovery, with resultant copper demand in industry not related to war, is as powerful a stimulant.

\*\*\*Naturally the present copper situation has caused the Wall Street stock gamblers to take joyrides on the securities of the copper-producing companies. Stocks (engraved-paper, not metal) have soared as much as 70 per cent since last autumn. The Wall Street traders have a circus in that sort of a picture. They call it "investment." Journal readers know what I call it. And remember—the money "invested" in Wall Street and its lesser gambling hells doesn't reach the mines for plant equipment or development. It fattens gamblers' and brokers' bank balances.

\*\*\*Yet these do be, indeed, salad days for metal mining—what with gold at \$35 (and still rumored likely to be upped by President Roosevelt to \$41.34, with a "four-bit dollar"); silver mined in the States taken at 77 cents; copper at 16½ cents; lead and zinc wafted to 7.50, and quicksilver at \$95 per flask.

\*\*\*And platinum! The copper capers have been tame compared with the platinum pirouettes! Last September platinum hit \$70, an advance of \$27 from the early August price. Late in '36 it eased off to \$48. On January 25, the price was upped to \$58; then to \$68 per ounce, or within \$2 of its September peak.

\*\*\*Incidentally, again the silvery metal becomes a sweet hideout for the funds of timorous hoarders; for Uncle Sam has no "thou-shalt-nots" hung on platinum-hoarding, as is the case with poor old emasculated gold, and 3-ounce platinum bars, worth a couple of hundred bucks apiece, are handy little trinkets to salt away in the old safe-deposit box.

\*\*\*Which reminds me: I know a beautiful piece of unsuspected virgin gold-and-platinum ground; an old-time orchard at the junction of a couple of creeks; and I'm going to . . . but whoa! I almost told you where that orchard was! Not another word—with platinum again at almost \$70!

\*\*\*Don't forget, you who like to spot good properties and develop them with legitimate capital, that with wars and rumors of wars the steel-hardening alloy-metals are likely to get on the up-ramp. Chromium, molybdenum, tungsten, vanadium—better keep your eyes peeled, brethren.

\*\*\*War is hell. Sherman said it. So's your old Depression. Better metal prices, IF THEY DON'T GET OUT OF CONTROL, will make both seem, perhaps, a little less hellish.

schedule was released by the California Inspection Rating Bureau, which is the rate making factor for workmen's compensation in California.

The reduction in the rates is a definite result of safety measures and practice enforced by the state fund, the accident commission, and the private carriers writing mine insurance. Each of these organizations maintains large forces of safety engineers and inspectors who make frequent visits to the mines for the purpose of enforcing the safety measures necessary for the reduction of accidents, which in turn directly affects the insurance rates.

The Industrial Accident Commission of California has recently perfected a new code of mine safety orders and with the safety engineering now available to the mine operators, these orders can be strictly enforced. With safety consciousness of the mine operators increasing, it is reasonable to expect further rate reductions in 1938 when the rates are again revised.

The California regulations for workmen's compensation insurance provide that credit may be given to mine risks up to 12 per cent and by this means mine operators may secure a reduction of that 12 per cent under the manual rates. Credits of 5 per cent are given for safety organization and inspection; from 1 to 5 per cent for from 20 to 100 per cent of mine employees trained by the bureau of mines, and for a mine rescue station an additional 2 per cent is given.

In addition to these credits it is possible to secure additional reductions through the means of dividends paid to the insured mine operator for the varying degrees of actual accident experience. There are allowances made also for prevention of silicosis which permit approximately 50 per cent reduction of that surcharge.

### ARIZONA COPPER MINERS

#### RECEIVE FOURTH PAY RAISE

AN ADDITIONAL wage increase of 5 per cent, effective March 1, has been announced by the leading copper companies in Arizona. This is the fourth advance of this same size which has been given since September 1, 1936, making a total increase of 20 per cent, and bringing the average day's pay for miners in the copper camps to \$6, with a minimum for underground work to \$5.28.

The announcement by producers showed that approximately 10,000 workers would benefit by the wage hike and also revealed that employment in the copper camps had greatly increased in recent months. Employes at Inspiration Consolidated Copper Company and International Smelting and Refining Company number 2,000, while Miami Copper Company, in the same district, employs 1,800.

Phelps Dodge Corporation, with producing mines at Bisbee, Ajo, and Jerome, gave its number of employes in the state as 5,200. Nevada Consolidated Copper Corporation, which resumed operations at its mine at Ray and mill in Hayden in January, reported 490 employes. Magma Copper Company employs approximately 800 workers.

### VERDE EXTENSION REPORTS

#### RESULTS OF 1936 OPERATIONS

THE 1936 annual report of United Verde Extension Mining Company, Jerome, Arizona, shows a net profit of \$849,119 after taxes, depletion, and other deductions, equal to 81 cents a share on the 1,050,000 shares outstanding. In 1935 the profit reported was \$375,533, or 35 cents a share. During the year just closed United Verde Extension paid its stockholders a dollar a share from earnings and surplus to bring the total of dividends paid since 1916 to \$46,751,250, or a total of \$44.252 a share.

Copper produced by the company from its own ores during 1936 totaled 14,028,-667 pounds; copper from custom ore 239,-150 pounds; copper sold, 21,018,816 pounds; copper on hand, January 1, 1936, 18,450,055 pounds; and on hand January 1, 1937, 11,699,056 pounds.

The company's annual report to stockholders makes the following statements concerning operations:

"The smelter at Clemenceau made two runs during the year, the last one starting September 15, and concluding January 12, 1937. The plant is being cleaned up of residues of flue dust and furnace bottoms and the machinery will be sold, if possible, en bloc.

"The crosscut into the Vulcan group, referred to in our reports, has been advanced to within about 500 feet of the Vulcan line, the breast being still in porphyry.

"At the Golden Anchor mine, development work during the year failed to increase the tonnage of ore in sight. The mill continues to run under the difficult climatic conditions existent. The Golden Anchor Company in December paid a dividend of 22½ cents a share on its 400,000 shares outstanding, of which we own 256,800 shares.

"It is expected that by May or June future probable treasury requirements may be clear enough to declare a dividend."

In referring to ore reserves at Jerome, the report states: "Remaining ore, amounting to a few thousand tons, will be extracted and smelted at the works of our neighbor," i.e., in the Clarkdale smelter of Phelps Dodge Corporation, United Verde Branch.

The balance sheet reported total assets of the corporation at \$5,204,850.

### FURTHER SUSPENSION OF ASSESSMENT WORK OPPOSED

THE interior department has registered its opposition with the United States senate to further suspensions of the annual assessment work on mining claims held by locations.

Acting Secretary Charles West, reporting the department's views to Chairman Adams of the public lands committee, said he believed the "time has arrived when in the public interest the exemption from the requirement of annual labor should not longer be continued."

He recommended rejection of a bill by Senator Murray which provides for suspension of assessment work for the current fiscal period.

# Nuggets from Western States

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



**Southwestern Metal Mines, Inc.**, Cleator, Arizona, has temporarily closed down its mine and mill. However, the water is being kept out of the workings, indicating that further work is planned. The reopening and unwatering of the mine, as well as mill construction, was financed by an RFC mine loan. H. P. Moran is president and general manager of the company.

The Sundown group of eight claims, at the head of Hackberry Wash, nine miles from Morristown, Arizona, has been taken on a three-year bond and lease by the **Alto Arizona Gold Company**. The claims are owned by Freeman Fike and Col. Fred Bowler, both of Phoenix. Approximately 200 feet of development work has been done, said to show gold values of about \$40 a ton. J. B. Gilliam, 322 Acoma Street, Denver, Colorado, is president of the leasing company, and at present is in Arizona laying plans for the initial development work to be done.

The **Hillside** group of claims in the Copper Basin district, Prescott, Arizona, has recently been purchased by George Hopper from A. J. Ogg. Hopper, who is backed by Holt Lindsey of R-K-O studios in Hollywood and other film executives, proposes the immediate development of the claims. The first work will be the construction of a mile of road, after which he will take in a compressor and other necessary machinery. He proposes to extend the main tunnel, already in 50 feet, to the main vein. Ore values are in gold.

**Mammoth-St. Anthony, Ltd.**, Mammoth, Arizona, is reported to have purchased the milling plant of **Molybdenum Gold Mining Company**, also at Mammoth. For the last year the milling plant has been under the management of Foster S. Naethling, managing director of Mammoth-St. Anthony, Ltd., and has been treating ore from both properties. According to reports, there will be no change in personnel at the plant.

The **Mocking Bird, Gold Bug, Great West**, and **Golden Chancos** mining properties located 30 miles northwest of Chloride, Arizona, have been taken over by new interests and operations are to be started at an early date. Heading the group is J. K. Houssels, Las Vegas Club, Las Vegas, Nevada, and associated with him are Tom N. Slaughter, former mill superintendent of Pioneer Gold Mining Company, and Dean D. Richardson, office manager of the same company, both of Chloride, Arizona. The new operators have purchased the 50-ton flotation mill constructed several years ago on the Dean mine, and trucking of the machinery and building to the mill site on the Mocking Bird claim has started. A pipe line to the Great West is being laid to supply water for milling. It is expected that the plant will be reconstructed and ready for operation by early summer. Slaughter is directing the work. Some production is reported from the Gold Bug, which has been developed by a 500-foot shaft, and the Great West and Mocking Bird were also worked many years ago.

**Southwestern Metal Mines, Inc.**, Cleator, Arizona, has temporarily closed down its mine and mill. However, the water is being kept out of the workings, indicating that further work is planned.

The **Tombstone Mining Company**, Tombstone, Arizona, operating the Gallagher mill, is treating 45 tons of ore daily, employing a force of 18 men. At the present the ore being handled is from the dump of the Tombstone Extension. Harry Haselgren is in charge.

The property of the **American Coarse Gold Mining Company**, Quartzsite, Arizona, was examined the middle of February by O. C. Matheis, mining engineer, 240 Wilcox Building, Los Angeles, California. Some work has been done at the claims with small dry and wet placer machines by H. Ralph Badger of Buffalo, New York, and a small amount of nugget gold recovered.

The **American Smelting and Refining Company** is employing a crew of 125 men at its Swansea mine, Bouse, Arizona. The flotation mill, which has been rehabilitated to handle from 250 to 300 tons of ore daily, went on production March 5. Concentrates will be trucked to Bouse and then shipped to the A. S. & R. smelter at Hayden, Arizona. E. C. Lane is general superintendent and Bruce Matthews is mill superintendent.

J. W. Lancaster, 7101 Seville Avenue, Huntington Park, California, is awaiting construction of a new road before placing his property on a production basis. The claims are located about two miles from Tip Top, in the Black Canyon district, and are said to carry commercial values in gold, silver, and antimony.

The **Belle** mine, operated by **Mammoth Mines, Inc.**, is shipping from two to three cars of high-grade ore each month to the American Smelting and Refining Company at El Paso, Texas, pending completion of a mill. This company is constructing a cyanide plant on its millsite on the Santa Maria River, near Yava, Arizona, following several months spent in metallurgical testing. The work is directed by Ernest A. Colburn, Jr., Wickenburg, Arizona, president of the company.

Earnings of the **Eagle-Picher Lead Company** for the year 1936, after depreciation, depletion, inventory reserves, federal income tax and surtax on undistributed earnings, etc., will be reported shortly as approximately \$690,000, according to E. A. Bendelari, president. This net profit would be equal, after preferred dividends, to around 74 cents a share on 894,076 shares of common stock. The 1935 profit was \$583,620, or 61 cents a share. The company has recently declared a dividend of 10 cents a share on common and the regular quarterly dividend of \$1.50 on preferred, both payable April 1 to stock of record March 10. While Eagle-Picher's principal mining operations are in the Tri-State territory, Arizona holdings include the Montana Mines at Ruby, Arizona, a substantial producer of both lead and zinc. The company is also engaged in considerable exploration work in the Tombstone district.



The 25-ton mill being operated by the **Gold Bend Mining and Milling Company**, Needles, California, is to go on a two-shift basis immediately. The mill, which handles ore from the company's Silver Moon mine near Eagle Pass, makes recovery by means of amalgamation and concentration. As the ore is free milling, most of the values are retained on the plates. The mill is Diesel-powered, and an electric light plant is being installed to permit operation of the night shift. At the mine, five men are employed in taking out ore. F. E. Miller, 709 Thirty-third Street, Bakersfield, California, is president and manager of the company.

Preliminary work continues at the Uncle Sam mine near Kennett, Shasta county, California, which is being operated by the **Vera Mines Corporation**. A 100-ton flotation mill is scheduled for the property when sufficient tonnage is developed to warrant construction. A. A. Wren is engineer in charge of activities.

The **Backbone Gold Mining Company**, Kennett, Shasta county, California, has developed a large reserve of gold-silver-copper ore in its property near Kennett with approximately 50,000 tons blocked out, said to be sampling \$5 per ton in gold, six ounces silver, and 4 per cent copper. A 10-ton smelter was installed at the property by the Mace Company of Denver, last year. The company holds a lease and purchase option on the adjoining Golinsky mine, which is said to have produced considerable rich copper ore 20 years ago. B. Brauston, president of the company, has been maintaining headquarters at the property.

The reconditioned 50-ton mill at the **Crandall Mining Company** property near Auburn, California, has resumed operations on a three-shift basis and is treating from 50 to 70 tons of custom ore daily. The plant, equipped with a coarse crusher, stamps, ball mill, flotation cells, amalgamator and concentrating table, is being operated as a custom mill by Otto C. Radley, Auburn. Brady and Cates will also use it as a test mill for the new mine which they are opening in the Bowman district. Sam Denman is president and manager of the Crandall Mining Company.

The Dowling Mines Company, operating the **Walker Consolidated** mine in the Old Diggings district near Redding, California, plans the installation of new equipment to increase the mill capacity to 200 tons daily, work to begin during March. The plant at present is treating 75 tons of ore daily with the mine product stated to be averaging better than \$10 per ton. James J. Dowling, president of the company, is in charge of operations at the property.

Reopening of the old **Eliza** gold mine in the Humboldt district near Yreka, California, is nearing completion, and good ore is reported exposed. The work is being done by the **Orietta Development Company** and includes reconditioning of old workings and installation of new equipment. Arrangements have also been made for development of new territory. The Eliza was a noted producer in the early years of the district.

Ore of good milling grade is reported to have been blocked out at several points in the historic King Solomon group near

Black Bear, Siskiyou county, California. Roy N. Bishop, 411 Crocker Building, San Francisco, is president of the King Solomon Gold Mines Company, operator of the property. Harry M. Thompson, Black Bear, is engineer in charge.

The Robinson mine in the Bucks Lake area near Oroville, California, is operating steadily despite deep snow and unusually severe storms. The mill is handling 50 tons daily and development of the vein system is reported to be proceeding favorably. The shaft is down 300 feet and deeper work is planned, as indications are said to be promising for persistence of the ledges. Snow-blocked roads have isolated the mine and the sole connection with the outside world is by means of short-wave radio. C. F. Tolman, head of the geology department at Stanford University, Stanford, California, is president of the Granite Basin Mining Company, which operates the property. His son, John Tolman, is superintendent at the mine.

Work at the Two Orphans mine near Auburn, California, is being concentrated on driving of the north drift on the 100-foot level toward an indicated contact with a new east-west vein on the property. The drift is being extended along a five-foot vein of good milling ore, it is understood. Sinking of the shaft to the 145-foot level was recently completed and good values are reported at that depth, but the new level will not be opened until extension of the drift on the 100-foot level has been completed. Ore taken out during present operations is being stacked on the dump to await installation of new mill equipment. The mine is being operated by Steve Kucher, Frank Stein, Joe Slak, and Joe Sukjati, all of Grass Valley, California.

The Antelope Creek Dredging Company, Loomis, California, is operating steadily on a 24-hour basis, and is handling an average of 40,000 yards of gravel per month. Work is under the direction of T. J. Nix, dredge-master, who was formerly with the Camanche Dredging Company at Camanche, California.

A new ore shoot struck recently in the Keyes mine at Kernville, California, is reported to be producing ore assaying \$125 per ton. The new shoot is 48 feet long and from five to 26 inches in width, and was discovered during development at a point 350 feet from the bottom of the shaft in the east end of the old workings. The Barlu Enterprise Company of Los Angeles, has recently taken over the property and has completed the timbering of approximately 1,000 feet of tunnel on the cross-cut level, in addition to lowering the water level in the old workings. The newly-discovered shoot has been stopped for 100 feet above the present level and crews have also begun development work on the west end of the same level where a small ledge of ore is said to be averaging \$280 per ton. Four tons of ore per day are being milled at the property. Eight men are employed under the supervision of Roswell Tibbets. Harry Lucas is manager.

The Confidence Gold Mining Company, C. T. Eastman, Sonora, California, manager, is vigorously pushing its development program in advance of the completion of its 150-ton flotation and cyanide mill, now under construction at the Confidence mine, 12 miles east of Sonora, and it is stated that a two years' supply of ore will be blocked out by the time the plant is ready for operation. Rich ore has been opened up on the 800, 900, and 1,000 levels in the hanging wall vein which former operators had left unexplored, and blocking out of

this ore body is now proceeding. The vein, said to be four to six feet wide, is reported to show streaks of high grade, which vary from a few inches to 18 inches in width, and to carry free milling gold as well as sulphides of high quality. It is hoped to have the mill completed and in operation some time in the spring, allowing for possible further slight delays due to bad weather. William J. Leigh is mine superintendent. The mill is being installed by the Western-Knapp Engineering Company, 593 Market Street, San Francisco, California.

The Lost Camp Gold Mining Company has started operation of its placer property at Blue Canyon, Placer county, California, with sufficient water in prospect for continuous operation until June. A debris dam has been completed on Blue Canyon Creek. Fred Sperry is superintendent at the property.

The Burton Brothers mill at their Tropico mine, Rosamond, California, continues to handle large amounts of ore, not only from their own property, but also from other mines in the Mojave district and other outlying districts. On the Fairview lease, located on the Tropico Home vein to the east, a drift being run to the west on the 500-foot level has picked up the ore shoot which occurred on the upper levels. On the 400 level an ore shoot 140 feet long on a vein averaging five feet in width, has been opened up, and shipments to the Burton mill average 20 tons daily, with the values running between \$11 and \$12 per ton in gold and silver, according to mill returns. Henry Kelsey is operating the Fairview lease with George Smith, Rosamond, as mine foreman. On the Lida lease, M. E. Ish is driving a crosscut to the north from

the bottom of a 225-foot shaft, in order to cut the Lida vein below the old tunnel level. A cross fracture has been encountered in the new work which indicates that the contact between the rhyolite and granite should soon be encountered. On the Rosamond lease Lytle and Hartman are continuing a crosscut south from the bottom of the shaft and have encountered a rhyolite zone. Preparations are being made by T. E. Finnerty, superintendent for Burton Brothers on their Kid claim, for the cutting of a station at the bottom of the shaft. Drifting will be done from the shaft and from the 600-foot level of the Tropico, until a connection is made.

Excavation is under way for construction of the new 100-ton daily capacity milling plant at the property of Cactus Mines, Inc., Mojave, California, and a contract for the erection of a staff house and an office building has been let to the E. S. McKittrick Company, Inc., 5905 Pacific Boulevard, Huntington Park, California. The original well, sunk to secure water for milling purposes, was abandoned when a rhyolite formation was struck at 265 feet, but a second well to the west has struck a 15-foot strata of water bearing gravel at a depth of 300 feet, and preliminary pumping gives indications that a good well may be developed. In the mine, shaft pockets for ore storage and routine mining operations are being cut in the main shaft at the third and fifth levels. Roy W. Moore, 1206 Pacific Mutual Building, Los Angeles, is general manager of the company. B. C. Staiger is general superintendent, and Frank V. Johnson is mine superintendent with headquarters at Rosamond, California.

The Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022

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Crocker Building, San Francisco, did not suffer any appreciable loss in the fire which ravaged the town of Douglas, Alaska, four miles across Yastineau channel from Juneau, Alaska, and mining operations will not be influenced by the effects of the fire, it is understood. The town of Douglas was virtually wiped out by the flames, which were fanned by a high wind.

It is understood that a 100-ton ball mill and a modern flotation plant will be installed soon at the Rosencranz mine, Garden Valley, California, recently taken over by the Lode Development Company of Auburn, California, Marshall D. Draper, manager. Charles H. Brown of Auburn is in charge of the Rosencranz.

The office building at the Murchie mine, Nevada City, California, occupied by J. P. Widauf, foreman, was destroyed by fire recently. It is understood that valuable records of the mine were lost in the blaze. The Murchie is owned by the Empire Star Mines Company, Grass Valley, California.

Mark Weber and William Anderson, Auburn, California, have taken over Charles Hopper Brown's lease on the TWA mine, located in the Ophir district near Auburn, and have completed the unwatering of the 400-foot shaft. The 65-ton Hendy rod mill has also been reconditioned and is ready for operation. Webber and Anderson are also operating the Eclipse mine in the Ophir district.

Production is understood to be under way at the property of America Mines, Inc., Frederick H. Merrell, president, Amboy, California, and ore shipments are to be made at the rate of approximately 40 tons daily to the Gold Crown Mining Company's mill in the Dale mining district, about 20 miles southeast of Twentynine Palms, California. The America is a "blanket" type disseminated gold-bearing deposit, located in the Bristol Lake district of San Bernardino county, approximately 11 miles south of Amboy. Merrell secured a \$20,000 Class B loan from the Reconstruction Finance Corporation for development of the property.

A rich silver strike is reported to have been made in the upper workings of the Silverado mine, operated by Sierra Consolidated Mines, Inc. Uncovered 550 feet above the main working level, the vein is described as being six feet wide and sampling around 100 ounces of silver per ton. It is believed to be the upward extension of the ore body first found on the No. 9 level. Drifting is proceeding to determine the extent of the ledge. The company's 100-ton mill has been kept in constant operation, despite storms and deep snow. T. S. Davey, Wellington, Nevada, is manager of the company, and Frank Humphrey is mill superintendent. The property is located in Mono county, California, but the nearest town is Wellington, Nevada.

The mill at the Mohrman mine, Big Oak Flat, California, is to be placed in operation early in March to handle ore from the mine dump, according to J. J. Musante, owner of the property. The dump is said to contain between 5,000 and 6,000 tons of material which yield returns of from \$4 to \$5 per ton in free gold. The mine is equipped with a two-stamp mill which handles about three tons in eight hours. A compressor was recently installed at the property and it is understood that work will be resumed in the mine shortly.

The Wyandotte Gold Dredging Company, H. F. England, manager, Box 8, Oroville,

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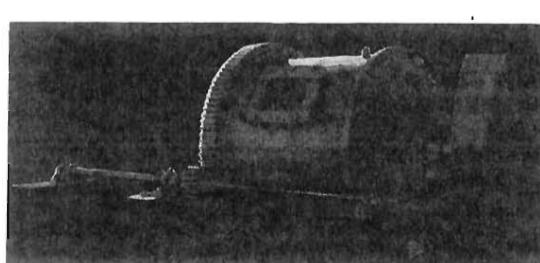
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California, has completed the erection of its new unit consisting of a three-yard Lima 1001 electric dragline and steel pontoon washing plant, five miles southeast of Redding, California. The new plant has a daily capacity of 5,000 yards.

Equipment of the **Atlas Gold Dredging Corporation**, which has been operating successfully for the past year at Camanche, California, is being moved to a new location in Nevada county, California, the property at Camanche being worked out. The corporation operates a Link-Belt three-yard electric dragline and a large washing plant, constructed by the Bodinson Manufacturing Company of San Francisco. J. E. Little, Smartville, California, is vice-president and general manager of the company.

Explosion of a powder train on the 700-foot level of the **Walker Mining Company** property at Walkermine, California, killed six men and slightly injured five others. Cause of the explosion was undetermined, but it is thought that the powder train jumped the track, or that a trolley wire was broken, causing contact with the powder.

Diamond drilling operations are underway at the Sceiffard Ranch property of the **Best and Belcher Gold and Silver Mining Company** near San Andreas, California, to determine the extent of the ore body opened up last year. The prospecting work is being done by the D. C. Longton organization, and it is expected that progress will be made at the rate of about 40 feet a day, according to H. L. Slosson, Jr., 333 Kearny Street, San Francisco, president and manager of the Best and Belcher company. The drill hole is being put down at a point 1,200 feet south of the present workings and is being run at an angle of 45 degrees to cut the quartz ledge approximately 200 feet below its surface outcropping. Several small shafts were sunk in this vicinity more than 65 years ago and their dump material shows values today, it is said. One shaft attained a depth of more than 100 feet and the old files of the Calaveras county newspapers reported a width of 17 feet of quartz. The drilling operations are being conducted to verify these reports and to give an accurate cross-section of the entire formation.

Dredging operations are proceeding satisfactorily at the **Pioneer Dredging Company** property, eight miles west of Cottonwood, California. The dragline is a Lima 901 electric with a three cubic-yard Esco dredging dragbucket. Harry F. England, Box 3, Oroville, California, manager of the Wyandotte Gold Dredging Company, is also manager of the Pioneer.

The **Fay Placer Mines**, E. M. Kaufeld, Box 274, Lincoln, California, plans the installation of a unit on Wolf Creek capable of handling 4,000 cubic yards daily. A Marion 38-A electric dragline will be used as an excavator. The company has been operating successfully for the past two years at Lincoln, using a Diesel-powered Link-Belt one and three-fourths yard dragline.

The Briarcliffe mine of **Briarcliffe Mines, Ltd.**, located on the Cosumnes River in the Nashville district of El Dorado county, has been closed down temporarily. When reopened a new shaft will probably be sunk to the 1,500-foot level, and milling facilities installed to bring the plant to a daily capacity of 300 to 500 tons. At present the mill consists of a 120-ton flotation plant, so constructed that tonnage may be doubled by the addition of a 100-ton ball mill. Last

year 25,000 tons of ore were run through the mill for test purposes. In one stope, 200 feet long by 40 feet wide, the ore averaged \$4.25 per ton. Head offices of the company are in London, Canada, and F. G. Stevens of Toronto is consulting engineer. Raymond O. Morrow, Box 156, Plymouth, California, is manager of the property.

The **Mount de Oro Mines Company**, Woodleaf, Yuba county, California, is engaged in the construction of a 25-ton cyanide plant and installation of Diesel power. The old 10-stamp mill has been closed down and the new equipment is being installed in order to obtain higher recoveries. Howard Tackabury is manager of the property. G. A. Lavagno is president of the company.

The **Idaho Maryland Mines Company**, Grass Valley, California, has declared the regular quarterly dividend of five cents, payable March 10 to stock of record March 1. Errol MacBoyle, Russ Building, San Francisco, is vice-president and general manager.

A one and one-half yard Northwest Diesel dragline unit is being operated a few miles northwest of Redding, California, by A. M. Bennett and associates.

**Lord and Bishop**, Native Sons Building, Sacramento, California, are operating a placer property 26 miles from Sacramento. Equipment includes a Link-Belt one and one-half yard Diesel dragline and a Bodinson washing plant. Approximately 2,500 cubic yards of gravel are being washed daily.

Operations have been temporarily suspended at the **McQueen** unit of the **Palermo Dredging Company**, located 12 miles west of Cottonwood, Shasta county, California, pending the installation of machinery for saving the platinum and black sands. A Link-Belt one and one-half yard Diesel dragline is used. The McQueen unit is being operated by Flumerfeldt and Ardell of Cottonwood.

A Page walking dragline, model 615, has been installed by the **Penn Dredging Company** at its property located south of Oroville, California. The dragline is Diesel powered and is equipped with an 80-foot boom and a two and three-fourths yard Page dragbucket. Innis and Son own the Penn Dredging Company.

The **K. R. Nutting Dredging Company** is operating a washing plant constructed by the Mutual Engineering Company of South San Francisco, and a Link-Belt two-yard Diesel dragline near Le Grand, Merced county, California. Kenneth R. Nutting, Box 728, Salinas, California, heads the company.

A deed has been filed in the county recorder's office transferring a number of mining claims to the **Grass Valley Bullion Mines, Inc.**, Grass Valley, California, for a consideration indicated to be \$250,000. The grantors are trustees of the Bullion Consolidated Gold Mining Company, a defunct corporation. Included in the transfer is the Galena claim, which was particularly involved in the apex litigation recently decided in favor of the Grass Valley Bullion Mines. Extensive operations are expected to get under way soon, following settlement of the suit.

Water difficulties which beset Grass Valley and Nevada City mines in California for a period of a week or more, are reported as entirely cleared and all opera-

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tions have been resumed, with the exception of a few leasing contracts.

Frank Merrilees, Mariposa, California, who holds a lease and option on 800 acres of the Fremont Grant, owned by the Mariposa Commercial and Mining Company, Mariposa, has his mill ready for operation. Included in his holdings are the Long Mary and Alice mines.

Installation of new ore bunkers at the portal of the 200 tunnel of the Middle Butte mine, southwest of Mojave, California, has been completed, and shipments of ore to the Burton Brothers mill at Rosamond, California, are going forward at the rate of 400 tons per month. This ore is coming from various faces of the mine with average values of better than \$12 per ton in gold, according to mill returns. At the same time, approximately 10 tons per day are being shipped from the winze 50 feet from the Trent glory hole. Averaging from two and one-half to three feet in width, the whole vein is being shipped, with values running from \$17 to \$30 per ton in gold. Meanwhile, development work continues, and surface exploration and trenching is being carried on in a very thorough manner. Al Smith, Rosamond, is in charge of operations with a crew of 10 men employed. The property is operated by Middle Butte Mines, Inc., Walter Trent, president, Rosamond, California.

The Russell Gold Mining Company, James A. Phelps, president, Angels Camp, California, is continuing development work at its Vista mine. A winze will be sunk below the 300-foot level in the ore developed on the Vista vein.

Satisfactory recoveries are reported by the Folsom Brothers, who are operating a

small digging ladder by dredge on a portion of the Sinclair and Gregory properties below Jenny Lind, Calaveras county, California. A power shovel is being used ahead of the dredge in order to loosen the gravel, which is very tight.

K. L. Storrs of Goldstone is reported to have plans under way for construction of a complete mill, including selective flotation, at Barstow, California. He plans to purchase ore on contract and to do a general custom milling business.

A four-foot vein of ore has been opened on the 80-foot level of the Oro Fino mine, located 12 miles southeast of Baker, San Bernardino county, California. It is said to assay \$35 to the ton. The ore is being hauled to the mill at Soda Lake, San Bernardino county, eight miles from the mine. The Oro Fino is being developed by Jerry Korfist, John Herrod, and Dick Dailey.

Production is coming from seven levels of the Blue Bird mine at Cripple Creek, Colorado, which the Blue Moose Gold Mining Company is operating. Eleven machines are now in use and one machine is being used in development work. Recently a six-foot vein was opened on the fourteenth level. About 90 tons of ore are being produced weekly, half of which is mined by split check lessees. W. L. Fitzgerald, 33 Independence Building, Colorado Springs, is president and general manager. Charles Eden of Cripple Creek was recently appointed superintendent, succeeding Jack Sharpe.

John C. Brownfield, 1476 Downing Street, Denver, Colorado, is planning to work the Champaign claims in Park county. With his associates, Brownfield owns the Crystal Lake mines in San Juan county, near Silverton, which Charles Thomas of Ouray is planning to work in the spring. The Blue Eagle Mining Company, of which Brownfield is president and general manager, has leased its property, located at Ironton, via Silverton, to J. C. Ryan of Denver.

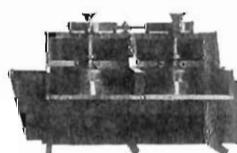
Further development is being planned for a property near Hesperus, Colorado, in La Plata county. A gold-silver strike was recently made there by Tom J. Davies of Hesperus and his brother, who are backed by a group from Plainview, Texas.

The Bassick mill tailings have been leased by J. T. Stroehlke and Henry Henning, both of Silver Cliff, Colorado, and a small cyanide plant installed. The property is located in Custer county, near Rosita.

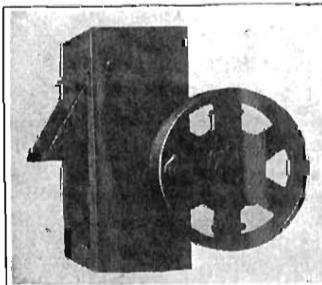
Fred Stroehle of Idaho Springs, Colorado, and John Stroehle of Blackhawk are reopening the old Crown Point mine in Virginia Canyon, in the Russell Gulch district of Gilpin county. The property has been dormant for some time.

The United Gilpin Corporation, George F. Kremm, chairman of the board, has suspended operations for an indefinite period. Despite the fact the company is said to have expended over \$50,000 on tailings disposal, no solution has been reached that is satisfactory to the Water Users Association. A plan has been worked out which would require another three months to put into use, but the Water Users Association will not grant this additional time. Closing of the mines and mill puts 135 men out of employment. The company was one of the

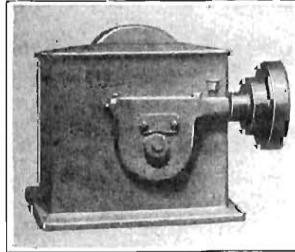
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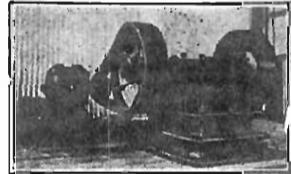


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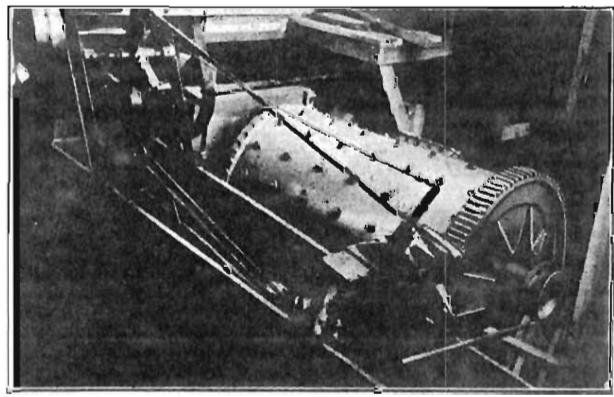
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## OREGON

James W. Crew and associates of Canyon City, Oregon, have organized the Pittsburgh Mining Company, which has taken a lease with option on the Eller Mountain property, comprising some 1,000 acres of land. The property, which is said to have three prominent veins, is opened over 8,500 feet of tunnels, raises, and mines. It is located about one and one-half miles from the highway, and five and one-half miles from Canyon City. Equipment on the ground includes a 10-stamp mill, Diesel power, and compressed air for drilling. The veins are said to range in width from two to 10 feet and show from \$5 to \$7 a ton in free gold. For the first three months the company treated ore from the dumps. A two-year mine development program has been planned, at the end of which time the company expects to have the property on full and profitable production. Crew, who is manager of the company, has had a considerable amount of mining experience in Idaho, and represented Robert Duncan of Burns, Oregon, in the reopening of the old Buckaroo mine in the Pine Forest range of Humboldt County, Nevada, where he directed the installation of a flotation and amalgamation plant in 1933.

The property of the Heppner Mining Company, located in the Greenhorn Mountains, near Austin, Oregon, has been leased to Bunker and Sons of Portland, who plan to install machinery and start work as soon as weather permits. At the annual meeting of the company James Williams of Tillamook, Oregon, was elected president, replacing the late D. B. Stalter, who had held that position for over 30 years. Other officers include M. B. Ackley, secretary; Carl Schultz, vice-president; and Max Schultz, treasurer, all of Tillamook.

A trial run is being made by the Yarra Engineering Company of Medford, Oregon, at the stationary gold washing plant which was recently rebuilt. A first test of 150,000 yards will be made before regular operations are started. The property is on Sterling Creek near Medford and work is directed by James MacCormack. Hydraulic mining, with dragline and shovel excavation is being used. The excavator is a Bucyrus 50-B Diesel.

A pump is to be installed at the Sunday Hill mine in the Mormon Basin district, some 10 miles southwest of Rye Valley, Oregon, in northern Malheur county. Work will be resumed on a small scale as soon as the pump is installed and the power turned on by the Idaho Power Company. Operations will be stepped up later when the roads are opened. The property is owned by W. H. Bohenkamp of La Grande and William Phalen of Rye Valley, Phalen being in charge of operations.

The newly installed dredge at the Sturgis mine was recently put into operation, having been moved from a placer property near Oroville, California. The dredge and washing equipment is said to have a daily capacity of between 2,000 and 3,000 cubic yards. The property is being operated by the B-H Company, W. H. Horner, Jacksonville, Oregon, president and general manager, and is also known as the Ben Hur property. T. M. Gerety is engineer and superintendent at Jacksonville.

## UTAH

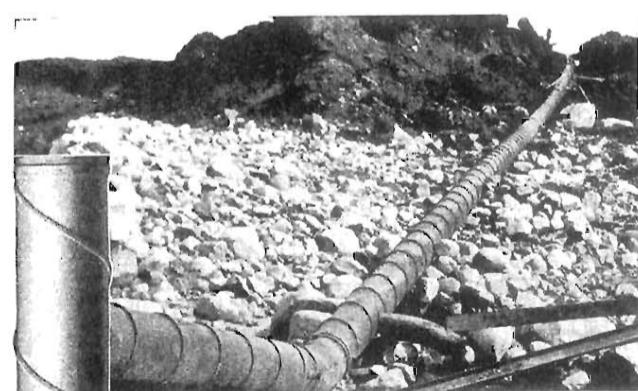
A net loss for 1936 of \$6,386, before depletion, was reported by the Park Utah Consolidated Mines Company, O. N. Friendly, 1003 Continental Bank Building, Salt Lake City, vice-president and managing director. This compares with a net loss of \$119,429 in 1935. The affairs of the Ontario Silver Mining Company are included in the Park Utah report. The company recently announced a 25-cent daily wage hike, effective February 16.

The Kennecott Copper Company has declared a dividend of 50 cents, payable March 31 to stock of record March 5, 1937. During 1936 the company paid dividends amounting to 25 cents for the March quarter, 30 cents in June and again in September, and 85 cents a share in December.

The Ohio Copper Company of Utah, Percy H. Kittle, Dooly Block, Salt Lake City, Utah, president and general manager, is considering the offer of the Kennecott Copper Corporation to purchase a portion of the Ohio Copper property containing low-grade ore. The property in question is said to have been delinquent in tax payments for four years and will be sold to the highest bidder in May, if not redeemed. The Kennecott offer is stated to involve a payment of \$600,000.

The Utah Steel Corporation, operating the Bull Valley mine in the Bull Valley district of Utah near the old camp of Goldstrike, Washington county, is installing a 500-ton mill to treat a large quantity of

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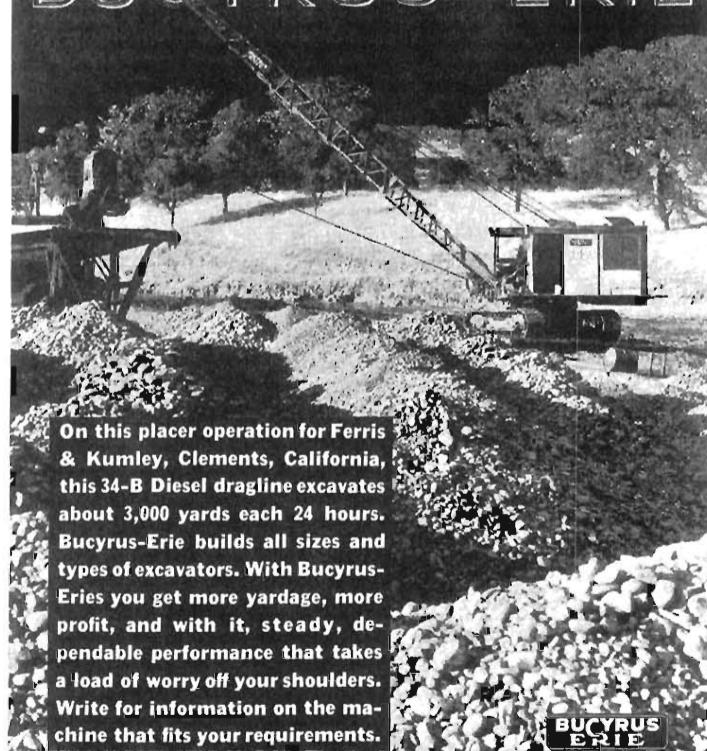
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Sizable deposits of ore are known to exist in the Prince Consolidated, Combined Metals, Bristol Silver, and Comet Coalition properties. It is estimated that 6,000,000 tons of low-grade ore have been exposed in properties controlled by the Comet Coalition alone.

#### CENTRAL EUREKA TO DEVELOP NEW ORE BODY ON 3,000 LEVEL

STOCKHOLDERS of the Central Eureka Mining Company, Sutter Creek, California, have been notified of an assessment of five cents a share on all outstanding stock, both preferred and common, payable immediately at the office of the company, 2012 Hunter Dulin Building, San Francisco. Shares on which the assessment is unpaid March 23 will be delinquent and will be sold April 8.

The assessment is being levied, the company explains, to obtain funds for further development of the 3,000-foot level, where ore assaying about \$13 a ton over a nine-foot width was recently encountered. Heretofore, production has been from the 2,500-foot level and above.

Production of good ore from the 2,650-foot sub-level has been temporarily discontinued, causing a lowering of mill output, and during this low production period, repairs have been made in the mill, which will put it in proper condition to operate efficiently when mining is started on the 3,000-foot level.

Central Eureka's determination to extend its operations to the lower levels arose from

the fact that ore in the upper levels showed definite signs of becoming exhausted, and the company faced the possibility of discontinuing activities altogether. Ira B. Joralemon, 315 Montgomery Street, San Francisco, consulting engineer for the company, examined the development work on the 3,000-foot level after the vein was encountered, and reported encouraging prospects, with a good chance of finding a large tonnage below the 3,000 level to supplement the ore body indicated between the 2,500 and 3,000-foot levels.

According to Joralemon, ore below the 2,500 level will not be available for stoping until the 3,000 level drift has reached the north end of the ore body, and a raise has been put up to meet the 2,500 level winze. This is expected to be some time in May, depending on the rate of progress made. Until the latter part of February, production had come from the lean stopes on upper levels, according to the engineer's report, but since about February 25, from one to three headings on the 3,000 level and in the winze and raises have been in the vein.

If this vein is as good as now seems likely, says Joralemon, production from these headings will pay all expenses save installation of the hoist and headframe. The company has started work on the foundation for a new hoist, which will be installed without interfering with the use of the old hoist. A new headframe also will be erected, and the shaft is being reconditioned to the 3,000 level. C. C. Prior is president of the company.

#### HANNA COMPANY CONTINUES MANGANESE EXPLORATION

THE M. A. HANNA COMPANY, which has been engaged for the last year in an exploration program at the manganese deposits in the Bill Williams country of southern Mohave county, Arizona, is continuing its work with two diamond drill crews. The contract for the drilling is handled by the Longyear company. A small road crew is also employed.

The manganese deposits in this section have long been known, but have been undeveloped due to lack of power and recovery facilities. However, the recent work by the United States Bureau of Mines on the electrolytic recovery of manganese, and the possibility of cheap power from Boulder Dam, have given impetus to this exploration project. Development work to date is reported to have been encouraging and to give reasons for believing that an important manganese reserve exists in this area. The property which the Hanna company controls includes the claims of both the Chapin Exploration Company and the Arizona Manganese Corporation, as well as other smaller groups.

The exploration program is directed by Benj. N. Webber, geologist of Phoenix, Arizona, who is making Congress Junction his headquarters.

The M. A. Hanna Company, with principal offices in Cleveland, Ohio, has long been an active figure in the Lake Superior iron ore mining, coal mining, lake shipping and blast furnace operations. At present

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it derives its income principally from investments, from earnings of subsidiary companies, and from ore, coal, and other management and brokerage business. Net profit for 1936 was reported as \$2,834,336, equivalent to \$2.24 a common share.

**ANNUAL REPORT ISSUED BY  
ANGLO AMERICAN CORPORATION**

ANGLO American Mining Corporation, Ltd., Walter Lyman Brown, president, Mills Building, San Francisco, reports for the year ended December 31, 1936, a net profit of \$183,563.50 before deductions for depletion, depreciation and taxes. This compares with a similar profit of \$72,221 for the preceding year. Total revenue was \$593,106.15, with the December revenue amounting to \$128,406.

During the year Anglo American increased its holdings of Carson Hill Gold Mining Corporation stock by 60,000 shares, which brings the total held to 32.35 per cent of the issued stock of the company and gives a \$73,687 equity in the \$227,758.76 earned surplus of Carson Hill for the three years ended September 30, 1936. Anglo American completed payment in November, 1936, for the 1,200-ton cyanide plant at the Yellow Aster mine, which cost \$208,433. In addition, \$112,671 had been paid, as of December 31, 1936, on the purchase price of the Yellow Aster tailings lease, leaving a balance due of \$38,443, which is payable out of royalty on production.

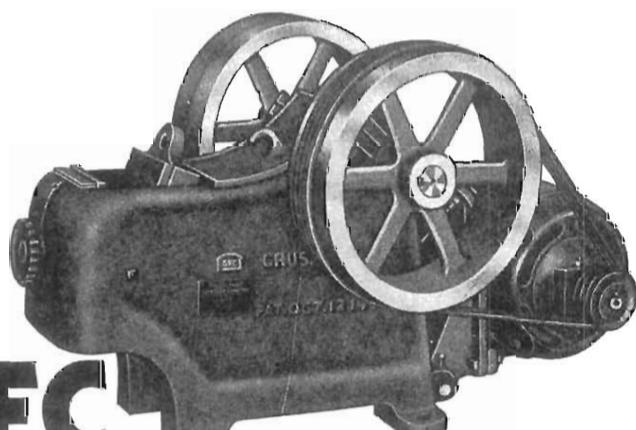
Registration with the Securities and Exchange Commission of the original \$2 par stock was approved and made effective in April, 1936, but due to the subsequent reduction in the par value of the stock to \$1, the commission required that re-registration be made. This was done and the necessary papers have been approved at Washington, making the re-registration effective as of February, 1937. The annual meeting of the corporation will be held April 20, 1937.

**UNITED GOLD CORPORATION  
TO INCREASE MILL CAPACITY**

UNITED Gold Properties Corporation, Lee R. Cordray, president and manager, Box 443, Sonora, California, started operation of its new 30-ton flotation mill at the Dickey Boy mine early in February. The rock crusher originally installed at the property was replaced in February with a Blake jaw crusher of larger capacity. An agitating tank was also installed in the mill for conditioning the mill product for the flotation process, with a view to reducing loss in tails, which were said to run about 55 cents.

It is planned to increase the present capacity of the mill in the near future to at least 75 tons per day, according to Cordray. This step will require only the replacing of the grinding unit with a five by four Hendy ball mill and installation of additional flotation cells. A cyanide plant of about 10-ton daily capacity is also contemplated. Underground operations at the Dickey Boy consist of drifting in both directions from the crosscut which extends from the vertical shaft on the 200-foot level.

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**GRASS VALLEY AND MOTHER  
LODE DISTRICT MINING NEWS**  
By R. Pat Blewett, Sacramento, California

THE entire Grass Valley and Mother Lode gold district is in a sound and healthy condition. Hotels are filled; S.R.O. signs meet the newcomer who failed to make reservations; and homes are at a premium, commanding good prices. These conditions are not boom times, just the result of a sensible program which is reacting to the benefit of all business interests. With gold prices remaining where they are, prosperity should continue in this district for some time to come.

While the mines and mills in the Grass Valley-Nevada City areas suffered severe financial losses because of the heavy snow storms and freezing weather this winter, the majority of the properties are again operating on a normal basis. The North Star mine was forced to close indefinitely due to a break in the Cascade ditch of the Nevada Irrigation District which supplies water to all the mines in the Grass Valley section. The Idaho Maryland pumped water from Wolf Creek, but was forced to close for a few days when power trouble developed from a break in the line. The Lava Cap was shut down due to the same causes.

In the Mother Lode section similar weather was experienced and curtailed production by major operations resulted, with some mines closed indefinitely. The Argonaut and Kennedy mines and mills at Jackson were affected, but are now operating and handling a good tonnage from the dumps and their own mines, as well as some custom ore.

The recent announcement by several of the leading companies that they would share their profits with their employes should have a beneficial effect along many lines. It is a fine gesture in recognition of the real services rendered some of the now prosperous operations by employes in the lean days and should pay the companies dividends in better cooperation and loyalty.

According to plans as outlined by Albert Crase, general manager of the Idaho Maryland Mines Company, certain profits will be shared with employes on the basis of continuous employment. This should mean an average, computed on present earnings, of approximately \$100 per year per employe.

Some of the operators are not unmindful of the real development work that helped them out and which was performed by the old lessees. When funds for exploration and development were none too plentiful, the leasing system was adopted. Through this method, miners leased certain sections of a number of mines. The companies furnished equipment and hoisting; the miners usually worked in pairs or groups on a 50-50 basis. They were paid only for ore actually mined. Thus, the companies profited by their share, besides having development work performed.

With the advent of better gold prices, leasing was supplanted by contract mining. Today, only two mines in the Grass Valley district, the North Star and the Golden Center, have lessees.



Among the important reasons for improved conditions is that the larger companies are extending their mining operations into this section. Nationally prominent organizations and large eastern financial interests have engineers scouting for desirable properties. Recently the St. Joseph Lead Company, one of the outstanding lead producers of the country, entered the field by acquiring the old Sheep Ranch mine in Calaveras county. This old property was noted for the high-grade character of its ore, and paid \$4,000,000 to Haggan and Hearst, former owners, and an additional million dollars to later owners.

The outstanding reason for most failures in mining in the past was insufficient capital. Now, with larger companies which are amply financed entering the field, mining and milling are progressing on a sound basis. Careful surveys are made, estimates checked, and plans properly carried out. The hit-and-miss method is slowly, but surely, being eliminated.

The resumption of hydraulic mining in this section is assured through the erection of debris dams which are to be built on the Bear and Yuba rivers, and the North and Middle Forks of the American River. Funds for their erection will be asked of Congress. The war department has already allocated \$100,000 for the preliminary plans and foundation survey. Headquarters for the engineers employed on this work will be located at Marysville, California.

It is reported that an ore body, estimated to contain 3,000,000 tons, has been discovered through the use of core drills at the old Harvard mines at Jamestown. The Harvard Gold Mining Corporation controls about one and one-half miles along the Mother Lode, and has a past production record of \$3,000,000. Assays from several hundred tons show \$6 value, and a large tonnage runs from \$6 to \$28 per ton.

In the Ophir district, outside of Auburn, Placer county, there is considerable activity. The Oro-Fino mine in that district, which is being backed by Idaho-Maryland interests, is making real progress and the management states that it will soon be on production. The present program calls for an expenditure of \$100,000 and after a careful check-up of ore reserves, the erection of a 300-ton mill, instead of the 100-ton plant originally planned, was decided upon. This mine has a very interesting background. It appears that the man who developed it, carefully and systematically, passed on before he could profit from his efforts. Then, because his widow was adverse to selling or leasing to anyone, it lay dormant for years, until the present owners secured control.

At Melones, the Carson Hill Gold Mining Company, which is controlled by the Anglo American Mining Corporation, made a

strike on the 3,160-foot level while cross-cutting through the footwall of the Bull vein in the Morgan area. The vein measures approximately 10 feet in width and assays \$7 a ton in gold. Judging by present plans of the management, the Carson Hill operation will become one of the largest in the state. Recent additions to the mill equipment, entailing a large outlay of capital, have increased the output to 1,500 tons per day and an ultimate of 2,300 tons per day is planned for the near future. At present, around 270 men are on the payroll.

At Chinese Camp, the Eagle Shawmut mines are working full time. The first unit of the mill is completed and additional crushing, grinding, and flotation equipment is to be added. Near Drytown, the Mother Lode Gold Mining Company has a new 100-ton flotation-type plant in operation. The Garden Valley section is very active with a number of old properties changing hands and being placed on production. Several mills are either contemplated or are in the course of construction. The Veerkamp mine has stepped up production to 175 tons a day. The Russell property, near the Black Oak mine, is very active.

The Alaska mine of the Grass Valley-Bullion Mines, Inc., is trucking ore to the Idaho Maryland custom mill. The Norambaguia mine, near Grass Valley, is installing a hoist and pump. The 1,250-foot shaft is to be placed in working condition.

Idaho Maryland is operating the King Midas and other properties in the Forbestown district. Reports for the first year's operation showed the company met all expenses.

A recent report on activities in Nevada county stated that approximately 2,750 men were employed in the various mining operations and that the yearly payroll was about \$4,600,000. The leading operators are the Newmont Mining Corporation, which operates the North Star, Empire, Murchie, Pennsylvania, and Zeibright mines, and the Idaho Maryland Mines Corporation. Besides these two outstanding companies there are about 35 other operations employing from a few men up to 120 at the Golden Center and 270 at the Lava Cap.

A good vein of ore was recently encountered at the Gracey-Glencoe mine near Nevada City. Extensive development work for enlarging the mine is under way and the mill is operating at capacity.

The historic Sierra Butte mine, near Sierra City, has resumed operations on a small scale with milling ore available to keep the plant running steadily. This property has a production record of \$17,000,000. A 35-ton mill is being operated by the Sisson Gold Mining Company on the old Sisson mine near Sierra City. A new dredge, costing \$180,000, was built at Chico and is ready for operation.

The whole Grass Valley and Mother Lode section is looking forward to many years of continued good times. With abundant sources of wealth, ample capital for development, and improved technique for better gold recovery, one can forget that such things as depressions exist.

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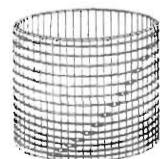
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The reason for the opposition of the American Smelting and Refining Company and its affiliates to the continuation of the excise tax on foreign copper is indicated in a prospectus presented February 19, 1937, by that company to the Securities and Exchange Commission. The tax is said to have been harmful to them in their business dealings with foreign copper producers who are now shipping ore abroad for smelting and refining.

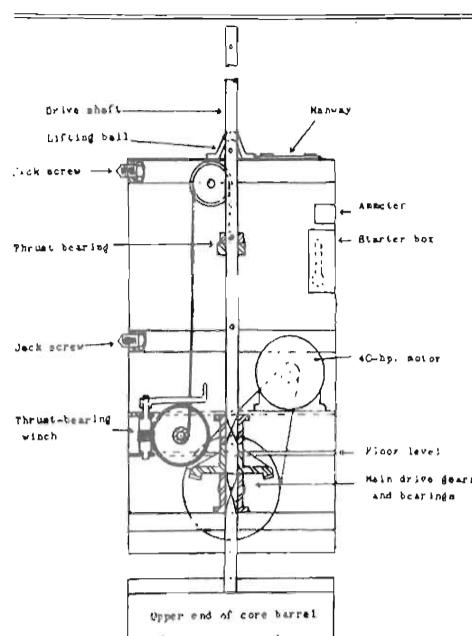
The prospectus stated, "Prior to the imposition of this tax copper bullion imported by the company for refining at its plants in the United States was available for sale in the domestic market. Since imposition of the tax, bullion so imported has been treated in bond and the refined copper produced therefrom or its equivalent has been exported and has not been available for sale in the domestic market but only in the foreign market. Since the imposition of this tax, tonnages of copper ores, concentrates and bullion which otherwise might have been imported by the company for smelting and refining at its plants in the United States ceased to be commercially available and went to foreign smelting and refining companies for treatment abroad."

#### SHAFT SINKING WITH A SHOT DRILL

(Continued from Page 5)

IT IS DIFFICULT to give total costs for wall support, because bad places in the walls ranged from small patches to ground so bad that a solid column of reinforced concrete had to be built, with the shaft opening inside of the column.

The method used was simply to dig out the bad ground far enough back so a shell of reinforced concrete could be placed in the cavity. Then a lattice of reinforcing bars was built in the opening, an expandable form was placed, and cement was poured behind the form. Twenty-four-hour cement, quickened with 2 per cent of calcium chloride, was used for this work. During one period when a large proportion of the time was spent on wall support, careful records of time and materials were kept. They showed approximate costs of \$10.00 per foot of shaft for labor and \$2.50



Generalized cross section of the shaft drill.

per foot for materials, a total of \$12.50 per foot for the portion cemented.

The crew consisted of eight men, a foreman, three drill runners (one for each shift), three helpers (one for each shift), and one apprentice.

Drill runners were paid \$5.20 per day, helpers \$4.40 per day, and the apprentice \$4.40 per day. The footage sunk was measured twice a month and a bonus of \$1.00 per foot was divided among the drill runners and helpers in accordance with the amounts earned. The apprentice and the foreman did not share in this bonus. At the beginning of the work, labor turnover was high, but during the last six months there were no changes in personnel.

WHEN the shaft was completed steel shaft guides hung on stud bolts were installed. The guides were set one and one-half inches from the walls, so electric conduit could be placed behind them. Since the walls are smooth, the guides were easily aligned and were fastened to stud bolts set in drill holes.

The cage was built with three detachable decks, each of which will accommodate 10 men comfortably. There was some ques-

tion as to the efficiency of steel safety dogs on steel guides. However, the cage was tested empty and with a ton weight, and the dogs found to hold. The method of testing was to suspend the cage from a hemp rope, which was then sawed in half.

The cage contains an electric light, and signal knocker. Power for these is transmitted inside the cage through a trolley at a potential of 32 volts.

A two-inch, fresh-water line extends down the shaft, and it is planned to run a four-inch air column. The mine water is pumped at the main shaft.

The cage is circular in cross-section, with two-inch wall clearance, and the sides are flattened to make room for the guides. The effective area is quite large, as follows:

Area of opening.....	19.7 sq. ft.
Cage area .....	15.8 "
Per cent effective.....	80.1 per cent

FUTURE work may be expected to define the boundaries of application of the boring method and possibly enlarge the field. However, present results indicate that diameters should be limited to between two feet six inches and six feet, and that depths should be not less than 100 feet nor over 1,500 feet without cutting stations.

Experience of others, and the previous experience of Newsom in drilling stratified and creviced ground and in drilling ground containing cavities, shows that such ground can be handled satisfactorily. Hard ground does not greatly delay the operation. Ground support may, of course, add to the cost, as it would in any type of sinking operation.

Water condition is an unknown factor at present. The shaft described in the foregoing pages made about 7,000 gallons of water per day. Methods of handling heavy flows have been worked out on paper, but they have yet to be proved in actual operation.

Since the helpers are idle most of the time, it would seem that a single helper could serve two or more drill runners. A foreman could easily look after two or more such holes. Thus, a group of holes, to produce in effect a two or three-compartment shaft, apparently would not cost two or three times as much as a single hole.

## STRUCTURES FOR MINES

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## FARM VERSUS DREDGE DISPUTE WAXES WARM IN OREGON

AN ARGUMENT was started recently when the statement was made that "farm lands bought by the dredger are gone from the tax rolls forever." In reply to this statement, D. H. Ferry of Rogue River, Oregon, manager of the Rogue River Gold Company, is quoted as saying that company operations, formerly at Foothills Creek in Jackson county, Oregon, but now on Grave Creek, Josephine county, actually left more tillable land than had existed before.

Of the 1,204 acres which the Rogue River company acquired, he is said to have explained, only 13 acres of it were tillable farm land. Through the normal dredging process of removing boulders and leveling off the land, more acres of agricultural ground were created. He further states that since dredging operations were completed at Foothills Creek, the company is now farming more land than was farmed by previous owners.

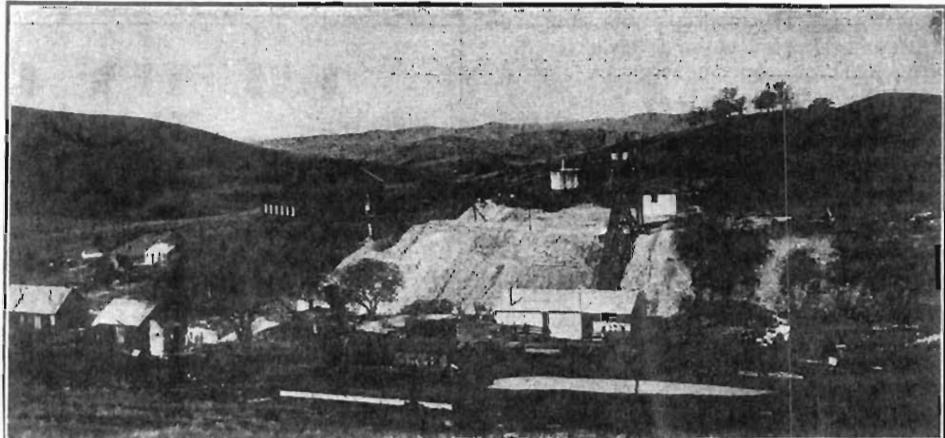
In speaking of the lands being "gone from the tax rolls forever" he pointed out "we are now paying exactly the same taxes assessed before we bought the lands, whereas during our dredging operations, we paid into Jackson county more taxes than it would have received in 100 years from the farm owners." In the seven years that the company worked on Foothills Creek, it is reported to have expended \$1,215,116, or an average of \$173,588 annually.

## CARDENAS PROMISES FURTHER AID TO SMALL-SCALE MINERS

A GOVERNMENT bank to finance gambusinos and other small-scale miners is to be established in Mexico City soon, according to a statement by President Lazaro Cardenas before the permanent committee of the first national small scale miners convention. This committee interviewed Cardenas regarding state aid for this branch of the mining industry. Arrangements for founding the bank are now being made by the ministries of finance and national economy.

The committee is arranging for the second national small-scale miners' convention, various circumstances having prevented the meeting originally scheduled for January.

More cooperative societies of gambusinos and individual miners are to be organized with government aid. Also, mining engineers of the ministry of national economy are to be sent to various mineral areas of Mexico to complete the tabulation of the country's present and potential mining resources.



The Mount Gaines mine, Hornitos, California, where the Mount Gaines Mining Company is milling from 80 to 100 tons of ore daily.

## NEW ORE BODY ENCOUNTERED AT CARSON HILL HOLDING UP WELL

THE ore body recently penetrated in the footwall of a vein on the 3,160-foot level of the Carson Hill Gold Mining Company property at Melones, California, has been explored for more than 100 feet by drifting both ways from the crosscut, with neither end of the shoot reached as yet, according to an announcement by the company. Ore is reported to average \$7 across a width of 10 feet. Two additional shoots of ore of milling grade, each 30 feet wide, were also encountered by crosscutting further in the footwall on the same level.

Work in this portion of the property is being done through the 1,250-foot winze from the 3,000 level. The winze has been unwatered to the 3,500 level with a view to expanding the development program to that depth at an early date, though it is planned to first start a new level at 3,350 feet. The winze is in an area which is said to be practically virgin below the 3,000 level and it is hoped to find in it the downward extension of ore bodies which have been or are being worked above the 3,000.

Loss totaling about \$5,000 was suffered by the company during a severe rainstorm recently, which caused an old mine dump to give way. The resulting landslide struck and entirely demolished two solution storage tanks and slightly damaged one sand tank. The contents in solution were also lost. In addition, the ditch from the mill was torn out, necessitating a brief three-day shutdown of the plant.

The company's milling plant, recently enlarged, is now treating 1,000 tons of ore a day regularly. John A. Burgess is general superintendent at Melones. Charles H. Segerstrom, Sonora, California, is president.

## MOUNT GAINES AND KING SOLOMON AGAIN OPERATING

THE Mount Gaines mine, Hornitos, California, operated by the Mount Gaines Mining Company, is now dropping 20 stamps and is milling between 80 and 100 tons of ore a day. A new flotation set-up has been completed with the pulp treated first on amalgamating plates. From there it passes to two six-foot conditioning tanks, followed by two sets of two-cell Groch flotation machines and three Wilfley tables.

The old 1,300-foot shaft has been unwatered and repaired, the pumping equipment consisting of two 600 g.p.m. Worthington pumps, each directly connected to a 50-horsepower Westinghouse motor, has been installed. Development work has been advanced on four levels in proving an ore shoot several hundred feet long, averaging from two to seven feet of good milling values.

It is understood that the company plans extensive development work during the next six months, with an increase in the mill capacity contingent upon the results of this development. Between 60 and 70 men are employed at present with Nielsen L. Wagner, consulting engineer, in charge of operations.

The King Solomon mine at Randsburg, California, also operated by the Mount Gaines Mining Company, is being reconditioned, and is to be placed on a production basis again in the near future. Machinery from the Gold Bug mine is being moved to the King Solomon, and L. E. Netherton, Randsburg, is to be in charge of operations.

The Mount Gaines Mining Company is headed by A. G. Ilseeng, 183 North Martel Avenue, Los Angeles, California.

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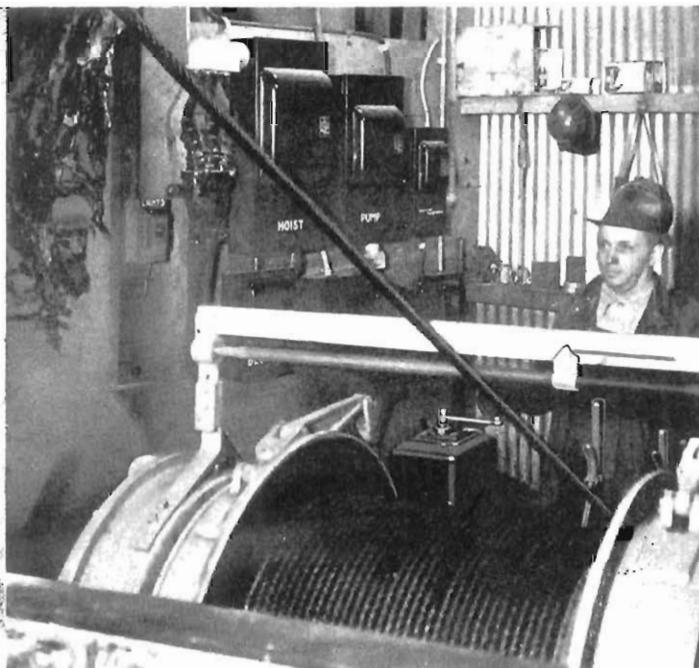
UMEKO Rail Bender

UTILITY MINE EQUIPMENT CO., 626 Tower Grove Ave., St. Louis, Mo.



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5-30-37 i.c. [B] 66  
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Sullivan also makes portable and stationary air compressors, coal cutters, coal saws, core drills, rock drills, sharpeners, furnaces and detachable bits.

# The Sampling Mill

by Fisher Tane



\*\*\*Sousa's band used to play, when I was a freckle-faced brat in a Montana mining camp, a tune with this funny built-in prelude:

The king of France,  
With twenty thousand men,  
Marched up a hill—  
And then marched down again.

\*\*\*And what, you inquire, has THAT to do with the mining business—and with this semi-monthly column of inspiration, insanity and/or occasional idiocy? Well, simply that watching the behavior of the price of lead reminded me of it. In March lead marched up a hill—clean up to the peak of 7.75 cents per pound, highest pinnacle since hectic '29. Then—whoosh went the paring-knife; and two more whooshes, at \$5 per ton per whoosh, a total amputation of \$15 per ton, up to and including the \$5 trim-off as of March 19. As these ruminative words are written lead is quoted at 7 cents New York and 6.85 cents East St. Louis.

\*\*\*Seven-cent lead is easy to take for the galena-diggers. With your Uncle Samuel still shelling out 77 cents the ounce for lead's ladyfriend, silver, one can somehow make his beans and bacon out of a fairly decent lead-silver ledge. Probably it would upset the balance in the metal-market if lead were up on that higher peak. Too high prices are really unhealthy—and that's true of copper, too. This writer hopes that the metal gamblers will quiet down and be good boys, and that base metal prices won't go on a binge. Hangover jags aren't nice.

\*\*\*By golly! That reminds me—right here in my desk drawer is a report on a mighty sweet lead-silver mine in Arizona. It's been there for a year—all over dust—because it wasn't worth while even to knock the dust off'n it. Guess I'll get it out, shake it, and mull it over a bit. And then there's that other old silver mine (also in Arizona) I've had a yen to poke a pick into for more years than one. I'm betting that if lead and silver stay put for a while there are a lot of Pb-Ag ledges that'll hear the music of the hammer on the drill or the rat-tat of the jackhammer this spring.

\*\*\*A recent Associated Press dispatch, dated Denver, carried, in effect, this opening paragraph: "The west's \$300,000,000 metal empire, stimulated by skyrocketing prices for copper, lead, and zinc, has launched an expansion program reminiscent of the old boom days." The dispatch goes on to highlight reactivations "from the Continental Divide country to the Pacific Coast and from Montana to Arizona"—reopening of long-idle mines and opening of new ones.

\*\*\*Secretary Bob Palmer of the Colorado Metal Mining Association is quoted in the dispatch referred to. Said he: "There's been a lot of hooey about the mining industry, but today the situation really looks good." And Henry Rives, secretary of the Nevada Mine Operators' Association, likewise quoted, scintillates with optimism. "The prospects for 1937 are splendid," says Rives.

\*\*\*Fine, boys! And if the damfool government does its part and NOT TOO MUCH, and if the Congress squelches that weird land-leasing idea of Secretary Ickes which The Mining Journal has been hammering at, then plenty of those "splendid prospects" can be turned into producing mines. And that's no pun, either.

## Deceased

Jack Welsh, 31, an employee of the Mountain Copper Company, died at his home in Eldorado, California, February 20, following an attack of pneumonia.

Francis C. Morehouse, 71, mining engineer and native of Salt Lake City, Utah, died March 2, 1937, in Los Angeles. Morehouse was active in the Bingham district during the early days.

George Coates, 51, formerly a lessee in the Cripple Creek, Colorado, mining camp, died February 18 in Denver. A native of England, Coates came to Bisbee, Arizona, in 1905 and to Colorado in 1911.

John Shay, 71, Gold Hill, Nevada, mining man, died recently at his home. A native of County Claire, Ireland, Shay came to this country as a child and went to Nevada at the time of the Goldfield rush.

Carl W. Ross, who devoted his early career to mining and who made his home in Denver, Colorado, was found dead in an El Paso, Texas, hotel, February 18, from a gun shot wound, said to be self-inflicted.

C. W. Platt, pioneer Arizona mining man, died in Atolia, California, the first of March. He was one of the early operators in both the Tombstone and Wickenburg districts and served as superintendent of the old Monarch mine about 30 years ago.

Norman L. McDonald, who had been working on his mining holdings in the Winkelman-Hayden district for the last five years, died on March 3 at Globe, Arizona. He was a former student at the University of Arizona, and had operated in South America before locating at Winkelman.

Frank G. Willis, 69, a pioneer of the Spanish Peak region of Colorado and the man who staked out the townsite of Victor, Colorado, died at his home in Baxter Springs, Kansas, where he had lived since failing health forced him to leave the high altitudes some 18 years ago. For many years he was active in the Cripple Creek district.

George W. Riggs passed away suddenly January 28, at his home in Uniontown, Pennsylvania. He was associated with the Mine Safety Appliance Company of Pittsburgh, and was a recognized authority on mine safety and mine rescue operations. As a former employee of the U. S. Bureau of Mines, he had worked extensively in the United States and had visited Canada and Mexico.

A. J. Warren, 52, mining and civil engineer, died in Spokane, Washington, after an illness of several months. Warren was employed as surveyor for a railroad near Lewistown, Idaho, and later became interested in mining properties. Several years ago he and associates acquired holdings in the Elk City district, now being operated by the Elk-City Gold Mines, Inc., of which his son, A. J. Warren, Jr., is president.

T. B. Sturdivant, 35 years old, was slain by robbers who escaped with the mine payroll of approximately 2,600 pesos. Sturdivant had managed the operations of the

Trigo Mining Company, owned by the Cananea Cattle Company, for the last four years. The mine is located about 20 miles from Yecora, Sonora, in the heart of the Sierra Madres. The ore is moved almost 100 miles by burros before it can be placed aboard modern means of transportation.

Louis D. Rason, oldest United States mineral surveyor in southern California, from the standpoint of continuous service, died in Los Angeles, March 4. He was 62 years old. For the past 25 years Rason had practiced his profession as civil and mining engineer and United States surveyor in Los Angeles, except for the period of his enlistment in the United States Army during the World War. He was a brother of C. M. Rason, vice-president of the Pacific Coast Borax Company.

Alfred C. Ware passed away at his home in Welton, Arizona, on March 9 of silicosis of the lungs. Ware came to the United States in 1891 and worked in the mines in Michigan, Montana, California, Nevada, Colorado, and also in South America. During the World War he served in the Mare Island Navy Yards, Panama, and New Jersey. For 14 years he was employed by United Verde Extension Mining Company in Jerome, Arizona, resigning his position as mine foreman in 1935 because of ill health. More recently he has been interested in the development of the Black Rock gold claims, in the Quartzsite district of Yuma county.

## MARK LAWRENCE REQUA

Mark Lawrence Requa, mining engineer, of 536 East Valley Road, Santa Barbara, California, died March 6 at Los Angeles, of complications which followed an operation. He was 70 years of age, and was well known as an outstanding leader in political and civic affairs, and in mining. He served as Republican national committeeman for several years.

Requa was born at Virginia City, Nevada, December 25, 1866, and was educated in private schools and under tutors. He was the son of the late Isaac Requa, who for many years was a Comstock mining executive.

He played an important part in the early development of the Nevada Consolidated Copper Company, and later served as consulting engineer for the U. S. Bureau of Mines. Following this work, he built the Nevada Northern Railroad. During the war he served as assistant to Herbert Hoover, food administrator, later being made general director of the oil division of fuel administration. This latter work led him into a campaign against waste of petroleum resources, in which he took an active part during most of his later life.

His political career included management of the Hoover presidential campaign in California in 1928 and direction of the Hoover campaign in the west in 1932.

Requa was a member of the American Institute of Mining and Metallurgical Engineers and of the American Petroleum Institute. He was the author of two books, the "Relation of Government to Industry," and a novel, "Grubstake."

# Mill Heads from Western States

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

J. G. Clark of Boulder, Colorado, president of **Gold, Silver & Tungsten, Inc.**, reports that his company milled 100 tons of scheelite ore at its property at Hereford, Arizona, during 1936. From this tonnage 6,282 pounds of tungsten concentrates were produced, with a total value of \$2,-

422.63. He further stated that the results of this production left no doubt but that the property could be built to a greater profit paying enterprise than had been expected. Operations at the Arizona property were directed by C. G. Sewell.

Five carloads of silver and lead ore were shipped the first week of March by the **Gold Canyon Mining Company**, Patagonia, Arizona, which is working the old Trench mine. The company is employing a crew of 45 men, under the direction of M. B. Lovelace, manager, Box F, Patagonia, Arizona.

The **Hardshell** mine at Patagonia, Arizona, is being worked under lease by Hugo W. Miller, assayer of Nogales, Arizona. He recently made a carload shipment of ore to the El Paso Smelting Works.

**International Vanadium Corporation**, Globe, Arizona, has practically completed its 100-ton mill and power plant, and expects to go on a regular production basis by April first. It is stated that recent exploration work has been most successful in the development of a large amount of high-grade vanadium ore. At the annual meeting of stockholders, held in Phoenix, Arizona, March 1, all of the issued and outstanding common and preferred stock was represented in person or by proxy. Articles of incorporation were amended, making all stock common stock. The basis of exchange was one share of the old common for one share of the new, and 2½ shares of the old preferred for one share of the new common. The authorized capitalization was reduced to \$1,250,000, with shares of \$1.00 par value each. Directors elected at the meeting were: Harry Toplitzky, George B. Richards, Louis Roth, James G. Scarborough, Herman Hertz, E. P. Truitt, and Loyd Wright. Loyd Wright, 111 West Seventh, Los Angeles, California, was elected president. Louis Roth of Globe, Arizona, continues as treasurer, and Herbert A. Reed as general manager.

A No. 54 Marcy ball mill has been shipped to the **Bunker Hill Arizona Mining Company**, Sombrero Butte, Arizona, for immediate installation in the selective flotation plant under construction. John H. Pearce is in charge at Sombrero Butte.

H. A. Berberich and Louie Berberich, 439 Marina Street, Prescott, Arizona, who are developing the New Strike claims, nine

miles from Prescott, report that a seven-foot vein of lead-zinc ore has been encountered in development work. The assays show: 7.5 per cent lead, 19 per cent zinc, 1.9 ounce silver, and 0.12 ounce gold.

Underground work has been started in a small way at the **United Verde Branch, Phelps Dodge Corporation**, Jerome, Arizona. William M. Saben, manager. Since the United Verde was taken over by Phelps Dodge Corporation production has been confined to ore taken from the pit, but as the pit has deepened, it is becoming more difficult to obtain the tonnage desired and plans for underground work are being gradually developed, and an underground organization is being built up to supply ore from below to replace the shortage coming from pit operations. Inasmuch as the pit has approximately one year to go, the transition will be timed to be done in the same period. Plans are also being made for a considerable change in mining methods underground which will involve more complete mechanization and the use of smaller stopes. It is reported that the economic limit of depth of the pit will be at about the 600 level.

The **Golden Eagle** claim in the Teviston district of Cochise county is being developed by William Carlton of Bowie, Arizona. He is sinking and drifting on a 16-inch vein of gold ore, reporting to run 1.5 ounces gold to the ton.

**Humboldt Mines, Inc.**, Mayer, Arizona, is working on a one-shift basis, treating 50 tons of ore daily. Two cars of concentrates are being shipped each week to the Magma smelter at Superior, and the company expects to be shipping a carload daily by the first of April. Test runs have shown that the mill will handle 225 tons of ore daily, although built for only 150-ton capacity. The ore being mined and milled is running \$9. to the ton in gold. Walter Larrsen is mine superintendent, and William C. Kinnon is mill superintendent.

Regular mining and milling operations have been resumed by the **Boriana Mining Company**, Yucca, Arizona, following the temporary shutdown which was occasioned by the extremely cold weather which froze the water system at the mine and mill. All pipe lines have been repaired and lesser repairs have been completed. Boriana has been employing a crew of 118 men, producing 2,400 tons of tungsten ore monthly. Extensive exploration work has been in progress to prove a body of ore discovered last summer. D. B. Rankin, assistant general manager, is in charge of mine operations. F. R. Brown is mill superintendent.

A crew of men has been put to work unwatering the **Dixie Queen** mine, Chloride, Arizona, and as soon as the 300-foot shaft is free of water a complete examination of the underground workings is to be made. This work is being done by James Pollard

of Los Angeles and M. C. Richardson and Earl Hastings of Chloride, who hold an option on the mine.

New pumping equipment is being installed in the Kid Claim shaft of the **Tropico** mine, Rosamond, California, to

handle the water which is coming into the shaft at the rate of 1,000 gallons an hour. The **Washington** pump, equipped with electrically driven motor, which is being installed is capable of handling 4,600 gallons per hour. A 35,000-gallon tank is being erected in which to store the water for use at the Tropico mill and for sluicing the tailings. Drifts are being run to the east and west on the ninth level of the Tropico Home vein, with good mill ore in both faces. Burton Brothers, Rosamond, California, operate the Tropico mine and mill. T. J. Finnerty is superintendent at the Kid Claim.

The **Walabu Mining Company** quicksilver property, located six miles west of Rosamond, California, was recently examined by H. W. Gould, mining and metallurgical engineer, Mills Building, San Francisco. He was accompanied on the inspection tour by Walter Buois, president of the company, and Percy Blodget, Rosamond, engineer in charge of development. New camp buildings have been erected at the property, electric lights put in, rotary kiln installed, and new condensers ordered. Operations are to begin immediately following installation of the condensers.

R. E. Brantley, Wasco, Kern county, California, has secured a lease on claims adjoining on the north the **Pride of Mojave Mining Corporation** property near Mojave, California. The lease and agreement with the Pride of Mojave involves joint usage of the Four Star shaft, and provides for a sinking program to extend the shaft for some distance beyond the 600-foot level. After the 500-foot level is reached, the expense of sinking will be borne jointly by Brantley and the Pride of Mojave. The agreement calls for sinking an additional 100 feet each year. This is patented ground, having been purchased from the S. P. Railway Company, and is being held under lease from the owners, C. C. Calkins and W. W. Kaye of Los Angeles, and Alfred Siemon of Bakersfield. The lease is for a period of 25 years with provision for an extension for an additional 25 years. Royalties are on a sliding scale going up with the grade of the ore, with a 10 per cent minimum.

C. W. Stone and C. H. Wainscott, 5509 Folsom Boulevard, Sacramento, California, are making preparations to install a small pilot mill on the John Rolfe ranch at Garden Valley, California. They have acquired an option on 75 acres of this property and a 40-foot shaft, sunk in the slate, is said to be showing good values. The mill and concentration equipment was purchased from the Dorman property, located eight miles above Georgetown, California,

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but due to the depth of the snow, it is understood that it will be a few weeks before the equipment can be moved to the new location.

The Sierra Vista Mines, Inc., 127 Mill Street, Grass Valley, California, has been incorporated by Fred P. Glick, State Capitol, Sacramento, California; Pauline S. Glick, and L. F. Roberts, Rough and Ready, California. Glick recently acquired the Mistletoe mine at Grass Valley and the company has been organized to operate this property. Roberts will be in charge of the work.

The California Standard Gold Mines Corporation, A. E. Place, manager, Jamestown, California, has purchased a diamond drill for exploring and sampling ahead of development and mining. The new equipment was put into service first on the 400, or bottom level, for the purpose of exploring to the 500-foot depth, and will later be used on the 200 level and on the surface. The company is operating its mill continuously and between 3,500 and 4,000 tons of ore are being treated each month, according to Place. Seventy men are employed at the property. Owen Terry is mine superintendent, and Lloyd H. Kelsey is in charge of the mill.

Equipment is being installed and preparations made to start active mining operations at the Mapes placer mine, near Columbia, California, which is to be developed by the Yankee Hill Mining Corporation, C. W. Culver, president. The gravel will be handled with a power shovel, and a hoist and large steel cars will be used for conveying the material to the washing plant. The washing plant will consist of trommel, metal sluices, jig, and small ball mill for grinding the concentrate. Actual operations are expected to start about May 1, when the present force of five men will be increased to between 12 and 15. Culver is directing activities at the property.

Capital stock of the Bullion Gold and Silver Mining Company, Charles T. Neely, president, 348 Russ Building, San Francisco, has been listed on the San Francisco Mining Exchange. The company has 2,000,000 shares of 10-cent par value capital stock authorized, of which 660,000 shares are outstanding. The company holds a lease and purchase option on the McKinley mine near Jamestown, California, which is being developed by means of a tunnel. It is planned to carry on exploration by diamond drilling. E. L. Beck, Sonora, California, is superintendent at the property.

The Red Top Mining Company has been incorporated by George F., Charles F., and Peter L. Snyder, all of San Andreas, California, for the purpose of operating the Red Top mine, located near Murphy, California. The company is capitalized at \$25,000.

F. S. Boynton and F. E. Pagett of Oakland have entered into an agreement with J. H. Morris, also of Oakland, trustee for the Two Brothers Consolidated Gold Mines, Inc., for purchase of the Mack, Wooten, and Imperial quartz mining claims, and the Mack mill site in the Groveland, California, district, for \$21,000. Gross royalty of 10

per cent is to be paid on ordinary ore recoveries with 20 per cent on all ore valued at \$500 or more per ton.

Articles of incorporation have been filed by the Mound City Gold Mines, Inc., 208 North Broadway, St. Louis, Missouri, which has been organized to operate the Slab Ranch placer mine near Angels Camp, Calaveras county, California. The company is capitalized at \$1,000,000, of which \$47,000 in stock has been issued.

A crew of 28 men is engaged in shaft development at the Rosencranz mine, Garden Valley, California, under the direction of Charles H. Brown, superintendent. A 100-ton ball mill is planned for the property in the immediate future. F. C. Lowery, Chicago capitalist and principal backer of the Lode Development Company, which is operating the Rosencranz, is making his headquarters at Auburn, California, pending completion of plans for the mill installation. The Stockton Hill mine, another holding of the Lode Development Company, is being operated under a sub-lease by Walter R. Woock, Box 126, Auburn, California.

The Norambagua mine at Grass Valley, California, recently acquired by R. Potter Campbell, Inc., 84 Williams Street, New York City, has been completely unwatered to its total depth of 1,250 feet. With the opening of the entire shaft and some of the levels, the mine is being sampled and tested under the direction of Marshall Draper, manager, Auburn, California. Reopening of the caved incline shaft and construction of a surface plant was carried on throughout the winter months. One shift is employed at present.

The Pioneer Dredging Company, Harry F. England, manager, Oroville, California, is operating three dragline dredges on the banks of Dry Creek in the Happy Hollow district, near Igo, Shasta county, California, and is reported to be handling 11,500 cubic yards of gravel daily. Equipment includes dragline excavators, washing units, and a retort. The gravel is said to average close to 18 cents per cubic yard. Forty men are employed.

Rehabilitation and development continue at the Hamm and Birney mine, located in the Yankee Hill district, northeast of Columbia, California, according to D. B. Woodruff, lessee and operator. The property now has more than two miles of underground workings, in and between 14 openings, consisting principally of tunnels and stopes. The property is equipped with a small mill and ore has been averaging approximately \$10 per ton. More than 2,000 tons of ore have been broken down and stored in the stopes, awaiting more complete equipment for the mill.

The Greystone mine, near Washington, California, has been taken over by Edward W. Cardinal of Portland, who plans to rehabilitate the property. The tunnel, which was driven 900 feet toward the Greystone vein, originally encountered by a 150-foot shaft, will be retimbered and extended until the vein is intersected at that point, which, it is estimated, will give 300 feet of backs. Drifts and raises are also planned to develop the ore body. Fred W. Twiford is to

be in charge of operations at the property. The mine was originally owned by the Hegarty family.

The Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, reports an operating income for February of \$224,700, including other income but before charges or surtax on undistributed profits. This compares with \$127,400 for February, 1936. For the first two months of 1937 the company reports an operating income of \$475,900, against \$327,800 in the previous year.

Preliminary work is under way on construction of a pontoon-type, six-cubic-foot capacity steel dredge for the Yreka Gold Dredging Company, Yreka, California. It is estimated that four years will be required to work the available ground, which is said to contain between 6,000,000 and 7,000,000 cubic yards of gravel. Etheridge Walker, 910 Balfour Building, San Francisco, president of the company, has been at the property recently to supervise the preparatory work.

Development work at the Gold Company, Ltd., Garden Valley, California, is being carried on in two shafts. The main shaft is down 170 feet and a second shaft, opened more than 80 years ago, is being cleaned out. Records show that water was encountered in this old shaft at the 90-foot level and the pumping equipment of those days was unable to cope with the flow. Several new buildings have recently been erected at the property, including an assay office. Robert S. MacMillan, metallurgical engineer and assayer, is in charge of ore testing for the company. Gilbert G. Chisholm, Garden Valley, is president and general manager.

Preparations are being made to start ore shipments from the north shaft on the Whitmore group, which is held under lease by A. J. Rogers, Bakersfield, California, president of the Navy Oil Company. The Whitmore group is owned by Whitmore Mines, Inc., Walter E. Trent, president, Rosamond, California. The work at the north shaft is under the supervision of Dr. J. J. Rekar, Mojave, California, who is running drifts to the north and south on the 150-foot level, on a vein averaging three feet in width, and carrying values of \$20 per ton in gold and silver. On the 100-foot level, a crosscut is being run to cut a parallel vein which appears in a porphyry dike 80 feet to the west, and another crosscut is being run from a point 30 feet to the north of the shaft, to intersect a porphyry dike intruding through the granite, approximately 120 feet to the east. A raise on a 30-inch vein is being run from the 100-foot level and shipping ore which averages about \$19 per ton is being placed in the bin for shipment. The vein is quartz between a diorite footwall and porphyry hanging wall.

Smelter returns on concentrates from the Gold Bottom Mines, Inc., Trona, California, are reported to be averaging \$100 per ton. The company is operating a 30-ton rod mill at its property, with mill heads running from \$20 to \$30 per ton. There

is now blocked out and available for milling, in excess of 150,000 tons of ore which will average \$20 per ton, according to T. J. Niceley, general manager, Box 8, Trona.

The Red Mountain cyanide plant at Red Mountain, California, operated by B. H. Stauffer, is being enlarged to 60 tons daily capacity, and completion of the work is expected in the near future. New equipment consists of tanks, winches, draglines, pipe lines, and a huge filtering tank. Five men are now employed and three more will be added when production is resumed.

Nelson Brothers, Paul E. and R. E., who are operating the old Baltic mine in the Randsburg, California, district, are now producing and milling about 800 tons of

ore per month. The old shaft is being reconstructed with sufficient grade to run the empty cars back to the bottom. Part of the old opening will be utilized at the top, but when the work is completed, the shaft will go down on a steeper grade and will reach a lower level in the same distance. It is hoped to contact a larger and better ore body at this point. At present a crew of 16 to 18 men is employed. Paul E. Nelson, Randsburg, is in charge of operations at the mine.

The Daisy Blue Mining Company, Nevada City, California, has been authorized by the state corporation to issue and sell 44,999 shares of common stock at a par value of \$1. The company, which was recently incorporated with a capitalization of \$100,-

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000, is headed by R. W. Channon, Live Oak, California, as president; John Marks, Nevada City, vice-president; A. H. Rutherford, Live Oak, secretary-treasurer; and Frank Finnegan, Nevada City, assistant secretary. The funds raised from sale of stock will be used to install a power line, and an electric pump, and for sinking the shaft another 100 feet. The shaft is now down 112 feet and plans are to drift on the 200-foot level. The vein is two feet thick at the present level and ore assays are reported to average \$15 per ton. The company is now engaged in securing right of way for the power line.

**Northern California Goldfields, Inc.**, William C. Madge, general manager, Etna, California, has been authorized to list 963,000 shares of 10-cent par, non-assessable, common stock on the San Francisco Mining Exchange, effective February 24, 1937. The property is located in Quartz Valley, three and one-half miles northwest of Greenview, Siskiyou county, California, and is equipped with a complete mill and compressor house, with necessary pumps and all tools necessary to a fully equipped, operating mine. Work is at present under way on development of what seems to be a new vein, and a depth of 100 feet has been reached, from which a 50-foot drift has been run.

Following a cave-in in the old workings at the Big Canyon mine, five miles from Shingle Springs, California, the waters of Big Canyon Creek rushed into the mine at an estimated rate of 10,000 gallons per minute, flooding the pumps, filling the shaft, levels, and stopes. According to John M. Basham, superintendent, it is estimated that there are 25,000,000 gallons of water in the mine. The Mountain Copper Company, which operates the property, immediately began preparations for unwatering the mine, the first step being diversion of the creek waters by means of a six or seven-foot steel pipe. It is estimated that it will be five weeks before unwatering of the shaft to the first level can be accomplished. When actual pumping begins, it will be possible to remove from 1,000 to 1,500 gallons a minute by means of the air-lift, bailing skips, and a pump. The company was employing 135 men at its mine and mill, in addition to the executive and engineering staff, previous to the cave-in. The mill was handling about 320 tons of ore per 24 hours. The incline shaft is down about 890 feet, making a vertical depth of 510 feet.

Open-pit mining with power shovels will be resumed at the property of the Carson Hill Gold Mining Company, Melones, California, as soon as it is believed that the period of severe storms is over. The open-pit equipment has been augmented by the addition of another gasoline shovel, to be used for stripping, which is expected to make a more uniform output possible. It is officially reported that 281,392.6 tons of ore were milled and treated in 1936, and it is estimated that, with the enlarged mill and cyanide plant, 400,000 tons will be milled and treated during the present year. John A. Burgess is general superintendent at Melones. Charles H. Segerstrom, Sonora, California, is president of the company.

Headframes and ore bins have been completed, steel sharpener installed, and hoisting equipment purchased in preparation for deep shaft operations at the property of the **Pride of Mojave Mining Corporation**, Mojave, California. The shaft on the Four Star ground, recently acquired by lease from C. C. Calkins, will be continued to a depth of 600 feet with stations cut at regular intervals and crosscuts run on the different levels. A connection has been made between the Pride of Mojave main shaft and the Enterprise ground, also recently acquired by the corporation, and drifts are being run to the north and south on the vein, from which the previous operators made shipments of high grade ore to the Burton mill at Tropico. The company plans to make the old Four Star shaft the main working shaft, as well as the focal point of deep exploration work. Offices of the company are located at 332 Van Nuys Building, Los Angeles. John Dewar is president; George Barnes, vice-president and secretary; and Albert Witte, treasurer. J. J. Murray is superintendent at the property, assisted by Claire Youmans.

The annual meeting of stockholders of the **California Engels Mining Company**, 333 Montgomery Street, San Francisco, California, scheduled for the first week in March, has been postponed until March 31, due to lack of a quorum. F. Emerson Hoar, civil engineer, is the new president of the company, which is the holding organization for the Belmont Osborn Mining Company and the California Osborn Mining Company.

The **Bigelow** mine at Sierra City, California, is now operating with a crew of 15 men, and a station is being built 1,100 feet in on the present tunnel for the purpose of installing an ore bin at that point. A winze is being sunk from the station and the ore encountered is said to give favorable indications. The 10-stamp mill on the property is handling approximately 27 tons of ore daily, and two concentrating tables are now in use, a second one having recently been added to the plant. The concentrates are shipped to the Idaho-Maryland mill at Grass Valley. The Bigelow is being operated under lease by S. A. Gillespie and associates of San Francisco and New York. Roy J. King, Grass Valley, California, is superintendent at the property, and Arthur Pride, Sierra City, is in charge of the mill.

In view of the fact that it has been necessary to completely discontinue mining and milling operations at the North Star mine of the **Empire Star Mines Company**, Grass Valley, California, twice during the past four years, due to lack of water for operation of the air compressors, it is believed that some adjustments will be made to remedy this situation before another winter arrives. These adjustments are expected to include auxiliary electrical equipment to permit a quick switch from water power to electric power in the event of future water service failures, and utilization of most of the water which is now pumped from the mine for milling and machine cooling. The mine produces a head of water sufficient for these purposes, but it has never been put into use up to

the present time. Development operations are continuing at the mine on several faces, and the winze being sunk from the 8,600 level has reached a depth of approximately 9,400 feet. M. E. Newlove is superintendent at the North Star. F. W. Nobs, Grass Valley, is general manager of Empire Star.

Machinery and equipment, including motors of the double drum hoist and the huge compressor of the engine house, at the **Grass Valley Bullion Mines, Inc.**, Grass Valley, California, are being overhauled, preparatory to active operation in the immediate future. The new work to be undertaken will consist of sinking operations on the main three-compartment shaft, now down about 1,500 feet, sinking a winze from one of the underground levels, and general drifting and stoping, with ore production. The Bullion property has been inactive for some time, pending settlement of the Empire Star's apex suit, which was recently decided in favor of the Bullion mines. The company, prior to its recent period of limited activity, employed between 60 and 75 men.

A good vein of ore is reported to have been contacted at the **Gracey-Glencoe** mine, Nevada City, California, and it is understood that preparations are being made for more extensive work at the property. The 50-ton mill has recently resumed operations. George Tett, Nevada City, is in charge of activities.

The **Lava Cap Gold Mining Corporation**, O. E. Schiffner, general manager, Nevada City, California, has announced a wage increase effective March 1, under which miners will receive 70 cents and muckers 63 cents per hour. The increase is being made to compensate Lava Cap employees for the extra hour required each day in going to and from work, and to defray the 10-cent bus fare per trip. The company declared a dividend of two cents a share, payable March 31. A one-cent extra and a one-cent regular dividend were paid December 21, 1936.

The **London Mill, Inc.**, which is located near Alma, Park County, Colorado, was dissolved on December 31, 1936. The

plant was used to treat ore from the London Gold Mines Company. It is understood that the London Mines and Milling Company, successor to the London Gold Mines Company, will take over the milling as well as the mining of ore. The company is rated the largest gold producer in the Alma district and employs about 250 men. Walter J. Richards, 504 Mining Exchange Building, Colorado Springs, is executive vice-president, and H. L. Tedrow, Alma, is general superintendent.

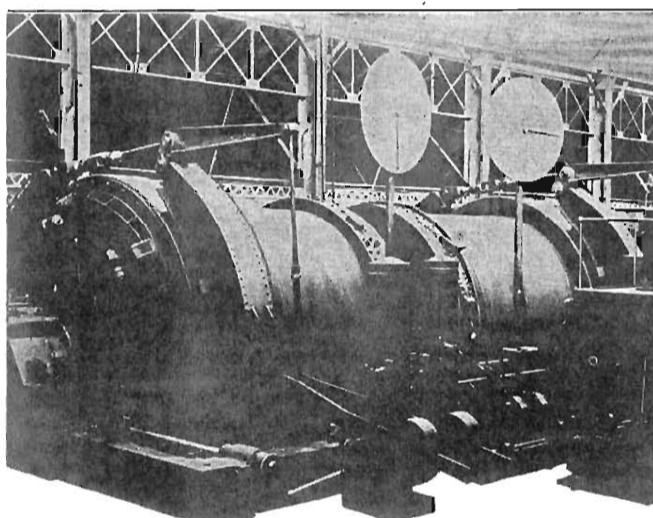
An increase in wages of 24 cents a shift is stated to have been granted to the employees of the **Empire Zinc Company**, operating the Eagle mines at Gilman, Colorado. The company's 600-ton mill, built in 1928, was not operated during 1936.

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property at Metaline Falls, Washington, is now in about 3,250 feet and is progressing at the rate of 16 to 18 feet daily on a two-shift basis. Completion of the tunnel to the immediate objective is expected in July or August. The American Zinc Lead company is leasing the Grandview property in the same district. Those in charge for the tri-state interests are R. E. Calloun, superintendent, and H. F. Mills, geologist and engineer, both at Metaline Falls. D. I. Hayes is the company manager at 1905 West Second Avenue, Spokane.

A 4,000-horsepower hydroelectric plant is being constructed by the Pend Oreille Mines and Metals Company, L. P. Larsen, Old National Bank Building, Spokane, Washington, president. Lehigh Portland Cement Company is reconditioning the flume to the power plant to increase the capacity from 2,000 to 5,000 horsepower. This organization supplies the hydroelectric power to the Metaline Falls, Washington, district.

The 50-ton flotation mill at the Queen Seal Mining Company is now in regular operation, having been started in January, and will soon be running on a 24-hour basis. A. W. Tyler of Fruitland, Washington, is president and general manager. The company is operating the Queen and Seal mine and other claims in the Deer Trail district, near Fruitland. Present mill feed is coming from the dump left by early operators.

Equipment is being purchased by the T. S. and L. Company for its Tangsten mine, 12 miles north of Deer Park, in order to facilitate the driving of the tunnel, now in about 540 feet. In about 70 feet the tunnel will connect with an 80-foot extension of the 130-foot inclined shaft. The company, which also holds a silver-lead quartz mine on the Columbia River, 14 miles south of Northport, is said to be fully financed. O. E. Brady, 1318 West Mansfield Avenue, Spokane, and associates, including J. R. Foster, are backing the work.

### PROHIBITS IMPORTATION OF UNTAXED GOLD FROM MEXICO

IN ORDER to cooperate with the Mexican government, which is concerned over the evasion of taxes on gold mined in that country, Henry Morgenthau, Jr., secretary of the treasury of the United States, has directed collectors of customs to refuse entry into the United States of gold from Mexico unless accompanied by a certificate showing that it may lawfully be exported.

The secretary's instructions did not apply to "fabricated gold" as defined in the provisional regulations issued under the gold reserve act of 1934; and any substance, including gold in its natural state, which does not contain more than 5 troy ounces of fine gold per short ton.

Importers will hereafter have to file with the collectors an affidavit to satisfy the customs official that the substance does not contain gold beyond a specific ratio. Unless the gold is cleared through the Bank of Mexico, as required by law, the tax is easily avoided.

### IS THE GRAVEYARD SHIFT ECONOMICAL IN MEXICO?

FOLLOWING a study of operations at a lead-zinc mine in Mexico, during the month of January, the management decided that, with a few changes, all the work could be done on the first and second shifts. These changes were put into effect the beginning of the month of February, and resulted in a saving in the consumption of electrical power that month of 23,500 kilowatt hours. This is about 16 per cent of the total power consumed during the month of February.

According to the Mexican labor law, the graveyard shift consists of seven and one-half hours, collar to collar, for which the workmen are paid eight hours of wages. The question which the company endeavored to answer was, "How much effective work it obtained?"

This survey showed that one-half hour was consumed by the men going to their working places and that it was necessary to leave one-half hour early in order to be at the top at the end of the shift. A conservative estimate of the time consumed in going to and from the working place was one hour. In addition, the workmen are allowed one-half hour in which to eat their lunches, but the time required in going from the working places to the lunch rooms and returning to their working places cannot be included in that half-hour. Thus, by making a conservative allowance of 15 minutes for each way to and from the lunch rooms, another hour is consumed.

Thus there remained five and one-half hours of actual working time at the face.

By figuring that a man is about 50 per cent efficient on the graveyard shift, the company estimated that the actual work accomplished is equivalent to two hours and 45 minutes on the other shifts.

Besides the economic side, the company also took into consideration the altruistic or humanitarian side of the question. The men, it believes, are in much better condition psychologically and physically when they are working during the more natural hours of work, instead of the topsy-turvy condition which exists when they are working on the graveyard shift. The entire family is happier and more contented when the head of the house is working at a natural hour, instead of working when he should be sleeping, and sleeping when he should be working. No one will gainsay the fact that a contented home engenders a contented workman, and a contented workman results in greater efficiency.

In making the change referred to, no men were discharged, but were distributed on the other two shifts. During the month of March the output of this mine is being stepped up from 300 tons per day to 550 tons per day, without increasing the number of men employed.

In the light of the above data, the company has decided that the less work attempted on the graveyard shift, the better, both for employer as well as for employee. At the present time the crew on the graveyard shift at this mine consist of only five men—a telephone operator, hoistman, cager, pumpman, and pumpman helper.

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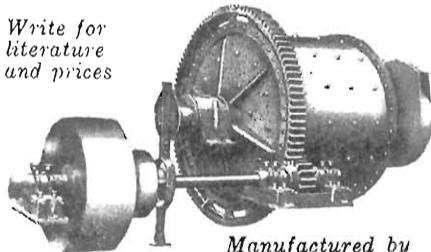


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#### FAVORABLE OUTLOOK FOR NATOMAS COMPANY IN 1937

THE Natomas Company, Natoma, California, gold dredging organization, reported for the year ended December 31, 1936, a net profit of \$1,099,353 after all charges and losses arising through disposal of capital assets. This is equal to \$1.11 per share on 987,120 shares of capital stock outstanding, and compares with a 1935 net profit of \$1,188,669, or \$1.15 per share on 992,920 shares publicly held at the end of that year. In 1935 Natomas purchased 2,900 shares and held them in the treasury at the end of that year, while in 1936 5,800 shares of stock were purchased.

During the greater part of 1936, Natomas had but four dredges in operation, as compared with a normal fleet of six. One of the fleet of six was taken out of production early in 1936 for the purpose of modernizing it. This boat was returned to production the latter part of this month and is equivalent to a new dredge. In April, 1936, another dredge was removed from production by an accident. The dredge was destroyed, although no loss occurred because the machinery was old and was fully depreciated. The destroyed dredge is being replaced with a new one, and it probably will be placed on production during the third quarter of 1937. The company's fleet then will consist of six efficient dredges and income will be correspondingly increased.

As a result of the reduced number of dredges in operation in 1936, the yardage handled during the year was 20 per cent less than in 1935. The lesser yardage, however, was nearly offset by higher yield resulting from the greater efficiency of the four dredges remaining in operation. Operating profit on gold dredging operations in 1936 totaled \$1,311,148.

A total of 17,839,888 yards of gravel were handled in 1936, compared with 21,756,593 in 1935. The gross returns per yard, however, were 0.1185 cents last year against 0.1050 cents in 1935, an increase of 0.0145 cents per yard. The cost per yard, including taxes, depreciation and depletion, was 0.0439 cents, an increase of

0.0019 cents over the previous year. Net returns amounted to 0.0756 cents a yard, compared with 0.0630 cents in 1935.

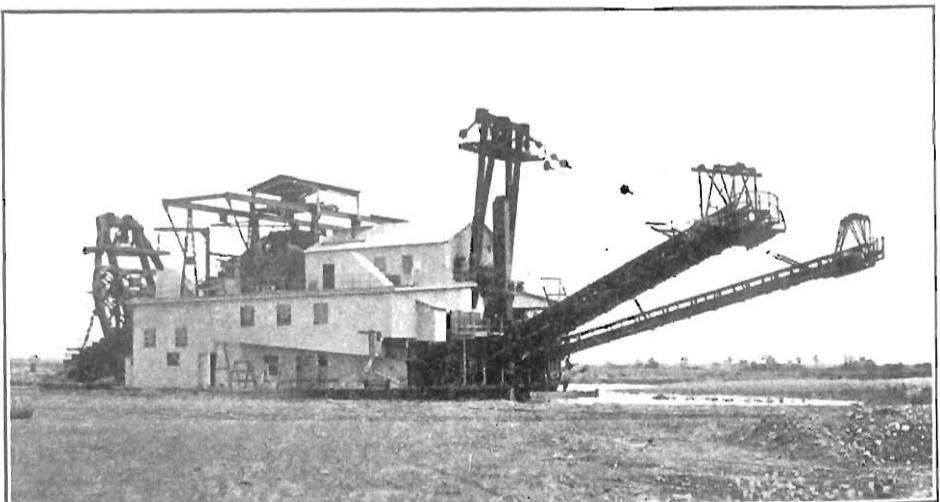
Gold recovered in 1936 totaled 59,181 ounces against 65,296 ounces in 1935, 59,437 ounces in 1934, and the company's high record of 69,425 ounces in 1933.

Natomas might have reported a larger net profit in 1936 than in 1935, despite the reduction in dredges operating, had it not chosen to take a loss of \$111,682 on non-productive land sold. The acreage was disposed of at a nominal price with a resulting book loss of \$111,682. Tending to offset this loss, was a profit on the sale of securities. During 1936, the company sold 25,020 shares of Pacific Coast Aggregates common stock, leaving Natomas owning 24,644 shares at the year-end; in addition, 316 shares of Merced Dredging's preferred stock owned by Natomas were retired during 1936, leaving Natomas with 474 shares at the year-end. Excellent earnings of Merced during the year made retirement of the preferred possible, and further retirements this year are indicated, as well as the payment of substantial common dividends.

While the yield per acre was less, returns from the company's agricultural lands for 1936 were somewhat higher than in the previous year due to the increased prices of farm products.

The outlook for a substantial increase in net profit during 1937 is said to be excellent. Natomas at the end of 1936 owned outright 4,366 acres of gold dredging land, compared with 3,794 acres at the end of 1935, an increase during the year of 572 acres. In addition, the company entered Colombia, South America, and obtained leases covering several mining concessions.

Last September, Natomas leased an area of dredgeable land on a 10 per cent royalty basis in Sacramento county, California, in what is known as Blue Ravine. The property is estimated to contain 8,000,000 yards carrying high gold values. This area is somewhat less than usually is considered necessary to warrant construction of a dredge, but the high values will more than



The gold dredger which Natomas Company operates in the Salisbur field, near Folsom, California. This dredger was constructed and placed in operation in the spring of 1935. at a cost of approximately \$400,000.

offset the smaller yardage, so Natomas has decided to build another dredge. Under terms of the lease on this property, dredging must commence within two years.

Natomas also acquired last year, a 20-year lease on 260 acres of dredging land on the American River, adjacent to the company's holdings in that area. This property is estimated to contain 7,500,000 yards of gold-bearing gravel, and the company plans to build a small dredge suitable for operation in shallow ground for this area. The dredge fleet then will total eight.

Also, during 1936, Natomas and its affiliate, the Merced Dredging Company, organized a new company called the San Joaquin Mining Company, which is equally owned by Natomas and Merced. Natomas, through its 20 per cent ownership of Merced stock, will have a 60 per cent equity in the earnings of the newly formed San Joaquin Mining Company. A dredge for San Joaquin's property, which is located adjacent to that being operated by Merced, has been completed and is being placed in operation.

On March 31 the company will pay its regular quarterly dividend of 20 cents to stock of record March 15. Thomas McCormack, Forum Building, Sacramento, California, is president and general manager of the Natomas Company.

#### NORTHERN CALIFORNIA GOLDFIELDS LISTS STOCK

**NORTHERN** California Goldfields, Inc., William C. Madge, general manager, Etna, California, has been authorized to list 963,000 shares of 10-cent par, non-assessable, common stock on the San Francisco Mining Exchange, effective February 24, 1937.

The property, known as the Morrison-Carlock mine, is located in Quartz Valley, three and one-half miles northwest of Greenview, Siskiyou county, California, and has a complete mill and compressor house, with pumps and all tools necessary to a fully-equipped, operating mine. The mill, with a capacity of 25 tons, is equipped with a giant crusher, grizzly, 10 stamps, amalgamating plates and corduroy tables.

The mine, which was located and first worked in the nineties, is opened by a one and one-half compartment shaft, sunk in an incline of 62 degrees to a depth of 217 feet, or the fifth level, which intersects the vein and a vault at about 60 feet. The shaft has been driven southeast along the fault for 130 feet to the intersection of the vein again, and a winze sunk from this point on the vein, to a depth of 490 feet. An electric hoist is located at the head of this winze. In addition, the property has been opened by about 9,000 feet of drifts, levels, and raises, excluding the old stopes which are all filled. The ground is solid and practically no timber is required, except in the shaft and on the fifth level. After acquiring the property in April, 1935, the company carried out considerable development on the eighth, tenth, and eleventh levels.

At the present time work is being concentrated on development of what seems

to be a new vein. A depth of 100 feet has been reached, at which level a 50-foot drift has been run.

O. B. Rasmussen, 3615 Forty-second Street Northeast, Seattle, Washington, is president of the company, which maintains headquarters at 723 Second Avenue, Seattle.

#### NET INCOME OF AMERICAN METAL DOUBLE THAT OF PREVIOUS YEAR

A NET income of \$1,781,598.93 for the year 1936 was reported by American Metal Company, Ltd., after depreciation, depletion, amortization, United States and foreign income taxes and surtax on undistributed earnings. This compares with a net income of \$801,527 reported in 1935.

During 1936 American Metal paid \$27.50 a share on its preferred stock, representing the total of accumulated dividend arrears. In January of this year, the regular quarterly dividend of \$1.50 a share was declared on the preferred stock, paid March 1. Disregarding the payment of accumulated dividend arrears on the outstanding preferred stock, but giving effect to the payment of the regular preferred dividend of \$6 a share, the income for 1936 was equivalent to \$1.08 each on the 1,224,585 outstanding common shares.

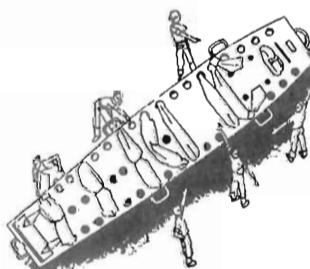
Production at the company's smelters and refineries, consisting of products treated on toll for account of others, products of purchased materials and products of owned, partly owned, and leased mines, was reported as follows: Copper, 121,767

tons; lead, 78,031 tons; zinc, 43,491 tons; silver, 58,622,925 ounces; gold, 742,256 ounces; platinum, 2,818 ounces; sulphuric acid, 102,368 tons; and solder, 6,127 tons. The company was employing 9,205 persons at the end of the year.

American Metal is interested in mining operations in the United States, Mexico, South America, and Rhodesia. It reports that the Rhodesian properties were operated on a very satisfactory basis; the smelter of Mufulira Copper Mines Limited, which company is controlled by Rhodesian Selection Trust Limited, is now in operation. Consolidated Coppermines Corporation, which is 10 per cent owned by American Metal, has resumed operations and a contract has been made under which blister copper production will be refined at the Carteret plant of American Metal. There has also been extended to Coppermines an option covering an exchange of Coppermines common stock for shares of American Metal. As to a maximum of 7,000 shares of American Metal stock, Coppermines may exercise the option without restriction as to purpose, but as to the remainder of the block the option can be exercised only on the whole thereof and only for the purpose of providing Coppermines with the means to build its own plant for treatment of its ores now being shipped to the mill of another company.

Among the subsidiary companies whose reports were included in the consolidated balance sheet of American Metal Company, Limited, might be mentioned: American Metal Company of Texas, American Zinc

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six weeks' shutdown in the summer to permit the installation of new crushing plant equipment. The total tonnage of material mined from the open pit amounted to 9,977,044 dry tons of which 6,064,088 were waste and 4,912,956 were ore, the waste ratio for the period being 1.23. By the middle of the current year, the capacity of the mine, crushing plant, mill, and auxiliary equipment will have been increased to handle 20,000 tons of ore per day. During 1936 the concentrator treated 9,902,144 dry tons of ore.

Ore mining operations at the United Verde property in 1936 were confined to the open pit. The total ore tonnage amounted to 1,294,716 dry tons and consisted largely of direct smelting, concentrating, and converter ore. In the underground mine 1,890 feet of exploration work were driven, together with nearly 5,000 feet of diamond drilling. Construction work and improvements at No. 7 shaft were continued. The concentrator treated 201,66 tons of ore. The smelter, operating three furnaces most of the year, treated 1,080,694 tons of ore, concentrates, and miscellaneous copper products.

The properties at Morenci, Arizona, and Nacozari, Mexico, continued on a non-operating basis, although Morenci commenced underground leaching operations on a small scale, the copper water coming from a caved area over abandoned workings. The Burro Mountain Branch at Tyron continued closed down. Operations at the San Carlos mine in Chihuahua, Mexico, were restricted to a small amount of development work.



The refineries of Nichols Copper Company at Laurel Hill, New York, and El Paso, Texas, were operated throughout the year, both refineries producing the largest tonnage since 1930. Including metals returned to others on a toll basis, the refineries produced a total of 410,253,000 pounds of copper, 8,520,157 ounces of silver, and 218,380 ounces of gold. These figures include metals contained in blister received for treatment from Phelps Dodge Corporation, as well as metals contained in custom ores, concentrates, blister, and scrap copper. The custom smelter, which is part of the Laurel Hill plant, was rebuilt and thoroughly modernized during the summer of 1936 and started operation again in November.

In February of 1937 the corporation paid all of the delinquent Arizona taxes and interest, thereby terminating the litigation which has been pending in the federal courts for the last three years. This payment amounted to \$5,173,313.42. The annual report states that the total of all taxes applicable to the year 1936, paid by, or accrued or assessed against the corporation and its subsidiary companies, was \$4,448,950, a sum which represents 87.7 cents per share of outstanding capital stock, or 28 per cent of the corporation's consolidated net income for 1936 before taxes.

#### CONTRACT AWARD FOR DEBRIS DAM EXPECTED THIS SUMMER

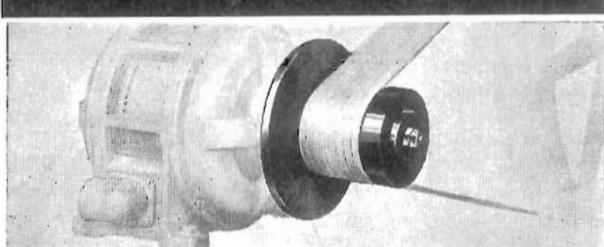
CONTRACT for the erection of the Upper Narrows debris dam, to be constructed on the Yuba River near Smartville, California, the most important and most costly of the four in prospect for central California, is expected to be awarded by the federal government early this summer. Government engineers estimate its cost at \$8,621,400, and two years will be required to complete it.

The structure will rise 237 feet above the bed of the river and will completely dam the stream, its purpose being to create a great artificial lake of still water which will cause debris to settle behind the dam, preventing the pollution of the lower river. The water of the river itself will flow through spillways at the top of the structure.

Operation of the dam during the 20 years following its completion is estimated to cost \$247,000, and this amount, together with the original cost, is to be repaid to the government within a period of 20 years, through fees to be collected from hydraulic mining companies operating above the dam in Nevada county. Charges will be on a basis of 0.584 cents per cubic yard for storage of the debris washed down from the mines. The dam is expected to be capable of storing 117,700,000 cubic yards of debris, and still leave a third of its height above the deposits.

Engineers, under the direction of G. F. Bartlett of the California Debris Commission, Federal Building, Sacramento, California, are engaged in preliminary con-

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In the United States this Process is covered by U. S. Patent No. 1,990,559 issued in 1935, and by additional Patents Nos. 1,433,965/22, 1,634,720/27, 1,671,601/28, and 1,767,006/30.

Additional Patent Applications are pending. Similar patent protection has been granted or is pending in Canada, Mexico, and in other Foreign Countries.

Descriptive literature and quotations promptly furnished.

The MERRILL COMPANY

Engineers

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MISSING

April 15, 1937

## INSPIRATION CONSOLIDATED REPORTS PROFIT FOR 1936

**I**N HIS annual statement to stockholders, William D. Thornton, president of Inspiration Consolidated Copper Company, reports that company operations for the year 1936 resulted in a net income of \$353,722 before depletion, equal to 30 cents a share, against a net loss of \$1,216,769 in 1935. Production from ores mined and treated amounted to 59,876,118 pounds of copper. Ore was mined at the rate of 19.92 tons per man-shift.

During the year Inspiration mined 2,602,365 dry tons of ore assaying 1.302 per cent copper of which 0.667 per cent copper was in oxide form. In the third quarter of the year the demand for copper was such as to warrant an increase in production; in the fourth quarter the demand had reached such proportions that the metallurgical operations were adjusted to produce as much copper as the prevailing conditions in the mine would permit.

For the first 11 months of the year ore treatment in the main leaching plant was confined to ferric sulphate leaching. Early in December, to meet expanding production requirements, sulphuric acid treatment was substituted in order to extract, by leaching, only the oxidized copper content of the ore, this operation being supplemented by treatment at the concentrator, by grinding and flotation, of the leached residue for recovery of the sulphide copper content of the ore.

In the main leaching plant there were treated during the year 2,480,022 tons of ore containing 1.290 per cent total copper of which 0.648 per cent was in oxidized form. At the slimes leaching plant there were treated 122,343 tons of fines containing 1.283 per cent total copper of which 1.027 per cent was in oxidized form. The extraction in the leaching vats was 84.096 per cent of the total copper, 96.201 per cent of the oxide copper, and 71.474 per cent of the sulphide copper. Extraction in the slimes plant was 77.47 per cent of the total copper, 91.92 per cent of

the oxide copper and 19.53 per cent of the sulphide copper.

Commencing the latter part of March, 1936, the slimes removed from the leaching plant feed were treated in the concentrator for the purpose of recovering the sulphide copper content as concentrates. The tailings from this operation were treated at the slimes leaching plant for the recovery of their oxide copper content. The recovery from 98,352 tons of slimes concentrated was 59.71 per cent of the sulphide copper content and 22.96 per cent of the total copper content, in a concentrate assaying 46.214 per cent copper.

Beginning December 7 the tailings from the main leaching plant were sent to the concentrator for the recovery of the sulphide copper content as concentrates. There were 259,281 tons of these tailings treated, having a copper content of 0.619 per cent. The recovery from the leaching plant tailings was 67.74 per cent in a concentrate assaying 36.307 per cent copper. Extractions have improved steadily.

The net recovery, after smelter and refinery deductions, of fine copper from ore was 86.59 per cent.

Of the entire copper production of 59,876,118 pounds, 54,615,767 pounds were obtained from the leaching plant, 2,642,586 pounds from the concentrator, and 2,617,765 pounds from the slimes plant.

The total power requirements for the year amounted to 98,389,001 kilowatt hours, of which 88,009,850 kilowatt hours were supplied by the hydro-electric plants of the Salt River Valley Water Users' Association, the balance being supplied by the company's own power plant which was started up in September and which continued to operate for the remainder of the year.

Thomas H. O'Brien is general manager of company operations, assisted by F. A. Wardlaw, Jr., general superintendent; Joseph L. Johnson, mine superintendent; Guy H. Ruggles, mill superintendent; and H. W. Aldrich, leaching plant superintendent.

## CONCENTRATION PLANT FOR SAN CARLOS MINE IN MEXICO

**W**ORK has been started by Cia. Minera de San Carlos, S. A., on the construction of a mine surface plant and concentrator for the treatment of the lead-silver ores in the San Carlos mine. The San Carlos property is located at Mineral de San Carlos, Chihuahua, Mexico, about 40 miles south of Presidio, Texas.

It is proposed to erect a plant with a daily capacity of 300 to 400 tons, as a considerable tonnage has been blocked out by diamond drilling. The ore occurs as a lead sulphide and will be concentrated at the mine. The Mexican ministry of agriculture has granted the company a concession to use 473,040 cubic meters annually of the waters of the San Carlos brook, Ojingo municipality, to furnish water for the flotation plant.

Cia. Minera de San Carlos, S. A., is a subsidiary of Phelps Dodge Corporation. Operations will be managed by H. H. Horton, Nacoziari, Sonora, Mexico, who is also general manager of Moctezuma Copper Company, another Phelps Dodge subsidiary.

## GOLD HILL DREDGING INSTALLS NEW TYPE GOLD SAVING UNIT

**I**STALLATION of a special mill unit designed to save gold values carried as "included grains" in quartz sands, has been completed at the Loomis No. 1 dredge of the Gold Hill Dredging Company, operating on the Laird Channel, near Loomis, California. Use of the new plant marks the first attempt ever made to accomplish this type of recovery in a placer operation and it is hoped that it will prove to be a satisfactory method of increasing dredge efficiency. Operations are on a 24-hour basis under the direction of Abe Shaw, dredge-master.

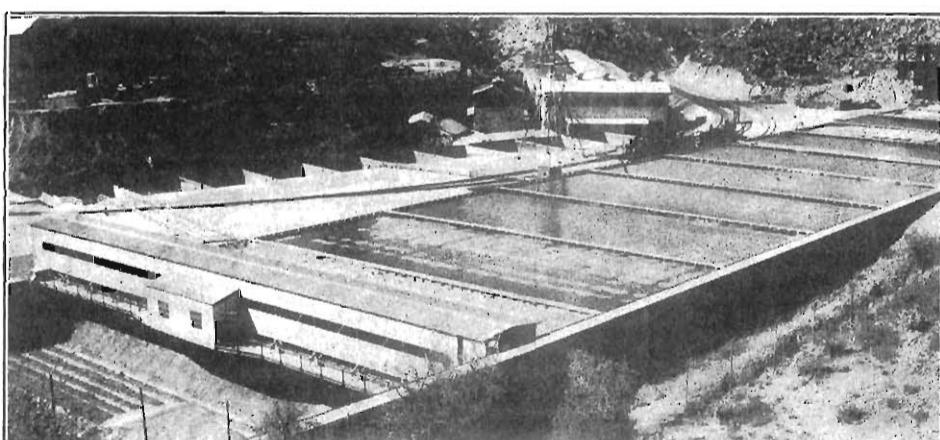
Cooperating with agricultural interests in the Loomis district, the company is constructing a series of debris dams to impound tailings from the dredge. Two of the debris dams are already completed, and plans call for the construction of two additional dams. The Gold Hill company is headed by W. W. Johnson, 351 California Street, San Francisco.

## CASA DE PAGA TO RESUME GOLD DREDGING AT NOME

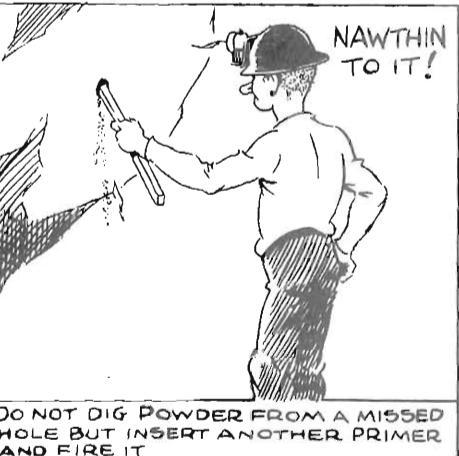
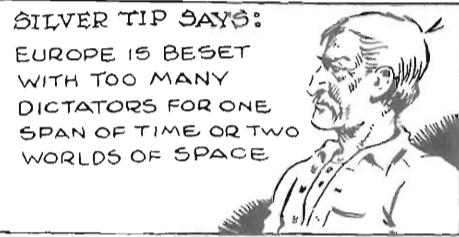
**O**PERATING from June 1 to October 20 each season, the Casa de Paga Gold Mine gives employment to about 12 men. An all-steel pontoon type dredge, made by the Washington Iron Works, which moves 1,100 yards of gravel daily, is being used. Power is supplied from an 86-horsepower Washington Iron Works Diesel engine. Recovery is in open sluices, with no stacker.

The property is on the Casa de Paga River, near Nome, Alaska, and it is estimated that there is a three-year supply of material to be worked. After that the dredge will be moved to Monument Creek.

A. C. Stewart, 327 Colman Building, Seattle, Washington, is president of the company and Don Stewart, at the same address, is general manager. The company was incorporated about two years ago and is capitalized at \$50,000.



General view of Inspiration Consolidated Copper Company's leaching plant which at the present time is treating 17,000 tons of ore daily, the ore carrying an average content of 1.18 per cent copper. About 60 per cent of the values are obtained from the leaching operation which has been reduced from nine to four days. The use of the dual system of leaching the oxidized ores and floating the sulphides has permitted an increase in output from 7,000,000 to 10,000,000 pounds of copper a month.



## Mining Men and Their Activities

About men who are well known and prominent in the mining circles of the western states.

**Clay Porter** of Seattle, Washington, is now at Hyder, Alaska.

**Wendell Orndorf**, who has been at Fort Peck, Montana, is now located at Superior, Arizona.

**J. P. Cooney**, formerly at Keeler, California, with Keeler Gold, Inc., is now located at Big Pine, California.

**Bernard York**, a mine scout for a New York syndicate, has moved headquarters from Pioche to Fallon, Nevada.

**Richard W. Unger**, who has been in California for the past several years, is now at Buckhorn, via Palisade, Nevada.

**Stockton Veazey, Jr.**, of Butte, Montana, is now with Inspiration Consolidated Copper Company at Inspiration, Arizona.

**M. F. Howe**, who has been in charge of operations at the Oregon Chief mine near Baker, Oregon, is now located at Stanford, Montana.

**Frank Jenkin**, former mine superintendent for Lane Rincon Mines, Inc., at Toluca, Mexico, is now located at Apt. 96, Morelia, Michoacan, Mexico.

**L. E. Putnam**, superintendent of the Beebe Gold Mining Company, Georgetown, California, has returned from a month's vacation spent in South America.

**Thomas L. Chapman**, formerly general superintendent for Estelle Mining Company in Idaho, is associated with Mammoth-St. Anthony, Ltd., Mammoth, Arizona.

**C. Duncan Cantrell, Jr.**, who was on the engineering staff of the Standard Mining and Milling Company at Atlantic City, Wyoming, is now at Rodessa, Louisiana.

**Carl Hanson** has accepted the position of general manager of Cia. Exploradora y Explotadora de Minas, S. A., Zacualpan, Mexico, Mexico. He succeeds Earl F. Salisbury.

**Kenneth R. Johnson**, who has been connected with the Weepah Nevada Mining Company at Tonopah, Nevada, is now staying at the Anderson Hotel in Ishpeming, Michigan.

**M. G. Swerer** of Colorado Springs, Colorado, is reported to have taken a lease on a portion of the Doctor Jack Pot mine at Cripple Creek and plans to start work immediately.

**Dale F. Underwood** has left Gold Hill, Colorado, where he was general superintendent of the United Empire Gold Mines Company, and is now at Mt. Pleasant, Tennessee.

**Frank Littlewood** has returned to Angangueo, Michoacan, Mexico, where he is chief electrician for American Smelting and Refining Company, after spending some time in Mexico City.

### GLENN C. WATERMAN MAPPING WORKERS AT AUBURN-CHICAGO

**GLENN C. WATERMAN**, geologist with the Idaho Maryland Mines Corporation, Grass Valley, California, is engaged in making a complete geological map of the underground workings of the Auburn-Chicago property at Penryn, California.

Associated with him in the work is Ken Wilson, engineer for the Auburn-Chicago company.

Waterman is a graduate of Stanford University, having received his bachelor's degree in 1933, and he is now working toward an M. A. in geology. He was employed by the Constitution Mining Company in 1931, and in 1934 he went to the Idaho Maryland company as geologist, and has been associated with

that company since that time. In addition to his work at Idaho Maryland, however, he has held various consulting geological and engineering positions with other companies. He was consulting geologist for the Auburn-Chicago Mining Company, Penryn, in 1935, and in 1936 served in the same capacity for the Spring Hill Mining Company at Grass Valley.

His work at Idaho Maryland involves detailed geologic mapping, sampling and surveying, and examination of outside properties.

Aside from his work, Waterman is interested in the examination of prospects or developed mines; study of ore genesis and ore control; and the solution of fault problems. His hobby is photography. He is a member of the American Institute of Mining and Metallurgical Engineers, and of Sigma Xi.

**G. S. Wasteneys**, managing director of Cia. de Inversiones del Oro, S. A., El Oro, Mexico, is on an extended business trip to South Africa. He will return to Mexico some time in May.

**N. G. Morgan**, 527 Clift Building, Salt Lake City, Utah, is president of the newly incorporated Azure Queen Mines Company. Otto Mehr is vice-president and Dan H. Vincent, secretary.

**A. G. Cardenas**, who has recently been exploiting El Consuelo and Santa Cecilia mines in Coahuila, is now connected with

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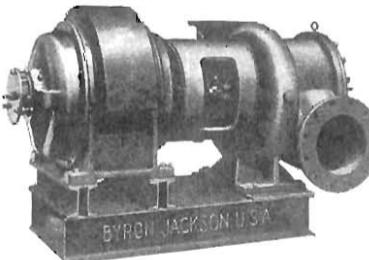
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**Chester Flinn**, formerly at Box 526, Barstow, California, where he was associated with the Barstow Mining Company, is now located at 1129 Hellman Street, Long Beach, California.

**L. H. Metzgar**, general superintendent of the Alaska Juneau Gold Mining Company, Juneau, Alaska, is spending a vacation in California. He recently spent several days in Nevada City, California.

**Joseph T. Hall** of Wallace, Idaho, was in Phoenix, Arizona, for a few days in April, representing Frank Eichelberger at the annual meeting of the Callahan Zinc-Lead Company, an Arizona corporation.

**Rodolfo Wilmanns** is general manager of Cia. Minera de San Carlos y Anexas, S. A., Ixtlan de Juarez, Oaxaca, Mexico. He was former general superintendent for Santa Cruz Mining Company, in Durango.

**Benton Boyd**, who has been junior engineer at the Gold Hill mine of the Talache Mines, Inc., Quartzburg, Idaho, is now at Lark, Utah, employed by the U. S. Smelting Refining and Mining Company.

**Percy G. Dobson**, mining engineer and geologist of Bralorne Mines, Ltd., is directing operations at the Nivloc mine, west of Silverpeak, Nevada, which Bralorne officials and associates recently acquired.

**Alvin B. Carpenter**, consulting mining engineer, 1114 Pershing Square Building, Los Angeles, addressed the Mineralogical Society of Southern California in Pasadena April 12 on "Old Spanish Mines in Mexico."

**B. F. Webster, Jr.**, manager of Old Hundred Gold Mining Company has returned from California where he spent the winter and will be at his home in Colorado Springs until he goes to the mine, near Silverton.

**F. J. Liska**, president of Gold Standard Mines Corporation, has been visiting his company's operations, near Kingman, Arizona. He has now returned to his headquarters at 426 South Clinton Street, Chicago, Illinois.

**B. A. Winn**, who has been mill superintendent of the Cornucopia Gold Mines, Inc., at Cornucopia, Oregon, is now located at Hurley, New Mexico, where he is connected with the Nevada Consolidated Copper Company.

**Edward Stokke**, master mechanic for Mexican Candelaria Company, Contra Estaca, Sinaloa, Mexico, has returned to his work after spending the last three months in San Francisco under the care of physicians.

**William Holland**, mining engineer, who has resided at Nevada City, California, for the past eight years, sailed from San Francisco April 10 for Manila, Philippine Islands, where he will be connected with the Pan-Philippine Syndicate.

**J. T. Terry**, metallurgical engineer, 1126 Pine Street, South Pasadena, California, is now mill superintendent for the Sierra Consolidated Mines, Inc., Wellington, Ne-

## H. M. HOLKESTAD TO MANAGE BULLARD SALT LAKE OFFICE

**EFFECTIVE** April 15, H. M. Holkestad, who until recently has been engaged as superintendent of one of the mines in the Grass Valley district of California, was appointed manager of the Salt Lake City, Utah, office of the E. D. Bullard Company, manufacturers and distributors of "Everything in Safety." The new address of the Salt Lake office is 14 Post Office Place.

Spending the major portion of his time in the western American mining districts since his graduation from the Colorado School of Mines, Holkestad has had a variety of experience, working from mucker to super-

intendent. His work has included extraction of lead, zinc, and silver in the Park City region of Utah, copper in Montana, and gold in the Grass Valley area of California. For several years he was associated with Ingersoll-Rand in the rock-drill department. His experience in construction work includes tunneling and excavating work on municipal and private projects. E. W. Bullard, president of the company, believes that with such a background of mining and construction work, Holkestad will prove of valuable assistance to the man on the job, whose problems he, himself, has faced.

vada, in charge of its 100-ton Silverado mill in Mono county, California.

**C. K. Dennis**, superintendent of the Atolia Mining Company, Atolia, California, is undertaking to organize a mining association to serve mining companies operating in the Randsburg-Atolia-Johannesburg-Red Mountain district in California.

**John C. Lokken**, formerly assistant concentrator superintendent for the International Smelting and Refining Company at Tooele, Utah, is now at Mountain City, Nevada, with the Mountain City Copper Company as concentrator superintendent.

**Ralph L. Shimmin** has left the Sunshine Mining Company and is now connected with the Callahan Zinc-Lead Company as mill superintendent. Ralph Shimmin is the son of the late J. T. Shimmin, whose recent loss is keenly felt among mining men.

**Benjamin Sheahan**, who has been superintendent of the Key West mine at Bunker Hill, Nevada, which the International Smelting and Refining Company had optioned, is now at Bingham Canyon, Utah, with the National Tunnel and Mines Company, doing geological work.

**S. A. Steier**, 700 McCornick Building, Salt Lake City, Utah, is in charge of Utah



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nia, has recently been appointed superintendent of the Lewiston Dredging Company, operating on the Trinity River, near Lewiston, California. Harvey has been succeeded at Gold Hill Dredging by George W. Rutherford. C. H. Thurman, 420 Market Street, San Francisco, formerly superintendent of Gold Hill operations, is directing work of the Lewiston Dredging Company.

Orlando McCraney, well-known mining man of Nevada City, California, where he was president and general manager of the California Sierra Gold Mines, Inc., left San Francisco on the China Clipper April 7, for the Philippines, where he will be connected with the Pan-Philippine Syndicate. McCraney has managed numerous mining properties in California and Nevada. He had been located in Nevada City for the past eight years.

William L. Aves, superintendent of the Higueras Unit of Cia. Minera de Penoles, S. A., Higueras, Coahuila, Mexico, has been transferred to the West Coast of Mexico, where he will be engaged in geological work for his company. Present headquarters are being maintained at Hotel Belmar, Mazatlan, Sinaloa. He has been succeeded at Higueras by P. F. Pyburn, Jr., former general superintendent for Cia. Minera Mexicana de Namaquipa, S. A., and Cia. Minera Kildun y Anexas.

#### WENDELL P. HAMMON HONORARY MEMBER OF ENGINEERS CLUB

WENDELL P. HAMMON, Oroville, California, has been elected to honorary membership in the Engineers Club of San Francisco. Hammon, who is associated with the Hammon Engineering Company, 351 California Street, San Francisco, is credited with having originated the gold dredging industry.

He was the first to conceive the idea that bucket-line dredges could be used to dredge gold-bearing gravel from the bottom of the Feather River near Oroville. The first dredge, Exploration No. 1, was put into operation March 1, 1898. Later he conceived the idea that the dredges could be made to penetrate inland by floating them in water filled excavations, and causing them to dig out their own channels and fill in behind them.

Hammon has long been active in the gold dredging field, having served in various executive capacities in a number of firms, among which are the Oroville Dredging Company, Ltd., Yuba Manufacturing Company; Yuha Consolidated Gold Fields; Ventura Consolidated Oil Fields; Sierra Pacific Electric Company; Natomas Consolidated; Columbia Steel Corporation; Hammon Consolidated Gold Fields; California Sansome Corporation; Hammon Engineering Company; Hammon Estate Company; and the Pioneer Gold Dredging Company.

A son, Wendell C. Hammon, is vice-president of the Hammon Engineering Company. Both father and son are members of the American Institute of Mining and Metallurgical Engineers.

#### COLORADO COPPER TARIFF BOARD APPOINTED BY GOVERNOR AMMONS

TELLER Ammons, governor of Colorado, has announced the appointment of a Colorado copper tariff board to cooperate with similar boards in other states to secure the reenactment of the excise tax on foreign copper. The Colorado board consists of J. Price Briscoe of the Fairplay Gold Mines, Inc., Fairplay; Frank L. Jones, Idaho Springs; J. O. A. Carper, Boston Building, Denver; Jesse F. McDonald, Denver; J. G. Clark of Gold, Silver and Tungsten, Inc., Boulder; W. E. Scott, Jr., Central City; and Robert S. Palmer of Denver.

Similar boards have been appointed for Arizona, Nevada, Utah, Montana, and Wyoming and it is expected that there will be such boards shortly in each of the western states. The copper excise tax is a part of the revenue bill of 1935 which automatically expires June 30, 1937, and has been continuously in revenue bills since 1932. Due to the inclusion of this tax as an excise tax in a revenue bill, it is necessary to have it written into each similar revenue bill which is before Congress for consideration.

#### Deceased

Elmer Preston, former employee of the Idaho Maryland mine at Grass Valley, California, for five years, died at his home near Graniteville, California, early this month.

Henry Martin of Tonopah, Nevada, died March 25, 1937, after an illness of several months. Martin went to Goldfield in 1910 and had worked in mines in Nevada, Utah, Michigan, and Canada. He was born in Finland in 1883.

James Johns, 56, died March 30 at Nevada City, California, from injuries suffered when he was caught in the sheave wheel of the North Star mine hoist. He had been an employee at the North Star mine for 12 years.

E. I. "Ike" Owens, 79, miner, prospector, and for many years road overseer in the San Juan district of Colorado, passed away at Grangeville, Idaho, March 9. He had been prospecting in Idaho since 1929. Owens is survived by a son in Idaho, two in Nebraska, and a daughter in Washington.

William H. Tobin, 58, operator of the Brownsville mine in Yuba county, California, near Marysville, and the Illinois and Pioneer mines at Plymouth, California, died recently. Funeral services were conducted at Sutter Creek, California, April 5. Tobin was a native of St. Louis, Missouri.

Frank C. Cutler, 49, since 1917 associated with operations of Chino Mines, Nevada Consolidated Copper Corporation, Hurley, New Mexico, died on March 30, following an illness of about four months. Since 1922 he had been chief mill clerk in charge of all plant offices. He had taken a leading part in community activities and had served as secretary of the Hurley school board for 14 years.

J. T. "Jack" Shimmin, well-known American mining engineer, died recently after

an appendicitis operation. Shimmin, who had worked in the southwestern part of this country and in Colorado and Nevada, and had a consulting office in Los Angeles for some years, was affiliated with the Buchans Mining Company, Ltd., at Buchans, Newfoundland, at the time of his death. He was associated with the Eichelberger interests for some time, both in this country and in British Columbia.

#### NEW MEXICO CLASS MAKES ANNUAL FIELD EXCURSION

SENIOR students in the engineering department, New Mexico School of Mines, Socorro, New Mexico, spent the first half of April on the annual trip of inspection to mining and milling plants in the Southwest and Mexico. The class was accompanied by Professor A. S. Walter, head of the mining department.

The itinerary of the trip this year included a visit the first day to the manganese deposits at Hot Springs, the Caballo Mountain placers, Caballo Dam, the Hillsboro, Kingston, and San Lorenzo districts. The second and third days were spent at the Chino mines and mill of Nevada Consolidated Copper Corporation, and the Tyrone copper and Pinos Altos gold districts. From there the group went to Mogollon, visiting the mining and milling activities in that district; then to the Ground Hog mine, the Black Hawk Consolidated, Empire Zinc, and Peru Mining Company.

After visiting the El Paso Smelting Works and Nichols Copper Company refinery at El Paso, the group then went to Chihuahua, Mexico, where mining, milling, and smelting operations of both American Smelting and Refining Company and El Potosi Mining Company were inspected. The class returned to Socorro on April 13.

#### COLORADO MINERAL RESOURCES COMPILED AND INDEXED

AN INDEX to the mineral resources of Colorado has been published by the state planning commission, with the aid of WPA, and is now on file in centrally located towns in the mining districts of the state. The index contains 90 pages and refers to material which has been gathered together in orderly fashion covering the engineering and geological reports on the mineral resources of the state. All available records were used in the gathering of this material and the reports then transcribed. Since the completed work was too voluminous for general distribution, a copy was placed on file at the school of mines at Golden and another in the technical section of the Denver public library, and indexes to the report made available to all mining sections.

The commission also undertook the work of indexing all the reports at the office of the state metal mines commissioner, the reports dating back to the beginning of the mining industry in Colorado. Funds for this project were exhausted when the work was completed to 1914, so it was discontinued for the time being. The state hopes to complete the project at some other time.

#### GOLD SHARES, INC., TO DEVELOP GOLDEN GATE MINE, CALIFORNIA

**G**OLD Shares, Inc., whose stock is listed on the San Francisco Mining Exchange, has acquired the long-term lease on the Golden Gate mine, near Sonora, California, which was held by M. B. Dudley, Box 15, Sonora. The company is reported to be making preparations for rehabilitating old workings simultaneously with development of a new discovery. The new find is located some 400 feet south of the old main shaft and has been opened to a depth of 30 feet. The ledge is six feet wide in the bottom of the shaft and is said to give average assay returns of \$12 per ton.

It is also announced that the first two levels of the old workings will be rehabilitated for the purpose of mining ore

left by the early day operators, who, it is claimed, extracted only the richer portion of the vein.

The mine is owned by the M. McCormick Company, John P. McCormick, president, Sonora, California, and its total gold output has been estimated at approximately \$3,000,000. The main shaft is 750 feet deep, and a 200-foot winze gives it a total depth of 950 feet. During its 30 years of idleness, the property was divested of all equipment and surface improvements, hence new machinery will have to be installed, and necessary buildings erected.

Brooks M. Dudley, son of M. B. Dudley, will be general manager at the mine, and Curtis Lindley will be consulting engineer. M. B. Dudley is understood to have retained an important interest in the property.

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ALL THE ABOVE AND MANY OTHER TECHNICAL MINING BOOKS ARE CARRIED IN STOCK BY

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# The Sampling Mill

by Fisher Vane

\*\*\*Every so often some pessimist arises and remarks that California's Mother Lode's petering out, or that all the high-grade's been taken away years, aye, decades ago. And always, about then, some persistent soul who wouldn't know a negative thought if he met it in the middle of a five-foot-wide drift with a Dewar acetylene light playing square on it, goes out and digs up a new gold strike . . . right where the pessimists say there just ain't none.

\*\*\*G. B. Rymal, gold prospector, is one of those stubborn fellers who still knows that gold is where you find it—if you're half-way reasonable about where you look for it. Of course, some of the boys would say that Rymal was a bit unreasonable in his technique, for he was prowling 'round in the serpentine up Mount Bullion way.

\*\*\*But Rymal found coarse gold nuggets in the serpentine formation not far from the Princeton mine. Worse than that, he found it within 25 feet of a county road that has carried traffic for 80 years. He reported this month that he panned \$400 worth of gold there in two days. Then, just to prove to the engineers and other skeptics that it wasn't a fish story, he had a trio of Responsible Citizens look things over (J. W. Warford, engineer and assayer; D. G. Kidder, county auditor—who, incidentally, is NO kidder—and John L. Dexter, publisher of the Mariposa Gazette) and subscribe to an affidavit backing up Rymal's report. The serpentine wherein Rymal struck his gold runs from one end of Mariposa county to the other and since early days had been branded as barren of gold.

\*\*\*Writing his syndicated daily article one day this month David Lawrence said: "Reduced to its simplest terms, the entire Washington situation today may be expressed in a phrase—a drive against property." Lawrence adds that the drive began in '33 with the Administration's pledge to "bring about a redistribution of wealth"—then says: "Most onlookers, considering that the word 'wealth' was the same thing as the word 'riches,' sympathized with the movement."

\*\*\*Too many newspaper readers and superficial thinkers confuse those two words. Today they are beginning to wake up—to think things through.

\*\*\*Such thorough-thinking is the sort that would better be done on the subject of Secretary of the Interior Harold Ickes' recent luminous idea of hamstringing the American mining industry at large by ending such time-honored institutions as location of and possessory title to mining claims in the Public Domain, and the subsequent acquisition of patent-title to them, substituting instead a leasing-only system of permitting mining development work.

\*\*\*If that Ickes idea, in action (perish the thought it ever will reach that stage!!) wouldn't be in every sense a drive against property . . . just what would you call it?

\*\*\*This national and international metal situation is having some horrible effects. The cost of cans—specifically, beer cans—was raised at Pittsburgh this month. And summer coming on! But then—personally—I never yet slumped to such depths as to imbibe beer out of a tin can. Gimme a bottle, cold.

## GREENE CANANEA PROFIT FOR YEAR 1936 IS \$1,124,127

**I**N HIS report to shares holders of Greene Cananea Copper Company, William D. Thornton, president, states that the company's subsidiary, Cananea Consolidated Copper Company, S. A., produced during 1936 a total of 32,487,243 pounds of copper, 260,564 ounces of silver, 10,976 ounces of gold, and 959 tons of molybdenite. The foregoing production includes 2,238 pounds of copper, 12,806 ounces of silver, and 1,168 ounces of gold produced from custom ores. Deliveries of copper amounted to 34,329,723 pounds.

Mining and smelting operations at Cananea, Sonora, Mexico, were shut down for a period of 10 weeks during the first quarter of the year by a strike. However, a new labor contract was signed with the Union for a term of two years, beginning March 23, 1936. The expenses during the strike amounted to \$259,934.

The operating income of the company amounted to \$1,783,618, and other income to \$16,813, a total of \$1,800,431. From this figure must be deducted the cost of the strike at Cananea, Mexican income taxes, and provisions for depreciation and obsolescence, a total of \$676,224. The resulting consolidated net income for 1936, without deduction for depletion, was \$1,124,207.

Mining operations of Cananea Consolidated are directed by Clyde E. Weed, general manager.

## VANADIUM CORP. OF AMERICA MAKES CONSOLIDATED REPORT

**T**HE Vanadium Corporation of America and subsidiary companies, which have holdings in Colorado, Virginia, New York, South America, South Africa, and Canada, report for the fiscal year ended December 31, 1936, a net profit from operations of \$758,407. Net sales amounted to \$5,353,468 and costs, including selling, administration, and general expenses, exclusive of depreciation and depletion, amounted to \$4,595,060. Income on investments is listed at \$11,515; net refund of electric power overcharges in prior periods,

\$38,848; and miscellaneous income, \$8,852; totaling \$54,216 and bringing total income to \$812,624. Provisions for depreciation of plant, equipment, patents, etc., amounted to \$330,604 and \$73,405 was listed as depletion of mines. These charges, plus interest on 10-year 5 per cent debentures, interest on notes payable, loss on property retired, and miscellaneous charges, equalled \$628,627, leaving a net profit, before provision for federal income taxes of \$183,996. Provision for federal income taxes came to \$31,804, leaving a net profit of \$152,192 to be carried to consolidated deficit.

## NEW NO. 5 DREDGE OF NATOMAS COMPANY IS NOW IN OPERATION

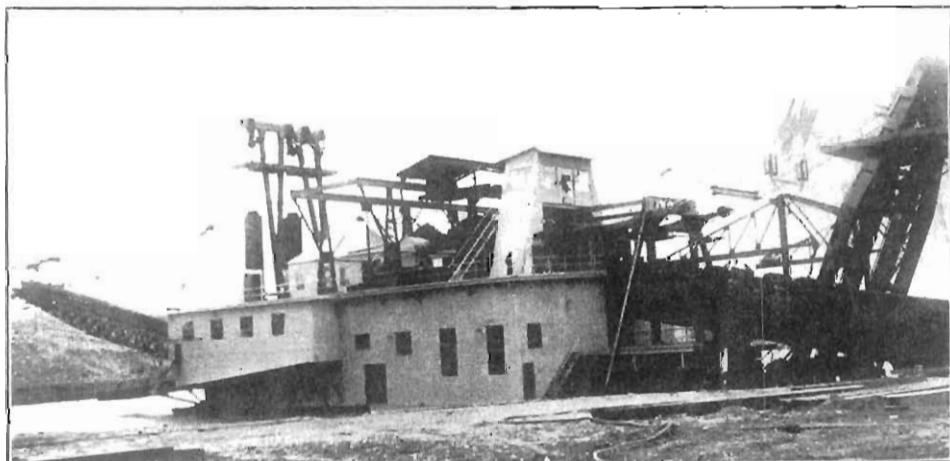
**T**HE new \$500,000 gold dredge of the Natomas Company, Natoma, California, has been placed in operation in the Folsom district, California, to replace the dredge which turned turtle about a year ago.

The new dredge, known as No. 5, is a single stacker, measuring 58 feet wide and 150 feet long. It is of steel construction, weighing 2,000 tons, and is designed to work 67 feet below the water level. Digging will be handled by 110 buckets of 12 cubic-foot capacity, each weighing 3,800 pounds. Approximately 350,000 yards of gravel will go through the plant each month. Alex Dickson, one of the oldest men with the company, in point of service, is to be dredgemaster of the new boat.

The dredge was designed by the Natomas Company and was fabricated in San Francisco. Sixty men were employed during construction, which required eight months. Several delays were caused by marine strikes along the Pacific coast and elsewhere. Charles Anderson was construction foreman, assisted by John L. James.

A sister dredge, to be known as No. 8, is under construction about three miles distant. This is to be identical in every detail with No. 5 dredge, and will cost approximately the same.

Thomas McCormack, 607 Forum Building, Sacramento, California, is president of the Natomas Company. R. G. Smith is in charge of dredging operations with headquarters at Natoma, California.



The No. 5 dredge of Natomas Company, operating in the Folsom area. It was erected at a cost of approximately \$500,000.

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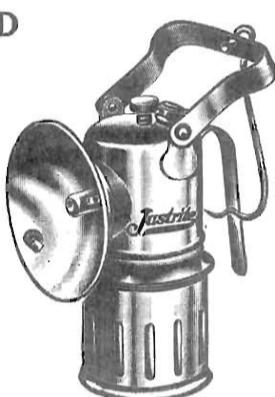
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The Penn-Zona Metal Mining Company of Buckeye, Arizona, has been working steadily since last June, sinking a shaft and conducting other development. This property was acquired from the Pacific Slope Gold Mines Corporation, and is located in Maricopa county near Saddle, Arizona. The present crew consists of four men and a cook. The company is headed by John A. Barr of Marianna, Pennsylvania, president, and John W. Mrock of Buckeye, Arizona is manager, directing the mine work.

Walter E. Trent of Rosamond, California, president of Whitmore Mines, Inc., at Mojave, California, has announced that a

contract has been let to E. H. McMurray for sinking the south shaft to a depth of 500 feet. This work is to be completed in three months. Trent reports that the Whitmore property has in recent months

shipped \$20,000 worth of ore from points above the 100-foot level.

Development work is proceeding favorably in new territory at the Kenton mine at Alleghany, California, under the direction of W. V. Wilson, superintendent. A crew of 40 men is employed. Ten stamps are dropping at the mill. The Kenton is owned by George E. Gamble of Proctor and Gamble Company.

New levels are being started at the North Star mine of the Empire Star Mines Company, Grass Valley, California, M. E. Newlove, superintendent, for exploration of territory believed to contain continuations of the principal ore bodies. Workings have reached a depth of 9,400 feet at the North Star following sinking of a winze from the 8,600-foot level.

The 150-ton flotation and cyanide plant under construction at the Confidence Gold Mining Company at Confidence, via Sonora, California, is expected to be completed and put in operation by June. Work on the plant is being pushed vigorously with a crew of 30 men. The mill was designed by Richard Krebs, company metallurgist. The plant will be housed in a building measuring 160 by 124 feet. This building is about three-fourths completed. C. T. Eastman is manager at the property.

The Sunbeam Mines Company, C. C. Baldwin, general manager, Box 175, San Bernardino, California, is installing a 25-ton cyanide plant at its Ivanhoe mine, in the Dale mining district, 12 miles east of Twentynine Palms, California. The plant is being installed at an estimated cost of \$15,000. Six men are at work on construction. When the plant is finished, about 20 men will be employed at the property.

Work at the property of the Carlyle Mining Corporation, Twentynine Palms, California, has been devoted principally to mining during the past several months, with some development. The average grade of the ore runs about \$15 per ton in gold and silver, it is stated. The company's flotation plant has a capacity for handling

60 tons of ore per day. A new 225-horsepower Fairbanks-Morse Diesel is being installed in the mill at the present time, necessitating a brief shutdown, but work is expected to be resumed about the first of May. R. M. Gammell, who was formerly connected with the Tom Reed mine at Oatman, Arizona, is in charge as superintendent with a crew of 30 men. The company was incorporated last November, and is headed by W. A. Dorman, 463 South Clark Drive, Beverly Hills, California, as president and general manager.

Plans have been made to ship 20 tons of ore per day from the Jupiter mine, in the Dale mining district, near Twentynine Palms, California, to the Gold Crown Mining Company's mill at Twentynine Palms. The tunnel at the Jupiter has been extended 200 feet, and 500 feet of lateral work has been done. The working force is to be increased to 20 men. The Jupiter is owned by Sels Bush of Twentynine Palms, and is being operated under lease and bond by F. A. Berger and Matthew Gilbert, 619 North Palm Drive, Beverly Hills, California. Hugh Leonard is superintendent at the property.

Upon completion of the 150-ton concentrating plant being installed at the Black Eagle mine, in the Eagle Mountains district, 40 miles northeast of Mecca, California, operations are expected to require the employment of 40 men. The plant is scheduled to be completed next month. Mine development consists of a 500-foot tunnel and a 200-foot shaft. It is estimated that 15,000 tons of ore have been developed which will run \$18 per ton in gold, silver, and lead. The Black Eagle is held under lease and bond by the Imperial Smelting & Refining Company, Sam Mosher, president, Signal Oil Building, Los Angeles. Winfield Covey, 833 South New Hampshire Street, Los Angeles, is superintendent.

It is understood that the O. K. Mining Company, Joseph Ingersoll, president, and J. S. Bird, manager, is considering the installation of a 25-ton cyanide plant at its Golden Rod group of mines, 45 miles northeast of Mecca, California. The property is at present equipped with a 10-ton mill. Development work consists of a 200-foot shaft and about 500 feet of drifts. The ore is said to average around \$25 per ton.

Announcement has been made of an increase in the wage scale of mines operating in the Alleghany district in California. Under the new scale, which became effective April 1, men who have been receiving less than \$5 per day, will be increased 75 cents per day; those receiving \$5 and less than \$6, will receive an increase of 50 cents per day; and those receiving \$6, will be paid \$6.25. Hoist men have been receiving \$5.50 and will now receive \$6.25. Mill men are raised from \$5.50 to \$6.00. The new underground scale is as follows: miners, \$6.25; muckers, \$5.50. The approximate number of men at the various mines in the district who will get the increase are the Sixteen-to-One mine, 85; Plumbago, 40; Kenton, 20; Oriental, 15; and other small mines will add about 25 or 30 to the total.

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Several bodies of good mill ore have been opened up in the **Middle Buttes** property, southwest of Mojave, California, operated by Walter Trent of Rosamond. Ore carrying substantial values has been opened up by drifts run to the north and south from the 201 tunnel. A vein varying from two to 20 feet wide and averaging \$12 per ton is being developed from the "53 Operation," and ore averaging \$30 per ton is coming from the "54 Operation," according to reports. Shipping ore is being produced at the property at the rate of 30 tons per day. Two shifts are working under the direction of Al Smith, superintendent.

Charles Katz and J. J. Sugarman, 415 East Ninth Street, Los Angeles, have become associated with M. Steele, 100 Wilcox Building, Los Angeles, in the proposed operation of the **Mojave Smelter** at Mojave, California. According to W. J. Blake, in charge of work at the smelter for M. Steele Company, the overhauling of the furnace has been completed and operations will be started about May 1.

The **Campbird Exploration Company, Inc.**, F. J. Brennan, president and general manager, Seiad Valley, California, is installing considerable new equipment at its Campbird mine. The company has a new 10-ton ball mill at Hornbrook, which will be installed at the property as soon as the road is put in shape to permit its being hauled to the mine. A new compressor, jackhammers, and other mine equipment, are being installed preparatory to extensive

development work and opening of the recently discovered four-foot ore body. It is reported that Brennan plans to go to Sacramento to look over some equipment there.

It is understood that \$15,000 worth of new mining and milling equipment has been installed at the **Descanso** mine, located at Descanso, in San Diego county, California. The company's new mill was put in operation the first of April. This project is headed by Frank B. Burns, 706 Pacific National Building, Los Angeles; and O. C. Matheis, 240 Wilcox Building, Los Angeles, is consulting engineer. Under the direction of W. W. Crosby, superintendent, eight men are employed at the mine. An electric pumping system is to be installed soon, according to an announcement by company officials.

The **Wyandotte Gold Dredging Company**, H. F. England, manager, Box 3, Oroville, California, is working approximately 3,000 yards of gravel daily and expects soon to increase this to 4,000 yards per day. The company recently completed the erection of its new unit, consisting of a three-yard electric dragline and steel pontoon washing plant, located five miles southeast of Redding.

Approximately 2,000 yards of material is being treated daily by the **Cinco Mineros Gold Dredging Company**, operating at Hopcut, near Oroville, California, C. E. Cummings, superintendent. A one and one-half yard bucket is being used. The Cinco Mineros boat is 36 by 42 feet in size, with a four-foot overhang. The screen is 54

inches in diameter, the stacker is 53 feet long, and there is also a 10-foot scrubber. The dragline is capable of handling 2,400 yards per day.

The **Giant King** mine at Washington, California, is again active, work having been curtailed while the property was snowbound. Further discoveries of high-grade ore have been reported made in the mine. George S. Clack, Box 2031, Reno, Nevada, is the operator of the Giant King.

According to reports, a wage scale and working agreement contract has been executed between the Mine Workers' Protective League and mine operators of the **Idaho Maryland, Brunswick, Empire, North Star, Pennsylvania, Lava Cap, Golden Center, Spring Hill, and Alaska** mining properties in the Grass Valley district in California. The agreement became effective immediately and will continue in force until June 30, 1938. It vouchsafed a minimum daily wage of \$5.24 for muckers, and \$5.75 for miners, with a proportionate increase for other classes of labor. The new wage scale represents a 10 per cent increase over the former scale. First pay checks at the new scale were issued about April 25.

B. A. Cassidy of Auburn, California, has secured a lease and option on the **Beauty** mine on Canada Hill, near Auburn, California, from Snyder and Hennessy of Grass Valley. Canada Hill is far up the Forest Hill Divide, near a place which the old-timers called Last Chance. Approach to the property for several weeks has been

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possible only by skis. However, limited operations have continued and extensive development is planned for this spring.

Operations have been permanently suspended at the Alaska mine at Grass Valley, California, according to reports, and surface and underground equipment, consisting of compressor, hoist, pumps, ore cars and other machinery, will be moved to the Bullion mine. The Alaska has been in operation for a year or more by Grass Valley Bullion Mines, Inc., and the Idaho Maryland Mines Company of Grass Valley.

After being closed three times during the winter by deep snows and interruption of power service, the Sixteen-to-One Extension mine at Alleghany, California, is again in full operation. President and Manager George W. Hallock reported the opening of an encouraging ledge in drifts run from the bottom of the shaft prior to the forced closing of the mine late in February. A large station is being cut and preparations made for extensive drifting and crosscutting during the summer. Deep-er sinking is also proposed.

The Chico Development Company, Chico, California, has applied for water rights for a contemplated project on Stewart's Fork of the Trinity River and other tributaries, in Trinity county, California. The company is planning extensive operation of the old Buckeye Pacific hydraulic property in that district. R. G. Percy of Minersville, California, has been in charge of testing operations for the company.

At the recent annual meeting of the Alabama California Gold Mines Company held in Tacoma, Washington, officers of the company and the board of directors were reelected. They are Mark Ewald of Olympia, Washington, president; R. W. Morgan, vice-president; Paul W. Judd of Tacoma, secretary-treasurer; and Robert Hyde and Robert H. Beach of Tacoma. Capital stock of the company was increased from 1,500,000 to 2,000,000 shares at the meeting. The directors were authorized to sell 160,000 shares of the new issue at 30 cents a share, and 243,000 shares at 35 cents a share. It is reported that the additional capital will be used in retiring current obligations and in financing the erection of the 200-ton mill unit at the company's property at Auburn, California. The new plant will adjoin the 100-ton plant which is being remodeled. Announcement was made that an important body of gold-bearing ore had been opened up on the 250-foot level for 900 feet, ranging in width from two to five feet. The grade of the ore averaged higher than on the 300-foot level, where about 1,800 feet of drifting has been done. The shaft is down 425 feet. The company is working out plans for resuming development at its Penryn mine, adjoining the Alabama property.

A 500-ton unit will be added to the milling plant of the Walker Mining Company at Walkermine, California, L. F. Bayler, superintendent, according to a recent announcement. This improvement, which will involve an estimated cost of \$100,000, will increase the capacity of the milling plant to 2,000 tons daily. It is planned to

have the new unit in operation by August 1.

D. G. Bowers has recently been in Barstow, California, making preparations for the resumption of activities at the Rainbow mine, 30 miles from there. About 10 men will be put to work immediately under the direction of Dan Curtin, who has been engaged as superintendent. A depth of 130 feet has been attained at the Rainbow. A hoist and compressor have been installed, and sleeping quarters have been put up. Bowers and associates have leased the Black property, in the same district, where a 10-ton mill will be installed, which will handle ore from the Rainbow mine.

The enlarged washing plant being installed by the Suffolk Mines Company, Ltd., at its property near La Porte, California, will be completed shortly and will start operations as soon as weather conditions permit, according to O. C. Matheis, 240 Wilcox Building, Los Angeles, supervising engineer. The mine was working throughout the winter, although inaccessible for some time due to the heavy snows. Frank B. Burns, 706 Pacific National Building, Los Angeles, and associates control the property.

Word has been received in Auburn, California, from Congressman Harry L. Englebright that the Secretary of War has signed an order accepting guarantees and assurances of hydraulic miners for construction of the North Fork and Lower Ruck-A-Chucky dams on the American River in California. It is believed that construction of the Ruck-A-Chucky dam will be the first on the program. This dam will be constructed near the old Spanish Dry Diggings. Behind it will be stored debris from placer properties in upper Placer county and a portion of Eldorado county. The North Fork dam will be constructed between Auburn and Foresthill and will store debris from Placer county only.

G. B. Rymal has reported the discovery of coarse gold nuggets in a "serpentine" formation near the Princeton mine at Mount Bullion, in Mariposa county, California. The gold-bearing dike is described as three feet wide. Rymal claims to have panned \$400 worth of gold in two days from the find.

Installation of a gold dredge near Cottonwood, California, is in progress by the El Oro Dredging Company, headed by T. J. Andersen of Cottonwood. This company was recently organized and incorporated for dredging operations in Shasta county, California. Andersen was formerly general manager of the Scales Placer Mining Company which closed down last September.

The Gold Venture Mining Company, A. C. Brockmiller, Huntington Park, California, president, has started further development of the Richards mine, near Tuttletown, California, following retimbering of the collar of the 100-foot shaft and installation of a hoist and pump. The south drift on the 50-foot level is being extended to intersect a vein that has been traced on the surface. The company plans development on the 100-foot level and fur-

ther sinking. Operations are in charge of A. Swan Wyckstrom of Van Nuys, California, superintendent.

Preparations were started late in March for large-scale placer operations on the Podesta property, near Columbia, California, which has passed by lease and option to a small group of men headed by Benjamin C. Mickle, 111 Sutter Street, San Francisco, and W. C. Colley of Berkeley. A stationary washing plant, to be electrically operated and consisting of a large trommel, sluices, 60-foot stacker and pump, is being installed, and a 2,100-foot water pipe line is being laid. It is stated that other equipment will include tractor-operated scrapers, bulldozers for stripping, a gasoline shovel, and a fleet of motor trucks for transporting the gravel to be washed. Actual mining is expected to get underway before the end of April, when operations will be put on a three shift basis, working six days a week.

**Sierra Vista Mines, Inc.**, 127 Mill Street, Grass Valley, California, has been granted a permit to issue 1,000 shares of no par common stock by the California Corporation Commission. The company is headed by Fred P. Glick, 4900 Cecelia Street, Bell, California, and operates the Mistletoe mine at Grass Valley.

A ball mill is ready for installation at the **Gold Crater** mine, near Jamestown, California, according to reports, and will be put in place as soon as a site is decided upon. Value of the ore is said to run around \$25 per ton. The Gold Crater is

operated by Hemming Brothers and James Clawson of Jamestown.

A strike of exceedingly high-grade ore has been reported made in the **Oriental** mine at Alleghany, California. Ore from the strike has been bagged for shipment to a smelter. Another rich vein, running five feet wide, is said to have been encountered 2,000 feet from the Oriental's entrance and 500 feet below the surface. The property is being developed by F. F. Cassidy of Nevada City and Ray Hawkins of Alleghany.

Roy Borden, Box 98, Mojave, California, and associates are proceeding with development work at the Spangler claims, in the vicinity of Randsburg, California, under the name of a new company known as the **Lucky 13 Mining Company**. The old Spangler workings are not being used, but two new shafts are being sunk, and plans have been made to start a third. Camp buildings have been completed and a better road to the property has been made.

Excavation work has been started for the new 100-ton mill at the Rosencranz mine of the **Lode Development Company**, Garden Valley, California, Charles H. Brown, superintendent. This property has been under extensive development during the past several months.

The Queen Lil custom mill of the **Wiljobar Corporation**, Pine Grove, California, is treating 60 tons of ore per day, working two shifts. The ore is principally from the Queen Lil mine. Hal D. Draper of Nevada City is in charge. Bill Buffington is

among those interested in this project and resides near the property.

Camp buildings have been completed, ample water supply developed, and new machinery installed, preparatory to the inauguration of the extensive development program planned by the **Mount Gaines Mining Company**, Hornitos, California, Nielsen L. Wagner, manager. The new work planned is expected to justify an increase in the present mill capacity. The company has been milling between 80 and 100 tons ore per day. This organization also operates the King Solomon mine in the Randsburg district.

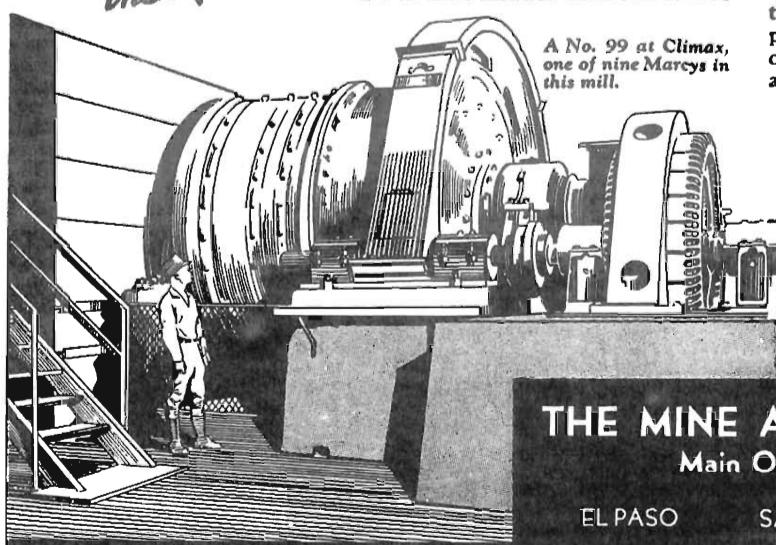
The Alaska Juneau Gold Mining Company's monthly estimate of earnings shows a March operating profit of \$240,800, before depreciation, depletion, income taxes, and surtax on undistributed profits, against an operating profit of \$224,700 in February and \$215,900 in March, last year. March results brought operating profit for the first quarter of 1937 to \$716,700, against an operating profit of \$543,700 in the first quarter, last year. All directors of the company were reelected at the recent annual meeting of stockholders, and the board reappointed all officers. P. R. Bradley, 1022 Crocker Building, San Francisco, is president.

It is reported that drifting from the main tunnel in the **Dorrer** mine, near Colfax, California, has struck some ore of excellent grade. The tunnel is in some 500 feet and will be extended to a distance of 1,000 feet. The Dorrer is operated by the

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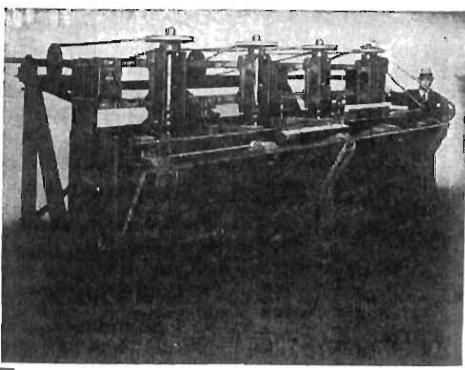


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Following sinking of the shaft to 500 feet, a program of drifting and crosscutting is under way at the Sisley mine of the Burn-Ball Mining Company at Auburn, California, to check the extent of ore bodies encountered on the 500-foot level. It is understood that diamond drilling is being done on adjoining property. John Burmeister, Box 306, Auburn, is manager.

Albert J. Jones of Jamestown, California, is prospecting the Wirefield property, located two miles from Angels Camp, California, by means of diamond drilling. The property comprises the Johnson and Prospect quartz claims, owned by F. C. Beedle of Nevada, from whom the property is leased.

Plans are under way for the installation of a 40-ton ball mill at the Champion mine of the Carda Mining Company, near Coulterville, California, to replace the five-stamp pilot mill that has been operating the past eight months. The new plant is being manufactured by the Eimco Corporation of Salt Lake City and will be equipped for flotation and cyanide treatment. A new, 30-horsepower, Joshua Hendy hoist has recently been installed at the Champion and a machine shop has been built and equipped. The shaft is down 340 feet and lateral work has been undertaken on the 140, 240, and 340-foot levels. W. J. Haggard, consulting engineer of Bishop, California, has been at the property several weeks making a study of the ore bodies and preparing plans and specifications for the proposed new mill. Frank Noterman, 3288 Sierra Way, San Bernardino, Kenneth Cline, and Ed Steen, are the principals of the Carda organization.

J. F. McBurney, 808 Second Avenue, Seattle, secretary of the Happy Camp Placers, Inc., reports that his company is negotiating for the erection of a large mill for the treatment of tailings at the company's holdings at Happy Camp, California. Buildings have been erected on the property, 3,000 feet of pipe and four and one-half miles of ditch flumes have been laid, and three dams have been built. The holdings comprise 1,000 acres, including the old Classic Hill mine. Gerard T. Mogan, Green Building, Seattle, is president, and operations at the property are in charge of A. E. Hahn, of Happy Camp, general manager.

A five and one-half mile power line run to property of the Vera Mines Corporation, near Kennett, California, has been completed preparatory to the installation of the proposed 100-ton milling plant. Nearly 3,000 feet of rails have been installed in the main working tunnel, and a new electric locomotive and mucking machines have been put in service. Several buildings, including a survey office and accommodations for the men, are under construction. Horace F. Pierce, 1421 Chapala Street, Santa Barbara, California, has announced that recent development work has opened a substantial block of milling ore. A. A. Wren, of Kennett, is in charge as general superintendent.

Under the supervision of William Hopper, work has been resumed at the Piute Mining Company's property in the Piute Mountains, 46 miles north of Mojave, California, after several weeks' shutdown due to deep snows. On the 600-foot level, drifts are being run on a six-foot vein of quartz between a diorite hanging wall and a granite footwall. An extensive program of development has been planned for this mine, formerly known as the Burning Moscow, according to General Manager W. J. Quackenbush, 917 Ronan Avenue, Wilmington, California. At the company's Skyline mine, in Pine Tree Canyon, near Mojave, a force of men under the supervision of Verne Moore is working two shifts a day. Milling operations are scheduled to start at the Skyline within the next 60 days.

A group of Los Angeles mining men, headed by Rolf L. Meuer, 1609 North Normandie Street, Los Angeles, has secured a lease with option to purchase on the Gold King No. 3 claim, located on the southeast slope of Soledad Mountain, five miles south of Mojave, California. This property is in the vicinity of the Red Top and Golden Butte properties which Meuer also holds under lease. The Gold King No. 3 is owned by Morris Albertoli, Mojave. Access to the Gold King for exploration and development is provided by a tunnel now being driven from the Golden Butte, which has penetrated the mountain for a distance of approximately 250 feet. Plans have been made to start drifting to the south from this tunnel on a recently encountered vein. Assays from a six-foot vein cropping on the surface of the Gold King are said to show values of \$8.00 per ton.

The report of the Argonaut Mining Company, Jackson, California, for the month of February, shows a net loss of \$7,060, after depreciation and maintenance, against a profit of \$3,684 in January, before provision for income taxes, and a profit of \$18,936 in February, last year, before income taxes. The loss in February offset the January profit, with the result that for the first two months of 1937 the company had a net loss of \$3,376, against a profit of \$19,867, before income taxes, in the first two months of 1936. The loss in February, this year, was due to the handling of a large amount of low-grade ore, total receipts from 7,700 tons milled being \$50,089, or an average of \$6.50 a ton, against an average of \$7.44 a ton in January, and an average of \$9.64 a ton in February, last year. All operating expenses, including maintenance and depreciation, during February totaled \$58,853, or an average of \$7.61 a ton, against an average of \$7.06 a ton in January, and an average of \$7.74 in February, last year.

It has been announced that the Empire Star Mine Company, Grass Valley, California, Robert Hendricks, manager, has increased wages of employees of its Murchie mine by 25 cents a day. A few days previous, miners at the Murchie voted to continue work for the same wages as previously obtained, rather than close the mine April 15. The raise of 25 cents a day came as a surprise.

Morrow Brothers of Oro Grande, California, are preparing to make a shipment

of ore from the Morrow group of claims, 14 miles northeast of Victorville, California. The ore will be trucked to the Jones mill, 20 miles south of Palmdale. Several previous shipments have been made from the Morrow property, the ore netting around \$50 per ton in gold, according to reports. Two shafts have been sunk on the property, one to a depth of 150 feet, and the other to 50 feet. The ore for the present shipment is coming from the 50-foot shaft.

A new hoist is reported being installed at the Seven Aces mine, Alleghany, California, J. Hampton Lashbaugh, superintendent. Present development work is centered in the incline shaft.

Excavation for the new 100-ton mill to be erected at the Cactus Queen mine of Cactus Mines, Inc., Mojave, California, is about half completed. The staff house and office building are nearing completion and will be ready for occupancy at an early date. The well was finished at a depth of 500 feet, and it is understood that pumping tests have assured sufficient water flow for milling operations. A sinking program will be undertaken as soon as the ore pockets being cut on the 300, 400, and 600-foot levels are finished. Roy W. Moore, 1206 Pacific Mutual Building, Los Angeles, is general manager of the company. B. C. Staiger is in charge at the mine as general superintendent, with headquarters at Rosamond, California.

William Harwood, Box 364, and Marion Raab, Box 2082, Mojave, California, have

reached the 200-foot level in their shaft on the Excelsior lease from the Lodestar Mining Company. A station is being cut at this point. Drifts will be run to the north and south on the Excelsior quartz vein. During recent sinking operations, shipments were made to the Burton mill at Rosamond at the rate of approximately 15 tons per week.

R. V. Bryant of San Jose, California, and L. C. Blaney of Berkeley, are reported to be installing machinery at the old Mercury quicksilver mine, near Dos Palos, California. Further development work is expected to get under way at an early date. It is understood that the ore will be treated at the property, material from the old dump being worked first. The plant will be entirely run by electricity, and will require a force of about eight men.

Steady production continues at the Spanish mine, in the vicinity of Washington, California, which is headed by Worthen Bradley, 922 Crocker Building, San Francisco. Present mill feed is coming from a series of veins. A crew of 60 men is employed under the direction of John D. Bradley, superintendent.

Announcement has been made that L. E. Hanchett, 776 Bush Street, San Francisco, mining man of long experience in southern Nevada, has purchased outright the placer gravel deposit formerly owned by William McCarthy and Beauregard Brothers, just east of Bishop, California. Plans for development have not yet been announced. A consideration of \$160,000

was said to have been involved in the transaction.

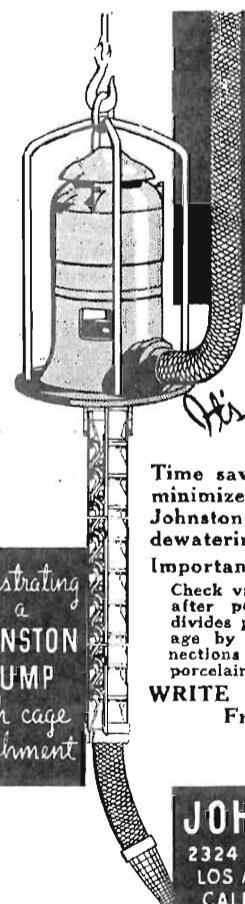
The mill at the Longfellow mine of California Gold Lode Mines, Inc., Big Oak Flat, California, is treating close to 100 tons of ore daily, with the ore averaging approximately \$10 per ton. The plant includes a ball mill, recently installed. Old dumps and tailings ponds are estimated to contain approximately 160,000 tons of profitable material, and considerable ore carrying commercial values is said to be exposed in old workings. Plans have been mapped out for development work in new territory. Operations are in charge of Larry Edlefsen of Big Oak Flat, general superintendent.

Fire recently destroyed the mill at the White Bear mine of the Mayland Mining Company, near Sawyers Bar, California, Arthur J. Theis, manager. Mine buildings escaped damage.

The United Gilpin Corporation, R. G. Sullivan of Central City, Colorado, general superintendent, is planning to reopen its plant in the immediate future. The entire plant was shut down on February 23, 1937, reportedly because of difficulties involved in the disposal of tailings.

The company's property includes the ground formerly known as the Chain O'Mines near Central City. A. G. Van Eman of Central City is metallurgist and chief engineer.

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## DOS ESTRELLAS REPORTS A LOSS FROM 1936 OPERATIONS

REPORTS presented at the general annual meeting of stockholders of the Compania Minera Las Dos Estrellas en El Oro y Tlapujahua, S. A., show that during the last year the company mined and treated 717,755 metric tons of ore with an average assay value of 2.47 grams of gold and 60 grams of silver per metric ton. As the cost of production and treatment of this ore was 10.52 pesos per metric ton, and the values recovered were but 9.41 pesos per ton, the company suffered a loss for 1936 of 793,476 pesos. An additional loss of 72,789 pesos during the last two months of 1935 resulted in a total operating loss of 866,265 pesos up to the end of 1936. This loss was due to the labor contract imposed upon the company at the close of 1935 and to the drop in the market value of silver.

A 9 per cent wage reduction for the company's 4,000 employees went into effect the middle of March, 1937, the same to be provisional for six months, during which time experts appointed by the federal labor department will make a third investigation of the company's economic condition, to ascertain whether or not the company is justified in its request to make the wage reductions permanent. The future of the company depends entirely upon the decision of the labor department. It is indicated that the liquidation of the company will undoubtedly follow if conditions are not adjusted for favorable economic mining operations.

## GOLDEN QUEEN-SOLEDAD MOJAVE COMPLETE WORKING AGREEMENT

ACCORDING to an announcement by James E. Babcock, Rives Strong Building, Los Angeles, California, president and general manager of the Soledad Mojave Mining Syndicate, his company has completed an operating agreement with the Golden Queen Mining Company, Mojave, California, under which the latter will develop a group of eight claims, embracing 300 acres, and located in the northwest quarter of section 7 on Soledad Mountain. The claims are known as the Soledad Extension, Soledad Extension No. 1, Hope Extension, Soledad Wedge, Hope Wedge, Pearl, and Roff E.

Under the agreement, Soledad Mojave retains title to the property, and also reserves to itself the southwest quarter of section 7. No work has been done on this southwest quarter and none is contemplated for the immediate future, according to Babcock.

Since the Golden Queen already held the northeast quarter of section 7, the new arrangement gives the company the entire

north half of the section. The group of claims turned over to the Golden Queen immediately adjoin the Queen's present holdings. Most of the underground work which has been done in the claims being transferred to the Queen was supervised by Walter A. Schauss, engineer in charge, while the geological work was handled by A. L. Johns, mining engineer and geologist.

## WALKER MINING COMPANY ISSUES 1936 STATEMENT

THE Walker Mining Company, Walker mine, California, reported a net loss of \$30,887.89, without deduction for depletion, for the year ending December 31, 1936, according to the annual statement just issued.

The property was in continuous operation during the entire year, and rehabilitation of the mine, which began in 1935 after a long shut down, was continued throughout the year. Development was pushed, particularly on the 900 and 1,000 levels, beneath the North ore body, where large blocks of good grade ore were known to exist. In addition, the 1,082 winze, which is the main hoisting shaft for the lower levels at present, was sunk an additional 187 feet, the total depth now being 233 feet below the 1,000 level. The winze reached the 1,200 level, where development has just started. The total advance for the purpose of developing ore was 5,585 feet. In addition to this, it was necessary to drive 8,322 feet of new workings for the purpose of opening up and preparing additional blocks of ore for mining.

New equipment, costing \$46,071.18, was purchased and installed in the mill, shops, and mine, adding greatly to the efficiency of operation.

The mill operated 359 days, treating an average of 1,264 tons per working day. Ore broken during the year totaled 468,453 tons; ore milled, 453,794 tons; and concentrate produced, 21,998 tons. There were delivered and sold to the smelter 22,210.46 tons of concentrates. The total metal paid for was as follows: 9,614.277 pounds of copper; 268,140.69 ounces of silver; and 11,666.57 ounces of gold.

The cost of producing copper per pound sold, after deducting silver and gold credit and adding cost of smelting, freight, and refining, was, before depreciation, 0.09399 cents per pound. The average price received was 0.09486 cents per pound.

A 500-ton unit is to be added to the milling plant, according to a recent announcement. This improvement will involve an estimated cost of \$100,000 and will increase the capacity of the milling plant to 2,000 tons daily. It is planned to have the new unit in operation by August 1.

J. R. Walker, Newhouse Building, Salt Lake City, Utah, is president of the company. Operating offices are located in the Kearns Building, Salt Lake City. L. F. Bayer is superintendent at the property.

## IDAHO MARYLAND MINES CORP. ISSUES 1936 ANNUAL REPORT

THE Idaho Maryland Mines Corporation, Grass Valley, California, reported a net profit of \$738,817 for the year ended December 31, 1936, after amortization, depreciation, depletion, and income taxes, which is equal to 42 cents a share on 1,765,157 shares of capital stock, against a 1935 net profit of \$595,460, or 34 cents a share on 1,752,657 shares then outstanding.

The company continued to make progress in its mining operations during the year, milling 293,975 tons of ore at its Grass Valley property, against 159,091 tons in 1935 and 80,237 tons in 1934. The gross value of the metal recovered from milled ore in 1936 was \$3,308,450, against \$2,452,179 in 1935, and \$1,472,902 in 1934. The average tailing loss in 1936 was 59 cents a ton, as compared with 72 cents a ton in 1935, indicating an additional increase in plant efficiency during the past year.

Gross value of ore milled in 1936 was \$11.84 a ton, against \$16.13 a ton in 1935. The decrease was due to the fact that a larger amount of low-grade ore was milled in 1936 than in 1935. During 1936, a large cyanide and leaching plant was completed at Grass Valley which permitted profitable treatment of flotation tailings. The cost of the plant addition was amortized within five months of completion.

A new 300-ton mill was placed in operation at the company's Forbestown, California, property, but due to severe weather, the plant handled only ore from the King Midas. This ore proved to be of such low grade as to be unprofitable, and milling operations were suspended, pending improved weather conditions. The plant is expected to resume operations in May, when ore of higher grade will be available from the Gold Bank mine.

The company during 1936 spent \$159,471 on improvements to plant and equipment, as compared with \$216,033 spent in 1935.

At the annual meeting of the company, Albert Crase, general manager, was elected a director to replace C. F. Tolman. All other directors were reelected and all officers reappointed. E. L. Oliver, 351 California Street, San Francisco, is president of the company. Errol MacBoyle, Russ Building, San Francisco, is executive vice-president.

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Mr. W. A. Campbell  
Edison Storage Battery Supply Co.  
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Denver, Colorado

## OPERATING DATA FOR YUBA GOLD GIVEN IN PROSPECTUS

YUBA Consolidated Gold Fields, Inc., 351 California Street, San Francisco, California, produced an estimated 11.3 per cent of California's total gold output, according to a prospectus recently issued by underwriters in making a public offering of 128,610 shares of the company's capital stock. Production of the company and its affiliate, the Capital Dredging Company, was given as more than 119,000 fine ounces, out of a total estimated California production of 1,049,000 fine ounces.

Heretofore a closed corporation, Yuba Consolidated has now assumed more of a public ownership status, the recent offering having added several hundred stockholders to the company's books. The stock was sold by Mitchum, Tully and Company, and Schwabacher and Company at \$4.75 a share.

Yuba Consolidated operates nine gold dredges in California and its subsidiary, Capital Dredging, operates three. The latter company has also contracted for construction of a fourth dredge, to cost about \$750,000, and to be placed in operation near Folsom about December 1.

Capital Dredging is 93 per cent owned by Yuba Consolidated, and other affiliates are Portuguese-American Tin Company, 65 per cent owned, which operates tin placers in Portugal; and the Yuba Manufacturing Company, 57 per cent owned, largest gold and tin placer dredge building unit on the Pacific Coast.

Yuba Consolidated and subsidiaries reported 4,266 acres of California land suitable for dredging, owned or leased as of January 1, 1937, and an additional 12,408 acres of farming or dredged-over land.

Operations for the year ended February 29, 1936, latest year for which earnings data are available, resulted in production of 99,448 ounces of fine gold and a small amount of platinum and silver recovered from 35,969,934 yards of gravel. Production was slightly less than for the previous year, when 32,463,536 yards of gravel were handled, and average recovery was .97 cents a yard, compared with about 10.69 cents a yard for the preceding year.

Stanley M. Bolster, president of Yuba Consolidated Gold Fields, Inc., in his report to stockholders for the year ended February 29, 1936, said: "Gross recovery per cubic yard was 99/100 of a cent less this year than last year, while the total cost per cubic yard, including all taxes, depletion at cost and depreciation, exploration and non-recurring items, was 43/100 of a cent per cubic yard less than last year. Obviously, the lower gross per yard is accounted for in large measure by a larger amount of dredging in old tailings and dredging of virgin land with lower values than could have been profitably dredged at the old price of gold."

"Increased total cost of operations is in large part accounted for by the increase in the fleet of dredges operated. Local taxes have also more than doubled this year over last."

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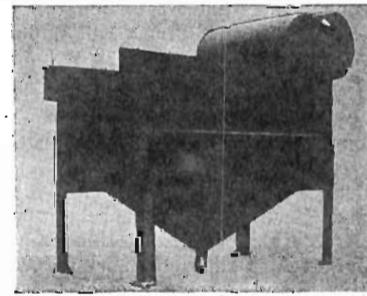
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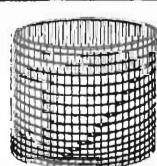
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ing point of the refrigerant at atmospheric pressure is 70 degrees.

Two centrifugal refrigeration units are to be installed, each with a capacity of 200 horsepower, these units cooling the water as low as 50 degrees, after which it is circulated through fin coils. Air is blown over the coils on each level at the rate of about 30,000 cubic feet per minute by fans which are operated by 50-horsepower motors. In passing over the coils the air is cooled below its dew point and this results in dehumidification as well as cooling.

Probably the most difficult problem encountered was that of water. Not only was the supply found to be less than desired, but it was also located a considerable distance from the point chosen for installation of the equipment.

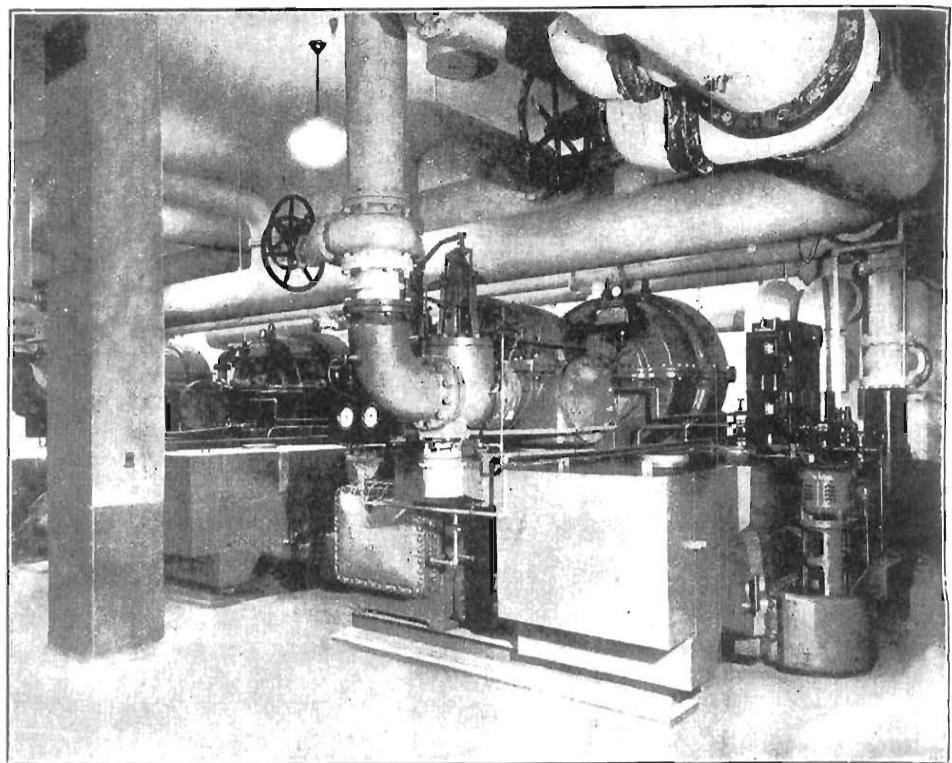
The water available for air conditioning amounts to only about 400 gallons per minute and its source is the mine ground water at the east end of the 2,500-foot level. Usually about two to three gallons of water per minute per horsepower are required, indicating an available supply of water amounting to about one-half to one-third the amount normally needed for refrigeration equipment the size to be installed. Because of this and of the fact that the temperature of the water is about 90 degrees Fahrenheit, the use of refrigeration equipment with a greater horsepower than would otherwise have been required was necessary in order to accomplish the desired purpose.

The engineering department of the Magma company worked out the problem of supplying the water to the refrigeration equipment. It is to be transported approximately a mile from the east end of the 2,500-foot level to the west end of the 3,600-foot level. It will travel in open ditches, except where there is a drop when it will be carried in pipes, to a sump on the 3,600-foot level. The purpose of the sump is to prevent the water from going into the machine under a terrific static head. Pumps will be used to deliver the water from the sump to the refrigeration units.

IT IS expected that installation of air conditioning equipment at Magma will eventually lower the effective temperature about 10 degrees from the present figures and will result in a considerable increase in the efficiency of the workers. A reduction in the effective temperature means a reduction of either humidity or heat, or a combination of both.

A further substantial saving will be made inasmuch as actual extraction of ore on the 3,400 and 3,600-foot levels will start much sooner. It is understood that the cost of the new development on these two levels approximates \$500,000 and without air conditioning it would be necessary to wait two or three years after they have been opened up before actual mining could commence. With air conditioning it is expected that excavation can start immediately.

Preparations for installation of the equipment are now rapidly nearing completion



An air conditioning unit, similar to the one to be installed at the Magma mine, which is in operation in the Los Angeles Times Building, Los Angeles, California.

and it is expected that it will be placed early in June. The company hopes to have it ready for operation by the time the mine is reopened after its yearly shut down for repairs to the plant.

#### MANGANESE MINING RESUMED ON BOSTON HILL IN NEW MEXICO

MINING operations were resumed late in April on Boston Hill, Silver City, New Mexico, under the direction of Fred Borenstein. The Boston Hill manganese property is owned by Southwestern Supply and Equipment Corporation, Meyer Sugarman, president and general manager, and Fred Borenstein, vice-president and secretary.

Resumption of mining was made possible through a contract secured from Colorado Fuel and Iron Company, Pueblo, Colorado. This contract calls for a minimum of 3,000 tons of manganese ore a month, over a period of one year. It is expected that this tonnage will be increased later in the year.

Operations will be conducted on five claims on ore deposits said to run from 15 to 18 per cent manganese. All production will be from open pits, and shipments will be started by the middle of May. The trucking contract was awarded to Neil Gibbs of Albuquerque.

The Southwestern Supply and Equipment Corporation maintains offices in both Silver City, New Mexico, and Tucson, Arizona. New Mexico activities are directed by Borenstein, and Arizona activities by Sugarman.

The deposits at Boston Hill have a record of extensive production, the output by previous operators being reported in excess of 300,000 tons of ferruginous manganese ore. Previous production was also shipped to Pueblo, Colorado.

#### MOTHER LODE CENTRAL AWARDS CONTRACT FOR 100-TON MILL

THE Mother Lode Central Mines, Inc., Frank L. Macpherson, superintendent, Angels Camp, California, has awarded a contract for construction of a complete 100-ton flotation plant to the Mine and Smelter Supply Company, Denver, Colorado. The contract was handled through the Mines Engineering and Equipment Company, San Francisco, representatives of the Colorado company in California.

Construction is to begin immediately at the mine, located in Albany Flat, one and one-half miles south of Angels Camp. Preparations for a milling plant follow a two-year program of intensive development work at the property.

A new headframe was recently completed at the No. 2 shaft, 400 feet in depth, and sinking will be resumed at once and carried to the 600-foot level, in order to further block out the ore in the present shoot. A new ore shoot was also opened recently to the north, on the 200-foot level.

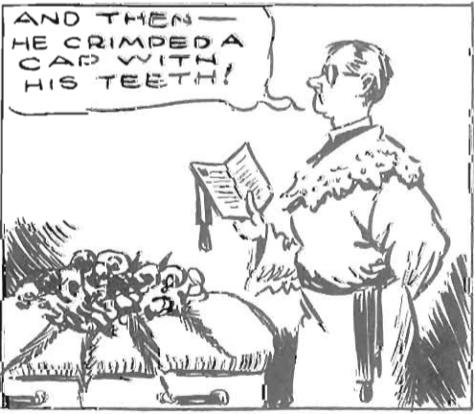
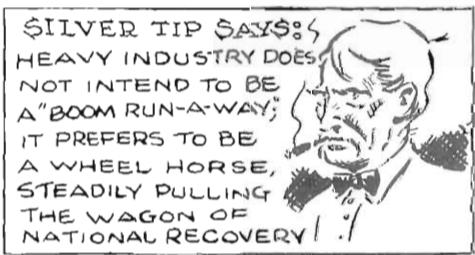
#### CANADIAN SMELTING COMPANY REPORTS ON 1936 OPERATIONS

A NET income of \$6,953,158, after depreciation, depletion, federal income taxes, etc., was reported for 1936 by the Consolidated Mining and Smelting Company of Canada, Ltd. This equals \$2.13 a share on 3,258,920 shares outstanding after a five-for-one split-up.

This compares with \$4,306,599 or \$1.32 a share on the same number of shares in 1935. The company, which operates the Trail smelter just over the Washington-Canadian line, is controlled by the Canadian Pacific Railway.

## THE LEVITY LODGE

BY JOHN BOWERS



# Mining Men and Their Activities

*About men who are well known and prominent in the mining circles of the western states.*

Howard Johnston, formerly of Pioche, Nevada, is now located at Sheep Ranch, California.

William Garrecht of Idaho City, Idaho, is in charge of the Boise placers, where 10 men are employed.

Floyd Messner is at Pitkin, Colorado, as engineer and manager of the Colorado Molybdenum Corporation.

Mark Hillary of Oakland, California, is now cost accountant at the Germania mine at Wellpinit, Washington.

William Braden, mining engineer, is now making his headquarters at 780 Van Nuys Building, Los Angeles, California.

Glenn O. Patchen of Wellpinit, Washington, is master mechanic at the Germania mine, replacing William Reid, resigned.

Ben J. Harrison of Salt Lake City, Utah, is in charge of operations of the Humboldt Mining Company, near Jungo, Nevada.

G. L. Fischer is the new mine superintendent for Republican Mining and Metal Company, Wadley, San Luis Potosi, Mexico.

P. H. McGee, who is chief chemist at the First Thought Mine Corporation at Orient, Washington, is now a member of the A.I.M.E.

L. H. Chesebro has returned to the properties of the Peerless Mining Company at Como, Colorado, after spending the winter in Denver.

Charles Lintecum, prominent Nevada mining man who has been living in Los Angeles, California, is now located at Baker, Oregon.

C. A. MacDonald, formerly surface foreman for the Nevada Porphyry Gold Mines at Round Mountain, Nevada, is now located at Atolia, California.

Charles M. Dolliver, Jr., until recently with Ventura Mines, Inc., at Nogales, Arizona, has gone to Rancagua, Chile, with Braden Copper Company.

Victor Stevens has joined the engineering staff of Miami Copper Company, Miami, Arizona. He is a former employee of Climax Molybdenum Company.

Robert Lynn Thompson of East Helena, Montana, metallurgist at the slag treatment plant of Anaconda, recently became a member of the A. I. M. E.

Frank W. Jones, who has been employed as assayer for the Buckhorn Mining Company at Buckhorn, via Palisade, Nevada, is now at Goodsprings, Nevada.

James W. Johnson, 95 Liberty Street, New York, New York, is president of the Allied Annie Laurie Gold Mines, Inc., with mine and mill near Sevier, Utah.

A. F. Ecker of Blackhawk, Colorado, and Melvin Blake are developing the Cow-

## JOHN F. (JACK) COWLEY NOW BRUNSWICK SUPERINTENDENT

JOHN F. (Jack) Cowley, formerly assistant superintendent of the Idaho Maryland Mines Corporation, Grass Valley, California, has been promoted to the superintendency of the Brunswick mine, one of the major units of the mining organization. He joined the staff of Idaho Maryland in 1935, serving as mine foreman, going from this position to that of assistant superintendent.



Cowley, who was born in Concord, New Hampshire, January 29, 1898, is a graduate of Oregon State College, receiving his bachelor of science degree in mining engineering in 1921. His first work was with the Shasta Zinc and Copper Company as miner. From there he went to the United Verde Copper Company, Jerome, Arizona, where he was employed from 1922 to 1935, starting as miner and advancing through positions as timberman, assistant safety and ventilation engineer, shift boss, chief bonus engineer, mine foreman, general mine foreman, and planning engineer.

The Old Brunswick mine at Grass Valley, revamped and placed in operation about two years ago, was permanently closed down April 15. Work at the Old Brunswick had been in marginal ore and it is understood that mining could not be carried on profitably under the new wage scale recently agreed upon with the Mine Workers Protective League.

boy group of claims on Squaw Mountain in the Perigo district of Gilpin county.

Henry Olson was recently added to the operating crew at the Germania mine of the General Electric Company at Wellpinit, Washington, where he is shift boss.

John S. Langwill is employed as a junior engineer by the Phelps Dodge Corporation, United Verde Branch, Jerome, Arizona. He is a graduate of the University of Illinois.

Walter E. Trent, president of Whitmore Mines, Inc., is returning to his home at Rosamond, California, following recent conferences with associates in New York City.

Frank Wills has been placed in temporary charge of the Black Lady Mining Company, operating a mine of that name in the Ten Mile district, near Elk City, Idaho.

Harry B. Pinkney of Beatty, Nevada, is planning to bring his quicksilver mine, lo-

5-15-37 p. 13

clude: **Harold M. Reherd** of Lark, Utah, assistant engineer of the U. S. Smelting Refining and Mining Company; **Miles P. Romney** of Holladay, via Salt Lake City, Utah, geologist in the exploration department of the U. S. Smelting Refining and Mining Company.

**Louis S. Cates**, president of Phelps Dodge Corporation, **E. T. Stannard**, president of Kennecott Copper Corporation, and **Dr. Otto Sussman**, chairman of the board of American Metal Company, Ltd., have had conferred upon them by King Leopold the Third, the honor of Commander of the Order of de la Couronne, in recognition of services to his country. The King also conferred the honor of Commander of the Order of Leopold on **C. F. Kelley**, president of Anaconda Copper Mining Company, and **R. C. Stanley**, president of International Nickel Company of Canada, Ltd. The decorations will be presented in Washington, through Count Robert Van Der Staten-Ponthoz, Belgian ambassador.

#### A CORRECTION

A story regarding the activities of Glenn C. Waterman in the April 30, 1937, issue of The Mining Journal gave the impression that he is engaged at the present time in making a geological survey of the Auburn-Chicago property at Penryn, California. Waterman is geologist for the Idaho Maryland and only served the Auburn-Chicago as consultant for a short period in 1935. He has no present connection with that company.

#### Deceased

**Herman J. Rossi**, 67, mayor of Wallace, Idaho, and an officer of several mining companies of the Coeur d'Alene district, died on March 12.

**Frederick W. Sherman**, 78, died at Park City, Utah, on April 23, 1937. Sherman was a veteran mine and mill superintendent, having operated in Utah, Montana, and Arizona.

**Frank Sterrett**, 55, died in Oatman, Arizona, on April 18. At the time of his death, Sterrett, who was superintendent of the Burn-Ball Mining Company at Beatty, Nevada, was visiting in Oatman, where he had made his home for some years.

**Moses Brown**, 57-year-old assistant mine superintendent for the Ray mines of Nevada Consolidated Copper Corporation, Ray, Arizona, died at his home on April 22, following an illness of only a few hours. He had been a resident of the Ray district for 21 years, holding responsible positions at the Ray mine during that time.

**Walter Fitch**, 83, president of the Chief Consolidated Mining Company at Eureka, Utah, died in Salt Lake City after a brief illness. Born in England, Fitch came to this country as a young man and in 1881 started his mining career in the iron mines of Michigan. Subsequently he became interested in the Michigan copper mines. For the last 25 years he has followed mining in Utah.

**Newton W. Emmens**, 67, who recently resigned as manager of the Jardine Mining Company at Jardine, Montana, died April 13 in Seattle, Washington. Emmens had been on the consulting staff of the North American Mining and Smelting Company and of the Velvet Gold Mining Company in British Columbia. He was also on the engineering staff of the Canadian government for some time.

**John Van Steen Tolman**, 26, son of Dr. Cyrus Fisher Tolman, professor of economic geology at Stanford University, died at the home of his parents at Palo Alto, April 4. Death is attributed to heart strain due to overwork in connection with his duties as superintendent of the Granite Basin Mining Company, of which his father is president. He had been in charge of operations at the Robinson mine, Oroville, California.

**Daniel O'Keefe**, 64, for the last seven years shift boss for the Nevada Porphyry Gold Mines Company at Round Mountain, Nevada, died after a long illness April 9, 1937. Coming from New York as a boy, O'Keefe lived in Candelaria, where he established a stage service with Tonopah, before the railroads came in. Then he turned to mining and did some leasing and prospecting work, before being employed at the Nevada Porphyry mines.

**A. B. Richmond**, for a number of years chief field engineer and ore buyer for Magma Copper Company of Superior, Arizona, died at his home in Pomona, California, April 18. Richmond was born in



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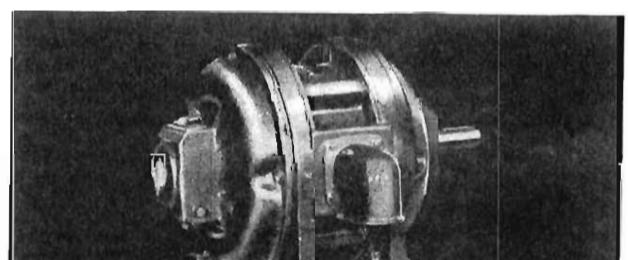
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by distillation. He said there was a 17 per cent increase in total zinc production in 1936 over 1935, but that distilled primary zinc production was 21 per cent greater, a reversal of the previous year's statistics in which the increase in production by distillation lagged behind that of the total.

"The outstanding increase in the use of zinc was, as for the previous year, in the automotive industry," Ammon said. "It is believed that the consumption of zinc in the galvanizing field, which in 1935 totaled 195,000 tons, will show a substantial increase for the year 1936 when figures are available."

LLOYD R. BARNWELL PURCHASES  
MOKE LUMNE LABORATORIES

**L**LOYD R. BARNWELL, mining engineer, has purchased the Mokelumne Laboratories at Mokelumne Hill, California, from the estate of the late D. Potter. He was graduated from the Oregon State College in 1926 and since then has been closely associated with mining and its allied industries.

He spent several years with the International Smelting Company at Tooele, Utah, as testing engineer in metallurgical research on operating units. For two years he was research engineer with the Bunker Hill and Sullivan Mining and Concentrating Company, Kellogg, Idaho, and since then has been connected with gold and quicksilver properties in Oregon and California.

W. H. BICKEL NEW MILL FOREMAN  
AT CALIFORNIA STANDARD

WILLIAM H. BICKEL, Box 50, Jamestown, California, has been appointed to the position of mill foreman for the California Standard Gold Mines Corporation, Jamestown, succeeding Lloyd H. Kelsey, resigned, who sailed recently for the Philippines.

Bickel was born in Newark, New Jersey, in 1889, and has been active in the mining districts of Colorado and California for a number of years. His present work consists of operation of the 150-ton flotation plant at the California Standard. The mill is handling about 135 tons in 24 hours with ore values running from \$7 to \$9 per ton. An extensive diamond drilling program is now under way at the property and it is understood that upon completion of this program, the company is considering plans for installation of a cyanide plant to handle concentrates. Sixty men are employed at the property.

**ROCK DRILLING CONTEST  
PLANNED FOR BRIDGE FIE**

**PLANNED FOR BRIDGE FIESTA**

**A**N EVENT of interest to all mining men is planned during the Golden Gate Bridge Fiesta at San Francisco, to be held May 27 to June 2, 1937, celebrating the opening of the world's longest single span bridge. This is to be a Miners' Hard Rock Hand Drilling contest with substantial cash prizes for first, second, third, and fourth place winners.

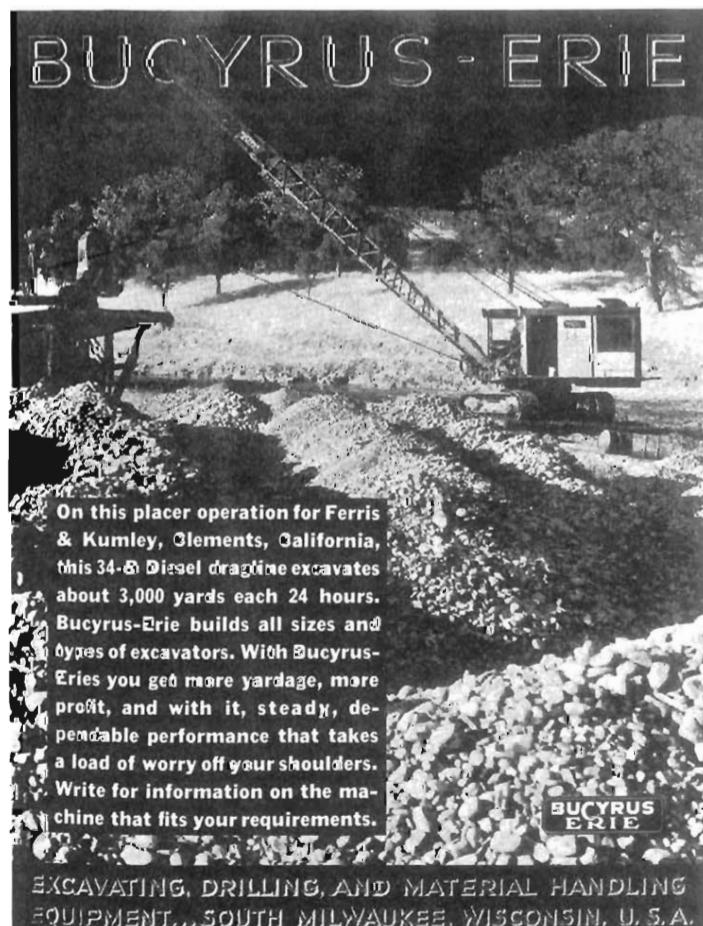
The main event will consist of double-jack teams, but it is also planned to have several preliminary single-jack contests. In order to confine the contestants to mining men, each team or contestant must be sponsored by a city, a county, or a mining company, and an entry fee of \$20 will be charged for each team, or for each single-jack entrant.

The contests will be held May 27, 28 and 29. James Bradley, 111 Sutter Street, San Francisco, is chairman of the rock drilling contest.

**HIRST-CHICHAGOF COMPANY  
REPORTS SUCCESSFUL YEAR**

**T**HE annual report for the year 1936 of the Hirst-Chichagof Gold Mining Company of Kimshan Cove, Alaska, shows a gross production of \$228,927, with an operating profit of \$135,303, according to Paul M. Sorensen, manager. This is considered a satisfactory showing in view of the fact that the mine was shut down for three months last spring while new equipment and machinery were installed. With the exception of the year 1935, 1936 was the most profitable year the company has experienced since it started production in 1924.

The greater part of the current production is coming from the 1,250-foot level, or 1,150 feet below sea level. On April 1, 1937, the company, which is headed by Lew G. Kay, 415 Seventh Avenue South, Seattle, Washington, voluntarily increased the wages of all its employees 50 cents per eight-hour shift.



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# PIONEER RUBBER MILLS

# Mill Heads from Western States

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

Development work is being pushed at the Los Felice property of the St. John Gold and Copper Company, Cleator, Arizona, with the principal work involving sinking of the incline shaft which has now reached a depth of more than 220 feet. This shaft follows a vein showing an average width of

40 inches carrying both shipping ore and milling ore. Drifting is to be started when a depth of 250 feet is reached. A 1,000-foot road is being constructed to an adjoining claim, which is to be equipped and developed upon completion of the new road. John Slak, president and general manager, is in charge of operations.

Veta Mines, Inc., Duncan, Arizona, is running its 100-ton flotation plant regularly, treating silver-gold ore from its Ash Peak and Ash Peak Extension properties. Operations are directed by H. P. Nagel, Jr., superintendent, assisted by A. G. Setter, assistant superintendent; A. E. Fleischman, mine foreman, and Gordon B. Klein-Peter, mill shift boss.

The Bon Bon Placer Mining Company, Prescott, Arizona, headed by W. A. Bondurant, Prescott, Arizona, is employing a crew of 15 in its placer operations. The company is handling 500 cubic yards per eight-hour shift, mining by power shovel and recovering values in an Ainalay bowl. R. W. Bondurant of Prescott is general manager and Dave Jackson, assistant manager.

Given a favorable copper market during the year, there is a possibility that Miami Copper Company may return to the ranks of the dividend payers. This statement was made at the annual meeting of stockholders of the company by E. H. Westlake, vice-president. He pointed out, however, that it is the policy of the company to retire notes payable, amounting to about \$800,000, before making dividend payments. The necessity of continuing the 4-cent tariff which protects domestic producers of copper was discussed. The average cost of production during 1936 was given as 9 cents a pound, while the average selling price was 9.47 cents a pound.

The milling plant being installed at the Mocking Bird mine, near Chloride, Arizona, is scheduled for early completion. It is reported that the mill will handle custom ores as well as company ores. Erection of the 50-ton flotation mill is sponsored by a group headed by J. K. Houssels, Las Vegas Club, Las Vegas, Nevada.

Earnings of Phelps Dodge Corporation in the first quarter of the current year were estimated at 30 to 40 per cent above earnings of the same 1936 period by Louis S. Cates, president, at the annual meeting

of stockholders. Cates stated that in view of a strong cash position the company may be able to pay off its \$5,000,000 of outstanding bank loans shortly. The company's forward sales of copper at the end of 1936 amounted to approximately six months' production and were made at prices prevailing at the end of the year. Therefore, the company is not yet enjoying the higher prices which have prevailed since the beginning of 1937.

William Herskowitz, Congress Junction, Arizona, and associates are working the old Senate mine. They report the discovery of a two-foot vein of gold ore estimated to run \$250 to the ton. The vein was opened in an incline being sunk at a 35-degree angle. The Senate mine adjoins the old Congress mine.

The United Verde Branch, Phelps Dodge Corporation, Jerome, Arizona, is testing the use of Edison electric cap lamps to replace all carbide lamps in underground workings. Final decision regarding their use will not be made for several months. The greater safety and increased efficiency claimed for the lamps led the company to make this experiment. Wm. M. Saben is manager at Jerome.

The Night Hawk Leasing Company has won in the court of claims its suit to recover \$6,787.66, plus interest, from the federal government for overpaid income tax. The overpayments involved were for the tax years 1928 and 1929. A previous suit for refunds on taxes paid from 1923 to 1927 was also successful. The Night Hawk company, managed by James E. McKenna, operated for a number of years in the Bisbee, Arizona, district, leasing principally from Phelps Dodge Corporation.

A carload of gold-silver ore has been shipped to the Magma smelter from the Mexican mine in the Mineral Park district by Jack King, of Kingman, Arizona, who recently reopened the mine. The shaft has been sunk 100 feet and a two and one-half foot pay streak is reported.

The Southern California Development Company, C. D. Clinger, president, is opening up a new mine about two miles south of Granite Wells, near Randsburg, California, which is to be known as the Copper Conda. Ample water is said to be available and several men are employed, with the crew to be increased as necessity demands.

In a new drift at the 200 level, after driving in virgin ground for some distance, the Operator Consolidated Mining Company, Johannesburg, California, opened up an

eight-inch ore shoot which is reported to be assaying approximately \$281. The company is consistently increasing production and is now dropping 10 stamps, treating 30 to 40 tons of ore daily, with 15 men employed. Ore from the Pinmore mine is also being run through the mill. The Pinmore is being operated under lease by the Operator Consolidated. The Operator mine was originally known as the Phoenix and was then operated by some of the original owners of the Yellow Aster mine. The Pinmore, which adjoins the Operator, was one of the earliest mines of the district to have a complete mill. George Silveria, Box 156, Randsburg, California, is superintendent. George S. Clack, Box 2031, Reno, Nevada, is president of the company.

A. T. Wilkerson, Bishop, California, is developing the Rossi tungsten claim in the Sierra foothills south of Bishop. The ore is scheelite and carries seven-tenths of one per cent of tungsten, according to Wilkerson. The ledge ranges in width from 10 to 35 feet. A test run of ore was recently made at the Durand mill, west of Bishop.

The Beryllium Alloys Company of San Francisco is reported to have taken an option on 1,000 acres of land in and adjoining Elsinore, California, which is said to contain beryl deposits. Exploration work is under way with Edgar R. Larsen, company engineer, in charge, and if the deposits prove of sufficiently high grade, it is understood that a large operating plant will be installed at Elsinore.

Madrell Brothers and associates are operating under lease the old Big Four mine at High Grade, near Alturas, California. The mill now on the property is being operated, and it is understood that a larger mill is planned this spring.

The 150-ton concentrating plant being installed at the Black Eagle mine, in the Eagle Mountains district, 40 miles northeast of Mecca, California, is scheduled for completion this month. The Black Eagle is held under lease and bond by the Eagle Mining and Refining Company, and is under contract to furnish 100 tons of ore daily to the Imperial Smelting and Refining Company, Sam Mosher, president, Signal Oil Building, Los Angeles. The mill will handle, in addition to the 100 tons of ore from the Black Eagle, 50 tons of outside ore, for which a milling charge of \$5 per ton will be made. Mine development at the Black Eagle consists of a 1,600-foot tunnel and a 200-foot shaft. It is estimated that 15,000 tons of ore have been developed which will run \$18.68 per ton in gold, silver, lead, and copper. Winfield Covey, 833 South New Hampshire Street, Los Angeles, is superintendent for both companies.

The Golden Queen Mining Company, Mojave, California, has exercised its option on the Silver Prince mine, adjoining the Cactus Queen holdings, and is preparing to sink a shaft on the property. Considerable development work was done on the Silver Prince last year by Frank Royer. It is also reported that the Golden Queen has acquired the southeast quarter of section 17 from Otto and Wright, and is prepar-



ing for extensive exploration and development work on this ground. William C. Browning, 1214 Pacific Mutual Building, Los Angeles, California, is manager of the Golden Queen.

J. C. and Otto Geringer, Mojave, California, have succeeded in opening the roads into the Gwynne mine in the Piute Mountains, 50 miles north of Mojave, and expect to resume mining operations in the very near future. Excessive snow fall in the Piutes has retarded operations. A new portable-type 210-cubic-foot Ingersoll-Rand compressor has been purchased and will be transported to the property as soon as road conditions will permit. Drifts are to be run in two directions from the main tunnel level on a four to five-foot vein of quartz between granite walls, which carries values ranging from \$15 to \$22 per ton, according to assay reports. The mill has been put in shape and will handle the main output. Eight men will be employed on a one-shift basis with prospects of an enlarged crew later.

Green and Son have taken over their lease on the Rivera Ranch at Neenach, California, from Tuttle and Fisher, and are operating on a three-shift basis in both the mine and mill. The latter is a 30-ton capacity, Greenfield and McSpadden plant.

The California-Engels Mining Company, 333 Montgomery Street, San Francisco, California, plans to resume copper mining operations by August or September at its Engels mine in Plumas county, California. According to F. Emerson Hoar, president, the known ore reserves remaining in the mine total 138,000 tons, of which more than 59,000 tons are broken ore in the stopes. The California Corporation Department has recently granted the company permission to issue and sell 144,000 shares of stock to its stockholders on the basis of one new share for 50 cents, for each two shares of stock now held. Proceeds, which will be approximately \$72,000, will be used to reopen the Engels and to rehabilitate the 400-ton mill. The 138,000 tons of ore estimated to remain in the mine, were stated at the time operations were discontinued in 1930 to average about 3 per cent copper. On this basis, yield at present copper prices would approximate \$8.70 per ton. In its last year of operation the company's total costs of operation, exclusive of depreciation, averaged \$2.51 a ton. Due to the accessibility of the ore, it is estimated that operations at the present time could be carried on at a similar, if not lower, average cost, which would leave the company with a profit on the basis of the present price of copper.

The Columbia Mining Company, Columbia, California, has recently purchased a 10 by 20 Type H Traylor jaw crusher and a seven by four Traylor ball mill, for its new mill.

A Traylor two-foot four-inch TY gyratory crusher and a six by six ball mill have been purchased by the St. Joseph Lead Company for installation in the 150-ton mill at the company's Sheep ranch mine, Sheep ranch, California. Frank H. Skeels is in charge of operations at the Sheep ranch.

The milling plant at the Greenwood quartz mine, Greenwood, California, is reported to be handling from 100 to 125 tons of ore daily in an exhaustive test of the ore body. A newly developed gold concentrator is being used which is said to make possible recovery of the very fine gold. Ore for the plant is being brought to the bins by a dragline, and two shifts of men are employed under the direction of W. Lindburg, superintendent.

The Oneida Mines, Inc., First National Bank Building, Utica, New York, has acquired under lease, with options to purchase, the Bell lode claim, Montreal Consolidated quartz mine, Free Coinage lode claim, John Donk lode claim, and the Gold Bound lode claim, near Sonora, California. The leases were secured through H. Victor Burgard, 207 Washington Street, Sonora, California, who is the company's California agent.

Herman J. Stark, operator of the Finney mine at Downieville, California, has announced that the mine has been taken under 30-day option by Mahon and associates of Oregon, who plan to start work on the property at once. The mine is owned by the Gruss Mining Company and is operated under lease by Stark.

Contract for construction of a one-mile power line has been awarded by the Daisy Blue Mining Company, Nevada City, California. The company has also purchased a two-drill compressor and an electric pump. A crew of four men is engaged in sinking the shaft another 100 feet below the 112-

foot level of the mine, which was formerly known as the Marks property. The company was recently authorized to issue and sell 44,999 shares of \$1 par stock to finance these operations. W. R. Channon, Live Oak, California, is president of the company, John Marks, Nevada City, is vice-president, and A. H. Rutherford, Live Oak, secretary-treasurer.

It is reported that new interests have taken a bond and lease on the Gaston mine, near Washington, California, and that extensive development is planned for the property, including construction of a new road from the Spanish mine down to the Gaston mine. In past operations, water power was used, but new plans call for a Diesel engine to furnish the power necessary for operation of the camp, which includes a 20-stamp mill, boarding house, bunk house, etc.

According to C. R. Nuetzel, president of the Mariposa-Washington Mining Company, 215 West Seventh Street, Los Angeles, California, preparations are being made to operate the Washington mine, near Hornitos, California, which was recently acquired by the company from Nick Mullins, former owner. Earl B. Newcomb is associated with Nuetzel.

At the Crawford Mines, near Quincy, California, operations are reported to have penetrated the channel. The gravel and bedrock are dry, but water was encountered 69 feet up in the lava, producing 10,000 gallons per day.

The Marylyn Mining Company, headed by John J. Raskob, Jr., has sold its operation on the Camp Far West property, five miles east of Wheatland, California, to Williams Brothers of Orangevale, California. The property is a placer operation.

A Washington court decree has given E. N. Monk, 314 West Seventy-eighth Street, Seattle, Washington, the ownership of the Sure Pay mine, Forbestown, California, and his wife, Mrs. Laura Monk, has taken over the management of the property. Monk, who was the principal investor in the Sure Pay Gold Mining Company, is arranging to allow original investors who paid for their stock, to come into the new corporate set-up, but all promotion will be eliminated.

Construction of a 50-ton mill and installation of 900 feet of water pipe have been completed at the Big Cliff mine, south of Mokelumne Hill, California, owned and operated by Mervyn Porteous. The Big Cliff, a gravel property, is opened by a 110-foot tunnel.

The old shaft at the Marshall mine near Newcastle, California, is being cleared out under the direction of Harry Owen, operator of the property. The first 40 feet of the shaft have been reconditioned and an examination made of the old 30-foot level. The property, formerly known as the Lawrence mine, has lain idle for 40 years.

A crew of 10 men is engaged in installing a 78-inch pipe, 360 feet long, to carry the waters of Big Canyon Creek across the cave-in through which the creek waters

#### 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	18.024	8.097	6.844	66.781
1925	14.042	9.020	7.622	69.065
1926	13.795	8.417	7.887	62.107
1927	12.920	6.755	6.242	56.370
1928	14.570	6.905	6.027	58.176
1929	18.107	6.883	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	27.892
1933	7.276	3.870	4.081	34.728
1934	8.658	8.8595	4.162	47.973
1935	8.880	4.0648	4.331	64.273
1936	9.710	4.7142	4.903	45.088
1937				
Jan.	9.000	8.6928	3.728	54.418
Feb.	9.000	3.5295	3.710	54.602
Mar.	9.000	8.5788	3.898	59.048
Apr.	9.000	8.6928	4.029	67.788
May	9.000	3.962	4.225	74.358
June	8.880	4.022	4.80	71.940
July	8.000	4.1281	4.826	68.216
Aug.	8.222	4.2587	4.451	66.366
Sent.	8.771	4.4125	4.675	65.875
Oct.	9.192	4.5115	4.880	65.375
Nov.	9.250	4.500	4.856	65.876
Dec.	9.250	4.500	4.850	68.420
Ave.	9.880	4.0648	4.881	64.273
1938				
Jan.	9.250	4.500	4.850	47.250
Feb.	9.250	4.5152	4.881	44.750
Mar.	9.250	4.600	4.900	44.750
Apr.	9.400	4.600	4.900	44.900
May	9.500	4.600	4.900	44.889
June	9.500	4.600	4.888	44.750
July	9.596	4.600	4.787	44.750
Aug.	9.750	4.600	4.801	44.750
Sept.	9.750	4.600	4.850	44.750
Oct.	9.846	4.6808	4.850	44.750
Nov.	10.432	5.1875	4.988	45.481
Dec.	10.995	5.6712	5.277	45.352
Ave.	9.710	4.7142	4.908	45.088

have been flowing into the Big Canyon mine of the Mountain Copper Company, Shingle Springs, California. Upon completion of this work, the company hopes to proceed with unwatering the mine to an extent sufficient to permit removal of the overburden. The uncovered ore will then be mined and dropped through chutes to the No. 1 level of the mine, from which point it will proceed to the mill. However, it is not believed that the mill will resume operations before June 15, according to J. M. Basham, superintendent.

At the annual meeting of the Central Eureka Mining Company, Sutter Creek, California, all directors were reelected, and the board reappointed all officers. According to C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, the company's development program, started last October, has proved satisfactory and is expected to be completed about the end of May. Upon completion of this program, mining and milling operations will be resumed, with production coming from the 3,000 level raise. The raise is being driven to connect with a winze from the 2,650 sublevel. It is estimated that the ore body to be developed will be sufficient to keep the 40-stamp mill in operation at capacity for two years. James Spiers is superintendent at the mine.

The Sixteen-to-One Extension Gold Mines, Inc., George W. Hallock, president and general manager, Alleghany, California, has been authorized by the Securities and Exchange Commission to issue 54,660 shares of \$1 par stock.

The Gold Hill Dredging Company, Folsom, California, is shipping one of its dredges from the Folsom district to Oroville, where it will be assembled and placed in operation. D. R. Gardner is in charge of operations for Gold Hill. George W. Rutherford is in charge of field offices.

With a crew of nine men, working one shift daily, the Altamonte mine at Alta, California, is now on a steady production basis. Drifts are being extended on bedrock, both up and down the old river bed. Breasting has been started on the south side of the channel. The cemented gravel of the channel is broken up by a special trommel mill which handles an average of 40 tons daily. The property is operated by Thomas L. Mitchell with Dick Clark as underground foreman.

Experimental runs made in the pilot mill at the Glory mine, located in the Shadow Mountain district, San Bernardino county, California, are reported to have shown that a high recovery can be made on the gold, silver, and lead ore by table and blanket concentration. Recovery by cyanide was slightly higher, but the difference did not justify the more expensive installation at this time, it is reported. The crushing unit has been built up to a capacity of 200 tons a day. The grinding capacity is 75 tons a day, and this will soon be increased to 200 tons a day by the addition of another ball mill. From the ball mill the pulp goes to Deister Plat-O tables, where the coarse gold and the lead are removed, making a concentrate of \$125 a ton in value. Tails are pumped to a Dorr classifier, whence the

sands go back to the mill and the minus 80 overflow to two six by 12 Frue vanners fitted with English corduroy belts, which make a concentrate up to \$150 in value. Tables and vanners are to be added to the plant in order to bring the whole to a 200-ton daily capacity by July 1. The slushing method of mining the outcrops is reported to have proved quite successful, the cost of mining, loading, and hauling by truck a distance of one mile being only 75 cents a ton. J. B. Marston, 111 West Washington Street, Chicago, is the owner of the property. E. D. Foster, 437 Consolidated Building, Los Angeles, is engineer in charge.

Deep shaft operations are progressing at the Whitmore Mines, Inc., Mojave, Califor-

nia, Walter E. Trent, Rosamond, California, president. The E. H. McMurray shaft has been widened and retimbered to a depth of 100 feet and sinking is proceeding on the footwall of the vein, with the hanging wall as yet not determined. Shipping ore is being taken from this vein. In straightening the shaft, two veins were encountered between the surface and the 50-foot level, both carrying favorable values. R. Maitland has taken a lease on the Whitmore No. 4 shaft, and is reported to have struck an 18-inch vein of \$39 ore at a depth of 60 feet. Hoisting equipment is being installed, ore bins erected, and the shaft is being retimbered, preparatory to sinking. On the north shaft of the Whitmore, Dr. J. J. Rekar, Mojave, is blocking out ore

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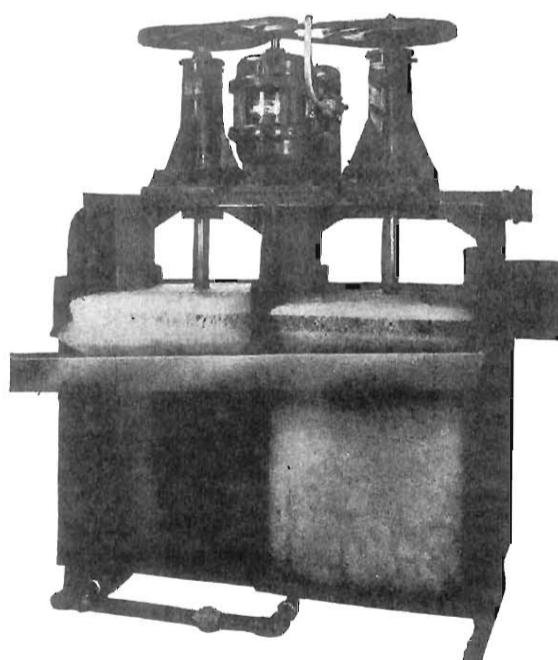
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on the 100 and 150-foot levels, and is preparing to sink to the 300-foot level. Work is also being pushed on the crosscut being run west from the 100-foot level. A. J. Rogers, Bakersfield, California, is associated with Rekar in this lease. Whitmore Mines, Inc., has secured a prospecting permit from Herbert L. Cornish and associates of Los Angeles, on Section 1. The permit is effective for 90 days, and carries an option to lease should the prospecting develop attractively. Preparations are being made for the erection of a staff house and warehouse building on the Whitmore property.

The new 300-ton capacity milling plant of **Oro Fino Consolidated Mines** at Auburn, California, has been placed in operation and trial runs and adjustments are being made. The new plant includes a 300-ton Marcy ball mill, a coarse crusher, flotation cells, concentrating tables, and clean-up units. George Beck is superintendent at the Oro Fino, with headquarters at Box V, Auburn. William Lawson is to be in charge of the mill. J. C. KempvanEe, 181 Bush Street, San Francisco, heads the company.

The **Argonaut Mining Company**, Jackson, California, reported a profit of \$68 for March, before depletion, depreciation, and income taxes, against a loss of \$7,060 in February and a profit of \$34,907 in March of last year. For the quarter ended March 31, 1937, there was a loss of \$3,308, against a profit of \$54,774 in the first quarter of last year. The company's unsatisfactory earnings showing to date this

year is due to the handling of a large amount of low value ore plus an increase in expenses. It is stated that ore values are not expected to continue at the low average of the first quarter this year. During March the company milled 7,200 tons and recovered therefrom \$51,368, an average of \$7.184 per ton. This compares with 7,700 tons and an average of \$6.50 a ton in February, and 8,200 tons and an average recovery of \$10.66 a ton in March of last year. Expenses during March totaled \$57,561, an average of \$7.99 a ton, against \$7.61 a ton in February, and \$7.44 a ton in March of last year.

James S. Stevenson of Pasadena, and associates, are opening up a new mining property in the Ballarat country near Randsburg, California, and are securing equipment, such as tanks, pipe, compressor, and other machinery necessary for operation of the property.

The Holland Rains Company of Pomona, California, which recently took over the Omahdun quartz property near Dedrick, California, will develop the mine as soon as weather permits. The property was acquired from William Clarke, Dedrick, California.

The **Central Eureka Mining Company**, Sutter Creek, California, reports a loss of \$80,614 for the year 1936, according to its annual report. Gross income totaled \$343,746, of which \$240,239 represented bullion sales and \$101,510 sales from concentrates. Operating expenses, taxes, and incidentals, including \$20,030 compensa-

tion insurance expense, totaled \$357,968, leaving loss before depreciation and depletion of \$14,222. The report of James Spiers, superintendent, covering the period from April 1 to December 31, shows bullion recovery of \$171,197 and concentrate recovery of \$63,515. Average value recovered per ton milled was \$7.47 and tailings averaged 74 cents a ton, bringing gross value to \$8.21. Percentage of recovery was 0.91.

Ira Jones and Oscar Larson of Los Angeles are reported to have acquired the **Big Bend** placer mine, located on the Big Humbug near Lewiston, California. They have started operations at the property.

A vein of what is declared to be good milling ore was picked up recently at the **Black Oak** mine, Garden Valley, California, following a development program of several months. According to Russel J. Wilson, owner, the ledge is 215 feet west of the present Black Oak ore shoot on the 300-foot level, now being worked, and backs of over 300 feet are reported. Drifting is being carried on to determine the extent of the new discovery and stations will be cut immediately, preparatory to stoping operations. A 300-foot air compressor, powered by a 75-horsepower motor, and a three-stage, 30-horsepower pump, are being installed, and these units will be used alternately with the present equipment at the mine. Two shifts of men are employed underground. The ball mill is working on a three-shift basis, treating 35 tons of ore in 24 hours.

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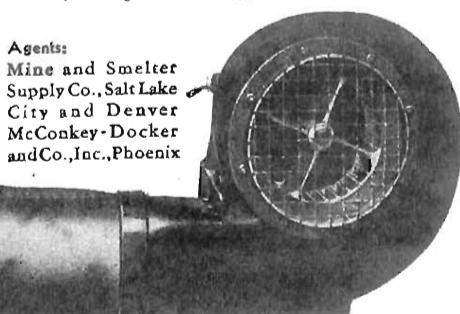
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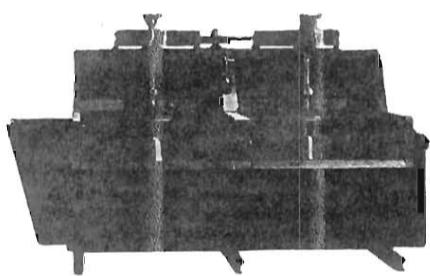
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Alaska Juneau floats coarse-ground gold tailings assaying only 30-40 cents per ton, of which 5 per cent is 35 mesh. Kraut Machines with cell capacity of 70 tons per day are producing "satisfactory recoveries," yielding a concentrate containing \$300 gold per ton.... And in Nevada's Virginia City District, whose low grade, slow-floating oxidized gold-silver ores are among the world's hardest to float, today almost two-thirds of all the tonnage mined is floated. Here high metallurgical efficiency was a vital factor in the spread of flotation—and Kraut Machines are used almost exclusively in the district.... What's your recovery problem? We'll gladly tell you how Krauts can help to solve it.



*Send for Bulletin KA*

**PAN-AMERICAN ENGINEERING CORP., Ltd.**

820 Parker Street, Berkeley, Calif., U. S. A. Cables: "PANCO"

J. Henry Roth, San Andreas, California, has entered into an agreement with the El Encino Consolidated Blue Gravel Mining Company, 3004 Grove Street, Oakland, California, for purchase of the Pellaon placer mining claims in Chili Gulch. He is operating the property, using a combination shovel, crane and dragline.

According to G. S. Clack, Box 2031, Reno, Nevada, president of the Giant King Gold Mines, Inc., funds are available for erection of a mill at the Giant King mine, Washington, California, owned by the company. The mine is being operated by two groups of lessees and extensive reserves of ore averaging \$10 per ton in gold are reported. Operations are carried on through several tunnels. Ore at present is being shipped to the Gracey Glencoe and Queen Lil mills at Nevada City, California.

G. E. Fields of San Andreas, California, has leased the Flume House mine, located near Mokelumne Hill, California, from Union Mines, Inc., and is operating the property.

The Juniper Hills Mining Company is operating a placer property near the old town of Henley, Siskiyou county, California, with work on a three-shift basis. Operations will be continued as long as water is available.

The China Garden Mining Company, H. H. Kuhn, president, 1805 Power and Light Building, Kansas City, Missouri, has been granted a permit to issue 320 shares of common stock, \$100 par value. The company operates the Newman mine at Pine Grove, Amador county, California, with Charles V. Fyke, vice-president, in charge at the property.

Shaler and Gahan, who are operating the Rinconada quicksilver mine at Santa Margarita, California, under lease, continue to make regular shipments to San Francisco. Production is being gradually increased.

The Carnation Gold Mining Company, Ltd., which owns the Jamison mine at Johnsville, California, plans to treat the tailings on the property and to resume mining operations during 1937. There are estimated to be about 250,000 tons of tailings on the property, which average \$8.50 per ton in gold. Robert J. Jefferson, 29 Broadway, New York City, is president of the company.

A zinc unit is being installed by the Leadville Metals Milling Company, Frank W. Keeler, president. The company is

COLORADO  
treating over 500 tons of ore daily, most of which comes from the New Monarch Mining Company dumps, recently purchased by George E. Keeler, First National Bank Building, Denver, Colorado. Keeler is also planning to operate the Silver Spoon property in the district, which he worked some years ago, William Dolan to be in charge.

The Colorado Custom Ore Millers, Inc., is about ready to start regular mill operations in its newly completed plant on Chicago Creek, near Idaho Springs, Colorado.

The company has acquired the Cardigan, May Day, Peabody, Lucky Strike, Jewel Box, and Dakota groups of claims, all located on an extension of the Stanley vein system. Arrangements have been made to carry on operations through the Torpedo tunnel. Tony Babish of Idaho Springs is mine superintendent and Thomas McGrath, Jr., Idaho Springs, is mill superintendent. Head offices are at 860 North Michigan Avenue, Chicago. H. B. Ross, 1430 Fairfax Street, Denver, is company metallurgist.

The Colorado Fuel and Iron Corporation, Arthur Roeder, Continental Oil Building, Denver, Colorado, president, reports for the nine months ended March 31, 1937, a net income, after provision for federal

income taxes, totaling \$979,204, which is equal to \$1.77 a share on capital stock. During the first quarter of 1937 a net income of \$532,283, or approximately 96 cents a share, is reported. Sales during the quarter ended March 31 amounted to \$7,570,049, which compares with \$6,699,906 in the first quarter of 1936.

According to reports, the Cripple Creek Milling Company, James Owen, First National Bank Building, Denver, Colorado, president, has sent a check for 15 per cent of the money due on ore shipments. The company's plant at Cripple Creek was closed down last January pending refinancing of the company.

The Washington mine at Central City, Colorado, has been acquired by G. B.



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## HOWE SOUND REPORTS HIGHER EARNINGS IN FIRST QUARTER

A NET income of \$1,882,099 during the first quarter of 1937 has been reported by Howe Sound Company, Wm. J. Quigley, president. In arriving at this figure allowances were made for federal income taxes, depreciation, etc., but not for depletion. Results for the quarter included a profit of \$380,736 on metals sold from inventory December 31, 1936.

Net profit for the quarter was equal to \$3.97 a share on 473,791 shares of capital stock outstanding. No provision has been made for federal surtax on undistributed earnings. This figure compares with a profit of \$529,018, or \$1.11 a share in the March quarter of last year, and of \$803,320, or \$1.70 a share in the fourth quarter of 1936.

During the period Howe Sound sold 3,332 ounces of gold; 1,103,424 ounces of silver; 15,810,994 pounds of copper; 30,680,324 pounds lead; and 23,792,996 pounds zinc.

## NEW 100-TON BALL MILL UNDER CONSTRUCTION AT ROSENCRANZ

WORK is progressing on excavations for the new 100-ton ball mill to be erected at the Rosencranz mine, Garden Valley, California, by the Lode Development Company. The mill will be the last unit needed to complete the surface plant of the mine, and will be erected and in operation in about 90 days.

The new plant when completed will include five flotation cells, a concentrate filter, and a jig to catch the free gold. Concentrates will be shipped to the smelter. A 600-cubic foot compressor was installed recently, bringing the total air output up to 800 cubic feet.

Sinking operations are progressing and the shaft is now down 250 feet, with drifts run at the 100 and 200-foot levels. Preparations are being made for stoping from the drifts. The blocking of ore and the development work is being handled by a crew of 35 men, working two shifts, under the direction of Charles Hopper Brown, superintendent, Auburn, California.

Three men are sinking a shaft on the Emma claim, 1,000 feet distant from the Rosencranz, and if ore is developed on this



claim, the two shafts will be connected and the ore taken out through the Rosencranz. Other buildings completed at the property are the main office and drafting room, blacksmith shop, engine room, and assay office. The change room at the mine, which was also a new building, was destroyed by a recent fire. Al Almstead is general foreman.

## A. O. SMITH DEVELOPING TOURMALINE GOLD MINES

THE A. O. Smith Corporation, automobile frame manufacturer of Milwaukee, Wisconsin, and a recent entrant into the western gold mining fields, has agreed to carry on extensive diamond drilling and other development work to further prove the property of the Tourmaline Gold Mines, Inc., L. R. Dickason of Butte, Montana, president. The Smith corporation has already started drilling, which is being done by the Diamond Drill Contracting Company of Spokane, Washington.

The property, located near Boulder, Montana, is described as being favorable for a steam shovel operation, with ore stated to run from \$3 to \$5 a ton. Plans for a large capacity reduction plant will depend upon development work, which is to be carried on as rapidly as possible.

The A. O. Smith company became interested in placer mining in the west several years ago, but dropped that for lode mining, taking over several properties in Nevada. At present work is being continued at the Nevada Prophyry mines at Round Mountain, Nevada, under the direction of Richard N. Hunt of Palo Alto, California, who is at the property. L. R. Smith of Milwaukee is president and general manager of the Smith organization.

## BORIANA TUNGSTEN MINE IS ACQUIRED BY MOBYBDENUM CORP.

MINING properties of Boriana Mining Company, 10 miles east of Yucca, Arizona, have been acquired by Molybdenum Corporation of America by means of a lease with option to purchase. According to J. P. Sievers of Whittier, California, general manager of the Boriana company, additional underground work has been undertaken and increased production is expected within 90 days.

The Boriana property has been a consistent producer since the latter part of 1933. During the last year production has been running from 2,400 to 3,500 tons of ore monthly, from which is produced a concentrate averaging 70 per cent WO<sub>3</sub>. The milling process employs flotation and gravity concentration. It is reported that plans are being made for minor changes in the recovery process so that copper values, which are largely a by-product, may also be recovered. The mine crew is to be increased from 80 to 100 men.

Molybdenum Corporation of America operates in several of the western states, specializing in the production of molybdenum, tungsten, vanadium, and allied metals. Its refinery is located at Washington, Pennsylvania. Among its principal mining operations are those at Questa, New Mexico, conducted under its own name; the work at Mammoth, Arizona, conducted by its subsidiary, Molybdenum Gold Mining Company; and the Atolia Rand property in California.

## BUREAU OF MINES ESTABLISHES RESEARCH TUNNEL FOR TESTING

A RESEARCH tunnel or adit for testing purposes has been established by the U. S. Bureau of Mines, on the government reservation at Mt. Weather, Virginia, under a cooperative agreement with the Weather Bureau and the Department of Agriculture. This site was selected as being the most desirable among many considered because it is on government-owned land, and because the prevailing rock is especially suitable for conducting drilling tests.

The object of the research at Mt. Weather is to increase the knowledge of the de-

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**SUNSHINE MINING COMPANY  
ENTERS UPON NEW ERA**

EXPLORATION on the 2,500-foot level of the Sunshine Mining Company, R. D. Leisk of Kellogg, Idaho, manager, will be started in July. The Jewell shaft is now down 2,700 feet and connections are being made with other workings. The vein between the 1,900 and 2,300-foot levels is producing high grade and further exploration in the eastern part of this area will be carried on, as well as the development of the downward extension.

Experimental work on flotation reagents in the mill and changes in the flow sheet has resulted in a marked improvement in recoveries. With the completion of the shaft sinking and construction program, the mine is entering a period of straight operation, consisting of production and development work.

At the annual meeting R. M. Hardy of Yakima, Washington, was reelected president. Other directors are Alexander Miller, vice-president and treasurer; Carroll Hull, secretary; J. B. Cox; and Joshua Green.

A net profit to surplus, after provision for income taxes, of \$1,417,863 is reported for the first quarter of 1937. During this period the company milled 62,375 tons of ore, with heads assaying 51.5 ounces of silver and tails 0.98 ounce. Recovery is stated to be 98.8 per cent. During the three months 3,158,052 ounces of silver were recovered, with net smelter returns of \$2,373,274.

**ALHAMBRA AND SHUMWAY MINES  
ARE UNDERGOING DEVELOPMENT**

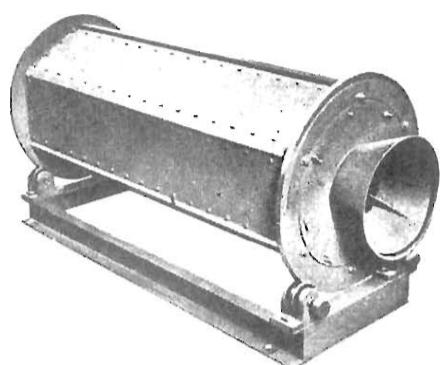
THE Alhambra mine, located about three miles from Kelsey, California, is undergoing extensive development work, with Wilbur E. Timm, Georgetown, California, general superintendent in charge of operations. The property is being developed by the Alhambra and Shumway Mines Company, of which Clair Haliburton, Coalinga, California, is president.

A new hoist and gallows frame have been erected over the old shaft, and the shaft is being straightened to the 129-foot level, at which point ore has been blocked out in a drift. Other improvements at the mine include three and one-half miles of power line, a blacksmith shop, change room, and bunk house. A powder house is under construction, and a new one-ton skip is to replace the present barrel type next month.

At the Shumway mine, nearby, an eight-foot ledge of good ore is reported to have been exposed, and a 50-ton mill is to be erected at that property soon, according to Timm.

The Atlanta mine, adjoining the Alhambra and Shumway, has been leased by Cline Buckley and Dr. C. P. O. Crabtree, officials of the Alhambra and Shumway company, and excavations are under way preparatory to erection of a hoist. Timm is also general superintendent at the Atlanta. The old Atlanta shaft is down 50 feet, and it is reported that \$200,000 was taken out to that depth in 1900.

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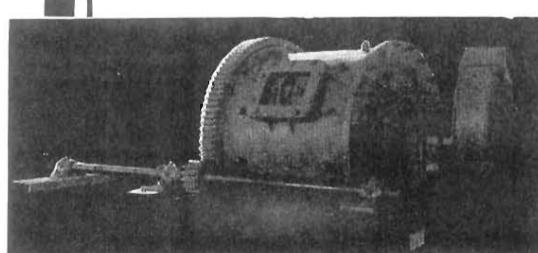


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# THE MINING JOURNAL

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## Drifts and Crosscuts

Many foreign countries now protect their copper industries with adequate tariffs, preventing copper produced in the United States from crossing their borders and it is only fair that our copper industry be given like protection.

\* \* \* \* \*

Another milestone has been passed. With this issue The Mining Journal starts its twenty-first year and the records will show that it has had twenty years of progress in serving the mining industry. We have no new announcements to make as we start the new year for if we ever have any way come to our attention whereby we can better serve the mining people, we do not wait for a new year to put it into effect. It is done right now.

The success of The Mining Journal—and it has been a consistent success—and its growth to leadership have been due to the fact that it has devoted itself exclusively and intensively to the people and problems of a major industry in the largest single contiguous mining area in the world.

It serves only the operating officials of non-ferrous metal mines in the United States and Mexico and therefore has no conflict of interests to weaken or modify policies.

For twenty years it has done that one job so well it now serves almost twice as many advertisers and reaches three times as many western operating mining men as any other mining publication.

The Mining Journal is written exclusively for operating mine officials and makes no attempt to cover the desires of a widely diversified list of readers. It is written for the United States and Mexico—where the mining is—and makes no effort to cater to a wide geographical distribution.

We look forward to each succeeding year as a challenge to find new things which are helpful and worthwhile doing. Our relationship to the mining industry is one of intimate and personal service rather than merely being "another publication." That is a feeling that we are most anxious to maintain.

\* \* \* \* \*

In the past, labor troubles have usually consisted of disagreements between employers and unions. In the future, some of our bitterest labor troubles may be the fruits of a remarkable phenomenon—disagreements between different kinds of unions.

Signs of this have already appeared in a few strikes—the hip strike in New York, shoe strike in Maine, and the automobile strikes, for instance. Principals in the inter-union argument are the Committee on Industrial Organization, headed by John L. Lewis, and the old American Federation of Labor, led by William Green.

Seeds of discord between these groups were sown long ago—the A. F. of L. is the staunch defender of the craft union—a union composed of men doing the same kind of work, though they may be employed in a hundred different industries. CIO dream is the "one big union"—for example, all the automobile workers would be enlisted in one union, irrespective of their jobs in that industry.

Now every time a labor controversy starts, representatives of the CIO and the A. F. of L. immediately appear on the scene, attempt to influence workers to join their organizations. In many instances, CIO and A. F. of L. are farther apart and are more bitterly opposed to each other, than are the strikers and the companies. Matters occasionally reach a comic opera stage—for example, recent cases are on record such as where a CIO man picketed a shop as being unfair to organized labor, and was in turn picketed by an A. F. of L. man with a banner declaring the same shop fair!

So far, the CIO has had the best of the battle. But the A. F. of L. hasn't hoisted the flag of surrender yet. It is far bigger than the CIO, has great prestige. Within it are some of the richest, best-established unions. Big A. F. of L. hopes are pinned on Congressional endorsement of a change in the National Labor Relations Act (Wagner Act).

As now constituted, this Act forces elections among workers when trouble appears in an industry. These elections are secret, are impartially conducted, and workers vote for whatever union they want. Union getting a majority vote is the legal representative of all the workers, and other unions are out. A. F. of L. wants an amendment to the Act which would permit a craft union to represent its members in an industry, irrespective of what union speaks for other workers in the same industry. It may be that such an amendment is necessary to the very life of A. F. of L.—in an industry, craft workers, who are usually highly skilled men, are in the minority, and be easily outvoted.

The inter-union warfare will involve only the two major groups—CIO and A. F. of L. Both are girding for the fray, both realize that they are in for real action. Both have been raising money—nowadays unions are big business and require tremendous war chests. Both are conducting most intensive membership drives in years.

What influence a labor "civil war" will have on labor's demands on management remains to be seen. Under any circumstance, the feeling is growing that legislation imposing responsibilities on unions, as well as corporations, must be passed.

Charles F. Willis

THE Barreno Unit is located at San Pedro, San Luis Potosi, and is operated largely as a source of flux ore for the lead and copper smelter at the San Luis Potosi plant, but small quantities of gold and silver are also recovered. The current production of limey ore is about 6,000 tons monthly and it is extracted through several tunnels.

The Charcas Unit at Charcas, San Luis Potosi, includes the Tiro General mine, first operated during the Spanish occupation of Mexico for the rich, oxidized-silver ores. At depth the ore becomes a complex sulphide, carrying principal values in silver, lead, copper, and zinc.

For many years it was economically impossible to carry on operations at the Charcas Unit otherwise than irregularly in high-grade sections of the vein, but the advent of selective flotation brought the ore body as a whole within the field of economic interest and a flotation mill was constructed in 1925. This plant has a daily capacity of approximately 1,000 tons and the concentrates are shipped to lead, copper, and zinc melters.

The principal ore body is an ore shoot 400 feet long with an average stoping width of greater than 30 feet and is opened by two main working shafts. The mining of partly worked sections of the mine, as well as the very heavy sulphide ore in most of the stopes opened in virgin ground, presented an unusually difficult problem and the so-called "filled top-slice" method was finally adopted as the standard system. A development program is maintained at the property so as to reasonably assure a three-year supply of ore for the mill.

The Huicicila Unit is at Huicicila, near Compostela, Nayarit. The principal values recovered are gold and silver with minor amounts of copper and lead.

Ore mined is relatively high in gold and is shipped directly for smelting, shipments during the years 1934 and 1935 having averaged 1,500 tons monthly. The narrow veins and the small, irregular ore bodies are worked through a transportation tunnel and an interior shaft.

THE Parral Unit at Parral, Chihuahua, is managed and operated by Asarco. The ore deposits, which occur in strong, fissure systems, carry values in gold, silver, lead, copper, and zinc.

The underground workings are reached through one main vertical operating shaft and two service shafts. Several veins are worked in the mine, the principal ones being the Prieta-Tajo system and the Iguana group from which the siliceous ore for vaniding is obtained. A development program is maintained so as to reasonably assure a three-year supply of ore for the mill.

The ore is treated in a lead-zinc flotation mill of 2,000 tons' daily capacity and a smaller cyanide plant. The concentrates covered are shipped to lead and zinc melters owned or controlled by the company. The nearby Parral Consolidated unit is also operated by American Smelt-

(Continued on page 30)

AMERICAN SMELTING AND REFINING COMPANY—SMELTERS AND REFINERIES  
UNITED STATES — MEXICO — PERU

Plant Name	Principal Material Treated	Annual Capacity Input	Product	Annual Production Capacity
Globe Denver, Colo.	Flue dust		Arsenic & Cadmium	1,000 T
Arkansas Valley Leadville, Colo.	Custom lead ores	180,000 T	Lead bullion	
Durango Durango, Colo.	Lead ores and concentrates	120,000 T	Lead bullion	
Murray Murray, Utah	Lead ores and concentrates	120,000 T	Lead bullion	
Garfield Garfield, Utah	Copper ores and concentrates	1,500,000 T	Blister copper	
Selby San Francisco, Cal.	Lead ores and concentrates Lead bullion Gold bullion Silver bullion	100,000 T 60,000 T 1,500,000 oz. 120,000,000 oz.	Lead bullion Refined lead Refined gold Refined silver	40,000 T
Tacoma Tacoma, Wash.	Copper ores and concentrates Blister copper	500,000 T 120,000 T	Blister copper Refined copper Refined arsenic Spelter Zinc dust Roasted zinc ash	6,000 T 3,000 T 4,200 T 3,600 T
East Helena East Helena, Mont.	Lead ores and concentrates	225,000 T	Lead bullion	60,000 T
El Paso El Paso, Texas	Copper ores and concentrates	480,000 T	Blister copper	72,000 T
Hayden Hayden, Ariz.	Lead ores and concentrates	225,000 T	Lead bullion	60,000 T
Baltimore Baltimore, Md.	Copper ores and concentrates	360,000 T	Blister copper	60,000 T
Omaha Omaha, Nebr.	Blister copper	360,000 T	Refined copper	
Perth Amboy Maurer, N. J.	Lead bullion Blister copper Lead bullion Scrap lead and copper	200,000 T 132,000 T 90,000 T 50,000 T	Refined lead Refined copper Refined lead Secondary lead and copper	
Federal Federal, Ills.	Lead concentrates	165,000 T	Refined lead	144,000 T
Amarillo Amarillo, Tex.	Zinc concentrates	96,000 T	Spelter—Prime Western High-grade zinc	48,000 T 5,375 T
Sand Springs Sand Springs, Okla.	Dross and skins from galvanizers		Zinc dust Spelter—Intermediate	3,000 T 1,500 T
Chihuahua Chihuahua, Chih.	Lead ores and concentrates	500,000 T	Lead bullion	156,000 T
Matehuala Matehuala, S. L. P.	Copper ores and concentrates	360,000 T	Copper matte	
San Luis Potosi San Luis Potosi, S. L. P.	Copper ores and concentrates Lead ores and concentrates Arsenical flue dust	540,000 T	Refined copper Lead bullion Refined arsenic	15,000 T 40,000 T 10,000 T
Rosita Rosita, Coah.	Zinc concentrates	91,200 T	Prime western zinc Zinc sheet Sulphuric acid	42,000 T 1,680 T 16,800 T
Monterrey Monterrey, N. L.	Lead bullion	216,000 T	Refined lead	
Shorey Shorey, Peru	Copper ores and concentrates	170,000 T	Refined copper	

FEDERATED METALS DIVISION

Beckemeyer Beckemeyer, Ills.	Secondary Zinc		Spelter	15,000 T
Chicago Chicago, Ills.	Secondary non-ferrous metals		Finished secondary metals and prepared non-ferrous scrap metals	36,000 T
Detroit Detroit, Mich.	Secondary non-ferrous metals		Secondary copper, brass, aluminum, lead alloys and prepared non-ferrous scrap metals	
Los Angeles Los Angeles, Calif.	Secondary non-ferrous metals (Used mainly as warehouse)		Prepared secondary non-ferrous metals	21,000 T
Newark Newark, New Jersey			Finished metals including solder, babbitt, antimonial lead, lead and tin pipe, miscellaneous alloyed lead products	
Perth Amboy Maurer, N. J.	Secondary non-ferrous metals		Brass Secondary aluminum Sorted non-ferrous scrap	30,000 T 24,000 T 12,000 T 36,000 T
Pittsburgh Pittsburgh, Pa.	Secondary non-ferrous metals		Finished and sorted secondary metals (copper, brass, bronze alloyed lead products, tin oxide)	48,000 T
St. Louis St. Louis, Mo.			Finished non-ferrous metals and alloys	24,000 T
San Francisco San Francisco, Calif.			Finished non-ferrous metals and alloys and prepared scrap	48,000 T 12,000 T
Trenton Trenton, N. J.			Lead products and alloys	3,000 T 4,200 T 3,600 T

# Concentrates from Western States

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

The World's Fair mine near Patagonia, Arizona, is being operated under lease and bond by J. C. Schell, Patagonia, who is working a crew of 15 men and shipping two cars of ore weekly which is mined 80 feet below the tunnel level. The property carries high-grade lead-silver ore. The mine

is owned by the World's Fair Mining Corporation, D. Fried, president, 848 Gough Street, San Francisco, California. Fried, who is a son-in-law of the late Frank Powers, original owner of the mine, was a recent visitor at the property.

Three cars of ore weekly are being shipped from the Trench mine, Patagonia, Arizona, operated by the Gold Canyon Mining Company, Silas P. Silverman, president. Work is on a three-shift basis with 45 men employed.

The 25-ton mill and cyanide plant of Stephens Mines, Inc., Sells, Arizona, is now handling custom ore, according to Arthur P. Stephens, president and general superintendent, and ore from the Morgan mine operated by Jerry Hedrick, Sells, is being shipped to the mill for crushing and cyanide treatment. Bullion is shipped direct to the mint. The Stephens company operates the Cube Iron mine, located about 55 miles east of Ajo, Arizona, in the Quijotoa district, and is reported to be developing a five-foot vein carrying gold values of \$21.50 per ton.

Mr. and Mrs. J. E. Myers and Mr. Taylor, of the Taylor-Bennett Contracting Company, have taken a lease and option on the Mystery group of mining claims in the Tip Top district, and also on the Great Crosscut group of 17 claims, located in the same district. A shaft is being sunk to a depth of 250 feet on the vein, and a hoist, a 250-cubic-foot compressor, a pump, and an electric lighting plant have been installed at the property. J. B. Johnston, Fort Toule, Arizona, whose address is Box 356, Glendale, Arizona, owner of the Mystery group, recently sold a one-half interest in his property for \$8,000 cash. He has constructed 12 miles of road leading to the property during the past three years, and has been consistently shipping high-grade ore. The Mystery property carries lead, silver, and gold, and ore now being removed is understood to assay 55 per cent lead, \$10 gold, and 30 ounces of silver per ton.

Hugh Hubbard, Hillside, Arizona, has taken a lease and option on the Swilling group of six mining claims, located two miles west of Tip Top, owned by J. B. Johnston, Fort Toule, Arizona, whose address is Box 356, Glendale, California. Hubbard has a crew of four men employed at present, and is planning the installation of a compressor in the immediate future.

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The Yarnell Mining Company has resumed milling operations after a seven-week shutdown for repairs. The Human shaft has been repaired, new track laid, and a new 40-horsepower hoist, a skip, headframe, and ore bin have been installed. At the Mother Lode shaft, a 10-horsepower hoist was installed as well as a new headframe and ore bin. The company purchased a new Dorr four-foot six-inch by 18-foot classifier for the mill.

The Vision Point mine, H. F. Potts, Box 32, Pearce, Arizona, which began operations December 16, 1936, has completed installation of a C. P. compressor, an air hoist, and necessary surface buildings. A shaft has been sunk to a depth of 200 feet, and this is to be carried to the 300 level, where crosscutting will be undertaken for the purpose of cutting at depth the numerous stringers of high grade showing on the surface. Work is being carried on under bond and lease, and H. N. Carleton, Pearce, is in charge of operations with Mike Marchello as mine foreman.

Phelps Dodge Corporation, Bisbee, Arizona, has declared a dividend of 45 cents a share on its capital stock, payable June 10 to holders of record May 19. On March 10 a dividend of 35 cents was paid.

A new gallows frame is being put in place at the Rainbow mine, Chloride, Arizona. The new road to the property is now in excellent condition and the development of known ore bodies is to begin as soon as hoisting facilities are ready for use. The property is operated by Rainbow Mines, Inc., with I. A. Essenwein of St. Louis, Missouri, in active charge at the mine.

Rae L. Johnston, general manager of the firm of Johnston and Witcher, Inc., Oatman, Arizona, is continuing development of the Lookout Mountain property, located a few miles southwest of Kingman, Arizona, with excellent showings of commercial ore reported. Johnston and Witcher operate the Telluride mill at Oatman, and also operate the Western Apex property of Consolidated Gold Mines Company under lease and bond.

Operations with a full crew will be resumed at the Bunker Hill mine, near Gibbonsville, California, during May, according to Charles Scott Haley, 318 Crocker Building, San Francisco, California, president of the Sierra Nevada Mining Corporation. An 8-man prospecting crew has been employed throughout the winter, preparing the workings for full-time operations. The Bunker Hill is owned by James K. O'Brien, Marysville, California, and Ed Metcalf, Oroville, California,



and is operated under lease by the Sierra Nevada company.

Development work is in progress at the Old King quartz mine, one and one-half miles from Columbia, California, where G. Engleke and Zeke Goodwin have discovered a vein two and one-half feet in width, carrying gold values ranging from \$23 to \$54 per ton. The old shaft, sunk in 1898, has been cleaned out, and drifting and sinking are planned. Ore will be shipped temporarily to the Selby smelter.

The Giant King mine, Washington, California, is shipping from 15 to 20 tons of ore daily to the Queen Lil custom mill at Nevada City, California. Drifting is being done on the No. 2 tunnel, which is about 600 feet below the surface. Assays are reported to have given returns of \$38.85 from an eight-foot vein, after all high-grade ore had been sorted out. The ore showing free milling gold is said to have assayed \$212 per ton. George S. Clack, Box 2031, Reno, Nevada, is president of the Giant King Gold Mines, Inc. C. E. Boreham is superintendent at the property.

O. M. Anderson, president of the Sour Dough Mining Company, Yreka, California, has recently returned from Seattle, where he placed an order for a large power shovel and other equipment to be used in operating his property on the Klamath River. The new plant is to have a capacity of 1,500 cubic yards of gravel per day, and will employ a crew of approximately 40 men, working on a three-shift basis. The territory to be worked is known as Clyburn Bar.

Work is progressing on the new all-steel dredge being erected by the Yreka Gold Dredging Company about three miles north of Yreka, California, and it is expected to be ready for operation by midsummer. The company has built a series of settling ponds along the Shasta River below its operating pit for the purpose of filtering and settling any muddy water that might find its way into the Shasta River. Etheridge Walker, 910 Balfour Building, San Francisco, is president of the company.

The report that the Gaston mine, near Washington, California, had been taken over by new interests, under bond and lease, published in The Mining Journal of May 15, 1937, was in error, according to H. A. Moss, secretary and manager of the Gaston Gold Mines, Ltd., 82 Sutter Street, San Francisco, California. The mine is to be examined by engineers representing responsible people, as soon as the roads are open, but no bond and lease has been given on the property. L. M. Dickson is president, and George D. St. John is vice-president of the Gaston company.

Eastern capitalists have taken a tentative option on the Camp Bird gold mine near Washington, California, and are making a thorough examination and sampling of the ore deposits. W. C. Walker is in charge of the examinations at the property.

Plans are well under way for development and operation of the Hanchett Placers located on Wyman Creek, near Bishop, California, recently purchased by Hanchett Securities Company, 776 Bush Street, San Francisco. The claims were formerly

owned by William McCarthy and the Beauregard brothers. Army Adams, superintendent, is in charge of operations at the property.

According to Vasilakos Williams, who is operating the Juniper mine, Bear Valley, Mariposa county, California, under lease, a rich body of sulphide ore has been encountered in a 30-foot shaft north of the old workings. Development has not yet disclosed the extent of the body, but ore of shipping grade, said to run approximately \$200 per ton, is being mined preparatory to shipment to the Selby smelter. Lower grade ore, ranging from \$40 to \$60 per ton, will be milled in the 30-ton plant at the property later. The strike is considered important as it shows the ore shoot ahead of any previous operations. The Juniper was formerly operated by George L. Reed and associates, who were organized as the Pacific Mariposa Mining Company.

Three shifts are employed in unwatering the shaft of the Marble Springs mine near Coulterville, California, preparatory to resumption of development work at the property, according to George Davis, who is in charge of operations.

A large Diesel motor, pumping equipment, and other new machinery have been trucked in to the Silver Bar mine, five miles southeast of Mariposa, California, by Richard E. Jeffery of Oakland, California, preparatory to active operation of the property. The flotation mill has been completely rebuilt and capacity increased to 40 tons.

Work is proceeding satisfactorily on installation of the new 60-ton flotation plant at the Columbus mine of the Columbus Gold Mining Company, Tuolumne, California. Upon completion of the plant, expected by July 1, operations will be placed on a three-shift basis, according to Robert O'Brien, manager. In the mine, workers are drifting into large ore bodies at the 900-foot level. Very little milling is being done at present, but when the mill is completed, ample material will be ready for reduction. Between 50 and 55 men are employed at the present time. D. J. Murphy, One Montgomery Street, San Francisco, is president of the company.

Herman Stark and William Tuttle have contracted to cut the timber for necessary reconstruction work at the Finney mine, Downieville, California, on which a 30-day option is held by the Mahon interests of Oregon. The mine equipment was badly damaged by fire last year. Operations at the property are in charge of Martin Miller, engineer. The Finney is owned by the Gruss Mining Company.

B. D. Freeman, president of the California Inspiration Mining and Developing Company, 2515 South Main Street, Los Angeles, California, has leased the Sunshine No. 2 mine, Randsburg, California, from Mrs. Birdie Atkinson, and is installing new equipment, preparatory to placing the property on production in the immediate future.

The Lucky Thirteen Mining Company, Randsburg, California, has started diamond drilling operations at the Spangler mine to determine whether telluride ore in evidence

near the surface, persists in commercial quantities at depth. In the mine, a crew of six men is engaged in sinking and drifting on the 100-foot level. Gilbert Troutman, Randsburg, is superintendent. Roy Borden, Box 98, Mojave, California, heads the company.

A night shift has been added to the working force at the Darwin Lead Company, Darwin, California, according to Sam Davis, assistant manager. Both the mine and mill are now operating steadily, and production is gradually increasing. H. E. Olund is in charge of operations.

The Henry J. Kaiser Company, Latham Square Building, Oakland, California, is engaged in driving a tunnel near Hoopa, California, on a prospect formerly known as the Copper Bluff mine, owned by the Hoopa Mining Company, in an effort to strike a quartz vein indicated on the surface. The tunnel, which is at present in about 30 feet, will be driven from 400 to 700 feet, and if the vein is struck and assays prove as good as those taken on surface findings, it is understood that mining operations will be started with a large crew. The testing and tunneling crew, composed of 12 men, is under the direction of T. D. Sawyer, engineer for the Kaiser company, and F. R. Thompson is foreman. About six weeks will be required to complete the tunnel and tests.

The old Ubehebe lead mine, 25 miles west of Ubehebe crater, is being rehabilitated by Sol Camp, Death Valley Junction, California, preparatory to again going on a production basis. Camp was manager of this property during its productive stage, shortly following the world war when the price of lead was up, but the mine was closed with the drop in prices, and has remained dormant until now. George Ishmael has the contract for hauling the ore, which will be trucked to Death Valley Junction for shipment to the Utah smelter.

Cecil Smith, W. G. Sale, and associates are beginning the erection of a 100-ton tungsten mill at the Beauregard tungsten mine near Bishop, California.

Shipments are being made to the Golden Queen mill and to Burton Brothers, Inc., from the Yellow Rover, one of the mines of the Standard group, located four miles south of Mojave, California. The Standard group is controlled by the Standard Gold Mining Company with A. J. Bruce, Box 98, Mojave, in charge of operations. New ore shoots have been exposed on three veins, two of which are on the 100-foot level, and one on the 200 level, four headings being worked altogether. The mine has its separate equipment, with a 50-horsepower hoist, a compressor, and three-inch air lines throughout.

Work on the two-compartment incline shaft at the Funny Bug mine, in the Gold Hill district near Placerville, California, is progressing on a two shift basis, and a depth of more than 180 feet has been reached. At the 200-foot level drifting and development of the ledges is planned. In addition to the underground work, diamond drilling is under way to determine the geologic structure of the formation. Ralph Penn, retired electrical manufacturer of

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Des Moines, Iowa, is developing the Funny Bug, with E. J. Masters in charge at the property.

The report of the Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, for April, shows an operating profit of \$208,000, including other income, but before provision for federal taxes, depreciation, or depletion, against an operating profit of \$240,800 in March, and an operating profit of \$173,000 in April, 1936. This brings operating profit for the first four months of 1937 to \$919,700, against an operating profit of \$716,700 in the like 1936 period.

The Tropico vein was encountered in the Kid shaft of the Tropico mine, Rosamond, California, recently and the ore is now going into the Burton mill. Assays indicate values of approximately \$8 per ton according to H. Clifford Burton of Burton Brothers, Inc., operators of the Tropico mine and the Burton mill. The vein was cut in the new Kid shaft at 400 feet vertical depth, which corresponds to the location of the vein at 600 feet in the old 600-foot incline shaft in developed area of the Tropico. The vein was cut at a point 1,000 feet west of the Tropico incline shaft.

A new road to the Mojave Bonanza property on Soledad Mountain has been completed, and a blacksmith shop, miners' cabins, water lines, and a large storage tank have been constructed preparatory to active operation by George I. Holmes, original developer of the famous Silver Queen mine, now operated by the Golden Queen Mining Company. Driving of a tunnel is now under way.

The Tombstone Development Company, Tombstone, Arizona, has taken over the Gold Point mine south of Downieville, California, and is preparing the property for active operation. Russel J. Kohlen, superintendent, was in Nevada City, California, recently in connection with purchases of material and equipment.

C. E. French, Box 255, Randsburg, California, is reopening the old Marty mine, which consists of five claims, located near Garlock, Kern county. A 25-foot shaft has been sunk on a three-foot vein showing chalocite, 22 per cent; gold, \$3.50 per ton; and silver, \$2 per ton. Bornite is also being encountered in present operations. Both foot and hanging walls are in granite with some 20 inches of talc or slicken-side on the hanging wall. There are also several drifts and crosscuts and a 50-foot winze. At his Colorado Camp property, located about a mile from the Marty, a development shaft 100 feet deep has been sunk on a quartz vein. There is also a 100-foot drift and a 100-foot crosscut. Values are in gold, silver, and copper, ranging from \$2 to \$45 per ton. However, the Colorado property is not being developed at present, work being concentrated on the Marty.

The Black Hawk Mining Company, Vidal, California, W. Earl Iseman, president and treasurer, and Charles Milton, vice-president and general manager, will proceed at once to sink a new working shaft 12 by 16 feet in the clear upon the Black

Hawk claim. The original owners of this property shipped around 400 tons of high-grade from it years ago, the values being in gold-silver-lead. The silver content is reported to have been 200 ounces per ton and over. Milton is making his headquarters at Vidal.

The Gold Nugget mine, located north of Vidal, California, and owned by the four Marshall brothers, is being put in shape for operation by Charles and Porter Marshall.

A crew of men is engaged in preparing the Mountaineer mine, Vidal, California, for production. A 25-ton mill was placed on the property some time ago by the Mountaineer Mining Company, which operates the mine.

A 20-ton ball mill has been installed at the Zantgraf mine, Auburn, California, and is to be placed in operation at once. Drifting and stoping are under way on the 80-foot level, and preparations are being made to unwater the 200-foot level. Work is being carried on under the direction of W. B. Longan, manager.

S. M. Mingus, Randsburg, California, plans to open up his Pestle group located about two miles west of Randsburg. He will sink a shaft and hopes to be shipping ore before the summer is over.

The 600-foot shaft at the King Solomon mine Randsburg, California, is being extended to the 1,000-foot level, and a new headframe is being installed at the old Nosser shaft, where several leasers are working. A total of 12 leasers is working on the property, which is equipped with a mill and cyanide plant. L. E. Netherton, Red Mountain, California, is superintendent. The King Solomon is operated by the Mount Gaines Mining Company, A. G. Ilseng, president, 183 North Martel Avenue, Los Angeles, which also operates the Mount Gaines mine at Hornitos.

The mill at the Oxford mine, Downieville, California, is handling 30 tons daily, and this amount is to be increased to 60 tons shortly, it is understood. The milling plant is equipped with a ball mill, Oliver filter, thickeners and conditioners, 1,800-foot Riblet aerial tram, and concentrating tables. A. Zeigfred is superintendent at the Oxford, and H. E. Smith, formerly of Tooele, Utah, is mill superintendent.

The report of the California Engels Mining Company, and its subsidiary, the Indian Valley Railroad Company, for the fiscal year ended December 31, shows a net loss of \$11,631, after all charges, including interest, depreciation, and taxes, and compares with a net loss of \$31,493 reported for 1935. F. Emerson Hoar, 333 Montgomery Street, San Francisco, is president of the company.

Preston Nuner, Jackson, California, has leased his gravel property, located on the Brewery Hill channel at the base of Stockton Hill, to S. Delano and Art McCarty, who are planning the erection of a hoist, and a 50-ton mill at the property. They have recently completed a 30-foot drift from the bottom of their 50-foot shaft.

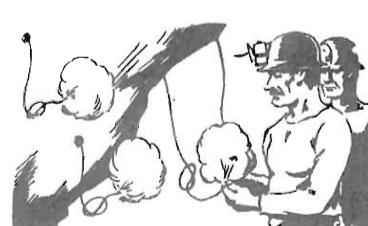
Good ore is reported to have been opened up in a new section of the Johnson mine, located nine miles from Junction City, California, which is operated by the Robert Johnson Mining Company. The property lies on Canyon Creek and is equipped with a mill and mine plant.

Sinking of an incline shaft to a depth of 50 feet, where the first working level will be opened, is under way at the K.B.K. mine near Cool, California. The vein is said to be widening well with depth, and satisfactory values are reported. Preparations are being made for shipment of a small tonnage of ore to a custom mill for a test run. Harvey Kenyon, M. W. Buck, and a Mr. Kelley are operating the property.

A recent mill run of 31 tons of ore from the Dollar Bill mine, Vidal, California, made at the Tom Reed mill at Oatman, Arizona, gave returns of \$29.75 per ton, it is reported. The ore was taken from the No. 3 raise, 90 feet north of the shaft. The mine is owned by W. R. Baird, Vidal, and A. M. Hall, Needles. It is equipped with a 15-horsepower hoist, compressor, and pump, and is opened by a 125-foot two-compartment shaft, with a station at the 110-foot level, and 290 feet of tunnels, crosscuts, and drifts. The first stope, 30 feet north of the shaft, shows five feet of \$10 ore. The ore body is 28 feet between walls, and the ore is associated with quartz and calcite, mostly free milling. The developers plan to install a mill on the property, it is understood. The company is also developing the Bessie mine near by. A stoping machine has recently been purchased to hasten operations at the property.

The new 300-ton milling plant at the Oro Fino Consolidated Mines, Auburn, California, is now on steady production, and activities at the property have been stepped up to a two-shift basis. Underground development is being pressed on the 300, 500, 700, and 800-foot levels, and on the deepest vein a crosscut is being driven to the Ophir vein in the foot wall, following a diamond drill hole cut during the preliminary examination of the property last summer. The property is in charge of George Beck, superintendent, Box V, Auburn, and H. R. Lawson is mill superintendent. J. C. Kempvane, 181 Bush Street, San Francisco, heads the company.

Installation of special gravel washing equipment at the Boulder placer mine, Pilot Hill, California, is nearing completion, and preparations are being made to start production. Gravel will be scooped from the channel by means of a power shovel, fed into a special trommel mill, and recovery made by sluices. The plant is geared to handle 1,000 yards of gravel in two shifts per day. The Boulder property



is operated by the Pilot Hill Mining Company, composed of Neil M. Gibson, 348 Escobita, South Gate, Palo Alto, California, and John C. Fay, Box 851, Auburn, California.

An eastern group is reported to have acquired an interest in the Lady Bug mine, near Washington, California, owned by Frank Dillon of Nevada City, California. The property comprises 360 acres and a water right. The main crosscut tunnel has been driven 4,000 feet, intersecting ore bodies at a depth exceeding 500 feet. Equipment includes a small mill, and mine machinery.

The Idaho Maryland Mines Corporation, Grass Valley, California, has declared the regular quarterly dividend of 5 cents, payable June 10 to stock of record June 1. E. L. Oliver, 351 California Street, San Francisco, is president of the company.

Peter Bryan of Chico, California, and Angus MacKay have acquired the controlling interest in the Sebastopol property near Sebastopol, California, comprising approximately 160 acres. They plan to hydraulically mine the property. Charles Jordan and Perrin Lee were the former owners of the Sebastopol.

The El Molino Mining Company has secured a purchase option on four quartz mines in the Six Mile mining district, located about four miles northeast of Angels Camp, California. The properties are known as the Gold Hill, Gold Hill No. 2, Gold Hill Fraction, and Reef Rock. George S. Taylor, Murphys, California, is the present owner of the property.

Tests are being made at Mountain Meadows near Westwood, California, by the Red River Lumber Company, to determine whether there is sufficient gold bearing ground to warrant exploitation. It is understood that if results are favorable, dredging operations will be started as soon as the equipment can be installed. There is said to be an ample supply of water available. The property was leased to George E. W. Davis of San Francisco.

At the Golden Princess mine in Beverage Canyon, near Lone Pine, California, the vein has been picked up beyond the fault, following about six weeks of exploration work, and assays are reported to have ranged as high as \$12,705 per ton. This property was known as the Keynot in early days but was acquired by the Golden Princess Gold Mining Associates, Frank J. Irving, manager, Lone Pine, California, about two years ago. At that time, rehabilitation of the old Mexican workings was started. The property had been developed by a series of tunnels on the fissure vein, the longest of which was found to be 700 feet. The lens being developed at present shows a width of approximately four feet.

Frank Rossi, French Gulch, California, plans the installation of a reduction plant at his Brunswick mine this spring. He reports good ore in sight, and a crew of three men is employed at the property.

Erection of a 50-ton mill is scheduled to begin shortly at the old Philadelphia mine,

near French Gulch, California, and a small crew is engaged in cleaning up the property preparatory to installation of the plant. The mine has never been operated on a large scale, only the rich ore having been worked in the past, leaving a large body of low-grade ore to be mined. A. P. Robillard is managing the property for San Francisco interests.

Dr. George Grotendieck, Redding, California, owner of the Washington mine near French Gulch, has kept a small crew employed at the property throughout the winter, and now has ready for shipment to Grass Valley about 100 tons of ore.

A. L. Brown, formerly superintendent of the Greenhorn Mining Company, Redding,

California, has announced plans for the erection of a cyanide plant in the French Gulch, California, district, with work to begin as soon as road conditions will permit. Approximately 50 men will be employed.

Breasting on both sides of the channel is under way at the Altamonte mine, Alta, California, with a crew of nine men working one shift daily under the direction of Thomas L. Mitchell, operator of the property. The mine is equipped with a 4 by 20-foot trommel mill, capable of washing 100 tons per eight-hour shift. Only about 40 tons are handled at present, but output will be stepped up to 60 tons in the near future. Len Wing of Folsom is underground foreman.

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rushers, four ball mills, and other miscellaneous items.

American Smelting and Refining Company has substantial interests in the Saudi Arabian Mining Syndicate, Ltd., to which the government of Saudi Arabia has granted an extensive gold mining concession. According to recent reports, operations in that field appear very promising.

The Saudi Arabian gold property was worked many years ago, only the most easily removed metal having been extracted. Engineers of American Smelting and Refining have discovered one of the old dumps which contains 400,000 tons of ore with a gold content of \$14 per ton. Further exploration work at the mining property has also revealed a vein of gold ore averaging 15 feet in width and carrying an average gold content of \$20 per ton.

Although the American Smelting and Refining Company has other interests, it is believed that all those of major importance have been listed. As one of the largest mining, smelting, and refining companies in the world, its operations are spread over many parts of the globe. The strengthening of the company's financial position by simplification of its capital structure will be reflected in a greater stability of its operations and should be of considerable benefit to both stockholders and employees.

#### NATOMAS CO. ENTERS SOUTH AMERICAN PLACER FIELDS

THE Natomas Company, Thomas McCormack, president, 607 Forum Building, Sacramento, California, gold dredging organization, has entered the Colombia, South America, field, and has purchased a 13 percent interest in Colombian Placers, a new company formed to explore and develop placer gold properties.

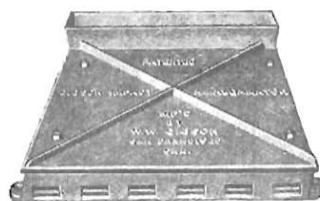
The report of Natomas and its subsidiaries for the quarter ended March 31, 1937, shows a consolidated net profit of \$234,223 after depreciation, depletion, and income taxes, but before provision for surtax and undistributed profits. Net profit is equal to 24 cents a share on 987,120 shares outstanding, and compares with net profit of \$325,262, or 33 cents a share on 92,920 shares in the first quarter last year.

Only four dredges were operating during the first quarter, compared with the company's normal fleet of six. Five are now operating, however, a new unit having been completed April 12. A sixth dredge is under construction.

#### ALUMET AND HECLA COMPANY INCREASES DIVIDEND PAYMENT

DIRECTORS of the Calumet and Hecla Consolidated Copper Company have declared a dividend of 50 cents a common share, payable June 16 to stock of record as of May 31, 1937. The previous payments were 25 cents quarterly. Besides its mines and reduction plants in Michigan, the company controls the Eastern Exploration Company and the Goldfield Mining Company, both operating in the Goldfield district of Nevada.

## SAVES GOLD OTHERWISE LOST

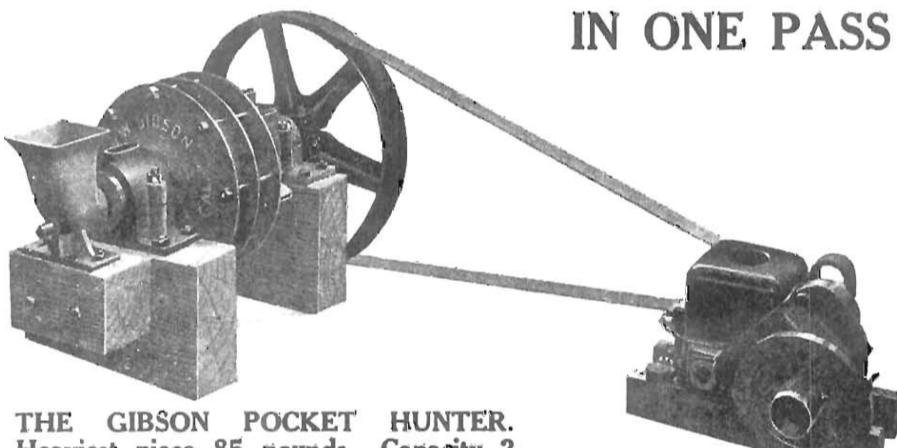


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## MOJAVE DISTRICT REPORTS

### LARGER 1936 PRODUCTION

**G**OLD and silver ores produced in the Mojave Desert area of California in 1936 show a considerable increase over 1935 production, according to an annual report compiled from the records of Burton Bros., Inc. Burton Brothers' mill at Rosamond, Kern county, California, handled a grand total of 26,765 tons of ore from which recovery was made of 12,464 ounces of gold and 47,737 ounces of silver, valued in excess of a half-million dollars. This ore had a slightly lower average gold content and a somewhat higher silver content than ores handled in 1935.

The above figure represents an increase of 1,189 tons over the previous year. This increase in quantity of ore handled by Burton Brothers shows only a part of the increase in total production, since Burton Brothers' was the only mill in operation in the Mojave Desert area in 1935. About November 1, 1935, the Golden Queen mill went into operation. In addition to ore produced from the Golden Queen mine, the largest in the entire area, this mill handled, during the latter months of 1936, all ore from the Starlight and Soledad Extension mines, as well as considerable ore from smaller producers. The Golden Queen mill has treated an estimated average of 300 tons daily, all from the Mojave area.

Tropico Hill, with a total of 15,485 tons, contributed the major share of the ore shipped to Burton Brothers. Gold to the amount of 4,766 ounces and 17,754 ounces of silver were recovered from this ore. Henry Kelsey's Fairview lease on Tropico Hill was the heaviest producer, with 7,722 tons; Tropico mine came next with 5,885 tons.

Burton's mill received from the Mojave area, which includes Soledad Mountain, Standard Hill, Yellow Dog, and the Whitmore group, a total of 6,742 tons of ore which netted 4,307 ounces of gold and 26,362 ounces of silver.

The Middle Buttes district shipped 3,719 tons. Of this the Trent mine contributed 2,225 tons, with 1,705 ounces of gold and 4,458 ounces of silver, while the Burton-Blank lease shipped 1,494 tons.

Shippers from more distant points included E. Auclair, Twentynine Palms, whose ore averaged better than 3 ounces of gold per ton; F. N. Banta, who also had an average of more than 3 ounces of gold per ton in ore from the American Eagle mine in the Panamints; T. L. Bright, Cleve and mine in the Lone Pine district, whose ore carried a gold content slightly under 1 ounce per ton.

Ores from the Starlight, Soledad Extension, Whitmore group, and Standard mines

were produced principally from development work. Plans now in preparation are indicative of increased production from these properties in 1937. These operations, coupled with discovery of extensive ore bodies at the Cactus Queen on the Middle Buttes, where a 100-ton daily capacity mill is nearing completion; the recent acquisition by the Golden Queen Mining Company of additional promising acreage on the Middle Buttes; resumption of mining operations on Soledad Mountain by George Holmes; and pushing of deep shaft operations at various strategic points, promise an even greater increase in production of precious metals in the Mojave desert area in 1937.

The Tropico mill is operated by Clifford and Cecil Burton, brothers, who stuck with the mining and milling business in that district during the lean years, steadfastly maintaining that the Mojave Desert area has scarcely been scratched as a producer of precious metals. That their belief was well founded has been borne out by the necessity for frequent additions to their plant, and by the construction of other mills in the district.

### \$250,000 FIRE LOSS IN PHILIPPINE MINING TOWN

**R**ESULTING in property loss estimated at between \$250,000 and \$350,000 and the loss of at least two lives, a disastrous fire swept the mining town of Paracale, Camarines Norte, Philippine Islands. According to press reports the fire, driven by high winds, destroyed 200 buildings and left 2,000 persons homeless.

The town has a total population of 10,000 and is situated 150 miles east of Manila. It is the headquarters of a number of mining properties including Coco Grove, Inc., and United Paracale, both operated by Marsman and Company. The former is a dredging concern and the latter company is working the property of Northern Mining and Development Company and treating the output in a 250-ton mill.

Other companies operating in the vicinity include Consolidated Mines, Inc., which has a gold property nearby; Mambulao-Paracale Mines Company, Inc.; Paracale Gold Mining Company; Paracale-Gumaus Consolidated Mining Company, which is under the management of Nielson and Company; Paracale Mining Development Company, Inc.; and Paracale-Daguit Gold Mines, Inc.

Lack of water is said to have hampered the efforts of firemen to bring the flames under control and it was found necessary to bring in Philippine soldiers to prevent looting which began as residents fled from their burning homes.

### GIANNINI BECOMES PRESIDENT OF MIDDLE BUTTES MINES, INC.

**D**R. A. H. GIANNINI, Los Angeles, director of the Bank of America, and chairman of the board of the United Artists Motion Picture Company, has accepted the presidency of the Middle Buttes Mines, Inc., operating the Middle Buttes mine at Mojave, California. He succeeds Walter E. Trent of Rosamond, California, who recently resigned to become an independent operator. Trent will devote his time in the future to the development of Whitmore Mines, Inc., at Mojave, of which he is president.

Other members of the board of directors of Middle Butte Mines, Inc., are said to be J. H. Rosenburg, vice-president of the Bank of America; Edmund Nelson, chief counsel of the Bank of America, southern division; Dwight L. Clark, bank director and official of the Occidental Life Insurance Company; L. V. Requa, mining engineer; Emory L. Morris, San Francisco attorney and representative of the owners of the property; and Bernard Giannini, son of Dr. A. H. Giannini.

J. H. Farrell, prominent San Francisco mining engineer, has been retained as consulting engineer, and is at present on the property, engaged in making an extensive mineralogical and geological exploration and examination.

Edmund Nelson, representing the group of bank officials, is reported to be acting as the managing director of the Middle Buttes, while his son, David Nelson, a recent graduate of Stanford University, is acting as Farrell's assistant.

During the past two years the Middle Buttes has produced upward of \$300,000 worth of ore, part of which was shipped to the American Smelting and Refining Company's plant at Selby, and part of which was milled at the Burton Brothers' plant at Rosamond, California. It is reported that, in consideration for the extension of the lease from a five-year term to a 20-year period, the operators have agreed to build a mill on the property in the near future.

The entry of the banking group into the Mojave field places the major properties in the district in the hands of four large operators. The Goldfields of America Development Company controls the Golden Queen, Silver Prince, and other recently acquired holdings on Soledad Mountain and Middle Buttes; the Harvey Mudd interests operate the Cactus Queen; while John Higgins and associates, represented in the district by John Rogers, operate the Lode-star.

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SATISFACTORY PROGRESS AT  
WESTERN BARIUM CORP. PLANT

WORK is progressing satisfactorily at the Western Barium Corporation's plant, Rosamond, California. With construction six weeks under way, the shop, laboratories, water system, railroad siding, power installation, etc., are practically complete, and the refinery section is being installed. Another 60 days will be required before production can be started.

The plant now under construction will have a 50-ton daily capacity, which will be increased as soon as feasible. The company owns its deposit of barite, which is considered one of the largest known deposits in the world, with approximately twenty million tons blocked out. A 15-mile private road has been built from the deposit to the railroad line.

R. A. Fredricks, president and general manager, spends part of his time at the Rosamond unit and the balance at the company's main office, 1643 Russ Building, San Francisco. Mark Lintz is general superintendent of construction and will continue in the capacity of general superintendent of the plant when production begins. R. V. Hodges is chief clerk.

CROZIER MINE IN CALIFORNIA  
SCHEDULED FOR DEVELOPMENT

NEGOTIATIONS are being carried on for purchase of a 25-ton mill, a compressor, and other necessary equipment for the Crozier mine, located on the 140-acre Gus Crozier property in the Slate Mountain district, 17 miles from Placerville, California, according to George L. Gaskell, general manager. Recovery of values will be made by means of the amalgamation process.

Arrangements are also being made for the construction of roads and accommodations for employees. All underground work, for the present, will be contracted. Water, carried through a half-mile flume from Whaler Creek, will be used to generate electricity.

The Crozier property was prospected and developed by Crozier over a period of about 30 years, and workings consist of more than 8,000 feet of tunnels and crosscuts. The ledges lie between a diorite hanging and a slate foot wall.

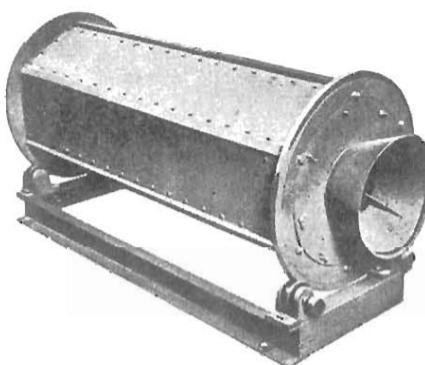
The mine is being operated at present by the firm of Clark, Gaskell and Sands, W. J. Clark, Alhambra, California, serving as president, and George H. Sands, Placerville, as treasurer.

CERRO DE PASCO OUTPUT  
SOLD WELL IN ADVANCE

THE output of non-ferrous metals of the Cerro de Pasco Copper Corporation has been sold ahead to June 30, according to E. H. Clark, president of the company, who also reported that first quarter earnings were satisfactory, despite higher operating costs.

The corporation's principal producing properties are in Peru, although it is an American-owned enterprise. Besides copper, the company produces large quantities of silver, lead and zinc.

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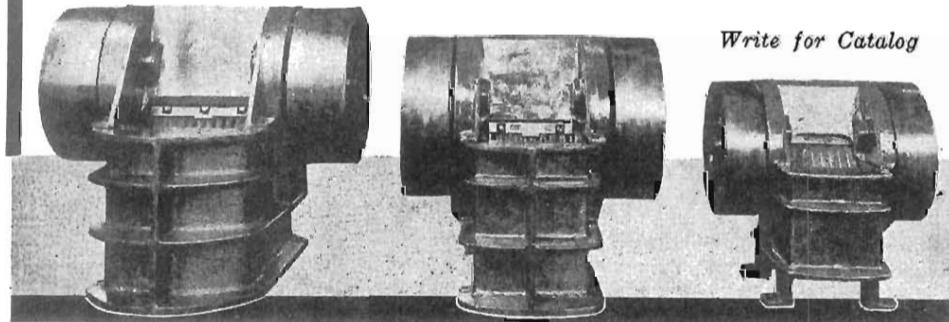
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staff. John Steadman, 305 South Carson Street, Carson City, superintendent of the Dayton mine, will also supervise the Key-stone.

Theodore Jan Lawson of Spokane, Washington, until recently connected with the Deer Trail Monitor Mines Company at Fruitland, has gone to Manila, Philippine Islands, to join the staff of St. Thomas University as instructor in mining. Lawson was graduated from the Colorado School of Mines.

L. R. Budrow, 2346 Third Street, San Diego, California, consulting engineer for the Lucky Tiger-Combination Gold Mining Company, was in Douglas, Arizona, to attend the annual meeting of the company, held May 24. The entire directorate, headed by A. E. Mosier, president, was re-elected at the meeting.

H. H. Montgomery is now at Oroville, Washington, where he is employed as resident engineer by the American Rand Corporation, which is operating at Wannacut Lake. Montgomery has had years of mining experience and was at one time testing engineer with the Nevada Consolidated Copper Company at McGill, Nevada.

R. J. Goodwin is assistant general manager of the Eureka Prospect at Eureka, Nevada, which J. A. Hogle, 169 Main Street, Salt Lake City, Utah, is operating. He succeeds S. P. Holt, who has been at the property for some time, but who recently resigned to join the staff of the International Smelting and Refining Company.

M. B. Mills, mining engineer, formerly mill foreman for Humboldt Mines, Inc., at Mayer, Arizona, is now mine shift boss for Benguet Consolidated Mines Company at Baguio, Philippine Islands. Mills had also been superintendent of La Campana mine in Sonora, Mexico, and was later connected with the Tip Top mine, near Phoenix, Arizona.

Ing. Jose Maria Garza-Aldape, mining engineer and geologist, formerly with the Cusi Mexicana Mining Company, Cusihuiriachic, Chihuahua, Mexico, has returned to consulting work and has opened offices at 805 Ocampo Street, Chihuahua, Chihuahua, Mexico. He is a graduate of the Colorado School of Mines, and of the Stevens Institute of Technology.

H. W. Wertheim, formerly vice-president of the First Northwestern National Bank, and Nicholas Sheldon Waterman, executive of Gurnett and Company, Boston, have organized H. W. Wertheim and Associates, with headquarters at 503 Security Building, Phoenix, Arizona. The company was created for the purpose of financing mines and mining properties throughout the southwest.

William L. Honnold, mining engineer, 1206 Pacific Mutual Building, Los Angeles, California, received an honorary degree of Doctor of Engineering from the Michigan College of Mining and Technology at the annual Class Day exercises held June 4 in Houghton, Michigan. Honnold, an alumnus of the college, is well known in mining

### O. H. GRIGGS NAMED MOST USEFUL MAN IN CALIFORNIA MINING

ORRIN H. Griggs, 745 Rowan Building, Los Angeles, California, was selected by the Mining Association of California, San Francisco, as being the most useful man in the California mining industry during the year 1936. Presentation of the association's annual trophy was made at the monthly luncheon of the Mining Association of the Southwest in Los Angeles by Claude M. Chaplin, general manager of the Mining Association of California.

Griggs has been chairman of the taxation committee of the Mining Association of the Southwest since September, 1935, and represented the association at the 1937 session of the California legislature. In this capacity he opposed the proposal to impose a severance tax upon mining in California, and did extensive organization and educational work in connection with this problem. The proposal was defeated in the legislature.

He also represented the association in its opposition to the proposal of the California Inspection Rating Bureau to impose surcharge compensation insurance premiums because of silicosis. The premium rates originally called for a surcharge of \$11.23 per \$100 of payroll against underground mining, but opposition to the schedule finally resulted in a reduction of the rate to \$2.24 for a temporary period.

Griggs caused to be drafted and introduced into the legislature bills seeking to bring about a change in the present method of computing compensation insurance premiums for state insurance. These bills provided that the state write compensation insurance on a cost-plus basis independently of rates recommended by the California Inspection Rating Bureau. The introduction of these bills was quickly followed by a reduction of about 15 per cent in premium rates for mining. As a further result, it appears probable that additional reductions may be made during the current year, and that the surcharge premiums for silicosis will either be wholly eliminated or substantially reduced.

Griggs was graduated from the University of Minnesota Law School in 1904 and served as president of the Electric Power and Water Company, Virginia, Minnesota, from 1907 to 1913. He also served in that capacity with the New Ulm Gas Company at New Ulm, Minnesota.

From 1913 to 1922 he was interested in iron mining in the Mesabi and Cuyuna ranges of Minnesota and was a member of the Minnesota state senate from 1914 to 1918. He was elected president of the Idaho Copper Company in 1920 and continued in that capacity for a number of years.

circles, and was active during the World War as an aide to Herbert Hoover.

M. H. Kuryla has been elected a director of U. S. Smelting Refining and Mining Company to fill a vacancy. For a number of years he has been a vice-president and general manager of operations in Mexico. The Mexican properties are located at

has been a producer in the past, although it has not been operated recently.

E. G. Frawley of Reno, Nevada, has taken over the lease and bond held by D. L. Forrester, Kingman, Arizona, and associates, on the Gold Basin property, located about 100 miles south of Kingman, and 35 miles from Hillside, Arizona. The ground covers a mineralized porphyry intrusion in granite formation, and is about 400 feet wide and 1,200 feet long. Samples are reported to have averaged \$3.29 per ton in gold. Development consists of 12 pits at present, and plans call for sinking 16 additional pits, each 20 feet deep, to be followed by prospect drilling to greater depths. If the results are found satisfactory, it is understood that a company will be formed, followed by more extensive exploitation, and the eventual erection of a mill. The claims lie in a very rugged, almost inaccessible country, although only about two miles from the Santa Maria River. A road is to be blasted out of the granite hillsides to reach the property.

Sinking of the main shaft to a depth of 700 feet is proceeding at the Davy mine, Garden Valley, California, operated by the

**Dayton Consolidated Mines Company.** Completion of this work will be followed by extensive lateral exploration with the object of locating the extensions of veins worked in adjacent

mines. Dayton Consolidated also controls the Davenport and Clark properties in the Garden Valley district. H. A. Weiler is superintendent at Garden Valley.

The Campo Seco property of the Penn Mining Company, located at Campo Seco, Calaveras county, California, has been leased to Samuel W. Livingston, mining engineer, 112 Market Street, San Francisco, who has 10 men engaged in preliminary development work. The mine was an important producer of copper up until the end of the World War.

**California Standard Gold Mines Corporation,** Jamestown, California, closed its first active year as a producer with a gross income of \$185,055. Financial reports for the year ended February 28, 1937, show a net loss of \$48,582 after charges for depreciation, development costs, and royalties paid on lease and option. No provision was made for depletion. During the year 30,900 tons of ore were milled, the ore having an average value of \$6.63 per ton. This ore yielded 2,811 tons of concentrates which averaged \$65.81 per ton. Recovery was reported at 90 per cent. A comparison of the first eight months with the last four months showed an increase in the average grade of ore milled and in the net recovery. The value of the concentrates also increased. Operating profits can be materially increased by adding to the mill capacity, and Charles B. Little, chairman of the board of directors, has suggested raising additional capi-

tal for this purpose. Construction of a cyanide plant, it is estimated, would save the company 75 cents to \$1 per ton of crude ore. A. E. Place, Jamestown, is manager of the property.

The Paymaster group of claims at Volcanoville, California, has been leased by Mike Capurro, Louis Capurro, Hugh Gamble, John Kezich, and A. W. Del Curto, and work has been started on cleaning out the old workings. The property is owned by J. R. Johnson and A. E. Wiedebusch, Placerville, California.

Excavation for the erection of a new 40-ton mill has been started at the Ruth mine, Trona, California. A new cyanide plant of the leaching type is also planned for the property, both to be completed

about August 1. In the mine, a winze has been sunk from the 100-foot level, and a 200-foot drift, extended from the winze, has opened up a new ore shoot 5 to 12 feet in width. This shoot is reported to show values averaging between \$10 and \$15 per ton. N. W. Sweetser, Box 627, Trona, is superintendent of underground work and George Wyman is superintendent of the mill. Burton Brothers, Rosamond, California, are associated with Sweetser and Wyman in operation of the property.

A shaft is being sunk on a vein averaging three to four feet in width at the Mojave Bonanza property on Soledad Mountain near Mojave, California. The ore is reported to run close to \$30 a ton. A drift is being run on a smaller vein of

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high-grade ore and has already been extended more than 125 feet. Seven men are employed under the supervision of Russ Donnelly. The property is being developed by George Holmes, 438 South St. Andrews Place, Los Angeles, California, original discoverer of the Golden Queen property which adjoins the Mojave Bonanza.

The shaft at the Silver Prince mine, Mojave, California, recently acquired by the Golden Queen Mining Company, is being reconditioned and realigned. A modern headframe has been erected and an electric hoist and electrically operated compressor have been installed preparatory to placing the property on production.

A 40-ton Marcy mill has been installed at the Skyline mine, north of Mojave, California, by the Piute Mining Company, W. J. Quackenbush, general manager, 917 Ronan Avenue, Wilmington, California, and between 10 and 15 tons of ore are being milled daily. The company also operates the Burning Moscow mine in the Piute Mountains, 46 miles north of Mojave, where a crew of four men is employed with work centered on the 600 level. At the Skyline 12 men are employed and four shafts, ranging in depth from 60 to 250 feet, are being developed. A new tunnel is also being driven on an eight-inch outcropping vein at the Skyline, under the direction of Tom Campbell, Randsburg, California.

A gallows frame is being installed at the Kelsey mine near Placerville, California, preparatory to sinking a two-compartment shaft to a depth of 500 feet. Hoisting equipment is also to be installed and actual shaft-sinking is expected to be started by the middle of June. The mill on the property is operating on a three-shift basis, treating about 100 tons of ore daily. Ed J. Willard, Placerville, is superintendent at the property, and E. T. Willard, 823 Forty-fifth Avenue, San Francisco, California, is general manager. The mine is operated by the Kelsey Mining Company and is at present being worked through a 1,600-foot tunnel, ore from the stopes and an upper tunnel being trammed by electric locomotive to the ore bins.

Eugene Casenave, Vallecita, California, and associates have taken an option on the Mountain View mine near Melones, California, owned by A. D. Duchow, Sonora, California. A road has been built to the property and installation of modern machinery for the running of a new tunnel is now in progress. The new tunnel is planned to tap known ore bodies above.

Twenty men are engaged in development work at the Gopher Hill mine in the Meadow Valley district near Quincy, Plum-

as county, California, under the direction of R. G. Stephenson, superintendent. The Mill Creek mine in the same district is also being prepared for operation and the working crew is expected to total 30 men by the middle of June. Stephenson is superintendent of both properties.

The Rogers-Gentry property near Neenach, Los Angeles county, California, is now producing 15 tons daily of sulphide ore, which was passed over during previous workings, when only oxide ore was being shipped. Milling is being done at the Jones mill, near Lake Hughes, formerly operated by the Western Graphite Company. The ore is averaging more than two fine ounces per ton. W. T. Gentry, Neenach, is in charge of operations.

The Mule Mountain Mining Company is sinking on a 26-inch vein of quartz in schist and granite gneiss, at its property in the Mule Mountains, nine miles west of Rannels, Riverside county, California. At a depth of 50 feet a good mill grade of ore was encountered carrying values in

free gold. The ore is hauled to the 10-ton milling plant, four miles distant, which is equipped with a small Gibson mill, amalgamation plates, and cyanidation equipment. The mine is under lease from William Gray, owner, Palo Verde, Imperial county, California. The company personnel includes Bill Rice, Wm. Hennessy, and Ralph Harvey.

The Perigot, Ranney, Ferguson and Fitz, and the Zeigler placer mining properties, all patented, located on the Trinity River, one and one-half miles east of Salyer, Trinity county, California, have been purchased by C. M. Salyer, Ray Taylor, and Alvah Ekel, all of Salyer. The claims cover 700 acres and carry four benches of the former river channel. Salyer, Taylor, and Ekel operated two giants under 90-foot head, using 400 inches of water from Quimby Creek, during the past season, principally in prospecting gravels of the lower bench. Operations will be resumed in December. The group is operated under the name of Empire Placers.

The quicksilver plant at the Cal-Mur Quicksilver Company property near Los Alamos, California, has been producing steadily, with no shutdowns, since its installation about April 15, 1937. The plant, designed and built by Freericks and Kohler, Los Angeles, is reported to be giving excellent results.

C. W. Jackman and Charles Brewer of Los Angeles, have purchased the Graham-Nordgaard Ranch, on the upper Mad River, near Mad River, Trinity county, California. The purchase also includes the old Van Allen placer property, known as the Little Klondyke. The latter comprises 700 acres and is situated on the South Fork Trinity in the same region. Hydraulicking equipment will be installed and the property operated this winter.

Two groups of leasers are operating at the Prescott Hill mine of the Empire Star Mines Company at Grass Valley, California, and each is producing about 100 tons of ore per week. The Nugent and Giller leases took over mining operations with the withdrawal of the company from active work on the property about the first of the year. The company had constructed and equipped surface workings, and had unwatered the mine to its extreme depth of 1,750 feet. Crosscuts and diamond drilling had proceeded for some time. Water has now refilled the mine to about the 1,200 level, where it is maintained. The leasers are working at the 750-foot level. Ore, reported of average value, is being trucked to the North Star mill of Empire Star Mines for reduction.

San Juan Gold, Inc., Nevada City, California, is preparing to reconstruct the

#### 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	8.844	66.781
1925	14.042	9.020	7.822	69.065
1926	13.795	8.417	7.887	62.107
1927	12.920	6.755	6.242	66.870
1928	14.570	6.805	6.027	58.176
1929	18.107	6.888	6.512	52.993
1930	12.982	5.617	4.566	88.154
1931	8.369	4.244	8.838	28.701
1932	6.792	3.181	2.881	27.892
1933	7.276	3.870	4.031	34.728
1934	8.658	3.8695	4.162	47.973
1935	8.880	4.0648	4.831	64.278
1936	9.710	4.7142	4.909	46.098
1937				
Jan.	9.000	3.6923	8.728	54.418
Feb.	9.000	3.5295	3.719	64.602
Mar.	9.000	3.5788	8.896	59.048
Apr.	9.000	3.6923	4.029	67.788
May	9.000	8.962	4.225	74.356
June	8.880	4.022	4.80	71.940
July	9.000	4.1281	4.326	68.216
Aug.	8.322	4.2587	4.451	66.866
Sept.	8.771	4.4125	4.675	65.875
Oct.	9.192	4.5115	4.880	65.875
Nov.	9.250	4.500	4.856	65.875
Dec.	9.250	4.500	4.850	58.420
Ave.	8.880	4.0648	4.381	64.278
1938				
Jan.	9.250	4.500	4.850	47.250
Feb.	9.250	4.5152	4.861	44.750
Mar.	9.250	4.600	4.900	44.750
Apr.	9.400	4.600	4.900	44.900
May	9.500	4.600	4.900	44.869
June	9.500	4.600	4.883	44.750
July	9.596	4.600	4.787	44.750
Aug.	9.750	4.600	4.801	44.750
Sept.	9.780	4.600	4.850	44.750
Oct.	9.846	4.6308	4.850	44.750
Nov.	10.492	5.1375	4.988	45.481
Dec.	10.995	5.5712	5.277	45.832
Ave.	9.710	4.7142	4.908	45.088
1939				
Jan.	12.660	6.025	5.86	44.912
Feb.	13.60	6.2645	6.485	44.75
Mar.	15.990	7.20	7.377	46.180
Apr.	15.846	6.175	6.989	46.460
May	14.00	6.00	6.75	46.025



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flumes in the old Eureka Lake Ditch, totaling about 2,100 feet in length, commencing at Bloody Run, east of North Columbia. The company owns a string of mining claims extending from Graniteville on the east to French Corral on the west, and rehabilitation of the flume is the first step toward operation of its properties. San Juan Gold succeeds River Mines, which formerly owned the Eureka ditch and the mining properties. It is planned to use the Narrows debris dam for storage purposes upon its completion.

Effective June 1, the daily wage scale at the property of the Central Eureka Mining Company, Sutter Creek, California, was increased 50 cents per day in recognition of loyal service of employees, according to C. C. Prior, president, 111 Sutter Street, San Francisco.

A 25-ton Gibson elliptic roll mill has been installed at the Red Bird mine, four and one-half miles southwest of Randsburg, California, and as soon as tests and adjustments have been completed, the new plant will be placed on a two-shift basis. Inside amalgamation will be used, with a 25-ton Gibson impact amalgamator at the discharge end of the mill. The plant is electrically powered throughout, and has been equipped with automatic mercury and ore feeders. The mine is being operated on a limited co-partnership basis, under the management of Austin Landes and John Engstrom. A 25,000-gallon concrete

reservoir will provide a water reserve. Water consumption is estimated at 300 gallons per ton of ore milled.

The Argonaut Mining Company, Jackson, California, reports a net loss of \$14,378 for April, against a profit of \$21,868 in April, 1936. For the first four months, net loss was \$17,686, against \$76,643 profit in the like 1936 period. The company mined and milled 7,900 tons of ore, against 7,200 in March, handlings continuing to be low grade.

The 155-foot shaft at the Pyramid mine, located in Hunters Valley, Mariposa county, California, is being sunk an additional 100 feet. About \$10,000 has been expended on development work during the past year, and at present a road is being constructed to facilitate the reopening of a shaft on a vein parallel to the main vein, and about a quarter of a mile above it. The five-stamp mill, which is equipped with amalgamating plates and a concentrating table, has been operating steadily during the past year on ore of exceptionally good values. About 90 per cent of the values are free milling. The mine is operated by the Pyramid Gold, Inc., with M. H. Knowles, Hornitos, Mariposa county, California, as superintendent. A crew of 12 men is employed.

A shaft is being reopened at the Blue Moon mine, six miles west of Hornitos, Mariposa county, California, preparatory to sampling. The property is in the hands of M. H. Knowles, Lloyd A. Mason, and R. C.

Ellithorpe, all of Hornitos, who plan to do extensive sampling and testing before determining the method to be used in treating the ore. It is understood that two years ago this property produced ore which ran 0.33 ounce gold, 12 ounces silver, and 1½ per cent copper. The vein averages six feet in width, and has been traced for more than 1,000 feet.

The Prosperity hydraulic mine, comprising more than 1,200 acres of unexploited gravel channel under lava cap, is being prepared for operation under the direction of J. P. Donovan, manager. The property is located on Volcanoville Divide, six miles east of Volcanoville, California. The first work will be building of the flumes needed to bring water from a point on Pilot, a distance of 12 miles. Timber for this work will be cut and prepared at the property, which is equipped with a saw mill.

Operations are being resumed at the Whiskey Diggings property near Volcanoville, California, following the winter shutdown. The property is in charge of George Rasor, lessee, of Volcanoville. The mine is owned by Elmer Ogle.

P. W. Spann, operator of the Cooley Pit mine near Volcanoville, California, has succeeded in reopening his ditch, following the winter snows, and has resumed mining operations at his property.

Between 30 and 45 men are employed at the Carpenter mine at Smithflat, California, under the direction of R. J. Dun-

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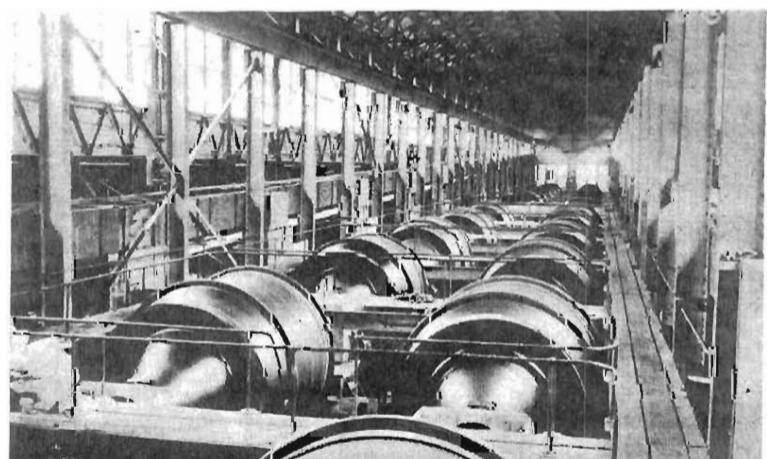
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can, general manager, and operations are proceeding on a steady basis. The mine is owned by Malcolm W. Moss, 225 Alvarado Road, Berkeley, California.

The National Mineral Separation Company, Randsburg, California, has completed installation of its 50-ton mill, and is now preparing to put its properties on a production basis. The Daly-Johnson claims, recently acquired, will also be placed on an operating basis. The mill is of the ball type, and is equipped with automatic sampler, automatic feed, Denver mineral jig, and Denver amalgamation barrel. The overflow will go to a classifier, excess being returned to the ball mill and overflow to the Stoneham process of liquid amalgamation. Test runs are reported to have shown better than 90 per cent recoveries. Extensive development is planned on the Daly-Johnson claims, on which production will be stepped up as rapidly as possible until it reaches 100 tons per day. The mill capacity will also be increased to handle the additional tonnage. The vein on the Daly-Johnson is from five to 12 feet in width, with values ranging from \$5 to \$15. The company is understood to be negotiating for additional properties for further expansion. They also plan to purchase and mill custom ore from the district when such ore is available, increasing the mill capacity as needed. A crew of 12 men is at present employed under the direction of M. R. Robinson, president.

The old Jerry mine in the Rademacher district near Randsburg, California, has been taken over by Canadian capital, which has been quietly preparing the property for operation. A shaft house, ore bins, office buildings, and residences have been constructed, and a hoist and compressor installed. The old 200-foot shaft is being straightened and a station will be cut at the 200 level, to be followed by further sinking. Operations are under the direction of Anderson, Shearer, and Vernon, the former serving as manager and the latter as superintendent.

Fourteen men are employed on a three-shift basis at the Oriental mine near Alleghany, California, operated by Ray Hawkins, Alleghany, and F. F. Cassidy of Nevada City, California. Drifting on the vein is now under way.

A winze is being sunk on the 1,600-foot level of the Original Sixteen-to-One Mine, Inc., Alleghany, California. The company is employing between 80 and 90 men, under the direction of Clayton A. Bennett, general superintendent. The ball mill is treating between 110 and 120 tons of ore daily.

The foundation is being laid for the new 500-ton unit being added to the milling plant of the Walker Mining Company, Walkermine, Plumas county, California. Equipment for the new unit was scheduled to arrive by June 1. This improvement will increase the capacity of the milling plant to 2,000 tons daily. It is planned to have the new unit in operation early in August. L. F. Bayer is superintendent of the company.

Fred P. Tuttle, Jr., has interested Buffalo, New York, capital in the St. Patrick

mine at Ophir, near Auburn, California, and will begin installation of an electric pump shortly, to be followed by unwatering of the 200-foot shaft. A drift will then be extended east to contact the pay shoot struck on the 100-foot level, which is said to average about \$60 per ton. The property was worked about 1880 and has a 30-inch vein which is said to have produced some \$150,000.

Shaft sinking has been started at the **Lava Cap** mine in the Pioneer district near Jackson, California, with a crew of eight men working two shifts under the direction of A. J. Raggio, Jackson. The shaft is at present approximately 150 feet deep and sinking will continue to a depth of 300 feet in the hope of reaching the Lucky Strike-Pioneer vein. The **Lava Cap** is operated by Roland C. Smith of Los Angeles.

Leasers are being put to work on the Willow Valley group of mines near Nevada City, California, held under option by the **Valley Gold Mines, Inc.**, Thomas F. Cole, president, 1230 South Oakland Street, Pasadena, California. The group includes the Belfountaine, St. Louis, LeCompton, Constitution, Federal Loan, and Any Port in a Storm. The St. Louis is equipped with a stamp mill, amalgamation plates, and flotation machinery. Company offices are maintained at 417 Market Street, San Francisco, and in Grass Valley, California. J. M. Hoff is in charge of the property.

A new ore shoot was recently encountered in the **Live Oak** mine, about two miles from Weimar, Placer county, California, which averages 30 inches in width and runs \$46.90 per ton. During the past three years a tunnel has been driven to a depth of 120 feet, undercutting old stopes which were worked in the early sixties, and proving the continuation of ore shoots. In addition, a 40-foot dike, averaging \$3.80, has been encountered, which cuts across the property and intersects a porphyry dike 40 feet wide, averaging \$4 per ton. A mill run was made recently, and plans are now being made for the early installation of a flotation plant. The property is operated by W. W. Sladen and Claude Jones.

**R. Potter Campbell, Inc.**, 84 Williams Street, New York City, is understood to have made the initial payment on the **Norambagua** mine at Grass Valley, California. The payment is reported to have been \$20,000. The Campbell organization has had the property under lease and option for several months, and has conducted extensive exploration. It is reported that the mine will be developed on a large scale.

The tunnel being driven to contact the gravel channel at the **Lucky Jane** drift mine, North Bloomfield, California, is nearing completion, according to C. E. Clark, superintendent. As soon as exploration work has been completed a modern washing plant will be installed which will be equipped to recover the black sands carrying platinum as well as the free gold. At the **Relief Hill** hydraulic property, also at North Bloomfield, no hydraulic mining will be done until the debris storage dam which

is to be built at the Narrows on the Yuba River has reached a height which will permit storage of debris. However, considerable work is being done in the development of outlet tunnels, sluice ways, ditches, and roads, preparatory to an active season in 1938. Clark is also superintendent of the Relief Hill property.

**El Diablo Mining Company**, which operates a tungsten concentrating mill about five miles west of Bishop, California, has taken a lease on ground at Tungsten City. The mill is expected to go on a 50-ton daily basis immediately.

Work was started May 12 on the **Russell** mine at Garden Valley, California, with L. D. Jordan, mining engineer, formerly of Reno, Nevada, in charge of operations. The mine is being developed by the **Producer Gold Mines, Inc.**, Lloyd H. Baker, president, Box 927, Reno.

The **Operator Consolidated Mining Company**, Johannesburg, California, closed down May 8 for the purpose of installing 10 new and heavier stamps and a cyanide plant of the sand leaching type which will double the capacity of the water settling system now in use. It is estimated that from five to six weeks will be required to complete the installations, following which actual mining will be resumed. J. P. Jones will be in charge of the work. George S. Clack, Box 2031, Reno, Nevada, is president of the company. George Silveria, Box 155, Randsburg, California, is superintendent.

Joseph Courson and associates have taken over the **Tungsten Mountain** mine, located about eight miles southwest of Randsburg, California, under lease and bond, and are sinking and crosscutting in good ore.

Sampling is being conducted at the **Green Mountain** mine, Crescent Mills, Plumas county, California, by the **Mountain Copper Company, Ltd.**, William F. Kett, general manager, 351 California Street, San Francisco. The work is being carried on under the direction of Robert J. Burgess, Mathe- son, California, who is a member of the Mountain Copper Company staff. The Big Canyon mine at Shingle Springs, California, is operated by Mountain Copper.

J. V. Creath, Box 92, Rosamond, California, and associates, operators of the **Four Jacks** lease on the northeast slope of Sole-dad Mountain, near Mojave, California, are again shipping ore to the Burton Brothers mill at Rosamond. The new road has been completed, a compressor, hoisting equipment, and a water system installed, and the shaft reconditioned from the 200 to the 800-foot level. On the 300 level, ore from a vein averaging four feet in width is reported to be averaging \$20 per ton in gold and silver. The vein is a rhyolitic quartz, the strike of which is from northwest to southeast, with the dip 90 degrees to the west. A crew of four men is employed under the supervision of Creath.

Condensers and other new machinery for the rotary kilns are being installed at the **Cuddeback** quicksilver property west of Tehachapi, California. A crew of 10 men, under the direction of Percy Blodget, Rosamond, California, is working at top speed in order that the installation may be completed

and production started, so as to take advantage of the recently announced 10 per cent advance in quicksilver prices. Production was scheduled to start early in June, according to Blodget. The Cuddeback is operated by the **Walabu Mining Company**, of which Blodget is vice-president.

Sinking operations have been resumed at the Cactus Queen mine of **Cactus Mines, Inc.**, Mojave, California, with the shaft down 700 feet. Ore pockets have been cut in the shaft at all levels, and preparations are being made for further sinking below the 700. Work is on a three-shift basis with a crew of 35 men employed under the direction of Frank V. Johnson, mine superintendent, Rosamond, California. Office buildings, staff house, change rooms, blacksmith shop, compressor house, and other surface structures have been completed, and the pouring of foundations for the new mill machinery is nearing completion. A crew of 40 men is employed in construction of the new mill. Ore shipments to the Selby smelter continue, the ore being trucked to the Southern Pacific siding at Fleeta. B. C. Staiger is general superintendent in charge of operations.

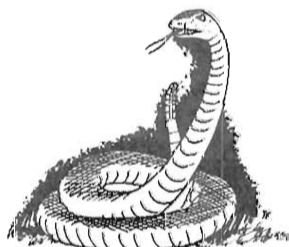
Water has been encountered at the bottom of the shaft being sunk under contract by E. H. McMurray on the property of **Whitmore Mines, Inc.**, Mojave, California. A station is being cut at the 200 level and a drift is being run to the north between two veins. A crosscut is being run to the

east and west to intersect a series of parallel veins running through this property. According to McMurray, sinking will be resumed as soon as the station is completed on the 200 level, and the shaft continued to a depth of 500 feet. Further to the east on the Whitmore property, M. R. Maitland and associates are sinking on a vein which has been opened to a three and one-half-foot width, pannings and assays from which are said to show values of about \$40 per ton in gold and silver. Shipments are to be made to the Burton Brothers mill at Rosamond. On the north shaft of the Whitmore, held under lease by A. J. Rogers of Bakersfield and Dr. J. J. Rekar of Mojave, the shaft has reached a depth of 270 feet, and crosscuts are being run to the west to intersect a series of parallel veins.

A 25-ton daily capacity Muller-type mill has been installed at the **Crozier** mine, near Placerville, California, with test runs scheduled for about June 10, according to T. H. Brunius who has the contract for the installation. The unit will be temporarily powered by gasoline. Other equipment to be added includes amalgamation plates, crusher and other necessary machinery. An assay office is also included in the building program. A contract has been awarded to Ernest Theile for improvement of the road to the property. The Crozier is being operated by Clark, Gaskell, and Sands, with George L. Gaskell, general manager, in charge at the property.

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**St. Joseph Lead Company** has declared an extra dividend of 50 cents and a regular dividend of 50 cents, both payable June 21 to stock of record June 10. A dividend of 50 cents will be paid September 20, 1937. The company operates the Sheepranch mine at Sheepranch, California, and other properties in Missouri, Idaho, Pennsylvania, New York, and South America.

Installation of a 100-ton mill at the Ellis mine of the **A. V. Mining Company** is being considered. Recently a 2 1/2-foot vein is said to have been opened and drifted upon for 230 feet with consistent values assaying 0.20 to 0.26 ounce of

gold to the ton. George W. White of La Junta, Colorado, is president and Sterling La Chance of Cripple Creek is superintendent. The property is located at Cripple Creek.

Arrangements are reported to have been made whereby the **Toledo Mining and Transportation Company**, H. J. Convey, president and general manager, will use the Wilcox tunnel of the Waldorf Gold, Inc. The properties are in the Georgetown district of Clear Creek county, Colorado. The Waldorf company, Frank W. Mason of Georgetown, vice-president and general manager, has been employing a small crew at its property throughout the winter.

The **Cal Clara Mining Company** was recently organized to operate a portion of the Doctor Jack Pot property, controlled by the United Gold Mines Company, in conjunction with a lease on the Callie claim of the Stratton Estate, both properties located in the Cripple Creek district of Colorado. Work will be carried on through the Moffat tunnel. Officers of the company are Frank W. Swerer, Midland Savings Building, Denver, president; George H. Swerer, also of Denver, secretary-treasurer; and H. K. Thurber, Natalie Apartments, 24 South Daisy Avenue, Long Beach, California, vice-president and general manager.

Extension of the present 2,000-foot tunnel in the **Hidden Treasure** mine near Ouray, Colorado, another 2,000 feet is to be started soon. The property, which is adjacent to the Camp Bird property, is owned by Mrs. Evalyn Walsh McLean of Washington, D. C. William McCullough, Ouray, is superintendent. A boarding house to accommodate 25 men will be constructed, as will a compressor house and other necessary surface buildings.

A 150-ton flotation mill unit is reported to be under construction at the 6,200-foot Treasury tunnel by the **San Juan Metals Corporation**, Frank Eichelberger of Wallace, Idaho, president. About 100 men will be employed in construction work and it is expected that the same number will be used when the mine and mill are in full operation. The property is located on the Million Dollar Highway near Ouray, Colorado, at an elevation of over 10,000 feet. Julius Warner, Wilda Building, Denver, is consulting engineer and manager.

A three-story bunkhouse is also to be constructed. Mine development is being continued, another portal to the mine having recently been reopened.

The **Golden Cycle Corporation**, L. G. Carlton of Colorado Springs, Colorado, president, reports earnings from mining and milling operations of \$169,000 for the first quarter of 1937. This compares with \$144,000 for the same period of 1936.

The **Gladiator**, **Ellen**, and **Rip Van Dan** mines in the Springdale area of Boulder county, Colorado, have been acquired by Frank J. Parker of Chicago, who plans to start operations soon. Machinery is being moved from the Sentinel Hill mine at Sunset to the Gladiator mine. The **Ellen** can be worked through the Gladiator workings, which include a 750-foot shaft. Workings of the **Rip Van Dan** property, which is opened to a depth of 1,300 feet, are reported to need retimbering throughout. Jesse Vickery of Jamestown is assisting in the direction of the work.

Regular shipments are being made by the **Santa Rita Extension Company** from its Santa Rita mine on Squaw Mountain at Victor, Colorado. W. H. Bailey, chief engineer of the steel division of the Colorado Fuel and Iron Corporation, Pueblo, is president. Deeper development is also being done. F. C. Walton and associates and others make occasional shipments from their leases on the property.

Henry R. Sisson of Boulder, Colorado, is reported to be operating a washing and sorting plant at the **Empress** mine in the Sugar Loaf district, which he is leasing from J. G. Clark of Boulder. The formation of the property is said to comprise a strong vein lying along the Iron dyke, near the junction with the Livingston dyke. Tunnels have opened the vein for several hundred feet, with no satisfactory values reported until the dyke itself was tested and found to contain cross fractures of gold ore.

A new Sinclair assembly with a 194-foot Gardner-Denver compressor has been installed on the **Ala-McKee** property in the Gold Hill district of Boulder county, Colorado. M. E. Curten, G. W. Riffie, and W. R. Gouge, all of Boulder, are operating the mine. J. Ritchie and John Santanelli, Boulder, installed a **Wise** outfit with a 177-foot compressor on the **Red Signe** group of claims, also in Boulder county.

Production is to be started soon at the **Kentucky Giant** mine, owned by the **Silver Tip Gold Crown Mining and Milling Company**, Mrs. J. C. McLellan of Washington, D. C., president. G. C. Hicks is in charge of development, with a crew of seven men. The property is located in the Brown Mountain district of Ouray county, near Ouray, Colorado.

G. A. Franz of Ouray, Colorado, and associates have purchased the **Saratoga** group of about 34 claims and the old Saratoga smelter, located in the lower end of Ironton Park, between Ouray and Silverton. Sample shipments have been made to the Tooele and Midvale plants in Utah and to the Leadville, Colorado, plant. Present

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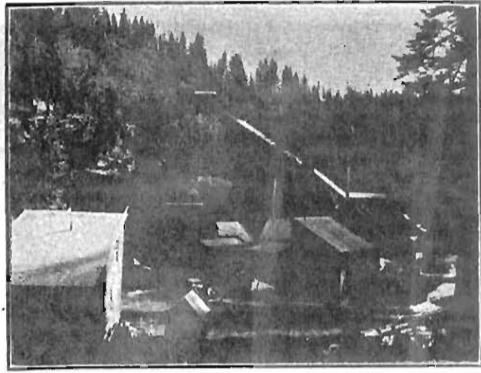
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**ROBINSON MINE REOPENED**  
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PREPARATIONS have been completed for reopening the Robinson mine near Oroville, California, operated by the Granite Basin Mining Company. The property has been closed down since the end of March, following the death of John Tolman, superintendent, after operations had been continued most of the winter in spite of snow which reached a height of 14 feet.

H. J. Crawford has been appointed superintendent of the property and a crew of approximately 35 men will be put to work June 15.

The shaft at the Robinson is down 300 feet and deeper work is planned, as indications are said to be promising for persistence of the ledges. Previous to the shutdown the mill was handling 50 tons of ore daily.

During the winter activities the only connection with the outside world was by means of radio, and a two-day ski trip was necessary to reach the nearest village. When snow was frozen, a Tucker snow sled was used to haul provisions to the camp, but during the thaw the mine was completely isolated.

C. F. Tolman, professor of economic geology at Stanford University, Stanford, California, is president of the Granite Basin Company.

**MANUAL OF PHILIPPINE MINES**  
PUBLISHED BY RALPH KEELER

A MANUAL of Philippine mines and mining properties has recently been published by Ralph Keeler, editor of the Marman Magazine and mining editor of the Manila Daily Bulletin. The progress being made in mining in the Philippine Islands, particularly in gold, makes this manual timely and of much interest.

The manual, which is a paper covered book of 53 pages, starts out with a brief historical resume of mining in the Islands and this is followed by a brief description and the latest news regarding each mining property, 71 all told. Following this is a table of dividends, operating statistics, and the monthly gold production for 1936. For any one interested in Philippine mining, the book is of much value.

The book is being sold by Ralph Keeler, Box 769, Manila, Philippine Islands, and the price is 50 cents. It is the first book of its kind issued and the only compilation of mining companies which are on the Manila stock exchanges.

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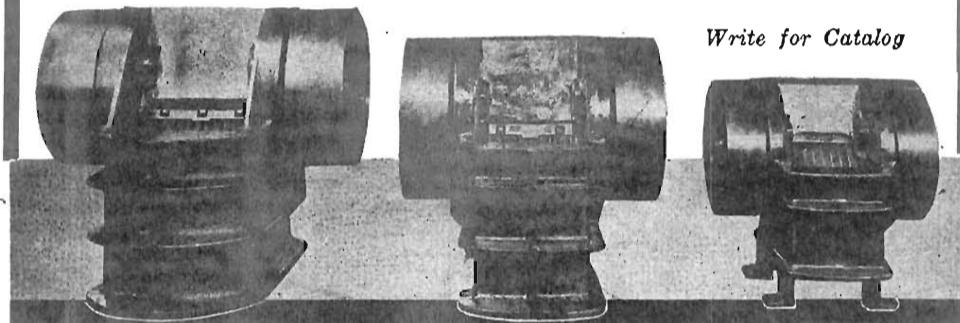
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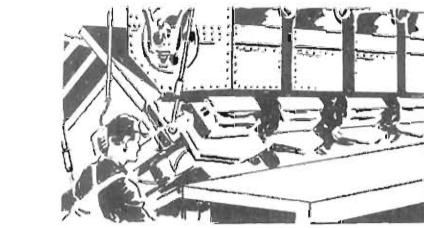
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While surface construction work is being pushed rapidly, the Howe Sound Company, C. P. Browning of Britannia Beach, British Columbia, general manager, is continuing development work at its Chelan Unit in Washington. Four raises have been started and a haulage shaft is being driven from the 1,100 to the 1,500-foot level. Underground work will be extended as soon as the second Diesel plant is in operation. On the surface the Winston Brothers, road contractors, are employing about 100 men on the road. Camp for the mill construction crew is completed and work on the mill is underway. William Lindsay is in charge of this camp, which accommodates about 50 men. The mine camp will remain on the side of the mountain until a permanent camp in the valley is completed. George C. Lipsky is at Lucerne, Washington, in charge.

About 75 claims are reported to have been located in the Metaline district, near Metaline Falls, Washington, by interests believed to be backed by S. W. O'Brien and associates. The ground is located on the east side of the river between Three Mile Creek and Slate Creek, extending on both sides of the highway. Harry Lincoln has charge of the work, employing a crew of 10 men.

Additional crushing and other equipment is being installed in the Quilp mill by the Eureka Mining and Milling Company, George A. Kirkbride, Hoge Building, Seattle, Washington, president and general manager. With the additions, the plant is expected to handle 100 tons of ore daily. The lower levels of the Quilp property are being reopened and stoping in an eight-foot vein has been started on the 600-foot level. Unwatering operations are to be continued to the 900-foot level. Mining is also being carried on on the 150, 200, and 300-foot levels of the Quilp property and surface glory hole operations produce about 30 tons of ore daily. The Republic lease is being operated between the 300 and 400-foot level, three carloads of ore being sent each week to the Tacoma smelter, pending the completion of the Quilp plant. A total of 42 men is employed in mine, mill, and construction work. The company recently paid its third monthly dividend of 1 cent a share, payable to stockholders of record May 15.



Plans are being drawn up for the construction of a 50-ton cyanide and flotation mill by E. G. McKenzie of Spokane, Washington, and W. B. Hancock, who are at Omak, Washington, where the plant is to be located. Ore bins and crushers will be large enough for a 100-ton plant. McKenzie and associates, including J. B. Matthews of Yakima, hold leases on mining property south of Okanogan and on molybdenum claims in the Moses Meadows district.

A 50-ton mill is planned by the Grand Coulee Mine, Inc., Claude Baxter of Nespelem, Washington, president, which holds 18 claims two miles southwest of Nespelem. The main tunnel is now in 700 feet and is said to have recently opened a 26-foot ledge of high-grade silver-gold ore on the 245-foot level. Construction of necessary camp buildings is being completed. Ten men are employed under H. Van Tassel, Nespelem, superintendent.

A new tunnel is opening a third level in the Panama mine in the old Ruby district of Okanogan county, near Nespelem, Washington. Promising ore is reported to have been opened in this work. William Barnard of Nespelem is owner and operator of the property.

A larger power plant is to be installed soon by the Ruby Mountain Mining Company, which is operating the old Arizona or Horn Silver mine in the Ruby district, Okanogan county, near Nespelem, Washington. The property, which is also called the Sonny Boy mine, is located on the Arlington vein, below the Arlington mine and was acquired by present operators late in 1935. Mining equipment has been installed, three substantial buildings erected, and lumber is on the ground for additional structures. Eventually a mill will be installed. George R. Turner of Okanogan is president. Other officials include J. R.

McMillen of Seattle, secretary, general manager, and purchasing agent; George Newell, Okanogan, mine superintendent; and R. V. Fredericksen of Okanogan, assistant general manager, and C. H. McLean, Okanogan, mine engineer.

The Copper Mining Company, R. P. Root of Gooseprairie, Washington, president and general manager, reports that the 50-ton mill was started about June 1. The company, which operates in the Bumping Lake district of Yakima county, has spent \$15,000 in machinery and equipment during the past year, Root states, and with the addition of power units and two more tables the capacity of the plant would be doubled. After the present mill is working smoothly and efficiently, officials are considering the installation of a 250-ton plant and believe that the company will be ready to do this about January, 1938. Ore carries values in tungsten, molybdenum, and copper, with some gold and silver.

#### SHAFT SINKING IS TO BE RESUMED AT KENTON MINE

SHAFT sinking is to be resumed in the near future at the Kenton mine, Alleghany, California. The Kenton was purchased by George E. Gamble and Walter V. Wilson in 1932, and has been actively developed since that time.

Following acquisition of the property, a crosscut tunnel was driven at the 3,500-foot contour in Kanaka Creek Canyon, to hit the Kenton ledge 200 feet vertically below the previous workings. After drifting from the tunnel for a distance of 400 feet, a 45-degree, inclined, two-compartment shaft was started well in the footwall side of the vein. During 1936 this shaft was sunk 380 feet to elevation 3,250, thus opening a 150 and 300 level. The present shaft sinking program will open up two additional levels. Since 1934, 10 stamps have operated steadily on a satisfactory grade of ore.

Walter V. Wilson was in active charge of the property until overtaken by a severe illness in the summer of 1936, from which he is now rapidly recovering. During his illness the work has been under the direction of T. S. Scribner, superintendent, assisted by Otto Koopman, mine foreman, and Warner Graham, mill foreman. A crew of 30 men is employed.

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Dear Mr. Willis:

I most heartily approve of the fearless editorial policy of The Mining Journal. God bless the man who can, without bitterness, voice his sincere beliefs, or help others to do so.

I was particularly impressed with the article by Dr. Dyer on page 42 of the May 15, 1937, issue. While I may not always agree with all the good doctor's conclusions, I do believe he is right that an honest facing of facts is the only safe road.

While the relations between labor and management may, and no doubt do, call for frequent discussion and adjustment to keep such matters in line with our very rapid industrial and social evolution, sudden plunges into hot-headed radicalism will get us no where except into trouble.

Sincerely yours,  
(SIGNED) C. R. HEATH,  
Jamestown, California.

#### SHAMROCK GOLD IS RESUMING OPERATIONS AT MEXICAN MINE

THE Shamrock Gold Mining Company has recently completed the overhauling of its equipment and camp at the Mexican mine, Goodyears Bar, Sierra county, California, which were damaged by heavy snow during the past winter. The work has been under the direction of F. W. Siddall, manager, who maintains headquarters at the mine. The company plans to install a small pilot mill this summer, of probably 25 tons' capacity. The ore is free milling and a recent mill test of a mine sample is understood to have shown a recovery of 75 per cent free gold by amalgamation, ground to -40 mesh, with a total recovery with gravity concentration of 90 odd per cent of value.

The vein has steadily widened from two and one-half feet to a present width of five and one-half feet. Drifting on the vein through a ridge is now in progress, and this work is expected to result in approximately 300 feet of backs. While not blocked out, good milling ore is exposed on the surface, and for a distance of approximately 200 feet in the No. 3 tunnel, the present drift, with 700 feet yet to go on the vein. If milling values continue, it is estimated that there will be 75,000 tons of ore available above the tunnel.

A new board of directors was elected last October, composed of Paul E. Page, retired lumberman of Tacoma, Washington; Dr. Robert H. Beach, superintendent and chief surgeon of the Northern Pacific Hospital, Tacoma; and F. W. Siddall, former lumberman and banker. Page is president of the company, Beach is vice-president, and Siddall, general manager. Headquarters of the company are located at 711 Fidelity Building, Tacoma, Washington.

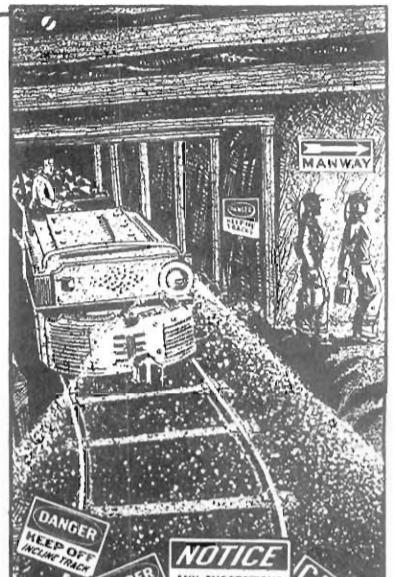
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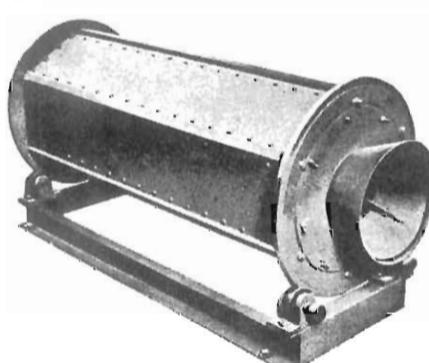
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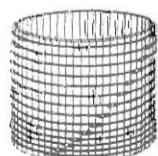
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### NEW UNITED STATES MINT AT SAN FRANCISCO IS DEDICATED

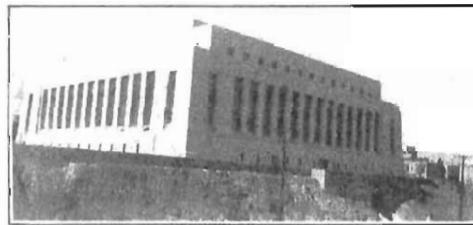
THE new million-dollar United States Mint in San Francisco, which has all the appearances of a massive stone fortress perched atop a solid rock promontory, was formally dedicated May 15. The ceremony was attended by Mrs. Nellie Taylor Ross, director of United States Mints.

This new stronghold for the wealth of the Pacific Coast is a five-story building surrounded by a rock wall on a rocky hill at Market and Buchanan Streets. Its only decorations are heroic facsimiles of American coinage, sculptured in bas relief on the granite columns. Over the bronze door of the main entrance is carved "E Pluribus Unum."

Inside, there are two major vaults for storing bullion and coin, and seven minor vaults which will soon accommodate 400 million dollars in gold and silver, to be moved from the old mint at Fifth and Mission Streets.

The new mint will begin operations on or about July 1, 1937, according to Peter J. Haggerty, superintendent.

Protective equipment worth \$350,000 has been installed, including microphones, listening posts, sound detectors, two-way radio equipment, floodlights, and tear gas. Shooting galleries are provided for guards, and there will be 22 stations, on two different routes, set with clocks to receive the watchman's key. Both the front and rear



Front view of new million-dollar U. S. Mint in San Francisco, showing steps, from street level, cut and tunneled up through solid rock to level of the building.

doors have vestibules with inner doors, only one of which can be opened at a time.

A filtering system, costing \$65,000, will continually extract gold particles from the air. Because the old mint lacked such a device it will be necessary to burn its carpets to recover gold, expected amount to about \$100,000.

"This building can well be called a symbol of prosperity," Mrs. Ross said at the dedicating ceremony. "In the first nine months of this fiscal year, we have made 2,500 per cent more money than in the entire three depression years."

During those years, Mrs. Ross declared, the mints made 29,000,000 pieces of coin. But during the past nine months, more than 691,000,000 coins have been stamped from silver, nickel, and copper to swell the flood of returning prosperity. And the demand for coin is so great, Mrs. Ross added, that the mints are working 24 hours a day.

### NATIONAL MINERS' UNION SEEKS STANDARD CONTRACT

THE national miners' union is carrying on negotiations with the Cia. Minera de Penoles for the purpose of securing a standard contract for all plants operated by that company.

The new demands include important points such as compensation for tuberculosis, rheumatism, and ruptures or hernias produced by exerting great effort; recognition of expenses and costs in suits; payment of interest on amounts retained in respect to wages and compensation; compensation for stoppages and readjustments to be triplicated over and above that which is legally specified; the provision of dwellings; regulations governing pensions; vacations up to 17 days annually with pay; an increase in the number of obligatory rest days; establishment of clinics to attend the workers and their maintenance.

Another important point to be discussed is the work day of six hours. The units affected by the proposed contract are the Achatla, Esmeralda, Avalos, Torreon, and Monterrey.

It is understood that once a standard contract has been adopted for all the Penoles plants, the miners' union plans to send similar demands to the American Smelting and Refining Company for the introduction of a standard contract for all its plants.

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contracts or leases for exploitation and exploration whenever the applicant may show enough technical and economic resources to undertake the contemplated mining work. In regard to these leases no preemptive rights are recognized by the government, but they are to be granted to the applicant offering the best terms to the mines department.

The exploration grants within the national zones of reserve shall last five years. The area to be covered in the grant is to be fixed by the mines department up to the allowed limit of 10,000 hectares (24,710 acres) taking into consideration the individual circumstances of the grantees who, during the period of the contract, shall have an exclusive right to secure special exploitation contracts within the area covered by the exploration patent. The grantee or lessee shall also report annually the progress of his exploration work, filing topographic maps showing the development done.

Special leases within the zones of national reserve shall be granted exclusively to cooperative mining (gambuzino) organizations in placer areas suitable to immediate small operations and requiring small economic resources, and also in free saline lands. These gambuzino leases shall last for an indefinite time and shall be non-transferable, their duration and area to be fixed by the mines department according to circumstances.

Within the zones of national reserve special leases or grants may be issued to Mexicans and Mexican companies for the exploitation of placers requiring heavy investments and free tailing deposits, and for other mineral deposits not comprised in the above paragraphs. In the case of stock companies, the stock certificates shall be nominative and issued to Mexicans.

The leases on placers requiring small economic resources (not the gambuzino leases) shall have a 20-year duration, and cannot be transferred until after two years from their date. The covered area shall not exceed 50 hectares (123 acres).

The leases on saline lands shall last one year, cannot be transferred, and shall cover an area to be determined by the mines department. The grantees shall obligate themselves to a minimum production of salt that may be fixed by the said department.

Grants on placers requiring heavy investments and on free tailing deposits shall be made for not longer than 20 years, and cover an area not to exceed 3,000 hectares (7,413 acres). The grantees shall be required to make such minimum investment in machinery and equipment as may be fixed by the mines department.

Leases within the national reserves on mineral deposits not comprised in the above shall have a maximum duration of 20 years and cover a maximum area of 100 hectares (247 acres), either in metallics or in non-metallics.

The special contracts or leases within the national mineral reserve may be issued by the government after taking into account not only the economic and technical resources of the applicants, but also the amount of development already in exist-

ence, the kind of ore body, and the classification thereof. The mines department may refuse the issuance of such grants if this procedure might be convenient for national interest.

The grantees of mining concessions and leases, as well as the holders of old mining titles, shall have the right to erect ore-treatment plants for their minerals. No metallurgical concession shall be required in this case, providing the capacity of the mill does not exceed 25 tons in 24 hours.

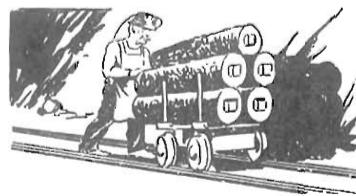
Special metallurgical concessions may be issued either for public service (custom mills) or for mixed service. Custom-mill concessions may be granted to Mexican individuals or to Mexican companies for any desired capacity.

THE metallurgical concessions for mixed service may be granted to the owners or beneficiaries of mining concessions, to their successors and assignees, for an unlimited capacity over 25 tons a day, providing they devote 20 per cent of the said capacity to ores from other mines in the camp amendable to the treatment processes employed in the mill under a pre-arranged royalty agreement.

There are in the proposed new mining law sundry other provisions concerning the rights of holders of mining and metallurgical concessions, mining easements; requirements to obtain each kind of concession, grant, or lease from the government; the resurvey of mining claims, requirements for the reduction, subdivision, and consolidation thereof; the issuance of duplicate mining titles and concessions in case of loss of the original ones; the proceedings in case of adverse rights of boundary litigation; requirements to record the mining rights in the Public Mining Registry, as well as mining companies and contracts; the official inspection to verify the reported assessment work in the amount prescribed by the same law; and, finally, the sanctions and the causes for forfeiture of mining rights.

The forfeiture of the mining titles and concessions shall be declared by the mines department, irrespective of the dates thereof, for the following reasons: 1. Their transfer to foreign governments, to foreign rulers, or to Mexican companies having them as partners; 2. The lack of regular mining assessment work; 3. The failure to pay the government the stipulated royalty on the reported production; 4. The failure to pay the mining surface tax, excepting the case of exploration grants (cateos) and of leases or special contracts within the national zones of mineral reserve.

Other minor causes of forfeiture of the mining rights are constituted by violations of the clauses contained in the grants, concessions, special contracts, or leases.



As already stated, the proposed new mining law has been strongly opposed by all the Mexican miners now officially organized under the National Mining Association. Their objections are at present being considered by a special committee appointed by the secretary of national economy, and there is every indication that most of the arguments of the mining operators on the essential points of the proposed law have been accepted by the committee.

The new mining law shall be enacted not later than next August by President Lazaro Cardenas, acting upon the authorization conferred by the Mexican congress.

#### CARSON HILL ELECTS NEW OFFICERS AND DIRECTORS

FOLLOWING purchase of the controlling interest in the Carson Hill Gold Mining Corporation, Melones, California, by the Anglo American Mining Corporation, Ltd., Mills Building, San Francisco, California, a meeting of the board of directors of the Carson Hill company was held May 26 at which the resignation of Charles H. Segerstrom, president, was accepted, and the following officers and directors elected: A. O. Stewart, chairman of the board; Walter Lyman Brown, president; H. W. Klipstein, executive vice-president; Lawrence MonteVerda, vice-president; W. B. Rosecrantz, vice-president and secretary. These officers, together with Sol Grossbard and M. H. Manuel, comprise the board of directors.

John A. Burgess was reappointed general manager; Frank Wagner, underground superintendent; E. C. Maroon, mill superintendent; H. T. Libby, cyanide superintendent; and A. A. Weisbecker, master mechanic. No change is being made in the management or operation of the Carson Hill property.

The Carson Hill has been an outstanding example of the successful reopening and rehabilitating of an old property. When Segerstrom took over the mine in 1932 it was shut down, filled with water, and had no ore available. Since that time it has been successfully reopened and it is estimated that several million tons of ore are blocked out.

Under Segerstrom's management the mine has produced more than \$2,500,000, the property has been paid for, and the capacity of the milling plant increased from 500 tons per day to 1,200 tons per day. The compressor capacity has also been more than doubled and other new machinery has been installed, which makes the Carson Hill one of the most up-to-date mining plants in California at present. Early in June a contract was let to Western-Knapp Engineering Company for installation of additional equipment at the cyanide plant.

The Anglo American Mining Corporation, Ltd., has held an option on Carson Hill stock since March, 1933, and is thoroughly familiar with the property through its prior ownership of stock. The recent purchase of 607,378 shares gives Anglo American a total of 1,407,378 of Carson Hill's 2,400,000 outstanding shares.

has been in Colorado for the past winter, after returning from western Australia where he was chief engineer for a group of mines.

Alex Leggat of Butte, Montana, president and general manager of the Broad-gauge and Tamarack Mining Company, has been appointed engineer in charge of operations for the Nancy Lee Mines, Inc., which recently took over the Little Pittsburgh property.

Frank D. Thayer, formerly with the Hog Mountain Gold Mining and Milling Company at Alexander City, Alabama, has joined the staff of the Nevada Consolidated Copper Company, Chino Branch, at Hurley, New Mexico. He is a mill operator in the flotation department.

Edmund G. Brown, metallurgical engineer, who has been in charge of the erection of a mill for Cia. Minera de Santa Maria de la Paz y Anexas, S. A., at Matehuala, San Luis Potosi, Mexico, during the past year, has returned to his home at 164 Webster Street, Malden, Massachusetts.

Carl F. Floe, assistant professor of metallurgy at the University of Notre Dame, South Bend, Indiana, is planning a two months' motor trip through Europe this summer. He expects to visit metallurgical plants and laboratories in Great Britain, France, Germany, Norway, and Sweden.

H. E. Averell is now located at 1652 Euclid Avenue, Berkeley, California. For the past several months he has been at Michigan Bluff, California, where he was superintendent of the Black Bear Consolidated Mining Company, operating the Home Ticket drift mine. The mine has been shut down.

William E. Lapearle is president and general manager of the newly organized Metal Extraction and Mining Company, whose activities will include the manufacture of equipment. Other officials are H. R. Done, 302 Utah Oil Refining Building, Salt Lake City, Utah, vice-president, and Harold G. Shepherd, secretary.

Sperry H. Locke, who has been in the east, making headquarters at the Touraine Hotel, Boston, Massachusetts, is to be treasurer of a new company, organized to operate three mines in Nevada. H. L. Thomas of Salt Lake City, Utah, is also interested in the company, which will establish western offices in Salt Lake.

H. F. Byram has left Grants Pass, Oregon, for Prineville to supervise resumption of exploration work by drilling at the cinabarin property of the Independent Quicksilver Company on Lookout Mountain, 35 miles east of Prineville. Upon his return to Grants Pass he will continue his work as general manager of the Exchequer Mine, Inc.

Gordon Bettles, mining engineer, sailed June 10 for the Philippine Islands, where he is to take a post on the staff of the Pan-Philippine Syndicate at Manila. He took with him three miners, Rolf Hanson, John Fields, and Lee Sutton. Bettles was formerly located at Nevada City, California, with the Wiljobar Corporation.

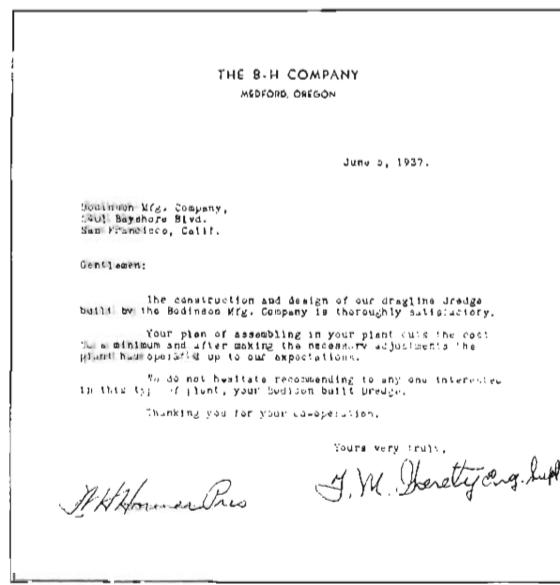
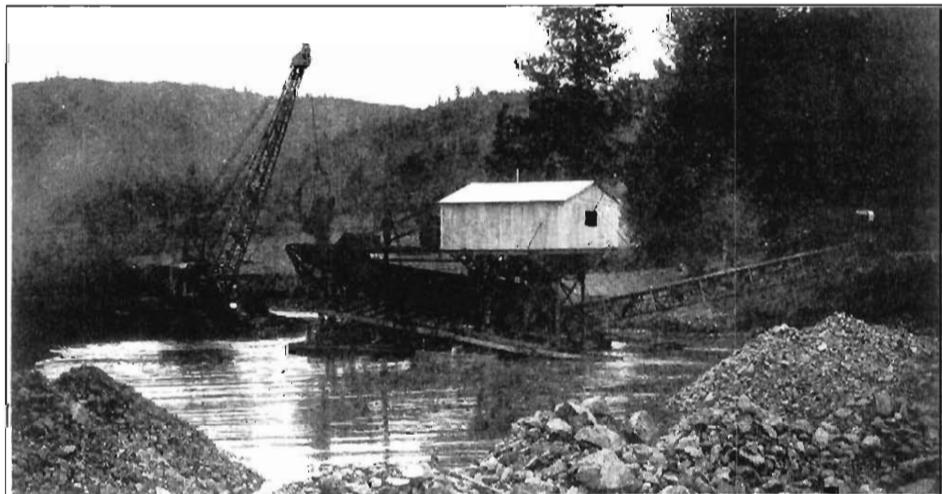
George Phillips of Malott, Washington, president of the Arlington Mines, Inc., which operates the old Arlington group of nine patented claims in the Ruby district, will be in active charge of operations. Joe Murray is in charge of underground work and Ed Forbes will be superintendent of the flotation mill now under construction. Both are at Okanogan.

Craig R. Arnold of Dahlonega, Georgia, owner of the Arnold Consolidated Gold Mines, has become a member of the American Institute of Mining and Metallurgical Engineers. Arnold has recently been granted patents on a new metallurgical method for the treatment of pyritic ores and is now engaged in financing a custom mill to treat southern ores.

Joseph H. Portugal of New York, who has been on the engineering staff of R. Potter Campbell, with headquarters at 84 William City, New York, is said to have accepted the position as assistant general manager of the Yunnan Mines Corporation at Yunnan, China. His work is to be the reorganization of the tin mines in that district and the introduction of modern methods of production.

C. W. Gilmer, manager of the mechanical sales, Seattle, Washington, branch of the United States Rubber Products, Inc., has been transferred to the New York office as belting sales engineer, operating under T. A. Bennet, manager of belting sales. L. F. Koepp, formerly a salesman in the Seattle district, has been appointed

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# Mill Heads from Western States

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

Work has been started on the construction of a new mill for **Comstock-Dexter Mines, Inc.**, Hillside, Arizona. The mill is a 100-ton flotation plant and will be equipped with new machinery of the latest approved type. Excavation work is nearing completion and the pouring of foundations and retaining walls is to begin at once. In addition to the mill equipment, the capacity of the Diesel electric plant is being increased by the addition of a 300-horsepower Chicago Pneumatic Diesel engine which will be direct connected to a 200-kw., 3 phase, 60 cycle, 440 volt generator. The installation of this engine will provide a total generating capacity of 540 horsepower. Financing of the project will be handled through sale of 125,000 shares of common stock at \$1 a share, which was recently authorized by the SEC. T. F. M. Fitzgerald, Drawer 31, Prescott, Arizona, is president and general manager of the company.

The **Santa Maria Ventures Company** is opening a rhyolite plug near the Santa Maria River, 32 miles from Hillside, Arizona, which is said to show average values of from \$4 to \$5 per ton in gold. Seven shafts are being sunk on the property and several have already shown tellurides at shallow depth with greatly increased gold values. A good road has been built to the property and nine men are employed under the direction of Archie M. Bell. The plug covers an area of 250 by 600 feet and it is understood that mining will be done by the open pit method. A 250-ton mill is planned as soon as tonnage justifies. E. G. Frawley of Reno, Nevada, and Reno and New York associates are developing the property which was taken over under lease and bond from D. L. Forrester, 1710 Wayne Avenue, South Pasadena, California, who had previously held the lease.

The **Gold King** mill, located on the Waggoner road about 14 miles from Kirkland, Arizona, is being operated by A. T. Russell, Kirkland. The plant, which has a capacity of 50 tons, is handling gold-bearing schist running from \$4 to \$5 per ton. It is reported that plans are under way to increase the milling capacity to 250 tons. Russell is operating several properties under lease, among which are six claims owned by the Hassayampa Gold Mining Company, a group owned by the Bragg estate, and a portion of the Henderson property. Charles H. Urquhart is mill superintendent.

Selected samples from an ore shoot opened recently at the Silver Bell mine of the **Sunbeam Gold Mining Company**, Florence, Arizona, are reported to be assaying as high as 7,000 ounces of silver. The company is shipping a carload of this ore

which it is understood will average in excess of 500 ounces. This is in addition to the regular schedule of concentrate shipments to the El Paso smelter and crude ore shipments amounting to 12 cars per month to the Hayden smelter. Work at the property is in charge of Harry Maxwell of Superior, Arizona, who succeeds H. A. Derrer as superintendent. Glenville A. Collins, 490 Bay Street, San Francisco, directs the operation of the mine for the Sunbeam company.

It is understood that the **Liberty Hill Gold Mines, Ltd.**, R. P. M. Davis, president, 6715 Hollywood Boulevard, Los Angeles, California, is negotiating for erection of a cyanide plant at the Alvarado mine, five miles northeast of Congress Junction, Arizona. A development program carried on at the mine during 1936 was financed by a \$20,000 RFC loan. L. L. Farnham is in charge at the property.

Ed Williams, who has a lease on the **Dean** mine near Kingman, Arizona, has installed a compressor and has cleaned out the workings to the No. 3 shoot. He plans to continue clearing the caves through the No. 7 shoot, and ore shipments are to begin shortly. The property is owned by Norval Bigler, Box 101, Kingman, Arizona.

Walter Meyer, Kingman, Arizona, is operating the **Lead Carbonate** and **Columbus** claims near Kingman, Arizona, and is preparing to make a shipment of ore soon. Meyer also operates the **Telluride Chief** mine in the Hualapai mountains and recently made another carload shipment from that property.

The **Apex Mining Company**, C. O. Lowe, superintendent, Elfrida, Arizona, is installing a 50-ton mill at its property in the Swisshelm mountains. The mine, which carries gold, silver, and lead, is owned by Lee Hunt, Homer Bates, Arthur Detloff, and Lowe. According to the superintendent, the average metal content of the ore is expected to run approximately \$15 per ton. Ten men are employed at present, but when installation of machinery has been completed the number will be increased to 20 or 30 men.

The **Great American Mining Company**, Elfrida, Arizona, whose property is located in the Swisshelm mountains a few miles southwest of the Apex mine, is reported to be operating steadily with a crew of 15 to 20 men employed.

The directors of the **American Smelting and Refining Company**, 120 Broadway, New York, New York, have declared a dividend of \$1.75 per share on the 7 per cent cumulative preferred stock of the corporation for the quarterly period ending June 30, 1937, payable July 31, 1937, to stockholders of record at three p. m., July 9. A dividend of 75 cents per share on the common stock of the corporation was also

declared, payable August 31, 1937, to stockholders of record August 6.

The **Homestake** group of claims located eight miles west of the Vulture mine, near Wickenburg, Arizona, owned and operated by Edward Monike for the past 25 years, has been purchased by Alex Hyde, head of the Mentholatum Company of Wichita, Kansas, and Chicago. Operations will be carried on under the name of the **Monike Mines Company**. Rehabilitation work is now under way, and this will be followed by the sinking of a new shaft. A carload of ore shipped recently is reported to have been valued at \$50 per ton. Howard Marine is manager of the property.

The **Dawn Mines, Inc.**, holding 15 claims located in Tehatchi pass of the Harquahala mountains eight miles from Wenden, Arizona, is being developed by Dr. Rolf Alexander. He is reported to have made a rich strike while driving a 250-foot open trench through a 200-foot ore-bearing porphyry schist dike. A hoist and compressor are being installed on the Dawn No. 1 claim and development work will be pushed. A 20-inch vein of \$110 ore was encountered on the hanging wall in the incline shaft being sunk on this claim. The present force of eight men will probably be increased to 50 by the first of July and work will be put on a three-shift basis. Grab samples are said to show an average of \$11 per ton in gold throughout the length of the open trench.

J. B. Long, Phoenix and Prescott business man, and John A. Agard, Wenden, Arizona, have shipped a small car of high-grade ore from the **Agard** group of claims located at Cunningham Pass in the Harcouvar Mountains near Wenden. The shipment, which carried gold and copper values, was made to the International Smelter at Miami.

Purchase of the **Pilgrim** and **Klondyke** mines in the Weaver mining district near Chloride, Arizona, at an undisclosed price, has been announced by H. W. Thorne, president, and A. M. Davis, vice-president, of the **Producers' Mines, Inc.** The properties were acquired from the **Pioneer Gold Mining Company** which has been operating on a 100-ton daily basis for the past two years, treating the ore in its own mill. Robert A. Elgin will manage operations for the purchasing company.

All machinery is on the ground, concrete work has been completed, and tanks installed for the new 100-ton mill at the

**Cactus Queen** mine of **Cactus Mines, Inc.**, Mojave, California, and the mill is expected to be in operation by July 15. A new steel headframe has been erected and the shaft deepened to

750 feet. Pending completion of the mill, ore is being shipped to the Selby smelter. Frank V. Johnson, Rosamond, California, is mine superintendent and B. C. Staigler is general superintendent.

An 18-foot vein of milling ore and a supply of water which will run about 1,000



gallons in 24 hours, have been encountered at the 300-foot level in the Big Horn mine, Essex, California, which is operated by the **Big Horn Exploration Company**, W. E. Wilson, president and general manager, Essex. A 30-foot sump has been sunk at the 300-foot level and drifts run 130 feet south and 120 feet north. The north drift is now about 230 feet from another shaft which will be used for ventilation purposes and as a safety exit. It will also tap a water storage supply which, it is predicted, will provide sufficient water to permit the start of milling operations. An east and west drift is to be started immediately, on which two additional crews will be employed. The present crew comprises 12 men. The property is equipped with a 240-horsepower Diesel electric plant.

The **Colorado** quartz mine, located in the Colorado district near Mariposa, California, is now in operation, and 10 stamps are dropping on a 24-hour basis, according to Glen M. Pehrson, president and general manager of the **Long Gulch Mining Company**. Harry Odgers, who is associated with Pehrson, is in charge of operations at the property. Pehrson and Odgers also operate the **Schroeder** mine at Midpines, California, under the name of the **Golden Empire Mining Company**. Pehrson's address is Box 50, Mariposa.

The **California Standard Gold Mines Corporation**, Jamestown, California, has increased its holdings by taking over the **Golden Rule** mine, which adjoins its original property on the south, according to A. F. Muter, president of the company, who states that the company now controls 4,500 feet of the Mother Lode in that district. Two ore bodies, each apparently more than 10 feet in width and averaging in excess of \$7 per ton, have been located in the new property by diamond drilling, according to Muter. One was penetrated at a depth of 200 feet and the other at 500 feet. The 200-level south drift from the company's main working shaft is being extended into the Golden Rule ground and is said to be showing 18 inches of good ore where it enters the property. In the mine workings on the company's original property, what is described as an offshoot from the main 200-level ore body has been struck and for a width of 15 feet is said to run \$20 per ton. A drill core from a point 60 feet farther north is understood to indicate several feet of \$50 ore. Mill heads are reported to have averaged \$15 during May. A. E. Place, Jamestown, is manager and Robin Wilson is superintendent at the property.

The plant owned by C. W. Erickson is being installed at the **Altoona** quicksilver mine, Carrville, Trinity county, California, and the property is to be put on a production basis at once. The Altoona, one of the oldest mines in the state, has not been worked for a number of years.

A crew of 10 men is employed at the **Rinconada** quicksilver mine, 11 miles southeast of Santa Margarita, California, operated by Sherman Shaler, 314 Center Street, Taft, California, and Andrew J. Gahan. A new retort is being built and promising ore is being developed in a sub-level just off the Mexican drift.

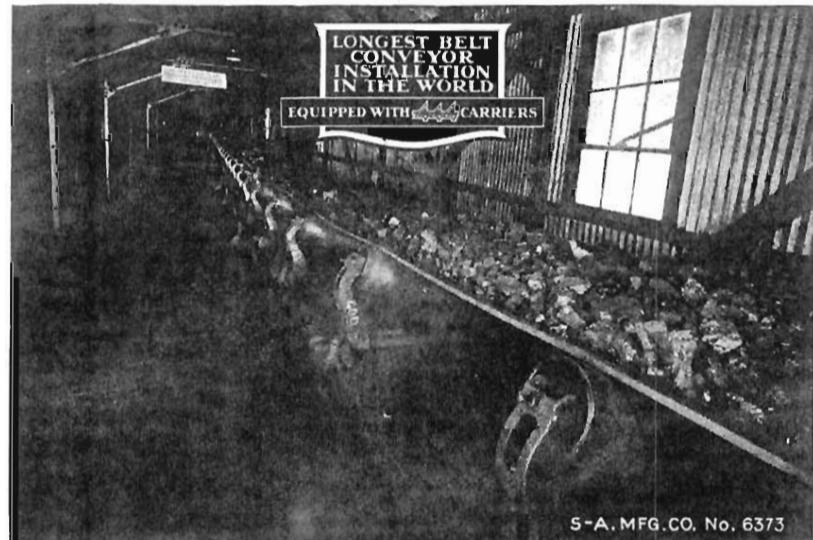
Preparations are under way for erection of a new 250-ton mill at the Standart mine of the **Indian Valley Mining Company**, Greenville, California. A 10-stamp mill has been in operation as a pilot plant for some time. Driving of the lower tunnel to open up the veins at greater depth is proceeding satisfactorily. This tunnel will develop the Indian Valley and Southern Eureka veins about 400 feet below the former main workings and about 1,000 feet below the surface. When completed, the lateral will be about 2,400 feet long, crosscutting the Indian Valley vein at about 1,800 feet and the Southern Eureka at about 2,400

feet. At present 12 men are employed on a two-shift basis under the direction of G. L. Johnson, vice-president and general manager, Greenville. C. L. Hibbard, 1210 Western Avenue, Seattle, Washington, is president of the company.

Six men are employed at the Jim mine, Graniteville, California, operated by C. G. Columbus and sons. A mill and much new machinery were installed at the property last year.

The **German Bar** mine at North Bloomfield, California, is reopening after a winter shutdown of several months. Thomas Stephens is in charge of operations.

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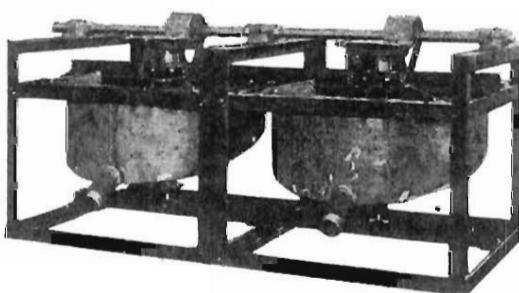


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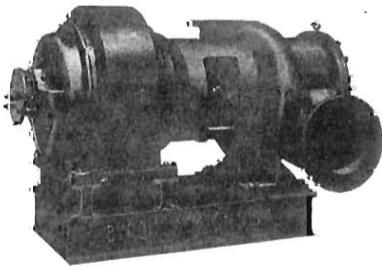
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# **BYRON JACKSON**

**CENTRIFUGAL PUMPS FOR EVERY SERVICE**

Page 18

J. Jerome McLaughlin of Tonopah, Nevada, is reported to be considering plans for a dry land dredging operation about 25 miles from Paso Robles, California. A steam shovel and sluices would be used in the proposed operations. McLaughlin has been making his headquarters at Paso Robles.

The new 150-ton flotation and cyanide plant of the **Confidence Gold Mining Company** at Confidence, via Sonora, California, was placed in operation early in June. The milling equipment was installed by the Western-Knapp Engineering Company, 593 Market Street, San Francisco. Development of the mine has continued throughout the construction period and it is understood that thousands of tons of ore have been blocked out, assuring a long and continuous run for the mill. The ore, which has been coming from the 500, 800, and 900 levels, is averaging approximately \$20 per ton, while the width of the vein ranges from four to 20 feet. C. T. Eastman is manager of the property and William J. Leigh is mine superintendent.

Mrs. Kitty B. Kimball, president and manager of the Reliance Placer and Quartz Mining Company, Nevada City, plans to employ a crew of three men at the property, located on the Middle Yuba river.

P. J. O'Shay and H. Gentry are preparing to reopen the Chloride gold mine near Helena, Trinity county, California.

The Reorganized Carrie Silver-Lead Corporation is sinking a shaft on a vein from which several shipments of high-grade ore have already been made. The property is located in the Pioneer district near Pine Grove, Amador county, California. C. R. Murdoch, manager, reports that the average return from all smelter shipments during the past year was \$67.36 per ton.

The Chips Flat group, comprising eight lode claims and one placer claim, located on Kanaka Creek near Alleghany, California, has been acquired by a group of Los Angeles and Long Beach investors headed by William R. Fisher. Approximately \$150,000 has been spent by former owners in developing the property, according to Fisher. The Red Jasper vein, part of the Alleghany lode system, was encountered in the development of both the East and Mammoth tunnels on the property. Stuart L. Brown, Los Angeles mining engineer, will be in charge of work for the new owners.

Directors of the American Potash and Chemical Corporation distributed a dividend of \$1.50, on June 22 to holders of record June 15. On December 18, 1936, \$1.25 was paid and a year ago \$1 was paid. The company operates a plant at Trona, California, of which A. A. Hoffman is general manager.

The California Engels Mining Company, F. Emerson Hoar, president, 388 Montgomery Street, San Francisco, California, has filed an amendment to its registration statement with the Securities and Exchange Commission, stating that the purpose of its issue is to secure funds for mine reopening and working capital. The registration statement was originally filed May

10, 1937. The company proposes to re-open its Engels copper mine in Plumas county, California. The statement seeks permission to issue 144,340 shares of common capital stock to stockholders for 50 cents a share on the basis of one-half share of new stock for each share now held, and 18,000 shares to be sold to two persons for 50 cents a share. Permission to issue and sell the stock has already been granted by the Division of Corporations of California.

**St. Joseph Lead Company** on June 1, 1937, called for retirement \$1,000,000 of 4 per cent notes due June 1, 1945. This represented the outstanding remainder of an original issue of \$3,000,000 all of which was held by a single purchaser. With the retirement of these notes the company will have no debts outside its current liabilities and its contingent liability on the guarantee of loans made by a foreign non-consolidated subsidiary.

Five hydraulic mines are being operated in Sierra county, California, behind the Bullard's Bar dam and a sixth is to start soon. The **Depot Hill** and the **Indian Hill** mines, both under the management of F. J. Joubert, Downieville, California, have been working for several weeks. The **Humphreys**, **Pride**, and **Arctic** mines are working at Sierra City, California, and the **Gibsonville** mine is to go into production soon.

Walter E. Pantle is superintendent of a new gravel dredging project on Doty Ravine near Lincoln, California, which employs

equipment mounted on caterpillar treads instead of the hull in use among the doodlebug dredges. Operations are in charge of F. Q. Bohett of San Jose, California. Washing is handled by a trommel, and four Ainalay bowls comprise the recovery unit which is driven from a 30-horsepower electric motor while the shovel is Diesel powered. Two shifts of men are employed and approximately 75 yards of gravel per hour are handled.

The 50-ton pilot mill of the **U. S. Chrome Mines, Inc.**, near Folsom, California, is being enlarged to treat 100 tons of ore daily. The flow sheet has been so designed that a 95 per cent recovery is obtained. Concentrates are averaging better than 51 per cent chromic oxide from ores ranging from 10 to 20 per cent. Geo. H. Beers, Box 8, Fair Oaks, California, is superintendent and R. J. Penrose, Box 203, Station A, Auburn, California, is general foreman.

George P. Meyers of Saratoga, California, has bonded the **Total Wreck** and the **Last Chance** quartz claims near Murphys, California, and is installing a new com-

pressor. A new mill is planned for the property in the near future.

The **Ohio** and **Chase** gravel properties comprising 100 acres near Vallecita, Calaveras county, California, have been bonded by Fred Zurcher, Murphys, California, John Evans, Grover Bruce, and Garver Martin, Sheep Ranch, California. A tunnel has been run for a distance of 420 feet.

New machinery and supplies are being trucked to the **Chemung** mine in the Masonic district near Bridgeport, California, by lessees. It is understood that the mill will be in condition to handle a large tonnage of ore by mid-summer.

An additional five-year lease on 160 acres of mining property in Tuolumne county has been given to the **Junction Gold Mines, Inc.**, Soulsbyville, California, by John Yost. The lease renewal, however, does not cover the Golden Dawn lode claim. Percy M. Cropper, 156 Montgomery Street, San Francisco, California, is president of the company.

**Sulphur Diggers, Inc.**, operating in the Eureka Valley of Inyo county, California, is erecting a new reduction plant on the railroad line at Zurich Station, Big Pine, California. The new plant, which is expected to be completed early in July, will prevent the interruption of operations due to severe winter conditions such as were experienced last January and February. Present production, which is averaging about 1,200 tons per month, will be greatly increased upon completion of the new plant. Construction work is in charge of

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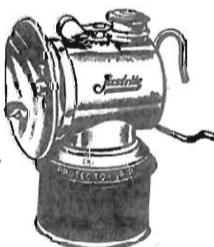
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Ernest Klepetko, formerly chief metallurgist for the Anaconda Copper Mining Company's interests in Poland. When the new plant is completed the company plans to initiate a vigorous sales campaign in cooperation with its sales agent, the California Sulphur Company. W. N. Wilkinson, general manager of Sulphur Diggers, Inc., was formerly assistant secretary and sales manager of the Union Sulphur Company, serving in that capacity for more than 20 years. Sidney B. Wood, Jr., is president of Sulphur Diggers which maintains offices at 3923 West Sixth Street, Los Angeles, California, and at 76 Beaver Street, New York City.

The drift from the upper tunnel level of the Quail mine, 11 miles south of Coulterville, California, is reported to be in high-grade ore five and one-half feet in width. Several tunnels have been run and it is understood that the ore can be mined and milled easily. The Quail property is operated by Quail Gold Mines, Inc., H. B. King, president. J. E. King, Sonora, California, is in charge of operations at the property.

The Hayden Hill Gold Corporation, F. H. Brown, superintendent, Adin, California, is treating 35 tons of ore daily, the ore reported to run approximately \$10 per ton in gold. The cyanide process is being used and extraction is understood to be about 96 per cent.

Seven men are employed in underground and millwork at the Buchanan quartz mine southeast of Tuolumne, California, and the crew is to be substantially increased this summer. Present development is being carried on through the No. 2 tunnel, but the 800-foot shaft is to be cleaned out and rehabilitated preparatory to extensive exploratory work. The vein is from five to six feet in width and carries high gold values, according to J. Andrew Cook, superintendent, Tuolumne. Milling equipment, which includes a 10-ton Hadsell dry crushing mill, a 25-ton ball mill, and an amalgamation and flotation plant with a capacity of 40 tons, is in charge of W. Lytle, also of Tuolumne.

A tunnel is being driven to cut a vein carrying gold values at the Too Far North mine near Long Barn, California, preliminary to going on a production basis early this summer. The property is operated by G. E. Campbell, Carl Anderson, and S. B. and Frank Smyer, all of Long Barn.

After a suspension of operations which extended over a period of a year, the Bullion mine of the Grass Valley Bullion Mines, Inc., Grass Valley, California, is again on a production basis and ore is being trucked to the old stamp mill at the Idaho mine for treatment. Two full shifts are working and sinking is under way from the 1,700-foot level. Howard Dennis is superintendent and Phil Folck is foreman. Litigation involving apex rights, which caused suspension of operations, was decided in favor of the Grass Valley Bullion Mines. The property is worked by the Idaho Maryland Mines Corporation under an agreement with Empire Star Mines Company, Ltd.

The Natomas Company, Natoma, California, gold dredging firm, has declared a

regular quarterly dividend of 20 cents, payable July 1 to stock of record June 12. Thomas McCormack, Box 1197, Sacramento, California, is president of the company.

Following purchase of controlling interest in the Carson Hill Gold Mining Corporation, Melones, California, by the Anglo American Mining Corporation, Ltd., Mills Building, San Francisco, California, a meeting of the board of directors of the Carson Hill company was held May 26 at which the resignation of Charles H. Segerstrom, president, was accepted, and the following officers and directors elected: A. O. Stewart, chairman of the board; Walter Lyman Brown, president; H. W. Klipstein, executive vice-president; Lawrence MonteVerda, vice-president; W. B. Rosecrantz, vice-president and secretary. These officers, together with Sol Grossbard and M. H. Manuel, comprise the board of directors. John A. Burgess was reappointed general manager; Frank Wagner, underground superintendent; E. C. Maroon, mill superintendent; H. T. Libby, cyanide superintendent; and A. A. Weisbecker, master mechanic. No change is being made in the management or operation of the Carson Hill property.

The Bessler mine at Downieville, owned by Mrs. Annie Bessler, which has been shut down since 1931, is to be placed in operation, according to an announcement by C. S. Morbio, attorney for Mrs. Bessler. The property lies directly on the Alleghany-Downieville contact and is opened by an old shaft 3,000 feet in depth. The last work done at the mine was devoted to sinking a shaft to intersect the main vein at a depth of 300 feet, and it is expected that the new work will be the completion of this shaft.

At a recent meeting of the board of directors of the Operator Consolidated Mines Company, George S. Clack, Box 2031, Reno, Nevada, resigned as president and general manager and W. E. Stephenson, San Jose, California, was elected to succeed him. Leslie E. Johnson resigned as secretary-treasurer and was succeeded by Harold E. Hunt, also of San Jose. Main offices of the company will be moved from Reno to San Jose. Both Clack and Johnson continue as directors of the organization, however. The company's property is located near Johannesburg, California, where work is nearing completion on the installation of 10 new and heavier stamps and a cyanide plant of the sand leaching type which will double the capacity of the water settling system now in use. Major J. Paul Jones, mining engineer, is manager of the property.

The diamond drill bore which is to carry a high-power cable at the property of the Lava Cap Gold Mining Corporation, Otto E. Schiffner, general manager, Nevada City, California, has holed through into the long tunnel connecting the Central and Banner shafts. By a reaming process now under way, the one and one-half inch conduit will be enlarged to three inches and will accommodate a cable carrying 11,000 volts of electric energy. This will engage a transformer and power plant at an un-

derground station on the long tunnel. It is understood that this is the only instance on record of a diamond drill hole being used as a power conduit.

Considerable activity is reported at the **Chance** mine in the Sherlock district near Mariposa, California. The property, owned by A. E. Clark, is under lease to Joe Rainey, F. P. Slate, E. E. Lampen, and M. Bond, all of Paso Robles, California, and J. Simmons and B. Hansen of San Francisco. It is being worked on a cooperative plan with Rainey in charge and Clark acting as superintendent. A 750-foot crosscut was run last year to tap the vein at a depth of 450 feet. A 450-foot drift on the vein produced ore which is understood to have averaged \$15 per ton for the entire distance. The plant is equipped with a 25-ton Huntington mill, a large compressor, and a hoist. At present six men are employed.

The **Amador Mother Lode Mining Company**, E. A. Stent, general manager, Drytown, California, is treating 200 tons of ore daily in the reconditioned mill at the Grover-Fremont mine. Crushing is handled by 20 stamps which feed to two Wilfley concentrating tables, the tailings going to a ball mill and thence to flotation. Two concentrate products are made, one from the tables and one from the flotation circuit. The ore for the mill is shovel mined from the old dumps on the property and is highly oxidized, containing many materials not amenable to flotation. No mine ore is being treated as development is still in progress.

S. Reiss and Terrance O. Welch have taken over and will reopen the old **Windy** mine near Randsburg, California. A 100-ton mill is to be installed and it is planned to work the old dump, estimated at 50,000 tons, in addition to the newly-mined ore. Work on the mill construction is to start as soon as the foundation has been completed.

Diamond drilling is under way on the north extension of the **Eureka** mine, Georgetown, California, one of the properties of the **Woodside-Eureka Mining Company**, Romaine Myers, president, 204 Federal Telegraph Building, Oakland, California. W. E. Minshall is in charge of the drilling and will sink the first hole to a depth of 220 feet, cutting the ground at an angle of 36 degrees to test the geo-physical readings made by Harvey Smith, geophysicist, recently. The company owns several hundred acres between Georgetown and Georgia Slide, and is employing this method to ascertain the size and value of the ore bodies. A crew of 10 men is employed.

A new vein has been located at the **Opportune** mine, four miles north of Downieville, California, by Tom Winrod and his son Carroll, owners of the property. The ore is understood to be free milling and ranges in value from \$10 per ton to high grade. Width of the vein is reported to be from two to six feet, and it has been exposed for a distance of 150 feet. In addition a large intensive mass adjacent to the vein has been found to carry values. and enrichment of wall rocks is said to in-

dicate the presence of a large body of low-grade ore. Surface work is now under way to determine the extent of the deposit, and upon completion shaft sinking will be started. It is understood that with a large tonnage immediately available, a suitable reduction plant will be installed by mid-summer.

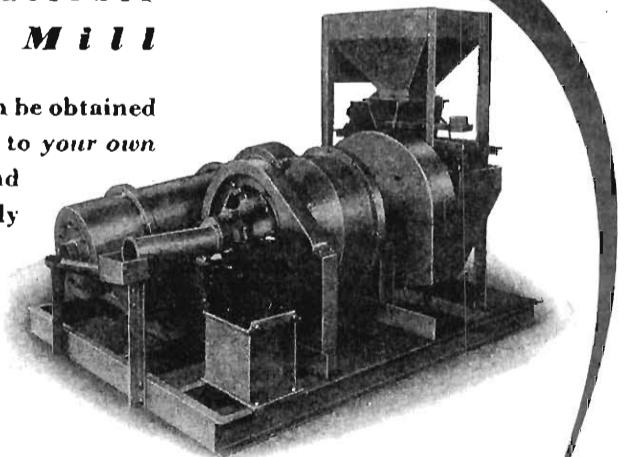
At the **White Bear** mine, Sawyers Bar, California, a 940-foot crosscut tunnel is being driven to cut the veins 200 feet below the present lowest level. The property is operated by the **Mayland Mining Company**, James H. Mills, managing director, Sawyers Bar. The company's mill was destroyed by fire March 18, 1937, but repairs and replacements have been made and the plant is again operating. Milling had been carried on for the past two years on a small scale, approximately 15 to 20 tons daily. E. W. Stevens is superintendent.

A crew of eight men, under the direction of Sam S. Denman, Auburn, California, is engaged in unwatering the **Gold Blossom** mine in the Ophir district. Electrical pumping equipment with a capacity of 350 gallons per minute has been installed, and the mine shaft, 540 feet in depth, has been unwatered to the 200 level. The property has been idle since 1898.

A strike of rich ore has been reported at the **Queen** mine in the Moores Flat mining district north of Nevada City, California, owned by Bert Davidson and Carl Larsen, Nevada City. The strike was made while sinking a winze from the 150-foot tunnel and the ledge is reported to be three feet in width. The owners are considering

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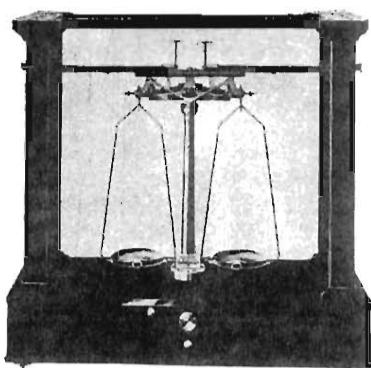
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OR JUTE FOR THE MINE

**PLUMMER BAG MFG. CO.**  
748 S. San Pedro St. Los Angeles

plans for installation of a mill. The only route to the mine is by trail and mining equipment will have to be packed in.

The **Atlas Gold Dredging Corporation** has its gold dredge in operation near Anthony House, 10 miles from Grass Valley, California, and is working 24 hours a day with a crew of 15 men employed. H. E. (Tiny) Ackley, Grass Valley, is superintendent. Frank E. Ford, 601 West Fifth Street, Los Angeles, is president of the company.

Wade Vincent, Greenwood, California, has sold the **Little Chief** mine near Greenwood to Frederick Sparks, Edward White, and Samuel Poteet of Georgetown, California. Several large pockets of gold are reported to have been opened up in the property.

A bedrock tunnel on the **Thomas Diggings** tract near Grass Valley, California, is being reopened by the **Champion Gold Mines**, which holds a lease and option on the property. Work is under the direction of Gordon L. Jaeger. It is planned to open the tunnel for several hundred feet to a connection with the Humphrey shaft, one of the series of gravel shafts in the Alta Hill section which was in active use about 50 or 60 years ago. Six sets of lessees continue operations on the tract but, in the opinion of Jaeger, all recent mining has been in secondary flow channels, or on the rim of the main channel. The work now projected is expected to penetrate the main Alta Hill channel and to make available much virgin ground. Arrangements are being made whereby the Champion company will turn over its quartz rights to another organization which will probably use the old name of **Grass Valley Gold Mines**, and which will operate through the St. Johns shaft. The Champion company has levied a 2-cent assessment on its capital stock of 2,000,000 shares to provide a working fund for the gravel development.

A series of pilot raises is being run from the ninth level to the main haulage tunnel at the **Plumbago** mine of **Socorro Mines, Inc.**, Alleghany, California, under the direction of W. O. Traves, formerly mine foreman, who has contracted the work. A second exit to the surface from the main haulage tunnel is nearing completion. This exit traverses the old worked-out area of the mine and is being opened for ventilation and safety. Thirty-five men are employed at present under the direction of Ralph Youtz, superintendent. A. L. Pierce, formerly mill superintendent at the Zeibright mine, is now mine foreman at the Plumbago. Ten stamps of the 20-stamp mill are working on a three-shift basis and it is reported that the company plans to install flotation cells at a later date. The **American Girl** mine at Ogilby, California, is also operated by Socorro mines.

A plant capable of treating 100 yards of channel gravel is under construction at the property of the **Six Operation Company** in the Pleasant Valley district near Placerville, California. The group of claims, recently acquired under bond and lease from August Neistrum and Mr. and Mrs. Boyce, comprises the **Mildred**, **Elizabeth**, and **Black Gold** mines. The plant is being installed by

T. H. Brunius of Placerville and consists of a Crown disintegrator, a gallows frame, a 35-ton bin, grizzlies, crushers, etc. A raise has been run from the Venture tunnel to the surface and drifting 12 feet below the tunnel level is now under way for the purpose of exploring the channel.

Metallurgists are engaged in planning a flow sheet for a mill to replace the old equipment at the **Veerkamp** mine of the **Gold Company, Ltd.**, Garden Valley California. According to Gilbert G. Chisholm, president and general manager, a 250-ton ball mill is being prepared for the company and is expected to be in operation by the middle of July. The present mill is being removed from the property. In addition to the new ball mill, crushers will be installed to be used in the circuit ahead of the milling unit. Several new flotation units will augment the present equipment. A cyanide plant, capable of treating in excess of two tons of concentrates daily, will also be installed. The concentrates, which average about three-fourths of a ton for every 100 tons milled, have previously been trucked to the **Selby** smelter for treatment. The first milling scheduled upon completion of the plant will be the re-running of tailings through the new circuit, which it is estimated will require about two and one-half months. Ore now being developed in open cuts will keep the mill operating for some time after that and, as the winter weather approaches, ore will be drawn from the three-compartment shaft now being sunk to lower levels. At present it is down approximately 170 feet on an incline of 62 degrees. At least two more levels will be developed in the shaft, according to Chisholm. Work is on a two-shift basis.

A 50-ton flotation mill unit has been installed by George Mulvey and A. H. Rhine, 319 C. A. Johnson Building, Denver, Colorado, on the **Wilson** property in the Kokomo district and another 50-ton unit is scheduled to be installed in about 90

days. Rhine controls 17 large groups of claims in the Kokomo-Robinson area of Summit county, including a considerable portion of the townsite of Kokomo and all of Robinson. Ore is being mined and milled under the name of **Kokomo Metals Consolidated**.

Operations are to be resumed at the **Gum Tree** group of claims in the Trail district of Clear Creek county, about six miles southwest of Idaho Springs, Colorado. E. G. Robertson of Denver recently purchased the property, which is believed to be on the same vein as that developed in the Freehand mine.

From five to ten men are being employed by the **Gold Crest Mining Company**, which recently completed the installation of a new compressor plant at its **Gold Crest** mine in the Kokomo district of Summit county, Colorado. From three to five tons of gold-silver ore is being produced daily. Ben H. Parker, mining engineer and geologist of 905 Thirteenth Street, Golden, is president and general manager.