

The Sampling Mill by Fisher Lane



*** From Germany comes a shirt tale—a tale which, to our warped sense of humor, is the funniest Hitlerism yet. Says an AP Berlin dispatch: "The economic ministry today approved a plan to shorten shirt tails to save cloth. All shirts made after January 1 will be two inches shorter fore and aft. The average German shirt now is 37.4 inches long in front and 39.4 behind." As Reich shirt-production is 30,000,000 a year, millions of yards of cloth will be saved.

*** Clip this and paste it in your hat, to re-peruse whenever you get jittery on the subject of New Deal regimentation. Do that for two reasons—one, to remind you that (as yet, at least) we Yanks haven't had our shirt tails regimented; the other, to remind you that mebbe we might come to that. Still, with the mid-December rebellion of the Congress in mind, we think that not even Henry Wallace nor Harold Ickes will ever clip a cubit off'n the caudal appendages of OUR shirts.

*** Such "economizing" is fundamentally erroneous. As erroneous as is the far-spreading movement among college coeds to shuck off their silk stockings and wear lisle ones—to help China, forsooth, and hinder Japan. Don't the gals recall that China was shipping silk to the rest of the world many decades before Perry waked up the Mikado's domain? That coed boycott, and the coincidental AFL boycott on Japanese products, are apt to be two-edged knives that conceivably can and may cut both ways. Might, in fact, produce repercussions directly affecting our western mining industry. Mind you, don't read into this comment any "side-taking" across the Pacific; nor get the idea that your miller is in any way in sympathy with Japan's uncontrolled gangsters now devastating China. It's up to the Japanese government and the rank and file of her people to get her army and navy where they belong—under government control—and to keep them there. Boycotts in America won't help to that end.

*** Pacific Coast financial writers whistled cheerily (in type) when Federal Reserve reports of mid-December revealed that major banks are experiencing increased demand for money from commerce, industry and agriculture. Says one: "The volume of commercial, industrial, and agricultural loans is a good index of the trend of business activity." Fine, my lad. Loans in those categories upped \$4,000,000 to \$382,000,000 in seven leading Twelfth District cities in the week ending December 15.

We'll bet our winter ulster against a pair of used galluses that you could comb that total with your pet dog's flea-comb and not rake out enough in the way of loans for MINING DEVELOPMENT to park in your ear.

*** We emphatically agree with Charles W. Merrill of the U. S. Bureau of Mines in his letter to the Editor urging abolition of the term "doodlebug" as applied to small mobile placer gold recovery machines. Too much bad odor has clung to that word from its other association with quackery committed under the guise of geophysical location of deposits of metals and oil.

James J. McDonald, 65, of Searchlight, Nevada, died December 19, 1937. He came to Searchlight in the boom days of 1899, having previously worked in the Leadville district of Colorado. His activities were for the most part confined to the Golden Triangle area in southern Nevada.

George S. Czaravich, 35, of Silverpeak, Nevada, died en route to Tonopah December 21, where he was being taken after an automobile accident. Czaravich was well-known in the Tonopah and Goldfield districts and at the time of his death was employed by the Desert Silver, Inc.

William Sims, 45, of Tonopah, Nevada, died December 23, 1937, at the Mine Operators Hospital in Tonopah. A native of Greece, Sims had lived in this country 25 years and had spent most of this time in western mining camps. At the time of his death he was operating a lease in the Mizpah mine.

Matthew T. Chestnut, Sr., Colorado and California mining man died recently at Oakland, California. He and associates grubstaked Harry Irving on Newman Hill near Rico, Colorado, and from that venture came the foundation of a fortune. He had numerous mining interests in other districts in Colorado and in California.

Fayette M. Hill, Jr., 23, of Silverpeak, Nevada, died December 23 in a Tonopah hospital where he had been taken for an emergency appendectomy. Hill is the son of Fayette M. Hill, mill superintendent at the Black Mammoth property, and he had been employed at the Black Mammoth for the past three years.

Clarence E. Carpenter, 79, Humboldt County, Nevada, pioneer, died December 28, 1937, at the Humboldt General Hospital after a six weeks' illness. Carpenter had lived in the vicinity of Winnemucca for the past 25 years and had been engaged in various mining deals in the Awakening district.

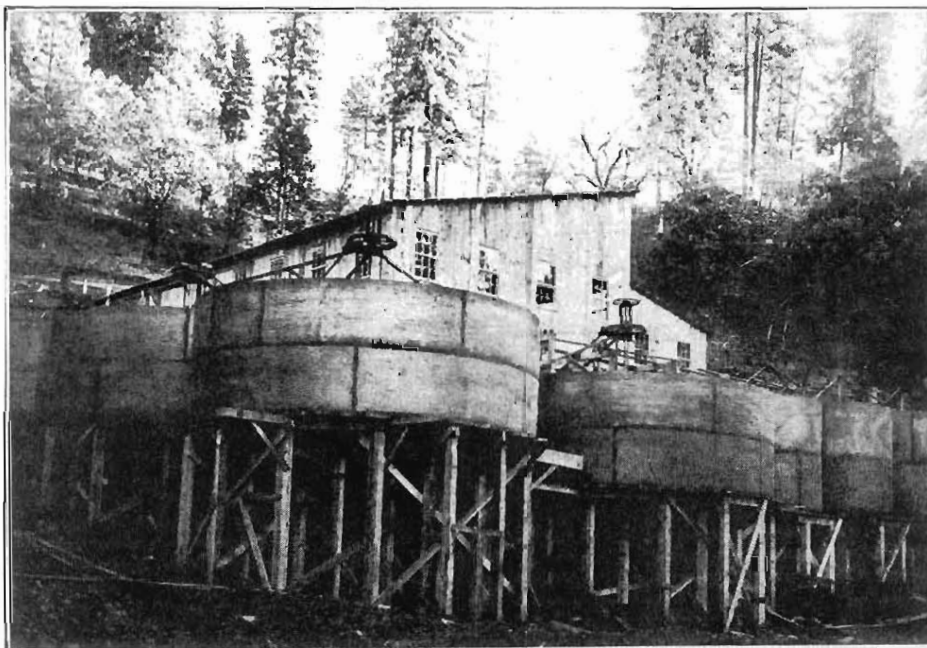
Charles H. Janin, consulting engineer and a recognized authority on gold dredging, died at his home in Piedmont, California, December 1. He was 64 years old. Janin had engaged in consulting practice for a number of years, visiting property in all parts of the world, and was author of several technical articles on gold dredging.

E. Martin Thorniley, 71, who was prominent in the mining field for a number of years, died December 20 at Oakland, California. He was born and educated in England and served his practical mining apprenticeship in the historic Dolgo mines in Cornwall. He followed his profession of mining engineering in many of the remote sections of the world, including Africa, the Ballarat mining section in Australia, Canada, Mexico, and in the United States. At one time he was engineer for several of the larger copper companies of Arizona.

MONARCH MINING CO. INSTALLS NEW CYANIDE MILLING PLANT

THE Monarch Mining Company, A. Hadsel, president, 10706 Beverly Avenue, Oakland, California, has been organized for the development and operation of property owned by the Monarch Development Company, Ltd., and Hadsel personally. The property is located on the Foresthill Divide, 14 miles east of Auburn, California, and contains a large body of low-grade porphyry which has been developed for about 5,000 feet on the dike.

Work has been completed on construction of a pilot mill at the property. The plant consists of a Hadsel pendulum-type mill and continuous counter-current decantation cyanide plant. Mining will be done by open-pit methods using a Caterpillar bulldozer. From a primary ore bin of 5,000 tons' capacity, the ore will be trucked to a smaller bin above the milling plant. A crew of 15 men is employed.



The cyanide plant completed by A. D. Hadsel at the Monarch mine, located on Foresthill Divide, near Auburn, California.

The old Gillespie mine near Canon, Arizona, is being developed by Robert P. Thompson and associates.

Barmore Mines, Inc., V. G. Mellgren, secretary, Tombstone, Arizona, is employing a crew of 12 men on a two-shift basis at its property near Tombstone. A third shift may be put on within a short time. The company holds a lease and option on a total of three patented and 52 unpatented claims owned by the **Gallagher Vanadium and Rare Metals Corporation** and the **Mellgren Mines Corporation**. The Gallagher mill is being used to treat the ore from the properties. R. O. Moore, president, and Harry Ginsberg, vice-president, have established headquarters at Tombstone.

A total of approximately 250 men has been laid off at the United Verde Branch, **Phelps Dodge Corporation**, Jerome and Clarkdale, Arizona, due to curtailed production caused by the slump in the copper market. Two months ago one of the three furnaces at the Clarkdale smelter was shut down, and a second was shut down early in December with a consequent layoff of around 100 men. The mine output will be accommodated by the one remaining furnace, which will mean a further reduction of the number of employes.

The **Bi-metallic Mining and Milling Company**, Claude N. Wilkerson, superintendent, Kingman, Arizona, operating the old McGuire mine, is shipping approximately 300 tons of commercial ore monthly to the Tom Reed mill at Oatman, Arizona. At present work is on a one-shift basis. Operations are being carried on entirely in milling ore.

New machinery is being installed at the property of the **General Mining Company** near Belden, Plumas County, California, which is expected to permit the handling of 1,000 yards of gravel in an eight-hour shift. It is estimated that there are more than 1,000,000 yards of gravel available at the property, which is

on the site of the historic town of Caribou, located about six miles above Belden on the north fork of Feather River. Allen A. Floyd is president and Fred W. Leake is secretary and general manager of the company.

It is understood that at a recent meeting of the board of directors of the **Sixteen-to-One Extension Gold Mines, Inc.**, George W. Hallock, president and general manager, Alleghany, California, new funds were voted for use in further development of the property. The mine has been closed down since July, but is said to have a fine body of ore exposed.

The new 35-foot earth-filled dam recently completed in Canyon Creek to store the tailings of the **Beebe Gold Mining Company**, Georgetown, California, was washed out by recent flood waters before it had been placed in service. L. E. Putnam is superintendent at Georgetown.

Yuba Consolidated Gold Fields, Inc., F. C. Van Deirse, vice-president, 351 California Street, San Francisco, California, is reported to be testing gravels of the old **Esperance** mine near French Corral, California. A crew of 10 men is employed and work is on a two-shift basis. The property comprises about 320 acres.

Installation of a new 50-ton milling plant is nearing completion at the property of the **Islander Mining Company**, M. J. Meadows, manager, Box 681, Parker Dam, San Bernardino County, California. The company has 500 tons of ore on the dump awaiting completion of the new mill and 100,000 tons of additional ore are said to be blocked out. The company is headed

by Dr. William B. Smith, and Cecil Jones of McFarland, California, is also associated with the organization.

Work is progressing on installation of the new 75-ton ball mill at the Pennsylvania mine of the **Empire Star Mines Company**, Grass Valley, California. The new ball mill is to be operated in connection with the present stamp mill, which is also being remodeled, and will be in the same building, so located that the material for regrinding will move by gravity into the ball mill. It is expected that about 50 per cent of the material from the stamps will go through the new mill, the balance being sufficiently crushed by the stamps. Water for the mill will be taken from the upper

EDISON ELECTRIC CAP LAMPS



FIRST CHOICE IN EVERY METAL MINING AREA

More than 300,000 Edison Electric Cap Lamps serve the metal and coal mines of the two Americas every day . . . reason enough for *any* operator to investigate their advantages. They're the most popular mine lamps made because they give *more* light, better directed to the job, more durable in service, lower in maintenance cost. ● Edison Lamps may be purchased, if desired, on an easy rental plan, with no original outlay involved. *Write us for details, and let us arrange a demonstration for you.*

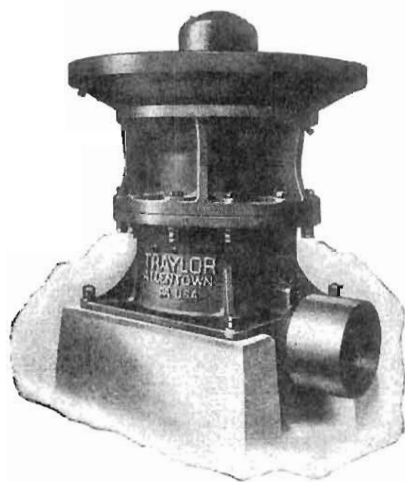


MINE SAFETY APPLIANCES CO.

Braddock, Thomas & Meade Sts., Pittsburgh, Pa.
District Representatives in the Principal Cities

M. S. A. Products include Breathing Apparatus . . . Inhalators . . . Comto Respirators . . . Masks of all Types . . . Gas Indicators . . . Gas Detectors . . . Safety Goggles . . . Protective Hats and Caps . . . Edison Electric Cap Lamps . . . Safety Clothing . . . First Aid Equipment.
Descriptive Bulletins will be sent on request.

TRAYLOR TYPE TY REDUCTION CRUSHER



A simple design, moderate priced crusher that, so far, has exceeded purchasers' expectations of performance. Patented Bell Heads and Curved Concaves, all cast steel construction, automatic lubrication, — these combine to produce a machine that is the acme of efficiency and economy. You should send for our Bulletin 3012, without delay!

Traylor Engineering and Manufacturing Co.

ALLENTOWN, PA.

6311 22d Ave. N.E. 919 Chester Williams Bldg.
Seattle, Wash. Los Angeles
New York 101 W. Second South St. Chicago
Salt Lake City
Manila Machinery & Supply Company, Inc.
Manila and Baguio

MANGANESE STEEL

Wearing Parts

For extra long service from wearing parts and low operating costs—use Manganese Steel. Parts for all makes of crushers, ball mills, etc. Quick shipments.

CRUSHER JAWS
MILL LINERS
ROLL SHELLS
MISC. PARTS

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.

shaft, a quarter-mile distant. At present this water is being pumped into the Browns Valley Irrigation District ditch. The main shaft has reached a depth of 1,100 feet, which is 450 feet deeper than the old workings, and the present operations will seek to develop the veins at depths which early day miners were unable to reach due to lack of facilities for coping with the water. Ore from the Pennsylvania goes into two tall steel cylindrical bins at the bottom of which is a crusher. From this point it is carried by belt conveyor to the stamp mill. When the new ball mill is completed the grindings from the stamp mill will go through a classifier and the coarse material run into the ball mill for regrinding. E. R. Bennett, Nevada City, California, is superintendent of the Pennsylvania.

It is understood that the Oroville Gold Dredging Company, W. H. W. Wandesforde, president, 2052 Bird Street, Oroville, California, will be out of production for six months as a result of a flood in the Feather River. The company's boat was buffeted about by the flood waters and when the water subsided it was found that the hull of the craft had been crushed in and the steel plates torn apart. Drift accumulating on the cables was blamed for the damage. Wandesforde estimated the loss at \$100,000. A new hull must be constructed and the machinery and equipment transferred to it. The huge boat floated 150 feet downstream when a cable parted, and was tilted over on one side.

The Idaho-Maryland Mines Corporation, Grass Valley, California, has declared an extra dividend of 5 cents a share, payable January 25 to stock of record January 15. The stock is on a 20-cent annual basis, payable quarterly, plus extras. For the full year of 1937, dividends aggregated 55 cents per share, against 40 cents in 1936. The company operates properties at Grass Valley and Forbestown, California.

Several mines in the vicinity of Downieville, California, were damaged by recent heavy rains and high water which swept through the town. The Finney mine, located just below Downieville, suffered the heaviest damage. Situated just above normal high water level, the buildings were among the first along the river to be washed away. A compressor, several mine cars, and other new equipment was lost. Martin H. Miller, engineer in charge, stated that no plans have yet been made for future work. The Telegraph Mining Company, nine miles north of Downieville, lost a compressor house, garage, and other small buildings, but the company's new Diesel compressor was not damaged. The boarding house was moved on its foundations and a portion of the tunnel was filled with debris. John M. Sheedy, owner, said the damage will approximate \$25,000. A portion of the ditch at the Arctic hydraulic mine above Sierra City, California, was washed away, halting all work for the season. Thompson Brothers are the owners of the Arctic.

The Anglo American Mining Corporation, Ltd., Walter Lyman Brown, president, has moved its offices from the Mills Building to new quarters at 206 Sansome Street,

San Francisco, California. The offices of the Carson Hill Gold Mining Corporation have also been moved to the new location.

A fire at the Silverado mine of the Sierra Consolidated Mines, Inc., Wellington, Nevada, caused a slight amount of damage to the office building and bunkhouse. The mine, which is located in Mono County, California, near the Nevada state line, controlled by the John J. Raskob interest, Suite 213, 29 East First Street, Reno, Nevada, in association with Sam Platt and John Sinai, attorneys, Box 1063, Reno.

The Argonaut Mining Company, Jackson, California, reports a November operating profit of \$1,929 before provision for taxes as compared with a loss of \$3,299 in October. Profit in November of last year was \$11,414. Operating results for the first 11 months of this year showed a loss of \$20,779, against a profit of \$182,566 during the corresponding period of last year. Alex F. Ross is general superintendent at Jackson.

Several tons of rock and earth, loosened by heavy rains, crashed down a mountain side and into the processing plant of the Klau Mine, Inc., Paso Robles, California. Two 10,000-gallon mercury condensers were torn from their bases and one was demolished. All processing operations have been suspended until repairs can be made. The damage in materials alone is estimated in excess of \$2,500. One of the tanks can be salvaged but the other will have to be replaced. Both were filled with mercury vapor at the time of the crash. B. A. Gould, Paso Robles, is general manager of the mine.

Reorganization of the California Standard Gold Mines Corporation, Jamestown, California, is under way through the efforts of the San Francisco Board of Trade. A new corporation, to be known as California Standard, is to be organized, which will take over the liabilities of California Standard and accept 500,000 shares of stock, California Standard retaining 1,000,000 in the new corporation. Stock will be listed at 25 cents per share, 500,000 to be sold. When the new organization is completed and the stock sold, the liabilities will be cleared up first. This arrangement has been sanctioned by the creditors' association.

The Altamonte mine, Alta, California, has been shut down pending further financing. The pay streak worked this summer proved to be a spill-over from the main channel, which is estimated to lie some 200 feet south of the end of the main crosscut. Work contemplated for early next summer includes the extension of the main crosscut into the channel proper. The mine is operated by Thomas L. Mitchell, 93 East Santa Clara Street, San Jose, California.

The new 100-ton custom mill of the Butte Central Mining and Milling Company at Forbestown, California, has been completed and placed in operation. The new plant will handle ore from the Bootjack mine, which adjoins the Butte Central property, and an additional milling unit is to be installed to treat custom ore from

a number of other small mines in the district which do not have milling facilities. W. F. Downie, 509 Main Street, Chico, California, president of the Butte Central company, has announced that a second milling unit will be built near Cherokee to serve small mines at Cherokee, Magalia, Pentz, and Oregon City. As the mines in the Forbestown and Cherokee districts gain in depth and the ore becomes baser, it is planned to install a hydrovex cyanide system to handle such ores and concentrates. The present plant, which includes a crusher, ball mill, amalgamator, and classifier, is sufficient for primary ores. The plant is powered with an 80-horsepower Diesel engine and a large storage reservoir assures an ample supply of water.

The Vera Mines Corporation, 4 East Carrillo Street, Santa Barbara, California, has filed application with the SEC for registration of its securities on the San Francisco Mining Exchange as follows: 917,400 shares of 25-cent par value common stock, issued; 250,000 shares of 25-cent par value common stock, to be registered on notice of issuance. Dr. Horace F. Pierce, 1421 Chapala Street, Santa Barbara, is president of the company.

Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, has declared the usual quarterly extra of 15 cents and the regular quarterly dividend of 15 cents, both payable February 1 to stock of record January 5.

The Gold Rock Mining and Milling Company of Tacoma, Washington, has acquired the Vernon Jay properties in the Goldstone district north of Barstow, California, and is building a 30-ton mill under the direction of J. R. O'Donnell, general manager.

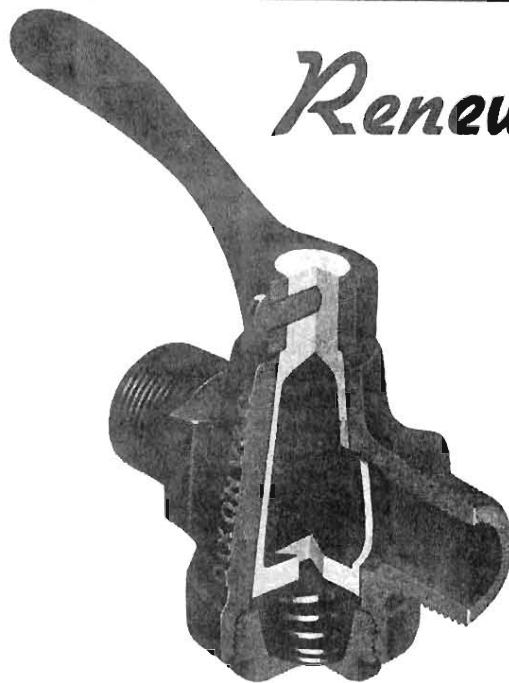
Operations at the property of the Hayden Hill Gold Corporation, F. H. Brown, superintendent, Adin, California, have been temporarily suspended and work is not expected to be resumed until next spring.

Kern Mines, Inc., Eirind Knutsen, general superintendent, Box 77, Kernville, California, is employing a crew of 28 men at its properties, working one shift at the Lady Bell and two shifts at the Big Blue. While current operations are largely of a development nature, the mill is crushing approximately 90 tons of ore per day. This mill run represents reserve ore which is drawn upon in conjunction with the preparation of new stopes. Six bodies of ore either have been developed or are being developed, five in the Big Blue and one in the Lady Bell, and it is planned to develop other mines of the group eventually. Development work is now being carried on 100 feet below the 260-foot level. Some of the ore bodies are small, high-grade shoots, while others are large, low-grade propositions. The company has just completed the first year of a long-range program of development, during which about 15 per cent of the total work was accomplished. When all of the mines of the group have been developed it is planned to carry on operations through a central working shaft, and erection of a 500-ton mill is planned at that time.

Nicholas Baxter, 415 Court Street, San Bernardino, California, has made arrangements for milling of tungsten ore from his property in Mirage Valley in the R. M. Rossi plant, located west of Barstow, California. The mill is 38 miles from the Baxter claims, which are located near Adelanto, but it is planned to mill only hand-sorted ore for a time, and the material will be moved from the mine to the mill by means of trucks. Baxter and his brothers have divided their holdings in Mirage valley into two groups, known as the north and south fields, and are arranging to operate the north field themselves. They have granted a number of leases, among them being one to O. M. Dunn of Atolia, California.

The Newmont Mining Corporation, 14 Wall Street, New York City, is reported to have acquired three mining properties in Shasta County, California, the Niagara, the Milkmaid, and the Washington, all located near French Gulch, California. Operations are to begin at once at the Niagara under the direction of C. W. Plumb, 3405 T Street, Sacramento, California, formerly superintendent of the Middle Fork Gold Mining Company.

Preparations are being made for the sinking of the 2,300-foot shaft of the Murchie mine, Nevada City, California, an additional 100 feet and for cutting of a station at the 2,400-foot level. The mine is operated by the Empire Star Mines Company, Grass Valley, California. Robert J.



Renews Itself!

"BOSS"
Self-Honing
AIR VALVE
(Throttle Type)

The "Self-Honing" action of this valve keeps it free from leaks—keeps it smooth and efficient—keeps it on the job long after the ordinary valve would have found its way to the junk pile.

BUT THAT'S NOT ALL—

Throughout its long life, this valve will never need packing, adjusting or lubricating—its straight, full-flow opening will do away with friction and restriction losses—it will never "stick" or "freeze"—it will give the same long wear in air, gas or liquid service.

Your jobber will quote attractive prices. For an entirely new experience in valve efficiency and economy, try "BOSS" Self-Honing Air Valves.

STOCKED BY HOSE & SUPPLY JOBBERS EVERYWHERE

Write for descriptive literature

DIXON VALVE & COUPLING CO.

935 Santa Fe Avenue, LOS ANGELES

Birmingham • Philadelphia • Houston

MANUFACTURERS OF "BOSS" "DIXON" "KING"
HOSE COUPLINGS • HOSE CLAMPS • HOSE NIPPLES • VALVES



**To stand the Lash
of the Stoppers-**

**BETHLEHEM
SUPERIOR
HOLLOW DRILL STEEL**

There are not many places where steel has to take punishment as severe as does drill steel, forced into hard rock under the lash of a heavy-duty stopper.

Bethlehem Superior Hollow Drill Steel is fitted for this rigorous service by the most careful study of composition and manufacturing methods. The steel has high fatigue-resistance and edge-holding qualities that hold breakage and repointing to a minimum.

**Pratt-Gilbert
Hardware Co.**

Distributors
701 S. Seventh St., Phoenix, Ariz.
Phone 3-5145

**CORE DRILLING
DIAMONDS**

**BORTS — CARBON
ALL TYPES**

Prompt Service Anywhere

RALPH R. HANSON

U. S. INDUSTRIAL DIAMOND CORPN.
310 S. Michigan Ave. Chicago, Ill.

Hendricks is manager of the Murchie. At the North Star mine, another Empire Star property which is under the management of F. A. Nobs, a winze is being driven from the 9,600-foot level. Vertically, the North Star shaft is the deepest in California.

J. M. Suddreth of San Francisco has leased the Skillen placer property, three miles from Sawyers Bar, California, and work is to begin immediately on preparing the property for steam shovel operations next summer. A shovel of 1½ yards capacity will be used and the gravel will be hoisted from the pit in two three-yard ore cars. Robert Dent, Sawyers Bar, is in charge of the work and about 28 men will be employed.

The old Wieland Consolidated mine located between Jackson and Pine Grove, California, which was operated by the Wieland Brewing Company and the Matson steamship interests about 40 years ago, is being reopened by a San Francisco group. Operations at the property are under the direction of L. H. Rogers, mining engineer, Jackson. One shift is working at present but additional men will be employed as more equipment is installed. Present owners of the property are Mrs. Dorothy Ferguson and A. M. Barton of Sacramento, California, and Neal Chalmers of Woodland.

Strike of a definite fissure vein in the Governor mine, Acton, California, with ore which is expected to assay up to \$750 per ton in free gold and sulphides, has been announced by Francis Gage, manager. At present 25 men are employed at the mine and mill on a three-shift basis.

The Campbird Exploration Company. Frank Brennan, president, Seiad Valley, California, is driving its tunnel approximately five feet a day and is now in more than 150 feet from the portal. A good cross vein has been encountered, on which drifting is under way, and sinking on the vein has also been started. The mill buildings are nearing completion and the plant is expected to be ready for operation soon. Recent mill tests on ore from two veins exposed on the surface have shown heads assaying \$33.60 per ton in gold, \$21 of which was recovered on the plates and table. The tunnel is being driven toward these veins and when they are reached the company will have from 140 to 160 feet of backs. Six men are employed.

Chris Shiner, Happy Camp, California, has completed preparations for operating the Minnetta Bee hydraulic mine on Klamath River, 10 miles north of Happy Camp. Two No. 2 giants are to be used with a 150-foot head of water. The mine is equipped with 300 feet of sluice boxes. A 1,500-foot pipe line carries the water to the giants from a reservoir. The Silver Gray mine, also owned by Shiner, and which is two miles south of the Minnetta Bee, is being operated this year by Ed Owen and Ambrose Brown. They are using one giant with a 125-foot head of water.

Six men have been employed at the Portuguese mine near Seiad Valley, California, since the first of November. Ditches have been cleaned out, new flumes built,

and timber and brush have been cleared from about 100,000 yards of new ground. At present the hydraulic elevator has been lowered 20 feet into the bedrock, a 7½ kilowatt lighting plant is being installed and equipment for preparing the black sand concentrate is being added. According to Stanley Davis, operator, it is planned to install a plant to treat the concentrate. Custom business will also be handled by the new plant. Two giants are used at the mine, one operating from a 250-foot head and the other from a 350-foot head. The mine will go on a three-shift basis about the first of the year.

New interests have taken an option on the Kanaka Hill hydraulic mine, Happy Camp, California, and are understood to be preparing to spend from \$12,000 to \$15,000 in development work. Two new reservoirs will be built, in addition to about 1¼ mile of new ditch. The Kanaka Hill is owned by Steve S. Green, Box 147, Happy Camp, California.

The Sierra Madre Mining Company, a partnership composed of H. H. McMillan and John L. Woehler, has been organized to operate the hydraulic property of the Davis Mines Company, located one mile west of Happy Camp, California. The mine is being developed under lease from the Davis company. The new operators have installed 250 feet of 24 by 24-inch sluice boxes with block riffles. A No. 4 and a No. 2 giant will be used for the sluicing with a 150-foot head of water. A 5½ kilowatt generator, driven by a Pelton wheel, will furnish lights for the night shifts. The property will be operated on a 24-hour basis. Sam Wood is mine foreman.

C. C. Nutter, who has been carrying on extensive tests with the black sand concentrate on the Happy Associated Group near Happy Camp, California, has completed his tests in Los Angeles, and will return to Happy Camp. Plants are to be built for the Muc-a-Muc and Happy Associated mines, and a custom plant at Happy Camp is also planned.

The Big Dyke property, located in Fook Gulch, and the Gray Eagle mine, located on Copper Mountain near Redding, California, are being developed under the direction of B. J. Angelish, Old Postoffice Building, Redding, California. The Big Dyke consists of one large porphyry dyke, 150 feet wide and 7,000 feet long, which assays \$10 per ton. To the north of the dyke a 5-foot quartz ledge assays \$15 per ton. The Gray Eagle carries a copper deposit about 80 feet wide and 6,000 feet long with excellent values in copper and \$2.50 in gold. There is also some chrome.

Both rims of the channel have been located and considerable pay gravel has been blocked out at the old Neiland mine located on the Blue Gravel channel near Bangor, Butte County, California. The channel is tapped through a 154-foot shaft. The mine is operated by the National Mining and Exploration Society, Ltd., Ralph W. Scott, secretary, Mills Building, San Francisco, and C. F. Bettinger is general superintendent at the property. Knight Starr Jordan, 60 Sansome Street, San Francisco, is president of the company.

J. B. Hayton, Quincy, California, has completed the installation of a small ball mill at the Old Red mine near Quincy, and surface buildings have been rehabilitated in preparation for early operations. The property, which comprises about 400 acres, carries a well defined quartz ledge.

The Tungsten Milling Company, Bishop, California, is increasing the capacity of its new dry mill to 250 tons per day. A portion of the Tungsten Milling Company property is under lease to El Diablo Mining Company, H. O. Johanson, general superintendent, Box 567, Bishop, California.

Burton Brothers, Rosamond, California, operators of the Tropic mine, are milling approximately 110 tons per day of gold and silver ore. A crew of 47 men is employed under the direction of H. Clifford Burton, general manager. Cecil F. Burton is president. Operating officials include A. H. Johnson, general superintendent; Lionel Loomis, mill superintendent; N. P. Browne, chief mine engineer; Charles McLoon, assayer; and George McNamee, purchasing agent.

A 20-ton rod mill has been ordered from the Miners Foundry by C. A. Ivey, Box 627, Grass Valley, California, for installation at the Blue Glory mine, located in Snyder's Gulch in Mariposa County. He has been developing the property for the past two years. Albert R. Ivey, Grass Valley, is superintendent.

The old Thomas T. Kirkham property, known as the Native Son, located six miles north of Nevada City, California, has been bonded to eastern interests who are preparing for development. Denton and Ralph Kirkham, son of the late Thomas Kirkham, are understood to have an interest in the new operations.

W. L. Benge, Box 253, Bishop, California, and W. F. Murray are reported to have given a lease and bond on their Recovery group, located in the Chicago district nine miles southeast of Benton, California, to Captain J. C. Holland. Ore from the property is said to carry values ranging from \$18 to \$83 per ton.

The old Dundenberg mine, located on the northeast slope of Dundenberg Mountain, which has been idle for the past 30 years, is being opened up for inspection under the direction of Gus Billeb of Mono Lake, California. The mine is owned by J. S. Cain of Bodie, California.

Shelton P. Fay, 509 North Arden Drive, Beverly Hills, California, is preparing to prospect the Friday copper mine near Julian, California, together with adjacent property on which he recently secured leases and options. The old Friday mine was taken over under lease and option about a year and a half ago from the Friday Copper Mines Company, and since that time Fay has acquired additional ground until he now holds options on about 1,000 acres. A diamond drilling program is planned to determine whether or not nickel can be found in commercial quantities. If so, a smelter may be erected.


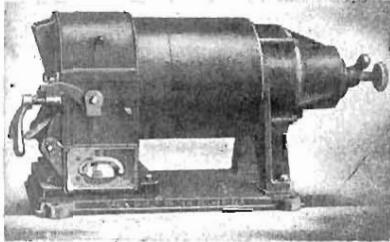

Erection of a new mill is nearing completion at the Warlock mine near Julian, Cali-

fornia, under the direction of Messall and Ware. The old crosscut tunnel has been retimbered and a compressor and other machinery have been installed at the mine. Sufficient low-grade ore is said to be in sight to warrant construction of the mill.

A compressor has been installed and the 1,700-foot tunnel is being reconditioned at the old Kaintuck mine, seven miles southeast of Julian, California, preparatory to active mining operations. The property is being developed by Banner Mines, Ltd., headed by Frank Herron, attorney, of Pasadena, California.

A five-stamp mill and flotation plant are in operation at the Eagle mine, Julian, California, under the direction of Sidney Dodge, operator of the property. The ore is reported to carry values of approximately \$30 per ton.

Martin Brothers have taken a lease on the Ranchito mine near Julian, California, and have sunk a new two-compartment shaft to the 180-foot level, where a large body of ore was encountered. Further development is planned before erection of a mill will be considered. The mine is owned by Cave Couts of Vista, California.

Braun Direct-Driven Pulverizer

Save Dollars and Drudgery with Braun Labor Savers

For many years Braun Laboratory Labor Saving Machinery has been used in up-to-date laboratories the world over. Each Braun device has been conceived, created and developed with the requirements of the busy, thoughtful laboratory man in mind. Each has, in its turn, satisfied a well defined need and has provided a new and added convenience—minimizing the labor drudge—speeding up the work—increasing the accuracy.

Braun Labor Savers for assay, metallurgical and industrial laboratories now include the following:

BRAUN CHIPMUNK CRUSHER (recently redesigned and improved) for coarse reduction of laboratory samples. Bulletin C-116.

BRAUN DIRECT DRIVEN PULVERIZER (just introduced) for finishing samples. Built-in motor. Roller bearings throughout. Permanently lubricated. Bulletin C-115.

BRAUN UA PULVERIZER (recently improved) for finishing samples. Bulletin C-125.

BRAUN CHIPMUNK CRUSHER AND UA PULVERIZER UNIT ASSEMBLY with close-coupled V-belt drive. Bulletin C-124.

BRAUN ASSAY FURNACES. A complete line of muffle, melting and combination furnaces. Bulletin C-107.

BRAUN ASSAY BURNERS for gasoline (Bulletin C-122) oil (Bulletin S-168), cylinder gas (Bulletin C-114), and gas (Bulletin C-107).

BRAUN CALMIX CUPELS. A superior ready-to-use cupel that will not crack or check in the muffle. Samples on request.

BRAUN ELECTROLYTIC APPARATUS. Bulletins B-131 and C-112.

A complete line of Assay Laboratory Supplies and Chemicals carried in stock

Braun-Knecht-Heimann-Co.

584 Mission St. — San Francisco
Los Angeles, California Seattle, Washington
BRAUN CORPORATION SCIENTIFIC SUPPLIES CO.

Braun Chipmunk Crusher and UA Pulverizer
with close-coupled V-belt drive





Braun Combination Furnace

Braun Calmix Cupel

DEW-R-LITE Carbide Lamps

Copied by Many—Equalled by None

FOR SUPERS, FOREMEN, ENGINEERS
For over 30 years they have been sent, on request, for 30 days tryout, in which time you learn how superior they are to any others.



No. 2034
Made in All Brass and
in Double Tinned Steel.
Catalog on request.

The only self-regulating carbide lamp that will give you the steady, even flame you require underground without shaking or raking.

Entirely automatic
All parts easily accessible.

Dewar Manufacturing Co.

Established 1905 Incorporated 1914
18 35th Street, Brooklyn, N. Y.

HEADQUARTERS HOTEL
The Mining Association of the Southwest

LOS ANGELES



555 ROOMS - BATHS

"Famous for Good Food from
Coast to Coast"

YOU'LL enjoy your Los Angeles visit so much more if you stay at Hotel Clark. Convenient to every business and pleasure center, with a luxury and a comfort that will surely please you.

VISIT THE POPULAR TAVERN
TUCKED AWAY IN THE REAR
OF THE LOBBY.

HOTEL CLARK

R. G. B. MORRISS Mgr.

Jacobs and Lane have patented the Gem group near Julian, California, and are re-timbering the old 1,000-foot crosscut tunnel started by the Waterman interests. The tunnel is expected to encounter the Helvetia vein in another 125 feet.

The St. Lawrence Mining Company, operating the old Reeves ranch near Happy Camp, California, is installing a larger washing plant to be placed in operation in about 90 days. The company has been using the hydraulic equipment of Logan, former operator of the mine, in stripping the overburden.

Organization of the North Canyon Mines, Inc., headed by Walter H. Parsons, president and general manager, Greenville, California, has been completed. John Adams, Quincy, California, is vice-president, and David L. Landy, secretary and treasurer. The new company will operate the Droege and New York mines, located southwest of Greenville. The Droege is opened by a main haulage tunnel 1,600 feet long, equipped with track, ventilating pipe, air pipe, drifters, mine cars, timber truck, etc. Equipment includes a 320-cubic-foot electrically driven compressor, 500-ton ore bin, change house, foreman's house, and compressor room. The New York's main haulage tunnel is 2,000 feet long, equipped with track, ventilating pipe, drifters, stopers, tigger-hoist, mine cars, timber trucks, etc. It is also equipped with a 435-cubic-foot electrically driven compressor, fully equipped blacksmith shop, change house, 75-ton modern flotation mill, and a fully equipped assay office. A 4,000-foot private road connects the New York mill with the ore bin at the mine.

The Alma Lincoln Mining Company, C. M. Lyon of Idaho Springs, Colorado, president and general manager, is employing 38 men at its property near Idaho Springs, Colorado, and producing from 80 to 100 tons of gold ore daily. Capacity of the company's flotation mill is 150 tons daily. John Pugel is mine superintendent and M. W. Tietjens is mill superintendent, both of Idaho Springs.

After two years of litigation over property titles, the Park County Gold Mines, Inc., is reported to have quieted title to its ground in Montgomery Gulch in Park County, Colorado, and to be planning to operate in 1938. W. C. Snyder, 426 East Cache La Poudre, Colorado Springs, is president and general manager.

During 1937 the Gilpin County Gold Mining Company is reported to have received \$3,550 from gold bullion shipped to the mint and \$5,148 from concentrates shipped to the Leadville smelter. Returns from December are not included in the above figures. The company operates the We-Got-'Em, Base, Summit, and Cowboy groups of claims in Gilpin County north of Blackhawk, Colorado, and dresses the ore in a 20-stamp amalgamation-flotation mill five miles northeast of Blackhawk. H. G. Newson is president and C. B. Garnett, 1069 Pearl Street, Denver, is secretary-treasurer.

The Arkansas Valley plant of the American Smelting and Refining Company; Leadville, Colorado, is reported to have treated 121,212 tons of ore during 1936 (actual figures for 11 months and December estimated), compared with 118,466 tons during 1936. While the tonnage increased, the amount of gold, silver, and lead handled is stated to have shown slight decline. Lead receipts totaled 11,209,516 pounds in 1937, compared with 13,149,864 in 1936. A total of 2,412,199 pounds of copper was received, compared with 1,990,846 last year. Gold receipts were 137,055 ounces compared with 142,539 ounces in 1936. Silver receipts totaled 1,789,654 ounces compared with 2,022,849 ounces in 1936. Leo Hennebac of Leadville is smelter superintendent and R. P. Reynolds, 609 First National Bank Building, Denver, is manager of Colorado operations.

W. A. Keyes of Idaho Springs, Colorado, is general manager of the Margaret Mines Inc., which has acquired properties of Seaton Mountain in Clear Creek County near the West Santa Fe mine. Shaft sinking is under way.

Preliminary financing is reported to have been completed by the Santa Fe Consolidated Mines Corporation which holds the West Santa Fe property in Clear Creek County near Idaho Springs, Colorado. S. H. Davis, Idaho Springs, is general manager.

With the unwatering of the 750-foot shaft in the Coeur d'Alene Mining Company property at Central City, Colorado, the lowest level of the mine is accessible for exploration. The property is equipped with a steam hoist and steam compressor. T. H. Jenks, Cosmopolitan Hotel, Denver, is president and general manager, and C. O. Richards is superintendent.

A larger hoist was recently installed in the Robert Fulton mine at Russell Gulch, Colorado, which is being operated by Routh A. Bryant, Russell Gulch, and an electric hoist was installed at the winze on the 150-foot level to handle ore from a newly opened body of talc ore. Regular gold shipments are being made from this level.

Shipments are being made from the Federal mine in Russell Gulch, Colorado, to the Golden Cycle mill by Richard I. Hughes, Russell Gulch, and associates who recently unwatered the property. The mine has been in litigation for some time, but Hughes purchased a portion of it at a sheriff's sale last fall and secured a lease on the remainder.

Construction of a milling plant is proposed by the Gold Ridge Mining Company which operates the Clay County mine at Central City, Colorado. Test shipments were recently made to the War Dance mill. The company has cleaned out and repaired the National tunnel, sunk the new Clay County shaft to the 250-foot level and connected it at this point to the old shaft in order to obtain good ventilation. Ore has been developed in both the new and the old workings. Frank Howbert is president; Roy Waugh, superintendent; and

The Lepanto Consolidated mill is operating at capacity, 500 tons daily, but the tonnage is expected to be increased eventually to 700 tons daily. The two new ball-mill units that were recently installed are of such size that they will be capable of handling the increased tonnage. Diesel power is used at the property and a total of 1,260 horsepower is available. Fred E. Johnson, Box 246, Baguio, is general superintendent and George Scholey, Box 717, Manila, is general manager.

Benguet Exploration, Inc., headed by A. W. Ralston, Box 607, Manila, is employing nearly 400 men at its property, 25 kilometers south of Baguio. The cyanidation and leaching plant of the company is working at its capacity of 100 tons daily, treating the gold and silver ore removed from the mine. Mining operations have reached a depth of 800 feet. A. C. Melting is general superintendent, David M. O'Connor is mill superintendent, T. Malmsbury is chief geologist, and Gil Dimalanta is chief chemist. R. L. Lile, general superintendent of Demonstration Gold Mines, Ltd., is consulting engineer.

CONSTRUCTION of a 125-ton flotation mill by Paracale Gumaus Mining Company, Paracale, Camarines Norte, has been started and electrical equipment has been installed. An addition to the power house has been completed and installation of a 450-horsepower Worthington Diesel direct connected to a 375-k.v.a., 480-volt Westinghouse generator, makes a total of 675 horsepower available.

The shaft of Paracale Gumaus has been extended to a depth of 350 feet and values in gold, silver, lead, and zinc have been encountered. It is expected that the property will go on a producing basis as soon as the mill is completed. John Keegan is general superintendent, R. Haworth is mine superintendent. Theo. Deisman is master mechanic, C. Pineda is chief electrician, and Frank Shriver is mine foreman. The property is managed by Nielson and Company, Inc., Manila. About 120 men are now employed.

The capacity of the mill of Masbate Consolidated Mining Company at Rio Guinobatan, Masbate, Philippine Islands, is be-



ing increased to 3,000 tons daily. The production of gold and silver ore at the property now approximates 2,000 tons daily and this is treated by flotation, amalgamation, and cyanidation in the present plant. A. A. Friedman is general manager and is temporarily discharging the duties of the superintendent as well, pending the return to the Islands of J. H. Sampson, consulting engineer for the company. T. A. Monahan, former general superintendent, resigned and returned to the United States late last year.

Other officials at the Masbate property are: H. H. Bocker, mine superintendent; R. M. Hix, mill superintendent; P. N. Woodward, smelter superintendent; H. A. Mann, chief mine engineer; A. B. Rowe, chief geologist; C. G. Johnson, construction engineer; E. R. Bryan, master mechanic; and R. W. Waters, chief electrician. Other officials include E. M. Scanland, R. D. Wisner, H. G. Schuring, and N. G. Nelson.

CALIFORNIA HIGH-GRADING IS GRADUALLY BEING CURBED

A DETERMINED drive is on in California by state and federal officers to stamp out the high grading racket that has afflicted California's Mother Lode, Grass Valley, Trinity, and other rich gold-producing areas ever since the fifties, costing operators uncounted millions.

With the Federal Gold Reserve Act as their main weapon, secret service agents of the treasury, in liaison with investigators of the California State Division of Mines, are producing results. They predict the doom of the high-grader at no distant day. Operatives throughout the Mother Lode country are working overtime to close cases against known rings assertedly stealing

hundreds of thousands of dollars worth gold from mines large and small. Invents against alleged gold thieves and elusive collaborators, it is stated, may be expected within a short time.

The conviction and sentencing, December 3, of Ben A. Bost, 72, who for 20 years has operated as a gold buyer at New City and in Mother Lode areas, is characterized by state and federal officers as just another chapter in the big drive to wipe out high-grading of gold.

According to Director Walter W. Bley of the California State Division of Mines, who with his staff has waged a relentless fight against the evil, high grading is perpetrated through close-knit rings of miners, grinders, collectors, and buyers, operating together on a large scale in many gold-producing areas of the Sierra Nevada. In one haul, it is declared, a ring was known to have taken \$15,000 out of one mine at a single time.

Many of California's gold mines, Bley points out, have small veins of very rich ore. Such ore is ideal for the high grader, who "cobs" it down on the surface underground, reducing it to as near pure gold as he can by such hammering—usually with a short length of pipe. Then he caches it, and often another miner, along with the ring, picks it up—or it is garnered by men whose duties lead them to make frequent trips into and out of the mine, such as mechanics, skip tenders, etc. The peripatetic "mules" sometimes carry the pounded-up gold ore in their mouths, getting away thus with as much as \$200 a trip; or they mix it with their pipe tobacco, or slip it into an empty dum watch case.

Normally such loot is taken to a grinder—and, say the officers, there are many illicit mills scattered through the area where the plague has flourished. Here the residual quartz in the cobbled-up high grader is removed. If the illicit miller is operating on his own, he charges the high grader 5 per cent for the service and then buys the gold. He also keeps the concentrates, which may run as high as \$100 a pound, as his extra "cumshaw."

The grinder may then re-sell to a collector, who in turn transfers it to the fi-

FIFTY

Belting

Packing



YEARS

Hose

Mechanical
Rubber Goods

PIONEER RUBBER MILLS

345-353 Sacramento Street, San Francisco, California

Plant: Pittsburg, California

SALES OFFICES: Los Angeles ● Portland ● Tacoma ● Seattle ● Salt Lake City
Denver ● Chicago ● St. Louis

buyer. The last man ships it to the mint. There the shipper of course must sign an affidavit as to the source of the gold. Sometimes they assert (in writing, of course, under the regulations) that they own a mine. Again they may say that they have bought the gold from other men, producers, but use fictitious names. Whenever affidavits or behavior appear in the least "fishy" the state mine inspectors go to work. Between their intensive vigilance and that of treasury secret-service operatives, teamworking with them, the costly racket has been materially ameliorated in recent months of the drive, and both state and federal officials profess to see its complete abolition on the horizon.

**SAN FRANCISCO MINES, INC.,
STARTS WORK AT MILFORD**

TO CONSOLIDATE under one management four groups of claims in the San Francisco district near Milford, Utah, the San Francisco Mines, Inc., has been organized. The new company has acquired the Lulu property outright from the Frisco Lulu Mining Company, owner, and the Bonanza Mining Company, lessee. In addition, long-term leases have been taken on the property held by the King David and the Horn Silver mining companies. Possession of 16 outlying claims has also been acquired by the San Francisco Mines, Inc.

These groups of claims are located on Grampian Mountain and include the ground which was recently brought into prominence through the efforts of A. E. and John C. McGarry, who opened high-grade values while doing exploratory work.

The new company will issue non-assessable shares of 5-cent par value stock. The Frisco Lulu and Bonanza companies each will receive 750,000 shares for their respective interests in the Lulu; 1,500,000 shares will be given for assignment of the King David and Horn Silver leases; 250,000 shares will be paid for the Pomona group; 500,000 shares will be subscribed for \$25,000 cash to furnish working capital; and 1,250,000 shares will be retained in the treasury.

The most important development now under way is in the Swede shaft on the Grampian claim of the King David mine. The entire shaft is said to be in high-grade silver-lead ore and a tunnel, designed to tap the vein under the shaft, is nearing its objective. Another tunnel has been started on the Lulu claims and will soon encounter the intersection of the two productive fissures exposed on the surface. Ore is also being developed from the surface on several other claims.

Ross E. Jensen has been named president of the company. J. Holman Waters, Newhouse Building, Salt Lake City, is vice-president and B. F. Anderson is secretary-treasurer. These officers with J. C. Whittaker and Ezra Barton form the board of directors. Among the incorporators subscribing for large blocks of stock are E. C. McGarry and J. C. Whittaker, both of Salt Lake, and Hartley G. Dewey of Yosemite National Park, California. A. E. McGarry is in charge at Milford and expects to have the property in production shortly.



PACIFIC JAW CRUSHERS



For economical, uninterrupted service in mine crushing, there's one sure answer—Specify PACIFIC and play safe! Daily, more and more mines are buying PACIFIC jaw crushers.

All steel construction . . . Forged steel shaft—bronze bearings . . . Force feed crushing—large capacities . . . Instant, easy adjustment to any size. One-piece frame, all parts interchangeable.

6 x 12, 8 x 15, 10 x 20 and larger machines. Ask for catalog.

Manufacturers of manganese steel wearing parts for crushers, ball mills, etc. Complete drill steel service.

See Your Dealer Today

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.

Complete Amalgamation Plants

5 TO 10-TON PLANT

Independence Ellis mill and screens . . .
Rock breaker, 3 1/2-in.x6-in. . . .
Ellis amalgamator, 12-in.x48-in. . . .
Ore feeder . . . Grizzly screen,
2-ft.x7-ft., 1/2-in. mesh . . . 40-ft. 3-in.
belting, four ply . . . Gas engine,
2 hp.

Complete plant . . . \$500

15 TO 20-TON PLANT

B. I. Ellis mill including screens . . .
40M ore feeder . . . Rock breaker,
6-in.x7-in. . . . Grizzly, 2 1/2-ft.x8-ft.
1/2 in. . . . Ellis amalgamator, 12-in.
x48-in. . . . 50 ft. 4 in. belting . . .
Two 3-hp. gas engines.

Complete plant . . . \$1,100

The ELLIS MILL will grind anything that can be ground or pulverized, wet or dry, to a definite mesh, in one operation, using only one-quarter the power other types of mills require. NO GEARS, NO GREASE, NO BEARINGS, NO FRICTION.

All wearing parts are new "Moly-Chrome" castings. Above prices in force until further notice and are for complete plants ONLY; as above listed.

ELLIS MILLS MFG. COMPANY

(A Voluntary Trust under Laws of Nevada)

510 Brannan near Fourth Street

SAN FRANCISCO

CALIFORNIA

Mexican Manufacturing Branch: Guadalupe, Jal., Mexico.
H. V. Jones, Agent, Apt. 497, Pedro Moreno, 228.

Announcing—

THE ANNUAL METAL STATISTICS REVIEW ISSUE TO BE PUBLISHED JANUARY 30

For many years the January 30th issue of *The Mining Journal* has been devoted to a statistical review of the previous year. This is an important issue as experience has shown that it is the magazine most referred to during the entire year and it is carefully retained thereafter for the statistical data which is included.

PHOENIX THE MINING JOURNAL ARIZONA

**MINING EXHIBITS, INC.,
APPROVES FAIR PLANS**

AT A RECENT meeting of the technical committee of Mining Exhibits, Inc., plans for "Treasure Mountain," the huge mineral display of the 1939 Golden Gate International Exposition, were approved and the contractor named. Under the chairmanship of Dr. Dorsey Lyon the committee selected the design of Barrett & Hilp. This firm will construct the replica of a vast mountain range to be installed in the Hall of the Mineral Empire at the \$50,000,000 exposition.

Occupying the entire end of the Hall of the Mineral Empire, Treasure Mountain will present a complete picture of mining in actual operation. According to the original design the mountain, extending along the side of the building, would have presented only one face to the public. With the new plan, however, visitors will be able to enter a valley between two towering ranges. From the floor of this valley the illusion of distant peaks 30 to 40 miles away will be created by the varying use of color and lighting.

Further to create the illusion of actual mining country, earth and rock materials will be impregnated into the plaster mountain while the plaster is still soft. Actual geological strata with ore outcroppings will be transported from the Mother Lode country of California and from Nevada to be installed as a foreground to the exhibit.

Looking up the side of the mountain the visitor will see every type of gold mining activity. Close by prospectors will be working an open hole, while farther up on reduced scale a gold mill will be seen in operation. Hydraulic mining and dredging will also be included in the display. A stream originating far back among the plaster of paris mountains will rush down into the valley where students dressed in miner's garb will be seen panning for color.

On the other side of the valley will be a reproduction of the Mesabi range bustling with activity. Throughout the range there will be trains shunting ore and all equipment will be in operation. Methods of mining the other baser metals will be demonstrated in a continuation of this range.

According to Thomas E. Campbell, ex-governor of Arizona and executive vice-president of Mining Exhibits, Inc., every method of extracting the various metals

from the ground will be authentically demonstrated in this amazing display.

The mining show, said to be the most comprehensive educational effort ever attempted by the mining industry, has been developed through the efforts of the so-called "million dollar" technical committee of Mining Exhibits, Inc. Headed by Dr. Dorsey Lyon, the technical committee is comprised of such mining names as Dean Frank H. Probert of the University of California, Walter W. Bradley, state mineralogist, Leroy H. Palmer, Gordon Gould, P. R. Bradley, F. L. Sizer, S. H. Ash, Thomas E. Campbell, Julian D. Conover, Stanly Easton, David M. Folsom, John A. Fulton, Ernest Gayford, Abbot A. Hanks, A. A. Hoffman, K. Van Ness King, F. L. Lowell, Jack Merrill, F. W. Nobs, W. J. O'Connor, Oliver C. Ralston, Dean Milnor Roberts, Emory Smith, Charles Thurman, F. C. Van Deinse, Rudolph Van Norden, Charles F. Willis, and F. E. Wormser.

That the "Hall of the Mineral Empire" will be one of the outstanding exhibits in the history of world's fairs is indicated through some of the commercial exhibits already planned. The United States Steel Corporation will spend a quarter of a million dollars on its "Story of Steel," the gold dredging industry will have an exhibit running into almost as much money; petroleum industries, \$300,000; and gold mining, \$260,000.

**SOUTHERN CALIFORNIA SCHOOL
OFFERS COURSE IN GOLD MINING**

LONG a familiar California figure, with his romantic but highly inefficient method of panning, the colorful gold prospector becomes one of the last to succumb to scientific methods of production. But now the prospector is going to school, with a course in gold mining being held at University College, downtown evening division of the University of Southern California, in the winter quarter which started January 3.

Major Julian Boyd, prominent Los Angeles consulting mining engineer, instructor of the course, will include such subjects as origin and occurrence of gold, mineralogy, use of maps, locating a claim, developing lode and placer deposits, mining methods and treatment of ore.

**OPERATIONS SUSPENDED
BY MANION AT BLACKHAWK,**

UNTIL freezing weather and shortage of water halted operations, the large producer of gold in Gilpin County, Colorado, was the placer operated by Ed Manion. This property lies within limits of Blackhawk on North Clear Creek. Since the discovery of gold in 1859 ground has been placered a number of times, but no one went below the bedrock until this present operation. The actual bedrock is 30 or more feet deep probably more than half of the ground this placer has been untouched. Some good grade of dirt has been found at times some rather large nuggets. There has been found a layer of old tail and concentrates from the early days that has proved profitable.

Mining is done with a one-yard Lehigh power shovel which loads the dirt into a large revolving screen. After the overburden is removed the fines are pumped to riffles which recover the free gold. The overflow from the riffles goes to concentrator tables which produce a smelting product.

During the season approximately 1,000 yards a day were mined and it is reported that much of this carried \$1.00 a yard of gold with occasional higher values. Manion expects to resume work early in the spring.

**NEVADA BUREAU OF MINES
LISTS ACTIVE PROPERTIES**

THE Nevada State Bureau of Mines has prepared and issued a preliminary summary of mines operating in Nevada during 1937. The arrangement of the list is by counties and includes the mining district in which the property is located, mailing address, the name of the person in charge, approximate number of men employed, main metals produced, and type of operation. The employment figure showing 6,250 men employed in Nevada mines, is based on summer employment which gives a maximum figure, but it is compensated for by the fact that large number of men, working alone in twos and threes, are not included in the census. The Nevada Consolidated Coppermines, and Mount Liberty City properties afford work for about 10 per cent of all the men in mines in the state.

NATIONAL CARBIDE

MINE LAMP CARBIDE for Miners' Lamps is sold from "Coast to Coast."

Distributed by

Acetylene Service Company,
Air Reduction Sales Company,

Central Commercial Company,
Denver Oxygen Company,

Denver, Colorado
Emeryville, Los Angeles,
Sacramento, California;
Portland, Oregon; Seattle,
Spokane, Washington
Kingman, Arizona
Denver, Colorado

Elko Motor Supply Company,
Magnolia Airco Gas Products Co.,
Pratt-Gilbert Hardware Co.,
Reno Motor Supply Company,
Stockton Transfer Company,
Terminal Warehouse Company,
Whitmore Oxygen Company,

Elko, Nevada
El Paso, Texas
Phoenix & Tucson, Ariz.
Reno, Nevada
Stockton, California
Fresno, California
Salt Lake City, Utah

NATIONAL is uniform in quality. Free from dust and fines.

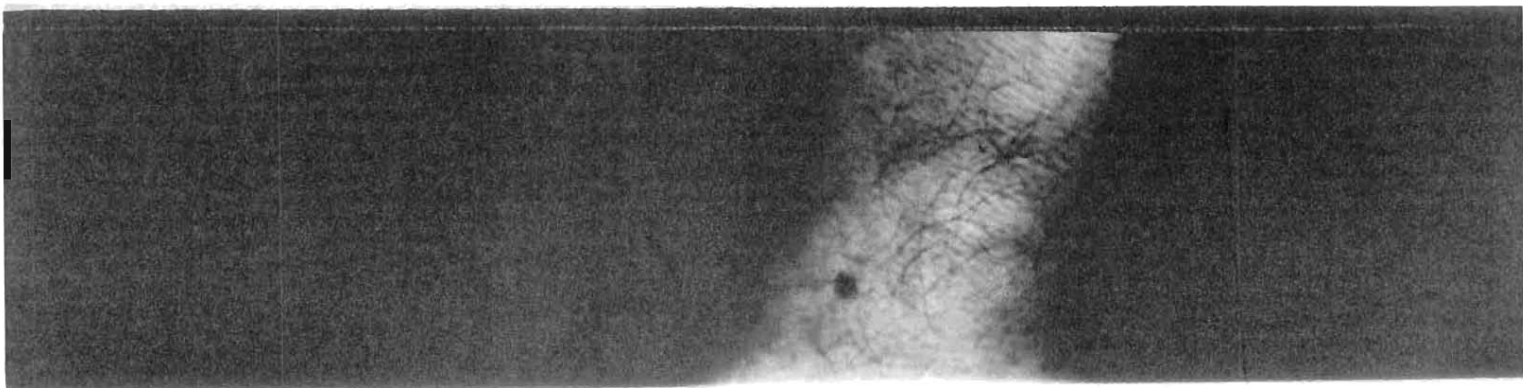
Evenly Sized. Cans especially sealed, eliminating Air Slack.

It Saves You Money.

Lincoln Bldg.,

NATIONAL CARBIDE CORPORATION

New York, N. Y.



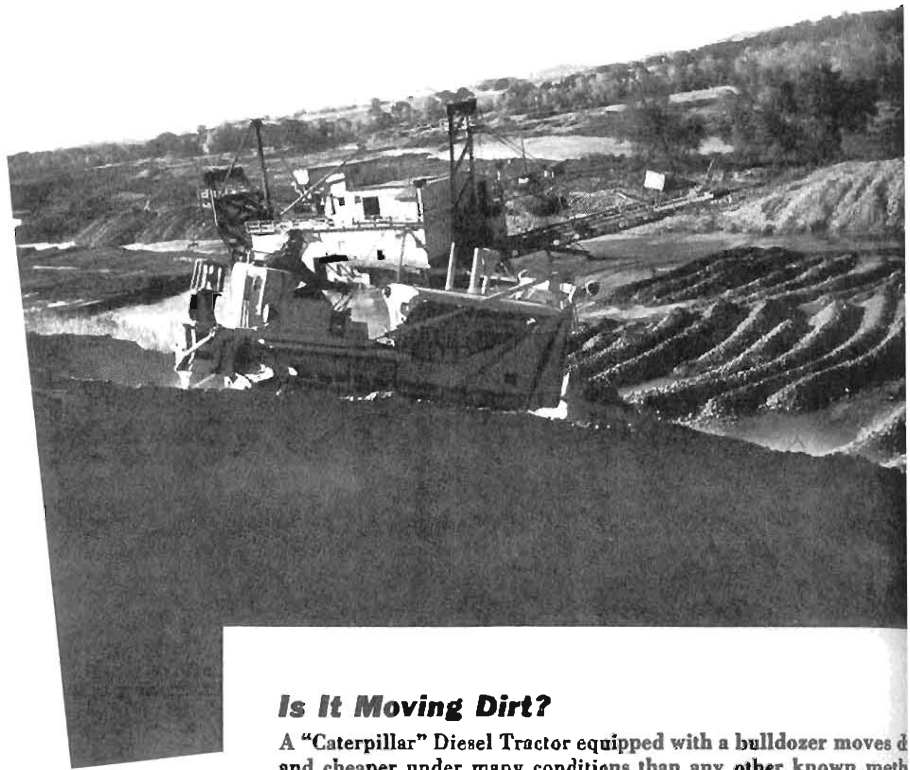
NAME YOUR POWER PROBLEM

YOUR "CATERPILLAR" DEALER HAS THE ANSWER

Your "Caterpillar" Dealer is a power specialist. Years of experience, gathered the practical way on hundreds of successful mobile and stationary applications, equip him to give you the correct answer to your power problems.

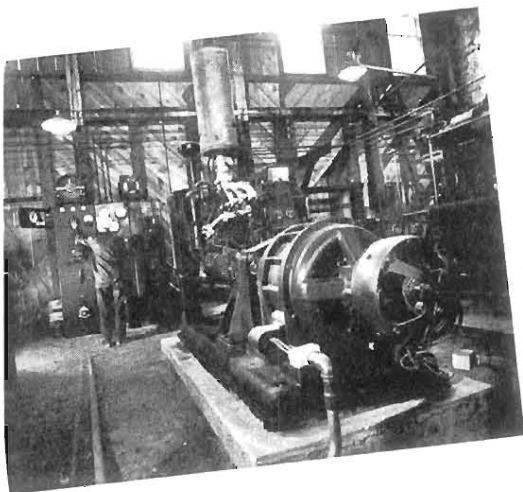
Call him today. Let him survey your power needs. He'll show you facts and figures that can save you work, worry and money.

Then, let him demonstrate "Caterpillar" Diesel power on your job, doing your work in your own way. You'll **Convince Yourself By a Demonstration**



Is It Moving Dirt?

A "Caterpillar" Diesel Tractor equipped with a bulldozer moves dirt and cheaper under many conditions than any other known method. A "Caterpillar" D8 Diesel Tractor strips overburden and levels an area. It consumes only 3½ gallons of 7¼¢ fuel per hour. It works 8 hours a day. Chas. G. Patmon of Camanche, California.



Is It Generating Electricity?

"Caterpillar" Diesel electric generating sets (20 to 80 KW) supply dependable power, often at a fraction of a cent per kilowatt. This 60 KW auxiliary set shares the power plant load, generating power and light for Austin Silver Mine Co.'s mill, shops and mine at Austin, Nevada.



Is It Powering a Dredge?

Standardizing on "Caterpillar" Diesel power makes extra savings. It simplifies fuel, maintenance and service requirements. Hoosier Gulch Placers' dragline dredge operation on Consumnes River, California, is powered by two "Caterpillar" D13000 (125 max. hp) Diesel Engines, one in the dragline, one in the dredge.



Is It Pumping Water?

Whether direct connected or belted to the pump, "Caterpillar" Diesel Engines have proven ability to stand up under heavy sustained loads. Here, a D11000 (100 max. hp) Diesel Engine powers a 14" pump on a 45 ft. lift, supplying water to Fohn, Hansen & Lindstrom's gold mining plant near Fairbanks, Alaska.

CATERPILLAR DIESEL POWER

REG. U. S. PAT. OFF.

Caterpillar Tractor Co. • San Leandro, Calif. • Spokane, Wash. • Peoria, Ill.
TRACK-TYPE TRACTORS • DIESEL ENGINES • ROAD MACHINES

(Veta Mines, Inc.), New Cornelia, Denn, Tennessee-Schuykill, Hillside, Tombstone, Arizona Magma, Miami, Iron King, and Reymert properties. The output of silver from the Warren (Bisbee) district, Cochise County, increased from 3,177,135 ounces in 1936 to approximately 3,300,000 ounces in 1937; the output from the Verde district decreased from 1,911,774 to 1,715,000 ounces; the output from the Pioneer (Superior) district, Pinal County, decreased from 378,461 to 700,000 ounces; and the output from the Oro Blanco (Ruby) district, Santa Cruz County, was about the same as in 1936 when it was 631,871 ounces.

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 Inspiration mine at Inspiration, the Copper Queen at Bisbee, the United Verde mine at Jerome, the Miami mine at Miami, the Nevada Consolidated property of Ray, and the Magma mine at Superior. These seven properties produced approximately 525,000,000 pounds of copper, or 92 per cent of the state total, and each produced more than 31,000,000 pounds. Other large producers of copper were the Morenci Branch of the Phelps Dodge Corporation, Denn, Arizona Molybdenum, United Verde Extension, Bagdad, Christmas, Catalina Consolidated, and Swansea properties.

The Nevada Consolidated Copper Corporation was again a large producer after having been idle four years; operations at the mine and 12,000-ton concentration mill were resumed in April, 1937. The Christmas Copper Company also resumed operations at its mine near Winkelman in Gila County, and several thousand tons of crude copper ore were shipped to the smelter at Hayden. Operations were also resumed at the Swansea copper property in Yuma County by the American Smelting & Refining Company, and several thousand tons of copper ore were treated in the company's flotation mill. All the copper produced at the Morenci Branch of the Phelps Dodge Corporation was recovered by leaching.

The Globe (Inspiration-Miami) district was the chief copper-producing district in Arizona in 1937, the output having increased from 111,336,391 pounds in 1936 to approximately 177,000,000 pounds in 1937; the Ajo district with an increased production ranked second.

The copper smelters at Douglas, Clarkdale, Miami, and Superior were active throughout the year, and receipts of crude ore and concentrates were considerably greater than in 1936. The smelter of the Phelps Dodge Corporation at Douglas treated chiefly crude ore from the Copper Queen and Denn mines, concentrates from the New Cornelia and Miami mills, and crude ore from mines in Mexico; the smelter of the Phelps Dodge Corporation at Clarkdale treated chiefly crude ore and concentrates from the United Verde mine; the smelter of the International Smelting & Refining Company at Miami treated chiefly concentrates from the Miami and Inspiration mills; and the smelter of the Magma Copper Company at Superior treated chiefly

copper concentrates and crude ore from the Magma property and siliceous gold ore and silver ore from various mines in Arizona and California.

The copper smelter of the United Verde Extension Mining Company at Clemenceau was permanently closed in January 1937, and the remaining ore in the mine was shipped to the smelter at Clarkdale. The copper smelter of the American Smelting & Refining Company at Hayden, idle since March 1933, resumed operations in April 1937 but was closed again during the summer months; the plant operated regularly the last quarter of the year, chiefly on crude ore and concentrates from the Nevada Consolidated property at Ray. The copper smelter of the Phelps Dodge Corporation at Clifton began operating again in September 1937, after having been idle five years; receipts were nearly all copper concentrates produced from New Cornelia ore.

All the lead concentrates and nearly all the gold concentrates produced from Arizona ores are shipped to the smelters of the American Smelting & Refining Company at El Paso, Texas, and all the zinc concentrates go to the American Smelting & Refining Company plant at Amarillo, Texas.

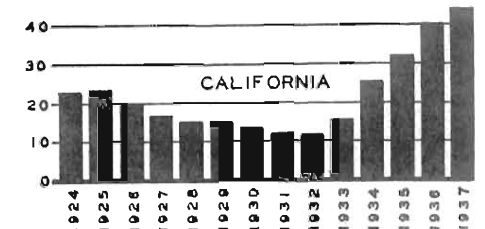
THE gain in production of lead in Arizona in 1937 was due chiefly to the large increase in output of zinc-lead ore from the Tennessee-Schuykill property at Chloride, Mohave County. The Eagle-Picher Mining & Smelting Company continued to operate its Montana mine at Ruby, and this mine was again the largest producer of lead in Arizona; it was followed by the Tennessee-Schuykill, "79", Shattuck, Trench (Gold Canyon Mining Company), Hillside, Mammoth-St. Anthony, New Year-Mohawk, Silver Bell (Sunbeam Gold Mining Company), Tombstone, and Flux mines.

Nearly all the zinc produced in Arizona in 1937 came from three properties—the Montana at Ruby, the Tennessee-Schuykill at Chloride, and the "79" near Hayden Junction. The "79" Lead-Copper Company completed the construction of a 60-ton con-

centration mill in April 1937; the company shipped crude lead ore and concentrates to El Paso and zinc concentrates to Amarillo.

CALIFORNIA

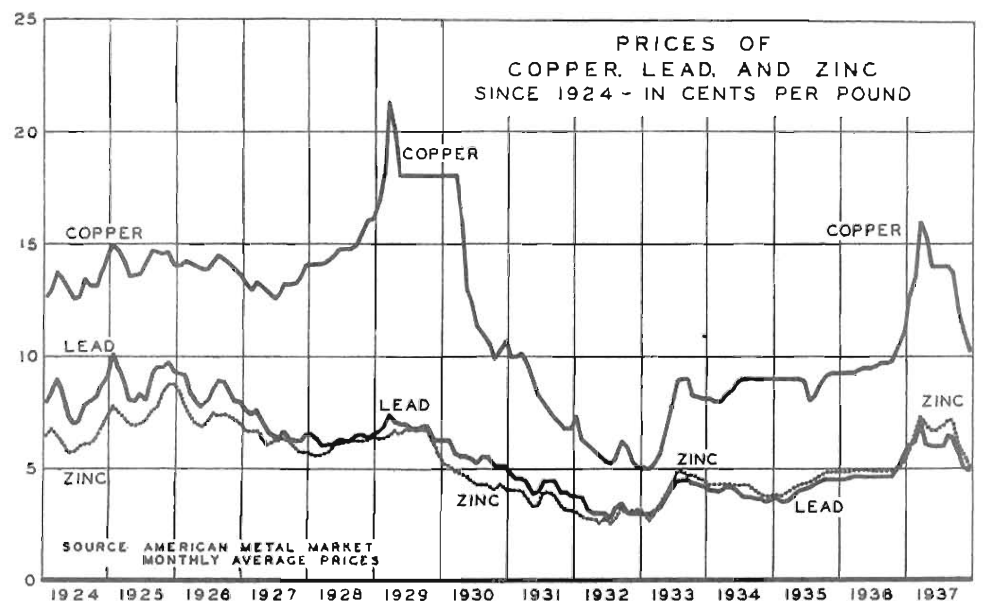
MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD AND ZINC IN CALIFORNIA, 1924-1937, IN MILLIONS OF DOLLARS



THE mine production of gold, silver, copper, and lead in California in 1937, in terms of recovered metals, is estimated to have been 1,164,400 fine ounces of gold, 2,865,000 fine ounces of silver, 10,480,000 pounds of copper, and 2,500,000 pounds of lead, valued in all at \$44,383,495, according to preliminary figures by the bureau of mines; no production of zinc was reported for 1937. These figures compare with a production in 1936 of 1,077,442 ounces of gold, 2,103,799 ounces of silver, 8,762,000 pounds of copper, 964,000 pounds of lead, and 16,000 pounds of zinc, valued in all at \$40,191,110.

The quantity and value of each of the metals except zinc showed an increase in 1937 over 1936; the aggregate value of the four metals in 1937 exceeded that of the five metals in 1936 by 10 per cent. Gold provided nearly three-fourths of the total increase in value in 1937. The total value of the lead in 1937 was over three times that in 1936. The total value of the copper increased by nearly 60 per cent, that of the silver by over 35 per cent, and the gold production rose a little over 8 per cent.

CALIFORNIA continued to hold its position as the leading gold-producing state of the United States; the quantity in 1937



was greater than that in any year since 1883, and the value exceeded that in any year since 1861. The 1937 production represents a value almost five times that in 1929, when the state's output was valued at only \$8,526,703.

The Grass Valley-Nevada City district continued to be the center of the gold-producing industry in California. The leading mines there all appear to have enjoyed larger outputs in 1937 than in the preceding year. The Empire Star Mines Company, Ltd., operating the Empire, Pennsylvania, North Star, and Murchie mines in the Grass Valley-Nevada City district, Nevada County, the Zeibright mine near Emigrant Gap, also in Nevada County, and the Pennsylvania mine near Browns Valley, Yuba County, was again the state's premier gold producer. This company's neighbor, the Idaho-Maryland Mines Corporation, working the Idaho-Maryland and Brunswick properties in the Grass Valley-Nevada City district, as well as its properties in the Forbestown district of Butte County, gave every indication of being again the second largest contributor to California's gold production. Large outputs were also reported by the Lava Cap Gold Mining Corporation from its Lava Cap, Banner, and Central properties and by the Golden Center mine operated by Cooley Butler, all in the Grass Valley-Nevada City district. In the Washington district, Nevada County, the leading producer was the Bradley Mining Company working the Spanish mine.

The deep mines of the Mother Lode in Eldorado, Amador, Calaveras, Tuolumne, and Mariposa counties were important contributors to the gold output of the state. In Amador County, the Argonaut Mining Company, Ltd., Central Eureka Mining Company, and Kennedy Mining & Milling Company were the leading producers. To the north in Eldorado County, the Big Canyon mine of the Mountain Copper Company, Ltd., had the largest output; the Beebe mine at Georgetown and the Black Oak property at Garden Valley, relatively a newcomer to the ranks of large producers, had substantial outputs. On the Mother Lode in Calaveras County, the largest producer was the Carson Hill Gold Mining Corporation at Melones. A number of smaller producers were reported along the southern extension of the Mother Lode in Tuolumne and Mariposa counties, the largest of which was the Pacific Mining Company in Mariposa.

In Kern County, the Golden Queen Mining Company and Burton Bros., Inc., in the Mojave district and the Anglo American Mining Corporation in the Randsburg district were the outstanding producers of gold. In Sierra County the Original Sixteen-to-One mine in the Alleghany district was the largest producer; in Inyo County the Cardinal Gold Mining Company was the largest producer; in Shasta County the Iron Mountain unit of the Mountain Copper Company, Ltd., was the only outstanding lode mine; and in Plumas County the Walker Mining Company produced enough gold as a by-product from its copper ore to make it one of the large gold producers of the state.

The leading producers of gold from alluvial deposits were almost exclusively dredging operations but included a number of companies using the dragline type of equipment as well as organizations employing the conventional connected-bucket type of boats. In Sacramento County the Natomas Company, Capital Dredging Company, and Cosumnes Gold Dredging Company were the outstanding operators. Yuba Consolidated Gold Fields in Yuba County was one of the state's leading gold producers. In Merced County, in the Snelling dredging area, the Snelling Gold Dredging Company, Yuba Consolidated Gold Fields, Merced Dredging Company, and San Joaquin Mining Company were the leading producers. A few miles north of Snelling on the banks of the Tuolumne River in Stanislaus County, the La Grange Gold Dredging Company had a large dredge in operation in 1937. In the northwestern counties of the state, the Junction City Mining Company in Trinity County, Yuba Consolidated Gold Fields near Callahan in Siskiyou County, and Yreka Gold Dredging Company just north of Yreka in Siskiyou County were leading producers. The Arroyo Seco Dredging Company, in Amador County, and the Comanche Gold Dredging Company and Lancha Plana Gold Dredging Company, both in Calaveras County, were leading producers.

In addition to the conventional connected bucket type of dredges already mentioned, a large number of dragline dredges were in operation. A number of companies were working in Shasta County, where the Pioneer Dredging Company and Carlson & Sandburg were among the larger producers. Butte County had many dragline operators.

In all, there were several thousand gold producers in California. In addition to the lode, bucket-dredge, and dragline dredge type of mining mentioned, substantial quantities of gold were derived by dry-land dredging, hydraulicking, drift mining, and small-scale hand methods of placering. In 1936 gold production was reported from 40 of California's 58 counties, and preliminary data for 1937 indicate that the gold mining industry was as widely distributed in that year.

SILVER ranked next to gold in value of production. Two mines, the Silverado property of the Sierra Consolidated Mines, Inc., in Mono County and the Silver Queen mine of the Golden Queen Mining Company in Kern County together produced one-third of the state's total. Other large producers were the Walker Mining Company in Plumas County, which produced silver as a by-product from its copper ore, and the Kelly mine in the Randsburg district in Kern County. Most of the remaining silver produced in the state was recovered as a by-product of gold mining; and some of the large gold producers, such as the Empire Star Mines, Ltd., and the Lava Cap Gold Mining Corporation, had substantial production of silver in addition to their gold.

VIRTUALLY all the copper produced in California during 1937 came from operations of the Walker Mining Company, an affiliate of the Anaconda Copper Mining

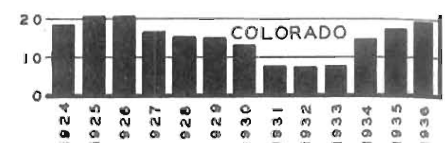
Company. The higher price for copper during 1937 renewed interest in the copper sources of the state and serious consideration was being given the rehabilitation of mines that had been shut down for a number of years.

LEAD, despite an increase of 244 per cent in value, continued to be a minor mineral product of the state. In Inyo County, in the Darwin district, the Darwin Lead Company was the leading producer and nearby in the Cerro Gordo district substantial shipments of lead ore were ported from the Santa Rosa mine. Shipments were also reported from the Op mine and by J. P. Madison at Zabriskie.

No zinc was reported produced in California during 1937. The total output in 1936 was valued at only \$800.

COLORADO

MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD AND ZINC IN COLORADO, 1924-1937. IN MILLIONS OF DOLLARS



FIGURES furnished by mining and smelting companies and United States Mint covering actual production for the first 11 months of 1937 with estimates for December indicate that the output of gold, silver, copper, lead, and zinc from Colorado lode and placer mines, in terms of recoverable metals, was 367,554 ounces of gold, 6,091,950 ounces of silver, 21,667,000 pounds of copper (record annual), 18,139,000 pounds of lead, and 7,986,000 pounds of zinc, according to the United States Bureau of Mines. These figures compare with a production in 1936 of 366,607 ounces of gold, 5,902,776 ounces of silver, 17,730,000 pounds of copper, 14,534,000 pounds of lead, and 2,344,000 pounds of zinc, a show increases in 1937 of 947 ounces of gold, 192,419 ounces of silver, 3,937,000 pounds of copper, 3,605,000 pounds of lead, and 5,642,000 pounds of zinc.

The gross calculated value of the output of these metals in Colorado in 1937 was: Gold, \$12,864,390; silver, \$4,699,395; copper (record annual), \$2,621,707; lead, \$1,106,479; and zinc, \$559,020; a total of \$21,850,991 and a gain of \$2,031,122 (9.3 per cent) over 1936. The material gain recorded in production and value of copper, lead, and zinc are attributable to the rise in prices that began in the last quarter of 1936 and continued through the first quarter of 1937. During that period and the six months following, before the severe decline took place in the last quarter of 1937, the improved prices stimulated production of base-metal ores, most of which contained some gold and silver, at act mines and caused the reopening of so many properties that had been closed for several years.

The United States Government prices were \$35 per ounce of gold and \$0.7757 per ounce of domestic newly mined silver, the same in both 1936 and 1937; however,

was greater than that in any year since 1883, and the value exceeded that in any year since 1861. The 1937 production represents a value almost five times that in 1929, when the state's output was valued at only \$8,526,703.

The Grass Valley-Nevada City district continued to be the center of the gold-producing industry in California. The leading mines there all appear to have enjoyed larger outputs in 1937 than in the preceding year. The Empire Star Mines Company, Ltd., operating the Empire, Pennsylvania, North Star, and Murchie mines in the Grass Valley-Nevada City district, Nevada County, the Zeibrigh mine near Emigrant Gap, also in Nevada County, and the Pennsylvania mine near Browns Valley, Yuba County, was again the state's premier gold producer. This company's neighbor, the Idaho-Maryland Mines Corporation, working the Idaho-Maryland and Brunswick properties in the Grass Valley-Nevada City district, as well as its properties in the Forbestown district of Butte County, gave every indication of being again the second largest contributor to California's gold production. Large outputs were also reported by the Lava Cap Gold Mining Corporation from its Lava Cap, Banner, and Central properties and by the Golden Center mine operated by Cooley Butler, all in the Grass Valley-Nevada City district. In the Washington district, Nevada County, the leading producer was the Bradley Mining Company working the Spanish mine.

The deep mines of the Mother Lode in Eldorado, Amador, Calaveras, Tuolumne, and Mariposa counties were important contributors to the gold output of the state. In Amador County, the Argonaut Mining Company, Ltd., Central Eureka Mining Company, and Kennedy Mining & Milling Company were the leading producers. To the north in Eldorado County, the Big Canyon mine of the Mountain Copper Company, Ltd., had the largest output; the Beebe mine at Georgetown and the Black Oak property at Garden Valley, relatively a newcomer to the ranks of large producers, had substantial outputs. On the Mother Lode in Calaveras County, the largest producer was the Carson Hill Gold Mining Corporation at Melones. A number of smaller producers were reported along the southern extension of the Mother Lode in Tuolumne and Mariposa counties, the largest of which was the Pacific Mining Company in Mariposa.

In Kern County, the Golden Queen Mining Company and Burton Bros., Inc., in the Mojave district and the Anglo American Mining Corporation in the Randsburg district were the outstanding producers of gold. In Sierra County the Original Sixteen-to-One mine in the Alleghany district was the largest producer; in Inyo County the Cardinal Gold Mining Company was the largest producer; in Shasta County the Iron Mountain unit of the Mountain Copper Company, Ltd., was the only outstanding lode mine; and in Plumas County the Walker Mining Company produced enough gold as a by-product from its copper ore to make it one of the large gold producers of the state.

The leading producers of gold from alluvial deposits were almost exclusively dredging operations but included a number of companies using the dragline type of equipment as well as organizations employing the conventional connected-bucket type of boats. In Sacramento County the Natomas Company, Capital Dredging Company, and Cosumnes Gold Dredging Company were the outstanding operators. Yuba Consolidated Gold Fields in Yuba County was one of the state's leading gold producers. In Merced County, in the Snelling dredging area, the Snelling Gold Dredging Company, Yuba Consolidated Gold Fields, Merced Dredging Company, and San Joaquin Mining Company were the leading producers. A few miles north of Snelling on the banks of the Tuolumne River in Stanislaus County, the La Grange Gold Dredging Company had a large dredge in operation in 1937. In the northwestern counties of the state, the Junction City Mining Company in Trinity County, Yuba Consolidated Gold Fields near Callahan in Siskiyou County, and Yreka Gold Dredging Company just north of Yreka in Siskiyou County were leading producers. The Arroyo Seco Dredging Company, in Amador County, and the Comanche Gold Dredging Company and Lancha Plana Gold Dredging Company, both in Calaveras County, were leading producers.

In addition to the conventional connected bucket type of dredges already mentioned, a large number of dragline dredges were in operation. A number of companies were working in Shasta County, where the Pioneer Dredging Company and Carlson & Sandburg were among the larger producers. Butte County had many dragline operators.

In all, there were several thousand gold producers in California. In addition to the lode, bucket-dredge, and dragline dredge type of mining mentioned, substantial quantities of gold were derived by dry-land dredging, hydraulicking, drift mining, and small-scale hand methods of placering. In 1936 gold production was reported from 40 of California's 58 counties, and preliminary data for 1937 indicate that the gold mining industry was as widely distributed in that year.

SILVER ranked next to gold in value of production. Two mines, the Silverado property of the Sierra Consolidated Mines, Inc., in Mono County and the Silver Queen mine of the Golden Queen Mining Company in Kern County together produced one-third of the state's total. Other large producers were the Walker Mining Company in Plumas County, which produced silver as a by-product from its copper ore, and the Kelly mine in the Randsburg district in Kern County. Most of the remaining silver produced in the state was recovered as a by-product of gold mining; and some of the large gold producers, such as the Empire Star Mines, Ltd., and the Lava Cap Gold Mining Corporation, had substantial production of silver in addition to their gold.

VIRTUALLY all the copper produced in California during 1937 came from operations of the Walker Mining Company, an affiliate of the Anaconda Copper Mining

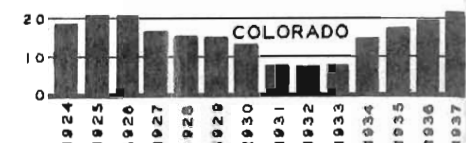
Company. The higher price for copper during 1937 renewed interest in the copper resources of the state and serious consideration was being given the rehabilitation of mines that had been shut down for a number of years.

LEAD, despite an increase of 244 per cent in value, continued to be a minor mineral product of the state. In Inyo County, in the Darwin district, the Darwin Lead Company was the leading producer and nearby in the Cerro Gordo district substantial shipments of lead ore were reported from the Santa Rosa mine. Shipments were also reported from the Ophir mine and by J. P. Madison at Zabriskie.

No zinc was reported produced in California during 1937. The total output in 1936 was valued at only \$800.

COLORADO

MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD AND ZINC IN COLORADO, 1924-1937, IN MILLIONS OF DOLLARS



FIGURES furnished by mining and smelting companies and United States mints covering actual production for the first 11 months of 1937 with estimates for December indicate that the output of gold, silver, copper, lead, and zinc from Colorado lode and placer mines, in terms of recovered metals, was 367,554 ounces of gold, 6,095,195 ounces of silver, 21,667,000 pounds of copper (record annual), 18,139,000 pounds of lead, and 7,986,000 pounds of zinc, according to the United States Bureau of Mines. These figures compare with a production in 1936 of 366,607 ounces of gold, 5,902,776 ounces of silver, 17,730,000 pounds of copper, 14,534,000 pounds of lead, and 2,344,000 pounds of zinc and show increases in 1937 of 947 ounces of gold, 192,419 ounces of silver, 3,937,000 pounds of copper, 3,605,000 pounds of lead, and 5,642,000 pounds of zinc.

The gross calculated value of the output of these metals in Colorado in 1937 is: Gold, \$12,864,390; silver, \$4,699,395; copper (record annual), \$2,621,707; lead, \$1,106,479; and zinc, \$559,020; a total of \$21,850,991 and a gain of \$2,031,122 (10 per cent) over 1936. The material gains recorded in production and value of copper, lead, and zinc are attributable to the rise in prices that began in the last quarter of 1936 and continued through the first quarter of 1937. During that period and the six months following, before the severe decline took place in the last quarter of 1937, the improved prices stimulated production of base-metal ores, most of which contained some gold and silver, at active mines and caused the reopening of some properties that had been closed for several years.

The United States Government prices of \$35 per ounce of gold and \$0.7757 per ounce of domestic newly mined silver were the same in both 1936 and 1937; however,

ARROYO SECO GOLD DREDGING CO., *Powers Dredge with* ATLAS DIESEL



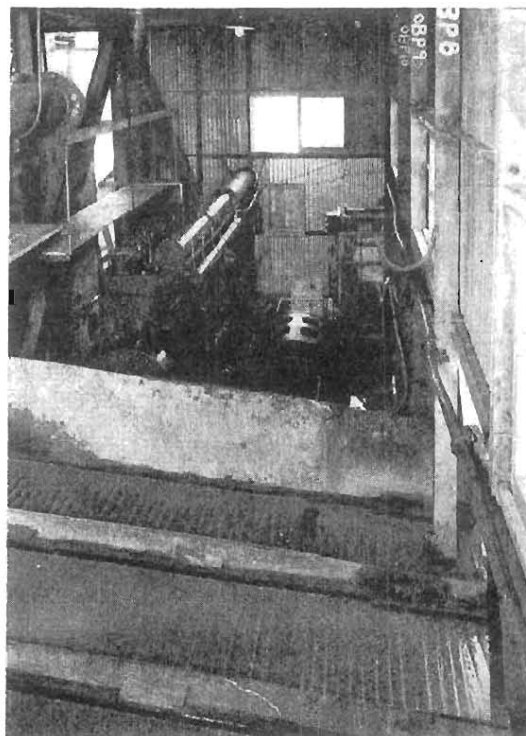
Harry C. Smith, Superintendent
Arroyo Seco Gold Dredging Co.

The Arroyo Seco Gold Dredging Co. has for a few years operated two gold dredges near Lone, California, with purchased electric power. With the acquisition of new property far off the high lines, they decided to power a 2½ cu. ft. bucket dredge with Diesel Power.

They engaged the Walter W. Johnson Company, prominent San Francisco dredge building engineers to design and reconstruct the new Diesel electric dredge. Because of their satisfactory experience with ten Atlas Diesels previously specified for gold dredges, they chose a 6 cylinder, 9"x10½" enclosed type Atlas Diesel which develops 200 H.P. at 514 RPM. This engine drives a 125 K.W. alternating current generator with direct connected exciter at 900 RPM by means of a Texrope drive.

During the first 95 days of operation, the dredge dug a total of 154,935 cubic yards to a depth of between six and seven feet in ground that was particularly tough going. This is an average of 1,631 yards per day. This property is being worked on three 8 hour shifts with a 20 minute shutdown each day for oiling, during which the engine continues to operate. The engine is stopped but one hour each week for changing lubricating oil.

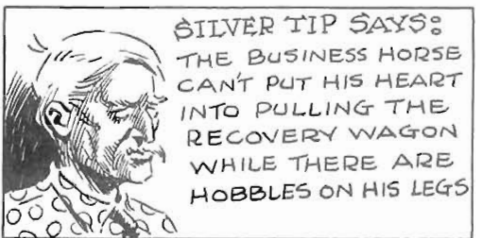
The cooling system is of the closed circuit type. Pipe coils are suspended on the outside of the dredge and cooled by the water in the pond. Soft water is circulated through the coils and engine by a V-belt driven centrifugal pump. The cooling system is provided with the necessary surge tank and by-pass valves to vary the amount of cooling surface in use. Altogether this dredge represents the last word in design for economical and dependable motor power.



Partial view of engine room.

Atlas Imperial Diesel Engine Company
Oakland, California

ATLAS IMPERIAL



Mining Men and Their Activities

About men who are well known and prominent in the mining circles of the western states.

A. W. Harris of Tucson, Arizona, has joined the staff of Cia. Minera Las Animas, S. A., Apartado 11, Caborca, Sonora, Mexico.

James M. Rice, who has been operating the Dan Tucker mine, Fallon, Nevada, under lease, has moved to 1233 Brerton Way, Oroville, California.

R. J. McEwen, geologist and engineer, has joined the staff of Klau Mine, Inc., Paso Robles, California. He was formerly located at Grizzly Flats, California.

J. W. McDonald, Box 772, Prescott, Arizona, is directing diamond drill tests at the Copper Hill property located in the Copper Basin district of Yavapai County, Arizona.

G. E. Richardson of Atlantic City, Wyoming, is manager of the Crow's Nest mine in Fremont County near Atlantic City which A. N. Boche and associates are operating.

Alex Paterson has been named foreman of the machine shops at the Clarkdale smelter of the Phelps Dodge Corporation, Clarkdale, Arizona. He was formerly master mechanic at the Clifton smelter.

Robert B. Dickson, field engineer for the American Metal Company, Ltd., who has been engaged in general exploration work in Cuba, has returned to New York where he is addressed at 119 East Fortieth Street.

E. H. Lord is reported to have been named manager of the Mineral Mountain Mining and Milling Company which is resuming development and sinking operations in the Evolution district near Kellogg, Idaho.

W. H. Wise, 639 South Spring Street, Los Angeles, California, president of the Gold Dust Mining Company, was a recent visitor in the Oatman, Arizona, district for the purpose of attending to mining interests.

James Tucker of Granite, Oregon, is in charge of testing operations for the Western Gold Corporation of Boise, Idaho, which has two gold dredges operating under contract on its properties in the Boise Basin of Idaho.

J. K. Brooke of Portland, Oregon, who returned from the Argentine a few months ago where he had been employed since 1935 by the Cia. Minera Aguilar in the province of Jujuy, is now working for the Chelan Unit of the Howe Sound Company at Holden, Washington.

Robert L. Spence of Monrovia, California, formerly assayer for the Hayden Hill Gold Corporation at Adin, California, left recently for the Philippine Islands. He has accepted a position with the Surigao Consolidated Mining Company at Surigao on the Island of Mindanao.

N. M. Muir of the Orpha May Mining Company at Cripple Creek, Colorado, is

ARTHUR SWANSON IS NAMED SUPERINTENDENT AT ZEIBRIGHT

ARTHUR SWANSON has been named superintendent of the Zeibright mine, Emigrant Gap, California, succeeding the late Berthel Berthelsson.



Arthur Swanson
Empire Star.

The Zeibright is one of the properties of the Empire Star Mines Company, Grass Valley, California, and is under the management of Robert Hendricks. Swanson was formerly manager of Cia. Minera Zacatecana, S. A., at Pinos Zacatecas, Mexico, a position he held for two years prior to joining the staff of

Born at Ironwood, Michigan, in 1894, he spent his early youth in British Columbia, later moving to Idaho where he received his high school and college education. He was graduated from the University of Idaho in 1926 with a B.S. in mining engineering. Between high school and college days he worked with Granby Consolidated and Canada Copper in British Columbia, and also spent three years in Ecuador with the South American Development Company.

Following graduation he returned to Ecuador for two years, acting as mine superintendent for the South American Development Company. In 1928 he accepted a position as general superintendent of Pend Oreille Lead and Zinc Company at Metaline Falls, Washington, leaving there in 1930 to go to Russia as consulting engineer for South Caucasus Non-Ferrous Metal Trust.

In 1932 he took over the management of Los Lugos Gold Mines, Mezquital del Oro, Zacatecas, Mexico, and in 1935 went to the Butte Highlands Mining Company, Butte, Montana, as manager. Late in that year he joined the staff of Cia. Minera Zacatecana, S. A., as manager, resigning from that position to assume his new duties at the Zeibright.

now in San Francisco where he receives mail in care of F. O. Williamson, 912 Hobart Building. Muir recently completed an examination of a hydraulic placer mine in Trinity County, California.

James W. Bucklin has resigned as director and general counselor for the Vera Mines Corporation, and Judge E. D. Reiter has been appointed to succeed him. The company operates properties at Kennett, California, and maintains offices at 427 East Anapama Street, Santa Barbara, California.

Nuggets from the Western States

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

Operations are on a two-shift basis at the property of the **Hassayampa River Mining Company**, R. C. Stoner, vice-president and



manager, Mayer, Arizona. The company, which is working the Charles Lawson property under lease, is treating gravel in a portable Linco plant using two Linco bowls.

Approximately 400 yards of gravel are handled in the two-shift period. General offices of the company are located at Santa Barbara, California.

Work is nearing completion on installation of a cyanide plant at the property of **Producers' Mines, Inc.**, Chloride, Arizona, under the direction of Robert A. Elgin, general manager. It is understood that the old tailings will be run through the mill in addition to ore from the mine.

A sample shipment of gold ore has been made from the **Mammon** mine, south of Casa Grande, Arizona, by the **Wichita Mining Company, Inc.**, Arch S. Kincheloe, president, with additional test shipments to follow as development proceeds on the four veins. The company, newly incorporated, recently took over the old Mammon and it is understood that steps are being taken to start work on a new 50-ton mill in the near future.

Sampling of the **Martin-Adams-Covington** gold property three miles southwest of Kingman, Arizona, is proceeding under the direction of J. L. McIver, Oatman, Arizona. A number of holes, ranging from 50 to 100 feet in depth, are being drilled with a Worthington dry drilling outfit. The drillings are being gathered by compressed air and deposited in a tank from which they are drawn for sampling, thus permitting the sampling of any particular portion of the hole as it is being drilled.

The **R. C. Mining Company**, Mayer, Arizona, recently incorporated, has taken a lease on the Shank property, comprising 300 acres, and is installing a three-bowl Linco plant capable of handling approximately 70 yards of gravel per hour. The plant will be powered by a 150-horsepower Fairbanks-Morse Diesel electric plant. The company is preparing to lay four miles of pipe line in order to assure an abundant supply of water for the project. A Bucyrus-Erie 1 1/4-yard power shovel is on the ground and the company expects to be operating by February 10. R. C. Stoner, vice-president and manager, is directing operations at the property. Major R. W. Coane is president of the company with headquarters at Santa Barbara, California.

J. P. Woodward and associates, owners of the **Viking** mines in the Lone Star district nine miles north of Safford, Arizona, have opened up a six-inch vein which carries values of \$50 per ton in gold, silver,

and copper. Another vein, recently uncovered 25 feet west of the six-inch vein, assayed \$20 per ton in gold with good copper and silver values, according to Woodward. Preparations are being made for driving a crosscut tunnel which is expected to open up additional ore.

Joe Meacham and G. E. Hartin, Aguila, Arizona, have sent ore samples from their **Silver Ring** property to Denver for analysis. Plans for future work will depend upon the results obtained in the analysis. The property is well equipped on a small scale with compressors, jackhammers, hoists, etc.

According to a deed filed with the county recorder of Gila County, the Hayden branch of the Ray and Gila Valley Railroad Company in southern Gila County, Arizona, has been purchased by the **Kennecott Copper Corporation**, 120 Broadway, New York City, at an approximate cost of \$153,000. None of the rolling stock of the railway company was listed in the deed. This transfer does not affect in any way the Ray branch of the railroad company. R. W. Thomas is general manager of the Ray and Gila Valley Railroad Company with headquarters at Ray.

The **Universal Placer Mining Corporation**, James H. Kennedy, general manager, Blythe, California, is reported to have moved its 1,000-yard dry placer plant to the Rich Hill district near Octave, Arizona.

The old **Pocahontas** mine, located in the Eureka mining district near the Santa Maria River west of Kirkland, Arizona, is being reopened under the direction of Walter S. Larssen, Congress Junction, Arizona. The property was acquired October 21, 1937, by J. Ben Ross of Phoenix, trustee for a Texas group. It is understood that equipment will be installed at the property soon.

The **Silver Bell-Martinez** mines of the **Sunbeam Gold Mining Company** near Florence, Arizona, were closed December 31, due to the drop in the price of silver and to the low lead price. About 42 cars of ore and concentrates were shipped from the property during 1937. The Sunbeam company owns the **Roadside** mine near Kingman, Arizona, and hopes to start operations there soon. Glenville A. Collins, Balfour Building, San Francisco, California, is president of the company.

Articles of incorporation have been filed by the **Gold Dike Mining Company**, Prescott, Arizona, with Howard H. Fields, Box 148, Prescott, and T. J. Byrne, Prescott, as incorporators. The company is capitalized

All news appearing in The Mining Journal is obtained from sources believed to be reliable, but the accuracy cannot be guaranteed. However, every item has been sent to the person or company mentioned for verification before publication.

at \$25,000, with 25,000 shares of \$1 par value. The new firm was organized to operate the **Gold Dike** group located in Lonesome Valley between Prescott and Jerome.

The federal power commission has authorized the construction of a new power line to serve the mining properties of the **American-Kirkland Gold Mines, Inc.**, Kirkland, Arizona, and the **Arizona Power Corporation**, Prescott, is preparing to start work on the line immediately. The new line, which will branch off the Monte Cristo power transmission line, will carry 11,000 volts and will be built for 44,000-volt capacity. Dr. Hugo Carl, Kirkland, is directing operations for the company.

The work of rehabilitating the **Finney** mine, Downieville, California, is under way with Martin H. Miller in charge. The mine was wrecked completely by the high water of December 10 when buildings and equipment were washed away. New machinery is being installed and new buildings erected. Some changes in location are being made also to avoid danger from possible future high water.

The **Lancha Plana** hydraulic mine, located one mile west of Buena Vista near Jackson, California, has been taken over by H. G. Kreth, Route 1, Box 67, Ione, California, who is operating the property as **Kreth Mines**.

Major R. W. Coane of Santa Barbara, California, and associates have organized the **C. S. C. Mining Company** and are preparing to operate a gravel property near Folsom, California. A one-yard power shovel is now on the ground and preparations are being made for installing a modern Linco gravel plant. Operations are under the general management of R. C. Stoner, and H. O. Welch is resident manager. Other properties are being sampled by this group with a view to further expansion.

With 300 feet of the three-compartment shaft at the **Oro Fino** mine, Auburn, California, completely rebuilt and retimbered, **Oro Fino Consolidated Mines**, the operating company, has started unwatering of the lower levels, which were permitted to fill during the renovations. That portion of the shaft between the 200 and 500-foot levels was retimbered and the shaft was repaired to a lesser extent to the 800 level. The renovation process has been under way since early summer, when it was decided upon in view of the expected heavy mining program to follow completion of the mill. The unwatering of the mine will be followed by a resumption of underground work. George Beck, Box V, Auburn, is superintendent of the Oro Fino, and H. R. Lawson is mill superintendent. J. C. KempvanEe, 181 Bush Street, San Francisco, heads the company.

The old **Gaylord** mine near Auburn on the Long Valley road has been leased and



Fabricated Steel

for any mining use



Steel tanks for cyanide solutions, thickeners, water storage, sand leaching, clarifiers, hydro-separators, agitators, acid storage, ore bins, lime bins, air receivers, etc.

Welded or riveted steel pipe, blower pipe, hydraulic pipe for water, acid, or alkaline solutions.

Also headframes, superstructures, trommel screens, and miscellaneous fabricated steel for any purpose.

Let Us Solve Your Problem
We Solicit Your Inquiries

WESTERN PIPE AND STEEL COMPANY

San Francisco, California, 444 Market Street
Los Angeles, California, 5717 Santa Fe Ave.
Phoenix, Arizona, South of Union Station

STEEL GRINDING BALLS

mill liners, castings of all kinds,
general machine repairing.

We buy scrap iron and steel.

Arizona Iron Works

19th Ave. at Harrison P. O. Box 575
Tel. 3-2984 Phoenix, Arizona

ACCIDENT PREVENTION SIGNS FOR MINES

The SILENT
SALESMEN OF
SAFETY



MANUFACTURED BY
STONEHOUSE SIGNS, Inc.
840 LARIMER ST. DENVER, COLO.

is being reopened under the direction of Al Swinburn of Auburn. The property, known also as the Lavelle, has not been operated for approximately 40 years. Three men are working with Swinburn on a partnership basis. Operations thus far have been largely confined to development work, cleaning out the old tunnel, and widening it several feet in order to run a larger car into the hill. Although the mine is principally a gravel proposition, there are some quartz ledges running through the property which may be worked later. Regular sluicing is expected to begin at once and additional machinery will probably be installed later as the gold is embedded in a sticky clay which clings to the gravel and sluice boxes are not entirely satisfactory in loosening it.

Mining consistently since May 12 when operations were resumed, the Bullion mine of Grass Valley Bullion Mines, Inc., Grass Valley, California, has been producing steadily at the rate of 60 to 75 tons of milling ore daily, sufficient to maintain 20 stamps in operation at the Idaho-Maryland mill located at the old Idaho mine. Development in the mine has been steady along a general plan of drifting, crosscutting, and raising. The Bullion is operated by the Idaho Maryland Mines Corporation under an agreement with the Grass Valley Bullion company. Howard Dennis is superintendent and Phil Folck is foreman.

A shaft-sinking program is under way at the Oriental mine, Alleghany, California, under the direction of Ray Hawkins, Alleghany, and F. F. Cassidy, Grass Valley, California, operators of the property. The shaft is being dropped an additional 400 feet below the 300 or tunnel level. Drifting and crosscutting will be undertaken at the halfway mark in the new shaft.

Salvage operations have been under way on an intermittent basis for the past several months at the property of the Montezuma-Apex Mining Company, Placerville, California. The mine and mill equipment is being salvaged with a view to abandoning the property. Montezuma-Apex is controlled by National Tunnel and Mines Company, J. O. Elton, vice-president and general manager, Kearns Building, Salt Lake City, Utah.

A crew of men is employed at the White Lily mine, Seneca, Plumas County, California, under the direction of B. F. Barbee, mining engineer. Barbee recently returned from the east where he conferred with owners of the property.

H. H. Quick and Clyde T. Crowley, both of Long Beach, California, have taken over the Sailor Jack gravel mine near Camino, El Dorado County, California, and are driving a new 400-foot tunnel to reach the channel.

Sierra Mines Development Company, Inc., has taken a 10-year lease on the Volunteer mining property, located near Columbia, California. The property is owned by W. W. Fraser of Richmond, California.

Flood waters of the Klamath River caused more than \$1,000 damage to the property of the Short Bend Mining Com-

pany, located about five miles above Happy Camp, California. The damage has been repaired, however, and work is now on a one-shift basis with a second shift to be added in February. Elmer W. Olson is manager at the property.

The Campo Molybdenum Company, T. W. Buckel, president, Route 3, Holtville, California, has installed an Ingersoll-Rand compressor and jackhammers at its property near Campo, California. The vein has been uncovered for a distance of approximately 125 feet to a depth of four feet, the cut running from the center contact to the hanging wall, which has not been exposed. The company has approximately 100 tons of high-grade ore available and arrangements are being made for purchase of milling and flotation equipment. E. C. Leistikow, Campo, is superintendent at the property.

Equipment totaling approximately \$20,000 has been installed at the property of Chinese Gravels, Inc., Chinese Camp, California. The new machinery includes a Link-Belt electric dragline on crawlers, 70-foot dragline boom, fair-leader, and cables. A crew of men has been engaged for several weeks in preparing the property for development work. The company recently leased its property from George and Charles Hess and Catherine and William Menke. These holdings were formerly operated by the Menke-Hess Gravel Mining Corporation.

Daniel G. Kidder and Charles E. Greenmeyer, Coulterville, California, are making arrangements to take over the Mt. Ophir mine near Mount Bullion, California, under an agreement with Milton Sutherland, who holds an option on the property for a Philippine group. Under Sutherland's direction some of the old workings were reopened and it is understood that Kidder and Greenmeyer plan to sink from the main tunnel in an effort to locate extensions of ore bodies known to exist in the upper workings. Other than a 30-foot winze, it is understood that there are no workings below the main tunnel level. The Mt. Ophir is owned by the Mariposa Commercial and Mining Company, Mariposa, California.

A crew of men is engaged in unwatering the Junction mine of the Junction Gold Mines, Inc., Soulsbyville, California, preparatory to an extensive development program. The company has been incorporated by Harry F. Davis, Virgil G. Skinner, and Percy M. Cropper. The latter, who has offices at 166 Montgomery Street, San Francisco, is president of the organization. The company recently completed leasing arrangements on the Golden Dawn and Lewis Beck properties.

George Engelke and Zeke Goodwin, both of Columbia, California, have encountered a 10-inch vein of gold ore on the old Atlas property from which they are reported to have realized \$800 to a depth of eight feet.

A crew of eight men, under the direction of Hector Williamson, contractor, is engaged in constructing a reinforced concrete dam across French Creek for the Crystal mine, J. R. Elmendorf, superintendent, Shingle Springs, California. The dam will be about 125 feet long at the crest

and about 22 feet high. The cost of the structure is estimated at between \$4,000 and \$5,000.

The crosscut in the Red Wing vein at the Oro y Plata mine of the Union Consolidated Mining Company, Murphys, California, is reported to be showing a higher grade of gold-bearing ore. J. C. Scoles, director and superintendent, is understood to be slated for the presidency of the company, succeeding the late J. H. Weston. Offices of the company are maintained at 155 Montgomery Street, San Francisco, California.

The \$80,000 mortgage held by the Second National Bank of Hamilton, Ohio, on the Mountaineer group of mines near Nevada City, California, has been transferred to Dr. Carl P. Jones, physician and surgeon of Grass Valley, California, who owns the Champion mines in the same district. Included in the Mountaineer group is the Fortuna mine, which is being operated at present by J. M. Hoff, Nevada City. The deal will not affect operations at the Fortuna, it is understood. The amount paid for the Mountaineer mortgage is reported to have been approximately \$22,500.

The Century Mining Company, Julius E. Linde, general manager, Trona, California, contemplates the installation of a 50-ton flotation mill at its property in the near future. The company secured a bond and lease on the Stockwell property, comprising six claims, in November, 1937, and immediately placed mining equipment on the ground. During December, three carloads of gold ore were shipped to the Selby



Smelter. Operations are being carried on in sulphide ore and the vein is from four to nine feet in width, assaying from \$10 to \$75 per ton in gold. It is reported that a large quantity of milling ore has been blocked out and is ready for mining and milling. The Century Mining Company is a partnership and is under the management of Linde and Carl Orvedahl, assistant manager. Clarence T. Emrich is engineer in charge. The Stockwell is located in the Slate Range, 10 miles northeast of Trona, and is owned by E. E. Teagle of Trona.

H. A. Ball of Cecilville, California, is carrying on hydraulicking operations at the Jefferson Consolidated mine on the east fork of the Salmon River near Cecilville. A monitor is removing surface material from the gravel blocked out for the first run.

At the Orton Gulch mine, located below Cecilville, California, on the south fork of the Salmon River, hydraulicking is being carried on under the direction of J. O. McBroom. Some gravel is being cut.

Crews at the Salmon River mine on the south fork of the Salmon River near Cecilville, California, are engaged in repairing

damage done by recent high water. The property, which is a hydraulic proposition, is expected to be ready to resume operation about the first of February. Almon Striling is operating the mine.

A new vein of ore showing values of \$2 to \$25 per ton in gold, and said to average 2½ feet in width, has been opened up in a drift north of the main shaft on the 100-foot level of the Whitmore No. 1 shaft of Whitmore Mines, Inc., Mojave, California. Ore is being shipped to the Golden Queen mill from a stope 150 feet south of the Whitmore No. 1 shaft, the ore coming from a 3½-foot vein of quartz between granite hanging wall and porphyry footwall. Shipments are being made to the Burton Brothers mill at Rosamond, California from a seven-foot vein on the 100-foot level of the Whitmore No. 3 shaft. This is an oxidized ore with low silver content and is coming from development work. The shaft on the Whitmore No. 3 has reached a depth of 250 feet. According to Bob Dameron, superintendent in charge of operations, plans are in preparation for an extensive exploration and development program on four levels of the No. 3 shaft, with drifting and stoping continuing on No. 1 shaft.

Discovery of a new gold vein, carrying values aggregating more than \$35 per ton has been reported at the property of the Standard Gold Mining Company, A. J. Bruce, Box 98, Mojave, California. The vein was encountered in the Exposed Treasure mine and was tapped while following a high-grade streak on the 900-foot level. The

Every ton of concentrate shipped
by **CLIMAX MOLYBDENUM Co.**
passes over one of three
LOWDEN Dryers

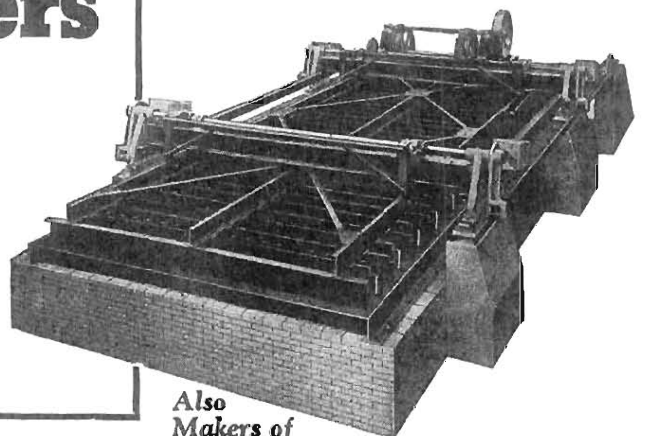
That Climax has purchased, one at a time, three Lowden Dryers since 1933, is good evidence that this large plant has found in these machines a satisfactory answer to the drying problem. Repeat orders from mills of widely varying types thruout the world indicate remarkable adaptability of Lowden Dryers. If you process fine materials which form a sticky mass when wet and which tend to dusting when dry, let our engineering department tell you how the Lowden can be applied to your job.

Send for BULLETIN 32-C
"The Drying of Fine Materials"

COLORADO IRON WORKS COMPANY
Main Office and Works, DENVER, COLO.

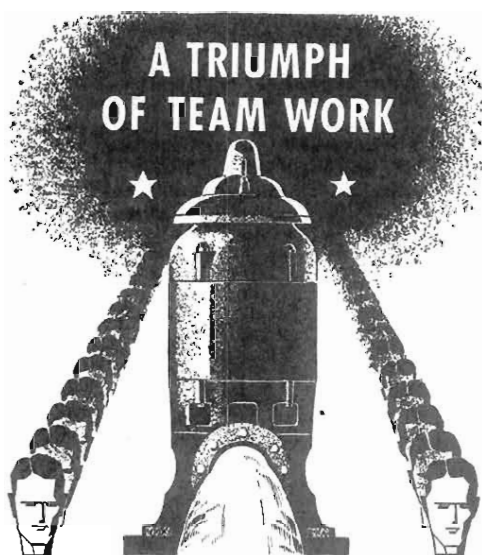
The Lowden Dryer may help your production in either of two ways:
(1) by reducing costs; (2) by improving the physical character of your finished product.

●For drying flotation concentrates, graphite, clays, ground mineral products, paint fillers, pigments and many precipitates.



Also
Makers of
AKINS CLASSIFIERS
Skinner Multiple Hearth Roasters
Ball, Rod and Tube Mills
Smelting Equipment
Ore Crushers and Rolls

COLORADO IRON WORKS CO.



What is back of this perfect performance? Men—many men of widely diverse abilities—inventors, engineers, draughtsmen, layout men, metallurgists, chemists, foremen, brass, bronze and iron founders, machinists, grinders, polishers, enamellers, electricians, assemblers, inspectors, testers.

Add cost accountants, bookkeepers, office help, traffic experts, shipping clerks—add salesmen and service men, available in the far reaches of the world. Add local distributors with their sales and service men.

Here you have the mere sketch of the organization that builds Pomona Deep Well Turbine Pumps by admirable teamwork—a triumph of intelligent cooperation, smoothed into effective daily service by thirty-five years of orderly experience.

Every buyer of a Pomona Pump buys man power and mind power in addition to the metal in the machine. This triumph of teamwork is what insures the vitality, economy and dependability of every Pomona Pump.

POMONA PUMP CO.

Manufacturing Plants:
Pomona, California
St. Louis, Missouri



Branch Offices:
New York - Chicago
Los Angeles
San Francisco

POMONA TURBINE PUMPS

MANGANESE STEEL

Wearing Parts

For extra long service from wearing parts and low operating costs—use Manganese Steel. Parts for all makes of crushers, ball mills, etc. Quick shipments.

CRUSHER JAWS
MILL LINERS
ROLL SHELLS
MISC. PARTS

ALLOY STEEL & METALS CO.
1862 E. 95th STREET • LOS ANGELES, CALIF.

new vein was opened to a width of 30 inches and the ore is said to be of a complex nature, of high copper content, with four different copper minerals appearing in the vein. The finding of this new vein at what is probably the deepest point being mined in the Mojave district, accompanied by the high copper content, is considered of great importance to the district as copper has always appeared with the high-grade ores which have been taken from the Exposed Treasure in the past. An extensive exploration and development program is planned on a number of the Standard Gold properties during 1938, according to Bruce.

The Ortega Mining Company was recently incorporated for \$50,000, \$1 par, for the purpose of operating the Ortega mine at Mariposa, California. J. Q. Finfrock and Dennis Mullins, both of Mariposa, and William Pflum, Santa Barbara, California, are the incorporators. The present operations at the Ortega have extended over a four-year period and many of the earlier workings have been reopened and excellent ore has been developed for the mill which is operating part time.

The Gold Bug mine, located in the north end of Death Valley, has been sold by Earl Gates and the Hicks Brothers to D. H. Wait, Ventura, California; Judge Stewart McGee, Bakersfield, California; and W. M. Ward, Santa Paula, California. The new owners plan to install a 50-ton milling plant at the property and will employ a crew capable of producing ore sufficient to keep the mill on capacity run. R. J. Hazlett, mining engineer and mineralogist of Taft, California, has been placed in charge of operations.

The new 150 to 200-ton milling plant at the Black Rock tungsten mine, 35 miles north of Laws, California, is reported to be operating satisfactorily. The property is being operated by the Black Rock Mining Company, Fay L. Wright, president, 811 West Seventh Street, Los Angeles, California.

The Idaho Maryland Mines Corporation, Grass Valley, California, has declared a monthly dividend of 5 cents payable February 21 to stock of record February 1. In a recent statement regarding its dividend policy, the company has announced that hereafter it is planned to pay a dividend of 5 cents a share monthly, instead of 5 cents quarterly, plus extras, as heretofore. For the year 1937 the company paid a total of 55 cents a share. E. L. Oliver, 351 California Street, San Francisco, California, is president of Idaho Maryland.

The Gould chrome mine located on Seiad Creek near Seiad Valley, California, is being developed under the direction of LeRoy A. Davis. The mine is said to contain an exceptionally large body of chrome ore.

Indians prospecting on claims owned by the Ballard Mother Lode Mines, Inc., near Plymouth, California, are reported to have made a rich gold strike. The ore discovered by the Indians, who had been given permission to prospect on the company's property by John F. Ratto, president, Sutter Creek, California, is reported by assayers

to average from \$30 to \$40 per ton with concentrates ranging from \$700 to approximately \$1,000 per ton. The mineral formation at the new find is said to be of a character different from that of the Mother Lode. The company is running east and west crosscuts at the 300-foot level in the new shaft, located at the north end of the property, with a view to tapping the footwall and hanging wall veins. The Indian strike is 3,000 feet south of the new shaft.

In a letter to stockholders, the Mexican Gold and Silver Company, M. R. Lincoln, secretary, 165 Montgomery Street, San Francisco, reported that it had forfeited its bond and lease on the Oswego mine near Downieville, California. During the summers of 1936 and 1937 the company had driven a crosscut tunnel into the vein, tapping it at a depth of 250 feet, but operations ceased when results proved disappointing. The company levied its 128th assessment, amounting to 2 1/4 cents a share, which was delinquent January 17. Stock on which payment has not been made will be sold at auction February 18.

Tenn B. Lawrence, Box 216, Saugus, California, and associates have filed claims on a large area in the Mint Canyon district and have also located and purchased much of the Texas Canyon area. Lawrence and Seavey are said to be associated with the Consolidated Gold Fields of South Africa, which took over the famous Silver Queen mine at Mojave.

T. F. Pierson and associates of Los Angeles, California, are reported to be raising funds for the installation of a 50-ton milling plant at an antimony property near Trona, California. Other units are to be added as production is increased. The mill is to be built by the Dunham interests of Pasadena for the treatment of both sulphide and oxide ores. The mine, which is located in the Panamint Mountains, comprises 11 claims.

Damage estimated at close to \$10,000 was caused by flood waters which carried away surface equipment and filled the inclined shaft with debris at the Deep Moon mine, Downieville, California. The principal damage was to equipment and buildings. The excessive flood waters served to further and more conclusively prove the existence of the prehistoric channel as it exposed the bedrock rim at the confluence of the channel with the present channel. D. H. Hotchkiss, Carl D. Ross, and H. C. Windell are owners of the property.

The Pioneer and Black Hawk mines, which adjoin the Rawhide property near Dutch Flat, California, have been taken over under lease by Canyon Mines Corporation, Frank B. Keever, general manager, Baxter, California, and the three properties are being worked jointly. Operations are directed by Don Carlos Billick, general superintendent. A crew of more than 50 men is employed. The Pioneer mine, located on the north fork of the American River, is one of the oldest quartz mines in the state, first discovered in 1857.

The crosscut on the 275-foot level of the More Bay Copper Company property at San Luis Obispo, California, has opened what appears to be a large body of com-

mercial ore in the sulphide zone, according to George B. Guillotte, engineer in charge at San Luis Obispo. Ogden C. Chase, 420 Kearns Building, Salt Lake City, Utah, is president of the company.

The properties of the Stratton Estate, which are under the direction of the Stratton Cripple Creek Mining and Development

COLORADO

Company, at Cripple Creek, Colorado, are reported to have produced 20,847 tons of ore averaging \$11.60 a ton during 1937. The property includes such famous mines as the American Eagles, Abe Lincoln, Longfellow, Orpha May, Specimen, Six Points, Jonn A. Logan, and other mines on Bull and Globe hills. D. P. Strickler, 15 East Pikes Peak Avenue, Denver, is president and J. O. B. Keener, Box 146, Cripple Creek, is agent and superintendent. All work is done by lessees.

Operating through the Julia E and Wedge shafts, the Julia E Leasing Company reports that 2,721 tons of ore were shipped during the past year with a gross value of \$13,469. The company is leasing the Julia E, Jennie Sample, and Golden Wedge properties at Cripple Creek, Colorado, from the Doctor Jack Pot Mining Company, L. G. Carlton of Colorado Springs, president.

High-grade gold ore is reported to be coming from between the nineteenth and twentieth levels of the American Eagles mine at Victor, Colorado, which is held

by American Gold, Inc., and operated by split-check lessees. The strike was made in little developed territory and further work will be necessary to determine the extent and importance of the ore. E. W. Dietrick, 2239 East Colfax Street, Denver, Colorado, is president and Henry Pavlat, 1620 Cook Street, Denver, is secretary and mine superintendent.

The Norway Syndicate is operating its 40-ton mill on tellurium ore from the Norway mine at Lost Lake near Eldora, Colorado, in Boulder County. The company is leasing the property from the Prosperity Gold Mines, Inc., which holds it under escrow agreement to purchase. Emery C. Olsen of Eldora is superintendent of the mine and mill for the Norway Syndicate which has headquarters in Greeley, Colorado.

Myron Beswick, Box 121, Boulder, Colorado, is leasing the No. 5 claim of the Rogers patent in Boulder County, Colorado, one of the largest tracts of tungsten ground in the county. This claim is on the Middle Boulder side. The Roger patent is owned by Mrs. Margaret D. Rogers and Mrs. Sadie D. Rogers of Denver. No. 1 and No. 11 are leased by the Key Metals, Inc., and are located on the North Boulder side.

The United Gold Mines Company, headed by L. G. Carlton of Colorado Springs, Colorado, is reported to have shipped a total of 136,655 tons of ore during 1937 with a gross value of \$1,366,404, giving an average value of \$10 a ton. The com-

pany paid 1½ cents a share in dividend during 1937 totaling \$72,000. During the year the company purchased several mining properties including the Gold Nob and Logan tracts which cover 60 acres and adjoin its other property east of the The resa shaft. United Gold Mines also acquired the Pythias group which includes the Lost Chance and Cornucopia claims east of the Isabella mine; the Kalamazoo; the Little Joe; and a fraction of the Manitou claim. In addition to the above acquisitions, the company absorbed the Colorado King and Pharmacist gold mining companies.

The 1½-mile tunnel into the Lamartine mine in Clear Creek County near Idaho Spring, Colorado, is reported to be within 180 feet of the shaft, its objective. The property has been idle for about 30 years and is now being reopened by the Rudolph Brothers, 2760 Downing Street, Denver. George F. Calloway is in charge of rehabilitation work at the mine. It is understood that a mill will be constructed at the property in the near future.

An average output of 800 tons of ore a day was reported during 1937 from the property of the Ibez Mining Company, William M. Bond, Equitable Building, Denver, Colorado, president. The ground is being operated by several sets of sublessees under the direction of M. A. Nicholson of Leadville, lessee. The two principal leases are the B. B. and B. and the 75, operated by Pescho and Company. Old dumps on the property were treated in the Leadville Metals plant.

Complete Amalgamation Plants

5 TO 10-TON PLANT

Independence Ellis mill and screens . . . Rock breaker, 3½-in.x6-in. . . Ellis amalgamator, 12-in.x48-in. . . Ore feeder . . . Grizzly screen, 2-ft.x7-ft., ½-in. mesh . . . 40-ft. 3-in. belting, four ply . . . Gas engine, 2 hp.

Complete plant . . . \$500

15 TO 20-TON PLANT

B. I. Ellis mill including screens . . . 40M ore feeder . . . Rock breaker, 6-in. x7-in. . . Grizzly, 2½-ft. x8-ft. ½ in. . . Ellis amalgamator, 12-in.x48-in. . . 50 ft. 4 in. belting . . . Two 3-hp. gas engines.

Complete plant . . . \$1,100

The ELLIS MILL will grind anything that can be ground or pulverized, wet or dry, to a definite mesh, in one operation, using only one-quarter the power other types of mills require. NO GEARS, NO GREASE, NO BEARINGS, NO FRICTION.

All wearing parts are now "Moly-Chrome" castings. Above prices in force until further notice and are for complete plants ONLY: as above listed.

ELLIS MILLS MFG. COMPANY

(A Voluntary Trust under Laws of Nevada)

510 Brannan near Fourth Street

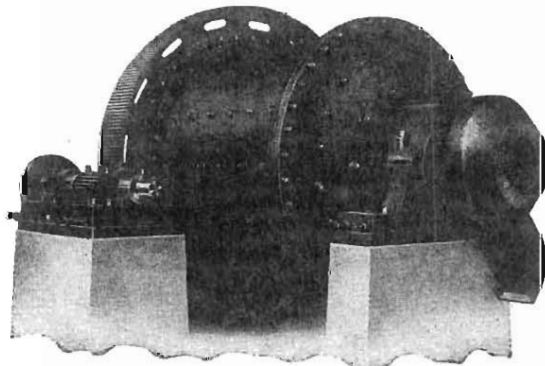
SAN FRANCISCO

CALIFORNIA

Mexican Manufacturing Branch: Guadalajara, Jal., Mexico
H. V. Jones, Agent, Apt. 497, Pedro Moreno, 228.

Ball Mills By TRAYLOR

and Rod Mills, Tube Mills, Pebble Mills, in any size, for any service, with feed and discharge arrangements, lining, drive, etc., to suit your pet ideas, and therefore built to your order! Full-welded design, or with welded shell and detachable heads—as you like 'em!



Get Our Bulletin 1103, Today!

Traylor Engineering & Manufacturing Co. ALLENTOWN, PA.

919 Chester Williams Bldg.

Los Angeles

New York

101 W. Second South St.

Salt Lake City

6315 25d Ave. N.E.

Seattle, Wash.

Chicago

Manila Machinery & Supply Company, Inc.—Manila and Baguio

**WESTERN GOLD CORPORATION
HAS EXTENSIVE HOLDINGS**

SINCE the Western Gold Corporation started to function August 1, 1937, it has acquired over 5,500 acres of mineral lands in Idaho, Oregon, and Montana. The company was organized by S. K. Atkinson, 617 First National Bank Building, Boise, Idaho, and associates, including Earl W. Murphy and L. W. Thraikill, to take over the holdings of the Mineral Products Company, Idaho Gold Dredging Corporation, Idaho Exploration, Inc., Gold Production Company, and the Metals Syndicate, Trust Fund A. Through an exchange of stock, stockholders in the several old companies are now participating in the new Western Gold Corporation.

This gives the new organization the Moores Creek dredging ground which is being operated under lease by the Moores Creek Dredging Company, Harry B. Murphy, 630 First National Bank Building, Boise, general manager. An eight-foot Yuba gold dredge, with a monthly capacity of 100,000 cubic yards, is being used.

The Grimes Creek dredging property is also controlled by the Western Gold company and is leased to the Grimes Company which is under the same management as the Moores Creek operations. The Grimes Company has contracted to purchase from the Western Gold concern a 3½-cubic foot dredge with a capacity of about 50,000 cubic yards a month. This dredge is now being operated on Big Muddy Creek near Pioneerville, Idaho.

About 3,000 acres of patented hydraulic placer ground in Boise Basin, called the Monazite group and held by Western Gold, is to be operated on a royalty basis by William H. Simons, Box 2120, Boise, and associates. The same group has also contracted to equip and dredge the Elk Creek placers near Idaho City.

Harry England and Company of Boise recently moved a dragline dredge to the Garden Gulch placers of Western Gold and will start operations very shortly.

The Black Warrior placer claims, which are included in the new company's list of properties, are being purchased by Harold E. Cullen, Stowell Hotel, Los Angeles, and

associates who have formed a company known as the Boise National Mining Company to operate the ground. The Boise National company is said to be in the process of financing construction and operation of a dragline dredge.

Other properties held by the Western Gold Corporation include a lease on Ida Bell quartz mine, negotiations for the sale of which are now under way; the Ruby Creek placers in Montana where prospecting is being done on company account; and mineral rights on 400 acres of patented dredge lands near Granite, Oregon.

**IDAHO MARYLAND ORDERED
TO REINSTATE WORKERS**

THE National Labor Relations Board ordered the Idaho Maryland Mines Corporation, Grass Valley, California, to offer immediate reinstatement to 61 employees which the board found were discharged because of unfair labor practices engaged in by the company. The order also calls for remuneration of 73 workers, including most of those to be reinstated, who were reputedly locked out of the company's old Brunswick shaft last April.

The board also directed the company to "end efforts to restrain organizational activity" of Local 283, International Union of Mine, Mill, and Smelter Workers, or any other labor organization, and to withdraw recognition and support from the Mine Workers Protective League. An agreement recognizing the league as bargaining agent for its employes was held "void and of no effect" on the ground that the league was employer-dominated.

All California mining was declared affected by the order and a test of the decision, which will ultimately reach the U. S. Supreme Court, is forecast by the mining industry. The industry had maintained that gold mined entirely within California and sold to the government mint at San Francisco is not a product moving in interstate and foreign commerce and therefore does not come under jurisdiction of the board.

The board, however, held that the Idaho Maryland company is engaged in producing "the very life blood of commerce" and comes under the Wagner act.

**FAIR VISITORS TO SEE MINING
METHODS FOR VARIOUS METAL**

MILLIONS of visitors to the 1939 Golden Gate International Exposition on San Francisco Bay will get their first glimpse of a gold mill in operation. Built according to specifications, a complete running mill in the "Hall of the Mineral Empire" will show the various processes involved in reducing gold ore.

A crew, working two shifts, will operate this mill, which was designed by the technical committee of Mining Exhibits, Inc., a non-profit organization in charge of the mining industry's displays at the \$50,000 Pageant of the Pacific. The plant will be authentic in every detail.

The mill will be part of the "Treasure Mountain" display, one of the outstanding features of the exposition. Situated in the center of this mammoth display, the cyanide mill will appear to be located in the valley of a typical mining region surrounded by towering mountain ranges. Ore for the mill will be "mined" in the various shafts tunneled into the mountain sides.

Tungsten mining will be represented in the "Hall of the Mineral Empire" by exhibits of the Nevada-Massachusetts Company, Inc. This corporation operates the Mill City group of approximately 1,200 acres, including the Stank, Springer, and Humboldt mines, the largest producer of tungsten in America, also the Silver Dyke mines of Nevada.

Not only will methods of operation be depicted, but a display of manufactured products such as tungsten steels and various lamp filaments will give visitors an idea of the uses of the metal. It is expected that the efficiency of tungsten high speed cutting and sharpening tools will be demonstrated. Such a display would show tools operating at red heat without dulling or softening. The display will also probably include a demonstration of the Nevada-Massachusetts Company's milling process. Contract for the exhibit was signed by Charles H. Segerstrom, president of the mining firm.

H. W. Gould & Company, manufacturer of the Gould rotary furnace, also will occupy a large area in the "Hall of the Mineral Empire." According to present plans,

McDONALD
Dustfoe
RESPIRATOR




SAN FRANCISCO OFFICE • 1174 HOWARD ST.
(Serving Northern California and Nevada)

Give Your Men the Lightest
APPROVED Respirator

Approved by the U. S. Bureau of Mines, the McDonald *DUSTFOE* Respirator is far lighter in weight—more satisfactory to use. Total weight less than 3¼ oz. Permits full vision in any direction. No interference with goggles. Easily disassembled. Adjustable face piece. Inexpensive filters easily replaced. Send for full particulars.

B. F. McDONALD COMPANY
1248 SOUTH HOPE STREET, LOS ANGELES, CALIFORNIA

this display will be centered around a large working model of the oil-burning rotary furnace which a score of years ago revolutionized the treatment of quicksilver.

In connection with the Gould exhibit will be a display of the quicksilver mining operations of the New Idria Quicksilver Mining Company, of which Theodore Gould is president and H. W. Gould, vice-president. The New Idria mine, which has been the leading quicksilver producer in this country since the World War, is second in all-time production of this metal.

The Klau Mines, Inc., of which H. W. Gould is president, and the Oat Hill Mine in Yuba, California, also operated by the Gould interests, will be included in the exhibit. Besides dramatic pictorial displays, a large collection of ore samples will aid in acquainting the public with quicksilver mining operations.

Negotiations for the exposition were carried on by Thomas Campbell, ex-governor of Arizona and executive vice-president of Mining Exhibits, Inc., the non-profit organization in charge of mining displays at the \$50,000,000 Pageant of the Pacific.

CALIFORNIA BOARD SEEKS FUNDS TO FIGHT HIGH-GRADING

The California state mining board has petitioned Governor Frank F. Merriam and the state's delegation in Congress to declare war on high-graders of California gold and to obtain an allocation of federal funds to curb such thefts and to finance prosecutions.

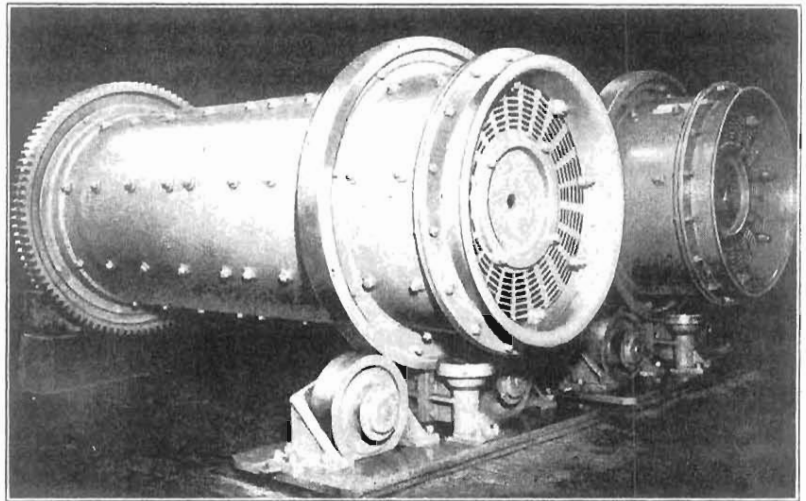
State Treasurer Charles G. Johnson, Sacramento member of the board, in making public the terms of the resolution estimated that \$1,000,000 worth of gold is being stolen annually in California. The mining board is asking that California Congressmen unite with the representatives of other gold states in seeking the apportionment of adequate law enforcement funds as quickly as possible.

"Federal and state authorities, working in cooperation, have put forth their best efforts to combat this evil, which not only involves losses to mine operators but is also detrimental to the morale of the employe," stated Johnson. "However, they have been handicapped by lack of funds to carry out a thoroughly effective campaign against it. The secret service of the United States has no regular fund for this work."

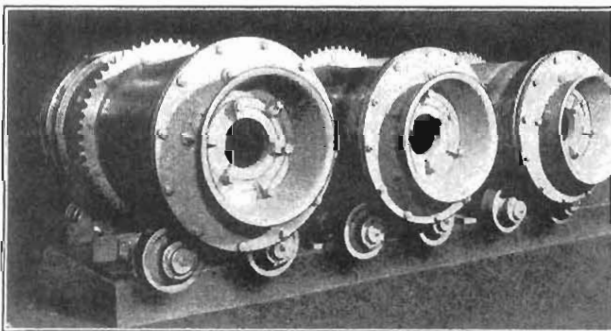
Johnson reports that the crime of high-grading has become a definite menace to gold production in California. Gold is a non-competitive commodity and when produced becomes the property of the United States government. The mining board, he said, has exercised every preventive means to stop the marketing of high-grade gold, but its efforts have been challenged continuously by organized gold buyers. Several of these have been apprehended and have been prosecuted in Los Angeles.

The drive now under way is aimed to prevent the sale of California high-grade in Mexico and Canada, which countries heretofore have been the high-grade markets.

DO YOU HAVE A SPECIAL GRINDING PROBLEM? SPECIAL MILLS ARE OUR SPECIALTY!



Illustrated are two special low pulp line rapid discharge mills with discharge grates the full diameter of mill. This allows very rapid discharge which eliminates sliming. Large circulating load assures maximum capacity. The discharge end features trunnion rollers and vertical thrust rollers all mounted with anti-friction bearings. This allows easy removal of center grate section or entire discharge head for thorough inspection, clean out purposes or relining.



These special diaphragm discharge mills are self-contained units, supported on four anti-friction rollers mounted on a steel sole plate. Easily removable discharge rings control weight of ball charge and capacity of mill.

Our complete line of crushers, tables, ore feeders, mine cars, etc., together with our standard line of mills in more than seventy sizes, plus a large number of special types, enables us to supply exactly what you need. Prices start at \$220.

Our ore-testing department is completely equipped to give you prompt and accurate flow sheet service. Our catalog gives prices and details for this work.

STRAUB MFG. CO.

505 Chestnut Street

Oakland, California

Pidanos catalogo español.

News: Our Mills Are Operating Regularly DOUGLAS FIR MINING TIMBERS

(Oregon Pine)

WESTERN RED CEDAR

TIES, POLES, CONSTRUCTION and BUILDING LUMBER

We can saw to 60'

QUICK SHIPMENTS FROM OUR OWN TIMBER AND MILLS

DAILY CAPACITY 100M'

EDWARD S. PEER

Seattle, Wash.
609 Vance Bldg.
SEneca 0433

Bingen, Wash.
Western Union or P. O. Box 177

Los Angeles, Calif.
1034 Central Bldg.
VA 8682

Arizona-California: Chas. R. McCormick Lbr. Co.
Edison Bldg., Los Angeles. Sheldon Bldg., San Francisco

Colorado-New Mexico: G. T. Babcock, 1114 Security Bldg., Denver, Colorado

Gold recovered from placer mines in New Mexico in 1937 totaled approximately 3,300 ounces, compared with 3,378 ounces in 1936. Two districts in Sierra County yielded most of the gold in both years. In the Las Animas district the John I. Hallett Construction Company continued in 1937 to operate its two draglines and Ainaly recovery plant on the Animas Consolidated and Slease leases, and in the Pittsburg district the Caballo Construction Company took over and operated the property of the Pittsburg Placer Mining Company, using machinery for handling the gravel.

OREGON

THE mine production of gold, silver, copper, lead, and zinc in Oregon in 1937, in terms of recovered metals, is estimated to have been 52,700 fine ounces of gold, 66,400 fine ounces of silver, 920,000 pounds of copper, 250,000 pounds of lead, and 58,000 pounds of zinc valued in all at \$2,026,324. These figures compare with a production in 1936 of 60,753 ounces of gold, 85,061 ounces of silver, 574,000 pounds of copper, 158,000 pounds of lead, and 122,000 pounds of zinc valued in all at \$2,258,411.

The gross value of Oregon production at average yearly prices in 1937 of \$35 per ounce of gold, \$0.771 per ounce of silver, \$0.121 per pound of copper, \$0.061 per pound of lead, and \$0.070 per pound of zinc was: Gold \$1,844,500, silver \$51,194, copper \$111,320, lead \$15,250, and zinc \$4,060.

The total value of the five metals in 1937 declined 10 per cent compared with 1936: Gold production declined 13 per cent in both quantity and value, silver declined 22 per cent in both quantity and value, and zinc declined 52 per cent in quantity and 73 per cent in value; copper increased 60 per cent in quantity and 111 per cent in value, and lead increased 58 per cent in quantity and 110 per cent in value.

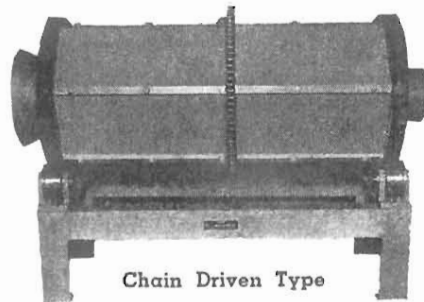
GOLD continued to be the principal source of revenue to the metal miners of Oregon. Preliminary figures for 1937 indicate that it provided 91 per cent of the total value of the five metals, compared with 94 per cent in 1936. In 1936 approximately two-thirds of Oregon's gold was derived from placer operations and one-third from lode properties, and, although preliminary figures for 1937 do not segregate the types of operations, no substantial variation from this ratio is indicated.

Baker County continued to be the leading producer of lode gold; Cornucopia Gold Mines, the largest lode mine in the state, was active throughout the year. Among other large lode-gold operations in eastern Oregon were the Highland Maxwell and the Baisley Elkhorn properties in Baker County and the Columbia and Argonaut mines in Grant County.

Most of the placer production came from Grant, Baker, Jackson, and Josephine counties, in each of which one dredge or more provided the bulk of the output. In 1936 there were 15 dredges in operation; five of these were of the floating type with connected buckets, four were of the dragline

Titan Rotary Amalgamators

—are helping many operators recover the fine free gold that heretofore was lost in the tailings for want of more efficient equipment.



Chain Driven Type

Up to 98% of assay may be recovered with this "TITAN" AMALGAMATOR

THE TITAN PULSATING DIAPHRAGM JIG IS THE LATEST ACHIEVEMENT IN CONCENTRATING EQUIPMENT

WRITE OUR ENGINEERING DEPARTMENT CONCERNING YOUR PROBLEMS

MILL & MINE SUPPLY, INC.
2700 4th Ave. South Seattle, Wash.

BORTZ

DIAMONDS FOR CORE DRILLING

CARBON

J-K-SMIT AND SONS, INC.

157 CHAMBERS STREET, NEW YORK, N. Y.

Representative for Mexico
P. MARTIN
APARTADO NUM.544
MEXICO CITY

Western Representative
HERMAN MEINERT
P.O. BOX 692
SPOKANE, WASH.

WOOD TANKS

COOLING TOWERS — WOOD PIPE



PACIFIC TANK & PIPE CO.
THE STANDARD SINCE '88

122 West Jefferson Blvd., Los Angeles

400 High St., Oakland, Calif.

KRAUT FLOTATION MACHINES

High metallurgical efficiency enables Kraut Cells to get high recoveries whether ore is coarse-ground or fine, fast-floating or slow. Four models, from 10-15 tons to 50-75 tons metallurgical capacity. Send for Bulletin K.A.



PAN-AMERICAN ENGINEERING CO.
820 PARKER STREET • BERKELEY, CALIFORNIA

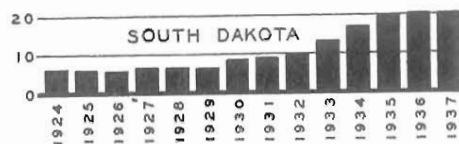
type, and six were classified as dry-land dredges. The largest producer in the state in 1937 appears to have been the connected-bucket dredge of the Sumpter Valley Dredging Company in Baker County. In Grant County one of the largest dragline dredges, if not the largest, in the world was operated by Ferris & Marchbank and produced a large quantity of gold, and the Timms Gold Dredging Company was also a large producer. In southwestern Oregon, the Rogue River Gold Company in Josephine County operated one of the largest connected-bucket dredges in the state. The B. & H. Company produced a large quantity of gold with a dragline dredge on a property formerly worked by the Alaska of Oregon Mines Company in Jackson County not far from Jacksonville. A few miles to the south, and also in Jackson County, the Sterling mine was being operated by a combination of hydraulicking and dry-land dredging. In southern Josephine County near Waldo, the Esterly property, which used both hydraulicking and dry-land dredging was the leading placer producer.

Silver in Oregon in 1937 was recovered entirely as a by-product of other metals, principally gold; consequently, production fell as the result of lessened activity in the gold industry. In 1936 the Cornucopia Gold Mines was the leading producer of silver in the state, and preliminary reports for 1937 indicate that it continued to produce over half of the silver output.

The outstanding producer of copper in Oregon in 1937 was the Balm Creek Gold Mining Company in Baker County, which operated the Balm Creek mine. Most of the lead and zinc produced in Oregon in 1937 was derived from complex ores mined in the Bohemia district of Lane County.

SOUTH DAKOTA

MINE PRODUCTION OF GOLD, SILVER, AND LEAD IN SOUTH DAKOTA, 1924-1937, IN MILLIONS OF DOLLARS



REPORTS of mine production furnished by operators and receipts at smelters and the United States mint indicate that mines in South Dakota in 1937 yielded 582,000 ounces of gold and 143,000 ounces of silver. These preliminary figures compare with final figures in 1936 of 586,353.40 ounces of gold and 144,448 ounces of silver. In both years South Dakota was the second large gold-producing state in the United States, including Alaska but excluding the Philippine Islands. The producing area in South Dakota comprises parts of the three southwestern counties—Custer, Lawrence, and Pennington—in what is known as the Black Hills. The number of producing lode mines in 1937 was 14, including four operated on a very small scale, compared with 12 in 1936, of which five were small-scale operations. Producing placers in 1937 totaled about 125, but four equipped with machinery for

handling the gravels yielded most of the gold.

The gross value of the South Dakota production in 1937, at the average yearly prices, was \$20,480,253, of which \$20,370,000 was in gold and \$110,253 in silver. In 1936 the values were \$20,522,369 in gold and \$111,875 in silver, a total of \$20,634,244.

The Homestake mine at Lead, Lawrence County, the largest producer of gold in the United States, has been operated almost continuously since 1876. From that year to 1936, inclusive, it yielded bullion and concentrates that brought a total cash return of \$321,508,038, after freight, express, insurance, mint, and smelter charges were deducted. In 1937 the mine paid \$9,041,760 in dividends, bringing the dividends paid to date to \$106,103,962. Since 1932, when work was begun on the authorized new 5,000-foot Ross shaft, more than 1,000 feet have been added to the depth of the mine workings which at the beginning of 1937 were bottomed on the 4,100-foot level, and the Ross shaft was being operated to the 3,800-foot level. The new Ross compressor plant was completed and placed in service in 1937. Mining and milling operations were carried on at approximately the same rate as in 1936, when a new high record of annual gold production was established.

At Trojan the Bald Mountain Mining Company maintained production from its mines and 300-ton cyanide mill. In the Maitland district the Canyon Corporation continued to recover gold and silver from the refractory sulphide ores, commonly known as blue ores, of the Maitland mine by the roast-cyanidation process. Mines in Lawrence County that were reopened for repairs and development in 1936 and that began production in 1937 are the Gilt Edge and Minnesota groups. Some bullion was recovered by amalgamation at the Clover Leaf property at Roubaix in the first part of 1937, but operations were suspended later in the year.

Production from Pennington County came mainly from the Golden Slipper mine of the Empire Gold Mines, Inc., in the Hill City district, where the ore was treated in the company 100-ton amalgamation-flotation concentration mill.

Gold recovered from placers in South Dakota increased from 347 ounces in 1936 to about 1,000 ounces in 1937. The increase came chiefly from the renewal of power shovel and dragline excavator operations on French Creek in Custer County.

From 1875 to 1937, inclusive, South Dakota has yielded 17,637,717 fine ounces of gold and 8,673,474 fine ounces of silver.

TEXAS

REPORTS from mine operators and receipts at smelters indicate that mines in Texas in 1937 produced 550 ounces of gold, 1,303,000 ounces of silver, 275,000 pounds of copper, and 795,000 pounds of lead. These figures are based on actual production for the first 11 months of the year, with December estimated, and compare with an output in 1936 of 613 ounces of gold, 1,361,459 ounces of silver, 53,000

pounds of copper, and 935,000 pounds of lead.

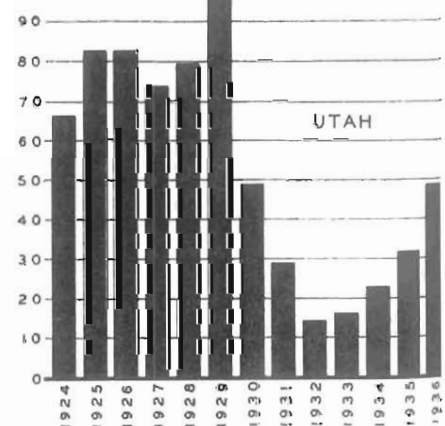
The gross value of the output of the metals in 1937 at average yearly prices was: Gold \$19,250, silver \$1,004,613, copper \$33,275, and lead \$48,495, a total of \$1,105,633. In 1936 the values were Gold \$21,455, silver \$1,054,450, copper \$4,876, and lead \$43,010, a total of \$1,123,791.

The Presidio silver mine of the American Metal Company of Texas at Shafter, Presidio County, was operated continuously in 1937 and yielded the bulk of the state output of silver, lead, and gold. The ore is treated in the 275-ton gravity concentration-cyanidation mill at Shafter. The principal producing mines in Texas in 1937 were the Black Shaft near Allamore (producing copper-silver ore) and the P. Verde, 14 miles southwest of Van Housen (yielding siliceous silver ore containing little copper), both in Hudspeth County. The ore from these mines was shipped to the El Paso smelter.

Although silver is the only metal (including mercury) of which Texas is a large producer, the state derives no benefit through its smelting and refining industries from the out-of-state production of this and other metals. In 1937 American Smelting & Refining Company continued to purchase ores and concentrates from operators in the western states for production in its lead and copper smelters at El Paso and zinc smelter at Amarillo. The Illinois Zinc Company zinc smelter at Dumas treated lead-free zinc concentrates from the Peru mill at Deming; New Mexico The Nichols electrolytic copper refinery at El Paso, a unit of the Phelps Dodge Corporation, was operated continuously on copper anodes received from the corporate smelters in Arizona.

UTAH

MINE PRODUCTION OF GOLD, SILVER, COPPER, AND ZINC IN UTAH, 1924-1937, IN MILLIONS OF DOLLARS



METAL mines in Utah in 1937 produced gold, silver, copper, lead and zinc valued at \$88,582,278, according to estimates of the United States Bureau of Mines. The value of the 1936 metal output was \$48,836,356, indicating an increase in 1937 of more than 81 per cent. The increase was chiefly in copper, the value of which was more than double that in 1936.

The automobile industry is by far the largest consumer and the great majority of the lead it uses is in storage batteries. Thirty per cent of the lead consumption in this country in 1936 was used in the manufacture of batteries.

With automobile production considerably lower now than it was a few months ago, the lead industry faces a considerable problem in scaling its production down to meet this curtailed demand. Building operations and utility construction are also at much lower levels than normal and while the new housing bill is expected to result in greater residential building, the uncertainty surrounding the utility industry indicates that there will be little increase in consumption by that field in the near future.

At one time the utility industry was the largest domestic consumer of lead. In 1929 nearly 23 per cent of total consumption was in the production of lead-covered cables which are used extensively in communication lines.

There has been some increase in lead consumption lately in this country and still more abroad in the production of armaments. At this time it appears that a greater amount of lead will be used for armament purposes during the coming year, but the industries on which lead is most dependent are the automobile, building, and utility fields, and it is toward these that lead must look particularly for its outlets.

The consumption of zinc in recent years has shown much greater improvement than has the consumption of lead and the reason for this is that a much greater percentage of the zinc output is used in consumer goods, the production of which has advanced rapidly in the past five years. Lead, however, is more widely used in the durable goods industries and the hesitancy of capital to enter the building and utility fields is reflected in its slower relative improvement.

According to the United States Bureau of Mines, zinc consumption and industrial activity in 1936 were 82 and 88 per cent, respectively, of their 1929 totals, whereas lead consumption was only 65 per cent of the 1929 figure. The index of industrial activity used by the bureau of mines was computed from the Federal Reserve Board series.

Large quantities of zinc are used in galvanized ware, paint pigments, radio and flashlight batteries, fruit jar covers, and other items that pass on to the consuming public rapidly. Galvanizing operations accounted for more than 41 per cent of the total zinc manufacture in 1936, while brass making ranked second with 29 per cent. Die castings were third with about 12 per cent and rolled zinc, which is used for battery cans, fruit jar covers, boiler plate, etc., ranked fourth with a little under 10 per cent.

IT IS interesting to note that the prices of lead and zinc have shown a steady decline for a number of years. While other commodity prices soared upward in 1929, the prices of these two metals remained at levels considerably lower than they were in 1926 and 1927.

In making it possible for these prices to turn lower as they have, metallurgical developments have played an important part, and in doing so have made great contributions to the consumers as well as the producers. Improvements in the beneficiation of lead and zinc have been encouraged by the protection that these industries have been afforded from foreign competition, and the producers have been quick to pass the benefits derived on to the consumers in the form of lower prices.

However, if the domestic lead and zinc industries are not protected from cut-throat foreign competition by the maintenance of present tariffs further development will be discouraged. Furthermore, expansion and the opening of new properties will be checked.

There are many deposits of the metals in this country which have only needed adequate power to permit their exploitation. Particularly is this true of zinc. And now that hydroelectric power facilities are being provided in the west, it is possible that new mines will be opened if there is assurance that our tariff barriers will not be lifted.

Even free-trade advocates do not deny the justification of a tariff great enough to equalize domestic and foreign costs of production and domestic and foreign standards of living. This is all that U. S. mines want and the present tariff must be retained if this is to be accomplished.

With metal prices considerably weaker today, and with domestic industry unable as it is to absorb the production of our mines, there could be no time at which the mines could be injured more by the

reduction of import tariffs than at present. Lowering the tariffs would merely multiply their troubles, force curtailed operations and throw many employes out of work to the benefit of foreign labor with low standards of living.

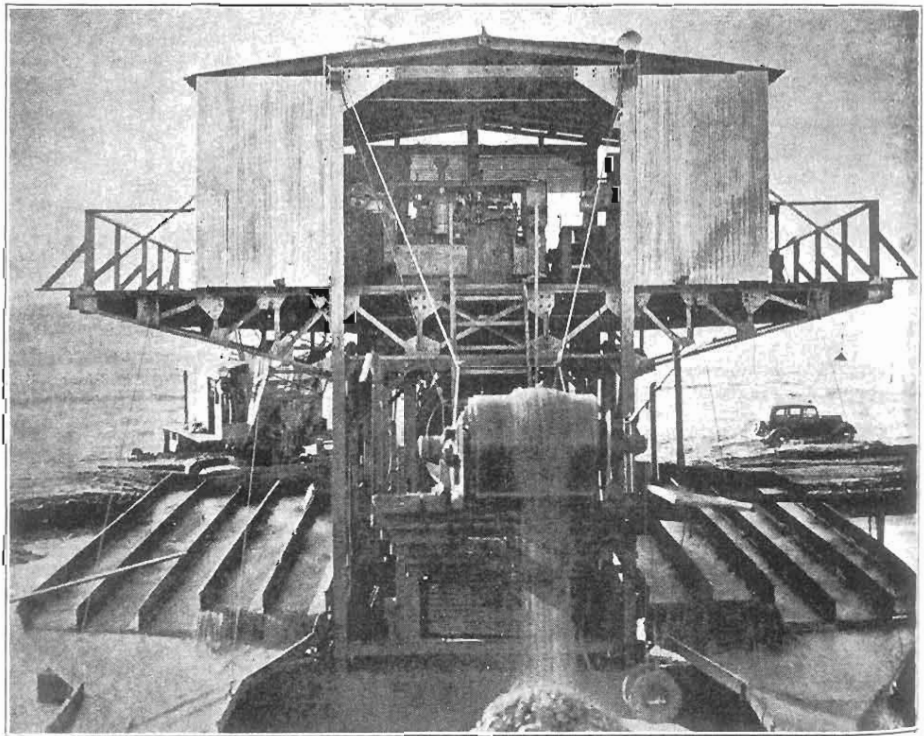
The benefits of increased foreign trade are well recognized by the mining industry but no changes in tariff rates should be made which will sacrifice or cripple any basic domestic industry for the benefit of foreign business. The domestic lead and zinc producers cannot compete with foreign companies and retention of existing tariffs is essential to their future welfare. Moreover, lead and zinc are absolutely essential metals for any national defense program and the domestic resources must not be sacrificed.

MURCHIE MINE REOPENS FOLLOWING C. I. O. STRIKE

EMPLOYING a crew of approximately 100 men, as compared with a total of about 240 before the shutdown, the Murchie mine of the Empire Star Mines Company at Nevada City, California, has resumed operations.

The mine was closed down about the middle of January following a strike called by C. I. O. leaders who asked for an increase of 3 cents an hour in wages, an eight-hour day from collar to collar, and recognition of the C. I. O. affiliate as the bargaining agency in the mine.

However, a number of the Murchie employes drew up a petition asking the Murchie management for an opportunity to go back to work. Accordingly, the company has reopened the property and the workers who so desired have returned to their jobs.



The Hoosier Gulch Placers Company is operating on a 24-hour basis at its property five miles east of Sloughhouse, California. The dredge, pictured above, is of steel construction and has a capacity of 3,000 yards of gravel per day. It is powered by a Caterpillar Diesel engine and fed by a P. & H. 13½-yard dragline shovel, also Caterpillar Diesel powered.

The Sampling Mill by Fisher Lane



* * * We spotted this classified ad in a recent San Francisco newspaper: "GOLD! Anyone having instrument for locating buried gold, write Box ----." There you have before you one of the actual concrete results of the prostitution, by unscrupulous quacks, of the legitimate science of geophysical engineering. Confiding suckers (and their name is legion) have bitten on the nefarious bait flung out by fakers—bitten, and been disillusioned, of course—until honest, legitimate geophysicists, in both the mining and the petroleum industries, have a whale of a lot of counter-missionary work to do to offset the effects of the quackery.

* * * Hitler regimented German shirttails as to length. Mussolini makes Italian school kids thank God AND IL DUCE (jointly) every noon before they eat lunch, in a "canned" ritualistic blessing. The other day a Japanese sentry slapped the face of an American embassy official (oh—'scuse pr-r-reze, ver' sorry—SO sorry!)

* * * Some of it's funny, some of it's tragic. As to just where it MIGHT lead us, consider the \$800,000,000 military and naval appropriation, apparently going through Congress as this is written.

* * * As a mental and spiritual antidote to it all we recommend—aye, urge—that you read from cover to cover, the new book by Lin Yutang, eminent and cultured Chinese philosopher, "The Importance of Living." It's an antidote to other things, too—including such fool tomes as Carnegie's "How To Win Friends and Influence People."

* * * We've had to have our optometrist strengthen our glasses and give us up-and-down eye-exercises as a result of trying to follow copper price quotations and vibrations lately.

* * * Anyway, notwithstanding F. D. R.'s 13-cent slash off the price of silver we see by the papers that that Arizona camp with the cheery name, Tombstone, is about to boom again, following revelation of new ore bodies by the Wilson-Butler survey. Tombstone always was a contrary camp, even in the booming eighties when Wyatt Earp had to use two six-guns to make it behave.

* * * Flopping nimbly from Cu and Ag to Au: Better than \$40,000,000 came out of the California hills in '37—which was \$3,000,000 better than '36 production of the Golden State, higher in ounces than any year since 1883.

* * * Against that, though, put this down and look it over: The United States imported \$1,631,523,000 worth of gold during 1937, and Uncle Sam now owns over half the total world supply of gold. Most of it's down cellar at Ft. Knox, Kentucky, "sterilized." Oh, boy! Wouldn't it feel nice to jingle eagles and double eagles in the pantaloons' pockets again?

* * * In January the National Labor Relations Board butted into the Grass Valley (Idaho-Maryland) rumpus over in California, and took the play away from the state authorities. From where we sit that doesn't look a bit good. The NLRB avers gold mining is interstate commerce. A Supreme Court test appears sure. Alice Rosseter, lady-czar of NLRB in California, may get her hair singed.

graduated from the Imperial Russian Military Academy. He served in the Russian army for seven years during the World War, and in the Russian civil war that followed. With the cessation of war in Russia Lomikovsky fled to China and later came to America. In 1932 he joined the staff of the Caliente Cyaniding Company and became a naturalized American citizen in 1935.

John Tait Milliken, 65, prominent engineer of Colorado Springs, Colorado, died at his home January 16, 1938. Milliken took an active part in the development of mining and milling in the west and is credited with having originated numerous improvements in the process of ore reduction. One of his first important jobs was the reconstruction and operation of the Golden Cycle mill, then known as the Telluride mill. Besides his Colorado experience Milliken has operated in South Dakota and California. At the time of his death he was president and general manager of the Le Clair Mines Company. He was also interested in the Queen, Ada Bell, Homestake, and other properties in Colorado and was consulting engineer for the Black Hills Exploration Company in South Dakota.

Charles P. Rees, 60, vice-president in charge of mining operations of the Vanadium Corporation of America and a geologist and mining engineer of wide reputation, died January 19, 1938, at his home in Yonkers, New York. He was born in Pittsburgh, Pennsylvania, and was graduated from the University of Wisconsin. In 1900 he entered the service of the Minnesota Iron Mining Company and was later employed by the Oliver Iron Mining Company. In 1916 he joined the staff of the American International Corporation and made investigations in Russia, Siberia, China, and Japan. He also served as geologist and representative in Mexico of the Midvale Steel and Ordnance Company. In 1925 he became associated with the Vanadium Corporation of America as consulting engineer and was elected vice-president in 1929.

JOHN K. TURNER

JOHN K. TURNER of Reno, Nevada, widely known mining engineer and mine operator, died January 28, 1938. For 35 years Turner was active and successful in his profession in the western United States, Mexico, and South America. At the time of his death he was consulting engineer for the Jumbo Extension Mining Company, the Great Bend, Ltd., the White Hills Silver Mines, Inc., in Arizona, and had been connected with various other mining enterprises.

Turner was born in Chicago in 1875 and educated in the Chicago schools, Denver high school, and the Colorado School of Mines and Columbia College. He started his mining career in the Cripple Creek camp of Colorado and in Montana. For a time he specialized in cyanide milling, testing, and mill construction and is credited with having built the second successful cyanide mill in America.

He formerly maintained headquarters in Los Angeles.

WENDELL P. HAMMON

WENDELL P. HAMMON, pioneer in gold dredging industry, died at Oroville, California, January 26, at the age 84. His vision, imagination, and practical engineering ability spelled recovery of millions of dollars worth of gold that perhaps might never have swelled the production records of placer deposits all over the world.

It was in 1875, when the days of Argonauts had gone by and the flow of yellow metal from California had been reduced from a flood to a thin stream, that as a young man Hammon stood idly scooping up earth on his ranch near Oroville. The gravel flowed through his fingers when suddenly he saw a yellow gleam in the sun. That act was the beginning of one of the West's greatest, most profitable industries.

In almost every major field where business judgment, energy, and vision counted Hammon left behind a record of enterprise and a name intimately interwoven with the mining development of not California alone but of the other states of the west.

When he found that the gravel beneath his own ranch carried gold in quantities that would pay if recovery could be effected at low unit cost, he enlisted the aid of Boston banker, Edward A. Clark, and built the first successful gold dredge.

The gold that he and his associates recovered from present and ancient river beds of Northern California was used to build railroads, buy mines all over the world, purchase lumber and mills, build more dredges, recover more gold (and tin), drill for oil, and found communities.

Hammon's first crude dredge was the prototype of those seen in action in later years in every land where gravel is dredged—including the tin and gold placer mines of Portugal, the Malay States, South America, Colorado, and Idaho. He owned mines at Nome and Fairbanks during Alaskan gold rush days. At one time he was either owner or a director of more than a hundred corporations in almost a dozen many fields.

Hammon organized the Yuba Consolidated Gold Fields in 1904. He was at various times active in the management of such companies as the Oroville Dredging Company, Ltd.; Yuba Manufacturing Company; Ventura Consolidated Oil Field; Sierra Pacific Electric Company; Natoma Consolidated; Columbia Steel Corporation; Hammon Consolidated Gold Fields; California Sansome Corporation; Hammon Engineering Company; and the Pioneer Gold Dredging Company.

Early last year he was made an honorary member of the American Institute of Mining and Metallurgical Engineers in recognition of interest and support given to the gold dredging industry and the engineering association.

Born in Crawford County, Pennsylvania in 1854, Hammon migrated to California in the early 70's. He is survived by two sons, Wendell C. Hammon, San Francisco, mining engineer, who is vice-president of the Hammon Engineering Company, and Glen Hammon, Southern California business man.

Justrite

MINERS' LAMPS

THE LAMP that puts

DAYLIGHT UNDERGROUND

Dependable lamps that give you plenty of light—that's the story of Justrite Miners' Lamps!

For Justrite Lamps are the product of highest grade materials and finest precision workmanship . . . the famous Justrite Mining Lamp patents . . . and the incomparable experience of more than 28 years in the research and manufacture of finer lamps for miners. That means you get higher efficiency and greater economy . . . when your miners use Justrite Miners' Lamps.

Every type, every size—Justrite Lamps will give you complete satisfaction.

Write for the New Justrite Miners' Lamp Catalogue TODAY.



Justrite "Full Shift" Lamp (large size) — The only lamp in which Valve Stem can be taken out and cleaned and the light will not go out! All other famous, exclusive Justrite features included.



Justrite Cap Lamp — with new Protecto Grip, for cooler handling and to protect the lamp bottom. Removable cap spring; positive water feed; hinged water door eliminates staple.

JUSTRITE MANUFACTURING CO.
2083 Southport Avenue, Chicago, Illinois

MANGANESE STEEL

Wearing Parts

For extra long service from wearing parts and low operating costs—use Manganese Steel. Parts for all makes of crushers, ball mills, etc. Quick shipments.

CRUSHER JAWS
MILL LINERS
ROLL SHELLS
MISC. PARTS

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.

the El Paso Smelter. Values are in gold, silver, lead, and vanadium.

At the Middlecamp placers, Quartzsite, Arizona, the Slidell-Tweedale interests are operating a 200-yard wet pilot placer plant. This property was recently tested with a dry placer plant by the Universal Placer Mining Corporation. The latter has moved its equipment to a property near Octave, Arizona. The Middlecamp property is owned by W. G. Keiser of Quartzsite.

Gil Williams has taken over the Yum-Yum property near Quartzsite, Arizona, and has established a camp preparatory to active development.

Yuba Consolidated Gold Fields, Inc., F. C. Van Deirse, vice-president and manager, 351 California Street, San Francisco, California, is preparing to place in operation a second bucket dredge in Butte County, California. It is planned to move a dredge from Sacramento and assemble it on the Feather River in the Rio Bonita district. A similar dredge owned by the company has been working south of Hazelbusch in the same district since 1934.

A half-yard gasoline shovel is being used for the open-cut mining of a 35-foot vein on the property of the Gold Company, Ltd., at Garden Valley, California. Rupley Brothers of Placerville, California, have the contract for the work. The ore is trucked to the 110-ton ball mill on the property where it is treated in a closed circuit using a classifier, hydraulic jig, and flotation units. Operations are on a three-shift basis and about 120 tons per day are being handled. Gilbert G. Chisholm is president and general manager.

The cyanide plant of the Kennedy Mining and Milling Company, Jackson, California, has treated 950,000 yards of old mill tailings since its construction in 1934. It is expected that another year will be required to complete the processing of the tailings pile of the old Kennedy mine, which contained about 1,200,000 yards. According to Murray N. Colman, superintendent, this is the only cyanide plant in existence constructed entirely of steel. Between 1,000 and 1,200 tons of material are put through the plant daily, and there has never been a shutdown since the mill was placed in operation. It is possible for the plant to handle 1,600 tons per day but that tonnage is not economically profitable. A crew of 50 men is employed. The tailings are washed down by three hydraulic monitors and are pumped to the tanks at the rate of 500 gallons per minute. It requires seven days for the sands to go through the treatment while the slimes require only about one hour and 48 minutes. A total of 48 tanks make up the plant, each 42 feet in diameter and 12 feet deep, with a capacity of 500 tons. The Kennedy tailings pile is understood to be the last of the large deposits of its kind, with the exception perhaps of some located in Arizona. When the plant has completed the treat-

ment of the Kennedy tailings it will be salvaged and rebuilt in smaller units throughout the western states, wherever smaller deposits of mill tailings can be found.

Locker and shower rooms at the Big Blue mine of Kern Mines, Inc., Kernville, California, were destroyed by fire, causing damage estimated at \$5,000. No machinery or mine workings were damaged by the blaze. Eirind Knutsen, Box 77, Kernville, is general superintendent.

Thomas Brothers of Clippergap, California, have been awarded a grading contract in connection with new development work planned at the Davenport mine, Auburn, California, by eastern interests. The new operators plan 500 feet of drifting on the surface veins near the old 400-foot drift and this work will be done by Thomas Brothers. Placer mining on the surface has proved profitable in the past, yielding several pockets, the largest running as high as \$15,000, but the greater portion of the property is a low-grade quartz proposition below surface which has never been worked extensively. The old tunnel is expected to be reconditioned and extended for the purpose of cutting several known quartz veins. The mine comprises 160 acres extending from the railroad right of way to the American River, and present equipment includes a 30-ton Ellis mill, a five-ton stamp mill, and an electric compressor.

The Golden Queen Mining Company, Mojave, California, is treating approximately 400 tons of ore per day, including both its own mined ore and custom ore. A crew of 160 men is employed, working two shifts in the mine and three in the mill. The main haulage tunnel on the 600 level is being extended to provide a means of transporting ore from the Lodestar and Soledad Extension properties to the Golden Queen mill. At present these ores are being trucked to the mill. The extension of the haulage tunnel is also expected to open up ore bodies already developed on the Golden Queen's upper levels. Development continues on the Silver Prince with a strike of high-grade ore on the 600 level reported recently. W. C. Browning, Pacific Mutual Building, Los Angeles, California, is general manager. At the mine Charles Kauke is mine superintendent, Vernon T. Berner is mill superintendent, and Dwight L. Sawyer is chief mine engineer.

Following consummation of a lease granted to L. B. Haver of Hollywood, California, on the Hematite group, 15 miles southwest of Mojave, California, air compressing and hoisting equipment have been installed and a blacksmith shop and camp buildings erected. An inclined shaft is being sunk on an 18-inch vein to intersect a series of parallel veins at depth. These veins are said to assay from \$19 to \$56 per ton in gold at the surface. The lease covers the Hematite 1, 2, and 3, and the Endline claims, owned by Bruce Minard and George Stambrook, both of Mojave. Work is being directed by Haver with Minard acting in an advisory capacity.

Shaft sinking at the Blue Bird mine, Mojave, California, will be continued to the 300-foot level, where a crosscut will be

run to intersect a vein from which shipments of \$100 ore were made on the upper levels. In addition to sinking operations at the main shaft, a series of veins is being stripped and a shaft sunk on one of the veins at a point 600 feet south of the main shaft. The property is being operated under lease from C. C. Calkins by Elmer Renz, 204 West Manchester Avenue, Los Angeles, California.

Daily shipments of ore from development work on the Whitmore No. 6 shaft are being made to the Burton Brothers mill. Development plans for the No. 6 call for drifts on the vein to the north and south and a raise to the surface on ore, thus providing ventilation and the first step toward a standard double-compartment working shaft. Bob Dameron is superintendent for Whitmore Mines, Inc., Mojave, California. Walter E. Trent, Rosamond, California, is president of the company, which maintains offices in the Rives-Strong Building, Los Angeles, California.

Extensive open-pit gold mining operations are under way at the Yellow Aster mine under the direction of A. W. Frohli, manager, Box A, Randsburg, California. The property is equipped for capacity mining and crushing of about 2,000 tons of ore a day and milling and treating of approximately 500 tons a day. Consisting of a huge cut in the mountain, the pit has been estimated to contain from 8,000,000 to 12,000,000 tons of ore which will be treated by scientific methods for its gold content.

Contract for excavation of the first 6,000,000 tons has been awarded to the Macco Construction Company, 815 North Paramount Street, Clearwater, California. The Yellow Aster is operated under lease and option by the Anglo American Mining Corporation, Walter Lyman Brown, president, Mills Building, San Francisco, California.

The new dredge being built south of La Grange, California, for the Tuolumne Gold Dredging Corporation is expected to be completed sometime in May. It will cost approximately \$550,000, according to C. E. Anderson, construction engineer for the Western Pipe and Steel Company, who is in charge of the work. A. D. Hughes, La Grange is local manager for the Tuolumne Corporation.

The Gold Hill Dredging Company, R. D. Gardner, general superintendent, 2740 Tenth Avenue, Sacramento, California, has launched a dredge on the Alvin Kister ranch near Oroville, California. The boat is being equipped and is expected to go into operation about the middle of March. Work on the hull was started last summer and a crew of 90 men has been employed in construction.

A five-stamp mill is being installed at the Casino mine, Plymouth, California, under the direction of Samuel T. Shaw, Jr., owner and operator, and associate, P. J. Robin. The property was originally a gravel proposition but a quartz vein was recently encountered. The plant also will handle custom ores.

The Consolidated Sierra Mining and Milling Corporation, headed by Wm. N. Albee 2404 Eaton Tower, Detroit, Michigan, has filed a registration statement with the SEC under the securities act covering \$800,000 of 5 per cent convertible debentures, due in 1947, to be offered at \$9.875. The registration also covers 320,000 shares of common stock and 160,000 stock purchase warrants. Of the common shares registered 160,000 are to be reserved for conversion of the debentures and 160,000 are to be reserved for purchase warrants at prices ranging from \$5 to \$10 per share. Of the purchase warrants registered, 40,000 are to be issued to the president of the company for services and 120,000 are being issued to the underwriter. Proceeds will be used to purchase the Oceanic quick-silver mine at Cambria, California, on which the company holds an option; for mining and milling equipment for the Greenhorn mine near Redding, California; for payment of RFC notes; and for working capital. Ray T. Haas will be the underwriter. The Oceanic is owned by the Anglo American Mining Corporation, 206 Sansome Street, San Francisco. At the Greenhorn mine the company plans to begin soon the erection of a 300-ton mill for the treatment of several hundred thousand tons of proven gold-gossan and gold-copper sulphide ores, a large part of which is ready for mining and milling. The company holds a purchase contract on the Greenhorn.

The Argonaut Mining Company, Ltd., Jackson, California, reports for the month

Grinding

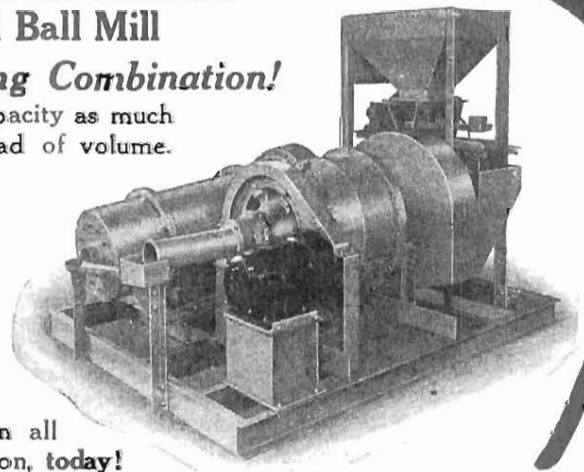
Constant Weight Feeder
Counter Current Classifier
Conical Ball Mill

An Unbeatable Grinding Combination!

A FEEDER that increases mill capacity as much as 20%, feeding by weight instead of volume.

A CLASSIFIER that rolls the sands free of slimes. The strongest and most efficient of all mechanical classifiers.

A MILL used the world over because it costs less to run and keeps running. Ask any operator who has run all types. Write for full information, today!



Send for
Data Book



It's packed
full of Facts

HARDINGE COMPANY INCORPORATED

YORK, PENNSYLVANIA, Main Office and Works

NEW YORK, 122 E. 12nd St.

CHICAGO, 205 W. Wacker Drive

SAN FRANCISCO, 501 Howard St

DENVER, 817 11th St.

DEW-R-LITE Carbide Lamps

Copied by Many—Equalled by None

FOR SUPERS, FOREMEN, ENGINEERS
For over 30 years they have been sent, on request, for 30 days tryout, in which time you learn how superior they are to any others.



No. 2034
Made in All Brass and
in Double Tinned Steel.
Catalog on request.

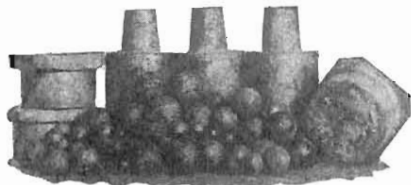
The only self-regulating carbide lamp that will give you the steady, even flame you require underground without shaking or raking.

Entirely automatic
All parts easily accessible.

Dewar Manufacturing Co.

Established 1905 Incorporated 1914
18 35th Street, Brooklyn, N. Y.

Only Manufacturer
on Pacific Coast of
**FORGED STEEL
GRINDING BALLS**
from seven-eighths inch
to six inches.



"Western Made to Produce
Western Wealth"

AMERICAN FORGE CO.

Established 1888

4610 Cimarron St. 750 Ashby Ave.
Los Angeles, Calif. Berkeley, Calif.
Tel. Vermont 5070 Tel. Berkeley 4424

Agents for Northwestern States:
Sundfelt Equipment Company
3315 First Ave. South, Seattle, Wash.

STONEHOUSE



MINE SAFETY SIGNS



A VITAL PART OF EVERY
SUCCESSFUL SAFETY PROGRAM.

Send For COMPLETE
CATALOG.

MANUFACTURED BY

Stonehouse
SIGNS, INC.

840 LARIMER STREET
DENVER, COLORADO

of December a profit of \$20,810, including other income but before provision for depreciation, depletion, or income taxes, against an operating profit of \$1,929 in November and an operating profit of \$27,273 in December, 1936. December results will just about offset the loss for the first 11 months, which aggregated \$20,779. Alex F. Ross is general superintendent at Jackson.

The Hoosier Gulch Placers Company, with offices at 1317 Twenty-third Street, Sacramento, is operating on a 24-hour basis at its property located 25 miles east of Sacramento. The company's dredge, which is powered by a Caterpillar Diesel engine, has a capacity of 3,000 yards of gravel per day. The boat, of steel construction, is fed by a P and H 1 1/2-yard dragline shovel, also Caterpillar Diesel-powered.

Operations are on a 24-hour basis at the property of the 4-LS Dredge Company, Richvale, California. The company's equipment includes a Koehring dragline and a dredge, both powered with Caterpillar Diesel engines.

The New Idria Quicksilver Mining Company, C. Hyde Lewis, mine superintendent, Idria, California, has recently completed the reconditioning of the second Gould rotary furnace, and installation of a complete new condensing system, increasing its milling capacity to 160 tons per day. The company started 1938 with a schedule of 300 flasks, or 22,800 pounds per month, and during the year plans to add two more furnaces, raising its monthly capacity to at least 500 flasks. Company officials include Theodore Hoover, president, and Herbert Hoover, Harvey D. Mudd, Senator Sanborn Young, and H. W. Gould. Gould is general manager with offices in the Mills Building, San Francisco.

Working four faces on three levels, the lessees of the King Solomon mine, Randsburg, are mining and milling ore at the rate of 12 to 15 tons per day. The property is being operated under lease by a group consisting of J. H. Christensen, James Nosser, Emil Schultz, and Max Hess, all of Randsburg. Ore is coming from a series of veins on the 300, 450, and 550-foot levels. A crew of 10 men is employed, in addition to the operators, working one shift in the mine and two shifts in the mill. The milling plant consists of a five-stamp crushing unit and a 30-ton daily capacity cyanide plant.

The Muletown Consolidated Mines, Inc., E. L. Vinal, general manager, Box 953, Redding, California, is engaged in preparing its property for operation. Development completed or under way includes a two-compartment shaft, tunnel, raise, drifts on the vein, etc. Roads have been built and minor mine buildings are being erected. The crushing and grinding units of a 50-ton mill have been completed and the amalgamator and tables are being installed. R. C. DeWitt, Box 986, Redding, is mine superintendent, and Robert Damus, Box 953, Redding, is chief clerk and employment agent. A crew of 11 to 15 men is employed. W. W. Stoll is president of the company with offices at 211 Maritime Building, Seattle, Washington, Company

offices are located at 1618 Northern Life Tower, Seattle.

Options on 10 mining claims of 20 acres each, containing chrome deposits, have been transferred from the Rustless Iron and Steel Company of Baltimore to the Rustless Mining Corporation, Sanborn H. Smith, agent, 1224 Sacramento Street, San Francisco, California, a subsidiary company recently organized. Properties involved in the transfer are located northwest of San Luis Obispo, California. Engineers for the company are engaged in making a geophysical survey of the properties to determine the point at which actual mining operations will begin.

Central Eureka Mining Company, Sutter Creek, California, has declared a dividend of 6 cents per share on both preferred and common stock, payable February 15 to stock of record January 31. On December 20 the company paid a dividend of 12 cents a share on both common and preferred. C. C. Prior, 2012 Hunter-Dulin Building, San Francisco, is president of the company.

The dragline dredge of William Richter and Sons, Box 318, Route 2, Oroville, California, is being moved to the Kehriots ranch near Oroville for the purpose of dredging several hundred yards of gravel.

The new 50-ton mill at the Densmore mine, Columbia, California, is handling approximately 60 tons of ore per day which is averaging \$18 per ton. At present the mill is treating ore from the 3,000-ton dump, but the mine is being reopened after a shutdown during mill construction due to lack of storage space for the ore. It is understood that large quantities of mill-grade ore have been blocked out in the mine, insuring a long run for the mill. The Densmore is operated by the Densmore Gold Mines, Inc., B. A. Ogden, manager.

Henry L. Day, Day Building, Wallace, Idaho, has purchased the interest of Guthrie-McDougall Company, Portland, Oregon, in the Kanaka Corporation, and he is now president of the company. Kanaka is operating a dragline dredge on Kanaka Creek, Sierra County, California, under the direction of J. C. Vint, engineer, Alleghany Rural Route, Nevada City, California. The company has approximately 300,000 yards of gravel available, some of which is said to carry values as high as \$2.50 per yard.

A thorough sampling of the Gold Blossom mine, Auburn, California, has recently been completed under the direction of P. J. McLaughlin, mining engineer of Auburn, and development work at the mine is in progress preparatory to installation of a 100-ton mill. Test runs of 3,000 tons of ore were made in the Crandall mill. Alfred L. Merritt, Pacific Coast manager of Pearl Assurance Company, 200 Bush Street, San Francisco, California, is interested in the Gold Blossom.

Herbert Barry, Bert Johnson, and Carl Carlson are driving a 6 by 6-foot tunnel at the Job Lot mine, two miles south of Happy Camp, California. They report that recovery from 80 yards of gravel taken from the tunnel totaled \$146.

A new hoist has been installed at the McKenzie mine, Nevada City, California,

and preparations are being made for sinking the shaft an additional 50 feet, which will be followed by drifting both ways on the vein. The property is also being equipped with a small milling plant. John S. Craig is superintendent.

C. L. Best, San Leandro, California, is reported to have sold the Alcalde mine, Grass Valley, California, to Pacific coast interests. Both the old 400-foot shaft and the new three-compartment shaft were unwatered and repaired recently under the direction of M. J. McGuire, but operations were suspended in August. The Alcalde is also known as the Mattie mine.

Ore is being milled at the rate of 110 to 120 tons per day at the Burton Brothers mill located at the Tropico mine, Rosamond, California. Of this amount an average of 80 tons daily is produced by the Tropico mine while the balance is custom ore. Tropico ore is being mined from stopes on the 500 and 600 levels and from the face of the west drift on the 750-foot level. Henry Kelsey, lessee on the Fairview claim east of the Tropico main shaft, is sinking from the present 500-foot depth to a point which will permit connection with the Tropico 750-foot level. The purpose of this project is to provide ventilation for the east end of the Tropico and to contact at depth known ore bodies existing on the upper levels. The West drift on the Tropico 750 level is being run under the Kid shaft, which now has a vertical depth of 400 feet, with a view to providing ventilation for the west portion of the Tropico. It is also expected to open up at depth rich ore bodies which have been worked on higher levels. At the same time a working outlet for the Tropico lower levels will be provided, thus eliminating costly tramping. New ore chutes are being installed and new stopes started on the Kid claim under the supervision of T. E. Finnerty. H. Clifford Burton is general manager of Tropico and Cecil F. Burton is president. A. H. Johnson is general superintendent.

Dan Murphy, Rosamond, California, has taken a lease on the old Hamilton claim, adjoining the Tropico mine, and ore is being binned preparatory to shipping. The ore is coming from old dumps and from an old stope on the 40-foot level. A winze is being sunk from the 140-foot to the 220-foot level where a connection will be made with the Lida Mojave shaft to provide a working outlet for the mine. The winze is being sunk on a vein averaging three feet in width with good shipping values reported. According to Murphy, there is a large quantity of ore broken in the stopes, left by former operators, which can now be moved at a profit due to the increased price of gold.

Morris Albertoli, Mojave, California, is continuing shipments of ore from the Eureka claim, located on Soledad Mountain south of Mojave. The ore is coming from development work, which consists of a drift on the vein. The drift has reached a point more than 250 feet from the portal and will be continued for several hundred feet. Considerable crosscutting has been done with satisfactory results and a raise

to the surface for ventilation and exploratory purposes is now under way.

Assay returns on ore samples taken from the crosscut on the 275-foot level of the Moro Bay Copper Company property at San Luis Obispo, California, are reported to have indicated a copper content running as high as 10 per cent. The ore also is said to have carried small values in gold and silver. Assays taken across the footwall material penetrated by the crosscut indicate average values of 3 per cent copper. Ogden C. Chase, 420 Kearns Building, Salt Lake City, Utah, is president of the company. George B. Guillotte is engineer in charge at the mine.

Ore assaying as high as \$100 per ton has been encountered in the Daisy Blue Mining Company property near Nevada City, Cali-

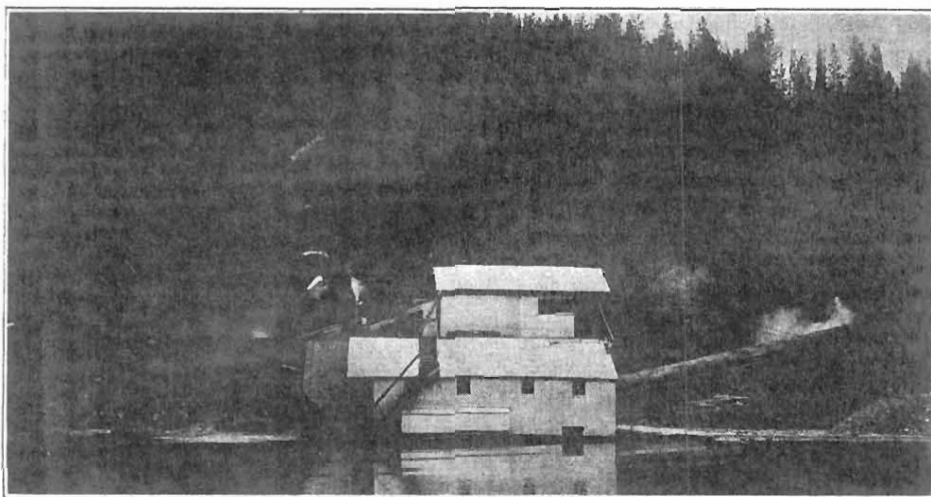
fornia. The strike was made in the course of development work and the shoot is reported to be improving as work advances. The company's 25-ton stamp mill is treating ore from company workings and from lessees. A. F. Rutherford, Live Oak, California, is general manager of the company.

Deepening of the 1,000-foot shaft is proceeding at the Plumbago mine of Socorro Mines, Inc., Alleghany, California, under the direction of Ralph Youtz, superintendent. Ten stamps of the 20-stamp mill are operating steadily on good ore and development of new territory is said to be disclosing extensions of the principal ledges. Forty men are employed.

At a recent meeting of the California Hydraulic Mining Association, it was announced that the board of army engineers

AN IMPORTANT CONSIDERATION

PROPER DESIGN AND CONSTRUCTION



Newsome Creek Mining Co., new installation near Grangeville, Idaho.

BODINSON
BUILT
DRAG LINE DREDGES

can be economically transported to practically any location. Each dredge designed to suit the particular conditions under which it will operate.

Write for Particulars

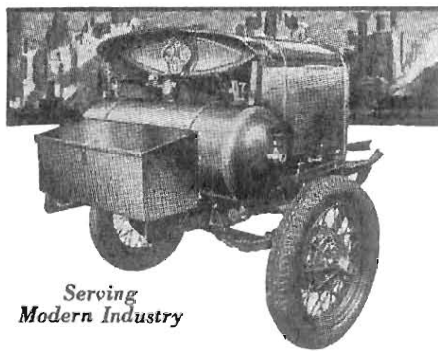
DRAG LINE DREDGES
DRY BANK PLANTS

BODINSON MANUFACTURING CO.

2401 BAYSHORE BLVD.

Phone RAndolph 9641

SAN FRANCISCO



Serving
Modern Industry

The Smith Air Compressor

MADE FROM FORD PARTS

In the Mining Industry the portable Smith Air Compressor replaces cumbersome, inefficient compressors on a large percentage of work. Operates medium and lightweight rock drills, paving breakers, clay spades, tampers and practically all pneumatic tools. Over 60 cubic feet a minute capacity. Uses only one gallon of gasoline per hour. Widely used in Western States, Alaska, Canada and Mexico by miners and prospectors. Parts available everywhere. **LOW IN COST—ECONOMICAL TO USE.**

Completely assembled machines or the Smith Compressor Head and Accessories with instructions for mounting.

Address Inquiries to Desk N.

GORDON SMITH & CO., Inc.
Bowling Green, Kentucky

GOLD PROSPECTING

Second Edition
Revised and Enlarged

by **STEPHEN JACY,**

Prospector, Portland, Oregon

A NEW BOOK written by a prospector and giving the information that this prospector found that he wanted to know. 244 pages of valuable data for those who are prospecting for gold (quartz and placer) and written in an understandable non-technical language

**PRICE REDUCED TO
\$1.50—POSTPAID**

THE MINING JOURNAL

Phoenix Arizona

A PLUS IN LUBRICATION?

Yes, it's Shell's "Invisible Element" . . . a combination of Shell's world-wide resources in laboratories and refineries; decades of experience and research by Shell's engineers and scientists. It is the aim to make lubrication more efficient, more economical for industry.



SHELL INDUSTRIAL LUBRICANTS

has requested congress to appropriate an additional \$4,300,000 for construction of debris control dams on the American and Yuba Rivers in California. It was stated that in all probability bids will be called for construction of the Middle and North Fork projects in April or May of this year, to be followed immediately by calls for bids on the Narrows project.

The **Culconde Gold Mining Corporation** has taken over a lease and option to purchase the Dreisam property located in the Arastraville district near Tuolumne, California, at a price of \$60,000, which is to be paid within six years. The lease and option originally were given to C. W. Culver of Columbia, California, and W. E. Culver of Oakland by Mary Conde, Tuolumne, owner of the property. For the assignment of the lease the Culvers will receive 75,000 shares of capital stock in the corporation. Included in the group are the Yellow Jacket, Good Luck, and Ophir Lode.

Glen De La Mar and his father, J. F. De La Mar, are reported to have taken over the **Black Hawk** mine near Randsburg, California. It is understood that a company is to be organized, following which the entire mine and mill are to be reconditioned and put on production.

The **Red Bird** mine near Randsburg, California, is being operated by the four Cote brothers who are reported to be mining approximately five tons of ore daily with values averaging \$10 per ton. It is understood that they have solved the water problem which had been a serious handicap to previous operations.

The **Operator Consolidated Mines Company**, Johannesburg, California, has levied an assessment of one cent a share on outstanding stock. Funds derived from the assessment are expected to exceed \$16,000, which has been budgeted to cover purchase of a 100-ton milling plant, including a crusher, classifier, and ball mill; development of the adjoining Pinmore property; payment of accrued expenses; and for working capital. In excess of \$8,800 in plated gold bullion has been shipped to the mint since the company's 15-stamp mill started on a steady basis last August. The 100-ton cyanide plant, which went into operation November 1, 1937, has yielded a return of \$1,825, bringing receipts to more than \$10,600. A large storage chamber has been constructed at the 300-foot level and drifting toward the Pinmore claim is under way with a view to opening up a 25,000-ton body of ore already broken down by early-day miners in the caved-in Pinmore workings. Operations at the mine are directed by Major J. Paul Jones, Box 213, Randsburg, California. Offices of the company are maintained at 917 Bank of America Building, San Jose, California. Harold G. Hunt is secretary.

Five stamps of the 15-stamp Penn-California mill have been dismantled and moved to the **Lady Bug** group near Washington, California, and the remaining 10 stamps will be moved early in the spring. This will give the **Lady Bug** a total milling capacity of 20 stamps. The property has

been taken over by a New York syndicate, represented by Randall P. Sharpe, who is making his headquarters at Nevada City, California. The **Lady Bug** group is located on Poorman Creek adjoining the Spanish mine on the east. A main working tunnel delivers the ore by gravity to the mill, which is operated by water power developed on Poorman Creek. Water power also operates the air compressor. An electric light plant is being installed and other improvements include a new 14-inch steel pipe power line, complete new air line into the mine, new track in the main tunnel, new timbering throughout the workings, new mill equipment, and a private road connecting the mine and mill with the Gaston road. Plans for the immediate future include an increased power development by means of a high-line ditch now nearing completion, continuation of the main haulage tunnel to the east to cut several other veins which outcrop at the surface, an upraise to the surface in the present ore body, and increased mill capacity as rapidly as ore is developed.

An extensive diamond drilling program is under way on the holdings of the **Campbell Grass Valley Mining Company**, Grass Valley, California. Adjacent properties, including the **Lady Jane** and **Morandi** tracts, together with those owned by the late John T. Hennessy have been added to the company's holdings. The reconditioned **Norambagua** milling plant is treating ore stoped from the **Norambagua** property. The combined stamp and ball mills give the plant a capacity of around 50 tons per day. A crew of 30 men is employed at the property under the direction of George W. Worthington, manager, c/o Bret Harte Inn, Grass Valley. Col. R. Potter Campbell, 84 William Street, New York City, is president of the company.

Development of good ore is reported to be proceeding steadily at the **Chemung** mine, located in the Masonic district near Bridgeport, California, with continuous winter activities planned. The property is being operated by Conrad Monroe and Los Angeles associates.

E. A. "Bob" Montgomery of Virginia City, Nevada, has acquired the **Lakeview** property in the Masonic district near Bridgeport, California, and plans extensive work as soon as weather conditions improve. Profitable ore is reported in sight with virgin territory believed to contain important veins.

Harry M. Lee, 314 West Walnut Street, Santa Ana, California, reports that he and a partner have filed claims on strikes in **Temescal Canyon** near Alberhill and on the Mojave desert near **Daggett**, California. Ore from the **Daggett** claim is reported to have assayed from \$10 to \$40 per ton in gold while the **Temescal** claim is reported to carry values of \$3 to \$11 per ton in gold together with values in other minerals. It is planned to develop the **Temescal** property first as the **Daggett** property is rather inaccessible.

The 30-ton milling plant of the **Bishop Tungsten Company**, Bishop, California, is operating at capacity on ore which is com-

ing principally from underground development work. A new magnetic separator has recently been installed in the mill. The mine and mill have been connected with Bishop by means of a new telephone line, recently completed. The property is operated by A. T. Wilkerson and Ralph H. Moore.

Rapid progress is being made on construction of a road up the east slope of Soledad Mountain near Mojave, California, which is being built to facilitate the installation of air compressing equipment at the portal of the Golden Butte tunnel. The Golden Butte is being operated under lease from National Mines, Inc., by the Golden Butte Mining Company, Ltd., Rolf L. Meuer, general partner, 1609 North Normandie Avenue, Los Angeles, California. The tunnel has been driven to a depth of 450 feet by hand and installation of the new equipment will greatly facilitate progress. The adit is being run to intersect at depth the Karma, Ajax, and other known veins running through the property. An ore body cut at a point 375 feet from the portal is said to have carried values of \$15.25 per ton in gold with some silver. A tunnel is also being driven by the Meuer interests on the Red Top claim, higher up on the slope of Soledad Mountain, to intersect at depth an extension of the Eureka vein from which Morris Albertoli is shipping ore. The Red Top adjoins the Eureka claim on the south.

Excavations are being made for the installation of additional cyanide tanks at the Ruth mine, Trona, California, which will increase the capacity of the cyanide plant from the present 35 tons per day to 70 tons per day. The crushing plant at the Ruth consists of a primary jaw crusher, followed by a secondary cone crusher which reduces the ore to a 3/16-inch mesh. The feed from the crusher is trucked to the leaching tanks for cyanidation. The Ruth is milling 35 tons per day of mined ore, most of which comes from a vein which is being stoped from the main adit level. The recent cut in silver price had little effect on the output at the Ruth as two bricks recently shipped to the San Francisco mint returned \$4,503 in gold against \$1.70 in silver. The property is employing a crew of 20 men under the direction of Nelson W. Sweetser, mine superintendent, and George H. Wyman, mill superintendent. Burton Brothers, Rosamond, California, are associated with Wyman and Sweetser in the operation of the mine.

Development continues at the Mammoth mine near Isabella, California, under the direction of George W. Russell, president and general manager of the Mammoth Mine Syndicate, 321 West Third Street, Los Angeles, California. All ore taken out in the process of development is being milled in the plant located at the mine. Drifting is progressing in one block of ore and raising into unexplored territory is under way in another block.

Frank C. Roberts, Box 17, Isabella, California, superintendent at the Pennsylvania mine, located in the Kernville district, re-

ports that a 900-foot crosscut under the old workings has been completed and that most of the ore above the tunnel has been stoped. He is now preparing to sink a shaft from the 180-foot level.

The Sierra Gold Mining Corporation has been organized by B. H. Gordon; A. B. Coe, Box 115, Kernville, California; and Charles Acken of Los Angeles for the purpose of developing the old French Doctor mine in the Kernville district. It is planned to run a 500-foot tunnel under the old workings to open up new ore bodies.

Work is reported to be progressing rapidly on the reopening of the old Wieland Consolidated mine between Jackson and

Pine Grove, California. The old Wieland shaft has been collared with 12 by 12 sawed timbers and the new headframe and hoist will be installed as soon as electric power is available. The running of the power line is practically complete, and, following the hookup, work of cleaning out the shaft will get under way on a three-shift basis. Operations are directed by L. H. Rogers, mining engineer, Jackson, California.

E. A. Kent, 149 California Street, San Francisco, has entered into an agreement to purchase gravel mining machinery valued at \$32,200 by July 20 from the Bodinson Manufacturing Company of San Francisco.

UNFAILING LIGHT

**In GREATER Quantity
... Better DIRECTED
To The Job
Promoting INCREASED
Efficiency and Safety**

It stands to reason that men *work* better who *see* better . . . and in operations underground the Edison Electric Cap Lamp proves the point. The records of companies throughout the mining world show that these lamps *pay for themselves* in reduced injury rates and increased production.



● Let us demonstrate Edison Electric Cap Lamps under your own conditions—and show how they may be installed in your mine without any initial capital outlay.

MINE SAFETY APPLIANCES COMPANY
Braddock, Thomas and Meade Streets, Pittsburgh, Pa.
District Representatives in Principal Cities



EDISON ELECTRIC CAP LAMPS

M.S.A. SKULLGARDS



INVESTIGATE

THE NEW GECO ENGINEERING PLAN

Plant design and construction are not new departures from the true function of our organization which for 29 years has specialized in this branch of engineering.

GECO Plants are designed to meet the metallurgical requirements of your ore, and to operate with the greatest possible economy, with no attempt to adapt a stock flow-sheet and specific equipment to the ore.

The NEW GECO PLAN provides the economical way to build a properly designed mill.

Bulletin 3402 tells the story! — send for it.

One General Engineering Company
CONSULTING METALLURGICAL ENGINEERS

159 Pierpont St.
SALT LAKE CITY

TORONTO

NEW YORK CITY

LONDON

Phoenix Pine Oil for flotation

Manufactured by
Phoenix Naval Stores Co., Inc.
Gulfport, Mississippi

Western Distributor
MARSHALL DILL
26-28-30 Bluxome St., San Francisco

Los Angeles—Portland—Seattle
Spokane—Denver

Flotation Reagents

Bear Brand Xanthates

Sunny South D. D. Pine Oil-A

Complete line of all standard flotation reagents, also metallurgical and assay chemicals carried in stock.

H. J. Baron Company
805 Mills Building
EL PASO TEXAS

The Merrick Conveyor Weightometer

for thirty years has been weighing crude ore and fines in mills and concentrators throughout the world, thereby increasing efficiency of operation.

MERRICK SCALE MFG. CO.
178 Autumn St., Passaic, N. J.

The new equipment will replace that destroyed by flood waters of the Tuolumne River during December.

Production is expected within 30 days at the **Lamartine** mine in Clear Creek County which was recently reopened by the Rudolph Brothers, 2760 Downing Street, Denver, Colorado, and John Jewel of Denver.

COLORADO
George F. Calloway of Idaho Springs is in charge of operations. The property has been idle for about 30 years but is credited with a production of \$7,500,000.

Machinery has been purchased by the **Gold Coin Mining Company** which is in commercial operation at Pitkin, Colorado, under the management of William Fischer of Pitkin, chief engineer. Milling equipment is on the Wakefield claims and will be moved to the Gold Coin No. 1 claim.

A second Sinclair gasoline-driven compressor has been installed by the **Golden Era Mining Company** at Alma, Colorado, preparatory to a drilling program designed to justify early production. The organization is backed by M. Z. McGlochlin, 2803 Gaylord Street, Denver, who is now in charge at Alma.

The **Montana Mines, Inc.**, operating in Gilpin County near Central City, Colorado, plans to electrify its property this spring and to install placer equipment. At present gasoline power is being used. Eighty-five feet of sinking has been accomplished, the objective being 125 feet. The company employs seven men at Central City with Mike N. Radovich as mine superintendent. Helmer A. Walstrum, Central City, is president and general manager.

During the first 11 months of 1937 the **Golden Cycle Corporation** employed nine men and had four sets of lessees on the Anchoria Leland property at Cripple Creek, Colorado, shipping 213 carloads of ore with an average value of \$13.45 a ton. During this time about 1,020 feet of drifting was done and 585 feet of raising and winzng. J. S. Anderson of Cripple Creek is in charge for L. G. Carlton.

For the past two months, since the **Trio Gold Mining Company** surrendered its lease, the **New Gold Dollar Mining Company** is reported to have operated the Gold Dollar property through leases. Six sets of lessees are working through the Mabel M shaft. Drifting north on the main Gold Dollar vein will take lessees into Requa-Savage ground, owned by the **Rainbow Gold Mines Company** and leased to the **New Gold Dollar** concern. A total of 1,912 tons have been shipped by lessees from the Gold Dollar mine with a gross value of \$24,207, the company receiving a royalty of \$3,807. L. G. Carlton of Colorado Springs, Colorado, is president of the **New Gold Dollar** company.

About the first of March the **H. G. N.** mill will be completed and ready to operate on dump ore from the **Maid of Erin** and **Henrietta** mines at Leadville, Colorado. M. A. Nicholson of Leadville, is manager and

John P. Hamm, Leadville, is mill superintendent. Thomas Graham of Longmont is construction engineer and P. E. Hamm, Longmont, has charge of purchasing. The mill takes its name from the initials of these associates. Water for milling will be taken from the Star No. 5 shaft. Concentrates will be sent to the **Arkansas Valley smelter**. No custom ore will be handled.

The **International Metal Foundation** has completed preparations for production at its new smelter near Fort Logan in Arapahoe County, Colorado. This is a single-furnace initial unit of a proposed larger plant and will process about 250 tons of ore a week. Richard Rodrian is in charge assisted by Richard Rodrian, Jr. Offices have been moved from their temporary location to 4002 South Clay Street, Denver, where the plant is. A crew of 10 men is employed.

A 2-cent dividend, payable February 15, 1938, to stock of record January 31 has been announced by the **Cresson Consolidated Gold Mining and Milling Company**, L. G. Carlton of Colorado Springs, Colorado, president. Payment will total \$24,400 and is based on the same rates as the 1937 dividends.

The **Pirite Mining Company**, which is leasing the Pirite mine of the **Windsor Gold Mining Company** in Park County near Alma, Colorado, expects to start driving a 2,000-foot tunnel as soon as weather permits in the spring. At present the property is shut down for the winter. A heavy-duty compressor and other necessary equipment will be installed. About 30 feet of tunneling in ore was done before the shut-down. An aerial tramway and an ore bin were also constructed. The property is located above timber line and about two miles from the **London Butte** mine. W. M. Laughlin and Allen Hurd, 132 Greenwood Street, Canon City, are the operators.

The **Humboldt Consolidated Mining Company** reports 11,381 tons of ore milled during 1937. The metallic content was stated to be: gold, 1,305 ounces; silver, \$315 ounces; lead, \$43,777 pounds; copper, 25,445 pounds; iron, 382,560 pounds; and zinc, 99,601 pounds. During the latter part of the year company production was somewhat curtailed so that custom ore could be handled in greater quantity. Plans include enlarging the receiving bins and construction of an unloading ramp to facilitate ore delivery. M. Z. Ivy of Idaho Springs, Colorado, is president and general manager.

The silver camp of **Creede, Colorado**, is working on a very close margin since the reduction in the price of silver and in a few weeks books will be examined by the mining companies and the new **Creede Mills, Inc.**, to determine the possibility of continuing. The 150-ton plant was put into operation last October by Thomas Campbell, 1002 Patterson Building, Denver, and associates and the Creede district took on a lively aspect. With the new silver price miners' wages have been cut from \$4.50 a \$4 a day and from \$4 to \$3.75 for muckers. Mill and hauling

PHELPS DODGE LABOR HEARINGS ARE COMPLETED

HEARINGS have been completed at Bisbee, Arizona, on the complaint of the National Labor Relations Board against the Phelps Dodge Corporation and the evidence has been forwarded to the board in Washington for decision. The complaint alleged that the corporation has violated the Wagner act in refusing to employ 48 persons claiming to have been employed prior to the strike called by the Bisbee Union No. 30 of the International Union of Mine, Mill, and Smelter Workers on June 10, 1935.

The Wagner act was not effective until July 5, 1935, but the complaint alleges that the strike was in full force and effect on that date and that the corporation refused to employ on July 5 and "at all times thereafter" to re-employ the individuals named.

Phelps Dodge Corporation has denied all charges, its answer stating that on or about June 10, 1935, a group of employes constituting less than one-tenth of the total persons employed in the mines division of Phelps Dodge "voluntarily and without notice" left the employ of the corporation; that the group included some but not all of the names listed in the charges; that the places of the men who voluntarily left were filled immediately; and that at no time since July 5, 1935, has there been a labor dispute between the corporation and its employes.

RFC ISSUES REVISED LIST OF ACTIVE APPROVED MINE LOANS

THE Reconstruction Finance Corporation recently announced a list of the active approved mining loans as of January 21, 1938, and gave the following figures relative to RFC loans: \$11,440,500 has been authorized as mining loans; \$7,196,000 of the authorized loans have been cancelled, leaving \$4,244,500 in active mining loans; of this amount, \$2,232,500 has been disbursed. Total amount of mining loans repaid is \$1,007,251.

Since its last announcement in June of 1937 the RFC has dropped several companies and individuals from the list of active approved mining loans and there are a few new names in the current report. The Queen of Sheba Gold Mining Company, 901 Utah Oil Building, Salt Lake City, Utah, is listed as having had approval of a \$20,000 RFC loan. This company operates in Juab County, Utah. Another Utah property to be actively approved for an RFC loan is that Pietro Aria in Iron County near Modena, Utah.

Gem Mines, Inc., 11510 South Alameda Street, Los Angeles, California, is included in the list of active approved loans as having been authorized to secure a total of \$12,000 for development of its property in Inyo County, California. H. B. Snyder, 706 South Hill Street, Los Angeles, California, has secured approval of a \$20,000 RFC loan which is to be used in developing the Del Oro mine at Victorville, California, where a crew of eight men is employed under the direction of W. Mueller, general superintendent, Box 581, Victorville.

NEW PROCESS SEEN AS BOON TO DRY MINING LOCALITIES

WITH the operation of a test plant now and the expectation of putting its 100-ton plant into operation by spring, the Goldfield Mines and Refining Company, Inc., is arousing a great deal of interest. The company holds the Great Bend mine in the Diamondfield district of Esmeralda County, Nevada, where the installation is under way. About 50,000 tons of ore, exposed and partly blocked out, running \$8 a ton or over, are said to be in the mine and about 10,000 tons of dump ore, ranging from \$5 to \$9 a ton, are available.

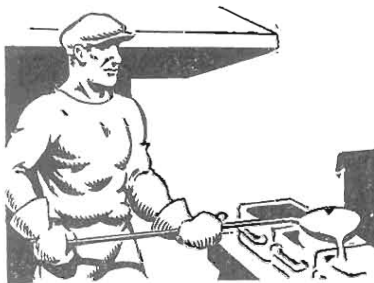
Grinding will be done dry in a Marcy rod mill and the recovery that follows is said to adhere to none of the standard milling methods, air classification and concentration being used. The so-called dry flotation process was claimed to be developed by Eugene Freeman of New Orleans who is at the mine in charge of mill construction. If successful, this new process promises to be a boon to mining properties with limited water supplies. Freeman is testing ores that are sent him, particularly dry placer samples. From 10 to 50 pounds are necessary to make a test. If conditions warrant it Freeman is said to be prepared to install a series of custom mills throughout Nevada and other mining regions.

Dr. Joseph Cohen of New Orleans is one of the group behind the Goldfield Mines and Refining Company, which is represented in Nevada by Edwin S. Giles of Goldfield.

DENVER MINT RETURNS HIGHER THAN FOR PRECEDING YEAR

THE Denver mint is reported to have received \$7,371,932 worth of gold during 1937 from Colorado mines and the Golden Cycle mill, which compares with \$7,147,562 received from the same sources in 1936. Including sources foreign to Colorado and other sources, the mint received a total of \$50,218,249 worth of gold during the year. Silver from Colorado amounted to \$45,693; foreign sources, \$525,279; other sources, \$236,986, bringing the grand total to \$807,959. Gold extraction at the Arkansas Valley plant of the American Smelting and Refining Company, based on close estimates, is placed at approximately \$4,796,530 for 1937.

Metal production for the state of Colorado, based on actual figures for 11 months and estimates for December, shows production as follows: gold, \$12,864,390; silver, \$4,699,395; lead, \$1,106,479; copper, \$2,621,707; and zinc, \$559,020. The total amount of molybdenum produced was listed as production of the Climax Molybdenum



Company, which was 22,750,368 pounds of 100 per cent elemental molybdenum. Since this was sold as concentrates at prices ranging from 45 cents to 85 cents a pound, it is difficult to arrive at a total valuation. It is believed that \$15,000,000 is not far from the value of Climax Molybdenum total production for 1937.

SUNSHINE COMPANY REFUSES TO ACCEPT THE NRLB EDICT

THE trial examiners' report of the National Labor Relations Board in the Sunshine Mining Company case is reported to require the re-employment of 216 men who went out on strike August 2, 1937, the payment of wages to these 216 men from August 2 to the date of offer of re-employment by the company, which would approximate \$100,000; dissolution of the Big Creek Industrial Union on the ground that it is dominated by the company; and bargaining with the International Mine Mill and Smelter Workers.

The company has notified the labor relations board that it will not comply with these terms, thus forcing the labor board to go into circuit court for an order requiring compliance.

The largest silver producer in the country, this company employs over 500 men at its properties at Kellogg, Idaho, under the general management of R. D. Leisk.

The Coeur d'Alene wage scale is said to be as high as any in the country and the Sunshine company pays 50 cents higher than any other company in the Coeur d'Alene district. The wage reduction on January 1 brought the general wages of the miners in the district to \$5.75 a shift and muckers to \$5.25.

During 1937 it produced 12,209,000 ounces of silver, compared with 9,106,850 ounces in 1936. In that period \$4,466,460 is reported to have been paid in dividend at the rate of 75 cents a share quarterly or \$3 a year. For the duration of the strike last summer, loyal employes, numbering about 70 per cent of the total number of men employed, operated the property on a two-shift basis. The majority of men are stated to have shown repeated that they were not in sympathy with the C.I.O. and were actively opposed to working with some of the C.I.O. followers who were rehired.

CALIFORNIA SUPREME COURT UPHOLDS INSURANCE DECISION

THE California Supreme Court has denied the appeal of Charles L. Gilmore, Sacramento attorney, from the decision in the compensation insurance refund case handed down recently by the Third District Court of Appeals in Sacramento.

The court of appeals denied a writ of mandate sought by Gilmore to force the state compensation insurance fund to return unexpended portions of premiums collected from the Templar Mining Company.

The decision confirms the right of the state fund to retain \$14,000,000 collected in insurance premiums, which is now held in reserve.



Dear Mr. Willis:

I am enjoying your publication immensely. Particularly have I been interested in articles by that great metallurgist, my good friend Wallace Macgregor, whose talents as an engineer were out-shone only by his excessive and most refreshingly unusual modesty. Not long ago you published an article by him in your Mining Journal about "The Prevention of Fire Hazards in Mines." As usual with any work of Mac's, it was to the point, instructive, and short. An All-wise Providence has summoned Mac across the Great Divide. The world here and his legion of friends feel the irreparable loss. The world beyond is the richer by the coming of this sterling man, engineer, and great American. There was no froth or fuss to Mac, he was *pure gold*.

In your issue of December 15, 1937, I found another article by him, published after his passing. I believe this article, "Erratic Assay Results on Gold Ores," must have been written while he was associated with me at my two properties at Happy Camp on the Klamath. I was always harassing him with questions—the kind a layman asks of an expert. I recognize the answers to many such questions in the 11 terse points that make up his complete summary of how such erratic results may be obtained.

Robert W. Service, in one of his mining poems in "Tales of the Yukon," says something like this: "It isn't the gold. It's finding the gold." Well, that's what lures me to mining. It isn't the gold. It's finding such men as Wallace Macgregor and engineers like the late Mark Alling of Sierra and Nevada county fame, A. E. Vandercook, M. J. Conover (Jud to me), Clark Tilton, W. W. Waggoner of Nevada City, George S. Young of Oakland, and that able public official, Hon. C. A. Logan of the Sacramento division of the California Bureau of Mines, a man who does not treat his position as a sinecure, but is always working for the benefit of both the public and the worthy mining man, be he high-up or very humble.

Last, but not least, I am reminded of that able engineer and all-around good fellow, George L. Holmes of San Francisco, whose clever article about the "doodle-bug" appeared in your issue of December 30. George writes with the abandon of an O. Henry and the savoir-faire of a John Hays Hammond. I've had many wonderful letters from George, regular literary treats. But, with due regard to his proficiency in that department, he isn't anything as a litterateur compared to his championship performances as a raconteur. One may be a traveler, a voyageur, but he has not lived until he meets George around the

campfire in one of the romantic mining towns, ghost or living. Give George an appreciative audience of miners, sourdoughs, desert rats, or antediluvians like myself, throw a fresh log on the fire, bringing out the majesty of the tall pines as well as the deep-gashed valleys below, fill and light the pipes, then start George off. His remarks, stories, and yarns, factual or fictional, would put to flight the figures of the most actuarial statistician, or relegate Bret Harte's best romance of Yuba Bill or Jack Hamlin to the dry-as-dust oblivion of a census-taker's files. Please tell George to keep up the writing.

And so I compliment you on your wonderful magazine, its information so dependable, and its interest so engaging. Also, I compliment the great Golden State on its men, men like Wallace Macgregor, the answer to the prayer on the facade of the Mining Building at the Capitol at Sacramento, "Bring me men to match my mountains."

I wish for yourself and The Mining Journal a prosperous year,

Yours very sincerely,

(Signed) JOSEPH E. MERRIAM,
Bedford Hills, New York.

FREMONT GOVER COMPANY DEEPENS FREMONT SHAFT

THE Fremont shaft of the Fremont Gover Company, H. S. Worcester, manager, Drytown, California, is being reopened to the 2,950-foot or bottom level. The company has also been doing some mining on levels which have been opened up in the Gover shaft.

The Gover and Fremont shafts are connected on the 800 level and all operations are carried on through the former. A new headframe was erected at the Gover shaft last year to replace the old one.

The company's milling plant, which consists of stamp and ball mills with concentrating tables and flotation cells, has a capacity of 200 tons per day, and has been operating on dump ore. The old dumps, which have now been milled out, contained

about 60,000 tons of commercial ore of low grade. Crushing is handled by 20 stamping tables, the tailings going to the ball mills and thence to flotation. Two concentrating products are made, one from the tables and one from the flotation circuit. The mill is located in the valley between the two mountains and is connected to the Gover hoist by an elevated railway.

The Fremont Gover Company was recently incorporated. William A. Crowfoot is metallurgist for the company.

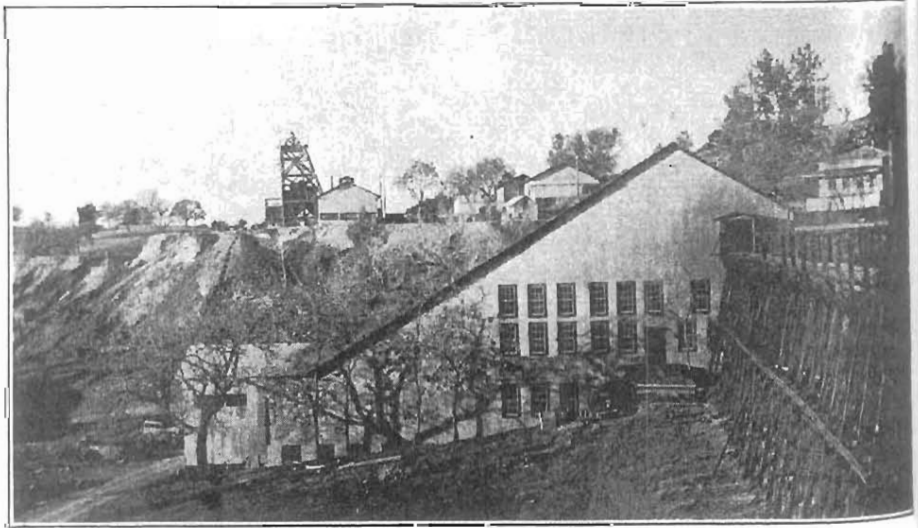
DENVER MINT REFINERY RESUMES OPERATIONS

AFTER a shut-down of five years, the Denver mint refinery resumed operations on February 1, 1938, and will continue for several years, according to Mark A. Skinner, mint superintendent. There is in storage approximately 500 tons of refined gold and silver crude bullion. The refined product will be melted into bars valued as high as \$35,000 each. There are 24 electrolytic cells, requiring 18 technical operators.

No gold coins have been minted since the federal government took charge of all gold produced in the United States. Production of half-dollars, quarters, and 10-cent coins continues. The Philadelphia mint is stated to have in storage several hundred tons of crude gold and silver bullion and about the same quantity was stored in the San Francisco mint.

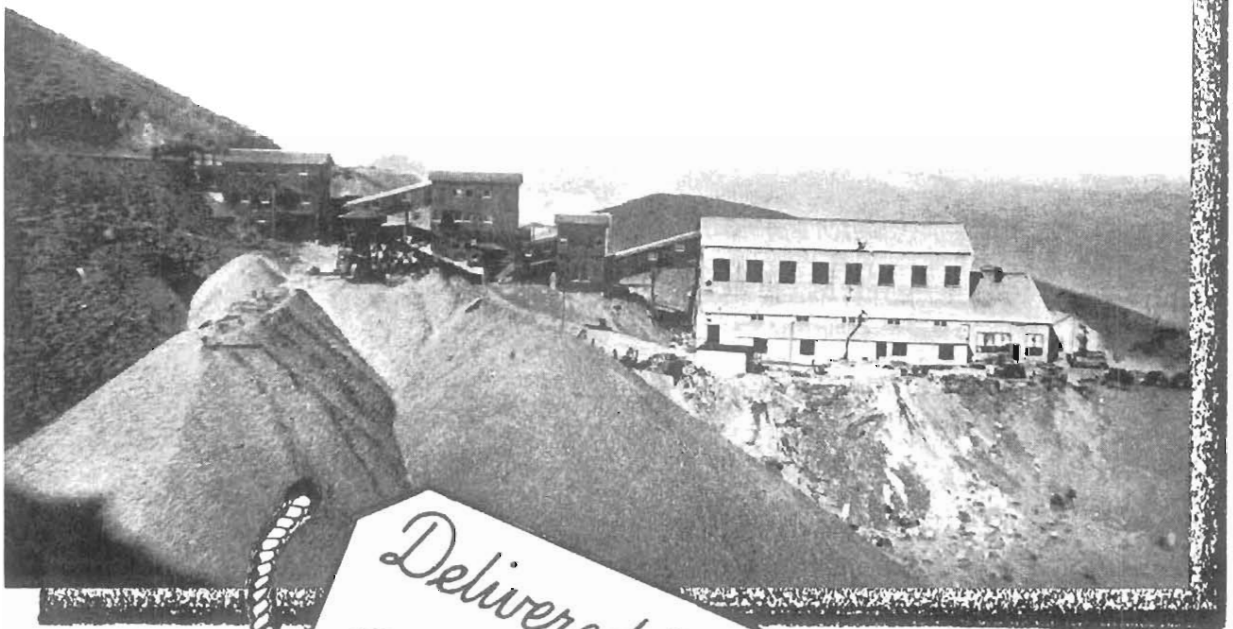
LABOR BOARD HEARS CHARGES AGAINST PRODUCERS' MINES, INC.

A HEARING by the National Labor Relations Board involving a complaint of the C. I. O. against the Producers Mines, Inc., Chloride, Arizona, was held recently at Chloride. The complaint alleged that the mining company had discriminated against two men in discharging them for alleged union activities and in refusing to reinstate them. The C. I. O. also alleged that the company was responsible for attempts to form an independent union by giving financial backing. A decision is to be handed down shortly.



Looking across the valley from the Fremont shaft of the Amador Mother Lode Mining Company to the Gover shaft. Milling plant in the foreground.

NEW PLANT AT YELLOW ASTER MINE



Delivered COMPLETE to
ANGLO-AMERICAN
MINING COMPANY
RANDSBURG, CALIF.
DESIGNED AND CONSTRUCTED BY
WESTERN-KNAPP

2600 TONS IN 8 HOURS

CRUSHING AND SCREENING PLANT
delivering 650 tons to mill for final treatment

WORK STARTED SEPT. 24, 1937
DELIVERED COMPLETE JAN. 28, 1938

by

WESTERN-KNAPP ENGINEERING COMPANY
CONSTRUCTION ENGINEERS

COMPLETE MINE AND MILL INSTALLATIONS
593 MARKET ST. . . SAN FRANCISCO

NO JOB TOO TOUGH FOR OUR ORGANIZATION

C. W. McCULLOUGH* and JUNE METCALFE* relate

The Story of Mountain City Copper Company

THE discovery of copper and the attendant recent revival of mining activities in the vicinity of Mountain City, Nevada, mark the third period in the life-history of this storied camp.

The first dates back to 1868 when the town was called Cope. Discovery of placer gold and rich lode deposits of gold and silver lured fortune hunters from all parts of the west. A place of rude log cabins, shacks, and tents, Cope became a typical hell-roaring frontier mining town. In 1872, some 1,800 votes were cast in the Grant presidential election. (And this before woman suffrage!) A colony of Chinese worked the placers by day and played the fan-tan tables at night. Costs of mining, milling, and ore transportation were terrific, but the deposits were rich and lay close to the surface. Through the seventies, millions of dollars in gold and silver came out of the various workings.

The debacle that followed the demonezation of silver saw the busy thriving camp go into a decline that continued to the close of the century. Practically all of the buildings were torn down or moved away. In 1900, new ore discoveries and higher metal prices conspired to build up a new Mountain City that was as sketchy and impermanent as Cope in the matter of its building program. A half-dozen years served to exhaust the ores that could be marketed profitably. Once more the dust of oblivion settled upon the place as its inhabitants moved on to other fields.

Mountain City became a spot on the desert where but three families existed. It was still that when the prospector, S. Frank Hunt, stopped there in 1920 and became intrigued by certain gossan outcroppings in the hills south of the old town; beneath which, he contended, lay one of the great copper deposits of the world. For 50 years the field had been actively prospected for the richer metals without any significant indications of copper being noted. That low-priced copper could be marketed profitably where gold and silver had failed was hardly conceivable to the mining world. Men laughed at him—promoters, prospectors, geologists—and for 12 years longer, Mountain City remained a three-family town.

But Hunt was not to be dissuaded. Lacking funds of his own to prove the field, Hunt was kept in the district by a Salt Lake City mining man, Vivian P. Strange. Strange eventually lost faith in the property and drew out of the picture. Others studied Hunt's copper prospect without being impressed. Disappointed, but not disheartened, Hunt continued his endeavor to interest outside capital in his dream.

A second comeback has been staged by the Cope mining district in Nevada through the activities of the Mountain City Copper Company at the Rio Tinto mine. The mine has been equipped with the most modern improvements and is now shipping at the rate of 250 tons of ore and concentrates daily.

The Mountain City Copper Company is today's monument to his ultimate success.

As discouraging as were those years of waiting, the vantage point of today reveals that it was perhaps fitting that the discovery of copper at Mountain City was thus delayed; delayed to a time when modern methods of mining, milling, and transportation could render successful the exploitation of the field.



S. Frank Hunt

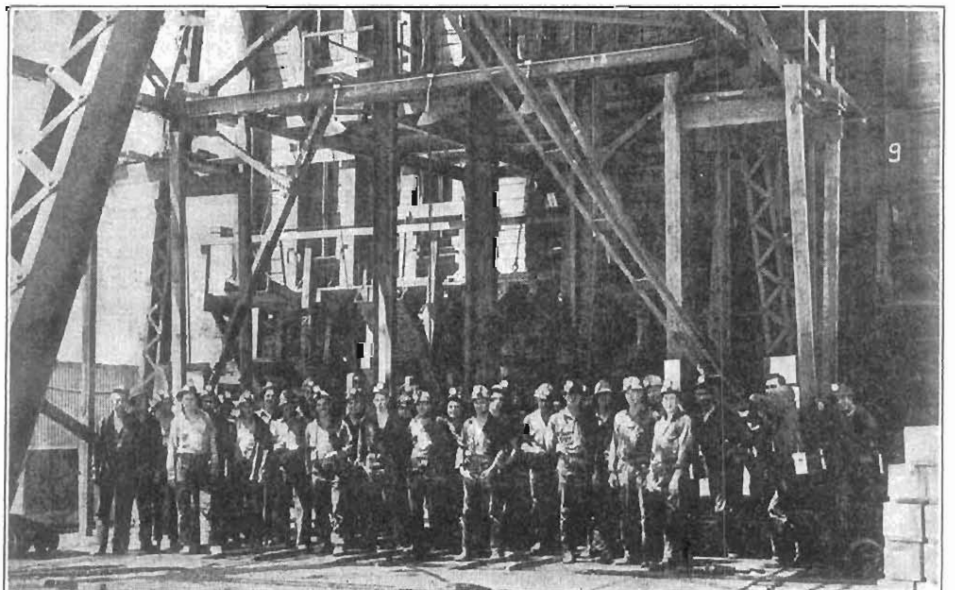
Hunt called his claims "Rio Tinto." It may have been a gift of prophecy that led him to name them after those famous copper mines on the border of Spain and Portugal that are still being operated profitably after three thousand years. Not only are the two properties similar as to geology and character of ores, but the new

Rio Tinto gives promise of being a worthy rival of its storied namesake in the matter of production.

THE Cope mining district comprises the territory immediately around the town of Mountain City in the northeastern part of Nevada, not far from the Idaho line. The town is situated upon the Owyhee River. Along the stream are a few ranches that have been cultivated almost continuously since ore was discovered in the region. Reminiscent of the early settlers' struggles with the Indians is the nearby Duck Valley Indian Reservation where remnants of the Piute and Shoshone tribes still exist.

Differing from the past, the population of the district is not centralized in one town. Instead, we find three thriving communities but a few miles apart. One, the rejuvenation of the venerable town of Mountain City, and the other two, Rio Tinto and Patsville, lusty infants kicking away the sagebrush from around their cradles, at the workings of the Rio Tinto and Copper King properties, respectively.

In many ways the present three-town camp differs little from the Mountain City of the seventies and again at the turn of the century. The false-fronted store is in evidence today, as it was then. The crude shacks are similar, and canvas continues to be a common building material. The covered wagon of the early days, however, has gone modern with the advent of the automobile trailer. These have come to Mountain City and its environs in ever-increasing numbers; many to take root and become permanent dwelling places.



Minehead at the Rio Tinto mine of Mountain City Copper Company

*Park City, Utah

Each of these towns boasts of the usual mining camp business houses: drug stores, garages, shoe shops, general stores, cafes, boarding houses, and, of course, the ever-present saloon — there being 11 of these in the three towns at this writing. Lest one should take alarm at this latter state of affairs, we read in the Owyhee Avalanche of August 26, 1870, that Mountain City had 20 saloons and two breweries.

Peculiarly, one of the few buildings that survived the two ghost-town periods is one originally built for a bank but, as such, never used. Another monument of the old and the new is the hotel at Mountain City, a two-story structure moved from Gold Creek after the discovery of the Rio Tinto mine. Gold Creek was an early day wildcat stock-promotion development 30 miles to the south. The building has been repaired and modernized to some degree, but makes few pretensions toward being a first-class hotel. (The plumbing is still outside.) No visitor to Patsville can forget the drug store that does business in a shell of a building that even lacks a floor. The proprietor laid linoleum directly upon the ground without bothering to level down certain humps and buffalo grass roots. The general effect is that of a cock-eyed relief map.

But Rio Tinto, in spite of its remaining shacks, its tents and trailer houses, has really been assuming proportions of a model town through the housing and building program fostered by the Mountain City Copper Company. In the wake of Frank Hunt's dream-come-true has sprung up a hospital, an accredited high school, a fine grade-school building, a movie house, social center, athletic field, a newspaper plant, and other modern facilities. Seeking to eliminate the floating class of miners, the company has erected 10 modernistic apartments to attract men of families to Rio Tinto. These apartments, consisting of eight suites of three rooms and bath each, bring metropolitan comforts and conveniences to this isolated western frontier. Numerous cottages and duplexes cater to those requiring larger dwelling places. The town has electricity, running water, and a sewer system. The company buildings and the apartment houses enjoy the advantages of a central heating plant. On every side is a note of permanence that reflects the confidence of the operators in the enormous ore reserves waiting to be mined.

THE formations of the Cope mining district date back to the Cambrian age. Its area extends back along both sides of the Owyhee River. To the north there is an east-west lime and granite contact. It was in these formations that the high-grade gold and silver of the early days were found. The placer deposits occurred largely in the decomposed granite at bed-rock. To the south, for 10 to 12 miles, quartzite predominates, making a contact with a wide belt of limestone. This marks the location of the copper field in slaty shale under gossan beds. Here a series of faults between the quartzite and the lime extend across the main trend east and west, with huge beds of gossan behind the fault-

ed zone. The known copper body at the Rio Tinto is not a fissure vein, but rather a regional unconformity.

Evidences of intense mineralization characterize a wide area of this section of Nevada. Locations like Bull Run, Gold Creek, Placerville, Cornucopia, Tuscarora, Contact, and others, have had their day with recurring periods of excitement and mining activity. Besides gold, silver, and copper, minerals to be found in the district include lead, zinc, molybdenum, antimony, cinnabar, tungsten, and some of the rarer metals, none of which are as yet known in such quantities as to be of commercial importance.

MOUNTAIN CITY is a region that has never known a railroad in spite of the years and the richness of its production. Today, those who visit the area are struck with the fact that no one seems to talk or vision the desirability of rail transportation. Apparently the district falls into the category of Henry Ford's prediction that was read into the Senate hearings on the Couzens Truck Regulation Bill—

"Whole sections of the globe," Ford contended, "such as areas of China and Russia, will skip the Railroad Age. There, in the future, transportation will flow along the highways—"

Mountain City's transportation is doing just that; flowing along highways to already existent railroad points. Serving satisfactorily as a medium of transportation are the truck and the automobile. Huge Diesel trailer trucks are constantly on the road with the output of the Rio Tinto mine and other producers. Returning, these bring back timber and the necessary supplies required by the mines and the communities of the district. The nearest rail point is Elko, Nevada, some 90 miles to the south. But, today, the travel is northward across the Bruneau Desert in Idaho to the town of Mountain Home, 117 miles away. This because of the better highway that Idaho built and maintains.

About 600,000 pounds of ore and concentrates are now being hauled over this route daily; 150 carloads a month. As a result of this Idaho haul, it is estimated

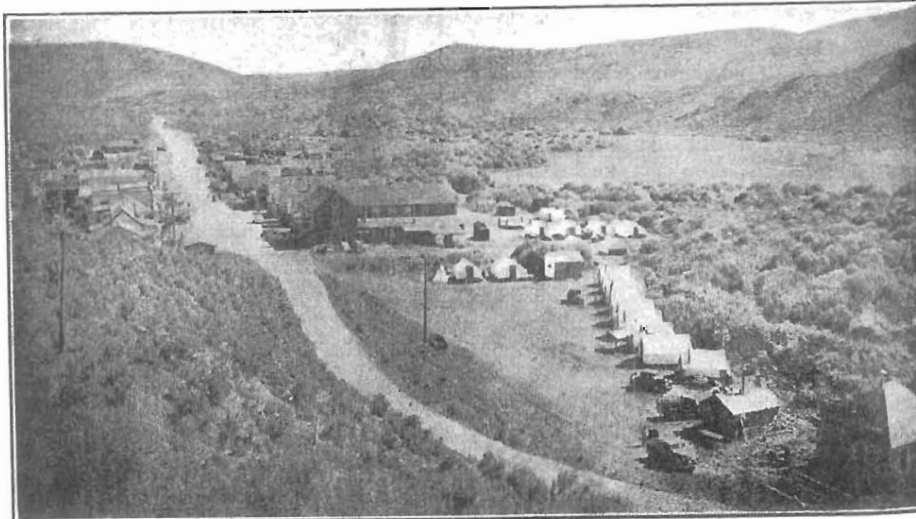
that Nevada is losing \$125,000 in revenue and business annually. Alert to this situation, the state of Nevada has laid a new and shorter route from Elko to Cope district mines that avoids the grades and the dizzy curves of the wagon road over which the ores of the early days were hauled. Already some miles of the new road have been planned and completion of the entire highway assured sometime in 1938. The materially shorter haul will serve to divert a portion of the present traffic southward, though Idaho will undoubtedly never lose all the business and good will gained through the building of the now-used highway.

It is deeply significant that Mountain City's present activity should be so closely identified with that of the sister state to the north—Idaho. The first discoveries of gold and silver in the region were made by a group of prospectors under the leadership of a man named Cope and after whom the district has been named. Cope and his party were from Silver City, Idaho, seeking a route for a road from that town to Elko, Nevada. The bulk of the early development of the mineral resource was made by these men. Commenting upon this situation, the Owyhee Avalanche referred to above, said, "At least half the population of Cope are Idahoans."

Today, Idaho electricity furnishes power and turns the wheels of the industries of the three towns. The trucks that haul ore to the Idaho railroad, bring back Idaho lumber and mine timber as well as machinery, building supplies, food, and the varied necessities of the mines and camps. A direct telephone line to Boise is being constructed.

It is an interesting sight to be in Mountain City on a mine pay-day and see convoys of new and used cars brought down by Idaho dealers for sale to miners. And once purchased, these cars exhibit a rather consistent homing instinct as their owners think little of spending a weekend (and their wages) in Boise, Mountain Home, or other Gem State communities.

The trucks that operate out of the Mountain City district deserve more than pass-



Mountain City, Nevada, during the summer of 1937.

comment. Diesel powered, these 25-ton trailer trucks carry approximately one-third of a railroad car's capacity at a load. In spite of their size these juggernauts of the road make fast time, completing a roundtrip in 10 hours. Each truck and trailer unit rolls along the highway on 18 wheels. The tires used cost \$100 each. For hauling ore to Mountain Home, the trucking contractor receives \$4.50 a ton, of which \$1 a ton is swallowed up in initial and maintenance costs of tires.

IT IS A truism of mining that "prospects are found, but mines must be made." Perhaps no greater exemplification of this can be found than in the history of the Rio Tinto mine.

As previously indicated, the credit for sensing the existence of copper in the region of Mountain City must go to Frank Hunt, prospector and geologist, who came to the district in 1920 and filed claims upon a series of gossan outcroppings about four miles south of the old town.

But the making of the Rio Tinto is a tribute to a promoter who believed in Hunt's dream. It is a chronicle of courage, of man's triumph over physical odds, and the investment of capital in an unproven copper field during the height of the depression. The speculation becomes more apparent when one considers that copper was then at its low ebb in price and that the field was so geographically unfavorable to the marketing of a low-priced ore. Many, who today view the sudden and phenomenal growth of the Mountain City Copper Company, know nothing of the delicate and desperate balance between success and failure that marked the efforts of Hunt and his associates to make a mine out of his Rio Tinto claims.

After several others had investigated the property and turned it down, Hunt succeeded in interesting a Salt Lake City mining promoter, Ogden G. Chase, in his claims; the aftermath of which was the formation of the Rio Tinto Mining Company in April of 1931. Hunt was made president and Chase, general manager.

Chase's resources were of such a sketchy nature that little promotional or advertis-



The town of Rio Tinto, Nevada, during the winter of 1931-1932 when the initial development of the mine was undertaken.

ing publicity could be given the proposition. Of the two million shares of capital stock, half were made assessable and half non-assessable. As the crying need was for funds to develop the claims, Chase settled upon a plan to send out the assessable stock to his clientele much as Anti-Tuberculosis Christmas Seals are handled. No initial charge was made for the stock, but prospective purchasers were to meet the assessments until the full 5-cent limit had been paid. In many cases these first letters were simply ignored and, due to the depression, returns on the balance were disappointingly meagre. What money was realized from the first assessment of 2 cents a share permitted the beginning of work on a road from Mountain City to the claims, purchase of necessary machinery, equipment, and supplies, and initial operations at the mine-head.

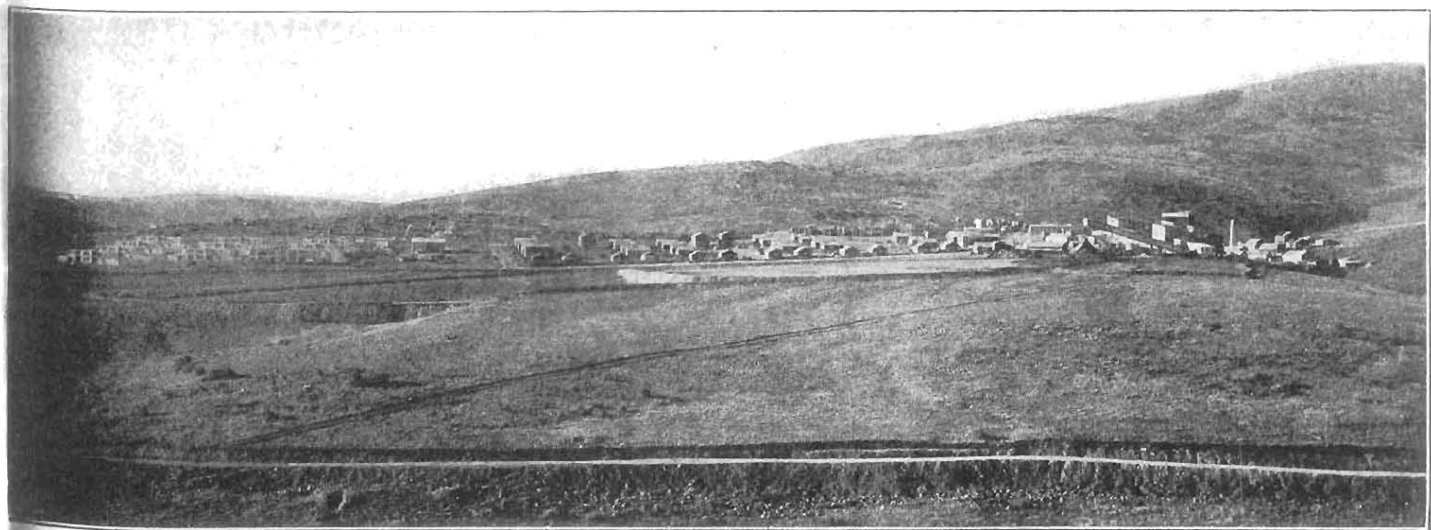
With so much to be done—roadwork, logs to cut and haul, cabins to build, and supplies to transport from Elko—the early winter and unusually heavy snows caught the crew of workers ill-prepared for the rigorous season ahead of them. The endeavor to bring in desperately needed supplies through the winter was almost superhuman. Bucking deep snows with a light truck in sub-zero weather over a road that is a travesty of transportation even in summer; exhausting the district's supply of gasoline (at 50 cents a gallon) and turning to the use of coal oil; fording the Owyhee River to contact southern Idaho towns for emergency supplies; borrowing

powder and pipe from other mines; melting snow for water; dragging freight on up to the mine on skis by hand when teams could go no further—that is a bit of the background of the making of the Rio Tinto. That—and the picture of the president of the company, S Frank Hunt, cooking for the crew, while the general manager, in addition to his other duties, mucked and drilled and timbered with the men in the shaft. With little assurance that they would ever be paid, all of the crew and the office help in Salt Lake City worked through that winter without wages. The 'town of Rio Tinto' consisted of two log cabins and a tent-house.

The original assessment work by Hunt had consisted of a shaft sunk to a depth of about 50 feet. Continuing this downward, a peculiar, hard formation was encountered at a depth of 227 feet. This proved to be ore; a rich copper sulphide. This occurred on the afternoon of February 26, 1932. The drama of that moment of discovery, after the uncertainties and hardships of the winter, will ever be a memorable one to those four men who had staked so much upon the existence of that ore. But the work of proving the size of the ore body was still ahead of them.

Sinking was continued to the water level (250 feet) where a crosscut was run from footwall to hanging, a distance of 78 feet. These workings revealed that the entire area traversed was made up of the same copper sulphide formation, consisting mostly of bornite and chalcocite. Later developments have revealed that had Hunt been able to see down into the depths of the earth, he could not have selected a more favorable location for the shaft. Convinced of the magnitude and richness of the ore body, Chase put three shifts of men to work. By April 1 a thousand tons of ore were stock-piled on the dump.

In May road conditions permitted hauling operations to be begun, and contracts were let to two trucking concerns. The first carload ran 47.27 per cent copper, straight mine run taken from the dump. After several shipments of such ore, the



The town of Rio Tinto, Nevada, as it appears today. Mine and mill at the right, and apartment house development at the left.

eyes of the mining world were turned upon the Rio Tinto. No longer was it necessary to plead with investors to buy the stock. All over the country went on the business of men trying to kick themselves as they remembered having tossed Chase's proffered stock into the waste basket, only a month, two months before.

June 30, 1932, the International Smelting and Refining Company purchased control of the property and took over the management. The name of the company was changed to the Mountain City Copper Company, but the mine continues to be known as the Rio Tinto.

IT IS INTERESTING to note how generally the employees, who worked through the development period without wages, and investors, who dared the speculation in a time of such financial stress, were rewarded for their loyalty and financial support. Many sold out their holdings long before the peak of \$17 a share was reached, but in many parts of the country there are people who are comfortably fixed and even wealthy because of their courageous investment.

Another indirect beneficiary of the rise in value of this mining stock is the Nevada state mining school, the Mackay School of Mines at Reno. This institution, representative of one of the greatest mining areas of the West, struggles with the problem of inadequate finances to properly train the state's mineral-minded youth. Recognizing the need and the far-reaching value of such an institution to the mining industry, Hunt gave the Mackay School of Mines 10,000 shares of Mountain City Copper stock.

That gift and others of cash, totaling \$200,000, have gone into an endowment known as the Hunt Foundation. This endowment provides the means for students to study geology in the field and learn first-hand of actual practices in mines and mills. Previously, the school had been financially unable to extend its sphere of training beyond the confines of the campus. The cost of this field work is already exceeding the amount the endowment provides, but Hunt continues to make up the deficit which in 1937 reached a sum of \$8,500. Hunt believes that the wealth that came so bountifully from one of Nevada's mines should go on fostering the development of the mining industry of the state.

UNDER the management of International, the Mountain City Copper Company is shipping 250 tons of ore and concentrates daily with an aggregate value of from \$8,000 to \$10,000. Ores assaying over 18 per cent are shipped direct to the smelters. Lower grades are milled in the company's new fireproof, selective-flotation mill located at Rio Tinto.

Equipped with the latest improvements in mineral separation, the mill has shown a consistently high metal recovery with low milling costs. At present, two rows of modern flotation cells and a row of scrubber cells are in use. These have a capacity of 400 tons of ore a day, and approximately 150 tons of concentrates are



produced daily. The mill has been designed to permit the doubling of this capacity.

Figures given out by the company show that 450 employees were on the mine and mill payrolls in August, 1937. Seasonal curtailment of activities reduced this number to some extent with the approach of the winter season. Expenditures for the period from January 1 to August 1 of 1937 reached the following staggering figures:

Trucking Bill	\$ 240,000
Railroad Freight Bill	160,000
Freight on Bullion	117,663
Mine and Mill Payroll	360,000
Contractors' Payrolls	100,000
Supplies	305,000
	<hr/>
	\$1,282,663

Thus in seven months' time over one and one-quarter million dollars were poured into the West's channels of trade from a tract that, but for the long-discounted theories of an old prospector, might still be desolate Nevada desert. And this amount of money is entirely above that spent by other companies in the field and takes no account of living expenses and other expenditures of the peoples of the three-town camp.

In spite of the enormous expense of organization and development, two dividends have been declared by the company.

The future of the Mountain City Copper Company? The extent of its deposits and the complete potentialities of the field are far from being completely determined. However, above the 400 level enough ore has been blocked out to maintain the present shipping program for three years. Development is already below the 500-foot level with all indications pointing to a blocking out of a million tons of ore with each 100 feet of sinking.

The Rio Tinto mine gives promise of escaping the notorious tendency of Nevada mines toward pinching out at comparatively shallow depths. The mine's point of greatest enrichment was at the water level (250 feet). Below this has occurred a natural decrease of ore values with depth, but nothing to indicate the probability of unprofitable exploitation for unknown years to come. Since the mine came into production numerous tracts of ground have been added to the company's holdings and upon which extensive prospecting has been prosecuted.

Undoubtedly the greatest assurance of the permanence of Rio Tinto's productivity may be derived from the character of the improvements being made upon the mine property and the townsite of Rio Tinto. A mere pocket of ore would hardly justify the modern fireproof buildings, the fine apartment houses and dwellings, or the ex-

pensive civic development. The future of the Mountain City Copper Company appears to be definitely ordered and char-

SPURRED on by the success of the Rio Tinto, numerous other companies actively prospecting the territory around the three towns; the Copper King, Rio Grande, Owyhee River Copper Company, the Cobb Creek Mining Company, the Golden Ensign, and others. Some of these are in the district around the Rio Tinto properties while others, such as the Golden Ensign—a famous old producer of the early days—are gold and silver producers across the river.

Probably the most promising of these is the Copper King at Patsville. This property adjoins the Rio Tinto claims along the east-west gossan showing that characterized the proven mine's surface indications. Prospecting is being done with a common well-drilling outfit. Early experiments with a diamond drill were satisfactory, due to an inability to reach the core whenever the sulphide zone was reached. Drillings to a depth around 100 feet have revealed the same black shale that was the case for ore at the Rio Tinto.

Another interesting potentiality exists in the waste dumps and tailings ponds behind by the various mills that were operated during the two earlier periods of Mountain City's activity. The old McGee mill of the seventies, with a water turbine for power and a fort to protect its operations from Indians and desperadoes, was perhaps the most successful of all. Although making a milling charge of \$40 a ton, it admitted to but a 75 per cent recovery. Repeated assays reveal that others could not have attained that efficiency, and rich residues of gold and silver lie concentrated in these waste deposits. The dump and tailing pond are the property of the Davidson Brothers who operated a store at Mountain City for many years and became wealthy through acquisition of Rio Tinto stock.

No longer skeptical, these Mountain City communities confidently await further copper strikes and the successful rejuvenation of some of the older gold and silver properties. Such an eventuality is all that needed to definitely establish the case among the great ore producers of all time.

GOLD DREDGERS MUST RELEVEL LAND IN OROVILLE DISTRICT

GOLD dredgers will be required to post a bond guaranteeing that they will relevel land before they can operate in the Oroville, California, district, according to a decision reached by directors of the Oroville Wyandotte Irrigation Company which supplies water for floating the gold boats. Rates for mining water have already been raised from 12 cents to 30 cents, the same rate paid by agriculturists.

The action against the gold dredges resulted from a storm of protests on the part of landowners and public officials. It was maintained that the dredges are destroying hundreds of acres of farm and fruit land and causing a reduction in assessed valuation of the county.

SMALL MINE OPERATORS ORGANIZE IN ARIZONA

THE initial organization meeting of the Arizona Small Mine Operators was held in Superior, Arizona, on February 11 and resulted in the enrollment of 19 charter members for that district. L. Lee Boyer of Superior was elected chairman, Bat Gays, vice-chairman, and A. W. Broussard, secretary. These three officers, with K. D. Lockwood and W. B. Smock, comprise the executive committee of that group.

On February 15 a similar meeting was held in Prescott for organization of the small mine operators of Yavapai County. Twenty-one members signed up. The Prescott group is headed by Carl G. Barth, Jr., chairman, Thomas H. Turner, vice-chairman, and Grace M. Sparks, secretary. The executive committee is composed of the above three officers and Jack W. Branch, Joe Walton, J. E. Russell, John Seiler, all of Prescott, and J. W. Still, manager of Bagdad Copper at Hillside, Arizona. The interest and enthusiasm shown at the Prescott meeting was in a large part due to preliminary efforts of Grace Sparkes, well known for her various activities in the Yavapai mining field.

Judge Dan Williamson was chosen chairman of the Globe-Miami Council held in Globe, Arizona, February 17. Walter Stewart was elected vice-chairman, and Lloyd C. Edmonson, secretary, and the executive committee includes Al Bennett, W. W. Poindexter, W. P. Greer, Carl Eder and Howard Mottier. This council has enrolled 38 members.

Additional organization meetings will take place in all the districts throughout the state. The campaign is being directed by Charles F. Willis, secretary of the association, assisted by J. S. Coupal, field agent. The purpose of the organization is to attain greater cooperation among the smaller mine operators of the state in working out their problems of local, state, and national importance. The association has recently taken action in opposing a reduction of the tariffs on lead and zinc in the pending trade treaties with Great Britain and Canada.

BIDS CALLED ON FIRST CALIFORNIA DEBRIS DAM

MARCH 20 has been set as the date for opening of bids on the first of the four proposed debris dams in California, according to an announcement by Col. L. B. Chambers of the California Debris Commission, Sacramento, California.

The first project on which bids are being called is the North Fork dam, located on the North Fork of the American River, approximately five miles northeast of Auburn, California. The dam is to be of the concrete arch type, 620 feet long at the crest and 155 feet above the main foundation rock.

The excavation represents 26,500 cubic yards of rock, and 28,000 cubic yards of concrete will be required to complete the dam. The war department has asked for an appropriation of \$705,000 for this dam in its request to congress.

In addition, \$2,000,000 is asked for the Upper Narrows dam and \$573,000 to be applied on the Ruck-A-Chuck dam. It is believed that calls for bids on the latter will follow the North Fork call by a few weeks and that bids on the Narrows dam will be called soon after the middle of the year.

WESTERN STATES RELIEF MAP IS PLANNED FOR EXPOSITION

THE million-dollar relief map of the western states, mentioned some time ago as a possibility for the Golden Gate Exposition at San Francisco next year, is going to be an actuality. Work on it will start early in March, says Keith Southard, in charge of state participation for the exposition.

Under supervision of Charles Sedelmayer ("Seedy" to confreres of the U. S. Forestry Service, for which he is chief draftsman of the coast division and is, likewise, a leading American authority on relief-map construction) more than 800 persons will be employed on the project for about a year. It will be built in San Francisco as a WPA project and carried, piece by piece, to Treasure Island in the center of San Francisco Bay, site of the exposition. There it will be installed in the central court of the Hall of Western States.

The California commission for the exposition sponsored the project with a \$75,000 appropriation. The rest of the cost will be financed by the WPA.

Such great public works as the Golden Gate and San Francisco Bay bridges, the Boulder and Bonneville dams, etc., will be shown to scale on the map. To facilitate

Massco Automatic Density Controller



- ★ Controls Both Percentage of Solids and Size of the Finished Product.
- ★ Keeps Grinding Unit at Maximum Efficient Capacity... Indicates any Change in Mill Feed... Does Away with Constant Checking of Classifier Circuit and Manual Regulation of Water.

● This apparatus automatically regulates water dilution to maintain percentage of solids within 1% of any predetermined point. Thus, the SIZE of the finished product is also controlled, which, in turn, results in maximum efficiency in classification, and grinding at the most effective capacity. Any departure from normal mill feed is indicated.

Installation of Massco Automatic Density Controllers in your classifier circuits will lead immediately to more tonnage and more uniform grinds. Checking the pulp density and regulating dilution by hand will be no longer necessary.

Substantially built—weighs approximately 100 lbs. No similar device on the market. Pays for itself quickly and thereafter earns a neat extra profit every day.

Send for Descriptive Folder

El Paso - Salt Lake City - 369 Pine St., San Francisco - Ry. Exch. Bldg., Seattle
1775 Bdwy., N.Y. - Canadian Vickers, Ltd., Montreal - Edw. J. Nell Co., Manila, P.I.

The MINE and SMELTER SUPPLY Co.

Main Office, DENVER, COLO., U. S. A.

Concentrates from Western States

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

A crew of 33 men is employed at the property of the Johnson Gold Mines, Inc., Octave, Arizona, under the direction of T.



A. Barkley, mine superintendent, and Henry B. Morton, mill superintendent. Mine development continues at a steady pace and in addition some ore is being produced. The prop-

erty is equipped with a 60-ton flotation-amalgamation plant. Ralph Roseberry, 124 West Fourth Street, Los Angeles, California, is president and general manager of the company.

Richard Kingdon, Box 267, Prescott, Arizona, is reported to be planning reopening of the Swastika mine near Middleton in the near future. The Swastika formerly was worked successfully by Kingdon and normally employs about 20 men. The property was sold on one occasion but later reverted back to him.

A total of 130 men has been laid off by Phelps Dodge Corporation in making "an adjustment of forces" at its New Cornelia Branch, Ajo, Arizona. The men laid off included members of two train crews and of one shovel crew, while the balance were miners. M. Curley is manager of the Ajo branch.

The Gold Eagle Mines, Inc., Signal Route, Wikieup, Arizona, is reported to be planning a mill for its property. P. T. Welsh, Signal Route, Wikieup, and associates acquired this property about four years ago.

The Arizona-California Exploration Company has taken over the Expansion mine located 35 miles north of Chloride, Arizona. Ross Barclay, Box 173, Chloride, is superintendent and is directing development operations at the property.

Herron and Laster, operating a lease on the Lake Superior and Arizona property near Superior, Arizona, are employing a crew of 25 men. Ore is shipped to the Magma smelter at Superior. The property is leased from the Magma Copper Company.

Four sets of leasers are working at the property of the Belmont Copper Mining Company, Superior, Arizona, which is held under lease from the company by Charles H. Smith, Box 29, Superior, Arizona.

W. J. Forbach, Box 292, Superior, Arizona, operating the South Lease on the property of the Reymert Mining Company, Superior, Arizona, is shipping about 250 tons of ore per month to the smelter. He is employing a crew of about 35 men.

Bat Gays, Box 490, Superior, Arizona, is leasing on the old Silver King property near Superior, and is starting a new development program.

Thomas Gray, part owner of the Fortuna mine, Superior, Arizona, is planning a new program of development for the property.

Major W. K. Lyden, Kirkland, Arizona, is installing equipment capable of handling 500 yards of gravel per day on his placer property located between Kirkland and Skull Valley, and he expects to start operations soon.

Phelps Dodge Corporation has made application to the state water commission for a permit to appropriate 14,400,000 gallons of water per day from the surface flow of Eagle Creek, an important tributary of the Gila River, for use in operations at its Morenci Branch, Morenci, Arizona. E. Wittenau is general superintendent of the Morenci Branch.

The Diamond Joe and Esperanza mines, located in the Cedar district of the Hualapai Mountains south of Kingman, Arizona, have been taken over by Ted Farley, 1728 North Western Avenue, and J. T. Conger, 611 West Forty-sixth Street, Los Angeles, California, in a deal involving a total of \$60,000. The Diamond Joe was the property of the Manuel Martinez estate while the Esperanza has long been owned by Ed. Hansman. Plans are under way for a thorough sampling of the properties and a contract has been awarded to Brice Covington of Kingman for construction of a road to the mines. The Diamond Joe is reported to have produced approximately \$100,000 in early operations. The Esperanza properties have had very little development. Farley and Conger plan to make their headquarters in Kingman.

The Union mine, located 18 miles north of Phoenix in the Winifred mining district, has been taken over under lease by Andrew J. Brengman, Cactus, Arizona, and is being operated on a small scale. A crew of four men is engaged in reconditioning the shaft, preparatory to active development. The mine is owned by Sims Ely of Boulder City, Nevada, who received approval of a \$20,000 RFC development loan for the property, but later decided not to accept the funds.

Preparatory work is progressing at the Albatross mine, Arivaca, Arizona, and the property will soon be in condition for actual mining operations. The air compressor has been installed and track has been laid to the face of the ore body. A new 65 to 70-ton ore bin has also been constructed. According to Dr. G. Wallace Walker, engineer in charge, there is already in sight approximately \$40,000 worth of ore. The prop-

All news appearing in The Mining Journal is obtained from sources believed to be reliable, but the accuracy cannot be guaranteed. However, every item has been sent to the person or company mentioned for verification before publication.

erty is being developed by the Albatross Gold Mines, Inc., E. LeRoy Blessing, president, 310 Olson Building, Lockport, New York.

The Lucky Star Mining and Milling Company, Signal Route, Wikieup, Arizona, is reported to be milling ore from its property located in Nester Basin.

The Gold Bar mine at Constellation, Arizona, has been taken over by J. M. Beach, 398 Loma Drive, Los Angeles, California, for unnamed principals. He will unwater the workings preparatory to active operations. According to old reports, there is sufficient ore blocked out to permit shipping at once. The Gold Bar, which has a production record of \$150,000 in gold, is owned by the Clara E. Twitchell estate and the Commonwealth Trust Company of Pittsburgh.

Claud Clark, Young, Arizona, is operating the Wilson and Maxwell asbestos claims under lease. The properties are located on Cherry Creek and work is in charge of James Turner, foreman. Clark has disposed of his claims near Globe, Arizona.

Russell J. Wilson, owner of the Black Oak mine at Garden Valley, California, is negotiating for purchase of the leases on the adjoining Walter N. Clark and W. J. Davey properties, comprising a total of 150 acres. The properties were taken over under lease and option in 1936 by the Dayton Consolidated Mines

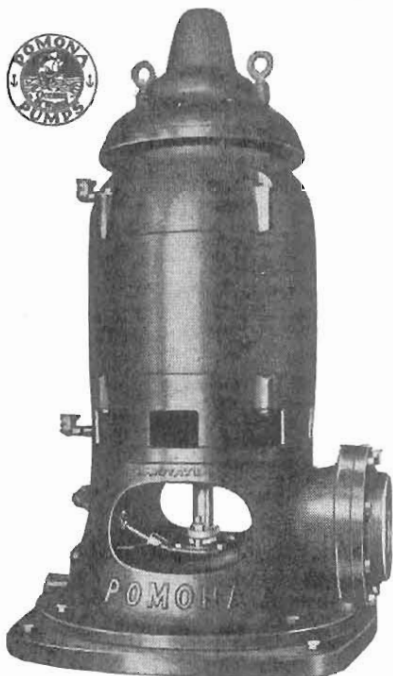
Company which carried on extensive development work. However, operations were suspended recently by the Dayton organization. The mines had previously been worked by the Garden Valley Mining Company.

The old Keane Wonder mine located on the east rim of Death Valley, 25 miles southeast of Beatty, Nevada, has been taken over by E. L. Cord, 616 North Arden Road, Beverly Hills, California, and associates. It is understood that the new owners do not anticipate any active campaign for the present. Arthur N. Sweet, Penryn, California, and Silverpeak, Nevada, is manager of the Cord mining interests.

The Keystone Mine Syndicate, Amador City, California, has re-employed the night shift crew for shaft repair work. The company is reopening the old Patton shaft which has been closed down for 19 years. T. S. O'Brien is superintendent. Charles H. Segerstrom, Sonora, California, is agent for the syndicate.

It is understood that the Idaho-Maryland Mines Corporation, Grass Valley, California, has formally refused to comply with the National Labor Relations Board's recent order in connection with the shutdown of the old Brunswick shaft. The board has ordered the company to re-employ 61 workers thrown out of jobs when the shaft was closed, and to pay back wages to 73 workers affected by the closing. In a letter to the board the company is said to have reiterated its declara-

SOONER OR LATER THEY ALL COME TO IT!



Mine operators who buy Pomona Pumps figure that even at a slight premium over other makes, the constant satisfaction and the added years of Pomona service return a real economy.

Watch the experienced user of pumps for mine dewatering purposes specify Pomona's, and repeat.

Sooner or later, most all mine operators come to order Pomona Pumps after seeing what adjacent mine operators get... in steadiness of performance, high efficiency which means low power costs and low maintenance expense (often no repairs in ten years of service).

POMONA PUMP CO.

MANUFACTURING PLANTS:
Pomona, California - St. Louis, Missouri
BRANCH OFFICES:
New York, Chicago, Los Angeles,
San Francisco

POMONA TURBINE PUMPS

STEEL GRINDING BALLS

mill liners, castings of all kinds,
general machine repairing.

We buy scrap iron and steel.

Arizona Iron Works

1504 Ave. at Harrison
Tel. 4-2984 P. O. Box 575
Phoenix, Arizona

ACCIDENT PREVENTION SIGNS FOR MINES
The SILENT SALESMEN OF SAFETY
MANUFACTURED BY

STONEHOUSE SIGNS, Inc.
840 LARIMER ST. DENVER, COLO.

tion that the closing of the mine shaft was not a labor lockout, and announced that it will carry the case to the federal courts if necessary. Future action in the case now rests with the board in Washington.

The front of the headframe at the **Rising Sun** mine, Colfax, California, collapsed under the weight of two 50-ton ore bins allowing 100 tons of ore to crash to the ground, covering the main two-compartment shaft. The damage is estimated at \$1,500 by L. A. Hughes, superintendent of the Rising Sun Mining Corporation. Frank Waddell, mine foreman, and two other men working in the mine at the time, escaped injury.

Construction of a two-mile road to the property of the **Standard Gold Mine Company** near Mokelumne Hill, California, is nearing completion, and this work will be followed by an extensive development program as soon as weather will permit. It is planned to sink 100 feet from the tunnel, which is in about 100 feet, with a view to opening up an extension of the Easy Bird quartz vein. A 25-ton mill was recently installed at the property. A crew of four men is employed at present under the direction of W. C. Werle, but a larger crew will be put on when operations get under way.

Paul Wingar, mining engineer of Salinas, California, is operating the **Aurora** quicksilver mine, located near Idria, California, under lease from the San Benito Gold Mining Company.

Oneida Mines, Inc., First National Bank Building, Utica, New York, has taken a lease and option on the Atlas quartz group located near Jackass Hill, and extensive development work is planned for the near future. The property was thoroughly tested for the new operators by H. Victor Burgard, 207 Washington Street, Sonora, California, who is western representative for the company. The group consists of the Atlas, Soldier's Gulch, Chileno, Wilson, and Means mines, and the Atlas mill site. The Atlas was last worked successfully many years ago by the late J. L. Whitney of Jamestown.

C. D. Skrable, Monticello, California, who struck a gold-bearing vein while drilling for a new well on his ranch property, plans to continue sinking of the shaft with a view to developing the new find. It is also planned to sink another shaft to prove the ore body as soon as weather permits. The ore, which must be treated by a cyanide process, will be shipped by truck to a custom plant, as Skrable does not plan to install his own plant unless the ore values prove up to such an extent as to warrant it.

Retimbering of the main tunnel at the **Mammoth** mine, Kennett, California, is nearing completion under the direction of W. L. Taylor, mine superintendent. The mine is being prospected by the **United States Smelting Refining and Mining Company**, E. A. Hamilton, general manager of mines, Newhouse Building, Salt Lake City, Utah. The company plans to explore the territory lying beyond the old workings. The Mammoth has yielded considerable

gold and silver and until a generation ago was said to be California's major copper producer.

The first round of powder shot off in the mine in more than 40 years was fired recently when the mining of ore began in the **Fortuna** mine, Nevada City, California, under the direction of J. M. Hoff. The ore is trucked to the **Gracey-Glencoe** mill, which is also being operated by Hoff. The dewatering of the 400-foot shaft has not yet been completed, but the mine has been opened to the 360-foot level. Timbering and machinery used in early day operations are said to be in good condition. Two new pumps have been installed to handle the water at the Fortuna. The mine was closed down years ago when the miners drilled into a water source which soon submerged the underground workings. The men were forced to abandon tools and other equipment to escape drowning. With modern pumping equipment, however, the water can be controlled.

Milling operations are now under way at the property of **North Canyon Mines, Inc.**, Greenville, California, treating ore from both the Droege and New York mines. A crosscut in the Droege mine has encountered what is known as the Dutchman or Lindbloom ore shoot, opening up a good grade of milling ore. Extensive development has been carried on at the New York mine during the past two years and ore produced from this development work is being milled. The property is equipped with a 75-ton flotation plant. A crew of 22 men is employed under the direction of Walter H. Parsons, president and general manager, Greenville.

The mill at the **Commetti** mine, Big Pine, California, is being changed and enlarged preparatory to handling custom ore in addition to ore from the Commetti. The property is operated by the **Birch Creek Mining Company**, David T. Davis and associates of Big Pine.

The lease on the **Enterprise** mine, three miles northwest of Columbia, California, has been transferred by P. L. Small, Sonora, California, to the **Enterprise Co-operative Syndicate**, headed by C. A. Kerr and Oscar Pendleton. The new operators plan extensive development of the property.

Frederick Reel, 4008 1/2 Monroe Street, Los Angeles, California, has taken an option on a placer deposit in Old Woman's Gulch on the **Lombardi** Ranch near San Andreas, California, and has completed a thorough sampling of the property. He plans to employ a crew of 12 men soon and will operate the mine as a drift and open cut project, using electric power for mine equipment and the power shovel.

At the annual meeting of stockholders of the **Pride of Mojave Mining Corporation**, Mojave, California, John I. Dewar, 210 West Seventh Street, Los Angeles, California, was re-elected president and general manager; George H. Barnes was re-elected vice-president and secretary; and J. J. Murray, Mojave, was re-elected vice-president and supervising engineer. Erection of a 150-ton combination flotation and amalgamation mill is planned, which will

be built in three units to handle several types of ore.

James Bollinger is working a small crew through the winter on the Haines mine, owned by Haines Brothers and located a short distance above Strawberry Valley, Yuba County, California. A new tunnel is being driven to contact the ledge at a lower level than that reached in the old tunnel.

H. A. Lotz plans to install a 50-ton stamp mill at the Lum Gray mine near Klamath, Siskiyou County, California, as soon as weather conditions will permit.

H. W. Morris, 247 Carl Street, San Francisco, California, has taken an option on the Rip Van Winkle mine east of Westville, Placer County, California. Morris also holds the Lady Bedford property in the same district.

Milling capacity of Cactus Mines, Inc., Rosamond, California, has been doubled by recent additions. New equipment incorporated in the flow sheet of the company's flotation and cyanidation plant includes a 35 by 10-foot Dorr primary thickener and a 35 by 27-foot Dorr four-compartment washing thickener. The new installations were made by the Southwestern Engineering Company, 4800 Santa Fe Avenue, Los Angeles, California. Roy W. Moore, 1206 Pacific Mutual Building, Los Angeles, is general manager of Cactus Mines.


The Anglo American Mining Corporation, Ltd., 206 Sansome Street, San Francisco, California, reports a net profit before deductions for depletion, depreciation, etc., of \$37,210 for the fourth quarter of 1937, ending December 31. Revenue from the sale of gold and silver bullion totaled \$100,675, quicksilver, \$21,398, and other sources, \$4,208. Operating costs totaled \$89,072. The installation of crushing, screening, and grinding equipment at the Yellow Aster mine, Randsburg, California, has been completed and the initial crushing of ore and tuning up of the plant began January 20, 1938.

W. J. Beatty, O. E. Crouse, and George D. Frank, partners, are continuing development at the Texas Hill mines, Coulterville, California. Ore taken out in development work is run through the 20-ton amalgamating mill on the property, which is being worked at capacity. It is planned to continue development until sufficient ore is blocked out to justify additional milling facilities. Two Kraut flotation cells are being installed in the mill at present. Water for power purposes is available only from January to June of each year, and the high cost of gasoline does not justify development during the balance of the year. The mine, which carries values in gold, silver, copper, lead, and zinc, is operated under lease from George D. Frank, Grant Building, San Jose, California, who is also associated in the development of the property.

Mining operations have been resumed at the Pennsylvania mine in Browns Valley, California, operated by the Empire Star Mines Company, Ltd., Grass Valley, California, following completion of the new ball mill. The new mill, a 75-ton unit, in-

Right in Your Own Shop

BIT GRINDING



Distinctly new . . . Simple, practical and inexpensive . . . PACIFIC Grinder quickly pays for itself even when only a few bits are to be ground . . . Quickly grinds cutting edges and gauge to the correct angle on all makes of detachable rock bits . . . Easily installed on your present grinding equipment . . . No special form wheels needed . . . Any handy man can operate it . . . **SHARP BITS MAKE MORE HOLE!**

MANUFACTURED BY

ALLOY STEEL & METALS CO.

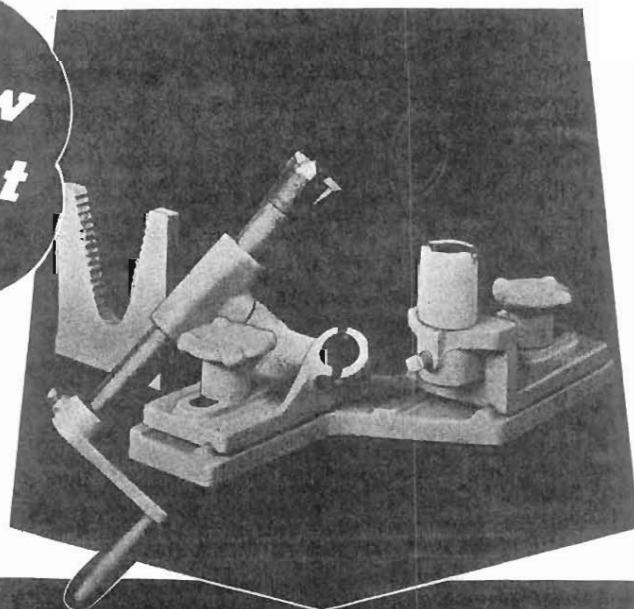
1862 E. 55TH ST., LOS ANGELES, CALIF.

A

Easily Done

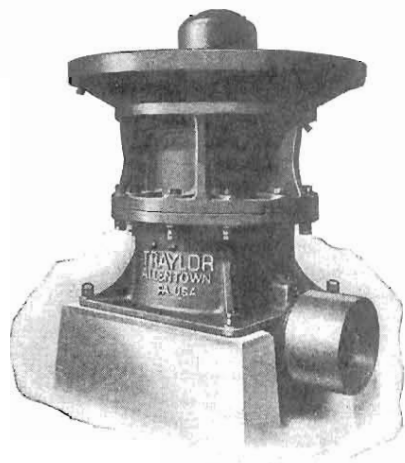
The New Low Cost Way

ASK
YOUR DEALER
ABOUT



PACIFIC Detachable Drill Bit **GRINDER**

Ok'd by Operators
the
**TRAYLOR
TY CRUSHER**



Because they like its high efficiency and economical performance. It is simply designed and fool-proof, built of cast steel, automatically lubricated, fitted with Traylor Patented Bell Heads and Curved Concaves and, best of all, its price is moderate. Get full details by sending today for our Bulletin 3012!

**Traylor Engineering
and
Manufacturing Co.**

ALLENTOWN, PA.

919 Chester Williams Bldg.
Los Angeles, Calif.

6311 22d Ave. N.E.
Seattle, Wash.

101 W. Second South St.
Salt Lake City, Utah

New York Chicago

Manila Mack'y & Supply Co., Inc.
Manila and Baguio

MANGANESE STEEL

Wearing Parts

For extra long service from wearing parts and low operating costs—use Manganese Steel. Parts for all makes of crushers, ball mills, etc. Quick shipments.

CRUSHER JAWS
MILL LINERS
ROLL SHELLS
MISC. PARTS

ALLOY STEEL & METALS CO.

1362 E. 55th STREET • LOS ANGELES, CALIF.

creases considerably the plant's capacity. It is operated in conjunction with the 10-stamp mill. Robert J. Hendricks, Grass Valley, is manager of the Pennsylvania.

An outcropping of what may be a valuable ore deposit is reported to have been encountered on the property of Worthington Ames, Browns Valley, California. Ames was the plaintiff in a recent suit against the Empire Star Mines Company, Ltd., contesting the company's right to mine beneath the Ames orchard and home. The court ruled for the defendant holding that the mining company legally may follow the lode.

William Von der Hellen, mine operator of Medford, Oregon, is reported to have relinquished his lease on the McConnell Bar gravel mine, 20 miles from Yreka, California. The relinquishment followed the loss of approximately \$20,000 in equipment and work as a result of the high water in the Klamath River last December. Workmen succeeded in getting the power shovel from the pit shortly before the river waters broke through the encircling bank, but a trommel screen and other equipment either washed down the river or were buried beneath 30 feet of gravel. In addition, a large area of bedrock which had been uncovered and was ready for cleaning was covered by the silt and gravel washed into the pit. The property is owned by W. B. Boulter.

Heavy snows in the Sierras are said to have caused no serious interruption of operations at the property of the Roseklip Mines Company, Bodie, California, which is operating a 250-ton cyanide plant on dump ore from the old Standard property. A crew of approximately 40 men is employed under the direction of K. E. Peters, superintendent.

The Ranger Mining Company of Spokane, Washington, has taken over the Union Quartz Extension and the Granada properties located near Nevada City, California. J. T. Hames is general manager.

Lord and Bishop, Box 812, Sacramento, California, are operating their Bodinson dredge, located on the Consumnes River 20 miles east of Sacramento, on a 24-hour basis, treating 2,000 yards of gravel per day. Both the dredge and the P. and H. 1½-yard dragline are powered by Caterpillar Diesel engines.

All machinery has been installed and the shaft is being retimbered at the Del Oro mine, Victorville, California, which is owned by H. B. Snyder, 1220 Pacific Finance Building, Los Angeles, California. A crew of eight men is employed under the direction of Wm. Mueller, general superintendent, Box 581, Victorville. The mine, a gold-silver property, is under lease from George S. Branch Mines. Snyder has recently received approval of a \$20,000 RFC loan for development of this property.

Operations at the Union placer mine near Mokelumne Hill, California, are expected to be on a 100-ton basis by the end of February. A crew of 14 men is employed under the direction of Clayton Chatfield, general superintendent. The mine is being developed by a group headed by G. E.

Fields, and the property has been rehabilitated throughout. Electric power lines have been run and all equipment will now be operated by electricity.

A new firm, the Big Bear Graphite Company, has been organized to develop a graphite deposit in the San Bernardino Mountains which was discovered some time ago by Mark Hart of Orange, California, and Jack Regan of Fullerton, California. The company is capitalized at \$200,000. The deposit is also said to carry values in gold ranging from \$6 to \$204 per ton and silver, \$8 per ton. The graphite assays 40 per cent, it is reported.

Work is nearing completion on the new three-stamp mill which is being erected on the Coffey Ranch at Mormon Creek near Sonora, California. The new plant, which will reduce six tons in a 10-hour period, will handle custom ore from the mines in that district. It is being operated by Morton and Frey.

John Graham, West Thirteenth Street, and J. C. Rouse, 1396 North San Francisco Street, San Bernardino, California, report that they have discovered a gold deposit within three miles of San Bernardino which carries average values of \$17 per ton. The two men have filed claims to a tract 600 by 1,490 feet.

The Milton Gold Dredging Enterprise, operating a dragline dredge near Milton, California, has completed the reconstruction of its equipment, including the installation of a new steel hull and power winches. Operations are directed by Luther Hadley, superintendent. The company has been working in this district for 2½ years and has sufficient ground for two more years' work.

It is reported that operators of the Round Valley tungsten mine, Bishop, California, are planning to start construction of a new mill soon. The new plant is to have a 300-ton crushing capacity and 100-ton milling capacity. J. F. Birchim and A. A. Reeves, operators, are understood to have opened up high-grade ore in a new 140-foot tunnel.

The Carson Creek group, also known as the Jones mine, located southwest of Angels Camp, California, has recently been surveyed by Ben H. Carlow, Box 836, Angels Camp. Assays are said to have shown values ranging from \$2.50 to \$40 per ton in gold and silver. During early operations the mine is said to have produced more than a half million dollars, but it has been shut down since 1908 due to litigation.

Albert F. Knorr, 351 California Street, San Francisco, California, has acquired the Alcalde mine and adjacent properties located near Grass Valley, California, from C. L. Best, San Leandro, California. Plans for the group have not yet been completed.

The Bowman mining claims in Plum Valley, owned by A. A. Casey and Carl Johnson, Berry Creek, California, have been bonded to outside interests who are preparing to take equipment in to the mine. The property includes gravel and quartz ground and a long tunnel has been driven on the quartz ledges in addition to extensive work on the gravel channel.

Martin Brothers are preparing to mill ore from the new 220-foot two-compartment shaft of the Ranchito mine, Julian, California, which they recently acquired from Cave Couts, Vista, California. The property was recently equipped with a five-stamp mill. It is understood that a substantial body of \$10 ore has been blocked out in the mine. William Martin, one of the owners, is in the theater business at Hemet, California.

The Little, Moore, and other placer properties along Putah Creek near Winters, Yolo County, California, have been leased by George C. Grieve and Charles Lentz, who are planning early installation of a dragline dredge. Prospecting of the deposits has been under way for several months.

The Laco Mining Company, C. E. Watson, manager, Los Gatos, California, has acquired the old mining dumps of the Guadalupe quicksilver mines which it has been working and will continue operations. Negotiations were also completed recently whereby the company will acquire the Otto quicksilver property near Lakeport for the sum of \$32,500.

At the Tungsdorr mine in Fourth of July Canyon, near Needles, California, two three-man shifts have reached the 120-foot level and are drifting both ways for the vein. Sixty feet of drifting in each direction is planned in an effort to cut the vein which carries high-grade wolframite near the surface. Rasmus and Trout of Long Beach are operating the property, which is under lease from Omar Dorr.



D. Galbreath and Henry E. Shrum of San Diego are associated with Jack Shannon, Sutter Creek, California, in the development of their gravel mine on the Leslie Ranch, eight miles above Sutter Creek. The claim is being worked by means of a small hydraulic centrifugal pump operated by a gasoline engine, and water is secured from Rancheria Creek.

George H. Bergin and associates are operating the Clarke mine at Dedrick, California, under lease from the Canyon Placers, Inc.

The Sisson Gold Mining Company, John E. Sisson, president, 456 Subway Terminal Building, Los Angeles, California, has been granted water permits covering 23 cubic feet per second. The company's property is located near Sierra City, California, and three cubic feet will be used for mining and domestic purposes while the balance will be used for power and domestic purposes.

The milling plant of the Alabama-California Gold Mines Company, William A. Beaudry, superintendent, Auburn, California, is treating from 140 to 150 tons of ore per day. Sinking to the 650-foot level is now nearing completion. A crew of approximately 80 men is employed at the mine.

The Mountain Copper Company, Ltd., William F. Kett, general manager, 351 California Street, San Francisco, California, is reported to be prospecting a large lode property in the Forest Hill Divide district of Placer County. Unconfirmed reports state that the company is not encouraged by results of the recent shaft-sinking project at the Jardine unit near Auburn, which is under option to Mountain Copper. It is understood that new ore located in their Big Canyon mine at Shingle Springs will delay any contemplated move of that plant to a new location.

Promotion of the Sir Raleigh mine, Placerville, California, is being conducted by Alfred H. Thiele, Route 2, Box 196, Placerville. It is proposed to continue development of the ore shoot by sinking an additional 100 feet below the present 40-foot level, to be followed by drifting on the vein in two directions. The property is equipped with a small mill and cyanide plant. An ore shoot opened in a crosscut on the 40-foot level is said to carry average values of \$8 per ton.

Carlson and Sandberg, Redding, California, have placed another dragline dredge in operation in the East Weaver basin of Trinity County.

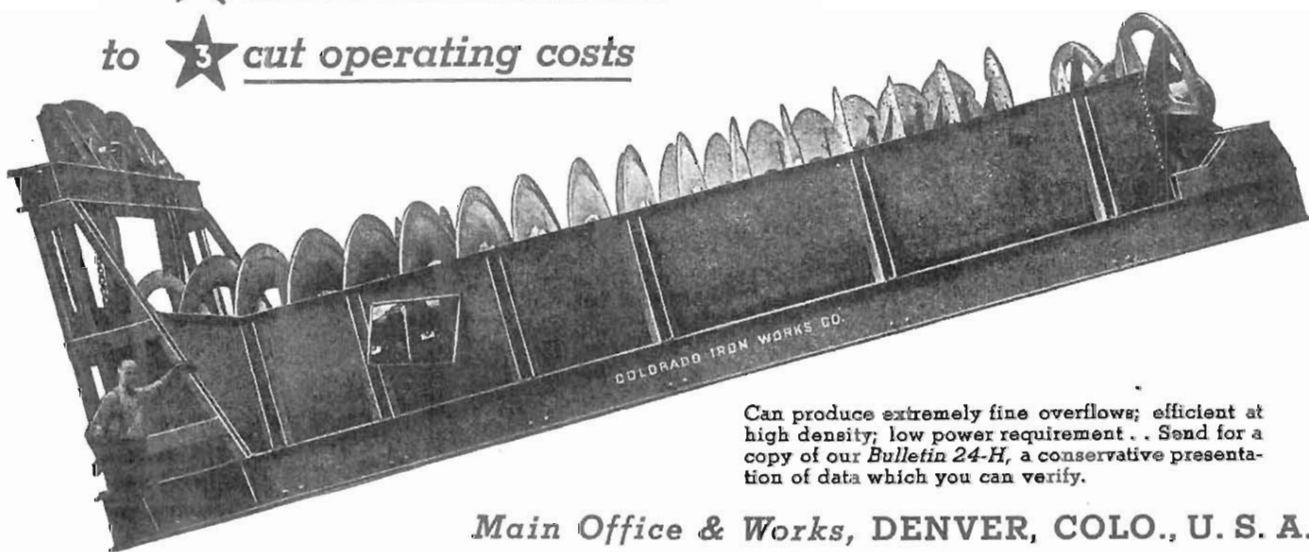
Charles Phillips and associates are working two shifts in treating the tailings of the old Jilson mill at Happy Camp, California.

Herbert Barry, Bert Johnson, and Carl Carlson are driving a six by six tunnel at

Use **Akins CLASSIFIERS**

- to ★ handle more tonnage
- to ★ improve metallurgy
- to ★ cut operating costs

Greater overflow per foot width, with big saving in floor space; ability to operate at 4" in 12" slope, without backslip or surge of sand load; no stalling, even under overload.



Can produce extremely fine overflows; efficient at high density; low power requirement. . . Send for a copy of our *Bulletin 24-H*, a conservative presentation of data which you can verify.

Main Office & Works, DENVER, COLO., U. S. A.

COLORADO IRON WORKS CO.

MineVent
FLEXIBLE

BLOWER PIPE



**The economical method of
Auxiliary Ventilation
IN
METAL MINES**

Quick air when and where needed. Attaches to standard blower fan. Patented airtight demountable coupling saves tubing. Special processed fabric resists water, acid, powder fumes, fungus. Installed or reclaimed by unskilled labor. Write for details and prices.

Western Representatives: Hersey & Co.
Salt Lake City and Seattle

**American Brattice Cloth
CORPORATION**
Warsaw, Indiana, U. S. A.
Mrs. of ABC Brattice Cloth
M-V Powder Bags

**The Merrick Conveyor
Weightometer**

for thirty years has been weighing crude ore and fines in mills and concentrators throughout the world, thereby increasing efficiency of operation.

MERRICK SCALE MFG. CO.
178 Autumn St., Passaic, N. J.

Flotation Reagents

Bear Brand Xanthates

Sunny South D. D. Pine Oil-A

Complete line of all standard flotation reagents, also metallurgical and assay chemicals carried in stock.

H. J. Baron Company

805 Mills Building
EL PASO TEXAS

the Job Lot mine, two miles south of Happy Camp, California, and have already reached a depth of more than 170 feet. They report that recovery from 80 yards of gravel taken from the tunnel totaled \$146. The mine, formerly known as the Tuttle and Hughes, is owned by Edward Clark.

It is reported that negotiations are under way whereby new interests will soon take over the Italian mine of the Black Hills Mining Company, Drytown, California, together with the California, Pocahontas, and Seaton mines, located in the same district. It is understood that a subsidiary of the Anaconda Copper Mining Company is the option holder. The Black Hills Mining Company is headed by William D. Tam of Jackson, California.

The Channel Mining Company has been organized for operation of the Weeds Point mine, located two miles north of Camptonville, California. The company is headed by Frank C. Homer, and Julius A. Cassano, Camptonville, is in charge of operations. Two giants are being used and debris is stored behind Bullard's Bar dam. A total of 800,000 yards is reported to be available.

P. E. Barnhart is operating the Elk Horn mine in the Pioneer mining district near Pine Grove, California, under lease from James Grillo. The shaft, which is now down 53 feet, has cut a three-foot vein. Two assays have been made, one showing \$42 and the other \$469 per ton. The property is equipped with a compressor and hoist, and as soon as sufficient ore has been blocked out it is planned to operate a five-stamp mill located on an adjoining property.

James Clawson, superintendent, is making preparations for operation of the Virgin Valley gravel mine, located on the Russell Ranch four miles south of Jamestown, California. A 16-foot trommel and sluices will be used for recovery of values. The underground mining process will be somewhat of a departure from the usual drift gravel operation. It is understood that the formation will stand very well when the proper supporting stulls are left and it is planned to drive a double-compartment drift upstream on bedrock. When sufficient openings have been made, dirt moving equipment similar to that used in surface operations will be moved in and the gravel drawn to the drift, which will be an electric haulage tunnel. The property was tested by churn drills, and 22 test holes showed an average value of \$3 to \$4.50 per yard. Dr. T. J. Brennan of the Philippine Islands is the operator of the property. Clawson is making his headquarters at the Royal Hotel, Jamestown, California.

The Calaveras Land Company, Joseph S. Cademortari, superintendent, Columbia, California, is considering the abandonment of its free-gold recovery system due to the fact that the ore beneath the surface is rapidly changing to sulphides with hematite predominating. It is now planned to concentrate the values and follow this step by cyanidation. A new 56 by 78-foot concentrator building will be added to the plant. The O'Donnell property has recently been added to the company's holdings.

The J. H. Scott Company, 465 California Street, San Francisco, California, which has operated the Milkmaid mine at French Gulch, California, for the past four years secured a lease and option on the Washington mine, also located at French Gulch, in October, 1937, and now has the property under development. The Washington mine is owned by Dr. George Grotenfend, 152 Market Street, Redding, California.

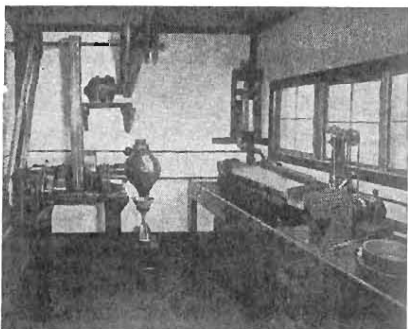
Gem Mines, Inc., c/o J. J. Murray, Box 394, Mojave, California, has received approval of a \$12,000 RFC mine loan for use in developing its property, located in Inyo County, California.

The Billie A gold custom mill, located west of Barstow, California, has been converted into a 50-ton concentrating plant by Mrs. Billie Rosso, Victorville, California; operator of the plant. Mill runs of several types of ore have demonstrated that it is possible to separate the scheelite from the materials with which it is associated, according to the operators. The plant will handle ore for Nicholas Baxter and associates; Kelly Brothers; Burnside, Cook and Bonelli; Robinetti and Associates; and Major R. M. Thompson. The plant capacity will be increased if necessary.

The Vanadium Corporation of America has completed unwatering the Conger tungsten mine to the fourth level and will

COLORADO
go no further until the third and fourth levels are reconditioned. Robert Sterling of Boulder is general manager and Joseph Smith is foreman with a crew of 10 men. The property is located about one mile northwest of Nederland in Boulder County.

Purchase of additional equipment for tunnel and mill, providing for the disposal of mill tailings, and reopening of cave workings to develop additional ore bodies are proposed by the California-Hidden Treasure Mines Company. Financing is being done by the sale of 100,000 shares of the company's 350,000 shares of stock, 187,000 of which are outstanding. The company was incorporated in 1910 and has spent years consolidating a group of mines in Gilpin and Clear Creek counties, Colorado. Holdings include all of the capital stock, except directors' qualifying shares, of the Argo Mining, Drainage, Transportation and Tunnel Company, which owns the 22,000-foot Argo tunnel. Other properties recently purchased include the Argo sampling plant and 150-ton selective flotation mill. Mines, mill, and tunnel are electrically powered. Mine holdings are in the following groups: California-Hidden Treasure-Indiana, Gunnell-Concrete, Gold Coin-Kansas, Pozo-Gilpin-Dyke-Jones Mackey-Phoenix-Conlee-Burroughs, Alps Mackie-Olympia, Kent County-Aetna-Soder Eagle-Carr-Humboldt, Adaline-Corydon Pierce, Buell-U.P.R.-Vulcan, Columbia Argo, Topeka (title to which is not perfected), Moose-Elkhorn, and various other groups of lesser importance. Part of the Monmouth-Kansas is being operated under lease by the Union Carbonate Mines, Inc. which has an RFC development loan. George E. Collins, 307 Boston Building



ORE TESTING

The quickest, safest, and surest method of correctly determining the best treatment for your ore is to have it tested. However, ore testing cannot be accurately done without complete equipment for amalgamation, flotation, gravity concentration, and cyanidation tests. As well as adequate testing equipment, it is even more important that the tests be made by experienced metallurgists who are able to accurately interpret the results. The Denver Equipment Co. offers you this complete service at the lowest possible cost.

Write for New Bulletin No. 3713

DENVER EQUIPMENT CO.
1419 17th Street - Denver, Colorado.

El Paso - Mills Building
Salt Lake City - McIntyre Building
Mexico, D. F. - Boker Building
San Francisco - Cunard Building



CORE DRILLING DIAMONDS

BORTS — CARBON

ALL TYPES

Prompt Service Anywhere

RALPH R. HANSON

U. S. INDUSTRIAL DIAMOND CORPN.
310 S. Michigan Ave. Chicago, Ills.

Diesel Engines

for EVERY MINING USE

Enterprise Diesels assure the most economical and dependable power supply for any mining operation. These units, built in the west for western industry, can be promptly serviced at least cost. Write for latest literature.

ENTERPRISE
ENGINE CORPORATION

2902 18th St.

San Francisco

DRY BANK PLANTS
BODINSON
BUILT
DRAG LINE DREDGES

2401 Bayshore Blvd., San Francisco

mine to mill. In December 10 carloads of zinc concentrate and one carload of lead concentrate were shipped. About 70 men are employed at Metaline Falls, Washington, under the general management of D. I. Hayes, Old National Bank Building, Spokane.

Fred A. Davis, 2935 Boone Avenue, Spokane, Washington, is reported to have purchased the King Solomon claims No. 1, No. 2, and No. 5 at Nighthawk, Washington, from J. L. Drumheller, Columbia Building, Spokane, and others. The property has not been worked by the owners for about 40 years, but has been operated under lease at intervals. Values are in gold, silver, and copper.

CARSON HILL GOLD MINING CORP. ISSUES ANNUAL REPORT

CARSON HILL GOLD MINING CORPORATION, Walter Lyman Brown, president, 206 Sansome Street, San Francisco, California, reports for the year ended September 30, 1937, a net income of \$4,875 after deductions for depreciation, depletion, income taxes, and undistributed profit taxes. The company's income from gold and silver bullion sales totaled \$730,396, while operating expenses amounted to \$642,789, leaving a net operating profit of \$87,606 before deductions.

The mine and mill, located at Melones, California, operated continuously throughout the year with only minor interruptions due to severe weather. Total production for the year was 335,180 tons of ore, from which were recovered 20,888 ounces of gold and 5,544 ounces of silver with a total value of \$735,203. The ore reserves at the end of the fiscal year were estimated at 568,000 tons.

A total of 7,551 feet of drifts, crosscuts, and raises was run during the year. In the Morgan mine development work was concentrated principally on opening up new levels at 3,160 feet and 3,325 feet, and on both of these levels important ore bodies have been exposed. The water in the winze shaft was lowered to the old 3,500-foot level and during the coming year exploration work will be carried on with a view to reaching the 4,980 ore body on that level. An inspection of this level disclosed that an important amount of ore was left unstopped in earlier operations. In the Calaveras mine development work consisted of extending drifts on the known ore bodies.

The capacity of the milling plant was increased during the year to more than 1,000 tons per day. After the enlarged mill was placed in operation it was found necessary to add a new 60-foot thickener to handle the increased quantity of slime produced. It was also found that an improvement in recovery of gold could be made by additional time of agitation, and as a result two new agitators were erected. The increased milling capacity also necessitated the provision of enlarged facilities for disposal of tailings and to this end a north dam was constructed adjoining the original dam.

Carson Hill has also issued a report covering operations during the first quarter of

the new fiscal year, showing an operating profit before deductions for depreciation, depletion, etc., of \$31,997 for the period ended December 31, 1937. A total of 86,805 tons of ore was milled during the quarter, from which the revenue was \$203,578. Operating costs amounted to \$171,795, which included all expenditures for development as well as for extensive repair and renewals.

During December extraordinarily heavy storms in the Sierras flooded the company's river pumps and washed out section of the power company's ditches and flume. As a consequence, mining and milling operations were seriously interrupted during that month, with a corresponding decrease in bullion production and operating profits. Operations at the mine are directed by John A. Burgess, general manager.

HOMESTAKE MODERNIZES ITS NO. 1 CYANIDE PLANT

WORK is under way on reconditioning of the No. 1 cyanide plant of Homestake Mining Company, Lead, South Dakota. The shell of the present building will be replaced by steel frame, galvanized corrugated steel sides, of a design similar to the company's newer No. 3 plant. The preliminary work of pouring concrete is already under way but since reconditioning must proceed without interfering with continued operation of the plant, at least two years are expected to be required for completion. The total cost is estimated at in excess of \$300,000.

The company is maintaining steady production of ore at the rate of about 4,000 tons per day, two shafts being utilized in operations. Improvements to the No. 1 cyanide plant are expected to reduce the fire hazard and increase efficiency of operations and working conditions. This unit is one of the few remaining wooden structures at the Homestake plant.

The company has an outstanding record for dividend payments. It has been operating continuously since 1878 and except for the period from May, 1907, until January, 1908, when the mine was shut down because of a fire, monthly dividends have been paid continuously from January, 1879.

During this entire time all ore has been taken from one vein system. Reports have been current that the company in 1936 encountered an important new ore body in its mine at Lead, but this report has not been confirmed.

COLORADO MINES AND MEN ABLY COVERED IN YEARBOOK

THE Colorado Mining Association and the Colorado Chapter of the American Mining Congress have published a yearbook of Colorado mining which is of interest to every one connected with the industry. The publication is in magazine form and is profusely illustrated. News of the state's mine and mill activities is given under counties with special articles on operations of outstanding interest. The histories and pictures of many mines and mining men are fully and attractively set forth, making the magazine a valuable reference.

Mining Would Welcome Substantial Labor Organization

By FRANK A. CRAMPTON

Mining Engineer, Nevada City, California

In mining, an understanding between management and labor must go beyond that of hours and wages, for mining holds a position in our economic structure different than that of any other industry. Any increase of cost in gold and silver production cannot be passed to the consumer since prices for these metals are fixed. Economic laws control world prices for copper, lead, zinc, and other base metals. Hence, mines have no power to make the value of their product absorb increases in cost.

Wages, hours, and working conditions in mines have been superior to most other industries for years. Mine owners have long since shared increased profits with their workmen by a sliding wage scale based on prices and other methods. Mine workers are skilled and of high intelligence, and realize that to close a mine, even for a short period, would cause serious damage and might, in fact, prevent its ever being reopened.

The privilege of labor to organize is a recognized fundamental right and mine employers, without exception, would welcome sound organization by their workmen for, with negotiations through a responsible labor union, agreements are invariably reached, and the contracts kept.

Mining communities are peculiar in that they grow around mines and prosper as the mines prosper. Dwellers in these communities rightfully feel themselves an integral part of the mine's success or failure. They supply the greater number of workmen, but, unfortunately, it is impossible that they supply all. As a result, outside workers of less stable character pass in and out, from time to time. It is also unfortunate that there are a few men in any local community who are not qualified for mine employment; hence, dissatisfaction is high among the unemployable and outside groups.

Most mining centers have their local unions functioning for the workmen and to their benefit, as well as to that of the community and mine operators. Invariably a complete and satisfactory understanding exists between employer and employe as to hours, wages, and working conditions insofar as the local men who have chosen the camp as their home are concerned.

Recently labor agitators have entered mining communities where conditions have been satisfactory, a local labor union recognized, and wages and working conditions exceptionally good. These outsiders are under C.I.O. sponsorship, and unwanted locals of the International Union of Mine, Mill and Smelter Workers have been organized. Enrollment has been of the dissatisfied, incompetent local men and a large percentage of outsiders and "drifters." In no case have more than a scattering few of the substantial local workmen been enticed into becoming members of the hybrid union.

Appeals to prejudice and class hatred, as well as coercive and subversive methods, are often used for organization purposes. Reason or facts are not considered; instead they are deliberately and knowingly misrepresented. Statements such as, "President Roosevelt is behind us," and "The NLRB will back us in everything we do," are common. Appeal is to selfish motives and the unreasoned attitude born under mass-led thinking. Leadership invariably is by outsiders who are raucous-voiced specialists in hatred; few, if any of them, are familiar with mining problems either from the standpoint of labor or operator; none of them are interested in the welfare of the mine employes. To bolster their organization they do have a few of the local radicals in minor positions within the new union.

What happens to the miners is of no concern to the organizers; their object is to stir unrest to the personal profit of themselves. Workmen may suffer from need of money for themselves and their families but never receive adequate benefits, if any, from the newly formed union, to offset the loss of a job. Even when a pay increase is granted it is never sufficient to make up the loss. No consideration is given the fact there may be no reopening of a mine when the strike is over. Should a mine close, due to prohibitive production costs, only the mine and its labor are affected; the outside organizers go elsewhere and repeat their nefarious work in some other mining community.

To prevent destruction of the mining industry of the United States, an industry without which we would be turned back ten thousand years, mine owners and local miners' unions must cooperate to the end that unwanted and unnecessary outsiders and agitators will have an unwelcome reception when they enter a community to disturb the operations upon which both labor and the mine operator are entirely dependent. Each must broaden and consolidate its efforts in order to avoid destruction.

This page is open to members of the mining fraternity so that they may present their views on topics of general interest to the mining industry. Opinions expressed need not conform to the editorial policies of The Mining Journal.

Ernest Oberbillig, research fellow at the Idaho Bureau of Mines, Moscow, Idaho, is working on a study of the flotation of minerals started about eight years ago by Joseph Newton, assistant professor of metallurgy, Idaho School of Mines. The only other research being done on the subject is said to be at the University of Kyoto in Japan.

Sylvester C. Buchanan has been appointed resident manager of Cia. Minera y Beneficiadora Zacatecana de Oro y Plata, S. A., Pinos, Zacatecas, Mexico, succeeding Arthur Swanson who resigned recently to accept a position as superintendent of the Zeibright mine in California. Buchanan has been assistant manager of the company for the past two years.

J. H. Sampson has returned to the Philippine Islands after a business and vacation trip which took him to the leading mining areas of the world including South Africa, Canada, and the United States. Sampson is consulting engineer for the Soriano interests in the Islands and is on the staff of Masbate Consolidated Mining Company, Rio Guinobatan, Masbate.

G. B. Hartley of Callahan, California, consulting engineer, recently sampled the Wheeler mine in Nevada which is controlled by John Ross of Yerington, Nevada, and is not to be confused with the property of the same name held by the Pope-Talbot interests of San Francisco. **Gerald P. Hartley, Jr.**, 518 University Avenue, Reno, and **Helmer Hanson** of Callahan assisted in the work.

C. H. Carmichael is now associated with the Day interests at Wallace, Idaho, and has been named general superintendent of the Tamarack and Custer Consolidated Mining Company, the Dayrock Mining Company, and the Sherman Lead Company. He was formerly superintendent of the Blue Point mine at Smartville, California, which was closed down last year by the Gold Exploration Mining Company.

Roy A. Hardy, 308 Reno National Bank Building, Reno, Nevada, recently resigned as mine loan examining engineer for the Reconstruction Finance Corporation, a position which he had held since 1934. He has been replaced by **E. J. Nyland**, formerly of Denver, Colorado, who is making headquarters at the Sutter Hotel, San Francisco. Hardy will devote his time to his various mining interests in Nevada where he is consultant for various mining companies, including the Getchell Mine, Inc.

William P. Schneider, originally of Ouray, Colorado, who left Los Angeles last July to act as mill foreman for Mineral Resources, Inc., on Marinduque Island, Santa Cruz, Philippine Islands, has recently been promoted to mill superintendent. The mill is the first and only lead-zinc separation plant in the Islands and is being watched with keen interest by mining men throughout that part of the world. Before going to the Philippines, Schneider was connected with Summitville Mines, Inc., Summitville, Colorado.

William Loach of Boulder, Colorado, was endorsed as representative of all Boulder

County tungsten mining interests to appear before the United States commission with data compiled by the committee from the newly organized body. The association, while organized to combat the proposal to put tungsten on the free list in British trade negotiations, will be a permanent organization designed to work for the betterment and protection of the tungsten industry. **A. E. Anderson** is president and **George Jump**, 728 Tenth Street, Boulder, is secretary.

STATE SUPREME COURT UPHOLDS DEBRIS AWARD

THAT miners must not take chances with their debris is again evidenced by the decision of the state supreme court, upholding a decision against the You Bet Mining Company, Nevada City, California, and in favor of the Pacific Gas and Electric Company. The power company was awarded damages of \$126,928 in the judgment of the lower court, and the upper court says it must be paid.

This is but an affirmation of the principle of the Sawyer decision of long ago, which held that mining must not be done in a manner to damage other properties.

The power company, which uses water for creating electricity and then distributes the water for domestic purposes, sued the mining company for allowing debris from its operations to get into the canals that serve portions of Placer and Nevada counties.

A THICKENER FOR EVERY PURPOSE

Thickening a metallurgical pulp is not a cut-and-dried proposition. Different conditions require different types of thickeners, designed to meet a specific—not a general—problem.

Where once there was but one type of Dorr Thickener there are today many. This complete thickener service to industry is backed by engineers who know their jobs and have the background that comes only with specialized knowledge & Experience.

Let a Dorr engineer study your thickening problems and point the way to savings.

THE DORR TORQ THICKENER

A single compartment thickener with automatic overload relief.

THE DORR TRACTION THICKENER

A large, single compartment thickener with peripheral drive.

THE DORR BALANCED TRAY THICKENER

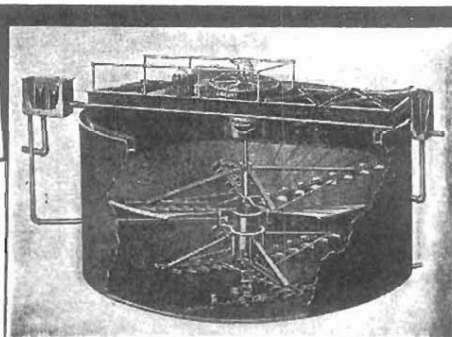
A multi-compartment tray thickener with full tray efficiency.

THE DORR C.C.D. SYSTEM

The standard method for the counter current washing of metallurgical pulps.

THE DORR WASHING THICKENER

A complete C.C.D. system in a single, compact tank.



Dorr Balanced Tray Thickener



OTHER DORR METALLURGICAL EQUIPMENT

Dorr Classifiers
Dorr Bowl Classifiers
Dorr Agitators
Dorrco Pumps

THE DORR COMPANY INC.
ENGINEERS • Cooper Building, Denver

NEW YORK

CHICAGO

LOS ANGELES

TORONTO

ATLANTA

**MINERS OF SOUTHERN OREGON
RECEIVE GRUBSTAKE CHECKS**

SOUTHERN OREGON miners and prospectors, whose finances will not permit extensive operations, are being afforded an opportunity to continue their efforts backed by the state through the issuance of grubstake loans.

In an effort to assist serious-minded prospectors, sufficient capital to procure grubstakes and necessary equipment is advanced by the state to private individuals. While this money must be paid back over a period of time, its accessibility has given miners renewed fortitude and a large number have taken the field who otherwise would have remained idle.

County courts must pass on the applications before the finances are let. The maximum amount obtainable is \$50 per person. No 1938 grubstake checks were dispensed until March 1, since prospecting was impossible because of snow conditions in certain sections of the state.

Many loans were denied in 1937 because of lack of funds. The amount of loans available to the various counties is in approximate proportion to the mineral production of those counties. The contract is an ordinary civil contract. No decision has been announced concerning the state's action in the matter of the few prospectors who received grubstakes but did not fulfill their side of the agreement. The majority of prospectors, however, are said to have been conscientious.

**NATIONAL LEAD COMPANY TO PAY
COMMON & PREFERRED DIVIDEND**

THE NATIONAL LEAD COMPANY has declared a 12½-cent dividend on common stock payable March 31, 1938, to stock of record March 18. The same amount was paid December 24. A regular quarterly dividend of \$1.50 on Class B preferred has also been announced by directors, payable May 2 to stock of record April 22.

**WORK AT FAIRBANKS EXPLAINED
BY U. S. SMELTING COMPANY**

PLACER operations near Fairbanks, Alaska, are to be expanded by the United States Smelting Refining and Mining Company with the installation of a new Yuba dredge. An order has been placed with the Yuba Manufacturing Company of San Francisco for a dredge designed to meet the conditions of hard bedrock and frozen gravel that are to be found in the Fairbanks area.

The machine will have buckets of three-cubic foot capacity, capable of a maximum digging depth of 20 feet, with a maximum height of bank of 10 feet. The depth of the hull will be six feet, providing for a freeboard with about 24 inches. The hull will be of the steel pontoon type and will have steel trusses and gantries. The house will be wood framed with a steel covering. The whole will be electrically operated with a capacity to develop 227 horsepower. The main drive and screen drive will be by V-belt. Two spuds are provided.

Since 1930 the U. S. Smelting comp has been operating five dredges in the Fairbanks district, employing around 650 men and working slightly over 1,200 dredge days a year. Roy B. Earling of Fairbanks is general manager of this unit, assisted by J. E. Hopkins. The company also has three dredges at its Nome holdings.

**SAFE WAY TO CARRY FUSES
INVENTED BY R. J. MURRAY**

A SAFETY device invented by R. J. Murray, deputy mine inspector of Salt Lake City, Colorado, is now being put on the market. The invention, patented about two and one-half years ago, is the result of an investigation Murray made over three years ago of an accident in which a man lost his eye due to the explosion of a fuse. Conceiving the idea of a rubber container for fuses, Murray enlisted the cooperation of the Gates Rubber Company of Denver and the device has been used by the Climax Molybdenum Company for over two years.

It consists of a cylindrical rubber block 3½ inches in diameter and three inches deep with perforated holes to permit insertion of 25 fuses, each with cap attached. There is also a flared hood of rubber which is drawn over the block while the container is being loaded. This is pulled back around the projecting coiled lengths of fuse and tied at the top. The container is carried by means of a shoulder strap.

Rigorous tests are stated to have shown these containers to be safe and practical.



Two 42" x 42" two-cell end flow Balanced Placer Jigs assembled into one block and driven by one motor.

**...less power
less head room:**

PAN-AMERICAN'S-BALANCED PLACER JIG

Developed by Pan-American for boats lacking head room for standard size jigs. Three dredges on Idaho placer properties are completely equipped with units of this Jig as the only gold-saving devices. They report highly satisfactory results (details on request).

Saves 12" head room. Requires less power than standard Pan-American Placer Jig. Except for 1 ft. less height from discharge lip to base, dimensions are same as for standard Placer Jig.



Available in 2-cell units, for either cross-flow or end-flow. Send for details, giving information on your present flowsheet.

**PAN-AMERICAN ENGINEERING
COMPANY**
820 Parker St., Berkeley, California
U. S. A. Cables: "PANCO"

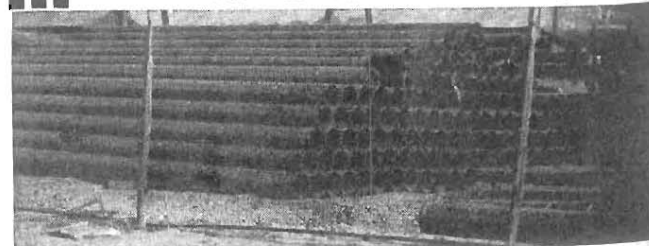


CUT YOUR PIPE PERFORMANCE COSTS!

... with NAYLOR
Before you build new pipe lines or make replacements this year, send for a copy of the new Naylor Pipe Catalog. It will help you cut your pipe performance costs. That's why mining engineers throughout the west are specifying Naylor today—more than ever before.

Write for Catalog today.

NAYLOR PIPE COMPANY
1241 East 92nd Street Chicago, Illinois



HOMESTAKE REPORTS INCREASE IN ORE RESERVES DURING 1937

THE independently audited report of Homestake Mining Company, Lead, South Dakota, and subsidiaries for the year ended December 31, 1937, shows a consolidated net profit of \$7,188,854 after depreciation, depletion, losses, and income taxes, equal to \$3.58 a share on 2,009,280 shares of capital stock. This compares with a net profit of \$7,650,452 in 1936, equal to \$3.81 on the equivalent number of shares.

The number of shares outstanding was increased during 1937 by an eight-for-one split-up of the stock.

Guy N. Bjorge, general manager of the company's mine, in his report for the year commented on the development of the mine's new ore body that apparently was large enough to greatly increase the company's known ore reserves. He said:

"The reserve of developed ore is 17,743,719 tons (December 31). The substantial increase in the reserve of developed ore (the total was 15,270,968 tons at the end of 1936) results from the development of a ledge which had not previously yielded ore of minable grade in important quantity. This ore is materially lower in grade than that in the main ledges, but it can be mined with some profit under current conditions."

It was not stated whether the company contemplated making expenditures for increasing plant capacity in order to handle

the newly developed ore, but it is indicated that such a decision has not yet been reached.

ASSESSMENT EXEMPTION AGAIN PROPOSED BY SENATOR JOHNSON

SENATOR HIRAM JOHNSON of California has introduced a bill into Congress to suspend annual assessment work for the year ending July 1, 1938. The bill is similar to that which has been passed for several years past. It provides that the claimant who is not entitled to exemption from federal income taxes must perform his work, but that others may claim the benefits by filing a notice of desire to hold.

Limitations are also the same, suspension being limited to six lode claims for an individual and 12 claims for a partnership, association, or corporation. It is also limited to six placer claims, not to exceed 120 acres, to an individual and 12 placer claims, not to exceed 240 acres, for the same partnership, association, or corporation. It is known as Senate Bill No. 3493.

Whether such a bill will be enacted is anyone's guess. Protests were filed from all over the country last year and many congressmen expressed opinion that it would not pass but, at the last minute, it was enacted and became a law. Those protesting against continued suspension felt that it is holding back the development of resources and eliminating opportunities for employment. Many mining organizations have already gone on record as opposing it again this year.

STATE-WIDE MINE MEETING HELD IN PRESCOTT, ARIZONA

APPROXIMATELY 150 Arizona mining men were present at the state-wide meeting of the Arizona Small Mine Operators Association held in Prescott, Arizona, February 26. In addition to the representation of Yavapai County, delegates from Mohave, Maricopa, and Yuma counties also attended. Charles F. Willis, secretary of the association, and W. J. Graham, president of the former Arizona Small Mine Operators Association organized in 1929, presided at the session.

The entire day was spent in the discussion of mining problems and a number of important resolutions were passed. Some of the major topics discussed were the price of silver, reciprocal tariff treaties and their threat to metal and mineral prices, regulations and restrictions regarding new mining issues, withdrawal of public lands from prospecting, preservation of water rights, and RFC mine loans and how they can be made more workable and helpful. Ways and means of attracting attention to the state's mineral opportunities was also brought up, as well as how the work of the Arizona Bureau of Mines might be made more helpful to the small mine operator.

The Winkelman Council of the Arizona Small Mine Operators Association was organized February 22, with D. C. Peacock, president and manager of the Seventy-Nine Lead-Copper Company, Hayden

*Clipping from
The Mining Journal
November 15, 1937.*

Better than rated capacity is the report from the new 175-ton cyanide plant which the Desert Silver, Inc., recently completed at the Nivloc mines at Silverpeak, Nevada. About 60 men are employed in the mine and mill. Charles E. Tonry is mill superintendent and Percy Dobson is general superintendent, both at Silverpeak. Fred E. Gray, Silverpeak, is general manager.

Grinding in the Desert Silver Mill, is done by an 8'x22" **Hardinge Conical Mill**, performing, as usual, better than its rating. Get Data on 118 diversified grinding installations by sending for Hardinge Operating Data, Bulletin No. 41.

HARDINGE COMPANY INCORPORATED

YORK, PENNSYLVANIA, Main Office and Works

NEW YORK, 122 E. 42nd St.

DENVER, 817 17th St.

CHICAGO, 205 W. Wacker Drive SAN FRANCISCO, 501 Howard St.

HERE'S THE
REASON WHY A
SUBMERSIBLE
CAN'T BE
FLOODED OUT



BOTH
MOTOR
AND
PUMP
Operate
UNDER
WATER

Assembled as a
unit, tested
and sealed
at factory

THE
IDEAL
PUMP FOR

- Mine Unwatering
- Station Service
- Water Supply

Get all details, illustrated
booklet and large cross section
drawing from . . .

BYRON JACKSON CO.
Dept. MI-1
LOS ANGELES
Berkeley " Salt Lake City

BYRON JACKSON
SUBMERSIBLE

The Sunnyside gravel mine near Seneca, California, on the north fork of the Feather River is being operated by Sunnyside Mines



Corporation of Seneca, California, owner of the property. A new Hewitt compressor has been installed and a 40-foot cave near the portal of the main work tunnel has been opened. The

property is operated through an 1,100-foot tunnel which terminates at a 70-foot winze. One air-operated pump is required to handle the water and an air tigger is employed to hoist the gravel. Ora Long, Seneca, is in charge of underground work. The Sunnyside corporation is headed by Henry Struckman, Seneca.

The Crane-Page Mining Company, which has a group of 35 claims located two miles west of Inyokern, California, has completed about 2,000 feet of surface work and is now endeavoring to secure funds for a \$25,000 diamond drilling campaign. A. G. Warth, 309 West Forty-first Place, Los Angeles, California, is secretary-treasurer of the company.

Directors of St. Joseph Lead Company, St. Louis, Missouri, have declared a dividend of 25 cents per share on capital stock, payable March 21 to stockholders of record March 10. The company operates properties in Missouri and also has holdings in Montana, Pennsylvania, New York, and California, including the Sheepranch mine at Sheepranch, California.

A new asbestos fiberizing mill with a capacity of 600 tons per month has been completed at Downey, California, by the Emsco Asbestos Company, of which E. M. Smith, Downey, is president. The new mill is designed to handle all kinds of asbestos ore and to prepare the asbestos for a wide variety of uses. The company operates an asbestos mine northeast of Globe, Arizona, on the San Carlos Apache Indian Reservation, which produces from 50 to 60 tons of crude ore per month. Earl V. Draper, Box 288, Globe, Arizona, is mine superintendent. D. W. Fether, Downey, California, is general manager of the company.

It will probably be the latter part of March before fire in the 4,350-foot level of the Argonaut mine at Jackson, California, can be smothered, permitting some 200 miners to return to work, according to an announcement by Walter D. Manning, secretary of the Argonaut Mining Company. Bulkheads are being built to cut off all air currents and localize the fire between the 4,800 and 3,990-foot levels. When these are completed, all fans in the mine will be shut off. In its annual report, just issued, the Argonaut company reports a net operating loss of \$72,555 for the year 1937. Operating income amounted to \$599,096 while operating expenses, including development, milling, depreciation, taxes, and general administration expenses, were \$671,651. Although the mine operated at a \$72,555 loss, the company received \$70,789 from dividends and interest on bonds, making a net loss before depletion of \$5,600.

The old White Lily quartz mine Seneca, Plumas County, California, a known producer from 1917 to 1922, is being conditioned for operation this spring under the direction of B. F. Barbee, superintendent. The mine is owned by the Silver Gold Mines, a Chicago organization. A crew of six men is engaged in reconditioning such old equipment as is still usable and running a 535-foot work tunnel. A new tunnel, which is 6 by 7 feet, is being run on contract and has already reached a depth of more than 200 feet. It will be completed in May and will connect with a 3,000-foot hard-rock crosscut which intersects the Van Winkle vein. This crosscut in turn gives access to another 1,100 feet of drift and some 500 feet of crosscuts and raises in the old Del Monte workings. It is estimated that the veins already opened up in the old workings will produce 1,000 tons per day, and it is understood that plans are under consideration for installation of a 500-ton mill. The Van Winkle vein is said to be 90 feet across with 100 feet of back.

The Dutch Hill gravel mine, Seneca, California, is operating one shift a day general development work, preparatory to large-scale operations in the spring. The property consists of 300 acres and is located 1½ miles northwest of Seneca. Included in the property is three-fourths of a mile of lava-capped channel on both the Barker Hill and Dutch Hill channels. Present work is centered on the Barker Hill channel which was opened up four years ago by the present owners through a 4-foot upraise through the east rim of the Dutch Hill channel. The mine is worked through 1,800 feet of tunnel. Gravel being moved in present development work is said to average \$5 per car with values running as high as \$50 per car. Operations on the property are directed by E. M. Savelle, general manager. Other interests in the mine are Mrs. M. E. Cadle, Burto Cadle, Oscar Notley, O. B. Gladding, and B. G. Barbee.

A crew of 30 men is working on a three-shift basis at the property of the Glacier Mining Company, Wilkam J. McMillan manager, Seneca, California. From 80 to 100 tons of gravel per eight-hour mill run are being washed. The recovery process consists of a scrubber discharging into Hungarian riffles, followed by a settling tank and a dewatering machine. Values are said to be running from \$20 to \$25 per car. Work is carried on through a 2,200-foot bedrock tunnel. Air is furnished by a two-stage, air-cooled, Le Roi-Rix compressor directly connected to a six-cylinder Diesel. Fresh air is pumped through a 12-inch line by a 12-inch Sturtevant air pump. Mill power is furnished by a 30-horsepower Lonner Diesel engine.

The property of the Mother Lode Gold Mining Company, Drytown, California, has been shut down temporarily, according to an announcement by Walter Lucot, Sutter Creek, California, president and general manager of the company. No reason for the shutdown was given. Approximately 25 men were thrown out of employment.

Dewatering operations have been completed at the Three Star mine near Auburn,

California, the 700-foot shaft has been repaired, and work is now under way on repairing and cleaning the main 2,800-foot underground drift. A total of 60,000 tons of ore is reported to be available and a number of drifts at different levels are being opened to contact it. The Three Star Mining Company of Seattle, Washington, recently filed papers with the California Department of State, seeking a California charter. William A. Beaudry, Auburn, is state agent for the company.

The name of the Miller Gold Mining Company, incorporated early in November, has been changed to Cosumnes Mines, Inc., according to amended articles of incorporation filed recently. The company, which is headed by Edward S. and Louisa K. Miller of Grizzly Flat, California, operates the Sciaroni mine in El Dorado County, California.

E. A. Kent, Inc., is operating two Bodinson dragline dredges near Jacksonville, California. One of the dredges has a capacity of 100 yards per hour and the other of 200 to 225 yards per hour.

At the Moccasin mine on Moccasin Creek near Jacksonville, California, Harms Brothers and Larson Brothers are operating a Bodinson dredge with a capacity of 150 yards per hour, in conjunction with a two-yard Northwest dragline and Esco bucket.

Carlson and Sandburg, Redding, California, are operating three Bodinson boats, two near Redding, each with a capacity of 250 yards per hour, and one on Indian Creek near Weaverville, California, having a capacity of 150 yards per hour. Three Lima draglines are used for moving gravel. A crew of 50 men is employed and the company has sufficient gravel to continue operations for about three years. Charles O. Smith is superintendent.

A Bodinson dredge and a 1½-yard Bucyrus Erie 34-B dragline are being operated in Mike Gulch near Clements, California, by Ferris and Kumle.

The Cinco Mineros Company, C. E. Cummings, superintendent, Oroville, California, is operating a Bodinson plant with a capacity of 125 yards per hour fed by a 1½-yard Lima dragline. The company employs a crew of 14 men and moves about 2,000 yards daily. There is sufficient gravel available to keep the company going for about a year and a half.

The River Pine Mining Company is reported to be making satisfactory recoveries near River Pines, California, using a dragline dredge with a Model 70, two-yard Northwest Diesel dragline.

Good results are reported by the Viking Dredging Company, operating at Douglas City, California. The company is using a Judson Pacific gold recovery plant with a Model 85, three-yard Northwest Diesel dragline. Irving N. Benson is manager of the company.

Approximately 3,000 yards of gravel per day are handled by the Weaver Dredging Company, operating near Weaverville, California. A crew of 18 men is employed and the company has sufficient gravel in sight to permit another two years of work.

Equipment consists of a 200-yard-per-hour Bodinson plant and an 801 Lima dragline with a 2½-yard Esco bucket. R. C. Dempster, Box 309, Redding, California, is manager of the company.

At Hayfork, California, the Hayfork Dredging Company is recovering values with a dragline dredge using a 1½-yard Lima dragline.

The Butte Gold Dredging Company, headed by Mrs. E. C. Coats, is carrying on dredging operations near Oroville, California, using a 1½-yard Lima dragline.

At the property of the Moro Bay Copper Company, San Luis Obispo, California, a tunnel is being driven to contact the east

drift on the 275-foot level with a view to facilitating exploration operations at the sulphide zone. The new work is designed also to serve as a permanent drain for the lower workings of the mine, thus eliminating the expense and work of pumping. George B. Guillotte is engineer in charge of operations at the mine. Offices of the company are located at 420 Kearns Building, Salt Lake City, Utah.

Smith Brothers of San Andreas, California, are carrying on dragline dredging operations, using a half-yard P and H dragline.

Ore shipments are being made from the Four Jacks lease, Mojave, California, by Marshall Setnan and Herbert H. Smith of

DOWN GO ACCIDENTS AND COMPENSATION

UP GO EFFICIENCY AND MORALE

These products *prove*—every day throughout the mining world—that the frequency and severity of injuries decrease, compensation costs go down and efficiency rises wherever they are employed.

That's why Edison Electric Cap Lamps and M.S.A. Skullguards are the most popular and widely used safety devices of their types on the American Continent today!

Investigate the benefits to *you* provided by the brighter, better-directed working light of Edison Electric Cap Lamps—the great fracture-resisting strength and light, cool comfort of M.S.A. Skullguards.

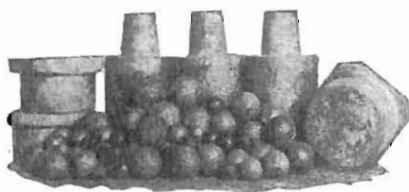
● Write for a practical demonstration in your own operations.



MINE SAFETY APPLIANCES CO.
Braddock, Thomas and Meade Streets, Pittsburgh, Pa.
District Representatives in Principal Cities

EDISON ELECTRIC CAP LAMPS
M·S·A SKULLGARDS

Only Manufacturer
on Pacific Coast of
**FORGED STEEL
GRINDING BALLS**
from seven-eighths inch
to six inches.



"Western Made to Produce
Western Wealth"

AMERICAN FORGE CO.

Established 1888

1823 E. Washington Blvd. 750 Ashby Ave.
Los Angeles, Calif. Berkeley, Calif.
Tel. Prospect 7208 Tel. Berkeley 4424

Agents for Northwestern States:
Sundfelt Equipment Company
3315 First Ave. South, Seattle, Wash.

HEADQUARTERS HOTEL
The Mining Association of the Southwest

LOS ANGELES



555 ROOMS - BATHS

"Famous for Good Food from
Coast to Coast"

YOU'LL enjoy your Los Angeles visit so
much more if you stay at Hotel Clark.
Convenient to every business and pleas-
ure center, with a luxury and a comfort
that will surely please you.

VISIT THE POPULAR TAVERN
TUCKED AWAY IN THE REAR
OF THE LOBBY.

**HOTEL
CLARK**

R. G. B. MORRIS Mgr.

Los Angeles. A recent 50-ton shipment to the Golden Queen mill carried values ranging from \$10 to \$13 per ton. Development work is proceeding on two veins and the shaft is being sunk from the 150-foot to the 200-foot level.

Construction of a smelter south of Oroville, California, is proposed by a group composed of Trevor J. Long, W. A. Bush, G. Craig, W. W. Thode, and A. J. Carpenter. This group has secured exclusive California rights to a smelting and generating process patented by Fred W. Kuenzel of Denver. The proposed plant, of 100-ton capacity, will treat custom ore in addition to ore from a mining property leased by the men interested in the enterprise. The smelter will handle all types of ore, according to Long. It is estimated that 30 men will be employed at the mine and 10 at the smelter.

W. K. Yorston of Minden, Nevada, has leased the historic Squirrel Creek placers near Johnsville, California, and has arranged for extensive operations as soon as weather conditions permit. Ditches and flumes have been repaired, three giants are on the ground, and abundant water for a long season is available. From 3,000,000 to 5,000,000 cubic yards of gravel sampling close to 65 cents per cubic yard are said to be available. About 2,500 cubic yards will be handled daily when giants and sluices are running at capacity.

Idaho Maryland Mines Corporation, Grass Valley, California, has declared the regular monthly dividend of 5 cents, payable March 21 to stock of record March 10.

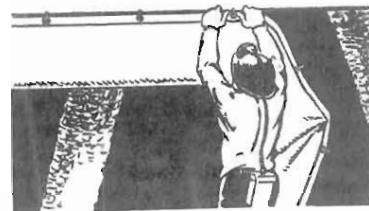
It is reported that a larger crew will be employed at the Sunflower mine, west of Grass Valley, California, as soon as weather conditions improve. At present three men are working under the direction of John Blair. The 100-foot shaft has been unwatered and is being repaired. A new compressor was recently installed.

The Kid shaft of the Tropico mine has reached the seventh level and has been connected with the Tropico west drift. A drift is now being run from the Tropico ninth level under the Kid shaft and when this is sufficiently drained it is planned to sink the Kid shaft to that level. A good deal of water is being encountered at present. The Tropico is operated by Burton Brothers, Rosamond, California.

Considerable damage was caused at the Daisy Blue mine, Nevada City, California, by recent high winds. Falling trees crushed the office and bunk house and disrupted electric power service. The ball mill was not damaged.

S. E. Chaney, 1550 Bel-Aire Drive, Glendale, California, has taken a lease and bond on the Jumper mine, located near Jamestown, California. He is making preparations for early operations at the property.

Work continues at a steady pace at the Zantgraf mine near Auburn, California, which is operated under lease by W. B. Longan, Box 262, Auburn. Longan is operating through a 200-foot shaft sunk 900 feet west of the old shaft, and present



work is being carried on in virgin territory but on the same vein that was worked in the old mine. The ore is 93 per cent free milling. In addition to the vein being worked there are six others which are reported to have promising possibilities. The property is equipped with a 10-ton Strain Rib-cone mill and amalgamation and sluice boxes are used for recovery. All machinery at the property is run by gasoline power.

The Black Hawk mine at Randsburg, California, is again on a production basis under the management of J. F. and Gle De La Mare, and A. A. Haight. An electric motor has been installed for the compressor, pipe and rail have been laid, and timbering of the stope on the 450-foot level is in progress. A vein said to assay as high as \$200 per ton has been opened up on the 450-foot level.

A dividend of 50 cents a share on capital stock, payable March 15 to stockholders of record March 1, is being disbursed by the Newmont Mining Corporation. In each of the past four quarters the company paid 75 cents, plus a year-end distribution of one-tenth of a share of Phelps Dodge Corporation common stock for each share of Newmont stock. The company holds an interest in a number of western properties including some in Mexico.

Roy Lara, Navajo Indian, who has been developing his property, the Indian Princess, located five miles west of Mojave, California, reports that he has encountered or assaying approximately \$75 per ton. He plans to continue development and expect to ship ore to the Burton Brothers mill at Rosamond, California.

Lost more than 20 years, the rich vein in the old Hamilton mine, Rosamond, California, has been rediscovered, according to Dan Murphy, who is operating the mine under lease. The vein, which was encountered at a depth of 156 feet, was lost at the 140 foot level by early operators. It is said to average 14 inches in width and assay \$100 per ton. Another vein encountered measures two feet wide, and carries values ranging from \$15 to \$20 per ton. Shipments to Burton Brothers mill at Rosamond are expected to start soon.

The Atolia Mining Company, Livingston Wernecke, president, 1022 Crocker Building, San Francisco, has issued a notice to employees and lessees to the effect that unless the market for ferro-tungsten and other tungsten products improves, it may be necessary to discontinue operations at the company's property temporarily until market conditions are better. The company's property, which is located at Atolia, California, is developed extensively by lessees who employ from 200 to 250 men. Company operations are directed by David D. Baker, superintendent, with a crew of about 24 men.

Milling operations are under way at the Hines-Gilbert mine, Greenwood, California, and the 10-stamp mill is running 24 hours a day, treating approximately 38 tons of ore in the three-shift period. According to Mrs. Ellemerie Morgan, superintendent, this pilot mill will be used only until a 300-ton ball mill can be constructed. There is said to be sufficient ore blocked out to keep the mill in operation for some time. At present a crew of 13 men is employed. H. P. Sinclair of Los Angeles, and J. J. Murray, Box 394, Mojave, California, are associated with Mrs. Morgan in development of the mine.

The Ophir Nevada Mining and Milling Company is engaged in reconditioning the Omar mine in the Ophir district near Auburn, California. Work begun on the Omar several years ago by Charles Hopper Brown and associates is being continued by a crew of men under the supervision of Dan J. Frost, mine superintendent. A two-foot vein exposed at the surface has widened to five feet at the 135-foot level, according to Frost, and is widening as the shaft deepens. A complete milling plant is to be installed to treat the ore, which is reported to be of good grade, and also to handle custom ore from the district.

The Leoti group of claims, located 25 miles east of Twentynine Palms, California, is being developed under the direction of Arthur Terrill, owner, and ore is being shipped to the Gold Crown mill, located a few miles distant. Associated with Terrill are his father, N. W. Terrill, his son, Arthur, Jr., and Thomas Flynn. A road is being built to facilitate the hauling of equipment to the mines and the transportation of ore to the mill. Ore is being extracted from three properties: the Leoti, under the direction of Harry Michaelis, foreman; the Eclipse, William Meyers, foreman; and the Beppo, Lou Will, foreman. Terrill also plans to conduct an engineering and mining school at the property.

The Best and Belcher Gold and Silver Mining Company, H. L. Slosson, Jr., president and general manager, 333 Kearny Street, San Francisco, California, reports that a new 300-foot shaft is being sunk in its Commodore mine near San Andreas, California. The new shaft, like the old abandoned 300-foot shaft, is following the incline of a gold-bearing vein in which some high-grade spots have been found.

Joseph Mottershead, 536 Vermont Street, San Francisco, California, and Gino Bernardi, also of San Francisco, have recently made a test shipment of ore from the Golden Rod mine, located six miles southeast of Mariposa, California, which returned values well over \$40 a ton. The Golden Rod Mining Company, headed by Mottershead and Bernardi, holds a lease and option on mining property. In sinking an exploratory winze on the second level recently a new vein was encountered which has widened from four inches to 14 inches at the bottom of the winze. A short extension of the drift on the second level is expected to encounter the downward extension of the pay shoot opened on the level above. Harold Wallmann, Ben Hur, California, is foreman at the mine.

The International Gold Producers, Inc., operating the John A. Logan mine at Cripple Creek, Colorado, reports that ship-

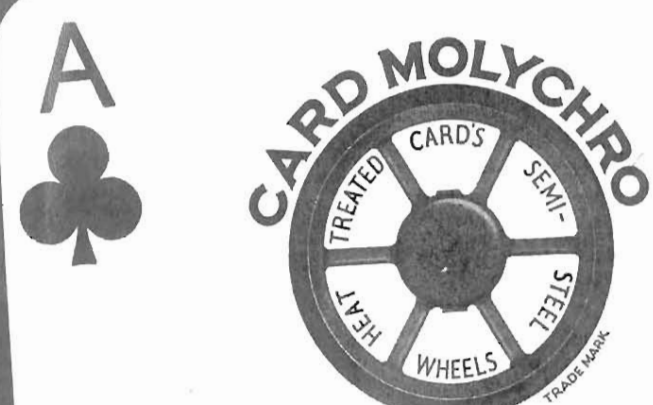
COLORADO

ments during January, 1938, to the Golden Cycle mill at Colorado Springs amounted to 1,962 tons of ore. Settlement was made on the basis of \$14.45 a ton in gold. Howard E. Davis, Cooper Building, Denver, is president and general manager. C. E. Joslin of Victor is mine superintendent in charge of a crew of about 32 men. At present the company is doing from 100 to 500 feet of exploration work a month on the 800 and 900-foot levels.

Exploration of the 1,000-foot or bottom level will be started soon.

Additional mining equipment will be installed at the Victor, Columbine, and Wedges claims in the Dry Lake area of Boulder County, Colorado. Operations are to be increased to three shifts daily. The property is being operated under a 10-year lease by Thomas Bryce of Boulder.

Proposed consolidation of the La Plata Mountains Gold Mines, Inc., the Consolidated Gold Fields of New Mexico, and the Pioneer Gold Producers, Inc., has been approved by stockholders of the latter concern. The property involved is the Idaho mine and mill, also known as the Pioneer




Good Wheels-Made BETTER

Card MOLYCHRO Wheels are made for mines that have severe haulage, or desire a better wheel. Our proven, time-tested semi-steel metal is used as a base. The addition of Molybdenum and Chrome to the base metal gives improved physical properties.

1. Increased tensile strength.	4. Increased fatigue strength.
2. Increased transverse strength.	5. Increased resistance to abrasion.
3. Increased impact strength.	

For these reasons the result is superior service and Lowest Cost Per Ton Mile Haul

Card MOLYCHRO Wheels are furnished to any unpatented wheel design. Write for Catalog P.J.



C.S. Card Iron Works Co.

2501 West 16th Ave.
Denver, Colorado.



GOLD PROSPECTING

Second Edition
Revised and Enlarged
by **STEPHEN JACY**,
Prospector, Portland, Oregon

A NEW BOOK written by a prospector and giving the information that this prospector found that he wanted to know. 244 pages of valuable data for those who are prospecting for gold (quartz and placer) and written in an understandable non-technical language

PRICE REDUCED TO
\$1.50—POSTPAID

THE MINING JOURNAL
Phoenix Arizona

Flotation Reagents

Bear Brand Xanthates

Sunny South D. D. Pine Oil-A

Complete line of all standard flotation reagents, also metallurgical and assay chemicals carried in stock.

H. J. Baron Company

805 Mills Building
EL PASO TEXAS

STONEHOUSE



MINE SAFETY SIGNS



A VITAL PART OF EVERY SUCCESSFUL SAFETY PROGRAM.

Send For COMPLETE CATALOG.

MANUFACTURED BY

Stonehouse SIGNS, INC.

840 LARIMER STREET
DENVER, COLORADO

CORE DRILLING DIAMONDS

BORTS — CARBON

ALL TYPES

Prompt Service Anywhere

RALPH R. HANSON

U. S. INDUSTRIAL DIAMOND CORPN.
310 S. Michigan Ave. Chicago, Ills.

MUDDY WATER FROM MINING NOT INJURIOUS TO SMALL FISH

SMALL FISH thrive as well or better in very muddy mining water than they do in clear water. This was demonstrated by experiments just completed at Reed College by Dr. L. E. Griffin, biologist of that institution and a well-known authority. These experiments were outlined by Dr. Henry B. Ward, ichthyologist, during his investigation for the State Department of Geology and Mineral Industries last summer in connection with the controversy between miners and fishermen on alleged stream pollution in the Rogue River drainage.

Fingerling cut-throat trout were obtained from the U. S. Hatchery at Clackamas through the kindness of Superintendent Hawley, who also loaned certain tanks at Dr. Griffin's request. One-half of the small cut-throats were placed in one tank in which clear water was circulated and aerated and the other half were placed in a similar tank containing water from the same source, to which had been added quantities of heavy mud obtained from placer mines in Josephine County near Grants Pass. The mud was circulated and the water aerated in exactly the same manner as in the tank containing the fish in clear water. In fact, the tests were conducted throughout with duplicate and identical conditions applying in both tanks. In three weeks' time it was found that the mortality rate was about six times higher in the tank containing the fish fry in clear water than in the tank containing the fingerling cut-throats swimming in water heavily charged with mud.

A similar set of experiments was carried out with chinook salmon fingerling and the results corroborated those of the first experiment, namely: that fingerling trout and salmon not only do well but thrive in water containing many times more mud in suspension than is carried normally by streams at their flood stage.

Dr. Griffin reports that the fish in the one tank, where the water was so dirty he could not see his hand one inch under the surface, not only could see well enough to take their food but took their food much more promptly than the fish in the clear water. In these experiments every possible effort was made to simulate actual stream conditions and the result of the experiments not only disproves a supposition commonly held that muddy mining water is unfavorable to fish life, but indicates that it is distinctly favorable because small fish not only thrive but are able to conceal themselves more readily from their natural enemies. The fact that the maintained turbidity or mud content of the tank containing the muddy water averaged more than one thousand parts per million suggests immediately the absurdity of applying a low tolerance for turbidity in mining streams.

These experiments are a part of the program of the State Department of Geology and Mineral Industries to ascertain the facts on river conditions where hydraulic mining is in progress in Oregon. Dr. Henry B. Ward will return to Oregon about March 15 to complete his investigation of river

conditions during the period when the mining season is at its height in southwest Oregon.

Detailed information pertaining to the experiments will be published in a few weeks by Dr. L. E. Griffin of Reed College. These are said to be the first experiments that have ever been performed with intent of demonstrating scientifically the effect of muddy water on fingerling fish. The results should be far-reaching in the question of fish culture and fish conservation.

ANTON SMIT & COMPANY COMPLETES THIRTIETH YEAR

THE firm of Anton Smit & Company celebrating its thirtieth year of progress in the industrial diamond business. The founders of the firm, the brothers Anton W. and Leonard J. A. Smit, come from a family of pioneers in the introduction of diamonds to industry. It may well be said that they grew up in the diamond business and they gathered a thorough experience in this special branch, working together with their father, the late J. K. Smit, Sr. who established his firm in 1888.

At the early age of 18 years Anton Smit went to Transvaal to purchase diamonds directly from the farmers and miners. Notwithstanding his youth, he proved to be a capable merchant.

The younger brother, Leonard Smit, developed into an able business man and devoted himself particularly to the selling organization. In 1908 they established a firm of their own, under the name of Anton Smit & Company, in Amsterdam with the late Louis Bessie, at that time a well-known personality in the diamond world, as a silent partner.

In 1922 Louis Bessie died and in 1923 the offices of Anton Smit & Company were transferred to Antwerp, Pelikaanstraat 94, the head office of the firm.

In Belgium they found a new and valuable cooperator, Charles Hannes; Anton Smit became head manager of the European section; Leonard Smit established an agency in New York and succeeded in making the firm flourish in the United States, Mexico, and Canada.

In 1933 Leonard Smit was called back to Antwerp due to the illness of his brother who died August 30, 1933, much regretted by all those who knew him and appreciated his fine qualities.

In 1934 the Belgian Corporation was formed with Leonard Smit as chairman and director, Messrs. Hannes and ir. F. L. Meyjes as directors, inaugurating a new phase in the existence of the company. ir. F. Ls. Meyjes took charge of the firm in New York, together with William Schwartz, formerly the right hand of Leonard Smit there. In 1937 a new company was formed in London under the name of "British Precision Diamond Tool Ltd.," for the manufacturing of special diamond tools. The good reputation of the firm acquired in the commercial world demonstrates that Anton Smit & Company looks forward to a prosperous future.

alarmed. It is commonly voiced in this vicinity that new foreign trade agreements are right now in the making that will do to tungsten, molybdenum, lead, zinc, and other minerals exactly what has been done to manganese. Apprehension exists here because of these rumors. In this section a growing production of tungsten flourishes. Substantial developments in molybdenum appear. Other mineral deposits are being opened up to become substantial assets to our country. And lead has been a major industry in our nation for decades. Large sums of money have been and are being invested in these projects and great numbers of men are employed in connection therewith. Are all these to be abandoned and destroyed in a swap for commodities produced abroad by alien labor working for pennies-per-day?

If these rumors are true, and if such steps are but part of the determined course, how long is it to be before our nation awakens to discover its own workers have been inched into unfair competition with the cheapest labor in the world? And this in face of the very fact that such a policy has been consistently rejected by our nation for several generations. Such a procedure, if literally put into plain language, can only mean that we have been sunk to such a position that one single official of our government possesses complete power to either tolerate or destroy any industry of this nation and the body of workers sharing its fruits. Can it be possible that our congress understands or sanctions this?

It would be interesting to know who among American manganese producers were heard when the Brazilian Trade Agreement was in the making, and who among them gave their approval. It is not enough to learn that the state department extended the right to appear. We consider it highly important to learn just which American concerns may be more interested in importing foreign manganese because of their investments in alien lands, than they are in our own unemployment crisis. We repeat our request that we be advised in this particular.

We again protest vigorously against the Brazilian Trade Agreement as it now affects manganese. And we also protest against the proposed trade agreement with the British which threatens to invite metals produced by serfs in India into our markets as well as other minerals from British colonies, under conditions which will further desolate American labor.

We submit that we are bespeaking the views of the general mining industry throughout the west, and insist that our opinions receive the consideration due every producer in this nation.

It should be observed that our chosen lawmakers, to whom we formerly might appeal, seem no longer able to control the vital practices we are discussing; otherwise we would feel that we had strong friends at court and our pleas for the privilege of existence would not fall on predetermined ears.

What are we to do when our American markets become flooded with metals pro-

duced by cheap foreign labor at prices we cannot meet? Will our industry go on the dole? If so, what magic will then support the dole, with American enterprise surrendered to the cheapest alien serf labor on earth by trade agreement concessions? What sorcery, indeed, will then carry on the payment of reduced duties? It all becomes, we confess, an inverted picture and a paradox nonunderstandable to us.

NATOMAS COMPANY ADDED TWO NEW DREDGES IN 1937

IN ITS ANNUAL report to stockholders, Natomas Company, with principal operations in California, announced the completion and placing in operation of two new dredges, bringing the company's total to six at the close of the year. A seventh dredge, estimated to cost \$650,000, is now under construction and is expected to be put into service before the end of 1938. It will operate on a royalty basis on leased land in the Blue Ravine district adjacent to the company's holdings in the Folsom district. The revised estimate of gold-bearing gravel in this area is 19,000,000 yards.

During last year 57,252 ounces of gold were recovered as compared with 59,181 ounces for 1936, a decrease of 1,929 ounces. A total of 18,840,213 yards of gravel was handled during the year at a cost of 4.86 cents per yard, with a net return of 5.76 cents per yard.

Natomas received dividends amounting to \$16,844 on its preferred and common stock in the Merced Dredging Company. Twenty per cent of the capital stock of Merced is owned by Natomas.

The San Joaquin Mining Company completed construction of its dredge about March 15, 1937, and since that date has operated successfully. One-half of the San Joaquin capital stock is owned by Natomas and the balance by Merced. During 1937 San Joaquin paid \$22,500 on notes held by Natomas, and a dividend of \$20,000, of which Natomas' share was \$10,000.

Natomas Company has acquired a one-fifth interest in Manhattan Gold Dredging Company, incorporated in Nevada in November, 1937, for the purpose of working leased ground in Manhattan Gulch, Nye County, Nevada. Management of the com-

pany will be under supervision of Natomas for which a fee of 5 per cent of the operating revenues will be paid Natomas Company. A new dredge will be constructed as soon as possible and operations are expected to start before the end of the present year. This operation will be on a royalty basis and it is estimated the gross recovery over a period of approximately seven years will be about \$3,500,000.

During the year the company added, purchase, 436.57 acres to its holdings in the Folsom district of California, and it is estimated that 15,000,000 yards of gravel ground will be added to the company's gold-bearing lands by these purchases.

Leases held by the company in South America were abandoned after unfavorable reports were submitted following tests made on the ground. However, the company has acquired a one-half interest in Colombian Placers, S. A., operating in Colombia, South America.

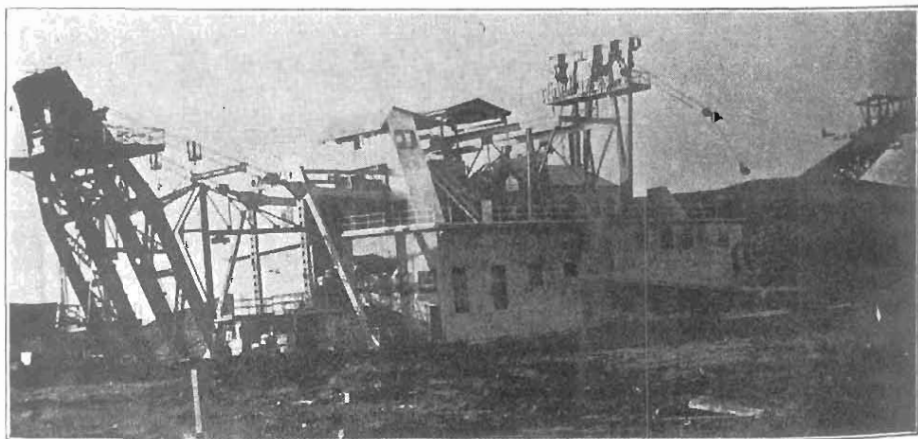
All of the company's agricultural lands are for sale and approximately 323 acres were sold during the year at an average price of \$168 per acre.

Net income for the year was \$959,790 of which \$794,336 was paid in dividends. A total of 80 cents per share was paid on the 992,920 shares outstanding. The net income was taken after all deductions for depletion, depreciation, interest, income taxes, surtax, etc.

GOLD INTAKE OF DENVER MINT INCREASED DURING FEBRUARY

MARK A. SKINNER, superintendent of the Denver mint, reported gold receipts for February had a total value of \$7,322,656, as compared with \$3,149,880 for the same month of last year. Receipts by ounces totaled 209,234, compared with 89,997 ounces of gold in February, 1937.

Silver receipts for February this year totaled 74,648 ounces as compared with 54,955 ounces in February of 1937. South Dakota remains at the top of the list of states sending gold bullion to the Denver mint, monthly shipments averaging \$1,500,000. Recently the refinery unit of the mint resumed operations, requiring employment of a daily average of 18 experts.



The new No. 8 dredge which the Natomas Company constructed in 1937 for operation in the Folsom dredging ground, near Sacramento, California.

tion received \$350,000 for its work. The splendid work done by the agricultural extension staff was cited and it was felt that just as much could be done to develop the small mines of the state if adequate help were given to the small mine operator through the state mining bureau facilities.

That proposed cuts in tariffs on lead and zinc in connection with the Great Britain and Canada reciprocal tariff treaties have aroused the ire of the small mine operators of Arizona was evidenced by the group who organized the Patagonia Council of the Arizona Small Mine Operators Association on March 18. The Patagonia district, stated one speaker, has great opportunities in lead and zinc production if given fair protection. Thirty-seven charter members were enrolled by this council, and E. F. Bollinger was chosen chairman; M. B. Lovelace, vice-chairman; J. C. Schell, secretary; with R. C. Blabon, George C. Hay, and P. W. Carico on the executive board. All are actively engaged in mining operations at Patagonia.

Councils of the Arizona Small Mine Operators Association are being organized in all parts of the state, sponsored by The Mining Journal. The movement started early in February and, since that time, organizations have been formed in Prescott, Superior, Globe, Miami, Winkelman, Mammoth, and Tucson, in addition to the most recent ones at Arivaca, Nogales, and Patagonia. The organization expects to have 40 councils and over 3,000 members who are owners of small mining properties.

WM. A. HAYES REOPENS OAKS AND REESE MINE



Wm. A. Hayes

WILLIAM A. Hayes, 225 Malorca Way, San Francisco, California, is directing operations at the Oaks and Reese mine, located in Hunters Valley, Mariposa County, California. The mine is being operated under a lease agreement by the Oaks and Reese Mining Company, a California corporation. Hayes is president and general

manager of the company and is also trustee for the Oaks and Reese Lease.

The company is said to be backed by strong financial interests and a large development program is planned for the property. To make this possible a five-mile power line has been constructed and a hook-up made with the San Joaquin Light and Power Company line at the Juniper mine in Bear Valley.

During the month of September, active operations were started at the mine, and a 52-foot headframe with a 60-ton, two-compartment ore bin was erected. In addition, a 50-horsepower Hendrie-Bolthoff electric hoist was installed, together with a 385-foot cross-compound, 14 by 7½ by 12 Imperial type, 210-r.p.m. Ingersoll-Rand motor pump.

The 450-foot shaft has been pumped out by means of a 40-horsepower Ingersoll-Rand motor pump, and was retimbered where necessary. The shaft dips to the northeast 15 degrees and a 1¼-ton skip is being used.

On November 22 work was started on the erection of a milling plant to be equipped with a No. 44 Marcy mill and Bendelari jig in closed circuit with a Dorr rake classifier and flotation cells. The new plant has been completed and was placed in operation March 4, 1938. On the dump of this famous mine there are approximately 30,000 tons of ore, which, by screening and sorting, is expected to yield a large tonnage of commercial ore. A complete camp has been built and the road improved.

The last major operation of the Oaks and Reese mine was in 1872 and, according to government and other statistical reports of that period, was considered one of the most promising and one of the richest mines in the state. It was credited with a production of \$30,000 per month for several years, and was equipped with a 28-stamp mill, one of the largest at that time.

The mine has the distinction of being the first mine in the country to use giant powder for blasting. All work was done with hand steel and the understoppe method was used throughout. The ore averaged \$100 per ton in the Cutter vein and \$45 in the Blue Lead vein, the former being 18 inches wide and the latter four feet wide.

W. A. Hayes is a veteran mine operator, having mined in most of the western states, British Columbia, and Old Mexico. He is credited with opening up the Empire mine at Mackay, Idaho, after a long period of idleness, and he was elected president and general manager of the Mackay Metals Company in May, 1930.

In 1933 he opened up the Columbus mine in Tuolumne County, California, after it had been closed down for a number of years. As vice-president and general manager of the Columbus he located the ore bodies which are being mined at present. Hayes later resigned from the management of the Columbus property to devote his time to the operation of the North Star and Carlotta mines in the same district.

OBITUARIES

James Herman Nelson, 83, died February 22, 1938, in Midvale, Utah. A pioneer Utah metallurgist, Nelson fired the first run of the Midvale smelter in 1902.

Joe Harkins died February 11 at Downieville, California. He had spent the last 15 years in Downieville where he was associated with Carlos Morbio in development of the St. Charles Hill mine.

John D. Fisher, 60, died in Salt Lake City, Utah, on March 2, 1938. Fisher was a veteran mining man, especially active in the Park City district, and was instrumental in the organization of the Star of Utah Mining Company.

Thomas H. Turner, 57, president of the Yavapai Gold and Silver Mining Company,

died March 12 of a heart attack while route to Mercy Hospital, Prescott, Arizona. He had directed operations at his comparative Money Metal property in Big Bug district.

Richard J. Hales, 63, died at his home Grass Valley, California, February 13. He was a native of Grass Valley and had spent most of his life mining in that district. In 20 years he was mine foreman for the Idaho Maryland Mines Corporation and was in charge of safety work at the mine. He retired from active service in March, 1918, but continued to have a keen interest in the work.

W. Clayton Miller of Spokane, Washington, died February 27, 1938, in Los Angeles. Miller was the first city engineer of Spokane and a pioneer of northwestern mining. In 1888 he was a mine surveyor for the Coeur d'Alene district of Idaho and a few years later was made general manager of the Federal Mining and Smelting Company.

Frank R. Wilson, 57-year-old mining engineer, was killed March 7 in a mine shaft fall near Skull Valley, Arizona. Wilson was engaged in mining near Red Rock, Arizona, 20 years ago, and later served a decade or more as superintendent of the Canario Copper Company at Nacozari, Sonora, Mexico. He was also employed with the Moctezuma Copper Company at Nacozari, Sonora. He had been located in northern Arizona for the past year.

CALIFORNIA RECORDS THE PASSING OF A PIONEER Photo and Story by Phil Burch

ON January 19, 1938, at La Porte, Yuba County, California, there was recorded the passing of one (Charley) Ah Pock, 81 also known as Kir Yuen, one of the oldest and last, if not the oldest and last, of the thousands of Chinese river miners who once filled the canyons of the Sierra with their heathen dialects. He had lived in Yuba County for the past 61 years.



Charley Pock

Ah Pock died in poverty—a ward of the county and of his many American friends—but he was a worthy symbol of the unwritten chapter of John Chinaman's part in the saga of the California gold rush. If that chapter is ever written it will be a story of hardship, persecution, and perseverance; the story of the greatest river miners the world has ever known. It will be the ironic word picture of Honest John Chinaman who literally panned his weight in gold from the retreating boot tracks of his belittling betters; the human document of men who lived and loved and suffered far from the bones of their illustrious ancestors, but who finally rode home on the backs of fire-breathing dragons, smiling and bland—their sense of humor intact.

ducers Mines, Inc., Chloride, Arizona, and test runs are being made. The plant is expected to be ready for actual operation very soon. Robert A. Elgin is general manager of the company.

Tagmar Mines has been organized by J. M. Taggart and C. T. Marsh, Oracle, Arizona, for development of properties in the Oracle district. In addition to the Tagmar group the organization holds three other groups in the district, including a lead-silver property near Mt. Lemmon. The company has completed a 75-ton mill on the Tagmar property and several hundred tons of ore have already been mined. The new plant was scheduled to go into operation in March. It is powered by a 75-horsepower semi-Diesel engine. Arrangements are being made for use of electricity in the shaft and tunnels. It is planned to put in a final treatment plant this spring with a view to turning out a finished product. Development work is said to have indicated a large tonnage of milling ore with a high molybdenum and scheelite content. Operations are directed by C. T. Marsh, manager, and Frank Rickens is chief engineer.

W. J. Forbach, Box 292, Superior, Arizona, who is operating under lease the Reymert mine near Superior, is shipping from 1,000 to 1,200 tons of ore per month to the smelter. During 1937 Forbach completed approximately 2,000 feet of development work. He formerly leased only the south portion of the Reymert, but in recent months he took over the development of the entire property.

The Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reports an income of \$107,500 for February. This includes other income but is before deductions for depletion, depreciation, or provision for income taxes. This compares with \$224,700 in February, 1937, and \$150,600 in January of this year.

The Mayme Gold Mining Company, Downieville, California, will resume operations about the first of April at the Mayme Luck and Golden Fleece gold mines, located on Goodyears Creek. The property was flooded last December and it will be necessary to rebuild the work of the past three years. It is planned to drive a drain tunnel about 400 feet to tap a pit. James Davis is the owner of the property.

The bunk house at the Spanish mine, Washington, California, was completely destroyed by fire. D. K. Ribble is general superintendent at the property and John D. Bradley, 922 Crocker Building, San Francisco, is general manager. The mine employs a crew of approximately 65 men.

H. M. Shields, of the firm of Shields and Culbertson, Sacramento, California, has taken over the gravel claims of J. E. Payne near Newcastle, California, together with 85 acres of the Wilson ranch, and the 115-

acre Ruby ranch. Extensive development is planned as it is estimated that there are at least three million yards of auriferous gravel available, extending from the surface to a depth of 100 feet. The new operators plan to install a complete recovery plant as well as a rock-crushing plant. The present equipment consists of a trommel, steel riffle boxes, a Spiro concentrator, ten 20-cubic-foot mine cars, and a 180-foot portable Ingersoll-Rand compressor.

The Confident Reliance Mining Company, Sonora, California, is reported to have encountered ore assaying \$14.70 per ton. An 800-foot drift to the contact ledge has been worked and 65 feet of drifting on the contact ledge has also been done. New improvements planned for the property include an air-driven mucking machine, a one-ton electric motor for pulling muck cars, installation of electric power, and construction of new cabins.

Work is under way on construction of a 450-ton washing and screening plant, followed by a table and flotation concentrating mill, at the property of the Cloverdale Mining Company, George H. Burr, II, president and general manager, Cloverdale, California. The new plant is designed to handle steam-shovel product from a large surface cinnabar deposit. Installation is in charge of the Western-Knapp Engineering Company, construction engineers, 593 Market Street, San Francisco, California.

Plans are well under way for the early large-scale operation of the Gold Crown

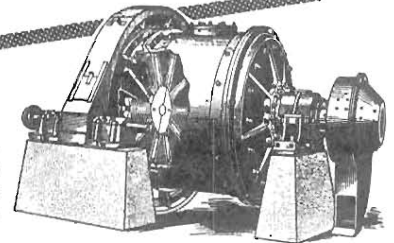


Up-to-Date Equipment is the Best Bet for Increasing Mill Earnings

- Marcy Ball Mills
- Marcy Rod Mills
- Massco Rock Bit Grinders
- Wilfley Concentrating Tables
- Massco Density Controllers
- Adams Reagent Feeders
- Massco Belt Feeders
- McCool Pulverizers
- Massco Clean-up Barrels
- Berdan Clean-up Pans
- Massco Gold Traps
- Clark-Todd Amalgamators
- Laboratory Equip. & Supplies
- Mine and Mill Supplies
- Complete Milling Plants

Sooner or later every ore milling plant reaches a point where continuance with old equipment is more costly than replacement with new. If your plant faces such a situation, our engineering department would welcome an opportunity to go over your flowsheet with you and your own consultants.

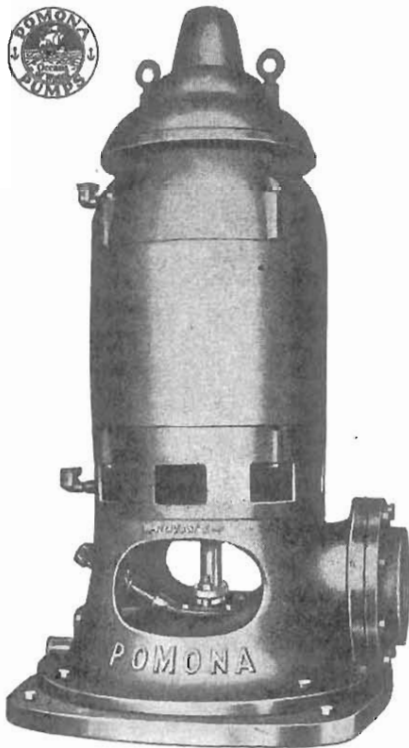
★ Write or wire for special catalogs or bulletins on any of the equipment listed here—or for any mine or mill requirement.



El Paso - Salt Lake City - 369 Pine St., San Francisco - Ry. Exch. Bldg., Seattle
1775 Bdwy., N.Y. - Canadian Vickers, Ltd., Montreal - Edw. J. Nell Co., Manila, P.I.

The MINE and SMELTER SUPPLY Co.
Main Office, DENVER, COLO., U. S. A.

GUESSWORK IS EXPENSIVE



Guesswork makes an easy start but a hard finish.

The Pomona policy of constantly insisting on the use of the best methods and materials, with precision workmanship, has been abundantly protective and profitable to mine operators who own Pomona Pumps. It has built a substantial organization with every facility for continual accuracy. It has made the name "Pomona" a guaranty of economy and satisfaction to mine operators all over the world.

POMONA PUMP CO.

Manufacturing Plants:
Pomona, Calif., St. Louis, Mo.

Branch Offices:
New York, Chicago, Los Angeles, San Francisco

POMONA TURBINE PUMPS

MANGANESE STEEL

Wearing Parts

For extra long service from wearing parts and low operating costs—use Manganese Steel. Parts for all makes of crushers, ball mills, etc. Quick shipments.

CRUSHER JAWS
MILL LINERS
ROLL SHELLS
MISC. PARTS

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.

Consolidated Mining Company property at Mojave, California, according to A. J. Terrill, 324 Wilcox Building, Los Angeles, California, one of the owners of the property. Nine men have been employed for some time, under the direction of J. J. Jessop, superintendent, in thoroughly sampling and testing the property. More than 500 tons of samples have been taken which are stated to indicate a gold-bearing conglomerate ore body a half mile wide and with 2,068 feet of backs. The ore body is covered by an area six claims wide and two claims long, and more than 60,000,000 tons is claimed to have been shown by the survey. The ore is stated to average from \$3 to \$5 per ton and the handling process will be simple as the values are in the fines of the conglomerate and the coarse valueless material can be removed merely by screening. Contracts have been let for the mining and hauling of the ore, and mill plans are under way for the first of five 200-ton mill units. The company has a mill site of 160 acres on the Southern Pacific Railroad 1 1/4 miles from the property with an ample water supply. The organization is a closely held corporation owned by Terrill, Charles Bruce Stevens of San Diego, and G. F. Gunderson, Beverly Hills.

The Sierra Madre Mining Company, operating 1 1/2 miles from Happy Camp, California, has completed a deep bedrock cut 220 feet long, opening up another ancient Klamath River channel and showing about 30 feet of gold-bearing gravel with very little overburden. The company is using 120 feet of 30-inch bedrock flume set on 12-inch grade with block riffles and an undercurrent to recover the fine gold. A race 100 feet long and lined with pole riffles has been set up between the flume and the gravel pit. One hydraulic giant with six-inch nozzle is operated under a head of 150 feet using 850 miners' inches of water and moving 900 cubic yards of gravel daily, or approximately 50 per cent more gravel than was handled under the previous set-up. Four men are employed, working on a two-shift basis. H. H. McMillan is general manager and A. B. Titus is mine foreman. The property is owned by W. F. Davis, 427 J Street, Sacramento, California.

Work is to begin in April on the driving of a 450-foot tunnel at the Dinslow mine, 1 1/2 miles east of Murphys, California. Operations are directed by Van Court Warren, and work at present is on a one-shift basis.

Shipments of sulphides from the Total Wreck mine of the Total Wreck Redemption Company, Murphys, California, are reported to be averaging \$100 per ton. The company is employing a crew of four men on a one-shift basis. Operations are directed by George P. Meyers, president and general manager, Murphys. A new 25-ton mill was installed at the property last fall and some of the ore is treated in that plant.

Operating on a one-shift basis, the John Burnett mine, located on Indian Creek near Esmeralda, Calaveras County, California, is shipping ore to the Selby Smelter which is reported to have yielded very satisfac-

tory returns. It is understood that extensive development of the property is planned for the spring, when adequate machinery will be installed.

The Tullock mine near Angels Camp, California, is being unwatered. The collar of the shaft has been remodeled and timbering has been completed down to the water line. The shaft is 800 feet deep and has no stations between the 200 and the 800-foot levels. New machinery, including a pump to handle the water is being installed at the mine. The Tullock is owned by Mrs. Lilla Bisbee of Angels Camp and is under lease to a group of mining men from Los Angeles and Seattle.

Will Crosby, Julian, California, and associates have taken a lease on the High Peak property, adjoining the Eagle mine and are engaged in a thorough sampling of the mine. It is reported by old-time miners that the High Peak was in 10 inches of \$125 gold quartz when the owner and his partner were killed in 1906. The mine has been under water since then.

Sidney Dodge and George Short, operating the Eagle mine at Julian, California, have recently installed a hoist and compressor at the property and are at present building a headframe. Ore assaying as high as \$60 at the surface was opened up recently. The mine is equipped with a five-stamp mill and flotation plant.

Mojave Gold Shares, Inc., Alex Nible, vice-president, 801 Bartlett Building, Los Angeles, has acquired the holdings of Monarch Leaseholders, which has had under development approximately 45 acres on the east slope of Soledad Mountain near Mojave, California. A 500-foot prospect tunnel was run last fall, cutting a number of low-grade veins, and the new company is considering development by steam-shovel methods. A 100-ton mill is under consideration and a site is to be graded at once for a 400-ton ore bunker, below which the mill can be built.

The Oro Fino mine, Auburn, California, is now on a production basis with a limited crew employed. The mine, operated by Oro Fino Consolidated Mines, has been undergoing considerable shaft renovation during the past year and the three-compartment shaft has been completely rebuilt and retimbered. The new 300-ton mill plant has gone into production with the resumption of general mining operations and reported its first clean-up early in March. Operations at the property are directed by George Beck, superintendent, Box V, Auburn, and H. R. Lawson is mill superintendent. J. C. KempvanEe, 181 Bush Street, San Francisco, is president of the company.

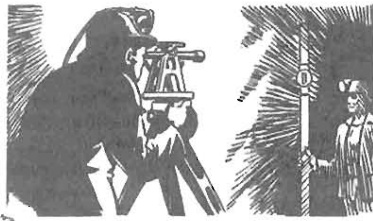
The Calaveras Land Company, Joseph S. Cademortari, superintendent, Columbia, California, is making preparations for construction of a dam on the Sardella property at Sullivan's Creek near Sonora, California. A ditch will be built to carry the water to the company's placer property near Jamestown, California.

The Idaho Maryland Mines Corporation, Grass Valley, California, is reported to be considering increased activities in the

Forbestown district during the coming spring, with a view to opening additional mines. The company is already employing approximately 100 men at Forbestown under the direction of H. F. Lynn, manager. Production at the Gold Bank mine has been increased to 200 tons per day and the Oro mine is now producing 50 tons per day. The company installed a 300-ton flotation plant at the Forbestown property last year. Idaho Maryland holdings in the Forbestown district are said to constitute 75 per cent of the district's taxable property.

Work is to begin soon on the erection of a new 100-ton all-slime counter current decantation plant at the Crystal mine, Shingle Springs, California. William A. Crowfoot, metallurgical engineer, who recently joined the mine staff as consulting engineer, is designing and will construct the plant. Ben Lockwood, Jr., is superintendent of the mine.

The collapse of the siphon of the Swanson Mining Corporation, Salyer, California, resulted in a loss estimated at \$10,000 to \$15,000 and tied up the company's operations. The siphon was 1 1/2 miles in length and consisted of 42-inch pipe, supported on 1 3/4-inch cables at the river crossing. It was reputed to be the largest structure of its kind used exclusively for mining pur-



poses. Reconstruction of the siphon is expected to begin at once and other development work is to be rushed to completion in time for the spring season's run. Hydraulic methods are used at the property, located near the south fork of the Trinity River. Alvin J. Swanson is president of the company. Operations at the mine are directed by Virgil R. Hughes, superintendent.

Sinking of the shaft from the 300 to the 700-foot level has been completed at the Kenton mine, Alioghany, California, and crosscutting is now under way on the 500-foot level. A crew of approximately 30 men is employed under the direction of T. S. Scribner, superintendent. The mine is equipped with a 10-stamp mill.

Plans are reported to be under way for extensive development of the Hite gold mine near Mariposa, California. Norman

Whitmore, 417 South Hill Street, Los Angeles, California, has taken an option on the property and a small crew is engaged in preliminary work under the direction of Charles B. Cole, superintendent, Incline, California. It is planned to build a road from the mine to connect with the main highway.

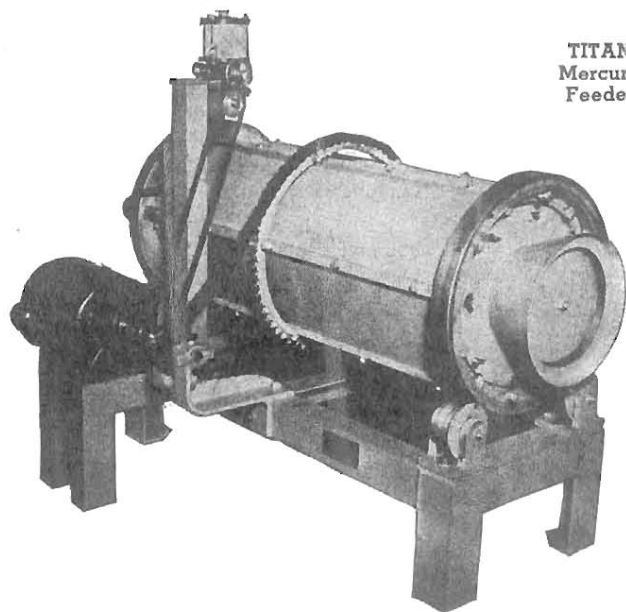
The Atolia Mining Company, Livingston Wernecke, president, 1022 Crocker Building, San Francisco, California, has issued a notice to all lessees and tenants canceling all leases and other agreements under which said lessees work or occupy any of the company's properties at Atolia, California, for mining or prospecting purposes, effective March 31, 1938. The action of the company is stated to be necessary because of the change in the market for tungsten, and a new basis for sales of concentrates to be effective after March 31. Except in those cases where it shall be necessary for the company to conduct larger scale mining operations after March 31, new leases and mining agreements will be offered to present lessees and miners based upon new terms and conditions to fit changed market conditions.

Work is under way at the Wickham quartz mine in the Rawhide district near Jamestown, California with a crew of four

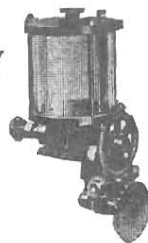
TITAN ROTARY AMALGAMATORS

Used in Free Gold Recovery
Will Catch Even the Very Finest Gold
In Your

Milling or Mill Dump operations, Dredges or other Placer workings

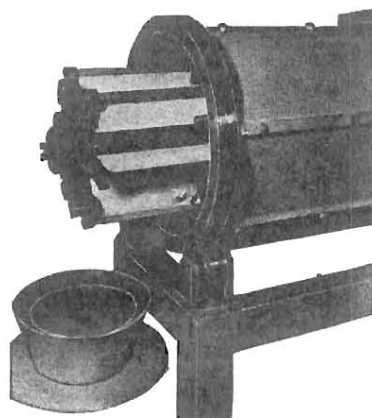


TITAN
Mercury
Feeder



Our Engineering Department will be pleased to assist with your problems. Write us.

Up to 98% of assay may be recovered with this equipment.



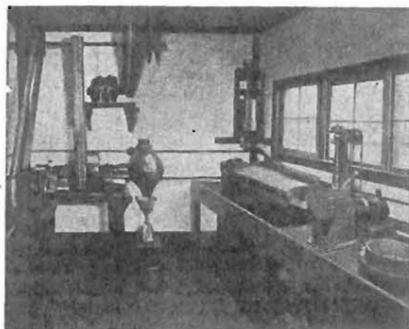
If interested in JIGS write us for information on the new "TITAN HYDRAULIC DIAPHRAGM JIG"

MILL & MINE SUPPLY, INC.

2700 4th Ave. South

Phone Main 1166

Seattle, Wash.



ORE TESTING

The quickest, safest, and surest method of correctly determining the best treatment for your ore is to have it tested. However, ore testing cannot be accurately done without complete equipment for amalgamation, flotation, gravity concentration, and cyanidation tests. As well as adequate testing equipment, it is even more important that the tests be made by experienced metallurgists who are able to accurately interpret the results. The Denver Equipment Co. offers you this complete service at the lowest possible cost.

Write for New Bulletin No. 3713

DENVER EQUIPMENT CO.
1419 17th Street - Denver, Colorado.

El Paso - Mills Building
Salt Lake City - McIntyre Building
Mexico, D. F. - Boker Building
San Francisco - Cunard Building



The Merrick Conveyor Weightometer

for thirty years has been weighing crude ore and fines in mills and concentrators throughout the world, thereby increasing efficiency of operation.

MERRICK SCALE MFG. CO.

176 Autumn St., Passaic, N. J.

CORE DRILLING DIAMONDS

BORTS — CARBON

ALL TYPES

Prompt Service Anywhere

RALPH R. HANSON

C. S. INDUSTRIAL DIAMOND CORPN.
310 S. Michigan Ave. Chicago, Ills.

ACCIDENT PREVENTION SIGNS FOR MINES

The SILENT SALESMEN FOR SAFETY



MANUFACTURED BY
STONEHOUSE SIGNS, Inc.
840 LARIMER ST. DENVER, COLO.

men engaged in development, according to J. E. King, Box 481, Sonora, California, who has taken a lease and option on the property. The tunnel has been cleaned out and retimbered; a raise will be run from the 300-foot tunnel to the surface to provide air circulation; and a winze is to be sunk on a four-foot vein carrying values of approximately \$25 per ton. The ore will be stacked and plans for erection of a mill will be made later. A new compressor was recently installed at the mine. Caesar Sciaroni, Jamestown, is mine foreman.

The California Engels Mining Company, F. Emerson Hoar, president, 351 California Street, San Francisco, California, reports for the year 1937 a net loss of \$25,503. At the annual meeting of stockholders Frank Leland was elected to the board to fill a vacancy caused by the resignation of Walter Willett. All other directors were reelected.

Curt Moose, Bridgeport, California, is engaged in developing the Lost Horse mine, an old gold producer located 14 miles from Bridgeport near the Nevada state line. At an elevation of 9,600 feet above sea level, the mine is completely isolated by deep snow for five months of the year.

The report of the Argonaut Mining Company, Jackson, California, for January shows a loss of \$12,964 before depletion, but including other income, as compared with a profit on the same basis of \$20,810 in December, and a profit of \$3,666 in January, last year. The company milled 7,700 tons during January, recovering therefrom \$47,813, or an average value of \$6.209 per ton, as compared with 7,800 tons with an average value of \$7.181 per ton in December, and 8,400 tons with an average value of \$7.44 per ton in January last year. Operating expenses during January totaled \$60,508, or \$7.853 per ton milled. Alex Ross is general superintendent at the mine. The company during the latter part of February and the early part of March experienced a shutdown due to a fire which broke out on the lower levels.

Samuel T. Shaw, Jr., co-owner of the Casino mine, Plymouth, California, reports that \$13 ore has been encountered in the south drift tunnel. The vein is better than 24 inches wide and shows promise of widening. The ore is being milled in the new five-stamp milling plant recently installed at the property. P. J. Robin is associated with Shaw in development of the property.

The Bessler mine, Downieville, California, now known as the Golden Key, has been shut down due to the uncertainty of Pacific Gas and Electric Company power. All of the pumps have been pulled and it is not planned to resume operations until the storm season is past, which is expected to be about the first of April. Frank Poggi is foreman at the mine, which is owned by Mrs. Annie Bessler.

A thorough survey and sampling of the Jamison mine near Johnsville, California, has recently been completed by A. G. Kirby of San Andreas, California, for the Carnation Gold Mining Company, Ltd. Robert Elkan of New York City was elected presi-

dent of the Carnation company in October 1937, succeeding R. J. Jefferson. R. Jefferson is manager at the mine.

W. T. Nicholson is reported to be preparing the Bondurant mine, Coulterville, California, for active operations. The mill and mill are both being rehabilitated.

The Oro Bell Dredging Company, C. V. Erickson, owner and manager, Loomis, California, is operating a five-cubic-foot bucket dredge near Loomis. Erickson is also operating the Altoona quicksilver mine near Castella, California.

Recovery of good values is reported by Placer Properties Company, Inc., which is operating a 100-yard per hour Bodinso plant together with a 1½-yard Bucyrus-Eri dragline on Mariposa Creek near Le Grand, California. Kumle and Ferris head the company.

Gold Gravel Products, Inc., W. R. Clark general superintendent, Wallace, California is handling about 800 yards of gravel daily with a 1½-yard Link-Belt gasoline dragline and Esco bucket. The company is working 480 acres near Wallace.

Good returns are reported from the dragline dredge operations of the Midland Company near Cottonwood, California. The company is using a 1½-yard Thew Lorain dragline.

Central Eureka Mining Company, Sutter Creek, California, reports a net profit of \$131,614 after depreciation, depletion, and taxes for the year ended December 31, 1937, equivalent to 22 cents a share on 600,000 shares of capital stock. This compares with a net loss of \$80,615 for 1936. The company milled 86,264 tons of ore in 1937 which had an assay value of \$19.84 per ton and from which recovery averaged \$17.99 a ton. Full milling capacity was not reached until July, 1937. It is stated that development work during the year opened up a large body of milling ore. During 1937 the company paid dividends of 18 cents a share, aggregating \$108,000, and a 6-cent dividend was paid on February 15 of this year. The company is headed by C. C. Prier, 2012 Hunter-Dulin Building, San Francisco. James Spiers is superintendent at the mine.

Exploration and development work have been resumed at the Black Bear or Deer Creek property owned by Cooley Butler, 745 Rowan Building, Los Angeles. The Mill tunnel is being extended by small crews working two shifts daily. Equipment includes pneumatic drills and a slusher loader. The work is being carried on in connection with operations at the Golden Center mine, which is also owned by Butler. The present work is being done with a view to intersecting at a lower level the vein cut by the Schroeder tunnel at a higher elevation and the Forlorn tunnel below. The face of the Mill tunnel is now in more than 700 feet. This is the first work done for two or three years at the Black Bear property, which is now called the Deer Creek mine. At the Golden Center mine, the Scotia shaft has now been established as the principal working shaft and preparations are being speeded up for completion and equipping of the Scotia mill, which will

become the principal recovery plant. The old Golden Center mill will not be scrapped, however, but will be used to treat lessees' ore in a limited manner. The Scotia recovery plant will consist of a ball mill and flotation cells with a jig in closed circuit for recovery of coarse gold. The ball mill will be a 6 by 6 fabricated steel plant of a type perfected by Ted Edinger at the Miners Foundry, Nevada City. Dorr classifier, flotation machines, and tables will complete the mill equipment. Primary crushing will be handled by a gyratory crusher, from which the ore will be carried by conveyor belt to the mill bin and thence to the ball mill. It is estimated that the new plant will have a capacity of 100 tons, as compared with the 60 to 75-ton capacity of the present Golden Center stamp mill. Both properties are located near Grass Valley, California.

Machinery valued at approximately \$3,000 is being installed at the Olson quartz property in the southwest corner of Tuolumne County, California, by a limited partnership consisting of L. W. Osborne, Columbia, California; C. F. Olson, 500 Chestnut Street, Oakland, California; Paul Hacking and R. W. Hacking. The equipment includes a hoist, mill and crusher, amalgamator, and concentrator.

A. K. Dollarhide is installing a mill on his property located 27 miles west of Alturas, California, in Stonecoal Valley. A recent assay gave returns of \$12.50 per ton. The claim is located about 1½ miles from the Lost Cabin mine owned by A. K. Wylie of Alturas.

A. B. Weldon of Boulder, Colorado, is making weekly ore shipments to the Mining Associates mill at Boulder from the

COLORADO

Dime mine at Crisman which he has been operating under lease for the past six years. The ore is stated to average over 1 ounce of gold to the ton. Weldon is planning operation of the Victor, Columbine, and Wedges mines in the Dry Lake region of Boulder County. These mines are described as being established tungsten producers and work will be started soon.

A dry-land dredge with a daily capacity of 1,000 cubic yards is being installed at Alma, Colorado, by the Golden Slipper Placer Mining Company. The company expects to be ready to start production this spring. Installation is under the direction of John P. Harmon, consulting engineer with offices at 660 Boatmen's Bank Building, St. Louis, Missouri.

The new 50-ton selective flotation mill of the Alma Betts Gold Mining Company has been put into operation near Alma, Colorado, with Axel Johnson of Fairplay as mill superintendent. C. B. Van Deman, 56 Independence Building, Colorado Springs, is president of the company which controls about 172 acres of ground in the Pennsylvania Mountains, including the Douser, Montgomery, and Susquehana claims. Development work consists mainly of three tunnels, one of which is said to open an eight-foot vein showing values in gold, sil-

ver, lead, and zinc. Roy Lancaster and Hugh McGarvey are directing operations. The company may be addressed at Box 213, Alma.

The Golden Cycle Corporation, L. G. Carlton of Colorado Springs, Colorado, president, reports a net income for 1937 of \$610,401. During the year the company paid a total of \$5 a share in dividends, aggregating \$935,266. In 1936 dividends amounted to \$6 a share. The gross income for the year was \$8,957,787, which included \$542,855 for sale of bullion and concentrates. About 510,612 dry tons of ore were treated during 1937 having a gross value of \$10.939 a dry ton or total value of \$5,585,605. Of this 93.22 per cent came from the Cripple Creek district and the remainder from other parts of Colorado. No shipments from out of the state are being accepted. Total operating expenses for 1937 were \$2.03 a ton or \$1,036,668, including machinery repair. Net earnings for the year were \$0.7767 a ton or \$396,599. One of the factors contributing to the high operating expenses was the high wage scale, the present scale being the highest in the history of the plant. The company is now doing more mine work on its own account than usual in order to keep up a large and steady tonnage, since the small mine operator is confronted with many difficulties in the financing of operations. The Ajax shaft has been completed to the 2,600-foot level and a crosscut, which has cut the Mohican vein, is progressing toward the New Market vein system. Work is also

A quiet pool is favorable

to sharper separation

—as in
the **AKINS**
Classifier

① In the AKINS Classifier, sand is removed from the bottom of the pool by spiral motion. This action produces agitation essential to dislodging the finer particles from the heavier—thus facilitating proper separation of the two products. But the agitation is uniform, gentle and continuous—without surge or turbulence, assuring constant velocity and depth of flow over the weir. No other mechanical classifier duplicates this uniformity.

② Additional AKINS advantages: (a) Greater overflow capacity per foot width—with big saving in floor space; (b) Can be operated at 4" in 12" slope without surge or backslip; (c) No stalling, even on overload; (d) Ability to produce fine overflows; (e) Efficiency at high densities.

✓ SEND FOR BULLETIN 24-H. Read this conservative statement of AKINS performance; then discuss your specific problems with our engineers.

COLORADO IRON WORKS CO.

Main Office and Works, DENVER, COLORADO, U. S. A.

Canadian Locomotive Co., Ltd., Kingston, Ontario, Can.
Vancouver Iron Works, Ltd., Vancouver, B. C., Can.
Marsman Trading Corp., Manila, P. I.

Head, Wrightson & Co., (So. Africa) Ltd. Johannesburg
Head, Wrightson & Co., Ltd., Stockton on Tees, Eng.
The Clyde Engineering Co., Ltd., Granville, N. S. W.

MINING COMPENSATION RATES CUT IN CALIFORNIA

EFFECTIVE April 1, mining compensation insurance rates in California will be substantially reduced, according to an announcement by Samuel L. Carpenter, Jr., insurance commissioner.

The new basic rates for underground mining will be \$8.67 per \$100 of pay roll, against the previous rate of \$9.44, a decrease of 8.1 per cent. The new surface mining rate will be \$6.35 compared with \$7.72, a cut of 17.7 per cent, and surface employes' rates will be \$5.43 as compared with \$7.72, a decrease of 29.6 per cent.

In making the announcement Carpenter said: "The mining industry is to be congratulated upon its efforts as a whole to reduce accidents, as well as to reduce the hazards incident to the dust problem. We are attempting to give substantial monetary credit for these efforts, and a comparison of the rates and silicosis surcharge of two years ago with those of today, I think, will indicate that material saving has been effected."

EAGLE-PICHER LEAD CO. ISSUES ANNUAL REPORT

CONSOLIDATED net income of the Eagle-Picher Lead Company and subsidiaries for the year 1937 was \$388,780 after all charges, including provision for depletion and depreciation in the amount of \$835,615. Net sales for 1937 were \$24,679,262, which compares with \$20,873,573 in 1936, an increase of \$3,805,688, or approximately 18 per cent.

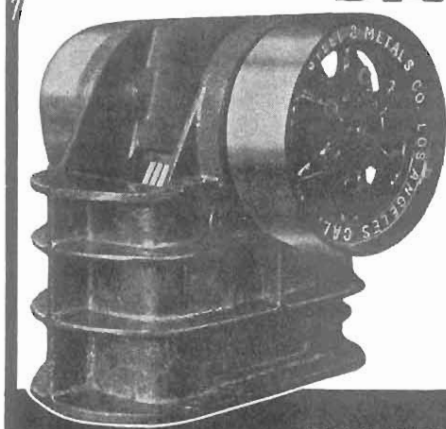
During the year the prices of lead and zinc fluctuated violently, and while a satisfactory operating profit was maintained for the year, earnings were adversely affected by inventory write-downs of approximately \$900,000 due to market declines. The company can adjust itself to an extended period of comparatively low prices and operate profitably as long as a reasonable spread is maintained between the cost of raw materials and the selling price of finished products. However, it is extremely difficult to maintain a satisfactory profit margin during a period of frequent and wide fluctuations in metal prices, as substantial time is required for processing raw materials, the report stated.

By action of the board of directors, the "normal-inventory" method of accounting was discontinued as of January 1, 1937. Therefore, the reserve previously provided has not been used in computing earnings for the year.

In 1937 dividends of \$6 per share on the preferred stock and 40 cents per share on common stock were paid. The dividends on the common stock were approximately covered by earnings for the year.

The production in the Tri-State district amounted to 128,330 tons of zinc concentrates, and 18,377 tons of lead concentrates. At the company's Montana mine, Ruby, Arizona, zinc concentrates totaled 5,384 tons, and lead concentrates, 9,224 tons for the year. In addition the concentrates from the Ruby property contained 6,520 ounces of gold and 639,238 ounces of silver.

PACIFIC JAW CRUSHERS



For economical, uninterrupted service in mine crushing, there's one sure answer—Specify PACIFIC and play safe! Daily, more and more mines are buying PACIFIC jaw crushers.

All steel construction . . . Forged steel shaft—bronze bearings . . . Force feed crushing—large capacities . . . Instant, easy adjustment to any size. One-piece frame, all parts interchangeable.

6 x 12, 8 x 15, 10 x 20 and larger machines. Ask for catalog.

Manufacturers of manganese steel wearing parts for crushers, ball mills, etc. Complete drill steel service.

See Your Dealer Today

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.

FABRICATED STEEL

for any mining use

Steel Tanks for Water Storage, Cyanide Solutions, Thickeners, Sand Leaching, Clarifiers, Hydro-Separators, Ore Bins, Agitators, Acid Storage, Lime Bins, Air Receivers, Etc.—Welded or Riveted Steel Pipe, Hydraulic Pipe, Blower Pipe—Headframes, Trommel Screens and, in fact, Miscellaneous Fabricated Steel for Any Mining Use.

WESTERN PIPE AND STEEL COMPANY

San Francisco, California Phoenix, Arizona Los Angeles, California
444 Market Street South of Union Station 5717 Santa Fe Ave.

EXPLOSIVES—“Everything for Blasting”



ATLAS POWDER COMPANY



Western Offices
Los Angeles, Cal. San Francisco, Cal. Seattle, Wash.
Denver, Col. Salt Lake City, Utah Butte, Mont.
Spokane, Wash. Portland, Ore.

Concentrates from Western States

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

Work is progressing on the installation of new machinery and equipment at the property of the Consolidated Gold Mines



Company, Ltd., Dos Cabezas, Arizona. No ore is being mined at present pending completion of the new installations. Improvements under way include a

a power house in which has been installed a new 300-horsepower Fairbanks-Morse Diesel engine, directly connected with a 375-kilowatt generator and the whole plant will be electrified. A 650-cubic-foot air compressor is also to be installed in the power house. A new 20,000-gallon concrete water tank has been completed and other improvements include a 200-ton ore bin, a change room, and a warehouse. In the milling plant a new 250-ton rod mill and classifier are installed, replacing the old 25-ton equipment. Other equipment for the mill will include a new thickener and filter. It is hoped the work will be completed during April or May, so that mining operations can be resumed. At present a crew of 10 men is employed, but this number will be increased when operations get under way to approximately 50 or 60 men. A. B. Wadleigh is general superintendent at the mine. C. W. Gabrielson, Box 279, Bisbee, Arizona, is president of the company.

Forms have been completed and are ready for the pouring of concrete at the site of the proposed new flotation mill being installed by the American Kirkland Gold Mines, Inc., Kirkland, Arizona, according to Carl G. Barth, Jr., consulting engineer, of Prescott, Arizona. The milling machinery has been ordered from the Denver Equipment Company through W. C. Broadgate of the Arizona Machinery Company at Prescott. An electric power line is being run to the mine and all equipment will be electrically operated. Dr. Hugo A. Carl, Kirkland, is general manager of the company.

Thomas Turner, Jr., son of the late Thomas Turner, and A. S. Johnston have taken charge of operations at the Money Metal mine of the Yavapai Gold and Silver Mining Company, located in the Big Bug district near Prescott, Arizona. It is proposed to sink the shaft from the 400 to the 600-foot level and drifting is planned from the lower level. Thomas Turner, who was president of the company, died March 12 following a heart attack.

Ed Holderness, Tombstone, Arizona, is preparing to install a \$100,000 pumping plant at his Lucky Cuss mine near Tombstone. Good ore bodies are known to exist just below the level of the water, which has stood there for many years, and while the plant will not be large enough to completely unwater the mine, it will lower the

water level sufficiently to permit development of the known ore bodies.

The Orizaba mine, 23 miles southwest of Casa Grande, Arizona, has been taken over under bond and lease by the Plato Mining Company, Inc., and extensive drilling operations are to be undertaken in the immediate future. Eight 400-foot diamond drill holes and six 250-foot churn drill holes are planned together with a main shaft to the 500-foot level. If results are favorable it is planned to install a milling plant. Immediate plans include the construction of houses for hoist and compressor and other accessories, and the employment of a crew of at least four men, to be augmented as work progresses. Molybdenum, lead, and silver are said to be the principal values. The mine is opened by a 200-foot shaft, but the property has been inactive for several years. It is owned by G. A. Wilson of Tucson and Roy Ward of Casa Grande.

H. L. Williams, Jr., superintendent of Hillside Mines, Inc., Hillside, Arizona, has announced plans for further shaft sinking below the 700-foot level, and shaft timbers are being hauled to the property.

The Samoa Gold Mines Corporation, J. H. Hoffman, manager, Chloride, Arizona, reports that recent development has disclosed the continuance to depth of the ore shoot opened for about 275 feet on the 200-foot level. The shoot is about 300 feet south of the shaft and has been encountered during recent development work on the 300-foot level. The drift to the north on the 300-foot level has also opened up commercial ore and the latter discovery is considered important because it is in unexplored territory. O. E. Andrews, superintendent, is directing operations at the property.

The Gold Fields American Development Company, Ltd., W. C. Browning, western representative, 1214 Pacific Mutual Building, Los Angeles, California, has acquired an interest



in the option held on the Del Norte group of claims by John Higgins of the Lodestar Mining Company. The claims are located in the Skidoo district of the Panamint Mountains adjoining Death Valley. A camp has been established and from 20 to 25 men are employed on exploration work. The property is just a prospect which may have some value for its gold content.

All news appearing in The Mining Journal is obtained from sources believed to be reliable, but the accuracy cannot be guaranteed. However, every item has been sent to the person or company mentioned for verification before publication.

A rich body of cinnabar is reported to have been encountered in the quick properties of the Falcon Mercury Company operating near Santa Barbara, California. According to George H. Hall, who is in charge of operations, the company will abandon its old workings and drive a tunnel to tap the richer ore. A new 200-ton reduction plant has been completed and active mining and production await only rebuilding of the road to the mine, which was partially washed out by recent snow.

Ownership of the Silver Ball mine located near the old camp of Skidoo has reverted to W. B. Gray, president of the Gray Worcester Mining Company, Beatty, Nevada, from whom Roy Journigan purchased it some time ago. Journigan installed a milling plant on the property and Gray reported to have taken a lease and operations on the mill. Several men are engaged prospecting work at the mine.

Walter M. Hoover, Lone Pine, California, is operating a lease on the Dick Wall property three miles west of Darwin, California. A 200-foot shaft has been sunk and a streak of high-grade ore was encountered recently which averaged \$184 per ton. Other side mining interests are reported to be investigating the property. Several thousand tons of \$12 to \$15 ore are said to be blocked out.

T. L. Brite is operating the Reward mine located south of Independence, California. He is employing a crew of seven men and a 15-ton shipment of ore was made recently to the Western Graphite Company mill at Hughes Lake.

The Mutual Gold Corporation, J. Vance, general manager, Leevining, California, has made application to the California Division of Water Rights for permission to divert 11 cubic feet per second from Vance Tunnel and Andy Thompson Creek at a cost of approximately \$5,000. The water would be used for power purposes.

The Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, has declared the regular quarterly dividend 15 cents and the usual quarterly extra 15 cents, both payable May 2 on stock record April 5.

The Blue Channel Mining Corporation, closed organization, has been formed by a group including Alfred Schmid, president, Hollywood, California; Erwin Luttermose, secretary and treasurer, Van Nuys, California; and Frederick Reel, Sr., 4008 1/2 Monroe Street, Los Angeles, vice-president and general manager. Work has been started on Old Woman's Gulch, located on the Lombardi Ranch, four miles south of Mokelumne Hill, California, and a crew of seven men is engaged in setting up equipment. An electric hoist has been installed and pumps and trommel screen will be added immediately. The entire operation will consist of a 30-foot trommel, sluices with Hungarian riffles, jigs, and rotary amalgamator. There is said to be available more than a mile of virgin channel on the Blue Channel and in addition the company plans to work the High Line Channel and Ount

Southwestern Metallurgical Testing and Mill Building Service

Southwestern's complete facilities for ore treatment testing enables proving your metallurgy and eliminating costly errors in mill design and operation.

Southwestern will engineer, build and equip your mill, ready to operate -- assuring maximum construction speed and operating efficiency at minimum cost.

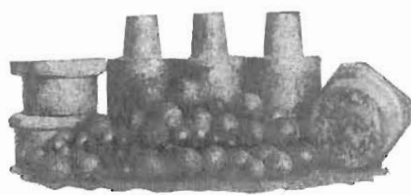
A complete organization with more than 20 years of successful experience at your service at all times.

Consult Southwestern

Southwestern Engineering Co.
4800 Santa Fe Ave., Los Angeles, Calif.

Only Manufacturer on Pacific Coast of FORGED STEEL GRINDING BALLS

from seven-eighths inch
to six inches.



"Western Made to Produce
Western Wealth"

AMERICAN FORGE CO.

Established 1888

1823 E. Washington Blvd. 750 Ashby Ave.
Los Angeles, Calif. Berkeley, Calif.

Tel. Prospect 7208 Tel. Berkeley 4424

Agents for Northwestern States:
Sundfelt Equipment Company
3315 First Ave. South, Seattle, Wash.

FLEXIPIPE

The improved flexible tubing for
mine and tunnel ventilation

Speeds up development work—
Supplies plenty of fresh air to the
working faces.

TOUGH - WATERPROOF
EFFECTIVE.

BEMIS BRO. BAG CO., ST. LOUIS, MO.

Gulch. Sometime during the summer a dragline will be employed to cut down the gravel in Ounce Gulch. The mine personnel includes Frank L. Valmadre, superintendent of underground operations; Frederick Reel, Jr., mill superintendent; and Frank Vinciguerra, timber foreman. Operations will be directed by Frederick Reel, Sr., who may be reached at Box 521, Jackson, California. It is planned to start operations at 100 yards per shift and actual moving of gravel is expected to begin in April.

Work is to begin immediately on the assembling of Biggs No. 2 dredge of Yuba Consolidated Gold Fields, Inc., on the Feather River near Biggs, California, one mile south of Biggs No. 1 dredge. The new boat will be of the same type and size as No. 1, which has been working for several months with highly satisfactory recovery of gold. Reports are current that the company plans the construction of a huge dredge in the Hammonton field which will eclipse the present No. 17 dredge now operating in that district. However, work on that project probably will not be started until after completion of Biggs No. 2. No. 17, which is equipped to dig 110 feet below the surface of the water, is now working in new ground and redredging old ground on its way toward the town of Hammonton, the site of which it is eventually to mine. It will probably not reach the townsite until next year, however. F. C. Van Deirse, 351 California Street, San Francisco, is vice-president in charge for Yuba Consolidated. Hoyt C. Perrin, 1224 Forty-first Street, Sacramento, California, is general superintendent for the company.

Development at the property of Quail Gold Mines, Inc., Coulterville, California, is said to have advanced to a point warranting the erection of a 75-ton mill. There are said to be 8,000 tons of ore on the dump and approximately 106,000 tons available underground. D. M. Drumheller, Jr., is engineer for the company. H. B. King, Coulterville, is president, and J. E. King of Sonora, California, is directing operations at the mine.

The Southwest Mining and Development Company, F. S. Earnest, president, 609 Westmoreland Avenue, Los Angeles, California, is making preparations for installation of a 40-ton mill at its property located near Deer Park, San Diego County, 48 miles east of San Diego. The ore is reported to run \$12 in gold with tungsten, in the form of scheelite, bringing the average value per ton to \$27. There is ample water and timber available at the property.

It is reported that the Alabama-California Gold Mines Company, William A. Beaudry, superintendent, Auburn, California, is considering the installation of additional milling equipment to bring the plant to a capacity of 250 tons per day in order to handle the additional tonnage of ore now developed. Six ore cars and an electric locomotive were ordered recently from the Miners Foundry, Nevada City, California.

Unusually heavy storms in December which caused a flood in the Trinity River were responsible for the loss of practically all equipment at the property of the Trinity Goldbar Mining Company. The flood waters

also left the entire area covered with d and filled various cuts which had been pared for removal of gravel. Walter Young, lessee, had installed a trolley across the river for transporting work an engine, pump, sluice boxes, etc., and also repaired and enlarged the camp buildings and performed a large amount work in repairing the dam, ditches, et is estimated that it will take a month a half to put the property in shape again. As a compensation for the large amount dead work which will be necessary, the company has granted an option to Young purchase of 100,000 shares of the firm stock at 2 cents a share. Young reported to the company on March 18 that the continued storms and high water prevented resumption of operations. However, he advised that operations can be carried on during the closed season at the upper end the property by means of a steam shovel and trommel, or with a dragline. W. Wood, 381 Bush Street, San Francisco, California, is president of Trinity Goldbar.

Andrew Thickstun, Camptonville, California, is operating the Race Track and Te Ranger mines in the Camptonville district. The property is suitable for either dragline or hydraulic operation. There are said to be between 800,000 and 1,000,000 cubic yards of gravel available. A total of 697 cubic yards treated recently is reported to have yielded more than 26 ounces of gold, or average of \$1.18 per yard. Thickstun has a water right of 2,200 inches and tailings disposal is available behind Bullard's E dam.

A Peterson gold pan concentrator has been installed in the 25-ton milling plant of the Gold Bend Mining and Milling Company, Needles, California. The plant has been idle for some time. The remainder of the mill will be operated as it stands, the new recovery unit being the only addition. Milling is to be resumed at the Allan mine in the Sunrise district, where some development work has been done. A 700-foot vein outcropping is said to carry mill value. Ore will be mined from tunnel workings. Fred E. Miller, 709 Thirty-third Street, Bakersfield, California, is president and manager of the company.

Trucking of ore from the Fortuna mine, Nevada City, California, to the Grace Glencoe mill is being discontinued and a program of development is under way at the mine, designed to open up additional ore. The mine has been shipping approximately 50 tons of ore per day to the mill. Approximately 20 men are employed at the Fortuna under the direction of J. M. Hoff, superintendent. A new system of pumping has solved the water problem, which caused the shutdown of the property years ago.

Extensive development work, including the sinking of the shaft an additional 20 feet and the cutting of stations to permit stopping of new ore bodies, is planned at the Keyes mine, Isabella, California. The work is to begin as soon as a large compressor unit has been installed. The mine has been in operation for more than a year and considerable development work has been done, including the exposing of two ore bodies at the 100 and 140-foot levels. Work at the

property is directed by Harry Lucas, general manager of the Barlu Enterprise Company of Los Angeles, which is operating the mine under lease from the Kern River Mining Company.

A new bunk house is under construction at the Spanish mine near Washington, California, to replace the building destroyed by fire recently. The mine was closed down for 15 days due to severe storm conditions, but operations are rapidly approaching normal. The mine is operated under the direction of D. K. Ribble, general superintendent. John D. Bradley, 922 Crocker Building, San Francisco, is general manager.

The Reorganized Carrie Silver-Lead Mines Corporation, C. R. Murdoch, manager, Pine Grove, California, has recently acquired additional ground adjoining its property, which gives the company a total of 3,000 feet on the vein with two additional tunnels. There are four tunnels on the combined property, all of which are said to have produced commercial ore. The company proposes to extend a lower tunnel on the vein, opening the mine at greater depth. The property is equipped with a mill of 16-ton daily capacity, compressor, and other mining equipment.

Work is under way on the erection of a new plant for the treatment of tailings and concentrates at the property of the Central Eureka Mining Company, James Spiers, superintendent, Sutter Creek, California. According to C. C. Prior, president of the company, indications are that the treatment of tailings and concentrates will materially increase the company's net returns. With operations at full capacity for only about six months during 1937, the tailings for the full year averaged \$1.85 a ton, it is said.

Twelve tons of high-grade gold and silver ore shipped to the Midvale smelter recently from the Ida Leona mine, seven miles west of Perris, California, are reported to have assayed 30 ounces of gold and 8.6 ounces of silver with a total value of \$1,035 per ton. The Ida Leona is owned by Frank and Edgar Nelson and a few associates, and is equipped with a 50-ton amalgamation-flotation plant. The present high-grade vein was encountered on the 100-foot level and is two feet wide. The Nelsons plan to make 12-ton shipments by truck every 10 days.

L. F. Utter, who has been engaged in reconditioning the Arctic mine near Washington, California, is negotiating for a mill to be installed at the property. A tunnel more than 1,000 feet long has contacted a four-inch vein of ore and another shoot of commercial ore has also been encountered in development work. Jack Rondoni, Nevada City, California, is superintendent at the mine.

The Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reports for the year ended December 31, 1937, net profit of \$1,911,286 after depreciation, depletion, and income taxes, equal to \$1.29 a share on 1,487,500 shares publicly held at the year-end. This compares with 1936 net profit of \$2,104,176 or \$1.40 a share on 1,500,000 shares then outstanding. Juneau purchased 12,500 shares of its

capital stock during 1937 which are being held for retirement.

Jack Demo, owner of the Golden Ella mine near Julian, California, reports that the property has been optioned to a group of northern mining men for a price of \$100,000. A drift has been started at the bottom of the new 60-foot shaft.

Truelson Brothers, operating the Sawday mine near Julian, California, are reported to be sinking a new shaft on good ore. Milling equipment is on the ground ready for installation.

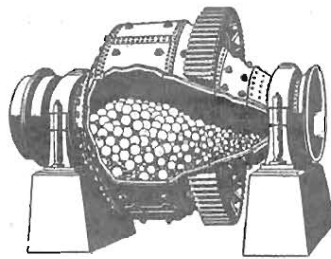
Preparations are under way for mining on a large scale at the Tom Scott prop-

erty, located near Julian, California. Charles Curry, owner of the mine, is reported to have struck ore in the bottom of an old working.

John C. Meyer, Twentynine Palms, California, has purchased a five-stamp mill from Charles Grinell and will use the plant for treatment of ore from his CRB mine, located near Twentynine Palms. Meyer is deepening his well to assure an abundance of water.

H. Bert Walton, president and general manager of the San Jose Keystone Mining Company, Box 221, Foresthill, California, is negotiating with the King C. Gillette interests, owners of the Paragon mine, with

What's Your Problem



Grinding

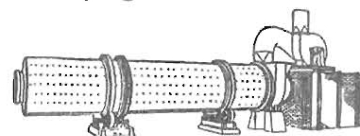
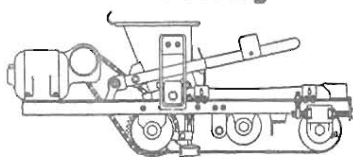
Pulverizing

Hardinge Conical, Ball, Pebble, Tube, Rod and Batch Mills, grinding either wet or dry. For granular or extremely fine products, using classifiers, or in open circuit. Bulletin 13-C.

Feeding

or

Drying



For feeding from a bin by weight which corrects for bin segregation, bulking and change in weight of the material being fed. A record of the weight is also kept. Bulletin 33-C.

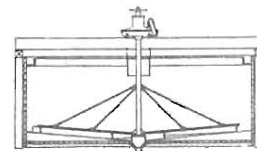
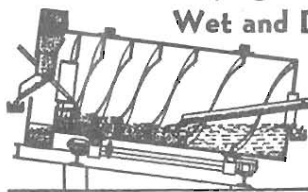
RUGGLES COLES Rotary Dryers — single shell, double shell, indirect heat, direct heat, steam tube types. Drying stone, clay, coal, chemicals, concentrates, sewage and the like. Bulletin 16-B.

Classifying

or

Thickening - Clarifying

Wet and Dry



For Classifying, washing, separating, cleaning and desilting. No moving parts except a slowly revolving drum. Separates from 8 to 325 mesh with unusually clean sands. Bulletin 39.

For continuous separation of liquids from a mixture of liquids and suspended solids. For metallurgical, industrial, chemical and sewage treatment. Bulletins 30-A, 31-B, and 38.

WHETHER you're going to buy now or later, write for HARDINGE OPERATING DATA — Bulletin 41, and know what results you have a right to expect from the new machinery you purchase.

HARDINGE COMPANY INCORPORATED

YORK, PENNSYLVANIA, Main Office and Works

NEW YORK, 122 E. 42nd St. CHICAGO, 205 W. Wacker Drive SAN FRANCISCO, 501 Howard St DENVER, 817 17th St.

GECO FLOTATION MACHINES FOR THE LABORATORY



Laboratory Flotation Machines are judged by their ability to give dependable results and by the ease of their manipulation throughout all steps of laboratory test procedure.

The Geco Laboratory Machine, being judged in this manner, will win your unqualified approval, and if your laboratory does not already include the unit illustrated, we suggest that you send immediately for full particulars.

A new Geco Flotation Machine Bulletin will soon be available for distribution. Send in your request for a copy now.

CONSULTING METALLURGICAL ENGINEERS
189 PIERPONT ST., SALT LAKE CITY, UTAH

Smith-Emery Company

Assayers

Chemists

Engineers

Mill Tests and Design
Ore Shipments Certified

920 Santee St.
LOS ANGELES

651 Howard St.
SAN FRANCISCO

Phoenix Pine Oil for flotation

Manufactured by
Phoenix Naval Stores Co., Inc.
Gulfport, Mississippi

Western Distributor
MARSHALL DILL
26-28-30 Bluxome St., San Francisco

Los Angeles—Portland—Seattle
Spokane—Denver

CORE DRILLING DIAMONDS

BORTS — CARBON

ALL TYPES

Prompt Service Anywhere

RALPH R. HANSON

U. S. INDUSTRIAL DIAMOND CORPN.
310 S. Michigan Ave. Chicago, Ills.

a view to operating that property in conjunction with the Keystone mine. If the deal is completed, it is understood that approximately 50 men will be employed on the project. The Keystone is being reopened following the winter shutdown. The property is equipped with a 50-ton ball mill, jigs, and sluice boxes.

Paul and William Braun, Darwin, California, have recently completed the installation of a 30-ton, hammer-type mill with jig-type concentrating unit at the old Defiance mine, which they are operating under lease from the Darwin Lead Company. Operations have been under way for the past year with shipments averaging a carload of silver-lead ore approximately every other month. Net returns from these shipments are said to have averaged from \$1,200 to \$1,800 for each 40-ton car. High-grade shipments to the Salt Lake smelter will continue, and the new mill will operate on a lower grade of ore. The mining of each ton of \$40 to \$60 shipping ore produces an additional four or five tons of \$10 to \$25 low-grade ore. This product, which would otherwise be waste, will now be concentrated and shipped. The mine is equipped with an electric hoist, used to bring the ore up the inclined shaft from the 200-foot level.

The U. S. Vanadium Corporation is producing about 175 tons of carnotite ore from its mines at Uravan, Colorado, and

COLORADO

the rest of the mill feed is being taken from storage. The company is also producing about 65 tons of coal and from 15 to 20 tons of salt daily, employing over 200 men in all its departments in and around Uravan. Blair Burwell is general superintendent, assisted by W. G. Haldane of Uravan. John R. Van Fleet, 30 East Forty-second Street, New York, is vice-president and general manager.

A third shift is to be started in the Banner American mill at Ouray, Colorado, which is treating dump ore from the Wedge property, held under lease from the Bachelor Development Company by the G. A. Franz interests of Ouray. As soon as snow conditions permit work will be started on the Meldrum-Hoffman property on Red Mountain, leased from Andy Meldrum of Ouray and Ernest Hoffman of Silverton. Later work will be started on the Old Maid mine. G. A. Franz is president and general manager and G. A. Franz, Jr., is superintendent. About 60 men will be employed in mines and mill when work is in full swing.

Regular shipments to the Golden Cycle mill are being made from the Washburn mine in the Sunshine district of Boulder County, Colorado, by Don B. Spencer and associates. Operations are being carried on under lease from O. A. Johnson, Boulder attorney, who has been developing the mine during the past two years.

Gus Larson of Ward, Colorado, and associates have started shipments from the B. and M. mine in the Ward district which they recently reopened. A 60-foot shaft

has been sunk on the outcrop. Later main working shaft will be reopened the main levels will be extended to area beneath the outcrop.

The Hoosier shaft has been reopened the 600-foot level by W. J. Richards, Mining Exchange Building, Colorado Springs, Colorado, and associates who recently acquired the Hoosier and Fri mines under lease and option. The remaining 200 feet will be repaired within the next few months. Present operations have made their initial shipment from property and now have three machines work, two stoping and one drifting. Mines are located in the Cripple Creek district of Teller County.

By a vote of 2,426 to 198, employees the Colorado Fuel and Iron Corporation showed approval of the 22-year old company union and their disapproval of outside affiliations. The vote was taken March 17. Arthur Roeder, Continental Oil Building, Denver, Colorado, is president of the company. Operations embrace iron, limestone, dolomite, manganese, and fluorspar mines.

With the installation of a 480-foot compressor, operations have been speeded up at the Livingston Mining Company property near Boulder, Colorado. Other necessary mining equipment was also installed. Several carload shipments of ore have been made recently by Clifford A. Staley, Boulder, lessee. J. B. Hottell of Boulder is also interested in the property, who two shifts of men are employed at present. John R. Wolff of Boulder is president a general manager. Ore is being shipped the Colorado Smelting and Refining Company plant near Marshall, four miles south of Boulder.

The Q. B. Leasing Company has shipped 11 carloads of ore from its lease on the Black Belle mine in the Cripple Creek district, Colorado. The ore is coming from the Prince Albert tunnel level. James Brown of Victor is in charge for the leasing company which employs 10 men. G. Park, 539 Downing Street, Denver, president of the Black Belle company.

A 125-foot shaft is being sunk in the Ezra R property by the A. and M. Mining Company under the direction of H. G. Burgess of Silverton, Colorado. The company also holds the Oriental, Gray Eagle, and other claims in the district. This is the first development work to be done below the main operating level of the mine. Last exploration of the other property is planned from the main level of the Ezra R and from new levels to be opened from the shaft sinking progresses. George S. Turner of Canon City is president.

About 80 men are now employed by the Alta Mines, Inc., at Telluride, Colorado, where about 120 tons of ore are being treated daily in the company's mill with reported recovery of 94 per cent. Production is coming from the Alta No. 6 vein and is handled through the Blackhawk tunnel. W. F. Allen, Jr., of Telluride is general superintendent.

The Fortune mine at Leadville, Colorado, is reported to have been taken over by

rate is being currently maintained. A plant for regrinding and retreating flotation concentrates was placed in operation in June with satisfactory results. Additional quarters for the larger personnel required were provided by an appropriation of \$425,000. Other major appropriations were in the amount of \$280,000 to install more Symons cone crushers; \$75,000 to provide increased transformer capacity; and \$148,700 for a second three-ton electric furnace for the foundry. While some labor unrest was reported, no stoppage of operations was experienced and wages were increased very materially.

The company's fabricating division, comprising the Chase Brass and Copper Company and the Kennecott Wire and Cable Company, showed a slight increase over 1936 figures, but the first quarter indications were not fulfilled.

GOLDEN STAR MILL IS READY FOR OPERATION

CONSTRUCTION work at the Prosperity mine, 35 miles southwest of Needles, California, in the Turtle Mountain district of San Bernardino County, is progressing satisfactorily and the new mill will be in operation about the middle of April, according to A. S. Highstone, general partner in the Golden Star Mining Company, operator of the Prosperity group. Mining, from an employment standpoint, will have reached the ultimate level called for in the schedule by the latter part of June, it is said.

Associated with Highstone, who is directing work at the property, is Robert M. Parker, head of the Parker-Baird Company, Los Angeles publishers.

Of general interest is the 50-ton Gibson mill, now in place. Only three other mills of this description have been manufactured, one of which was shipped to South Africa, another to Sierra City, California, and the third to the Godreau mine near Canadian Soo, Ontario. The plant includes amalgamation, gravity concentration, and oil flotation equipment, and the entire operation is completely automatic.

At the head of the mill a Wheeling crusher reduces the ore to one inch and from there the material is carried into the 60-ton ore bin by bucket conveyor, thence to the new-type rod mill where quicksilver is added to the pulp. From the mill the material progresses through a special classifier and into a stationary amalgamation device, or step amalgamator, and thence to an impact amalgamator on the deck of the concentrating table. Tailings from the concentrating table are treated in an oil flotation cell.

Three thousand pounds of 65-pound rods are carried in the mill and before entering the rod chamber the material is subjected to the action of an elliptic roll. Gravity feed from the ore bin is automatic. The eventual tails are allowed to run into a large wash where they will be self-discharging, indefinitely.

A 100-horsepower type Y Fairbanks-Morse Diesel engine is in place, ready to run except for the cooling tower, which

**WOODEN REDWOOD
TANKS FIR
PIPE
COOLING TOWERS**



ACME TANK MFG. CO.

Incorporated

159 S. Anderson Street

Los Angeles, California

Cable "ACME"

OUR DATA & ENGINEERING CATALOG IS NOW OFF
THE PRESS * * * WRITE FOR YOUR FREE COPY

MERRILL CROWE

Simultaneous Clarification



Using
**PRECOATED
FILTER
LEAVES**

PRECIPITATION PROCESS

"PRECOATING" of the clarifying leaves is the newest Merrill-Crowe development. It effects substantially perfect clarification which in turn gives higher grade precipitate with less zinc consumption and lower "barrens." Melting and refining is simplified. PRECOATING is accomplished under conditions which allow visual inspection of the effluent solution. The Merrill-Crowe Process simultaneously effects the steps of Clarification, Deaeration, and Precipitation. It is the recognized world standard. Our descriptive Bulletin will be mailed to you upon request.

The **MERRILL COMPANY Engineers**
343 Sansome Street, San Francisco, Calif.

**GOOD CONCENTRATING TABLES
ARE
WINNING MORE FAVOR
AND
WIDER APPLICATION
DAILY.**



"THE ORIGINAL"
DEISTER CONCENTRATOR COMPANY
925 Glasgow Avenue Incorporated 1906 Ft. Wayne, Indiana

is nearing completion. The tower is to be surmounted by a 160-gallon tank into which water from the motor is lifted by a two-inch pump. A tank of 70-gallon capacity feeds fuel directly to the engine and a constant level of fuel is maintained by gravity flow from a 2,800-gallon storage tank 60 feet distant.

Ten V-belts connect a 90-kilowatt Westinghouse generator with the Diesel, and everything at the mine and mill will be electrically operated. The present mill will utilize only 47 horsepower, including the five kilowatts for lights, but the entire layout has been planned for the eventual installation of 100-ton equipment. Two wells on the property will furnish water for all operations. In addition, an 82-foot, five by seven shaft, which now contains several feet of water, will be sunk to the 100-foot level and two 15-foot drifts run at that level for underground water storage.

Development work on the 10 claims comprising the Prosperity group has been under way by the Golden Star company for the past year. The property is being operated under bond and lease from Charles Brown of Needles.

The Prosperity shaft adjacent to the mill is down 102 feet on the vein, which is of true fissure origin. Vein matter is of quartz with an intrusive chloride schist running through it. A five-foot working face on the bottom level is said to carry excellent values. Both hanging and footwalls are pegmatite granite.

Three parallel veins are traced from the Prosperity shaft to the Gold Butte shaft, 3,000 feet to the west, the latter being located in the center vein. Here the vein has been followed down at a 36-degree angle for 155 feet and a 100-foot drift has been run. Four other shafts, the deepest of which is 40 feet, were sunk in the first vein to assure continuity, as some step-faulting occurred in the Gold Butte shaft, apparently causing its abandonment many years ago.

Fifteen men comprise the present working crew, but with the resumption of mining the force will be increased to 28. A crew of seven men will remove and transport ore from the Gold Butte shaft to the mill. The balance of the crew will be employed in the Prosperity shaft, the first objective being the development of additional working faces. More than 1,000 tons of milling ore are on the dump awaiting treatment.

GREENE CANANEA ISSUES

REPORT FOR YEAR 1937

GREENE CANANEA COPPER COMPANY reports for the year ended December 31, 1937, a net profit of \$2,378,888 before depletion, equal to \$4.76 a share. The company has no liability for undistributed profits surtax. This compares with a net profit of \$1,124,207, or \$2.25 a share in 1936.

The company operates in Mexico through its subsidiary, the Cananea Consolidated Copper Company at Cananea, Sonora, Mexico. During 1937 Cananea Consolidated produced 44,113,499 pounds of copper, 394,796 ounces of silver, 15,852

ounces of gold, and 1,161 tons of iron ore. Of this amount, 102,204 pounds of copper, 79,393 ounces of silver, and 1,161 tons of iron ore were produced from the mine. Deliveries of copper amounted to 612,460 pounds.

Operating income amounted to \$3,082 and other income to \$4,523. United States and Mexican income taxes are estimated at \$460,479 and provision for depreciation and obsolescence was \$239.39, a total of \$791,718.

ANACONDA REPORTS INCREASE IN CONSOLIDATED NET INCOME

THE ANACONDA COPPER MINING COMPANY and subsidiaries reported a gross income for 1937 of \$233,916,532 which compares with \$160,882,734 in 1936, and \$167,857,777 in 1935. Deducting costs and operating taxes of \$181,739,984 the company showed an operating profit of \$52,176, which compares with \$31,071,669 in 1936 and \$27,411,958 in 1935. After accounting for depreciation, depletion, income tax and federal surtax, and other deductions, consolidated net income was \$31,387,244, which is equivalent to \$3.62 a share on 8,674,338 shares of capital stock, exclusive of 244,748 shares in treasury or through subsidiaries and compares with \$15,881,807 in 1936 and \$11,180,087 in 1935. During the year, dividends amounting to \$15,109,209 were disbursed, against \$10,842,922 in 1936. Larger sales volume and higher average prices during 1937 accounted for a 4 per cent increase in gross sales over 1936, the 1937 being the highest since 1929.



Two 42" x 42" two-cell end flow Balanced Placer Jigs assembled into one block and driven by one motor.

**...less power
less head room:**

PAN-AMERICAN'S BALANCED PLACER JIG

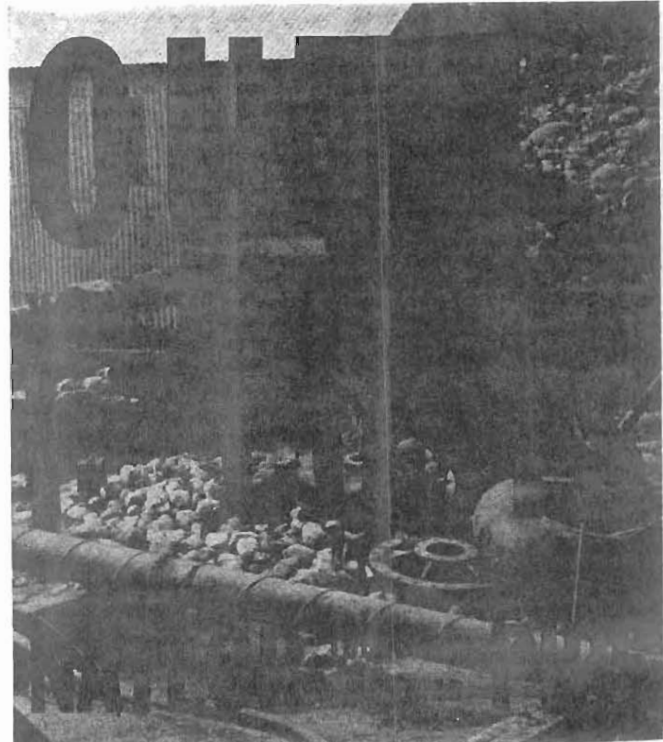
Developed by Pan-American for boats lacking head room for standard size jigs. Three dredges on Idaho placer properties are completely equipped with units of this Jig as the only gold-saving devices. They report highly satisfactory results (details on request).

Saves 12" head room. Requires less power than standard Pan-American Placer Jig. Except for 1 ft. less height from discharge lip to base, dimensions are same as for standard Placer Jig.

Available in 2-cell units, for either cross-flow or end-flow. Send for details, giving information on your present flowsheet.



PAN-AMERICAN ENGINEERING COMPANY
820 Parker St., Berkeley, California
U. S. A. Cables: "PANCO"



No other light weight pipe offers you the strength, flexibility, safety, stamina, and performance economy of Naylor Pipe. No other pipe has the exclusive Lockseam Spiralweld Structure responsible for these factors. Before you install new lines or make replacements, write us for a copy of the new Naylor Catalog and get the facts on cutting costs.

NAYLOR PIPE COMPANY

1241 EAST 82nd STREET

CHICAGO, ILLINOIS

Total output of copper by the Anaconda plants aggregated 1,211,791,560 pounds. The metallic copper production was 1,211,344,549 pounds, of which 843,622,162 pounds were from consolidated mining companies through copper plant operation. This exceeded the previous record production, made in 1929, by more than 39,000,000 pounds. Copper deliveries in both domestic and foreign markets totaled 1,072,289,658 pounds.

Zinc production amounted to 209,335,808 pounds, which represents a decline from the 1936 production, caused by power shortage at the Montana refineries. The Polson Power Project of the Montana Power Company, having a continuous capacity of 56,000 kilowatts will be ready for operation early in the summer of the current year and no further shortage of power is anticipated even under the most unfavorable weather conditions.

Lead output totaled 107,908,357 pounds, compared with deliveries of 95,976,461 pounds. Silver production was 17,825,832 ounces and gold output was 197,844 ounces. Miscellaneous production included 891,357 pounds of cadmium; 299,315 pounds of copper sulphate; and 145,925 pounds of nickel sulphate.

During the year Anaconda increased its ownership in the Anaconda Wire and Cable Company from 279,222 shares to 281,822 shares, which represents 66.78 per cent of the outstanding stock. It also purchased 5,100 shares of Mountain City Copper stock and now owns 61.66 per cent of the total issue. Funded debt of Anaconda Copper and subsidiaries was reduced \$9,780,000 during the year. No payments were made by Inspiration Consolidated Copper Company on the \$7,643,000 owed Anaconda, although current interest payments were made.

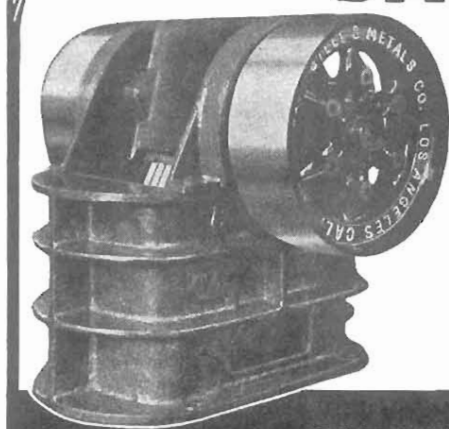
IDAHO MARYLAND REPORTS PROFITABLE YEAR FOR 1937

THE independently audited report of Idaho Maryland Mines Corporation for the year ended December 31, 1937, shows a net profit of \$1,124,805 after depreciation, depletion, and income taxes, equal to 64 cents a share on 1,768,281 shares of capital stock. This compares with 1936 net profit of \$738,817 or 42 cents per share on 1,765,157 shares then outstanding.

The company declared dividends of 60 cents a share in 1937, against 40 cents a share in the preceding year. Earnings and dividends were the largest since the company or its predecessors began operations. Larger and better ore reserves were developed, underground and surface equipment was brought to a higher state of efficiency than ever before, and labor relations were satisfactory from an operating and public relations point of view, with the exception of one instance.

Explaining this exception, E. L. Oliver, president of the company, said: "On April 15, 1937, work through the Old Brunswick shaft was stopped as part of the campaign to discontinue marginal operations and to devote our energies to the more profitable

PACIFIC JAW CRUSHERS



For economical, uninterrupted service in mine crushing, there's one sure answer—Specify PACIFIC and play safe! Daily, more and more mines are buying PACIFIC jaw crushers.

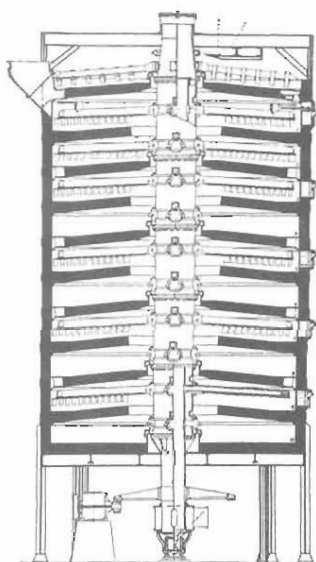
All steel construction . . . Forged steel shaft—bronze bearings . . . Force feed crushing—large capacities . . . Instant, easy adjustment to any size. One-piece frame, all parts interchangeable.

6 x 12, 8 x 15, 10 x 20 and larger machines. Ask for catalog.

Manufacturers of manganese steel wearing parts for crushers, ball mills, etc. Complete drill steel service.

See Your Dealer Today

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.



NICHOLS HERRESHOFF FURNACES

"Multiple Hearth with a Multiplicity of Uses"

For
**ROASTING — DRYING — CALCINING
PYROCHEMICAL TREATMENT**

ZINC ORES	SODA ASH
IRON ORES	QUICKSILVER
COPPER ORES	GOLD ORES
MOLYBDENUM ORES	FULLERS EARTH
TIN ORES	DIATOMITE
NICKEL ORES	CARBON
LEAD ORES	MAGNESITE
ARSENIC ORES	LIMESTONE
SELENIUM	CLAY GRANULES
ANTIMONY	BONE CHAR
PYRITE	SEWAGE

**NICHOLS ENGINEERING
AND RESEARCH CORP.**

40 Wall Street
NEW YORK

**PACIFIC FOUNDRY
COMPANY, Ltd.**

3100 Nineteenth Street
SAN FRANCISCO

FOR **FLOTATION:**

Yarmor F*

STEAM-DISTILLED PINE OIL



Write for Booklet

HERCULES NAVAL STORES
HERCULES POWDER COMPANY

996 MARKET ST.
WILMINGTON, DEL.

*Reg. U. S. Pat. Off. by Hercules Powder Company

PP-25-B



CYANIDE TANKS

We can supply you with Thickeners - Agitators and Cyanide Plant Equipment. A large stock of Clear Dry Redwood and Fir Lumber is carried on hand.

MAY WE SUBMIT ESTIMATES

PACIFIC WOOD TANK CORP.

461 Market St. San Francisco, Calif. 2123 Norwalk Ave. Los Angeles, Calif.

Flotation Reagents

Bear Brand Xanthates

Sunny South D. D. Pine Oil-A

Complete line of all standard flotation reagents, also metallurgical and assay chemicals carried in stock.

H. J. Baron Company

805 Mills Building EL PASO TEXAS

Compressors Pneumatic Tools

Rebuilding and Installing
"Trouble shooting, our specialty"

Used portable and stationary compressors always available.

Osterbauer Compressor Service

Phone Lafayette 3288
2456 East 55th St. Los Angeles

GOLD PROSPECTING

Second Edition
Revised and Enlarged

by **STEPHEN JACY,**

Prospector, Portland, Oregon

A NEW BOOK written by a prospector and giving the information that this prospector found that he wanted to know. 244 pages of valuable data for those who are prospecting for gold (quartz and placer) and written in an understandable non-technical language

PRICE REDUCED TO
\$1.50—POSTPAID

THE MINING JOURNAL

Phoenix Arizona

development of proved ore bodies. Shortly after the shutdown, a complaint was filed with the NLRB by some 70 miners who were laid off and who were members of the International Union of Mine, Mill and Smelter Workers, the company being charged with unfair labor practices in shutting down the Old Brunswick.

"A hearing was held in Grass Valley in June of last year, and in January, 1938, the board rendered a decision adverse to the company and directed the reinstatement of about 60 former employes. We are informed that the labor board plans to apply to the circuit court of appeals for an enforcement decree, at which time counsel for the company plans to present to the court its objection to the jurisdiction of the board and to its findings."

IMPORTANT EVENTS NOTED BY CONSOLIDATED COPPERMINES

THE Consolidated Coppermines Corporation recently completed an important period in its history, and the year 1937 was noteworthy for various reasons. In July, contracts were entered into with the Kennecott Copper Corporation which terminated controversies and costly litigation which had been pending for nearly 10 years. Mining operations were resumed after a shutdown of nearly five years, the first shipments going out in February. Production was increased to 3,000 tons daily during May and to 6,000 tons daily in the latter part of August, a rate which was maintained until December when production was somewhat curtailed due to the copper market. During this time tests were conducted in the Emma Nevada mine, the company's principal mining property, with the results that profitable and economical production of 6,000 tons of ore daily from this mine has been proved. Also during 1937 the company paid its initial dividend, the first paid by this concern or its predecessors for over 30 years. A second dividend of 12½ cents a share was distributed April 8, 1938.

During 1937, 1,281,205 dry tons of ore were shipped from the Emma Nevada mine from which the smelter recovered 25,880,706 pounds of copper, 12,867 ounces of gold, and 28,178 ounces of silver. About 1,945 feet of main drifts and 23,442 feet of mining raises were driven. The resumption of operations to a 6,000-ton daily basis necessitated the purchase of considerable equipment including underground electric locomotives, ore cars, slusher hoists, and an additional air compressor. The Morris Brooks and Alpha mines were not in operation during the year, but maintenance work was done. Four additional mining claims were acquired during the year and the company now owns 326 patented mining claims and 69 unpatented claims, comprising a total area of 5,768 acres of mining land, and also has 5,265 acres of agricultural land together with water rights.

With the severe drop in the copper market during the latter part of 1937 the company has been making every effort to maintain employment and wages. While the price of copper dropped from a high of 17



cents to the 10 cents, miners' wages have declined in the district from \$6.15 a day to \$5.65. Employment has declined from a high of 585 men in September to the present figure of 440, but the former figure includes a substantial number of employes whose services were a necessary part of reopening but are not required in a period of normal operations.

The company sold and delivered \$2,269,078 worth of metals during 1937, and the metal inventory on December 31, 1937, was given as \$1,176,808. Operating expenses amounted to \$2,829,302. Income charges were \$308,021 and other income amounted to \$298,215, including \$271,620 profit on sale of common stock to the American Metal Company, Ltd., leaving a net income of \$503,138 for the year 1937 before depletion.

Consolidated Coppermine's property is located in White Pine County near Kimberly, Nevada, and operations are under the general management of J. B. Haffner of Kimberly.

COLORADO INSURANCE FUND TO MAKE EXPERIENCE SURVEY

A SURVEY will be conducted in Colorado by the state compensation insurance fund with the assistance of the national council on compensation insurance ratings to determine the advisability of adopting a merit rating for the metal mining industry. Should this system be adopted the operators with a low accident frequency would be credited, while those with a high accident frequency would be penalized.

Under the present system, which has been in use in metal mines since August, 1915, a straight rate of \$6.81 per \$100 of payroll is charged operators underwritten by the state fund. A minimum charge of \$112 a year is made now and this minimum theory would be continued in a merit rating system in that each operator would have to pay a specified amount each year to participate. The survey will require about 60 days to complete.

The experience of each policy as to premiums received by the fund and losses paid out will be established and analyzed. H. C. Wortman, manager of the state compensation insurance fund, has announced. This information will be referred to the national council for promulgation of a rate indicated by the experience. The action is reported to have been taken by the members of the Colorado Metal Mining Association. The state fund is stated to write approximately 95 per cent of the metal mining risks or about 350 operators.

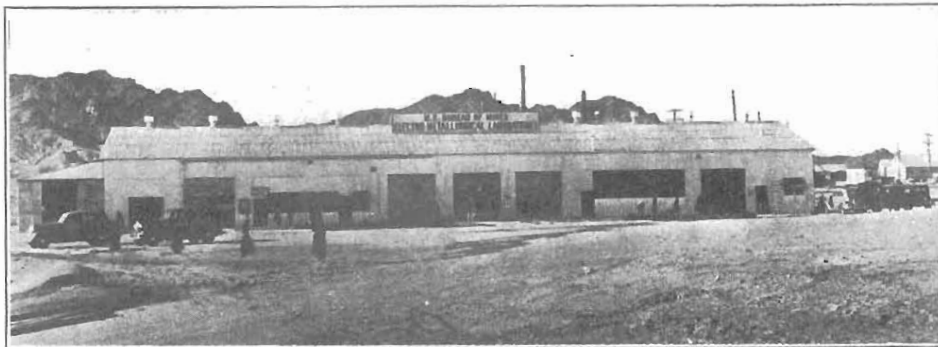
by others on chromium and magnesium to show rather definitely that this is the case. In the case of boron we enter a very interesting field, because we possess in the western United States the only accessible supply of boron minerals.

In addition to this program of producing new metallurgical materials, we have also given attention to the possible production of the so-called deficiency metals; that is, those metals that are essential to armament and munitions, but cannot be produced in the necessary amount from the domestic raw materials by existing methods. Manganese, of course, also belongs in this class, because when manganese is established as a base metal for alloys it will be available in an emergency for the manufacture of ferromanganese, which is so important to the steel industry.

Other metals in this class are nickel, tungsten, and antimony. Work on these metals is going forward in our laboratories; and at the electric furnace laboratory at Boulder we are developing a process for treating nickel ore from the Key West mine at Bunkerville, Nevada, one of the few domestic sources of nickel.

Let us now turn back to a discussion of the development of the production of electrolytic manganese. This development was made under the immediate direction of Dr. J. Koster, supervising engineer of our electrometallurgical section, and S. M. Shelton, metallurgist. Its history does not differ greatly from that of the successful electro-winning of zinc, the problems to be solved being largely those of electrolyte maintenance and purification.

In summary, it is found that oxide or carbonate ores can be used, the oxide ore being given a reducing roast to make it soluble in sulphuric acid. The manganese sulphate solution so prepared is then purified, ammonium sulphate and a small amount of sulphur dioxide are added, and the electrolysis is carried out in a cell with a canvas diaphragm. The ores used have varied from 16 to 40 per cent iron. The power consumption per pound of manganese is approximately 3 kilowatt hours for the pilot plant having a capacity of about 30 pounds per day. The manganese produced is of high purity, except for a small amount of sulphur absorbed from the electrolyte. All other impurities are less than 0.01 per cent, and most of them considerably less than 0.001 per cent.



A close-up of the Electrometallurgical Laboratory of the U. S. Bureau of Mines where intense research on production of electrolytic metals is in progress.

Altogether, we have produced approximately 1,000 pounds of manganese, most of which has been or is being used by ourselves and others in the investigation of its possible uses. It is too early to give you a full report on these uses. I may say, however, that its alloys with silver have found commercial use as contact materials; that the alloys of manganese, copper, and nickel, and of manganese, copper, and zinc appear to have essentially the properties of the copper-nickel and copper-zinc alloys.

Since it is estimated that on a reasonable scale of operations manganese can be produced for 6 to 7 cents per pound, it will be seen that not only are alloys of the monel and nickel-silver type cheapened by the substitution of manganese for nickel, but even the nickel-silver can be cheapened by the substitution of manganese for copper as well as nickel. A little later we hope to present the results of a detailed study of these and other alloys, including the stainless steels, in which manganese has been substituted for nickel.

To sum up, we feel that our work on manganese has produced a new metallurgical material which is ideally suited to production at federal power projects in the west, particularly at Boulder Dam.

BIDS ARE SUBMITTED ON FIRST OF CALIFORNIA DEBRIS DAMS

AT THE opening of bids April 12 for construction of the North Fork debris dam, the low bid was submitted by A. Teichert and Son, Inc., 1846 Thirty-seventh Street, Sacramento, California, at \$345,987, according to Major Harris, assistant to the U. S. district engineer, with headquarters at Sacramento. Sixteen bids were received on the project and ranged up to \$566,665.

The new dam, which is the first of four to be built in California to permit the resumption of hydraulic mining, will be located on the North Fork of the American River, approximately five miles northeast of Auburn, California. It will be of the concrete arch type, 620 feet long at the crest and 155 feet above the main foundation rock. The excavation represents approximately 26,500 cubic yards of rock, and it is estimated that 28,000 cubic yards of concrete will be required for the dam.

Irwin E. Burks will be resident engineer in charge of construction for the war department with headquarters at Auburn, California.

MIAMI COPPER COMPANY REPORTS PROFITABLE

IN ITS annual report to stockholders the Miami Copper Company, Miami, Ariz., reported a net profit of \$728,897 after interest, depreciation, federal and state income taxes, and surtax, but before taxation, which is equal to 97 cents per

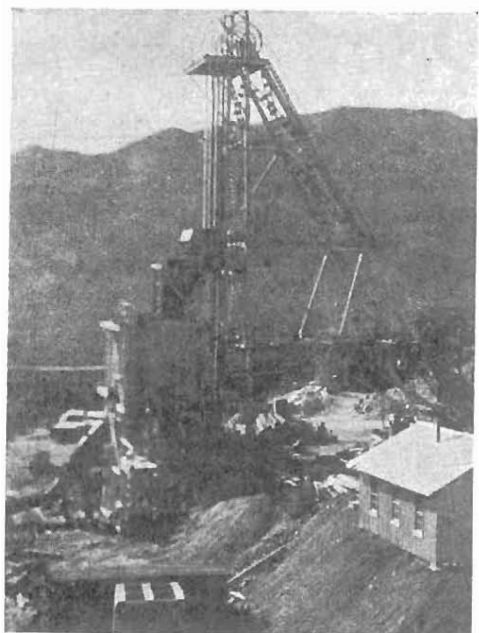
The company's plant operated continuously throughout the year with a production of 70,537,419 pounds of copper, 4,602,205 tons of ore. Operating before deductions was \$982,819. Excess surplus has been charged with \$322 which in the main represents writing down certain experimental units erected several years ago. A dividend of 15 cents a share was paid on December 23, 1937.

According to F. W. MacLennan, president and consulting engineer, the quantity of ore treated during the year varied considerably from month to month and total averaged 12,772 tons daily for 365 days operated. This scale of operations has been reduced to 5,000 tons daily in order to bring production in line with the present restricted market for copper. The sulphide content of the sulphide ore, which had been broken and exposed for several years and caused poor metallurgical extraction last year, dropped from 0.25 per cent to 0.08 per cent through bringing in fresh ore, and resulted in greatly improved recoveries. MacLennan also reported that in addition to the copper production, there was a small production of silver and gold valued at approximately \$38,000.

As it will become necessary about January 1, 1939, to begin mining below the present 720-foot haulage level, development work was resumed in July on the 1,000-foot haulage level, and is being carried out at a minimum rate in order to be ready to begin mining from that level when necessary. In order to avoid caving the 720-foot haulage level while it is still active, mining will be started from the north of the ore body at the lower level, which will cave the No. 1 shaft, long used for ventilating purposes. To replace this an inclined shaft has been put down a distance of 1,680 feet and has been gunited to reduce air friction and fire hazard. It is located beyond any danger from ground movement through any known future mining operations.

No new ore was developed during the year and ore reserves as of January 1, 1938, are estimated to be 3,048,413 tons of mixed ore, carrying 1.404 per cent total and 0.98 per cent soluble copper; and 71,237,128 tons of sulphide ore carrying 0.87 per cent total and 0.089 per cent soluble copper.

It was found necessary to drill a number of additional wells to avoid a threatened shortage of water, and two mining claims were also purchased to secure a new supply of lime, required in the milling process. The new wells represented approximately \$25,000 of the year's new construction expense. Other items making up the total cost approximately \$48,000 consisted principally of equipment for No. 7 ventilating shaft, magnetic drum for the leaching plant, additional flotation equipment, and cooling tower for the power plant.



MODERN MINE

Beats a tough water problem with a
MODERN PUMP

The Combined Metals Reduction Company at Pioche, Nevada, had a tough water problem until they installed Pomona Mine Pumps. This mine now has the reputation of having one of the world's finest pumping plants—and Pomona again proves its unequalled performance in mine service. Mine operators everywhere are finding that Pomona's greater dependability and economy bring more profit to them and greater safety for their men. Pomona service is always available quickly, before and after installation, and anywhere in the world.

POMONA TURBINE PUMPS

POMONA PUMP CO.
Manufacturing Plants:
Pomona, California
St. Louis, Missouri
Branch Offices:
New York Chicago
Los Angeles
San Francisco



MANGANESE STEEL

Wearing Parts

For extra long service from wearing parts and low operating costs—use Manganese Steel. Parts for all makes of crushers, ball mills, etc. Quick shipments.

CRUSHER JAWS
MILL LINERS
ROLL SHELLS
MISC. PARTS

ALLOY STEEL & METALS CO.
1862 E. 55th STREET • LOS ANGELES, CALIF.

A new crusher is being installed in the milling plant of the Cornwall Mining Company, Chloride, Arizona, under the direction of O. T. Dennhardt, who has taken a lease on the company's property. The plant has been completely rehabilitated and is now treating dump ore. It is also planned to do some underground work. The old stopes are filled with gob left by early day operators who removed only the high-grade ore. These stope fillings are said to carry milling values.

Work has been started on shaft sinking at the Hillside Mines, Inc., Hillside, Arizona, which will carry the shaft 200 feet below the present 700-foot level. James McGuffy has the contract for the project.

Immediate plans for the installation of a 100-ton mill at the old Red Cloud mine have been announced by the Arizona Red Cloud Mining Company, recently incorporated to operate the property. The new plant will first treat approximately 32,000 tons of blocked out mill ore in the upper workings, estimated to average \$28 per ton in molybdenum, silver, and lead values. It is then planned to develop another estimated 30,000 tons of ore lying between the 300 and 500-foot levels, after which an extensive program of exploration in the sulphide zone is proposed. The new mill will be equipped for the concentration of the molybdenum content of the ore separately from the silver and lead and the molybdenum will be prepared on the ground for the commercial market. The company is capitalized at \$200,000 with shares of a par value of 10 cents. Ogden C. Chase, 419 Kearns Building, Salt Lake City, Utah, is president of the company. Robert Morgan, 552 North Wabash Avenue, Glendora, California, is engineer.

Eugene B. Hart, Cibola via Blythe, California, reports that he has completed a two-year program of development at his Hart mine near Cibola, which has resulted in blocking out a considerable tonnage of mill-grade ore. The property is now ready for installation of a 25-ton mill, according to Hart, who was granted a \$14,000 RFC loan for development of the mine.

Albert Millken, Prescott, Arizona, has sub-leased the Prince Albert group of claims from Ben H. Jackson. A crew of five men has been employed at the property for several months and Jackson reports that ore values have averaged more than \$40 per ton. O. W. Walker, Box 342, Prescott, is associated with Millken in the project.

The milling plant at the old Vulture mine near Wickenburg, Arizona, is being enlarged and the flow sheet altered by the installation of additional equipment. The work is being done under the direction of E. R. Dickey, president and manager of the East Vulture Mining Company.

A. M. Jones of Octave, Arizona, has sub-leased to Roy Kuykendall and B. R. Coil the Cumberland shaft located in the Turkey Creek district. They plan to unwater and carry on operations in the old shaft.

R. R. Kelly, Gleeson, Arizona, and associates have opened up a new body of ore on the Costello property from which they

plan to make shipments in the near future. It is planned to ship from three to cars of ore per week. The group is operating the property under lease.

A crew of five men is engaged in putting out the shaft on the old Ben S property near Congress Junction, Arizona, which is being developed by the Rio Gold Corporation, W. B. Smith, president, Congress Junction. Ed Husson is in charge of operations at the mine.

A 75-ton mill is being erected at property of the Santa Maria Mining Company under the direction of J. Ben R. Congress Junction, Arizona. The company also plans the erection of a commissary building immediately. Ore is being shipped from Congress Junction as that road is in better condition at present than the Hillside road. The company is employing a crew of about 50 men. Included in the properties being developed are the Pocahontas Turnbough, and Tripplé. Walter S. Larsen, Congress Junction, is mine superintendent.

The shaft at the Blue Bird mine, Mojave, California, has reached a depth of 300 feet and a drift is being run on that level,



according to Jar Gibson, superintendent. A new blow-off has been installed to provide air for lower levels and a pneumatic drill powered by an Ingersoll-Rand portable compressor

have also been placed in use. The hoist is operated by a stationary six-horsepower gasoline engine. The Blue Bird is operated by Elmer Renz, 204 West Manchester Avenue, Los Angeles, California, and is under lease from C. C. Calkins.

Mother Lode Central Mines, Inc., operating near Angels Camp, California, has required two additional claims close to its present operations. The newly acquired property is said to be suitable for steel shovel mining, promising a large tonnage of commercial ore at low mining cost. The company is reported to be planning to increase its present 100-ton daily capacity mill to 200 tons per day. Charles J. Dill, 216 Pine Street, San Francisco, is president of the company. Operations at the property are directed by F. J. Bartels, superintendent.

An agreement and option to purchase the Walker Consolidated, Josephine, LaChance, and Sacramento mines, located in the Old Diggings district near Redding, California, has been filed by the Stewart Gulch Mining Company, owner, and A. Stewart, 206 Sansome Street, San Francisco, optionee. Under the terms of the agreement, Stewart will have the right to investigate the property for 21 days, following which he will, if he so desires, have an option to purchase within six months.

The Four Star shaft of the Pride of Mojave Mining Corporation, Mojave, California, has been sunk from the 300 to the 400-foot level, and a station is being cut at the 400 level preparatory to drifting

and crosscutting. J. J. Murray is supervising engineer at the mine and Clare Youmans is assistant superintendent.

Whitmore Mines, Inc., Bob Dameron, superintendent, Mojave, California, plans the erection of a new headframe and installation of a new electric hoist at its No. 6 shaft at once. The new hoist will replace a stationary gas engine now in use. The shaft is now down 100 feet and four men are employed.

James F. Vassar, Milton, Calaveras County, California, is engaged in developing the Star and Excelsior mine, located near Milton. Stopping is proceeding on a 30-foot lens in the No. 2 shaft and daily production is averaging five to 10 tons. The ore is averaging approximately 20 per cent copper, \$7 gold, and 3 to 10 ounces silver per ton. It is planned to unwater the No. 1 shaft and crosscut at the 180-foot level. A mile of new road is to be built and plans for installation of a leaching plant are also under way. The property is under lease from Wm. M. Nuner of San Andreas, California. Past production is reported to have been approximately \$150,000, and the mine was formerly operated under the name of the Copper Crescent Mining Company.

A test mill is being installed at the Eliza mine in the Humbug district about 14 miles from Yreka, California, by the Gold Crown Mining and Milling Corporation. The plant consists of a 20-ton mill and a steel plate table. The Eliza is owned by R. H. DeWitt, Sr., and O. H. Lawson of San Francisco,

and has been operated periodically since about 1870. Two other mills have been operated on the property; the last one was demolished by a slide a few years ago. A large quantity of ore has been blocked out and it is planned to install a larger plant following test runs with the mill now being set up. A crew of men has been employed at the mine during the past summer and fall. A new cabin and mill building have been constructed. L. Morris is directing installation of the test mill.

The San Jose Keystone Mining Company, H. Bert Walton, president, Box 221, Foresthill, California, has acquired a large tract of land near Fair Play and extensive mining equipment is being installed, including a 44-ton dragline system. The property is reputed to be situated on an ancient gravel channel.

A winze sunk from the 9,600-foot level of the North Star mine at Grass Valley, California, has opened up for development territory well below the previously considered bottom of the historic mine. Commercial ore is reported to have been encountered and it is believed probable that the work will be continued to greater depth. The North Star is the deepest mine in the state and ranks as one of the deepest in the world, it is said. The property is operated by the Empire Star Mines Company and is under the management of F. W. Nobs.

The New Brunswick mine of the Idaho Maryland Mines Corporation, Grass Valley, California, is producing more than 300 tons

per day for the company's mill and is said to be working into ore of consistently good value. The ore, which is being mined through a new shaft, was first opened last year. It lies in a wide belt beyond the older workings and apparently will assure considerable additions to the mine's reserves. Albert Crase, Grass Valley, is general manager of the company.

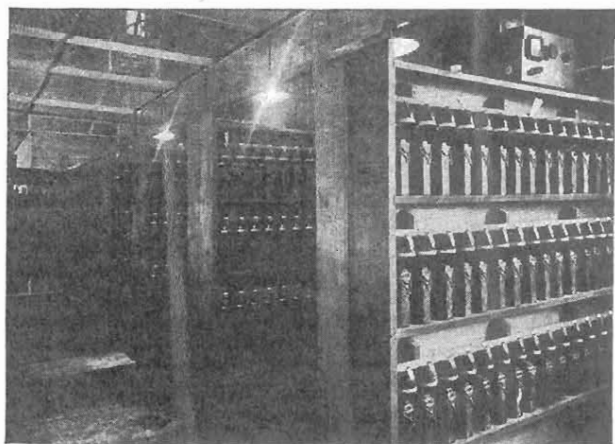
Reconstruction and development are proceeding at the long idle Keystone mine, Amador City, California, and substantial reserves of commercial ore are reported to have been tapped, providing for indefinite milling operations. The first unit of a 200-ton capacity mill will be started soon to handle the ore taken from development. Later on the mill will be increased to 500-ton capacity. A number of new buildings have been erected at the property. The mine is being revamped by the Keystone Mine Syndicate under the direction of T. S. O'Brien, superintendent. Charles H. Segerstrom, Sonora, California, is agent for the syndicate.

Lessees of the Harvard mine near Jamestown, California, have again started the unwatering of the mine following a number of months of inactivity. Last year a large and extensive ore body was located by drilling. The property is being developed by the Harvard Gold Mining Corporation, 1250 Crocker First National Bank Building, San Francisco.

Thirty tons of ore per day are being milled at the Bandarito mine, Coulterville, California, and proceeds are being used to

WHEAT Electric Cap Lamps

Give Constantly
Maintained* BRIGHTER
Light



675 WHEAT Lamps charging at an important Canadian Metal Mine.

KOEHLER MFG. COMPANY
Marlboro, Mass., U. S. A.
Send complete data on WHEAT Electric Cap Lamps,
without obligation on my part.

MJ 4-30-38

Name.....Title.....

Company.....

Address.....

*Webster's definition: "Held in original state of efficiency."

If a Cap Lamp battery is claimed to "last longer" than WHEAT, its lighting efficiency must suffer. Its light grows constantly dimmer, due to continuous depreciation.

WHEAT light is BRIGHT all the time. For its battery always works at maximum efficiency. It does not reserve power to "last longer" — and so give less and less light. Occasional replacement of elements by the Lamphouse man maintains WHEAT'S original power year after year. This is simple and inexpensive.

Maintaining WHEAT is economy. For its continuous BRIGHT light helps increase the miner's output—reduces accidents.

For Full Information Mail the Coupon

Distributors for Western U. S. A., Western Canada and Mexico: E. D. BULLARD CO., San Francisco, Cal.

Announcing Mining Machinery and Equipment Department

Representing

AMERICAN MONORAIL CO.—Overhead Handling Equipment.
A. D. COOK, INC.—Deep Well Turbine Pumps.
CRUCIBLE STEEL CO. OF AMERICA—Tool and Drill Steels.
DRAKE-WILLIAMS-MOUNT CO.—Omaha Dragline Buckets.
E. H. EDWARDS CO.—Wire Rope.
HANSON EXCAVATOR WORKS—Power Shovels, Cranes and Trailers.
HEWITT RUBBER CORPORATION—Hose, Belting and Packing.
KIMBALL-KROGH PUMP CO.—All types of Pumps.
NATHAN MANUFACTURING CO.—Lubricators, Injectors.
OWEN BUCKET CO.—Clamshell Buckets and Grapples.
PACIFIC CAR & FOUNDRY CO.—Mine Cars, Castings and Forgings.
ROBINS CONVEYING BELT CO.—Belt Conveyors and Accessories.
SHOVEL AND CRANE DIVISION, LIMA LOCOMOTIVE WORKS, INC.—Lima Power Shovels and Drag-Lines, Cranes.
SKOOKUM CO., INC.—Blocks and Rigging.
UNION STEAM PUMP CO.—Steam Pumps of All Kinds.

Inquiries Solicited

Western Steel & Equipment Corporation

734 N. E. Fifty-Fifth Avenue
Portland, Oregon



GECO Engineering Service Is Balanced

ORE TESTING DESIGN CONSTRUCTION

In this balanced organization, it is not the work of one individual to test your ore, design your plant and supervise the construction. Each step comes within separate and specialized branches of engineering with their respective departments and experienced engineers.

You can profit from the experience behind the complete services offered by our organization.

The NEW GECO PLAN is the Sure Plan.



ACCIDENT PREVENTION SIGNS FOR MINES



MANUFACTURED BY
STONEHOUSE SIGNS, Inc.
840 LARIMER ST. DENVER, COLO.

The SILENT
SALESMEN OF
SAFETY

add improved equipment. There are said to be approximately 200,000 tons of ore blocked out.

The property of the Operator Consolidated Mines Company, located near Johannesburg, California, is reported to have shut down temporarily, pending surveys as to ore bodies, etc., with a possibility of larger production when operations are resumed. Major J. Paul Jones, Box 213, Randsburg, California, is manager at the mine. E. A. Weller, Bank of America Building, San Jose, California, is president of the company.

The Atolia Mining Company, David D. Baker, superintendent, Atolia, California, has announced its readiness to grant new leases on new terms which are intended, according to a company statement, to accord a fair deal both to the miners and the company. Under the new arrangement the concentrates will be sold on the open market. The company states that it is not seeking new lessees but will grant leases to those who have been leasing under the old agreements in order to accord them as fair a deal as possible until conditions change.

Installation of a Gibson mill is planned at the Thomas Brothers Mines, F. A. Thomas, general manager, Box 14, Mountain Ranch, California. The property comprises 231 acres, on which 16 gold shoots have been opened, and also includes a ledge of commercial talc on which a 900-foot drift has been run. The mine is located in the Cave City district, 11 miles east of San Andreas and 2½ miles southwest of Sheepranch. There are said to be approximately 2,000 tons of ore in sight with several hundred tons on the dump. Prospecting has been carried on for several years.

The milling plant at the property of Oro Fino Consolidated Mines, Auburn, California, is operating on a one-shift basis for the present, treating approximately 50 tons of ore per day. Underground operations are proceeding at the 200, 300, 500, and 700-foot levels. A crew of 24 men is employed under the direction of George Beck, superintendent, Box V, Auburn, California. H. R. Lawson is mill superintendent. The company is headed by J. C. KempvanEe, 181 Bush Street, San Francisco.

The Triangle Dredging Company is operating a 1¼-yard Link-Belt dragline shovel and a Bodinson dredge on a 30-acre tract near San Andreas, California. The plant has a capacity of 2,000 yards. A. T. Smith is in charge of operations for the company, which is composed of A. T. and G. C. Smith and C. C. Roe.

The North Dome Association, composed of Oliver P. Adams and E. Richard-Just, both of Los Angeles, has sold its interest in the North Field of the tungsten development in El Mirage Valley, 14 miles west and north of Adelanto, California. The purchaser is said to be a large syndicate which plans operations in the field. The tungsten deposits were discovered last year by Nicholas Baxter, 415 Court Street, San Bernardino, California, and his brother, Carl W. Baxter. Adams and Just purchased an interest in the Baxter claims and three

companies were formed for development of the property.

The apex of a two-foot quartz vein rying encouraging gold values has been covered by A. H. Knoop on his ranch Jamestown, California, on which he to sink a shaft and carry out explor work. The ranch is located near the H mine, now being worked by the Gold gers Syndicate.

The Alaska Juneau Gold Mining pany, P. R. Bradley, president, Crocker Building, San Francisco, California, reports for the month of March profit of \$158,700 before depletion, depreciation, income taxes, and surtax or distributed profits, against a profit \$107,500 on the same basis in February and \$240,800 in March, 1937. Results March brought profit for the first quarter of 1938 to \$422,800 against \$716,700 the like period of last year. At the annual meeting of stockholders, Bradley reported that operations at the mine are becoming increasingly complicated, resulting slightly higher costs and expenses, but the long term outlook for the company not changed. All directors were reelected and all officers reappointed at the meeting.

Preparations are being made for an active season at the St. Lawrence mine located in the Ophir district near Auburn, California, with mill installation a possibility. Shaft sinking last summer is reported to have opened a streak of high-grade ore. S. F. Turich, Route 1, Box 29, Newcastle, California, is superintendent.

Sierra Consolidated Mines, Inc., Wellington, Nevada, has been granted permission to divert 1.4 cubic feet of water per second from Cottonwood Canyon for mining and domestic purposes. Estimated cost of project is \$6,000. The company operates the Silverado mine in California close to the California-Nevada line.

The Swanson Mining Corporation, Virgil R. Hughes, superintendent, Salyer, California, has made application for a permit to divert 50 cubic feet of water per second from tributaries of the Trinity River for power purposes. The company also asks permission to divert 125 cubic feet per second from Campbell Creek for development of 8,949 horsepower. Officers of the company are Alvin J. Swanson, president; C. Swanson, vice-president; and J. B. Blaine, secretary-treasurer.

Harry E. Briggs, Trona, California, has applied for permission to divert one-fourth cubic foot of water per second from Re lands Spring for mining and domestic purposes. The cost of the diversion is estimated at \$5,000.

Operations have been started at the Opportunity mine, located on Canyon Creek one mile from Junction City, California, by Arthur Hovey of Weaverville, and J. M. Kelly of Helena, California.

Extensive development of the low levels is planned for this spring at the Philadelphia mine near French Gulch, California, according to W. H. Manning, superintendent. High-grade ore is reported to have been encountered in a drift on a 18-inch vein. The property was acquired

last year by A. P. Robillard and associates of San Francisco.

The Central Eureka Mining Company, C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, California, paid a dividend of 6 cents a share April 15 to stockholders of record March 28. Similar dividends were paid in the two preceding quarters. The company operates properties at Sutter Creek, California, under the direction of James Spiers, superintendent.

Work is nearing completion on construction of the tailings dam being built on Steep Hollow Creek by the Lava Cap Gold Mining Corporation, Otto E. Schiffner, general manager, Nevada City, California. The new dam is designed to prevent escape of silt into Bear River and is being built at a cost of \$12,000. The company has recently increased its daily output to 350 tons of ore, which comes from the Banner and Central mines. Extensions of the principal veins have been followed into new territory, materially enlarging reserves. About 225 men are employed.

Martin T. Tresidder and Roy Poor, both of Mariposa, California, are operating under lease the Farmers Hope mine, owned by the Whitlock Mines Corporation. They have been operating the mill for some time on ore being trucked from the mine dump.

Underground operations are on a two-shift basis at the Heslop mine near Jamestown, California, which is being developed by the Gold Diggers Syndicate, Inc., Sidney B. Wood, Jr., president, 9172 Sunset Boulevard, Hollywood, California. The mill



is running 24 hours daily, and a large crew of men is employed. The Heslop has proved to be one of the most successful mines in the district with operations continuing for several years. The milling plant includes a ball mill and flotation cells. Roy K. Brown, Jamestown, is superintendent at the property.

A new electric pump is being installed at the Junction mine of Junction Gold Mines, Inc., Soulsbyville, California, to handle the heavy flow of water caused by recent storms. Work is said to be progressing satisfactorily with a good-sized crew of men employed. Percy M. Cropper, 156 Montgomery Street, San Francisco, is president of the company.

Installation of a 75-ton milling plant is reported under way at the Defender mine near Pine Grove, Amador County, California, under the direction of John D. Bardill, manager. A crew of 35 men is employed at the property.

Carlson and Sandberg, Redding, California, have completed the installation of a dragline dredge at the La Grange hydraulic mine near Weaverville, California,

and dredging of gravel is scheduled to start soon. A vast yardage of profitable material is reported to be available. The La Grange was worked on a large scale some 30 years ago and was served by many miles of flumes and ditches, and equipped with a battery of monitors. Activities were discontinued when the richer banks were worked out. W. D. Stone is general superintendent for the company.

The Pattison placers located in the Big Bar district near Weaverville, California, have been equipped with a dragline dredge and production is planned for the immediate future. Large deposits have been opened adjacent to old workings.

A new 100-ton mill is to be installed at the property of the Indian Valley Mining Company, Greenville, California. The new plant will be built under the direction of Guy Burch, mill builder of Tonopah, Nevada. A 10-stamp pilot mill, now on the property, will be moved to a new location. G. L. Johnson, Greenville, is general manager of the Indian Valley Company, which is headed by C. L. Hibbard of Seattle, Washington.

The Mountain Copper Company, Ltd., William F. Kett, general manager, 351 California Street, San Francisco, California, is reported to have relinquished its option on the Sliger mine, near Auburn, California, which had been operated by the company under the name of the Jardine unit. The mine is said to contain an exceptional ore body, deposits in places running from 30 to 52 feet in width with re-

NO not 65 - Only 22 PARTS, and a better Diaphragm Pump



★
Send for
Bulletin
34-A

We Also Make:
AKINS Classifiers, Skinner Multiple Hearth Roasters, Ball, Rod and Tube Mills, Smelting Equipment, Screens.

A SIMPLEX UNIT of the COLORADO Diaphragm Pump has only 22 parts (not including motor), as compared with other simplex pumps using as high as 65 parts. By simplifying design, the weight of COLORADO pumps has been greatly reduced without sacrifice of essential ruggedness. Likewise, cost to the user has been lowered substantially. The yoke to which the diaphragm is bolted is welded steel, to facilitate changing diaphragms and to lessen un-

balanced weight. Fewer parts mean less lubrication and less lost motion with consequent improvement in efficiency. The Colorado IS a better diaphragm pump.

For thick pulps and sewage—supplied for neutral, acid or alkaline solutions. Stroke quickly and easily adjustable. Capacities up to 500 G. P. M. in the Quadruplex.

STANDARD SIZES: 2" Simplex and Duplex; 4" and 5" Simplex, Duplex, Triplex and Quadruplex—in fact, any size to order. Motor or belt drive.

COLORADO IRON WORKS COMPANY

Main Office and Works: DENVER, COLO., U. S. A.

Manufacturing representatives in Eastern and Western Canada, England, South Africa and Australia. Marsman Trading Corp., Manila. Sales Representatives for P. I.

COLORADO IRON WORKS CO.

Stop that Eternal Fear of Missed Holes!



MILLER BLASTING CAP PROTECTORS

Guaranteed to Shoot Under Water

You know that a missed hole costs your company an average of \$27 in wasted labor, time lost, and damaged explosives. But your men know that DEATH hides in every missed shot. For Safety's Sake, protect men and blasting costs with Miller Cap Protectors.

Recent new customers are War Dept., U. S. Engineers, and Nevada Consolidated Copper Co.

A liberal trial order will be sent you free for the asking. They only cost 1 1/4 cents per shot. Write us today.

PRICE \$1.25 PER HUNDRED

Miller Manufacturing Co.
First National Bank Building
EL PASO, TEXAS

DEW-R-LITE Carbide Lamps

Copied by Many—Equalled by None

FOR SUPERS, FOREMEN, ENGINEERS

For over 30 years they have been sent, on request, for 30 days tryout, in which time you learn how superior they are to any others.



No. 2034
Made in All Brass and
in Double Tinned Steel.
Catalog on request.

The only self-regulating carbide lamp that will give you the steady, even flame you require underground without shaking or raking.

Entirely automatic
All parts easily accessible.

Dewar Manufacturing Co.
Established 1905 Incorporated 1914
18 35th Street, Brooklyn, N. Y.

FLEXIPIPE

The improved flexible tubing for
mine and tunnel ventilation

Steps up production—Fresh air
through Flexipipe increases effi-
ciency of your men.

GREATER TONNAGE
LOWER COSTS

BEMIS BRO. BAG CO., ST. LOUIS, MO.

coverable values averaging \$11. However, it is reported that the formation is very irregular and faulty and the ore is of exceptional hardness with crumbling walls, making mining difficult. Under Mountain Copper management the mine's main shaft was driven an additional 300 feet from the 1,100-foot level. The Middle Fork Gold Mining Company, Greenwood, California, former operator of the Sliger, is reported to be planning to resume operations and to install a new plant. It is understood that C. W. Plumb, former superintendent for the Middle Fork company, will assume active charge of the mine.

W. R. Clark, Wallace, California, is handling about 800 bank yards of gravel daily with a dragline dredge and 1 1/4-yard Link-Belt dragline. An Esco mining bucket of 1 1/4-yard size is being used.

Ore from the Yellow Dog mine, Mojave, California, is reported to be averaging about \$17 a ton. The property is being operated under lease by Alphonse de Grave.

At the property of Whitmore Mines, Inc., Mojave, California, ore running close to \$10 per ton in gold is reported to have been encountered in a four-foot vein in shaft No. 6. The new strike was made at a depth of 75 feet. The shaft will be continued to water level at 180 feet, from which point crosscuts will be run in two directions. Bob Dameron is superintendent for the company.

A. B. Adams, Grass Valley, California, owner of the Kentucky Ridge mine in the Newtown district near Grass Valley, is reopening the property, and installation of an adequate milling and recovery plant is nearing completion. Test runs have been conducted and the necessary adjustments are being made.

A new 100-ton ball mill is to be installed at the Arctic mine near Washington, California, by L. F. Utter, who recently took over the property. The work will be in charge of Walter D. Merrigan, construction engineer, who recently completed the installation of a milling plant for the Burm-Ball Mining Company. Merrigan was construction engineer for the Idaho Maryland Mines Corporation for a number of years.

A 100-ton mill is proposed by the Triple T Mining Company as soon as development work is a little further advanced. An

COLORADO

eight-inch pump is being installed to handle water which was encountered in sinking. The company, headed by J. H. Triplett of Carthage, Missouri, operates the Reed No. 1 claim near Crestone, Colorado, under the superintendency of E. L. Knickerbocker of Crestone who is also purchasing agent.

Within about 15 days the new mill now under construction five miles north of Boulder, Colorado, will be completed and not until then will operations be started in the mines. The new company, headed by H. W. Kramp, 1026 Fifteenth Street, Boulder, is the Oriskany Ore Mills, Inc.

Company mines contain values in silver, and tungsten ores and only pany ore will be treated in the mill. H. Deacon, 1807 South Pearl Street, ver, is manager and chief chemist.

The Macmillan Petroleum Corpora 530 West Sixth Street, Los Angeles, ifornia, reports a net profit of \$13 from its Cripple Creek, Colorado, mi property. The company acquired 51 cent interest in the Dooley Leasing C pany last year and the report covers period from the start of active work e in 1937 to February 28, 1938. The Do company holds the right to mine and pose of ore from a group of pater claims with option to purchase for \$ 000. The Macmillan company purcha control for a cash consideration of \$ 000. Royalties on ores mined and ship apply on the purchase price, approximat one-half of which is paid, and the balac is payable by June 1, 1938. Shipme from the property were started in April 1937 and to the end of February 6,2 tons of ore had been shipped with a gr value of \$102,658. Charges against shipped were listed at \$38,149 and roy ties paid the owners were listed at \$13,20 leaving net earnings accruing to the Dool company of \$51,303. The ore body stated to have been opened from the su face to the 800-foot level, but has n been located on the 400-foot level. S. Macmillan is president of the oil co pany with headquarters in Los Angeles.

A dividend of 1 1/4 cents a share on th 1,000,000 shares of stock outstanding h been declared by the Free Coinage Co Mining Company, William B. Harder, 28 North Hampton Street, Buffalo, New York president. Last year the company pai \$10,000 in dividends. The Free Coinag property is located at Cripple Creek, Colo rado, and is being operated by six sets o lessees who ship between 90 and 100 car loads of ore a month to the Golden Cycl mill. It is estimated that ore now de veloped is sufficient to keep the Golden Conqueror Company, one of the lessees shipping at the rate of from 60 to 80 car monthly for the next two years. Officer of the Free Coinage company were re elected for the coming year. Albert K MacKenzie, 819 North Wahsatch Avenue Colorado Springs, is secretary-treasurer and general manager.

Operators of the LMB group of claims near Crestone, Colorado, expect to start production from the Eastern Star ground and mill tests will be conducted on a large body of low-grade ore in anticipation of possible steam shovel operations. Carl Cook of Crestone is assistant manager of this work.

A shaft is being sunk by the Black Bear Mines, Inc., at its property west of Idaho Springs, Colorado. W. A. Keyes of Idaho Springs is president of the company, which holds the Mayflower and Lafayette groups of lode mines and the Graef placers.

Repair work is being done on the Dumont mill of the Phoenix Trail Mining Company at Dumont, Colorado. The plant was recently leased to George T. Kearns.

WALKER MINE REPORTS PROFIT DESPITE DECLINE IN COPPER

The Walker Mining Company, operating at Walkermine, California, reported a 1937 net income before deductions for depletion of \$85,935, despite the decline in the price of copper during the latter part of the year. A dividend of 5 cents per share was paid December 23, 1937, on outstanding stock.

The property was in full operation from January 1 to October 31; from November 1 to November 15, inclusive, was on a shut-down basis; and from November 16 to December 31, on a curtailed basis approximating 15 per cent of capacity.

A total of 13,286 feet of development was done, of which 5,736 feet were necessary to block out stoping ore which had been developed in previous years. The balance was for exploration purposes. New equipment was purchased and installed in the mill, shops, and mine to the extent of \$128,379.

Ore broken during the year totaled 457,075 tons. The mill operated 336 days, treating a total of 447,050 tons, from which were produced 21,116 tons of concentrate. There were delivered to the smelter 21,475 tons of concentrates, precipitates, and lime scale, with a net recoverable content of 9,823,851 pounds of copper, 277,082 ounces silver, and 14,437 ounces gold. The entire production of silver and gold was sold, and sales of copper amounted to 7,854,992 pounds at an average price of 13.9 cents per pound, leaving 1,968,859 pounds on hand unsold at the year-end.

Effective April 1, 1937, the company cancelled its contract for sale of ore and concentrates and entered into a new contract under the terms of which the recoverable copper is returned to the company. At the same time an agreement was entered into with the Anaconda Sales Company covering the sale of copper for the company's account. Since November 1, however, the company has been practically on a shut-down basis, only sufficient work being done to keep the mine in condition, together with some development work. Concentrates produced under these conditions have been sold to International Smelting and Refining Company.

TOMBSTONE DISTRICT COVERED IN BUREAU OF MINES BULLETIN

NUMEROUS excellent ore bodies in the Tombstone district of Arizona, as yet unexplored and undeveloped, are set forth in the new bulletin recently published by the Arizona Bureau of Mines, University of Arizona, Tucson. The new booklet is titled "Geology and Ore Deposits of the Tombstone District, Arizona."

The book represents several years of work on the part of Dr. B. S. Butler for the United States Geological Survey, and of Dr. E. D. Wilson for the Arizona Bureau of Mines, who made the primary geological survey and wrote the material for the publication. Dr. C. A. Rasor, graduate of the university, contributed a large chapter on the rare minerals found in the district, many of which have never previously been reported in the United States.

The bulletin is well illustrated with maps, pictures, cross section drawings, and charts, and also carries a supplemental envelope filled with maps. It is free to residents of Arizona having a legitimate use for it, and to others the price is 50 cents.

MACHINE BEING DEVELOPED FOR WORKING DRY PLACERS

THE Barke Gold Harvester, a machine specially designed for dry placer mining, is said to be in the final stage of development after expenditures approximating \$16,000 in experimental work. H. E. Barke, 2217 Vine Street, Berkeley, California, who has been constructing the new unit, states that it should be ready to run within a few months. The plant is designed to handle gravel on a volume production basis.

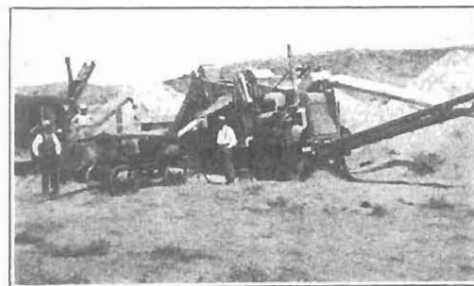
The Barke Gold Harvester can be built in sizes up to a capacity of 100 yards of gravel hourly. The manufacturer states that the machine will compare favorably with a small dredge operation in volume production with operating costs about the same. The same power plant is used for both traveling and operating.

The most important and first operation of the harvester is to treat the bulk material so as to free all the gold particles, allowing them to travel freely by means of gravity to the lowest level of the machine where they are trapped behind riffles. The moisture is removed and the bulk material is transformed into an alluvial dry state by means of a specially designed mill or material atomizer and dryer combined.

Classification follows the pulverizing and drying operations at which time the fine silt and dust are removed and the values are next concentrated by means of a simple vibrating system. The dust from the latter operation is controlled by a vacuum system.

The machine is mounted on a three-ton truck chassis and travels about and operates on its own power, the only accessory unit required being a power shovel or drag line to feed it. A crew of three men is all that is required to operate the plant.

It is estimated that the cost per yard for complete operation with the harvester will run from 12 to 20 cents per yard, depending on the type of ground, moisture, etc. The machine, if successful under operating conditions, will fill a large gap in desert mining equipment. A small size model of the Barke Gold Harvester is being operated in an experimental manner and will also be used for prospecting and testing ground ahead of the larger operation.



Barke Gold Harvester

TITAN AMALGAMATORS SENT TO WIDELY SEPARATED PLACERS

THREE Titan rotary amalgamators have been shipped in recent weeks for use by widely separated mining companies, for greatly diversified service. The first of the three shipments went to Colorado, South America; the second to Red Bluff, California, where it will be employed in a 50-ton mill handling concentrates from quartz operation; and the third was shipped to Glendale, California, to be used in a dry-land dredge which will handle approximately 50 yards of gravel an hour.

The Titan rotary amalgamator is the newest member of the Titan family of mine and mill equipment manufactured by Mill and Mine Supply, Inc., Seattle, Washington, and is a result of a long period of painstaking research. Reports from operators where installations have been made indicate that splendid results have been obtained under a great variety of conditions. It is being employed by operators of placer dumps, placer properties, pilot mill dredges, and quartz mines.

The ideal location for the amalgamator is on a dredge where jigs are used immediately after the concentrating jigs, where the jigs' products are conducted directly into the machine. In a milling plant, where the capacity is not above that of the mill, the machine is put in circuit with the mill. Mills of larger capacity send their table middlings and concentrates through the machine. The operation is continuous, and the material, in its passage through the machine, is lifted and deposited by direct impact on the plates many times before it is discharged. Mercury is fed into the machine by an automatic mercury feeder so as to amalgamate thoroughly the gold content of the material being treated.

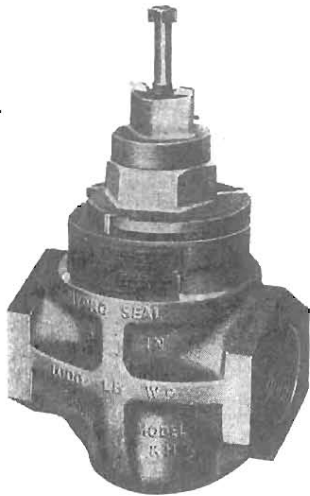
The amalgamator consists of a hexagonal cylinder 48 inches in length and 48 inches in diameter, rotating on ball-bearing rollers mounted upon a steel base. It is driven by a roller chain drive from a countershaft, which is an integral part of the machine, to a ring sprocket mounted centrally on the cylinder.

In operation, the machine is set so that the discharge end is about $\frac{3}{4}$ -inch higher than the feed end. From the inner point of the hexagonal cylinder, baffles or blades extend four inches in toward the center axis so that, in the passage of material through the drum, it is lifted by a rolling motion and deposited onto the amalgamation plates, of which there are six, 4 inches by 32 inches, working on both sides. The plates are of 18-gauge copper, plated with 2 ounces of silver to the square foot.

The sides of the cylinder are 10-gauge steel with $\frac{1}{8}$ -inch of rubber vulcanized on the inside, making the inside of the machine resistant to wear and insulating the whole against any fouling action as would be the case in an iron drum.

According to the manufacturers, the capacity of the amalgamators is 50 tons per 24 hours of ground ore, 35 tons per 24 hours of placer sand, or 24 tons per 24 hours of metallic concentrates of any nature.

FOR
Perfect Fluid Control
INSTALL
MacClatchie
"HYDRO-SEAL"
Plug Valves



At every point where perfect fluid control must be maintained under pressure, MacClatchie Hydro Seal Plug Valves will give complete satisfaction. Their grease-expanded lips and ball-thrust bearings keep them pressure-tight, leak-proof and easy to turn under any pressure.

Measure their longer life and continued efficiency against any other plug valve and see how MacClatchie Plug Valves give superior performance at a definite saving. Complete range of sizes and types.

Write for Bulletin!

MacCLATCHIE
Manufacturing Co.
Compton California

STEEL GRINDING BALLS

mill liners, castings of all kinds,
general machine repairing.

We buy scrap iron and steel.

Arizona Iron Works

19th Ave. at Harrison
Tel. 3-2984 P. O. Box 575
Phoenix, Arizona

DRY BANK PLANTS
BODINSON
BUILT
DRAG LINE DREDGES

2401 Bayshore Blvd., San Francisco

ration, at Jerome and Clarkdale. Benitez, a graduate of the School of Mines of London University, has spent 10 years as a consulting mining engineer in South Africa, and for the past 20 years has been one of the leading consulting mining engineers in Chile. He also is chief metallurgist for the Caja de Credito Mine Company of Santiago, the mining bank of the Republic of Chile. The bank operates ore purchasing stations, buying and milling ore from small mine operators, and deducting only the cost of refining and handling.

HENRY S. SWEET JOINS STAFF OF ROSEKLIP MINES COMPANY

HENRY S. SWEET has accepted a position as general superintendent of the Roseklip Mines Company at Bodie, California. The company is operating a 250-ton cyanide plant on dump ore from the old Standard property, and a crew of approximately 40 men is employed.

Sweet is well known in Mexican mining circles, having operated in Mexico for a number of years. He was named general superintendent of Cia. Minera de los Azules, S. A., at Santa Barbara, Chihuahua, Mexico, in 1935 and about a year later was promoted to the position of manager, which he held until early in 1937 when he resigned due to ill health.

Prior to his connection with Los Azules he had been associated with the Avalos Unit of Cia. Minera de Penoles and with the Charcas Unit of the American Smelting and Refining Company.

Before entering the Mexican field Sweet was employed at the Brewster quicksilver mine in Texas as superintendent. He is a member of the American Institute of Mining and Metallurgical Engineers.

GERALD M. KIRWAN TO JOIN STAFF OF CIA. MIN. DE OROURO

GERALD MAITLAND KIRWAN sailed April 9 for South America to join the staff of Cia. Minera de Oruro at Oruro, Bolivia, one of the Maurice Hochschild properties. He was formerly associated with the California Chemical Company at Gustine, California, as engineer and geologist.

He was born in Miles City, Montana, and attended Purdue for one year before the World War. Following the war he entered the Montana School of Mines, from which he was graduated in 1922 with a degree of mining engineer. In 1930 he took post graduate work in geology at Stanford University.

During his attendance at the Montana School of Mines, Kirwan worked as a miner with the Anaconda Copper Mining Company, and following his graduation he was employed in various mines in Utah and Arizona. In 1924 he joined the staff of the United Verde Copper Company, serving as miner, stope boss, sampler, and later chief sampler. He left the mining field in 1927 to become owner and manager of the Boulder Lodge guest ranch in Montana, but in 1931 he again returned to mining, following a year of post-graduate work at Stanford. In that year he joined the staff of the California Chemical Company.

OBITUARIES

Robert M. Gumaer, mining and civil engineer of Priest River, Idaho, died April 1938, at Portland, Oregon.

J. T. McShane, vice-president of Morse Bros. Machinery Company, died suddenly at his home in Denver, Colorado.

Clarence H. Roberts, metallurgist at American Smelting and Refining Company smelter, El Paso, Texas, died April 18 El Paso.

Charles Omland, for 15 years foreman for the International Smelting and Refining Company, Inspiration, Arizona, died April 17 in the Miami-Inspiration Hospital. He was 60 years old.

Fred McCormick, 70, prominent among the early day mining men of Montana, died recently at his home in Billings. At one time he was superintendent of the Snodgrass storm mine in the Billings district.

Alexander R. Beam, mining engineer, died April 17 at his home in Nogales, Arizona. He had been actively interested in the mining business until several years ago when he suffered a paralytic stroke.

H. A. Joughin of Libby, Montana, died April 1, 1938, at his home. Joughin was active in civic affairs, having served several terms as mayor and was at one time president of the city council. He was president of the Glacier Silver-Lead Mines until his resignation in 1934.

Harry Colin LaSalle died April 27 in Miami Inspiration Hospital, Miami, Arizona following a lingering illness. He was 75 years old. La Salle had been a resident of Miami since 1913 and had been employed as chief clerk at the Inspiration Consolidated Copper Company since 1925.

Omar J. Malcolm of Butte, Montana, died April 18, 1938, at his home in Butte. Malcolm was well known to the mining fraternity in Montana because of his position as manager of the Gibson Associates, Inc., a brokerage house of Butte. He was connected with the Conrad Banking Company at Great Falls for many years and was active in the early development of the northern Montana oil fields.

William Lewis Branch, Sr., 53, died April 17 at Prescott, Arizona. He was a graduate of Virginia Polytechnic Institute and was for a number of years associated with his father in the operation of the first venetian mill in West Virginia. Several years ago he established ore depots at Wickenburg and Prescott for the purchase of ore in small quantities from miners and prospectors. His son, Jack Branch, operates the Prescott depot.

Theodore Becker, 68, formerly chemist and assayer for the American Smelting and Refining Company at Garfield, Utah, died April 23 at a Salt Lake City hospital. He had been employed at the Garfield plant from 1906 to 1929 when he retired. Previously he had been assayer and chemist for the Stratton Independence mine in Colorado and at the AS&R plant at Pueblo, Colorado. He was a graduate of Cornell University, class of 1893.

Harry Clinton Goodrich, 70, chief engineer of the Utah Copper Company and the Bingham and Garfield railroad since 1929, died in a Salt Lake City, Utah, hospital after a long illness. Born in Chicago on January 27, 1868, Goodrich developed an interest in transportation and became an engineer on the Chicago and Northwestern railroad in 1887. He continued with this company in various capacities until 1899 when he was made location engineer for the Denver and Rio Grande Western lines. He went to the Utah Copper Company in 1907. He was a prolific writer of scientific treatises upon mining practices.

James Morrison Dikeman, mining engineer, died at his home in Penn Valley near Smartville, California, February 25, at the age of 71. A native of Rough and Ready, California, and a graduate of the University of California, Dikeman followed his profession in all parts of the world. He is credited with having assembled and purchased the different claims which later constituted the Liberty Bell mine at Telluride, Colorado. He was in the Couer d'Alene district at the time of the labor troubles in the early 1900's, followed by a period in South Africa as consulting engineer for the United Rhodesia Gold Fields, Ltd. Later he went to Mexico in the capacity of consulting engineer for Don Carlos Eisenmann of Temascaltepec, where he re-

mained until the revolution of 1910 forced the migration of Americans to the border. Following a period of management of Arizona and Nevada mines, he went to Alaska where he was active for several years. In 1930 he retired and returned to California.

RONE BRENT TEMPEST

RONE BRENT TEMPEST, general manager of the Chino Mines Division, Nevada Consolidated Copper Corporation, Hurley, New Mexico, died May 7, 1933, at Santa Rita Hospital, nine hours after he was found in the garage of his home at Silver City, New Mexico, with a self-inflicted bullet wound in the head.

Associates attributed his act to nervous strain induced by economic conditions at the mines and worry over a National Labor Relations Board hearing on corporation labor matters which has been in progress since May 2.

Tempest was a graduate of the University of Utah and had been associated with the Utah Copper Company at Bingham, Utah, for 20 years before joining the staff of the Chino Mines 10 years ago. He held the position of assistant general manager until July, 1933, when he was named acting general manager following the death of John M. Sully. On January 1, 1934, he assumed the duties of general manager and held that post until his death.

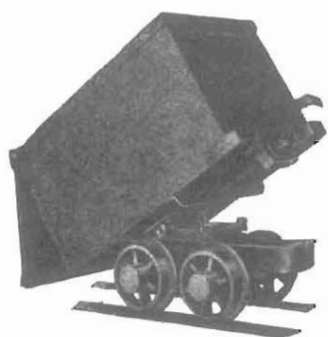
C. N. SCHUETTE WRITES ON QUICKSILVER IN OREGON

IN ORDER to bring the study of Oregon's quicksilver up to date and to encourage the local industry, the State Department of Geology and Mineral Industries arranged with C. N. Schuette, 533 Call Building, San Francisco, California, to make a survey of the subject and compile a report, designated Bulletin No. 4, Quicksilver in Oregon. The booklet, containing 172 pages and an abundance of maps, charts, and pictures, deals with the history and general aspect of quicksilver and quicksilver mining in Oregon. The second part is devoted to descriptions of specific properties and districts in the state.

The chapter dealing with the metallurgy of the metal should be especially helpful to quicksilver producers. Schuette's analysis of the economics of quicksilver, the effect of the quicksilver tariff, and his comments on the attitudes of the federal agencies, all of which are of course his own, are worthy of note.

During the year, 1937, approximately \$380,000 worth of quicksilver was produced in the state. The industry has grown up during the last 11 years, producing mines increasing from three to 14 in that time and over 27 mines and prospects are discussed in this bulletin. Schuette says "The Oregon quicksilver industry has

A
♣



A Standard
ore car generally accepted
by the trade as a strictly first
class car in every respect.

Available from Denver
stock, 14 to 20 cu.ft.
capacities.

The C.S. Card Iron Works Co.
Denver, Colorado



A
♣



A Standard
ore car generally accepted
by the trade as a strictly first
class car in every respect.

Available from Denver
stock, 14 to 20 cu.ft.
capacities.

The C.S. Card Iron Works Co.
Denver, Colorado



This goes double if you're looking for PROVED equipment

Now...

Stocked in El Paso

ALL ESSENTIAL ITEMS FOR
DRIVES, GEAR PROBLEMS,
CONVEYING, and
ELEVATING.

- BEARINGS
- CHAIN
- CLUTCHES
- CONVEYORS
- ELEVATORS
- FOOTE BROS.
SPEED REDUCERS
- GATES VULCO ROPES



- GEARS
- IDLERS
- PULLEYS
- SHAFTING
- SHEAVES

OTHER TRANSMISSION EQUIPMENT
TO CONSTITUTE A COMPLETE STOCK.
WRITE FOR LITERATURE, ENGINEER-
ING ASSISTANCE AND FACTORY
PRICES.

8

HOUR SERVICE TO
ARIZONA, NEW MEXICO,
MEXICO and TEXAS

Also a complete line of
Metallurgical Mill Equipment

HIRSCH BROTHERS
MACHINERY COMPANY
1901 BASSETT AVE.
EL PASO, TEXAS

TECHNICAL BOOKS
Carried in Stock
THE MINING JOURNAL
Phoenix, Arizona

learned how to 'ride the bumps' of the business and how to operate on the 'cut and run basis' that is necessary in the United States due to lack of protection from the dumping of foreign quicksilver produced by people living on a much lower scale than our own."

This publication may be obtained by addressing the State Department of Geology and Mineral Industries, 704 Lewis Building, Portland, Oregon, and the price is \$1.15.

KROLL DEVICE EXPLAINED AT LAST CHANCE MEETING

AT A RECENT meeting of the Last Chance Gulch Mining Association in Helena, Montana, Charles E. Pew delivered the first of a series of addresses on "Mining Laws" and Martin W. Kroll of the Caird Engineering Company, Helena, spoke on his Kroll electric amalgamator and precipitator and the Kroll impact amalgamator and concentrator. A testing unit of this equipment has been installed at the Caird Engineering works and is running tests at a nominal charge. One of the electric precipitators is said to have been shipped to Georgia for use and five of the impact amalgamators are in operation in the Helena area.

SILVER NATIONALIZATION IS REVOKED BY PRESIDENT

PRESIDENT ROOSEVELT has revoked an executive order of August 9, 1934, nationalizing all silver holdings in the United States and providing for their purchase at 50 cents an ounce. It was stated that the old order was revoked in order to simplify the procedure in handling newly mined silver which the treasury is buying at 64.64 cents an ounce.

The original decree was made in order to take up the floating silver supply in this country before the treasury embarked on the silver purchase program as provided for in the Silver Purchase Act of 1934. The order did not affect the price of newly mined silver and certain classes of the metal were exempted, provision having been made for licenses covering silver needed for industrial and commercial purposes.

Treasury officials state that practically all the silver involved in the nationalization decree has been purchased at 50 cents an ounce, 113,031,400 ounces having been acquired in that manner. Those primarily affected by the order were silver brokers who were forced to suspend trading on the futures market when the Silver Purchase Act became effective and their holdings were taken up at the 50-cent price.

There has been some talk of a possible resumption of silver trading by brokers since the President revoked the nationalization order, but, before this can be done, the tax of 50 per cent on all profits resulting from the exchange of silver will have to be removed. This would require legislative action since it is part of the Silver Purchase Act and trade circles concede that there is little possibility of this being done at the present time.

ARIZONA MINE ASSOCIATION MEMBERSHIP TOTALS OVER

THE Arizona Small Mine Operators' Association now has a membership considerably over 1,000. Twenty-two of the councils planned have been organized in various parts of the state, including Prescott, Kingman, Superior, Globe-Moqui, Winkelman, Mammoth, Tucson, Arizona, Nogales, Patagonia, Tombstone, Bisbee, Gleeson, Willcox, Safford, Duncan, Clifton, Florence, Ray, Casa Grande, Ajo, Yuma. Many of the councils have more than tripled their membership since organization. The Prescott, Tucson, and Superior Councils each have over 100 members. The Phoenix council is being organized at the middle of this month, which is expected to rank among the larger councils. The movement is for the betterment and protection of the Arizona mining industry and is planned to later work in conjunction with other state mining associations. The work is being directed by Charles F. Willis, editor of The Mining Journal, assisted by J. Coupal, field representative.

A state registry of mining properties with information as to owners and detailed descriptions was urged at the organizational meeting of the Ray Council, which was held April 23 at Ray, Arizona. Leo Wall was elected chairman of the group, J. Bathrick, vice-chairman; E. H. Rauch, secretary; and Neil Matheson and W. Parker as additional members of the executive committee.

Several speakers pointed out that the mines register would not accomplish much until steps were taken to make the state from a legislative standpoint, a better place in which to mine. Percy Wright, member of the executive committee of the Florence Council, was at the Ray meeting and emphasized that the greatest need of the small mine industry was the creating of conditions whereby capital could be invited and given assurance that it would be fairly treated after it came.

On April 27, the Casa Grande Council was organized. William Coxon was selected as chairman; Taylor W. Cain as vice-chairman; John W. Robinson as secretary; and R. W. Wood and C. S. McNatt as additional members of the executive committee.

Inasmuch as the difficulties relating to the withdrawal of the Papago Indian Reservation from prospecting was a close problem, the whole question of the withdrawal of public lands featured the discussion of that meeting. Instances were called where lands had been withdrawn from mineral entry without hearing or notice and the rights of small mine owners had been confiscated. Often they continued their work for several years after withdrawal and did not learn that the land was not subject to location until application for patent was made.

The need of education in safety among small mine operators featured the organizational meeting of the Ajo Council, held at Ajo, Arizona, April 30. It was pointed out that compensation insurance was one of the large cost items which was particularly burdensome on the small operators. R.

Harmon, member of the Arizona Safety Council, brought out the fact that, as a whole, the accident record of the mines in Arizona was excellent and very low as compared with other states. An analysis, however, showed that the safety work which is done by the large mining companies is responsible for the low state average and that there is great opportunity for improvement at the small mines.

The Ajo Council, the twenty-first council to be formed in the state, elected Albert I. Long of Ajo as chairman. He will be assisted by L. K. Davis, vice-chairman; T. E. Steele, secretary, and W. E. Hadsell and Ellis Malone, members of the executive committee.

The twenty-second council was organized at Yuma, Arizona, on May 4, with J. M. Worthington, Yuma, chairman; Roy E. Bennett, vice-chairman; and L. M. Snow, secretary. W. H. Trenchard and A. McIntyre are members of the executive committee.

The discussion at the Yuma meeting centered around the withdrawal of public lands, as much of the mineralized area in that section had been withdrawn without notice of hearing and many mine owners lost mineral rights that they had been years in acquiring. At the meeting J. S. Coupal read a letter from Senator Henry F. Ashurst commenting on the Willcox Bill.

Ashurst's statement was heartening to the small mine operators for he said: "I am opposed to the withdrawal of lands for federal reserves unless such withdrawal is definitely urged by the land department of our state and also by the board of supervisors of the county in which the lands are located. I hope that Congress will reject any bill which proposes to destroy or radically change the system of mining laws under which discovery and location are the basis of the right to acquire and develop mining claims."

A communication was also received from Senator Carl Hayden who stated: "Frankly, I doubt if Congress will be willing to give up its jurisdiction over public lands by the passage of this measure (Willcox Bill) and therefore believe that you do not have anything to fear."

HIGH-GRADERS OF BLACK OAK MINE ARE CONVICTED

TWO former employes of the Black Oak mine, Garden Valley, California, face sentences of from one to 10 years in San Quentin as a result of their conviction on charges of grand theft in connection with high-grading activities at the Black Oak.

In addition, four other former employes are serving three-month sentences in the county jail for similar charges, to which they pleaded guilty. The two who received the heavier sentences had pleaded not guilty.

A number of arrests were made in connection with the high-grading activities at the Black Oak mine, owned by Russell J. Wilson of Garden Valley, which are said to have been going on for the past two years. Approximately \$8,000 in cash and \$4,000 in high-grade ore have been recovered since the series of arrests began.

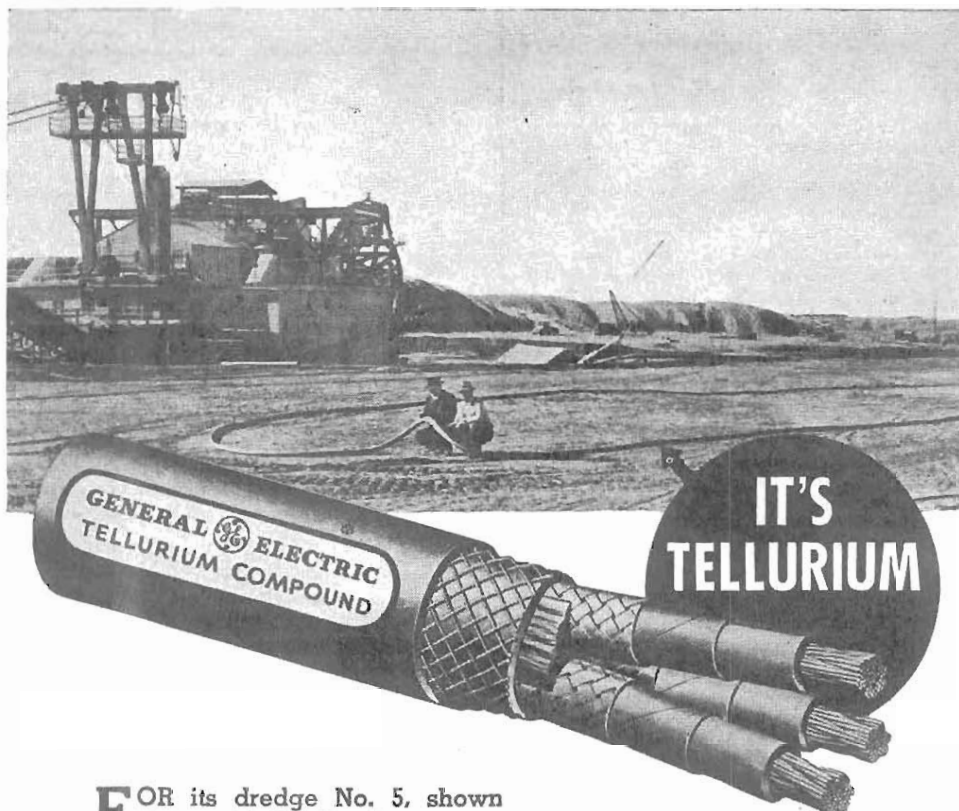
SHEEPRANCH MINE OF ST. JOSEPH LEAD CO. IS NOW ON PRODUCTION

THE Sheepranch mine at Sheepranch, California, which was taken over early in 1937 by the St. Joseph Lead Company, was placed on a production basis in January, 1938, and is now operating satisfactorily. The company started construction of a modern 150-ton mill in August, 1937, in which was installed all new equipment of the latest available type.

The flow-sheet for the new plant, as described by Pacific Chemical and Metallurgical Industries, is as follows: The ore is received in the crusher building, passing across a 30-inch pan feeder and down over a vibrating screen to a two-foot, four-inch

gyratory crusher. An 18-inch rubber and fabric conveyor belt picks up the output of the crusher and returns it to the feeder, thus making a closed circuit which continues to circulate pieces which are too large to pass through the screen. The undersized material, passing through the 5/8-inch screen, is deposited on an 18-inch rubber and fabric conveyor which carries it for more than 200 feet to the mill proper where it is deposited in a 250-ton bin.

From the bin the ore is withdrawn by a constant-weight feeder, put through a sampler, and then introduced into a six-by-six-foot ball mill, followed by a screen of 0.12-inch mesh. The undersize progresses to a two-compartment jig and tailings from the jig are introduced into a flotation cell.



FOR its dredge No. 5, shown above, this Pacific Coast gold-mining company has selected G-E tellurium-rubber portable cable. It is a shielded-type (SH), 3,000 volts, three-conductor, 350,000 cir mils, 1200 feet long.

Experience with tellurium on four other dredges led to its selection for this job and testifies to the ability of the cable to stand rough usage.

The constant increase in size of electric shovels and dredges has made the task of selecting a type of trailing cable difficult. Many factors must be taken into account. And you profit most when the cable is right for each job. To this end, make full use of the services of a G-E cable specialist and get the most for your cable dollar. He can help in the selection of the RIGHT type for long-term economy. Address nearest G-E sales office or General Electric, Dept. 6-201, Schenectady, N. Y.

GENERAL ELECTRIC

The Sampling Mill by Fisher Vane



*** Let's make this fortnightly commentary economic—from the slant of mine investment . . . or, rather, from the slant of sparseness of mine investment these days. On a number of occasions during the past couple of years we've "viewed with alarm" from that angle and discussed trends—or their absence.

*** FEAR COMPLEX has been spotlighted more than once as the main cause of present and recent difficulty in enlisting capital for legitimate mining development. We have discussed the phenomenon from the banking angle (both corners of that angle in fact—the banker's own, and the depositor's). Its effects, direct and indirect, are wide. They bear down alike on mine property owners and on wage earners.

*** Ralph E. Flanders, who isn't a mining man but a prominent New England business man, and an able economist as well, was called this spring before the Senate Unemployment and Relief Committee. Dormant, idle personal accounts in banks, he averred, and big cash balances of life insurance companies, are jointly responsible for an all-time record in the Nation's bank deposits. Hand-in-hand with that condition has gone a continuous falling off in commercial loans by banks. "There is," testified Flanders, "the strongest evidence that the holders of these deposits (hundreds of thousands of individuals) are unwilling to spend and afraid to invest."

*** Throughout the business structure this destructive phenomenon, manifest in the Average Citizen (personally), shows itself in postponement of replacement of jobber and retailer stocks, even to the point where retail buyers find it hard to supply their needs when shopping.

*** Just so long as that general, widespread fear-complex has in its grip both the banker and the man in the street (and his womenfolks, too), with retailer, jobber, and manufacturer jittering away in between them, just that long will owners, lessees, and purchasers of legitimate mining properties find it about as difficult to enlist development or operating capital, east or west, as it was for the Biblical camel to amble through the eye of the needle.

*** You can't blame the bankers for their attitude, their withdrawals into their shells, their—er, failure to effervesce and enthuse (or comply) when commercial loans are sought. Their attitude is both a cause and an effect of the present state of industrial and business suspended animation. Greatly to blame for it has been the arrogance and ignorance of bank examiners under the New Deal regime of national bank control and supervision. It has simply made lots of American bankers rebellious, and has laid on them a banking aspect of the national fear-complex that it will take a long time to cure or even remedy.

*** Business and industry today, it will be apparent, are between the devil and the deep blue sea. From the viewpoint of capitalization and financing, the mining industry is in exactly that same spot. It will remain there until the nationwide fear-complex has evaporated in the sunshine of saner administration policies.

whose tails in turn also return to the classifier.

The concentrate from the flotation machine travels to a second jig, 12 by 12 inches, whose tailings pass to a four-foot, two-inch disc filter. Hutch products of both jigs are processed in a two by four-foot amalgam barrel, the resulting ground hutch product passing to a four-foot batea or mechanical pan. From this the amalgam goes through an air press to eliminate surplus mercury, the dry amalgam is cooked in a 14-pint Nevada-type retort, and the sponge is melted in a graphite, tilting, oil-fired melting furnace.

The oversize from the screen following the ball mill is received by a 6 by 26-foot drag-type classifier, into which also go the tailings from the flotation cell. The product of the classifier is transported by a three-inch pump to a four-cell flotation machine whose tailings are discharged to waste. Concentrate from the machine goes to a cleaner, followed by a recleaner, while tails from both of these are returned to the pump for recirculation, thus making another closed circuit.

The concentrate from the recleaner is joined by the tails from the second jig and a two-inch pump also delivers into this flow the tails from the batea. All of these are put through a four-foot, two-inch disc-type filter, whose output is the finished product.

In addition to the mill proper, the new plant is equipped with all necessary facilities for assay and sample work. In charge of operations at the 150-ton mill is F. H. Skeels, plant manager, and L. D. Youndt directs production as mill superintendent.

The mine at Sheepranch is believed to have been discovered by a Captain Ferguson some time during the period from 1855 to 1860. It was taken over in 1869 by Hagan and Hearst and operated by them more or less continuously until 1893. The mine then passed into the hands of C. L. Feusier of San Francisco who worked it from time to time up to 1918. During the next four years other parties carried on minor operations, but 1922 marked the end of activity and for 15 years thereafter the mine remained closed.

STUDY OF METHODS FOR MINING POTASH SALTS IN NEW MEXICO

STUDIES of the mechanical properties of the potash-bearing salt being mined near Carlsbad, New Mexico, and of the rock salt that overlies it and forms the mine roof, have been completed recently by the United States Bureau of Mines. These tests were made to obtain fundamental data of use in planning mining methods for this valuable potash-bearing mineral which is found nearly 1,000 feet below the surface of the earth. The tests indicate that a load of 2,000 pounds per square inch can be supported for a time comparable to the life of a mine. The information obtained makes it possible to devise methods of mining by which practically all of the available potash-bearing salt can be recovered without breaking the roof.

To conduct this test work it was necessary to devise apparatus by means of which constant load could be applied to test speci-

mens over long periods of time, stated P. Greenwald, in a paper presented before the Pennsylvania Conference of College Physics Teachers at Scranton, Pennsylvania April 2. At the same time, it was necessary to measure distortion of the specimen accurately every day. It was found that the mineral had marked plastic properties a flowed like clay when under heavy load. Important factors in determining the rate of flow are the proportion of potassium chloride in the mineral and the pressure applied. The salt is tough and tenacious and does not break suddenly when overloaded. Instead, there is a steady spalling of local material from all free surfaces.

The rock salt which forms the roof of the mine is stronger and more rigid than the potash-bearing salt being mined. Under proper mining conditions it is not like that this roof salt will break and admit water which is present in overlying strata.

TAILING CONVEYANCE TO BE STUDIED AT MINES SCHOOL

IN AN attempt to answer one of the major problems that face the mining industry, the mechanics department of the Colorado School of Mines at Golden is carrying on experiments in regard to the conveying of tailings in pipes and launders. Substantial support has been received from mining and equipment firms, including the A. R. Wiley and Sons, R. Hardesty Manufacturing Company, Coores Industries, Inc., and others.

It is often necessary to convey tailings considerable distance and little is known of the problems involved. A 200-foot pipe at an open launder will be installed north of the experimental plant at Golden and by using this equipment for investigations of pipe flow under variable conditions, empirical formulas will be obtained for the practical design of such conveyors. With such formulas and a description of the particular tailings to be handled, an engineer will be able to determine accurately the required pump head for a pipe-line, the most economical velocity at which to pump the pulp and therefore the most economical size pipe to use. Ultimately, other important hydraulic problems will be investigated.

Principal items in the basic equipment will be a 1,500-gallon pulp mixing tank, 6-inch Wilfley sand pump, 50-horsepower electric motor, 200 feet of horizontal pipe of two, four, or six-inch diameter, an open launder for returning the pulp to the mixing tank, and a 300-gallon measuring tank. Valves will direct the pulp through the pipe-line at any desired head and location of head will be determined by a special design of piezometer installed at both ends of the pipe-line. For a distance of 150 feet the launder will be set at a fixed slope of 3 per cent, but the last 50 feet will be mounted as a test section so that the slope may be varied between zero and 5 per cent.

Professor Samuel Shulits of the mechanics department and J. Roos Reed, formerly in metallurgy, recently finished a blueprint on the proposed experimental investigations. The work will be started this semester, but because of difficulties in securing equipment, the entire system will not be ready to operate until next fall.

Justrite
MINERS' LAMPS

THE LAMP
that puts

DAYLIGHT
UNDERGROUND

Dependable lamps that give you plenty of light—that's the story of Justrite Miners' Lamps!

For Justrite Lamps are the product of highest grade materials and finest precision workmanship . . . the famous Justrite Mining Lamp patents . . . and the incomparable experience of more than 28 years in the research and manufacture of finer lamps for miners. That means you get higher efficiency and greater economy . . . when your miners use Justrite Miners' Lamps.

Every type, every size—Justrite Lamps will give you complete satisfaction.

Write for the New Justrite Miners' Lamp Catalogue TODAY.



Justrite "Full Shift" Lamp (large size) — The only lamp in which Valve Stem can be taken out and cleaned and the light will not go out! All other famous, exclusive Justrite features included.



Justrite Cap Lamp— with new Protecto Grip, for cooler handling and to protect the lamp bottom. Removable cap spring; positive water feed; hinged water door eliminates staple.

JUSTRITE MANUFACTURING CO.
2083 Southport Avenue, Chicago, Illinois

CORE DRILLING
DIAMONDS

BORTS — CARBON

ALL TYPES

Prompt Service Anywhere

RALPH R. HANSON

U. S. INDUSTRIAL DIAMOND CORPN.
310 S. Michigan Ave. Chicago, Ills.

zona. Three men are engaged in sampling, road repair, and rehabilitation of the buildings. Two compressors are being overhauled for use at the property and active operations are expected to be under way early in May. Seth Langley is superintendent at the mine.

The Crown King mine has been unwatered to the 600-foot level and that drift is being cleaned out and retimbered. This work will be followed by the unwatering of an 85-foot winze. Preparatory work will be followed by active mining with a view to exploring the rich ore shoot from which ore was taken by the old Crown King company. The mine is being developed by the Phoenix-Sa atoga Mining Company, W. L. Simon, general manager, and Charles S. Broan, superintendent, Crown King, Arizona.

Development work is progressing at the Rio del Monte mine in the Ellsworth mining district near Salome, Arizona, under the direction of Robert W. Higgins, vice president and engineer in charge of operations for the Seaboard Mining Company. B. M. Snyder, consulting engineer of Los Angeles, California, is to make an examination of the property soon. The Seaboard company also holds an option on six other claims in the same district, including the Consolidated Bonanza, Summit, Narrow Gauge, Grandview, North Pole, and Wedge. The company address at Salome is Box 612. Phoenix, Arizona, offices are at 146 West Adams Street.

The furnace at the Hayden smelter of the American Smelting and Refining Company, Hayden, Arizona, has been blown in and the plant is beginning another run. The smelter had been closed down for three months for repairs, and to permit an accumulation of concentrates from the Nevada Consolidated Copper Company. H. F. Easter is superintendent of the A. S. and R. smelter.

A crew of 86 men is engaged in reopening the Bywater mine in the Dripping Springs district about 28 miles southeast of Globe, Arizona, for the International Vanadium Corporation, under the direction of P. F. de Villiers, Vanadium City, Globe. Of the total, 32 are employed underground and 54 above ground. The underground work consists principally of enlarging and timbering the 200-foot level and a drift. The crew above ground is building a new change room and hospital and is getting the equipment ready for operation. No ore is being produced at present.

The Old Glory Mining Company has completed the construction of a mill at the Old Glory mine near Ruby, Arizona, and is engaged in running a drift to facilitate handling of the ore. Twelve men are employed, four of them underground, and work is directed by P. E. Malloy. Principal values are in gold and silver.

A drift is being run on the vein at the Little Daisy mine northeast of Mesa, Arizona, in the Sunflower mining district, under the direction of T. J. Russell, superintendent, Box 502, Mesa. The work is of a development nature and a crew of six men is employed. The property is owned by H. G. Harrison, T. L. Daniels, and Russell.

Diamond drilling operations have been started at the American Boy mine, P. P. Gonia, Arizona, under the direction of A. Gross and his son, Forrest, who are on the property. The tunnel is now more than half-mile in length, according to Gross.

Operations are to be resumed in the near future at the Richinbar mine near Cordes, Arizona, which has been closed down for the past two years. A small crew is engaged in laying pipe and cleaning the camp. J. A. Hamilton, superintendent, will direct the reopening of the property. The mine is held by the Sterling Gold Mining Corporation, headed by Hamilton.

Contract for construction of the new 10-ton all-slime, counter-current decantation plant at the Crystal mine, Shingle Springs, California, has been awarded to the Mines Engineering and Equipment Company, 369 Pine Street, San Francisco. The company has in turn sub-



contracted O. J. Scherer Construction Company, Angels Camp, California. All equipment is being furnished by the Mine and Smelter Supply Company, Denver, for whom the Mines Engineering and Equipment Company is California representative. The plant will consist of a 10-ton ball mill; Marcy ball mill; Deere classifier; thickening, and agitating machinery; and Merrill-Crowe precipitation equipment. It is expected to be ready for operation early in July. The metallurgical work on the new mill was done by Willis A. Crowfoot, metallurgical engineer of the Crystal mine, and he will supervise construction.

Large scale gold mining operations are to begin immediately at the Stewart Gray Mines in the Gold Run district near Auburn, California, according to James Stewart, Auburn, owner of the property. W. C. Riggs, 910 Valley National Bank Building, Tucson, Arizona, and a group of associates have taken over the property and are planning the use of a modern mechanical process for handling of the gold-bearing gravel. The property is said to be one of the largest gold-bearing gravel deposits in California, and is reported to include more than 100,000,000 yards of gravel.

Milling operations are on a 24-hour basis at the property of North Canyon Mines, Inc., Walter H. Parsons, president and general manager, Greenville, California, and a crew of 32 men is employed at the New York and Droege mines, which are being developed by the company.

Plans are under way for large scale development of the Sullivan quartz mine, located in the Tuttle town district near Sonora, California, according to Jack Sullivan, owner of the property. Colorado mining interests, headed by O. B. Brown, have dewatered the 120-foot shaft and have completed sampling operations, which are reported to have been highly satisfactory. The mine address is R. F. D. 1, Sonora.

Installation of new retorts is nearing completion at the property of the Sulphur Diggers, Inc., near Big Pine, California, under the direction of Clayton Van Alstyne, superintendent, and an extensive expansion program is planned for the summer, it is reported. The present crew comprises 20 men. Sidney B. Wood, Jr., is president of the company, which has offices at 9172 Sunset Boulevard, Hollywood, California.

Sidney Smith and Frank Jones, both of Mojave, California, have been awarded a contract for running 200 feet of tunnel at the Gum Tree mine, owned by Jess Knight, and work is under way. The work consists of extending two crosscuts from the bottom level an additional 100 feet in each direction. Water has been encountered in the west crosscut and if the volume continues to increase it may be necessary to install pumps to keep the crosscut from being flooded.

The Whitmore Mines, Inc., Bob Dameron superintendent, Mojave, California, is engaged in an improvement program which calls for abandonment of the No. 3 shaft and the enlargement and improvement of the No. 6 shaft. All of the electrical equipment at the No. 3 shaft is being installed at the No. 6, including an electric hoist and a compressor. A new skip will also be installed to speed up removal of ore from the No. 6 shaft and a new head frame and hoist house are being built. Installation of the electrical equipment will necessitate the extension of the power line a distance of one-half mile.

A new two-foot vein carrying high values in quicksilver is reported to have been encountered at the Contact quicksilver mine located in the Pine Flat district 19 miles northeast of Healdsburg, California. The mine is being developed by H. G. Walker, 233 East Plaza Street, Reno, Nevada, and associates. Harry Painter is mine foreman at the property.

The Pioneer mine, located about three miles east of Plymouth, California, is again in operation after having been closed down for two years. A new gallows frame and a milling plant are to be installed at the property. Frank D. Garbarini of Jackson, California, is superintendent, and B. C. Clark, Sutter Creek, California, is engineer.

It is believed that operations may be resumed shortly at the Argonaut mine, Jackson, California, which has been closed since February 15 in an attempt to smother a fire that broke out on the 4,350-foot level. Workmen have removed bulkheads in the main shaft and opened iron doors on the various levels, and indications are that the fire is out and that operations may be resumed. Much work must be done, however, before mining can be started, including dewatering of the mine, repairs to portions damaged by fire on the 4,350-foot level, clearing out of a crosspit which caved on the fire level, and repair of the signal system. The mine is operated by the Argonaut Mining Company, Alex Ross, general superintendent, Jackson.

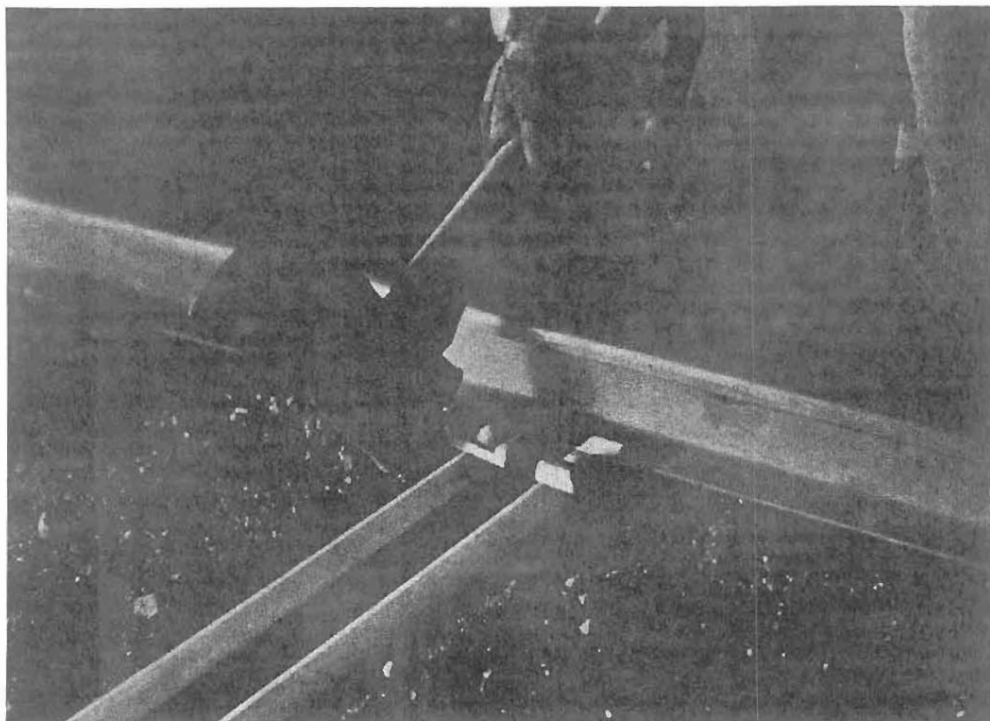
At a recent meeting of the board of directors of the California Engels Mining

Company, 351 California Street, San Francisco, California, John O. Larson was named president to succeed F. Emerson Hoar. The company is to be reorganized, it is understood, the operating staff reduced, and expenses greatly curtailed. The company's principal property, the Engels mine near Greenville, California, has been closed down for several years and activity has been confined to minor development work at properties under lease in the Angels Camp district. The company reported a net loss of \$24,117 for 1937, earnings totaling \$1,386, and expenses, \$25,503. The net worth of the company is shown as \$651,408.

A new cyanide plant is to be constructed this spring at the gravel mine of the Ger-

trude Mining Exploration Company near Jamestown, California. Operations are expected to be in full swing by June, following a long winter shutdown necessitated by storm conditions. The organization was formerly known as the Calaveras Land Company and last year completed construction of a 1,000-ton mill at its property. Work at the Gertrude will consist of tapping a vast yardage of virgin placer ground. Material will be dug by means of a power shovel and will be transferred to the mill for reduction. About 35 men will be employed when the new cyanide plant is completed. Joseph S. Cademortari, Columbia, California, is superintendent of the company.

Development of the principal vein at the Finney mine, Downieville, California, is



3 Money-Saving Advantages of Bethlehem Steel Mine Ties

1. Bethlehem steel ties are durable, do not spike cut or rot, and can be relaid many times without damage. *You save by reducing replacements.*
2. Bethlehem steel ties have rugged channel sections, giving ample support; they have strong clips which snap into place and hold the track in a permanent, vise-like grip. *You save by reducing spillage.*
3. Bethlehem steel ties make track gaging unnecessary. The clips automatically gage the rails correctly. *You save by reducing track-laying time.*

• • •

Among other Bethlehem products for mines are—hollow drill steel, frogs and switches, 88-80 castings for grinding, abrasive-resisting plates, spikes, bolts and nuts, fabricated steel structures, wire rope.

BETHLEHEM STEEL COMPANY



WHY

YOU SHOULD USE

KEYSTONE CONDENSED OIL

It is a specialized lubricant, expressly made for its job. It is guaranteed in writing to save you at least 10% of your lubrication costs.

FOR ELECTRIC MOTOR RING OIL BEARINGS . . . Keystone Condensed Oil resists thinning out, does not creep, prevents saturation of windings, requires fewer applications, needs only 1/3 to 1/6 as much make up.

FOR AIR COMPRESSOR CYLINDERS . . . it provides better piston seal, cleaner valves and cages, minimizes overhaul jobs; its greater work capacity cuts lubrication costs.

ASK FOR PROOF!



NEW! The Keystone BB Fitting Low Pressure Lubrication for Ball and Roller Bearings saves time and bearings by providing positive control against dangerous over-lubrication.

Details sent promptly

PAT. PEND.

PRATT-GILBERT HARDWARE CO.

PHOENIX, ARIZONA

701 S. Seventh St. Phone 3-5145

Prompt shipments from stock

Phoenix Pine Oil for flotation

Manufactured by
Phoenix Naval Stores Co., Inc.
Gulfport, Mississippi

Western Distributor
MARSHALL DILL
26-28-30 Bluxome St., San Francisco

Los Angeles—Portland—Seattle
Spokane—Denver

said to be disclosing gold ore of milling grade, and arrangements have been completed for steady shipments to the mill on the Oro property adjoining the Finney. The mine has been completely rehabilitated following severe damage suffered in a flood during December. All equipment has been reconditioned, new buildings erected, and some changes in location made to avoid danger from possible future high water. Martin H. Miller is in charge of operations at the mine, which is being developed by Ira Mahon and associates of Portland, Oregon. The Oro mine, which is equipped with a 10-stamp mill, was taken over by the Mahon interests last fall.

The **Desert Gold and Aluminum Corporation**, S. C. Hedrick, president, Arcade Building, Seattle, Washington, has completed the sinking of a well at its property in the Chocolate Mountains of Imperial County, California, preparatory to starting placer operations. The company has also completed a diamond drilling program at the property which is said to have disclosed satisfactory gold values. The next step is to be the installation of adequate equipment to carry on operations, according to Hedrick, who has recently returned to Seattle following eight months spent in directing work at the property. The values are said to occur in adobe clay, and it will be necessary to do some muddling in order to make a complete recovery. Ordinary sluice boxes were found to be inadequate in recovering the values.

The **Miners Foundry**, Nevada City, California, has completed delivery of a 150-ton ball mill to the Scotia shaft of the **Golden Center** mine, Grass Valley, California. Other equipment to be furnished for the mine by the foundry includes a jig, conveyor, and an electrically timed sampling device. The **Miners Foundry** has also delivered to the **North Canyon Mines, Inc.**, Greenville, California, one of the new jigs invented by the foundry.

The **Sovereign Development Company**, Ogilby, California, is operating the **Sovereign** mine under the direction of Thomas L. Woodruff, vice-president and manager. The ore is hauled by truck a distance of two miles to the company's 30-ton cyanide plant for treatment. A crew of 15 men is employed.

The **Cardinal Gold Mining Company**, Bishop, California, reports for the year ended December 31, 1937, a net loss of \$77,369 after all charges, including depletion, depreciation, and provision for state taxes. This compares with a net profit of \$16,713 after similar charges and provision for federal income taxes, reported for the preceding year. The company reported current assets of \$126,718 and current liabilities of \$24,302, as of December 31, 1937, which compares with current assets of \$103,202 and current liabilities of \$37,204 on December 31, 1936. Victor Bongard is manager of the company.

Arrangements are being completed to reopen the **Western** placer mine, three miles below Seneca, California, on the North Fork of the Feather River, by M. A. McLeod, owner of the property. Present plans call for extension of the bed rock work

tunnel some 400 feet to strike the streak near the junction of the West Sunnyside, Dutch Hill, and Glacier channels, all of which are generally concave to meet under Big Flat. The West holdings embrace the lower portion of lava-capped network of old channels known as Big Flat.

The **Glacier Mining Company**, William McMillan, manager, Seneca, California, is again on a production basis, following shutdown for the installation of new equipment and general repairs. Twenty men are employed. Bert C. Austin, consulting engineer of San Francisco, is the engineer in charge. The property being worked is under lease from Mrs. Mary M. Cameron, Seneca, California.

D. M. Ray, Michigan Bluff, California, has been granted a permit to divert cubic feet of water per second from Middle Fork of the American River for mining purposes. The development of water is to cost approximately \$20,000.

John Hilton and Edward Addington, both of Nevada City, California, have secured a four-ton mill which they plan to install at the **Horseshoe** mine near Forbestown. They have the property under option and are preparing for active development.

The **River Pines Mining Company** is operating steadily 12 miles north of Plymouth, California, using a doodle bug dredge and employing a crew of seven men. The boat is handling 200 yards of gravel per hour. A 1 1/4-yard shovel is being used. Frank C. Cuffe is manager.

Ed. R. Winn, 2612 Q Street, Sacramento, California, has changed the name of the **Camp Far West** mine, six miles east of Wheatland, California, to the **Bear River Mining Company** and is preparing to develop the property. The mine has been active for about a year.

An additional Caterpillar Diesel tract and an eight-yard Le Tourneau Carryall have been installed at the property of the **St. Lawrence Mining Company**, one mile above Happy Camp, California, doubling the capacity and output of the mine. Thirteen men are employed, working three eight-hour shifts, under the direction of George I. Fenton, general manager, and H. E. Coleman, mine foreman. The company is working the **Minnie Reeves** placer property and water is secured from Indian Creek dam by means of a ditch and pipeline, developing a 70-foot hydraulic pressure at the property. Approximately 80 miners' inches of water is used, moving 1,500 cubic yards of gravel every 24 hours. The gravel is washed in a 14-yard steel hopper, followed by a 60-foot steel flume. A four-inch giant is used to stack tailing below the flume. The property is equipped with an electric plant which generates power for mining and domestic use.

The San Francisco plants of the **Federal Metals Division, American Smelting and Refining Company**, have been reopened following a three-month shutdown because of labor difficulties. Complete settlement with the unions has been reached and the plants are ready to render full service, according to the company's announcement.

S. Jacobson is manager of the San Francisco branch.

Deepening of the Kid shaft to reach the tunnel run from the ninth level of the Tropico mine is in progress, according to Burton Brothers, Rosamond, California, owners of the mine. The deep development of the Kid shaft is for the purpose of opening rich ore bodies which have been worked on higher levels.

Progress is reported in operations at the Phar Lap mine, Mojave, California, which is being operated by J. C. Rutherford, E. J. Maxwell, and T. Boles. A gallows frame, gasoline hoist, tram car, rails, and blacksmith shop are among improvements made at the property, and two shafts are being sunk. The largest shaft is to be carried to the 200-foot level before crosscutting is started. The smaller shaft is down 50 feet on the hanging wall of a vein.

Ore development is proceeding at the Flume House mine near Mokelumne Hill, California, and recent work is reported to have exposed values in new territory. Electricity has replaced gasoline power and the property has been equipped with an electric hoist, electric pumps, and a 100-ton mill. The shaft is served by a 40-foot headframe. Clayton Chatfield, Valley Springs, California, is general superintendent in charge of operations. John Sanguinetti is mine superintendent.

The 50-ton flotation plant at the Columbia mine of the Eau Claire Ore Company, located in the Dawes district near Kelso, California, has been placed in operation. Butane-powered electric generators furnish power for operations and water is supplied by the mine. Principal values are in gold and silver with some lead and copper. Rapid development of the ore reserves is planned. Sinking operations from the 400-foot level of the inclined shaft, and additional drifting on the 300-foot level will complete the blocking of a large tonnage of ore. Present milling will be confined to dump ore. The mill was installed under the direction of W. T. Hagadorn, superintendent.

Shovel operations are planned for development of the Haddick-Dempsey properties near Quincy, California, in the Cromberg district, under the direction of Ray Scriven, Quincy, superintendent. The property is being reopened by M. C. Rosenfeld of Cleveland, Ohio, and it is planned to handle about 300 yards of gravel per day. The mine was formerly known as the Tefft and includes the Lone Star, Fraction, and Concordia claims. The holdings comprise about 335 acres.

The Zinc mine located in the Walker Pass district near Kernville, California, has been acquired by Walter E. Trent, Rosamond, California, from a group of Taft and Bakersfield men, including Terdevich and Basich, A. P. Lund, Frank V. Keough, W. P. Moon, and Martin Nelson. A crew of men is engaged in sinking an exploratory shaft beyond the 40-foot level. The property carries heavy zinc sulphide ore together with lead, iron, and manganese. Trent is president of the Whitmore Mines, Inc., Rosamond, California.

For the second time during the past few months the blacksmith shop and other surface buildings at the Treasury Tunnel

COLORADO

mine of the San Juan Metals Corporation were destroyed by fire. Mining will be suspended for a short period while the damage is repaired. The company employs around 100 men under the management of J. P. MacFadden at Ouray, Colorado. Frank Eichelberger, Box 229, Wallace, Idaho, is president.

For the quarter ended March 31, 1938, the Climax Molybdenum Company showed a net profit of \$1,991,806 after depletion, depreciation, federal income taxes, and sur-

tax on undistributed profits. This is equal to 79 cents a share on 2,520,000 shares of capital stock and compares with \$1,679,906 or 66 cents a share in the March quarter of 1937. William J. Coulter is in charge of operations, located at Climax, Colorado.

A. B. Weldon and A. C. Carey, both of Boulder, Colorado, are reported to have reopened the Boulder Ore Sampler at 814 Pearl Street, Boulder. This plant was operated from 1933 to 1937 by the St. Joe Mining and Milling Company and when operating is a valuable outlet for ore from the small producers in the district. Carey, who has recently been employed by the Crystal Fluorspar Company, was at one time manager of the sampler.

DOWN GO ACCIDENTS
AND
COMPENSATION

UP GO EFFICIENCY
AND MORALE

These products *prove*—every day throughout the mining world—that the frequency and severity of injuries decrease, compensation costs go down and efficiency rises wherever they are employed.

That's why Edison Electric Cap Lamps and M.S.A. Skullgards are the most popular and widely used safety devices of their types on the American Continent today!

Investigate the benefits to *you* provided by the brighter, better-directed working light of Edison Electric Cap Lamps—the great fracture-resisting strength and light, cool comfort of M.S.A. Skullgards.

● Write for a practical demonstration in your own operations.



MINE SAFETY APPLIANCES CO.
Braddock, Thomas and Meade Streets, Pittsburgh, Pa.
District Representatives in Principal Cities

EDISON ELECTRIC CAP LAMPS M·S·A SKULLGARDS

days compared with 515 days in 1936. Output of gold was slightly less than in 1936. Some further dredging areas were prospected and developed during the year.

The Utah Railway Company transported 1,258,385 tons of revenue coal and 8,917 tons of other revenue commodities, a total of 1,267,300 tons compared with 1,065,862 tons in 1936.

IDAHO MARYLAND MINES CORP. REPORTS PROFITABLE YEAR

THE Idaho Maryland Mines Corporation reported a total income of \$4,036,415 for the year 1937, as compared with \$3,558,054 in 1936. Net earnings were \$1,124,805 and dividends totaled \$969,265, the highest since the company and its predecessors began operations.

During the year 305,107 tons of ore were produced from the company's Grass Valley operations, of which 95,378 tons were hoisted through the Idaho Maryland shaft, and 209,729 tons through the Brunswick shaft. Of the total, 197,834 tons were from stoping operations and 107,273 tons from development. There were also treated 13,627 tons of custom ore, of which 12,911 tons came from the Grass Valley Bullion Mines.

The gross recovered value of the 305,107 tons of Idaho Maryland-Brunswick ore was \$3,712,812, at an average value per ton of \$12.17 as compared with an average value of \$11.25 for 1936. The average tailings loss for 1937 amounted to 51 cents as compared to 59 cents for the previous year.

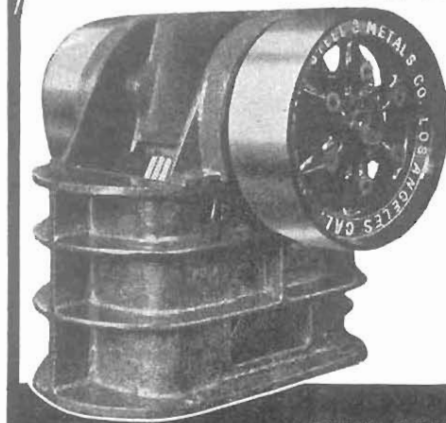
The total recovered value of Grass Valley Bullion ore and custom ore and concentrate purchased was \$176,786, as compared to \$217,836 in 1936, and the 1937 custom revenue was \$36,914.

The total recovered value of company production before mint charges from its Grass Valley and Forbestown mines amounted to \$3,994,234 with a head value of \$4,206,714, resulting in a tailings loss of \$212,480 derived from the treatment of 147,492 tons of ore and 53,625 tons of tailings, whereas the 1936 production of the same mines indicated a recovered value of \$3,374,151 from a head value of \$3,564,223, with a tailings loss of \$190,072, derived from the treatment of 305,015 tons of ore and 24,510 tons of tailings and a small lot of 150 tons of old dump ore.

A total of \$62,785 was expended for improvements to plant and equipment during the year, as compared with \$159,471 in 1936. The major outlay was for increased grinding and flotation facilities in the new Idaho plant, and the installation of another 2,250-foot compressor at the New Brunswick plant.

At the company's Forbestown property, with a temporary shutdown in March and April, 42,285 tons of ore were produced and treated at Forbestown. The ore had a head value of \$240,567, or \$5.69 per ton. The recovery totaled \$217,188, or \$5.14 per ton, and tailings loss was 55 cents per ton. The concentrates were hauled to the milling plant at Grass Valley for final treatment.

PACIFIC JAW CRUSHERS



For economical, uninterrupted service in mine crushing, there's one sure answer—Specify PACIFIC and play safe! Daily, more and more mines are buying PACIFIC jaw crushers.

All steel construction . . . Forged steel shaft—bronze bearings . . . Force feed crushing—large capacities . . . Instant, easy adjustment to any size. One-piece frame, all parts interchangeable.

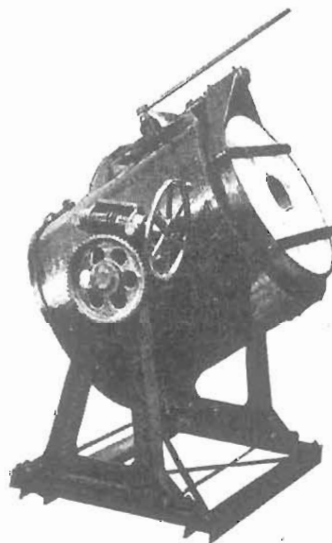
6 x 12, 8 x 15, 10 x 20 and larger machines. Ask for catalog.

Manufacturers of manganese steel wearing parts for crushers, ball mills, etc. Complete drill steel service.

See Your Dealer Today

ALLOY STEEL & METALS CO.

1862 E. 55th STREET • LOS ANGELES, CALIF.



GOLD AND SILVER BULLION MELTING FURNACES

Write for
Further Information
on this
NEW
and
Modern Type Unit

PACIFIC FOUNDRY CO., Ltd.

3100 Nineteenth Street

San Francisco

HERCULES

FLOTATION REAGENTS

YARMOR F*
TAROL NO. 1*
TAROL NO. 2*
RISOR*

Write for Booklet

HERCULES NAVAL STORES

HERCULES POWDER COMPANY 996 MARKET ST.
INCORPORATED WILMINGTON, DEL.

*Reg. U. S. Pat. Off. by Hercules Powder Company



The Forbestown net mint settlements from bullion sales amounted to \$216,237 while the operating expense totaled \$293,155, entailing an operating loss before depreciation and depletion of \$76,918, further increased to \$106,176 after allowance for depreciation and depletion of \$29,258. Forbestown capital expenditures for plant and equipment aggregated \$46,391 for 1937, as against \$118,287 for 1936.

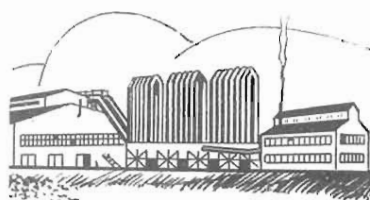
Principal production at Forbestown is coming from the Gold Bank and Oro mines, the Midas workings having been permanently shut down in February because the grade of ore proved to be of lower value than cost of extraction. The mill is treating approximately 300 tons per day and it is hoped to ultimately handle nearly 400 tons with the present equipment.

The property of the Grass Valley Bullion Mines is still operated under an agreement with Idaho Maryland, but all income over and above allowed operating expenses is being impounded pending a decision in the Empire Star extra-lateral rights suit, which has been appealed to a higher court following a decision in favor of Grass Valley Bullion in the federal district court. In the portion of the property not involved in the suit, an ore body of great potential value has been encountered.

With the exception of the labor difficulties in connection with the shutdown of the old Brunswick shaft, the company reported satisfactory labor relations, both from an operating and public relations point of view.

ACTIVE YEAR REPORTED BY STANDARD SILVER-LEAD

THE STANDARD Silver-Lead Mining Company, holding mining interests in Montana, British Columbia, and New Mexico, reports a net profit for the year 1937 of \$24,839. Ore and metal sales grossed \$285,505 from which was deductible \$2,356 for mint and treatment charges, leaving a net smelter and mint return of \$283,148. Operating expenditures, including labor, supplies, development, ore transportation, power, milling, insurance, and property taxes, amounted to \$191,704. Depreciation is listed at \$16,062 and depletion at \$18,849. General and adminis-



trative expenses were \$15,717 and other income was \$585. Income deductions, which included exploration, reduction of securities to market value, and federal and social securities taxes, were \$16,559, leaving a net profit for the year of \$24,839.

The company's holdings in British Columbia consist of 51 per cent interest in the Slocan Silver Mines, Ltd., the property of which is now being worked under lease to George Allen of Alamo, British Columbia. The Slocan company's report for 1937 shows a profit of \$1,898. At present the mine is closed on account of snow and shortage of water, but work will be resumed about May 1.

The Standard Silver-Lead concern has endeavored during the past year to find new properties, but the only acquisition was the Malone mines near Silver City, New Mexico. The company optioned this group of 12 unpatented lode claims and three mill sites on July 29, 1937. In March, 1938, the option was exercised and the company is now completing the purchase of the ground. In order to do this Standard Silver-Lead borrowed \$15,000 from William A. Corey, vice-president of the company, and the same amount from the Finch Investment Company, on the condition that the company would convey to each an undivided 2 per cent interest in the property after the company shall have been reimbursed from the production of said property for its total investment therein.

During the year \$8,183 was spent on development, surveying, and assaying at the Malone mines. A 50-foot winze was sunk on the Petanke vein and a 120-foot drift driven from the bottom of the winze. This work revealed an ore shoot containing high gold values. Development of the Hill Crest vein was also started with favorable indications. Art Dreyer is the engineer in charge of this work.

The company's Gould property near Horn, Montana, was operated continuously for the entire year. Company production was 23,922 tons and 348 tons of ore produced by lessees. The mill, which also operated continuously, treated total mine production of 24,270 tons; 6,382 tons of old flotation tailings, during the year 6,969.37 ounces of gold and 53,625.53 ounces of silver were produced. S. R. Moore of Wilborn is general manager of the company which is headed by A. W. Witherspoon of Spokane, Washington.

BAIN HOPES TO SEND IGOROT SAFETY CREW TO EXPOSITION

THE technical advisor of the Philippine Bureau of Mines, H. Foster Bain, would like to send the prize-winning Igorot safety crew of the Balatoc Mining Company to the Golden Gate International Exposition at San Francisco. The crew, trained by S. M. Jarrett of the Bennington interests for the Balatoc company.

Bain wants the little brown brothers to demonstrate their work as part of the position show being planned and created by the Mining Exhibits, Inc. It is said that if the boys do it in the costumes wherein they were photographed (see The Mining Journal for March 15, 1938) they'll stop the show—the regalia being reminiscent of King's description of Gunga Din's boots, "The costume that he wore was nothin' much before an' rather less than 'arf o' that behind."

A conception of what the native Igorot safety men can do is shown by the following item from the recent anniversary issue of the Manila Bulletin:

"A feat equaling the fiction story of R. Sabatini, 'The Gates of Doom,' where a dead man was brought back to life, was enacted at the level of the Balatoc Mines on January 23 at 11 p. m. when Vitol, an Igorot, was electrocuted given up for dead until safety crew men worked on him, and brought him back to life in 25 minutes.

"When the Balatoc safety men found Vitol was lifeless and all tests as to whether he was breathing or not proved negative. Rescue men believed they could bring him back to life, however, and applied artificial respiration on him. He revived after 25 minutes, lapsed into unconsciousness again, but was again brought to life.

"Three medals have been ordered by J. Fleming, mine superintendent of Balatoc, to be awarded to the men who rescued the Igorot miner from the clutches of death. These safety crew men have been trained by S. M. Jarrett, safety engineer of Benguet Consolidated Mining Company, which also has control of Balatoc."

NATIONAL CARBIDE

MINE LAMP CARBIDE for Miners' Lamps is sold from "Coast to Coast."

Distributed by

Acetylene Service Company, Denver, Colorado
Air Reduction Sales Company, Emeryville, Los Angeles,
Sacramento, California;
Portland, Oregon; Seattle,
Spokane, Washington
Central Commercial Company, Kingman, Arizona
Denver Oxygen Company, Denver, Colorado

Elko Motor Supply Company, Elko, Nevada
Magnolia Airco Gas Products Co., El Paso, Texas
Pratt-Gilbert Hardware Co., Phoenix & Tucson, Ariz.
Reno Motor Supply Company, Reno, Nevada
Stockton Transfer Company, Stockton, California
Terminal Warehouse Company, Fresno, California
Whitmore Oxygen Company, Salt Lake City, Utah

NATIONAL is uniform in quality. Free from dust and fines.
Evenly Sized. Cans especially sealed, eliminating Air Slack.
It Saves You Money.

Lincoln Bldg.,

NATIONAL CARBIDE CORPORATION

New York, N. Y.

**WAR DEPARTMENT PUBLISHES
BOOKS ON NORTHWEST RESOURCES**

EDWIN T. HODGE, consulting geologist under the War Department in the office of the Division Engineer of the North Pacific Division, with offices at 523 Pittock Block, Portland, Oregon, recently finished "Markets for Columbia River Hydroelectric Power Using Northwest Minerals." This is published in four sections, with two volumes to each of the first three sections and four volumes in the fourth. The work is mimeographed and contains many plates and tables. The first section covers northwest magnesia ores, their varieties and sources and possible electric power applications. The second section lists the available silica deposits of Washington, Idaho, and Oregon, and describes other United States and foreign deposits which could possibly be imported for Northwestern use. Northwest limestones and the available and competitive deposits are described in the third section, while the fourth deals with clays.

Another mimeographed book by the same author, and also published under the auspices of the War Department, is the "Preliminary Report on Some Northwest Manganese Deposits, Their Possible Exploration and Uses." This describes many of the known low-grade manganese deposits in southwestern Oregon and the Olympic Peninsula, Washington. Hodge has also completed Volume 5 of "Available Raw Materials for a Pacific Coast Iron Industry," the first four volumes having been published previously.

Raymond M. Miller, metallurgical engineer in the same division, is the author of "The Feasibility of Electrolytic Zinc and Cadmium Production in the Lower Columbia River Area," also published in January, as was his "Feasibility of the Production of Ferro-Alloys in the Columbia River Area."

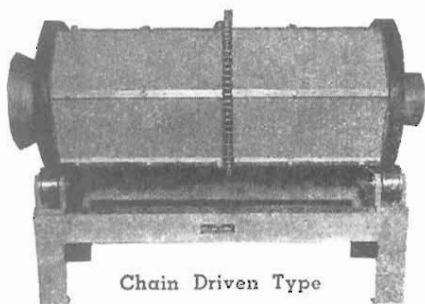
**NEW BULLETIN ON CALIFORNIA
MINERAL PRODUCTION IS READY**

STATE MINERALOGIST Walter E. Bradley has announced that Bulletin No. 114 of the Division of Mines, Department of Natural Resources, is just off the press and ready for distribution. The title of the bulletin is "California Mineral Production and Directory of Mineral Producers for 1936." This bulletin is one of the series of annual statistical reports which have been issued for many years. It contains detailed data covering the amount and value of metallic and non-metallic minerals, subdivided as to fuels, metals, structural materials, industrial materials and salines, both by substances and by counties together with various charts and graphs. A directory of all producers (except for natural gas and petroleum), which adds much to its value, is also included. The properties and uses of the more than 50 mineral substances produced are treated briefly, the whole comprising a condensed compendium of information on the commercial minerals of the state.

Bulletin No. 114 contains 199 pages, bound in paper covers. It may be purchased from the California State Division of Mines, Ferry Building, San Francisco, for 80 cents.

Titan Rotary Amalgamators

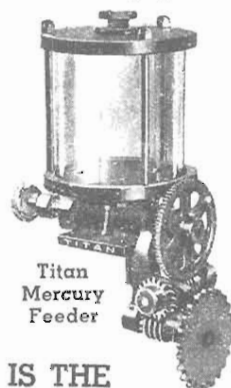
—are helping many operators recover the fine free gold that heretofore was lost in the tailings for want of more efficient equipment.



Chain Driven Type

Up to 98% of assay may be recovered with this "TITAN" AMALGAMATOR

Patents Pending



Titan Mercury Feeder

THE TITAN HYDRAULIC DIAPHRAGM JIG IS THE LATEST ACHIEVEMENT IN CONCENTRATING EQUIPMENT

WRITE OUR ENGINEERING DEPARTMENT CONCERNING YOUR PROBLEMS

MILL & MINE SUPPLY, INC.
MANUFACTURERS

2700 4th Ave. South

Seattle, Washington

First National Bank of Arizona

TWO OFFICES IN PHOENIX

Washington and First Ave. • Washington and Central Ave.

Branches at Tempe and Yuma

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

DIAMONDS FOR CORE DRILLING

<p>BORTZ</p> <p>J.K. SMIT</p> <p>AND SONS, INC.</p> <p>157 CHAMBERS STREET NEW YORK, N. Y.</p> <p><small>FINHARDS</small></p>	<p>CARBON</p> <p>REPRESENTATIVE FOR MEXICO</p> <p>P. MARTIN</p> <p>APARTADO Num. 544, MEXICO CITY</p> <p>WESTERN REPRESENTATIVE HERMAN MEINERT</p> <p>P. O. BOX 692 SPOKANE, WASH.</p> <p><small>IAMHARDS</small></p>
--	--

APACHE POWDER COMPANY

Manufacturers of High Explosives for Domestic and Export Trade, All grades of Gelatin and Ammonia Dynamites. Quarry and Grading Powders. Distributors of Blasting Caps, Electric Detonators, Fuse and Blasting Accessories.

Plant and General Office
BENSON, ARIZONA

411 West Fifth Street
LOS ANGELES, CALIFORNIA

**Buy Your Technical Books From
The Mining Journal**

Concentrates from Western States

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

The Golconda Extension Mining Company, E. G. Frawley, manager, Kingman, Arizona, is preparing to place the Oro

ARIZONA

Plata mine on a production basis. A crew of 18 men is engaged in cleaning out the tunnel, laying track, and installing water and air pipe, preparatory to active operations.

The property carries values in gold, silver, lead, and zinc, and was recently equipped with a 100-ton selective flotation mill. The Golconda company acquired the Oro Plata early in January, 1938.

The Comstock-Dexter Mines, Inc., Hillside, Arizona, has placed its new 100-ton flotation plant in operation and the company is now preparing to go on a production basis. The new plant is equipped throughout with the latest approved type of machinery, and in addition the company's Diesel electric plant has been enlarged to provide a total generating capacity of 540 horsepower. T. F. M. Fitzgerald, Drawer 31, Prescott, Arizona, is president and general manager of the company.

The Woodpecker mining property on Mineral Hill, 13 miles from Superior, Arizona, is being operated under lease by E. N. Perkins, Box 726, Superior, Arizona. The property, which is owned by St. Louis interests, has a record as a silver producer.

The 50-ton flotation plant at the Mocking Bird mine, Chloride, Arizona, has been closed down due to a shortage of water. The mill had been treating ore mined from a blanket vein containing values in copper and gold. Water development is under way and the situation is expected to be relieved shortly. T. J. Slaughter is mill superintendent. The Mocking Bird group is being developed by J. K. Houssels, Las Vegas Club, Las Vegas, Nevada, and associates.

A depth of 125 feet has been reached in reconditioning the old inclined shaft at the Union mine, located 18 miles north of Phoenix, Arizona, in the Winifred mining district. The property is being operated under bond and lease by A. J. Brengman,actus, Arizona, and his associate, N. C. Sims Ely, Boulder City, Nevada, the owner of the mine.

The San Francisco mine is being operated under the management of Captain Arthur DeMelik of New York City, who is making his headquarters at the property, located at Kingman, Arizona. Installation of a 100-ton flotation mill is in progress at the mine. DeMelik is addressed at Box 71, Kingman.

Assays of ore from the Henderson group claims, located in the Walnut Grove district, are reported to have averaged 1.12 ounces of gold per ton. The vein ranges

from 12 to 40 inches in width and can be traced on the surface for a distance of 1,200 feet, according to Byron Moyer, Kirkland, Arizona, who recently secured a lease and option on the property. The mine is opened by an old shaft, 65 feet deep, and a 65-foot drift from the bottom of the shaft. Cincinnati and Columbus, Ohio, interests are associated with Moyer.

Frank J. Gillick, Octave, Arizona, reports that good values are being recovered from the bed of Weaver Creek, which crosses the Patsy claims, operated by Gillick. As soon as the water recedes sufficiently to permit operations, it is planned to work the creek to bedrock, where high values are expected to be encountered.

Harvey C. Scudder and Jack Cross of Kingman, Arizona, owners of the Sunny Boy group of mines in the Secret Pass district, have given a lease and option to Mrs. Frank Ryan, Las Vegas, Nevada, for unnamed clients. The new owners plan to sink a 200-foot shaft, to be followed by drifting to prove the commercial values at depth.

Reorganization of the Johnson Gold Mines, Inc., Ralph Roseberry, president, 124 West Fourth Street, Los Angeles, California, is reported to be under way, and efforts will be made to get the plant into operation again about July 1.

Tony Hill has taken an option on the J. C. group of mines in the Cerbat Mountains, north of Kingman, Arizona, and will begin development of the property at once. The group is owned by I. M. George.

Construction of 18 miles of road to the Diamond Joe and Esperanza mines has been completed and Ted Farley and J. T. Conger, operators of the properties, plan to make the first shipment of ore immediately. Work is under way at the Esperanza and a comfortable camp has been built for the accommodation of the employees. The Esperanza is reported to have a six-foot vein of ore sampling around \$150 per ton in gold, silver, and lead. A Diesel power plant, compressor, mine rail, ore cars, and other equipment are en route to the property. Farley and Conger are making their headquarters at Kingman.

The Malco Mining Company, Chloride, Arizona, is engaged in cleaning out the O. K. shaft on its group of 15 claims located in the Gold Basin mining district. Five men are employed under the direction of Dan Harper. The property is owned by Ernest and William B. Malouf of Los Angeles.

All news appearing in The Mining Journal is obtained from sources believed to be reliable, but the accuracy cannot be guaranteed. However, every item has been sent to the person or company mentioned for verification before publication.

Operations are to begin soon at the property of the Gold Dike Mining Company, located in Lonesome Valley between Prescott and Jerome, Arizona. Howard H. Fields, Box 148, Prescott, Arizona, will direct the work. The company was organized recently to develop the property.

Production at a rate of 70 tons daily is to begin at once at the property of the Arizona Quicksilver Mines in the Tonto Basin district, Tonto Basin, Arizona, under the direction of L. E. Foster, manager. It is planned to increase the capacity to 200 tons per day at an early date. The new company, which is headed by H. L. Waldthausen, Box 1788, Phoenix, Arizona, was organized to take over the properties of the Arizona Quicksilver Company. The plant has been completely remodeled and the property has been rehabilitated throughout. A crew of 25 men is employed at present but this number will be increased to 45 soon.

The Kingman Silver-Gold Mines Company, owner of the Red Cross mine near Dobbins, California, is preparing to resume

CALIFORNIA

operations at the property. The mine, which carries a large deposit of low-grade ore, said to assay a little less than \$2 per ton, was operated several years ago, but the project failed when an effort was made to

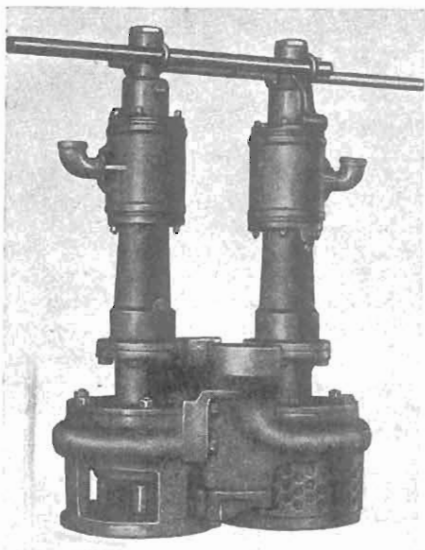
cyanide the ore as mined by power shovel, without crushing or ore dressing. Designs for a new plant include provisions for grinding the ore to 20 mesh and agitation in cyanide solution. Work is in charge of E. S. Van Dyck, general manager.

Judge Ben H. Carlow, Box 832, Angels Camp, California, reports that a large and responsible mining company is prepared to take over the Jones and Beadle property, also known as the Carson Creek group, as soon as satisfactory terms can be agreed upon. The holdings are situated 4 1/2 miles south of Angels Camp.

What was once the Amity mine is now being operated under the name of the Nuner Lease, held by a partnership composed of E. D. French, Ian V. MacKenzie, O. S. Matson and Ben T. Wells, Box 71, Mokelumne Hill, California. A small scrubber-trommel unit is being installed for treatment of the gravel, which is of satisfactory grade. It is not cemented and is easily disintegrated by the scrubber. The gold separation is effected in sluice boxes. C. D. Richardson is mine foreman, and O. L. Anderson is mill foreman. Ben T. Wells is partner representative.

The Los Angeles Cement Company is reported to have taken over the Del Norte placers, embracing more than 400 acres along the Klamath River above Happy Camp, California. Dan L. Goodbody of Los Angeles has been engaged in surveying the holdings and the company is now preparing to test the property with drills. The placers are owned by W. W. Williams and Company, Kohl Building, San Francisco,

FACTS FOR MINERS



BYRON JACKSON 2-STAGE PNEUMATIC SPONGE

Is The Highest-Head Pump
Ever Developed For "Mop-
ping-Up" in Mines . . .

- Lifts water 300 feet.
- Operates on compressed air at usual pressures.
- Lowers water to within 3 inches of sump bottom.
- Handles sand and other abrasives with minimum wear. Passes 1/8-inch solids.
- For lighter service, the 2-Stage can be separated, each stage operating as independent unit.
- Capacities on 90-pound air pressure: 25 G.P.M. at 300 feet; 60 G.P.M. at 240 feet; 80 G.P.M. at 180 feet; 100 G.P.M. at 130 feet.

SEND FOR COMPLETE DETAILS

Name.....
P. O. Box.....or Street Address.....
City.....State.....

BYRON JACKSON CO.
Dept. MI-110

Berkeley ♦ LOS ANGELES ♦ Bethlehem

BYRON JACKSON
PUMPS
Estab 1872
FOR EVERY SERVICE

and the transaction was handled by George Mitchell, Lockeford, California. The ground is known as Richardson's Bed Rock and was formerly held by the Del Norte Mining Company.

Development of the "Believe It or Not" property, five miles south of Susanville, California, is planned by John Holmes and associates, following preliminary work on the claim. Construction of a 40-ton mill is contemplated. A definite footwall of granite has been reached at a depth of 15 feet and the vein is from four to six feet wide. The ore shoot has been stripped for a distance of 200 feet in both directions from the shaft. Holmes and his associates have taken a lease and option on the 225 acres comprising the Greig holdings. A spring located about a quarter of a mile above the workings is believed large enough to furnish ample water for development.

The Natomas Company, Thomas McCormack, president, Forum Building, Sacramento, California, and subsidiaries report for the quarter ended March 31, 1938, a consolidated net profit of \$306,664 after depreciation, depletion, and normal federal income taxes, equal to 31 cents a share on 980,250 shares of capital stock outstanding. This compares with a net profit of \$234,223 in the first quarter of 1937, equal to 24 cents a share on 987,120 shares then outstanding. However, this year's earnings are not strictly comparable with the like 1937 period because six dredges were operated during the 1938 quarter as compared with only four dredges operated last year. Natomas is now building a seventh dredge which should be ready for operation by the fourth quarter.

Operations are to be resumed at the Young America mine in the Sierra Buttes district near Sierra City, California, under the direction of C. H. Vail. It is planned to connect No. 3 tunnel and No. 4 tunnel by means of a raise from the former and a winze from the latter, the distance between them being 650 feet. No. 4 is a 4,000-foot haulage tunnel, and No. 3 is in 2,000 feet at a right angle to No. 4. Installation of a milling plant is also planned this season. The project is backed by J. J. McDonald of Santa Rosa, California. Two shifts will be employed.

The Tee Bar Mining Company is operating on a three-shift basis at its hydraulic property located on the Klamath River, 30 miles from Happy Camp. Hans Hansen of Seattle, Washington, is manager.

The R. and M. Mining Company, E. Robertson and A. T. Merian, is operating a floating dragline and dredge two miles south of Plymouth, California, on Indian Creek. Recovery is reported to average 35 cents per yard.

The Amador Metals Reduction Company, Jackson, California, is reported to be dismantling its old tailings plant near the Argonaut mine, which has not been in operation since the Argonaut installed its own plant. The company's custom concentrate cyanide plant will also be moved to a new location in the immediate vicinity. V. R. Fitzsimmons is superintendent.

W. F. Deaner, Sutter Creek, California, is temporarily in charge of operating the property of Rainbow Mines, Inc., Grove, California. According to Carl L. Evans, vice-president and general manager of the company, 1462 Durango Street, Los Angeles, California, a new 20 shaft is to be sunk at the property, spring.

Contracts are being let for the development of two levels a distance of 50 to 100 feet each, contractor to furnish powder, carbide, at the Densmore mine, Thomas M. Bains, Jr., superintendent, Box 100, Columbia, California. The company furnishes power, hoisting facilities, timber, air, ventilation, and compensation insurance.

The old crusher at the Operator mine, Operator Consolidated Mines Company, Johannesburg, California, is being removed and will be replaced by a larger and more suitable one for future operations. It is reported that development work will be undertaken to open up new ore bodies. M. J. Paul Jones, Box 213, Randsburg, California, is manager at the mine.

Milling operations are again in progress on a three-shift basis at the property of the Gold Company, Ltd., Garden Valley, California, following a shutdown during which new machinery and equipment were installed. In past operations, the flotation process was used and the tailings were stored in a tailings pond about 300 feet below the mill. A new flotation unit, recently developed by Robert S. McMillan, mill manager at the property, has been installed, however. Concentrates from the cells will be shipped to Selby and the tailings will be treated in the new cyanide units recently installed. An additional unit for cyanidation of the concentrates is planned also. The present tailings pond, filled during the past three years of operation, is said to contain from 15,000 to 18,000 tons of material averaging \$5.42 a ton. A new tailings pond is being built northeast of the mill, and during excavation work for the project several veins are reported to have been discovered. Additional sinking in the tailings compartment, 200-foot shaft, will be carried on during the general development program. Ore for the new milling unit is being mined in an open cut by means of a gasoline shovel. The work is being done under contract by Rupley Brothers and the material is hauled to the mill bins by truck. Operations at the property are in charge of C. L. Duesling, managing director. A. A. McKinnon, Placerville, is president of the company. Operating officials at the mine include T. J. Murphy, mine superintendent; Louis E. Cordtz, underground foreman, and Clifton Wildman, Placerville, California, consulting engineer.

The Woods Creek Placer Company, partnership composed of Horace G. Miller and George W. Clemson, 4800 Santa Monica Avenue, Los Angeles, California; J. Mullin; and E. H. Loose, is reported to be preparing for operations at its holdings at Woods Creek near the Eagle-Shawmut mine at Chinese Camp, California. The properties to be worked on a royalty basis include the Blue Gulch placer, Henry Sims Hon

and mine, Woods Creek mine, Tuttle placer, Bird placer, and the Shawmut placer, held under sales agreement from Jackson D. McCarthy. The second parcel of land to be worked comprises the Alpha group and the Louella group of placer claims. It is planned to move a new Bodin dragline dredge, now situated on the Coluonne River, to the new location.

As a result of a recent decision by the Placer County superior court, awarding the milling equipment of the property of the Oak Spring Mining Company, Foresthill, California, to the company, preparations are being made by Raymond Graetz and Ralph Lippert, owners, for a resumption of operations. The suit was decided against King C. Gillette, who had been the financial backer of the mine, the court holding that he lost title to the machinery by reason of his failure to abide by the terms of his contract with the owners. The equipment involved in the suit included a Hadsel mill, several engines, and other mining machinery. Graetz and Lippert have announced plans for the installation of a complete cyanide recovery plant.

Mrs. E. M. Morgan, Foresthill, California, is reported to be negotiating for purchase of the Meyer mine near Butcher Ranch, a property of the late John T. Meyer. The mine is located about a mile below the Hadsel mine, is virtually undeveloped, but is declared to have a wide vein of ore running through it.

A crew of about 50 men is employed at the Omega mine near Washington, Califor-

nia, under the direction of Theodore Larsen, superintendent. The abundance of water will permit the maintenance of operations for weeks beyond the usual end of the hydraulic season this year. Work at the Omega was made possible by the construction of a tailings dam to hold the debris washed down in the operations.

F. O. Bohnett and Company, 150 South Montgomery Street, San Jose, California, which has operated a dry-land dredge in Doty Ravine near Lincoln, California, for some time, has moved its equipment to Roseville, California and is now working on ground at the eastern edge of the city. Walter E. Pantle is superintendent for the company.

Pantle Brothers, operating as the Auburn Ravine Placer Mining Company, are completing operations on their Auburn Ravine ground near Lincoln, California, and are looking for a new location. Fred G. and Carl W. Pantle are directing work at the property.

The road to the Gold Point mine, located south of Downieville, California, is being opened up preparatory to a resumption of operations at the property. The mine is being worked by the Tombstone Development Company of Tombstone, Arizona, and work at the mine is directed by Russell J. Kohlen, superintendent, Downieville.

Whitmore Mines, Inc., Rosamond, California, plans to build up a two years' supply of ore from its mines near Mojave, preparatory to building a mill to handle all future output of its properties, accord-

ing to George Andersch, vice-president. The company is completing installation of new equipment at its No. 6 shaft and a power line is being run. Development work in the No. 6 has disclosed two veins, one six feet wide and averaging \$9 to \$19 per ton, and the other 18 feet wide containing pockets of high-grade ore. The two veins merge and the single vein is expected to maintain an average width of 20 feet. Another vein to the west of the shaft is expected to be intersected at an approximate depth of 200 feet and this vein averages 25 feet in width, according to Andersch. In the No. 2 shaft, which is down 275 feet, a body of ore has been partly developed, while the No. 1 shaft contains an ore body which has been blocked out on four sides.

The Monarch Mining Company, A. D. Hadsel, president, 10706 Beverly Avenue, Oakland, California, has completed the construction of a new dam to impound tailings from its cyanide plant. The company operates a Hadsel pendulum-type mill and continuous counter-current decantation cyanide plant consisting of 12 tanks. A Merrill-Crowe precipitation unit is operated in conjunction with flotation cells. The plant has been in operation since the first of the year.

An operating profit of \$36,968, before deductions for depreciation, depletion, etc., was reported for the quarter ended March 31 by the Carson Hill Gold Mining Corporation, 206 Sansome Street, San Francisco, California. A total of 82,286 tons of ore was milled and revenue from sale of bullion amounted to \$201,637 and income

Reduce Costly Operating Interruptions with **WHEAT** Electric Cap Lamps

Just as power failures increase manufacturing costs, so *light* failures that interrupt underground operations are costly in mining. Such interruptions are frequent when open-flame cap lamps are used.

Miners must often stop work to adjust, repair or refill open-flame lamps. The result is reduced output - - higher operating costs.

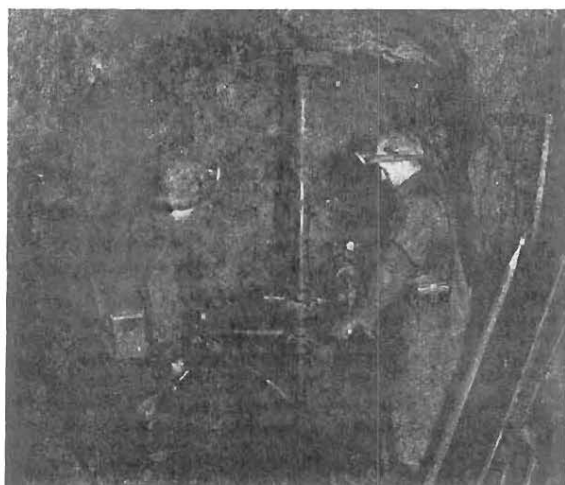
No "Time-Outs" with WHEAT Electric Cap Lamps

WHEAT light never fails. This Electric Lamp burns steadily, *brightly*, to the end of the shift. There's no flickering, no fading. And WHEAT gives 300% MORE LIGHT than any open-flame lamp.

If the main bulb burns out, an emergency bulb can be switched on instantly. This advantage is *exclusive* with WHEAT.

Get the Whole Story - - Mail the Coupon

Distributors for Western U. S. A., Western Canada and Mexico:
E. D. BULLARD CO., San Francisco, Cal.



WHEAT Cap Lamps at work in a large gold mining operation

KOEHLER MFG. COMPANY • MJ 5-30-38
Marlboro, Mass., U. S. A.
Without obligation on my part, send complete information on WHEAT Electric Cap Lamps.

Name.....Title.....
Company.....
Address.....

HEADQUARTERS HOTEL
The Mining Association of the Southwest
LOS ANGELES



555 ROOMS - BATHS
"Famous for Good Food from Coast to Coast"

YOU'LL enjoy your Los Angeles visit so much more if you stay at Hotel Clark. Convenient to every business and pleasure center, with a luxury and a comfort that will surely please you.

VISIT THE POPULAR TAVERN TUCKED AWAY IN THE REAR OF THE LOBBY.

HOTEL CLARK

R.G.B. MORRISS Mgr.

Coming to
PHILADELPHIA?

Room with Bath for \$2.75 up

HOTEL PHILADELPHIAN

(Formerly Hotel Pennsylvania)
39TH and CHESTNUT STS.
Philadelphia, Pa.

Diesel Engines

for EVERY MINING USE.

Enterprise Diesels assure the most economical and dependable power supply for any mining operation. These units, built in the west for western industry, can be promptly serviced at least cost. Write for latest literature.

ENTERPRISE ENGINE CORPORATION

2902 19th St.

San Francisco

from other sources totaled \$123. Operating costs amounted to \$164,791. The Carson Hill operations are centered at Melones and are directed by John A. Burgess, general superintendent.

The tunnel at the Oro Fino mine near Garden Valley, California, has been cleaned out and retimbered by John Dichesare and Joe Moscatelli, who are leasing the property from S. W. Collins, Garden Valley, and associates. They report good ore in the tunnel.

The Pine Hill mine near Grass Valley, California, is being examined by Branch H. Smith, 7129 Hawthorne Avenue, Hollywood, California, and associates. A cyanide test is planned for the ore. The Pine Hill is located south of Grass Valley.

The J. E. Knapp Company, 593 Market Street, San Francisco, California, is reported to have acquired the Goat Ranch gold mine near Altaville, California. An intensive development program is planned.

The Mother Lode Gold Mining Company, with headquarters at Sutter Creek, California, has filed a petition in the federal court at Sacramento for authority to reorganize under section 77B of the bankruptcy act. The company reported debts of \$49,139 and seeks to raise \$50,000 for operating expenses by the sale of additional stock. It claimed assets, mostly in mining property, totaling \$451,967. Walter Lucot, Sutter Creek, is president and manager of the company.

A group of eight miners, composed of L. D. Berry, Fraser Raymond, Edward Smith, Willis Bunner, Joseph Smith, E. W. Sherman, Byron Hardin, and Patrick Sheehan, all of Helena, California, has leased the North Fork Placers near Helena. Work is under way on the repairing of flumes, laying of pipes, setting up of giants, and other preparations for mining.

The Central Eureka Mining Company, C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, California, reported an operating profit of \$125,184 for the first quarter of 1938, before provision for depreciation, depletion, and income taxes. The company's properties are located at Sutter Creek, California, where operations are directed by James Spiers, superintendent. A crew of 150 men is engaged in development work. A new 150-ton flotation and cyanidation plant is under construction at the mine and will be used for the treatment of tailings and concentrates. Ore developed between the 2,500 and 3,000-foot levels is keeping the present milling plant at capacity operation.

Carlson and Sandberg, Redding, California, have leased 100 acres of Stanislaus River bottom land, located seven miles east of Oakdale, California, from the Williams Land and Cattle Company, and will install one and possibly two small dredges for working the ground, together with drag-line shovels. The equipment will be moved from Redding to the new location.

The new 75-ton milling plant at the Defender mine, Pine Grove, California, has been completed and placed in operation. Work on the plant, which includes a ball

mill and flotation equipment, was completed March 23 with the specified time for completion set at 60 days. However, Verrett and Richard Krebs, who installed the plant, completed the installation in record time of 30 days. A crew of approximately 35 men is employed at the plant under the direction of John D. Smith, manager. The new plant is said to be "launched" with the breaking of a bottle of champagne. While an orchestra composed of miners played, a bottle of champagne was dropped on the workings and simultaneously a button was pushed which started the mill on its steady grind.

The Oversight mine, located about 10 miles north of Isabella, California, is operated under lease from Al Jenks, Isabella, by A. B. Coe, Box 115, Kern County, California, and B. H. Gordon of the Gold Mining Corporation. An 80-foot shaft has been sunk and a crosscut run in the vein, which is said to average from 12 to four feet in width. Present work is largely to development.

Mining operations are to be resumed on the property of the Sixteen-to-One Extension Gold Mines, Inc., Allegheny, California, as soon as the snow has melted sufficiently to permit access to the mine. According to George W. Hallock, president and general manager.

Plans are being pushed for the installation of a small pilot mill of the Chalmers type at the Hakermoller Ranch property near Garden Valley, California. The property is being developed by George Moffat and M. J. Keily, both of Georgetown, California, who have held the property under lease and bond for the past three years. The new mill will include amalgam and flotation equipment. It is understood that a corporation is to be organized to develop the property, which comprises approximately 100 acres. Five men are engaged in developing crosscuts and drifts from a 50-foot shaft. Negotiations are also under way with the Pacific Gas and Electric Company for running of a power line a distance of about half mile to the property. In addition to the quartz deposits, the property also contains an extensive gravel deposit and negotiations are being carried on with outside capital for the working of that portion of the holdings.

James R. Moffat, Nevada mining manager, is pumping out a hydraulic pond above the old Black Swan property at Mooresburg, near Nevada City, California. The pond was flooded 35 years ago after having produced a reported \$100,000 in the space of two years at the old price of \$100 per ton. Moffat plans the installation of a ball mill and concentrating plant in order to recover all the values. It is believed that considerable loss was experienced in former years through the use of the sluice box method.

The Lava Cap Gold Mining Corporation, Otto E. Schiffner, general manager, Nevada City, California, has completed the installation of a new Allis-Chalmers double-drum hoist on the tunnel level of the property. Located 6,000 feet from the portal, the hoist will be used in development of the Banner property at depth and will serve

three-compartment shaft which has now been sunk 680 feet from the tunnel level. In addition to the hoisting equipment, the company has installed a 1,700-cubic-foot Chicago-Pneumatic compressor as well as two large transformers. Electricity is transmitted to the hoist motors by a heavy power cable which extends from the surface through a long diamond drill hole. All future development of the Banner will be through the new shaft and the tunnel, the entrance of which is on Lava Cap property. The Banner shaft is used at present for hoisting waste and ore from the mine's 800-foot level, the only one of the old property now in development. However, during the search for the Tip Top, British-American, and Peerless veins, the Banner will continue to hoist waste from development work. Heavy runoff during the winter season failed to interfere with the functioning of the new 20-foot tailings dam which the company placed in operation last fall. One wing of the dam may be raised to a height of 30 feet during the summer, but the entire structure will not be brought to that level until it becomes necessary. The tailings dam has been built of rock, rubble, and dirt.

The Depot Hill mine near Camptonville, California, operated by Fred Joubert, reports this as the best year, so far as water is concerned, since 1921, and hydraulic operations at the mine will be carried on well into the summer as a result. Tailings from the Depot Hill operations are deposited behind the Bullards Bar Dam.

The Dynamite Metals Company has been organized to operate the mill of the Santiago Metals Corporation through which

COLORADO

will be run the old Santiago dump. Additional machinery is being installed and work is to be started immediately. H. M. Edmondson is manager at Georgetown, Colorado, for the California men backing the project. J. R. Campbell of Georgetown, president and general manager of the Santiago Metals Corporation, has leased the property from the third level to the surface. Having sold his general business in Georgetown, he will devote his whole time to mining.

A three-yard Link-Belt dragline plant is being installed by S. J. Peterson of Fairfax, Missouri, on some placer property in the East Tennessee district near Leadville, Colorado, owned by Frank E. Kendrick, Jr., of Leadville. The dragline has a three-yard capacity and is equipped with a 2½-yard bucket and 60-foot boom. It is powered by a Diesel engine and has all hydraulic lifts and controls. Excavation of the pit and construction of a new road up the gulch will be started while the washing plant is being assembled. The washing plant will be mounted on tracks and electrically operated by a new Caterpillar Diesel power plant. Kendrick, manager of the Triumph Gold, Inc., operating on Breece Hill near Leadville, also owns the Jenny June mine above the placer

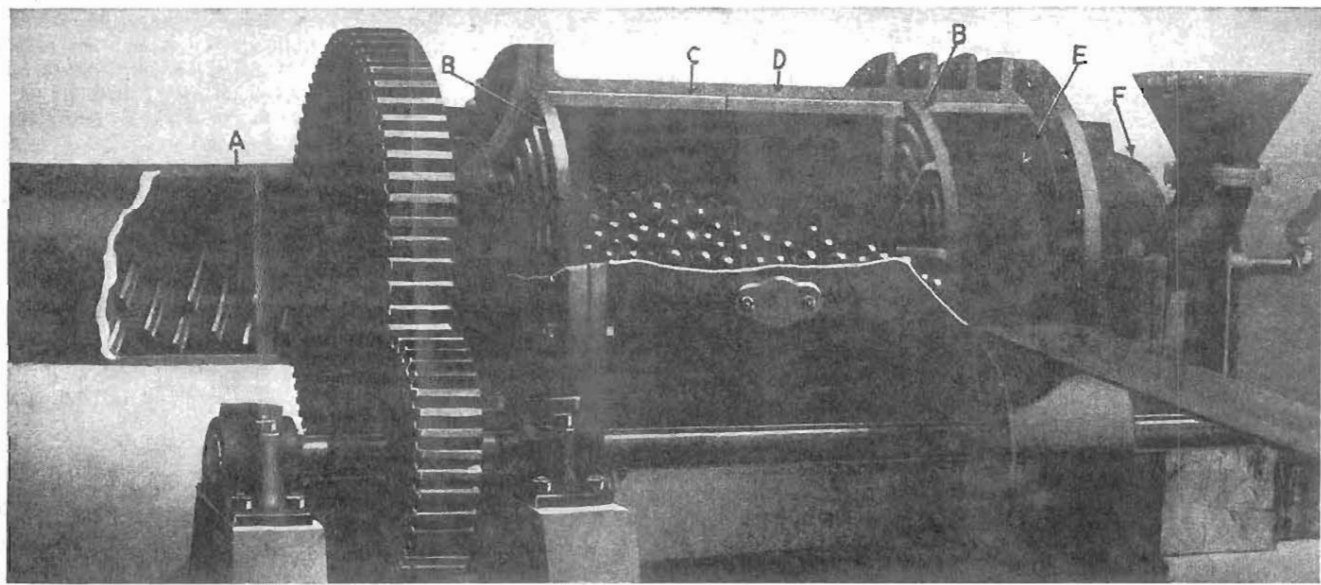
property. Work will be started on the Jenny June in the near future.

In order to take inventory and determine the results of the completion of the first phase of its development program, the Tenderfoot Hill Mining Company, operator of the Mollie Kathleen project at Cripple Creek, Colorado, has suspended work. The shaft was sunk to the tenth level, 1,008 feet below the collar, and a 1,500-foot northeast drift run. A 223-foot upraise on a 73-degree incline was driven to connect with the bottom of a 700-foot winze. F. C. Carstarphen, 721 Marion Street, Denver, is general manager.

The Odecia Mining Company, E. H. Geary, 329 East Eleventh Avenue, Denver, Colorado, president and general manager, is planning to run 300 feet of drift on the Freeport dike to undercut the Freeport ore body on the north side of Bull Hill in the Cripple Creek district. The shaft on the north end of the Oak claim on Iron Clad Hill in the same district will be sunk to 90 feet. The company holds the Freeport and Amanda holdings and the Oak claim under lease from the United Gold and Squaw Gulch mining companies. The deepest development work done on the property is a 300-foot shaft. Frank N. Crisswell, Box 253, Cripple Creek, is mine superintendent. Three men are employed.

The Slide Mines, Inc., Ward E. Terry, 614 Ernest and Cranmer Building, Denver, Colorado, president, reports steady progress in the reopening of the Prussian mine on which it recently acquired a long-

FROM MINE TO 300 MESH IN ONE OPERATION!



● THIS 3 in. 1 unit—the Gibson Screenless Combination Elliptic Roll and Ball Mill—crushes and grinds in interconnected grate-separated chambers. The self-contained positive classifier assures uniform product from 10 to 300 mesh absolutely under your control. Proved in service, this single unit saves: (1) in First Cost—one unit instead

of three or more; (2) in Space—eliminates crusher, storage bin, classifier; (3) in Power—requires 1/3 less power than ordinary ball mill. Available in 12, 25, 50 and 100 ton capacities. Write for details and comments of satisfied users, also for complete catalog on Gibson mining equipment.

W. W. GIBSON, 1801 Webster Street, Alameda, Calif., or P. O. Box 3365, San Francisco, Calif.

ed to eliminate errata. Bibliographical citations to literature before and after the last edition have been increased. More than 400 different minerals, not including varieties, are described.

Price of the new volume, postpaid, is \$1.75—a price necessitated by its substantial cloth binding as a durable reference work. Orders should be addressed to the Division of Mines, State of California, Ferry Building, San Francisco.

GOLD AND SILVER OUTPUT IN PHILIPPINE ISLANDS

THE United States Mint has reported a total gold production in the Philippine Islands in 1937 of 703,580 ounces valued at \$24,625,300, an increase of better than 17 per cent over 1936 production of 599,153 ounces valued at \$20,980,855. This report compares with a United States Department of Commerce statement crediting the Islands with a 1937 gold production of \$25,630,323 as compared with \$22,201,326 in 1936.

Silver output in the Philippine Islands amounted to 649,381 ounces valued at \$500,673 last year, while 1936 production was 472,962 ounces worth \$364,181, according to the U. S. Mint. Following are comparative figures of gold and silver production for the past four years as reported by the mint:

Year	Gold		Silver	
	Ounces	Value	Ounces	Value
1934	340,316	\$11,893,975	212,613	\$137,503
1935	444,655	15,562,925	314,054	225,726
1936	599,153	20,980,855	472,962	364,181
1937	703,580	24,625,300	649,381	500,673

HYDRAULIC ASSOCIATION RE-ELECTS ALL OFFICERS

AT THE annual election of officers of the California Hydraulic Mining Association, held May 14 at Grass Valley, California, the entire list of incumbents was re-elected. Thus the following officers will continue to direct the affairs of the association for the coming year: George W. Hallock, Alleghany, president; Claude E. Clark, North Bloomfield, vice-president; W. W. Esterly, Grass Valley, secretary; and George McAuley, Auburn, treasurer.

Directors at large elected at the meeting were: W. G. Allen, Smartville; F. E. Bonner, San Francisco; L. P. Eichler, Marysville; F. H. Harvey, Galt; and E. G. Kinyon, Grass Valley.

Association directors are: Dan M. Bass, Lotus; W. P. Clerkin, French Corral; Charles Dubourdieu, Sierraville; E. B. Dudley, North Bloomfield; George F. Duffy, Foresthill; J. A. Frank, Rough and Ready; W. A. Haines, Auburn; Dr. W. B. Hardie, Alleghany; R. F. Moss, Colfax; I. E. Rose, Iowa Hill; and Ross Taylor, Downieville.

The association is entering its fourth year of existence as an active group in the fight for a resumption of hydraulic mining in California. The first definite step in that direction was taken recently with the letting of a contract by the war department for construction of the first of four debris dams to be built in the state to permit the storage of waste from hydraulic operations.

CARBONS & DIAMONDS

FOR CORE DRILLING AND ALL INDUSTRIAL REQUIREMENTS

The DIAMOND DRILL CARBON Co.

53-63 PARK ROW NEW YORK

REPRESENTATIVE FOR
Southwestern States and Mexico

FRANCIS WAGNER

1417 TEXAS ST. P. O. BOX 342 EL PASO, TEXAS

SAVE MONEY . . . RECLAIM BY WELDING

11 TO 14% MANGANESE STEEL
CRUSHERS—JAWS—ROLL SHELLS—MILL LINERS
DIPPER TEETH, SHEAVES, ETC.

WITH

MANGANAL

Trade Mark Reg. U. S. Patent Office

11 TO 13½% NICKEL MANGANESE STEEL
WELDING ELECTRODES—WEDGE AND APPLICATOR BARS

Stulz-Sickles Co. Request Catalog NEWARK, N. J.

TECHNICAL BOOKS OF ALL PUBLISHERS

Carried in stock by

Phoenix **THE MINING JOURNAL** Arizona

EDWARD L. SWEENEY

COMPLETE CONTRACTS FOR CONSTRUCTION AND DESIGN OF MILLING, MINING AND POWER PLANTS FOR MINES.

With a long record of successful work done, at lowest possible costs.

227 U. S. Nat'l Bank Bldg. Rooms 708-709
DENVER, COLORADO 251 West 57th St.
NEW YORK CITY

STRUCTURAL STEEL



Machinery Supports

INDIVIDUALLY DESIGNED By HERRICK IRON WORKS
FABRICATED and ERECTED OAKLAND, CALIFORNIA

APACHE POWDER COMPANY

Manufacturers of High Explosives for Domestic and Export Trade. All grades of Gelatin and Ammonia Dynamites. Quarry and Grading Powders. Distributors of Blasting Caps, Electric Detonators, Fuse and Blasting Accessories.

Plant and General Office 411 West Fifth Street
BENSON, ARIZONA LOS ANGELES, CALIFORNIA

WITHIN 1/2% OF STANDARD C.C.D. EFFICIENCIES



with a
**DORR
WASHING
THICKENER**

Cactus Mines: Dorr Washing Thickener in foreground, conventional C. C. D. system directly behind.

64% SAVING IN GROUND AREA
25% SAVING IN INSTALLED COST

THE two Dorr C. C. D. Systems at Cactus Mines, Mojave Desert, California, were subjected to comparative tests under identical conditions for 7 days late in April. One system was the conventional one—four Dorr Thickeners in series. The other was the new, compact method—a single, four-compartment Dorr Washing Thickener.

Both systems operated on identical feeds—tailings from the same flotation cells, cyanided in the same Agitators. Feed and barren solution wash were split between the two systems, in proportion to the rated capacities of each.

The Dorr Washing Thickener gave a washing efficiency of 96.1%, the straight Dorr C. C. D. plant, with repulping between thickeners, a washing efficiency of 96.6%. As shown in the accompanying table, the conditions throughout the two systems were almost identical.

The Dorr Washing Thickener—a complete C. C. D. plant in a single unit—surpasses the straight Dorr C. C. D. on a number of points. It occupies only 35.6% of the C. C. D.'s ground area, per unit of capacity; costs, installed, 25% less; and requires only one tank, one drive unit and one sludge pump against the other's four. If both were installed indoors, as customary, corresponding savings would have been made in building cost and plant heating.

COMPARATIVE OPERATIONS AT CACTUS MINES APRIL 24-30 INCLUSIVE, 1938

	4 Thickeners Dorr C. C. D. Plant	4 Comp. Dorr Washing Thickener
Proportion Total Mill Capacity—per cent	46	60
Thickener and Compartment Over-flows		
—ozs. gold/T (1)	.0344	.034
“ “ (2)	.0147	.0146
“ “ (3)	.0084	.0077
“ “ (4)	.0033	.0036
Final Thickener and Final Compartment Discharges—Solids . ozs. gold/T	.0196	.026
“ Solution “	.0037	.0046
Per cent Solids .	44.24	45.66
Washing Efficiency—Gold-per cent	96.6	96.1



Write for our bulletin, "The Dorr Washing Thickener," showing how the new unit is adapted to conditions at small and moderate sized cyanide plants.

THE DORR COMPANY INC.

ENGINEERS • Cooper Building, Denver

NEW YORK

CHICAGO

LOS ANGELES

TORONTO

ATLANTA

DORR TECHNICAL SERVICES AND EQUIPMENT ARE ALSO AVAILABLE FROM THE FOLLOWING COMPANIES:

NETHERLANDS: Dorr-Oliver N.V., The Hague • ENGLAND: Dorr-Oliver Company Ltd., London • GERMANY: Dorr Gesellschaft, m.b.H. Berlin • FRANCE: Soc. Dorr-Oliver, Paris
ITALY: S.A.I. Dorr-Oliver, Milan • JAPAN: Sanki Eng. Co., Ltd., Tokyo • SCANDINAVIA: A.B. Hedemora, Hedemora, Sweden • AUSTRALIA: Crossle & Duff Pty. Ltd., Melbourne
ARGENTINA: Luis Fiore, Buenos Aires • SOUTH AFRICA: Edward L. Bateman Pty. Ltd., Johannesburg • BRAZIL: Oscar Taves & Co., Rio de Janeiro