

Buyers of High-Graded Gold

THE MINING industry in our western states is very definitely going after the high-grader. However, while the method of arresting those who steal from the mines or dredges will be continued, the real campaign will be carried on against the "fence" or gold buyer whose "careless" methods of doing business enable him to profit by being "misled" into purchasing large quantities of high-graded gold.

At a meeting of the Gold Producers of California, held in San Francisco on December 9, United States Secret Service Agent Charles Rich, with whom I have worked for the past two years, told his audience that over \$1,000,000 in gold is stolen annually from the mines and gold dredges in California alone. This is a conservative figure and it is possible that twice this amount is more nearly correct. Yet, strange as it might seem, very few mine operators fully appreciate the scope of the high-graders' operations.

Through the American Mining Congress in Washington, and the various state organizations, efforts are going to be made for stringent treasury department regulations of licensed gold buyers, and state legislatures will be asked for laws with teeth in them for the punishment of those buyers who make a practice of buying stolen gold.

In 1925 the statistician for the United States Bureau of Mines figured that 6 per cent of the total production of gold was high-graded. At that time a group of operators managed to have the present buyers act passed in California, requiring that records of all sales of gold be kept on a special form provided by the state. This form reaches my office and has made available to me the names of many buyers of gold who, I am fully satisfied, know what they are buying. However, convicting either high-graders or gold buyers in a mining county is, to put it mildly, a very tough proposition. Usually the jury shows the courtesy of leaving the box before returning an acquittal, but that is about as much consideration as the law receives. Once we were able to charge high-graders with violation of the National Gold Reserve Act, and take them into federal court away from the center of high-grading activities, our percentage of convictions rose sharply.

However, we are still faced with the problem of securing adequate laws to carry the responsibility to where it properly belongs: the illicit buyers of gold. Once the high-grader learns that he cannot receive the protection that the shady buyers have heretofore been giving him through false affidavits, then and only then will gold thefts be materially reduced.

I recently checked up on one buyer in this state—perhaps the largest—and found

Mine operators are formulating definite plans for their campaign to combat the high-grading problem in western gold mines. One million dollars is believed to be a conservative estimate of the value of gold stolen each year in California alone.

that he had been purchasing from so-called snipers of the Bear and American rivers sums of gold that added up to over \$94,000. Any mining man knows that the snipers in that district do well to average better than 50 cents a day, and yet I found purchases made anywhere from \$75 up to over \$4,000—all from those two rivers. None of the sellers were mining companies—all were individuals.

On the face of it, it would seem a simple problem to convict this type of buyer, but any district attorney immediately demands an airtight case—thus we must have laws under which convictions can be made.

A BUYER in Northern California recently sold to the mint over \$20,000 worth of gold which was stolen from one gold dredge in his district. Members of the crew were convicted of the theft. The dredge operator is suing the buyer for conversion. It is highly probable this money will be recovered by the dredge operator, but whether it is or not, this suit has demonstrated that anyone who buys stolen gold is liable for damages. Mine operators are paying keen attention to this suit for it has revealed to them a civil side of high-grading heretofore overlooked.

Under the laws covering conversion, the purchaser of any stolen goods is liable for damages to the rightful owner regardless of the innocence or good faith of the buyer when making the purchase. Undoubtedly this has opened up a new method of attack on high-grading—one which will be pursued vigorously in the future. And when gold buyers realize that, instead of making a handsome profit from buying gold of doubtful origin, they are running the

risk of sustaining a substantial loss from a damage suit, they will take greater care in determining the source of the gold.

A gold buyer will invariably deny guilty knowledge when charged with purchasing stolen gold. His innocence gives him no protection in a civil suit—but when criminal action is to be taken his claim must be considered under our present laws. We might be pretty sure that one who sells a large quantity of gold to the secondary market for from \$22 to \$27 an ounce, is not the true owner of the gold, else he would not accept such a sharp discount. But to prove guilt in a criminal procedure requires more than conjecture. It requires proof. Furthermore, our laws as they now stand do not hold a buyer of stolen gold criminally liable. As a matter of fact, you could sell gold to the mint, declare it came from a mine you did not own, and, unless the mine owner learned of the theft and prosecuted, nothing could be done about it. Inasmuch as the mint records are secret, there would not be much chance of the owner's learning of the transaction, either. The federal laws are not violated unless a false affidavit is sworn to and submitted with the gold shipment.

Of course there are a number of highly reputable gold buyers who actively cooperate with the authorities in tracking down the high-grader. When the reputable gold buyer becomes suspicious about the legitimacy of any gold offered to him for sale, he immediately notifies the authorities, obtains a complete description of the seller, and even holds the gold under the guise that he wants to assay it before making payment. Several high-grading rings have been broken up in this manner and the buyers who assisted us deserve the highest commendation, both from the authorities and from the mine operators.

Captain Thos. B. Foster, head of the San Francisco office the U. S. Secret Service, has prepared a rough draft of the type of law we need. It reads:

PROPOSED FEDERAL HIGH-GRADE ACT SECTION 1

It shall be unlawful for any person, with intent to sell or otherwise dispose of the same to the United States, to bring or send, or cause to be brought or sent, or to knowingly assist in bringing or sending, any stolen gold, silver, or other rare metal, or mineral, whether in the form of bullion or ore or alloy or other form or combination, knowing the same to have been stolen from the lawful owner, to the Treasury Department, or any United States mint, or United States Assay Office; or with intent to defraud, to deceive or impose upon, or to attempt to deceive or impose upon, or misrepresent to any officer or employe of the Treasury Department, the United States Mints, or the United States Assay Offices, as to the source from which such gold, silver, or other metal, or mineral, offered for sale or disposal to the Treasury Department, United States Mints, and United States Assay Offices, was received. The Secretary



* Inspector, California State Department of Mines, San Francisco, California.

of the Treasury is hereby authorized to direct and use the Secret Service Division of the Treasury Department to detect, arrest, and deliver into the custody of the United States Marshal having jurisdiction, any person or persons violating any of the provisions of this Act; and to make rules and regulations for the purpose of carrying this act into effect.

SECTION 2

It shall be unlawful for any person to deposit or cause to be deposited in the United States mails for mailing or delivery or with any express company or other common carrier for carriage or transportation or to send or carry or transport from one state or territory or to any foreign country or to bring or to cause to be brought into the United States from abroad, or to take or receive from the mails or any express company or other common carrier, any stolen gold, silver, or other rare metal or mineral whether in the form of bullion or ore or alloy or other form or combinations, knowing the same to have been stolen from the lawful owner.

SECTION 3

Any person violating any of the provisions of Sections 1 or 2 shall for each offense, upon conviction thereof, be fined not more than \$5,000, or sentenced to imprisonment at hard labor not more than five years, or both, at the discretion of the court.

SECTION 4

The minimum sum of \$50,000 is hereby appropriated out of any money in the United States Treasury, not otherwise appropriated, to be used in defraying the expenses of enforcing this act as herein above provided.

Obviously, such a law would give the authorities something to work with. Perhaps it could be made a treasury regulation, needing only ratification by the congress.

If we secure passage of such a measure, we need one more step to complete our picture. Each seller should be thoroughly described on the state form he signs when selling to the licensed buyer. Then, if he sells stolen gold, he can easily be traced and apprehended. And the buyer will not dare use "phoney" names in submitting his affidavit with his shipments. For, if he does, he'll know only too well that we'll be to see him soon—and that our visit will mean almost certain arrest and conviction.

Control the buyers—and where will the market be for the high-graders?

REPORTS U. S. BUYING OF MEXICAN SILVER ON INCREASE

THE UNITED States Treasury has increased its buying of Mexican silver within the past few months, according to the current business and industrial review of the National Bank of Mexico which reported that silver production in Mexico had been stepped up 40 per cent since last May. Although the U. S. government announced early in 1938 that such purchases would cease after April 1, it is apparent that buying has been increased rather than discontinued.

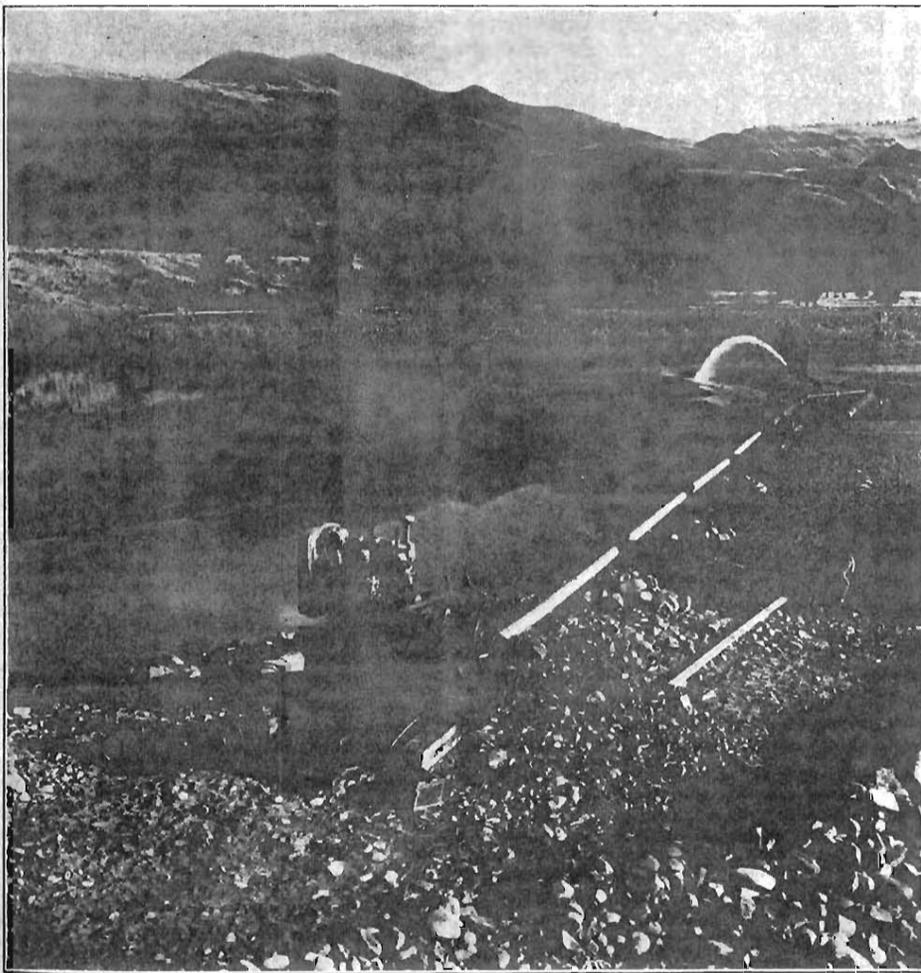
The bank review also called attention to a decline in trade with the United States and predicted "half-empty larders" for the Mexican people until some solution is found for the republic's financial difficulties. The review denied that President Cardenas' expropriation decrees had affected the nation's commerce with the United States and attributed the decline to tariff increases effected last January and to the devaluation of the Mexican peso.

LAKE CHELAN C. OF C. OPPOSES CREATION OF NATIONAL PARK

THE Lake Chelan Chamber of Commerce has announced its definite opposition to the proposed formation of a large national park embracing the greater part of the mineralized region of the Cascades, from Snoqualmie Pass north to the Canadian border. Resolutions to that effect have been drawn up and sent to other chambers of commerce throughout the state with recommendations that they be adopted.

The resolutions point out that such action would forever preclude the development of many natural resources, such as mining, power, grazing, fish, and timber and would develop only the scenic resources. It is further stated that while the chamber of commerce appreciates the development and preservation of the scenic resources, it feels that they should be considered along with the other resources of the region, rather than to allow all the others to be wasted and only one benefited, and that such a program of "conservation and development of all the natural resources of this area is now being effectively administered by the United States Forest Service."

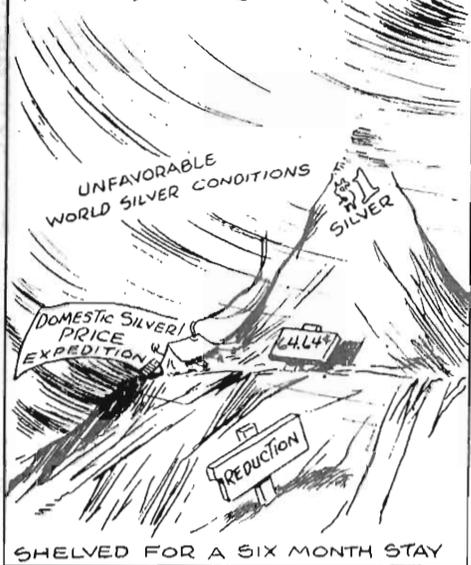
On the other side of the question the chamber points out that, even if this land is set aside as a national park, there is no assurance or provision made that any given sum will be spent for its development, now or at any future date. Such funds would have to be voted by congress and the ground being situated in a sparsely populated section of the state, rendering the people politically impotent, it might be the last to receive appropriations. Thus, while the mining and other industries would suffer in the central and northern portions of the state, the little benefit that might come from a possible increase in tourist trade would be of uncertain amount and date and would in no way compensate the people of Washington for what they had lost. It is granted that the scenic resources of this area are great and should be preserved, but not at the expense of every other resource.



A portion of the Salmon River Canyon near Riggins, Idaho, showing the work of Roy Green of Grangeville. A Caterpillar Diesel D6600 engine powers an eight-inch pump connected to the hydraulic monitor which has a three-inch nozzle, and is operated to wash tailings away from the gold washing plant. The photographer was pleased, at first, to find the denizen of the wilds calmly posed in the center right of the scene. Just before this picture was snapped, however, the charming little animal rebuffed the diplomatic advances of Photographer Perrine, leaving his astonished face considerably bruised and his shins minus their usual protective covering of skin. The gentle little creature, particular pet of Operator Green then resumed his placid pose.

THE LEVITY LODGE

BY JOHN BOWERS



SILVER TIP SAYS:

TAXES AND TAXES,
AND RUST OR BUST—
IF THE BUREAUS
DON'T GET YOU,
THE DEVIL MUST.



Mining Men and Their Activities

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

Harold J. McClelland is at Metaline Falls, Washington, with the American Zinc, Lead and Smelting Company.

James E. Bednar of the M. B. Mining Corporation is addressed at 1076 West Thirtieth Street, Los Angeles, California.

D. O. Beal, hoisting engineer, has returned to Nevada from Lordsburg, New Mexico, and is at the Nivlock mine at Silverpeak.

P. S. Jones is located at 5307 Eighth Avenue, Los Angeles, California. He is associated with the North Star Mining and Development Company.

T. H. Jenks, mining engineer, is located at 500 Towner Avenue, Albuquerque, New Mexico. He was formerly at the Cosmopolitan Hotel, Denver, Colorado.

Guy H. Herbert, Jr., is now at Atlanta, Idaho, as assayer for the Talache Mines, Inc., which recently put the Boise-Rochester mine on a producing schedule.

R. J. Duncan, manager of the Placeres de Oro Company, is addressed at 7001 Lacey Avenue, Oakland, California. He was formerly at Placerville, California.

H. Littlewood has joined the staff of Cia. Minera de San Carlos, S. A., at San Carlos, Chihuahua, Mexico. He was formerly located at Zapopan, Jalisco, Mexico.

Ernest Klepetko, metallurgical engineer of Pacific Palisades, California, has moved to Stockton, Utah, and is on the consulting staff of the Combined Metals Reduction Company.

Herbert C. Rydell, who has been in Baguio, Philippine Islands, as mine superintendent for the Crown Mines, Inc., has returned to this country and is at Willamina, Oregon.

James Crick of Helena, Montana, is associated with D. A. McKinnon and R. P. Smith, also of Helena, in the formation of the Three-M Mining Company which is a gold mining concern.

J. L. Bruce, resident director of the Cyprus Mines Corporation, has returned to the United States and is addressed in care of H. S. Mudd, 1206 Pacific Mutual Building, Los Angeles, California.

Victor J. Hayek, mining attorney and secretary of the Mining Association of the Southwest, has moved his offices from the Garfield Building to 1115 Pacific National Building, Los Angeles, California.

Frank Cooper has resigned as manager of Minas del Tajo, S. A., at Rosario, Sinaloa, Mexico, and is temporarily addressed in care of R. A. Orrett, 442 Sansome Street, San Francisco, California.

Lester L. Boggs, manager of the Kromo Sol Mining Company, is addressed at Box 74, Crown King, Arizona. He was formerly located at Globe, Arizona. The company has mines at Crown King and at Globe.

FRANK HOOPER COMPLETES 50 YEARS AT EMPIRE MINE

FRANK HOOPER, veteran mill man at the Empire mine of the Empire Star Mines Company, Grass Valley, California, completed his fiftieth year of service at the mine on November 29. In that time it is estimated that he has handled \$50,000,000 in gold bullion. He has spent 48 of the 50 years in the mill and 41 years as mill foreman.

Hooper started work at the age of 14, working 10 hours a day as a mucker in the Empire mine. After eight months he went to work in the mill as a helper at \$2 a day. He was employed on the concentrators until he was 17, when he was transferred to the batteries. He operated the batteries and handled the repair work until he was 23, when he took charge of the mill as a foreman.

He has seen a number of changes in his years at the mine, among them being the enlarging of the mill from 40 to 80 stamps in 1914. None of the buildings are now standing that were in use when Hooper first went to work at the property.

J. B. Newsom, inventor of the circular shaft boring machine, has moved from Ely, Minnesota, to San Francisco, California, where he is addressed in care of the Idaho Maryland Mines Corporation, Russ Building.

R. A. Buzzard of Helena, Montana, is one of the incorporators of the Mining Ventures Corporation of Sheridan, Montana. C. J. Dousman and A. D. McDermott, both of Helena, are also members of the new company.

Herman L. Dauth has joined the staff of New Gold Fields of Venezuela at El Peru, Bolivar, Venezuela, South America. He was formerly mine superintendent at Cia. Minera de Maguarichic at Maguarichic, Chihuahua, Mexico.

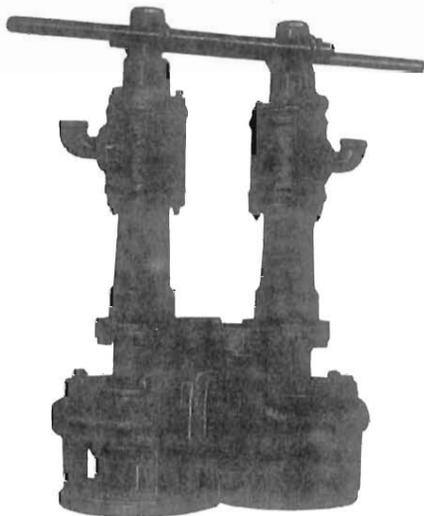
Ollie E. Bannister of Grand Junction, Colorado, has been appointed to the board of directors of the State Metal Mining Fund for a term ending March 31, 1941. He succeeded R. M. Henderson who resigned on account of ill health.

O. J. Benston, assayer, is now at Nelson, Nevada, on the staff of the Diamond Gold Mining Company, operators of the Techaticup mine. He was formerly with the Dayton-Douglas Cyanidation Company which recently closed for the winter.

P. J. Corin has been named mine foreman of the Lucky Joe mine, Jackson, California, operated by the Le Roi Mines, Inc. He was formerly shift boss at the property and assumed his new duties December 1. Corin has worked in India and Burma in tin and gold properties.

Sidney B. Wood, Jr., president of the Gold Diggers Syndicate, has moved from

BRING ON YOUR ABRASIVES!



THE BYRON JACKSON 2-STAGE PNEUMATIC SPONGE

... passes $\frac{5}{8}$ " solids—handles sand, pulverized rock and other abrasives with a minimum of wear. Yet this pump works with amazing efficiency, using only a 90-pound air pressure to deliver 100 gallons per minute against a 130 foot head; 60 gallons per minute against a 240 foot head; or 25 gallons per minute against a 300 foot head. Water can be lowered to within 3" of the bottom of the sump.

Where lower heads are encountered, the 2-Stage Pneumatic Sponge can be separated, each stage being a complete independent pumping unit, weighing only 85 pounds.

Byron Jackson Co., Dept. MI-125
P. O. Box 1307, Arcade Station,
Los Angeles, California.

Please send me complete information about the Byron Jackson 2-Stage Pneumatic Sponge.

Name.....
Company.....
Position.....
Street.....
City..... State.....

Established 1872

BYRON JACKSON CO.

Factories at: Berkeley and Los Angeles, Calif.,
Bethlehem, Pennsylvania.

Sales Offices at: New York - Pittsburgh - Chicago
Atlanta - Houston - Salt Lake City

BYRON JACKSON
CENTRIFUGAL
PUMPS
FOR EVERY SERVICE

Hollywood, California, to 7983 Norton Avenue, Los Angeles, California. The syndicate is engaged in developing the Dutch, App, Sweeney, and Heslop group of mines at Jamestown, California.

Robert S. Palmer of Denver, Colorado, secretary of the Colorado Mining Association, has been placed in the Hall of Fame by the Denver Post for prompt and energetic efforts in getting organizations throughout Colorado to send requests to Washington for a higher price for silver.

James C. Thompson has gone to Baguio, Mountain Province, Philippine Islands, where he is employed as master mechanic by the Balatoc Mining Company. He was formerly employed by Tapan Surigao Gold Mines, Inc., Surigao, Surigao, where Joseph L. Thomson is general manager in charge of operations.

Nick Pucklow, formerly of Grass Valley, California, is employed as mine foreman at the Lucky Joe mine of the Le Roi Mines, Inc., Jackson, California. He has been associated with a number of California mines and formerly worked for Anaconda at Butte, Montana. He also was employed at several Canadian properties.

J. W. Swent, for a number of years general manager of the San Luis Mining Company, Tayoltita, Durango, Mexico, has been elected to the position of vice-president, and will make his headquarters at the main office in San Francisco. Larry Morel, assistant manager and superintendent at Tayoltita, will succeed Swent as general manager.

Frederick MacCoy has been named general manager of Mindanao Mother Lode Mines, Inc., and has been transferred from the property to the general offices in Manila, Philippine Islands, where his mail address is Box 2128. D. C. McKay has succeeded him as general superintendent at the mine. The mine address is Box 29, Surigao, Surigao, Mindanao.

Herbert C. Shotwell of Boulder, Colorado, vice-president of Mining Associates, Inc., was elected president of the Boulder County Metal Mining Association at its annual meeting on January 4. He succeeds A. A. Zangara of Boulder. John E. Byron, mining engineer, Boulder, was elected vice-president; George Jump, secretary; and John W. Valentine, treasurer.

IDAHO MARYLAND SIGNS NEW CONTRACT WITH MINE WORKERS

THE Idaho Maryland Mines Corporation, Grass Valley, California, has signed a contract with the Mine Workers Protective League. This action follows the decision of the Circuit Court of Appeals that the National Labor Relations Board is without jurisdiction over the mining company. The decision became final when the labor board failed to appeal to the United States Supreme Court within the legal time limit.

The contract is similar to that signed by other major mining companies of the district, all but one of which have completed agreements with the league. The new contract runs until December 31, 1939.

Among other orders of the labor board which went into the discard with the Circuit Court of Appeals' decision was one forbidding the mining company to make a

contract with the league, though curiously enough the board in the same order had held that the league was a legal labor union and qualified under the Wagner act to enter into a contract with employers of its members.

It is understood that 64 per cent of the Idaho Maryland employes are members of the Mine Workers Protective League.

SILAS L. GILLAN RETURNS FROM TRIP AROUND WORLD

SILAS L. GILLAN has returned to his home at 230 Webb Drive, Glendale, California, following a geological and mining trip which took him around the world and six times across the equator. In describing his trip, Gillan states that three spots stand out in his memory, tin mining in Bolivia, gold in South Africa, and silver-lead in Australia.

Of his visit to Bolivia Gillan says: "Val DeCamp is the big boss of 17,000 employes at Oruro, Bolivia, mining tin. One of his minor operations is the recovery of tin from old silver mining operations of hundreds of years ago. These tailings carry about 1 per cent of tin and are spread out over hundreds of acres of a flat dry lake. About 1,000 tons a day are scraped up, screened, and concentrated by gravity. His other operations are mining, sorting, and concentrating lode tin. It is tough for a stranger to stand the 15,000-foot elevation, but Val seems to thrive on it."

Gillan also reports: "The Rand is producing more than 1,000,000 ounces of gold per month and we are sinking most of it in another hole in Kentucky. One of the oldest mines is the Robinson Deep, now worked to depths of more than 8,000 feet. I dropped 4,000 feet vertically, walked a bit and descended another 2,000 feet vertically, next down an incline on the reef for another 4,000 feet, equivalent to 2,000 feet more of vertical depth. The reef here is about three feet wide, a metamorphic conglomerate between slaty walls, about \$10 to \$12 ore. Air conditioning makes this deep mining possible. The reef has been exposed in shafts and diamond drill holes for a length of 200 miles, so here is a supply of gold for the world as long as gold has any value.

"At Broken Hill, Australia, a solid silver-lead ore body has been worked for a length of three miles to a depth of about 2,000 feet. The ore body is 200 feet thick, carries about 17 per cent lead, 17 per cent zinc, and 10 ounces of silver per ton.

"At all of these spots Americans are certainly doing their stuff; Val DeCamp in Bolivia, Charles C. Smith, managing director of the Sullivan Machinery Company in Johannesburg, Dr. J. K. Gustafson at Broken Hill, and many others."

While crossing the North Sea on June 7 Gillan wrote on one of his personal cards, sealed it in a bottle, and tossed it into the water. When he arrived home he found awaiting him a letter from Denmark which contained the card and a message from the man who had picked up the bottle on June 10.

OBITUARIES

Fred Frisbee of Sunland, California, recently died at his home. He is said to have been the original locator of the Gold King mine at Cripple Creek, Colorado. He operated in the Cripple Creek and Mina, Nevada, camps and later was interested in nonmetallic mines near Tujunga, California. He retired from active mining in 1925.

Sam A. Parker, about 88 years of age, died December 16 at his mining camp near Cleator, Arizona, of the infirmities of old age. He was one of the founders of the famous camp at Leadville, Colorado, and after moving to Arizona settled at Dripping Springs Basin near Cleator, where he made his headquarters for more than half a century.

Charles Skeels died December 17 of injuries sustained when he fell 90 feet in a shaft at the Sheepranch mine, Sheepranch, California. He entered the shaft following blasting and was overcome by fumes. Skeels was a nephew of Frank H. Skeels, general manager of the California Division, St. Joseph Lead Company, which operates the Sheepranch mine.

ROY NELSON BISHOP

THOUGH he was latterly an oil executive and ex-president of the Sperry Flour Company and a director of General Mills, Inc., Roy Nelson Bishop, who died at his home in San Francisco the morning of December 20, was widely known as a mining man in this country and abroad. He was a graduate of the Columbia University School of Mines, class of 1902, and was known far afield as a mining engineer.

His first connection was with a gold mining project near Loomis, Washington, and later he became engineer for interests operating in southern Oregon. In 1903, when the Russo-Japanese war began, he was with the Haggin-Hearst interests in central Siberia, working a gold property south of Tomsk on the Chinese border.

After a year in Siberia Bishop was sent down the west coast of Mexico to examine mining properties. For the next year he toured Mexican mining regions on muleback. In 1907 he assumed management of the Balaklala Copper Company mines in Shasta County, California. That year he married Miss Stella Wheeler of New York, daughter of T. H. ("Pop") Wheeler of the Standard Oil Company, and the following year they moved to San Francisco where they made their permanent home. His versatility began to bloom in 1909 when he went into hydroelectric power development, buying several California companies, improving them and selling them to eastern power interests. The late William H. Crocker, San Francisco banker, put Bishop in charge of his California oil interests in 1913. Bishop was president of Universal Consolidated Oil until 1929. He also had served as president of Californians, Inc., coast "boosting" organization, and for a time was in charge of operations for both the famous Palace and Fairmont hotels in San Francisco.

MONTANA MINE ESTABLISHES SAFETY RECORD FOR ARIZONA

THE Montana silver-lead mine at Ruby, Arizona, operated by the Eagle-Picher Mining and Smelting Company, has established a record unequalled elsewhere in Arizona by operating for seven years without a fatal accident, according to the annual report of James Malley, deputy state mine inspector.

During that period the payroll averaged approximately 300 men. Malley paid tribute to E. D. Morton, mine manager; G. J. Duff, general superintendent; and Tom Johnson, mine superintendent, for safety efficiency.

All miners are trained in first aid and a hospital is maintained close to the mine workings with a doctor and three trained nurses in attendance. The slightest injury, under the mine rules, must be treated immediately.

Arizona mines are "using every safeguard known" to prevent accidents, Malley reported. "Each year thousands of dollars are spent to protect human life, and precautions include safety devices, better equipment, and safety education of the employees. The larger companies employ first-aid instructors and it is compulsory for all employes to take first-aid training."

For Today's Miners

A DOUBLE GUARANTEE
OF
YEAR ROUND SAFETY!



EDISON ELECTRIC
CAP LAMPS

M.S.A. SKULLGARDS

The greatest volume of illumination available in any cap lamp today dependably serves over 400,000 miners throughout the world—by increased safety against the hazards of darkness. Edison Electric Cap Lamps also serve management best—by increased productive efficiency, by reduced accident rates and compensation charges.

● It will pay you to get the facts on these Lamps that pay for themselves.



Let us arrange an Edison Cap Lamp demonstration on your own operations—explain our rental plan of installation—and show you the Lamp's ideal team-mate, M.S.A.'s famous Type "K" Skullgard hat! No obligation, naturally.

MINE SAFETY APPLIANCES COMPANY
BRADDOCK, THOMAS & MEADE STREETS, PITTSBURGH, PA.
District Representatives in Principal Cities

Mill Heads from the Western States

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

Glen Chipperfield, 383 East Thomas Road, Phoenix, Arizona, was awarded the contract for construction of 50 houses for employes of the **Phelps Dodge Corporation**, Morenci Branch, Morenci, Arizona. The successful bid was \$142,999 and construction work will begin immediately.

The homes, which were designed by Lescher and Mahoney, architects, Title and Trust Building, Phoenix, will be of varying design containing two bedrooms each. Eleven of the new houses will be of the duplex type. The group will be a part of the new town-site of Stargo which is being established by the company between Morenci and Clifton for its workers. Ernest Wittenau is general superintendent of the Morenci Branch.

Seven men are employed at the **World's Fair** mine, Patagonia, Arizona, under the direction of J. C. Schell, lessee, and steady shipments of ore are being made. The mine, which carries values in silver, is in receivership and is being worked on a partnership basis.

The **Little Fanny Mines Company**, Dragoon, Arizona, is shipping high-grade tungsten ore from the Little Fanny mine. A crew of 10 men is employed. The mine, which is located in Sheeps Canyon near Dragoon, is being operated under lease.

Small shipments of high-grade tungsten ore are being made regularly from tungsten claims near Dragoon, Arizona, by Jess Wein, Dragoon, who is working the claims under lease. Six men are employed.

Elmer Walker, who is working tungsten claims near Dragoon, Arizona, is making steady shipments of high-grade tungsten ore from the property. Eighteen men are employed.

The old **Bullwacher** mine near Patagonia, Arizona, now known as the **Golden Gate**, is being worked under lease by Ernest Herbert of Nogales, Arizona. A carload shipment of silver-lead ore was made recently. Herbert is employing a crew of four men. The property is owned by Judge A. S. Henderson and associates of Patagonia.

A carload of ore per month is being shipped from the **Minnie Smith** claim located in the Patagonia Mountains near Patagonia, Arizona. Three men are employed under the direction of A. A. Bacon who is working the property. The mine is owned by Charles R. Sickles, 149 Broadway, New York City.

Five men are employed in developing and shipping operations at the **Jensen** claims in the Red Rock district near Patagonia, Arizona. The property is being worked under the direction of Bill Johnson, Patagonia.

The **Duquesne** group located in the Duquesne district near Patagonia, Arizona, is under lease to the **Callahan Zinc-Lead**

Company, Joseph T. Hall, secretary-treasurer, Box 229, Wallace, Idaho. The property has been dewatered and is being examined by the lessees. A. L. Bird, Nogales, Arizona, is the owner of the mine. It was formerly owned by the Bracey Curtis estate.

A crew of three men is engaged in drifting on ore at the 100-foot level of a new shaft sunk at the **Paymaster** mine near Patagonia, Arizona. The mine is being worked under lease by a group composed of W. R. Hutchins, Phoenix; W. B. Matlock, Patagonia; and R. C. Bond, Nogales. Values are in copper, gold, and silver. The Paymaster is owned by the Richardson Corporation of Patagonia.

A carload of copper-silver ore per month is being shipped from the **Hardshell** mine at Patagonia, Arizona, under the direction of Alfredo Valenzuela and Luciano Lopez, lessees. Two men are employed. The mine is owned by the Richardson Corporation, Patagonia.

Manuel Encinas and Roberto Duran, who are leasing the **Flux** mine at Patagonia, Arizona, from the Richardson Corporation, are shipping a carload of copper-silver ore per month from the mine. Six men are working at the property.

J. J. Seeman, lessee of the **Tungsten Reef** mine at Hereford, Arizona, is employing a crew of five men and is mining and milling scheelite and gold ore. The mine is equipped with a small milling plant and concentrates are being stored pending a favorable market for them.

Steady, small shipments of placer gold are being made from the **Nugget** mine located in Ash Canyon in the Huachuca Mountains. The mine is being operated by Charles Morgan of Hereford who is employing two men. A portion of Morgan's ground is also being worked under lease by two other men.

Oklahoma interests have completed an examination of the Imperial mine located in Hunter Canyon of the Huachuca Mountains near Hereford, Arizona, and plan an active development program. The property is owned by the **International Gold and Rare Metal Mines, Inc.**, Max R. V. Baumkirchner, president, Hereford. Values are in gold, silver, lead, copper, and zinc.

Engineers representing New York interests have recently made an examination of the **Lucy Bell** mine near Hereford, Arizona, and plans are being made for active operations, financed by the New York group. The mine is owned by the **Lucy**

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.

Bell Mining Company, J. Frank Jones, president, Hereford.

A new property located eight miles from Fort Grant is being opened up by a group composed of Ben Kratzberg, Van Lee, Ben Lee, and Verne Boles, all of Bowie, Arizona. A road is being opened up to the mine and preparations are being made for development. The mine carries values in bismuth, cobalt, and nickel. Three men are employed.

Work is progressing on sinking the shaft to the 80-foot level at the **Ralph Greenlaw** mine near Bowie, Arizona, under the direction of F. M. Updyke, Bowie. The mine, which carries values in gold, is being operated by Updyke Brothers. Three men are employed. The vein has been showing some high-grade and it is planned to cross-cut at greater depth.

J. H. Kellogg, Bowie, Arizona, operating the **Graphite** property near Fort Bowie, has sunk to a depth of 60 feet on the graphite vein, which is now showing for a width of 10 feet. It is planned to continue the shaft to the 100-foot level before stoping is begun.

Mr. and Mrs. George McDaniel have leased the **Copper Butte** mining claims in the Mazatzal mining district on Rye Creek near Payson, Arizona, and an effort is being made to ship a carload of ore before the winter snows block the highways. A small crew of men is employed.

Thea Williamson, Elfrida, Arizona, has opened four feet of \$10 ore and plans continued development of his **Skyline** mine located in Rucker Canyon in the Chiricahua Mountains. Present work consists of cross-cutting and drifting on the North Garner vein. Values are in gold and silver.

A headframe, hoist, and compressor have been installed and the 75-foot shaft is being sunk another 50 feet on ore at the **Irish Boy** claims in the Swisshelm Mountains. The mine is being developed by William T. Ferguson, 751 Fifth Street, Douglas, Arizona. The ore carries values in lead, copper, and silver.

The **Eagle-Picher Lead Company**, Temple Bar Building, Cincinnati, Ohio, paid the regular quarterly dividend of \$1.50 on preferred stock January 2 to holders of record December 15.

Active operation and early production are scheduled for the **McAlpine** mine located six miles northwest of Coulterville, California, in the Big Oak Flat district. The McAlpine property was taken over recently by W. A. Hayes, 225 Mallorca Way, San Francisco, California, and will be rehabilitated. It is

planned to run a power line from Moccasin, 4 1/2 miles distant. The property, known as a rich producer, was closed in 1918. It extends 2,100 feet on the Mother Lode with an unexploited cross ledge 30 feet wide at the croppings. Present equipment includes a 75-horsepower hoist, a 520-foot, two-stage compressor, and several build-





Here is the Plug Valve that meets every one of your requirements for pressure-tight, leak-proof performance on your pipelines!

It's the latest model MacClatchie "Hydro-Seal", equipped with a new and revolutionary "Plastic" packing arrangement that completely seals ALL points subject to gas or fluid leakage. Moreover, with this new packing arrangement the same valve can be used on mud, water, oil, gas or chemical lines with equal efficiency.

Here are the important features that save time, money and labor when you standardize on MacClatchie "Hydro-Seals":

They are COMPLETELY PLASTIC SEALED with a new type fibrous grease that eliminates the use of rubber, metal, fabric or leather packing of any kind!

They are "LUBRICHECK" EQUIPPED for positive repacking and regreasing under high pressure from the outside WITHOUT EVEN CLOSING THE VALVE!

They have an IMPROVED BEARING DESIGN which eliminates freezing and permits easier turning of the plug under ANY pressure!

This new "Plastic" Packed Hydro-Seal is available in a wide range of sizes, metals and working pressures (200 to 3000 lbs.) for various installations, and in either round-hole or conventional type openings.

Write for Complete Details!

MacCLATCHIE
MANUFACTURING COMPANY
COMPTON, CALIF.

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. 8-2984 P. O. Box 575
Phoenix, Arizona

DRY BANK PLANTS

BODINSON

BUILT
DRAG LINE DREDGES

2401 Bayshore Blvd., San Francisco

ings. The shaft is 670 feet deep with ore reported in sight on the 400 and 500-foot levels. No stoping has been done below the collar of the shaft but a large tonnage of high-grade ore is said to have been mined in the early days through the tunnels above the shaft. K. Dean Butler, recently of Texas, is associated with the project. Hayes was formerly with the Columbus mine at Tuolumne, California.

Operations have been resumed at the **Sixteen-to-One Extension Mines, Inc.**, Alleghany, California, following a shutdown of several months. It is planned to continue active work throughout the winter. George W. Hallock, president of the company, has announced that arrangements have been completed for dewatering the mine workings and a resumption of the development program. The work for the present will be confined to further operations along the ledge.

Nick Gerard and associates of Bakersfield, California, are reported to have encountered a deposit of tungsten in northern Kern County. Rich ore is said to have been revealed during the sinking of a 65-foot shaft and the digging of a 100-foot cross-cut.

The **Western-Knapp Engineering Company**, 760 Folsom Street, San Francisco, California, has been awarded a contract by the **Anglo American Mining Corporation**, 206 Sansome Street, San Francisco, California, for the installation of a 100-foot thickener at the **Yellow Aster** mine, Randsburg, California. The installation is somewhat unusual inasmuch as a tank will not be used. There are some old settling basins near the mine and the thickener mechanism is being designed for installation in one of these, which will serve as a tank. The overflow from this thickener will pass into several smaller tanks previously installed for resettlement. The underflow will pass directly to the cyanide plant. A. W. Frohli, Box A, Randsburg, is general manager of the **Yellow Aster**. M. J. O'Boyle is general superintendent.

The **Monarch Syndicate** has recently taken over the **Monarch** mine near Forest Hill, California, formerly operated by A. D. Hadsel, and additional milling equipment is being installed. The **Western-Knapp Engineering Company**, 760 Folsom Street, San Francisco, California, has been given the contract for installation of a new ball mill. Two Hadsel pendulum type mills are to be used temporarily as crushing units in the preparation of feed for the ball mill. Several other pieces of equipment are also being installed and the plant is expected to be in operation early in January. R. B. McGinnis is manager and Clarke Sullivan is mill superintendent.

The dividend policy of the **Alaska Juvenile Gold Mining Company**, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, was revised at a recent meeting of the board of directors. In the future the company will pay a regular quarterly dividend of 25 cents a share instead of a regular quarterly 15 cents plus an extra of 15 cents, as has been done since November 1, 1933. Placing of the stock on an annual basis of \$1 does not necessarily mean a reduction in income to stockholders, stated Bradley, as such sur-

plus funds as are available will be paid out as extras. John G. Sutton was elected to the board of directors at the meeting.

The **Argonaut Mining Company**, Jackson, California, reported a profit of \$36,931 for November before provision for depletion, depreciation, and federal income taxes, as compared with \$15,433 in October. The November income was the highest since November, 1935. Substantially higher gold recovery during the month was responsible for the increase in the month's profit. The recovery per ton for November was \$12.26 as compared with \$9.80 for the preceding month. Alex Ross is general superintendent.

A program of diamond drilling is under way at the **Spring Hill** mine, Grass Valley, California, which is expected to last for several months. Only a small crew is employed at present in the development program. Work is directed by C. C. Cushman, manager. Stewart M. Marshall, 1915 Mills Tower, San Francisco, is general manager of **Spring Hill Gold Mines, Inc.**, operator of the property.

J. M. Hoff, Nevada City, California, has taken over the **Gracey-Glencoe** mine under a 10-year lease and is preparing for an extensive development program to the west. In the past all development has been to the east. E. W. Harker, associated with Hoff, has placed pumps on the ground for unwatering the shaft. The 60-ton mill on the property has also been acquired by Hoff. The **Gracey-Glencoe** is owned by the **Cheney Gold Mines, Inc.**, of Oakland, California.

The **Walker Mining Company**, Walker, California, is making 75-ton shipments of concentrates from the mine to the smelter. The recently reopened copper property is employing 400 men and development work is being pushed vigorously.

The **Arizona California Exploration Company** has secured an option on the **Mack** mine in the Canada Hill district southeast of Nevada City, California. The 170-foot shaft has been unwatered and further sinking is under way. J. L. Jackson is directing work at the property, which is being done under contract.

Lewis F. Johnson, La Porte, California, and A. J. Sells, Stockton, California, have been authorized to deliver 18 cubic feet of water from Cedar Grove, Horn, and Star Ravines in Sierra County for mining purposes. Estimated cost of the diversion is \$12,000. The water will be used in hydraulic operations at the **Caledonia** mine near La Porte, California.

A jig has been added to the milling equipment at the **Keller** mine near Graniteville, California, to facilitate the recovery of the gold values. The mine is equipped with a five-stamp mill. Operations are carried on through a tunnel and at present a crew is engaged in opening two drifts. The concentrates are said to average approximately \$1,400 per ton. E. A. Van Gortitz is operating the Keller.

The machinery and equipment at the **Norambagua** mine near Grass Valley, California, are being offered for sale by the **R. Potter Campbell Company**, 84 William Street, New York City, and bids have been

forwarded to the company by G. A. Worthington, former superintendent, who has remained at the property to complete final arrangements for the shutdown. The mine was completely equipped for general operations including stamps for primary crushing, ball mill, and flotation cells.

Shaft sinking below the 200-foot level is reported to be under way at the **Phar Lap** mine near Mojave, California. The shaft was recently completed to the 200-foot level and drifting has been in progress from that point. The mine, which is operated under the direction of John C. Rutherford, engineer in charge, is equipped with a hoist, headframe, blacksmith shop, and living quarters for the workers.

An ore shoot carrying exceptional values is reported to have been encountered in the Bullion mine of the **Grass Valley Bullion Mines, Inc.**, Grass Valley, California. Geologists and assayers have been examining and sampling the ore body for several weeks with satisfactory results reported. The Bullion is operated by the Idaho Maryland Mines Corporation under an agreement with Grass Valley Bullion.

Six men, under the direction of C. A. Varencamp of San Francisco, have been engaged in sampling gravel on the Weston and Apperson property in the Sherlock district near Mariposa, California. Negotiations are under way for the leasing of the land for placer mining operations.

Fred F. Cassidy, Nevada City, California, has been authorized to divert 50 gallons of water per minute from the Gold Star tunnel to be used for mining purposes. Estimated cost of the diversion is \$4,000. The **Gold Star** group is located near Alleghany, California.

Application for a permit to divert three cubic feet of water per second from Secret Creek, tributary to the South Fork of the Yuba River, has been filed by Jeannette Donnelly, Downieville, California. The water will be used for mining, power, and domestic purposes. It is planned to develop three horsepower.

Walter Hayter, Camptonville, California, has applied for permission to divert 15 cubic feet of water per second from Big Humbug Creek, tributary to the North Fork of the Yuba River. It is planned to use the water for mining and domestic purposes.

Simplification of the capital stock structure of the **Central Eureka Mining Company** by eliminating the present classifications of preferred and common and creating only one class of shares has been outlined by C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, California, in a proxy statement to stockholders. The only distinction at present between preferred and common is priority in dividends on the former, on which six cents a share must first be paid before common dividends can be paid. When an equal amount has been paid on both, the two classes share alike in any further disbursements. Neither type is cumulative, there is no other preference, and no voting distinction. If the amendment is adopted, the capital structure will consist of 600,000 shares

of \$1 par value capital stock only. Consent of holders of two-thirds of each class of stock is essential for adoption of the proposed amendment. The company operates at Sutter Creek, California.

The **Peckham Hill Gold Mines, Inc.**, C. L. Rowe, mine superintendent, Box 997, Auburn, California, has completed approximately 140 feet of additional main tunnel at its property. An eight-inch cased air hole has been completed which provides ventilation and permits the working of two shifts. The tunnel is to be driven another 700 feet to cut a gravel area penetrated by a 214-foot shaft. Raises for exploration purposes will be driven every 200 feet. The property is operated under lease from the Mayflower Gravel and Mining Company.

It is reported that the **Oxford** mine, a quartz property located one mile north of Downieville, California, will be reopened soon by the J. A. Pizzoati interests of Oakland, California, former operators. Considerable development work has been done by Pizzoati and associates during the past few years. The mine is equipped with a modern milling plant.

Milton Grady Ramsey, Victorville, California, is completing construction of an \$85,000 flotation-cyanide mill at his **Ramsey** mine in Grapevine Canyon, Lucerne Valley. The 60-ton plant will treat custom ore from the Lucerne Valley and Victor Valley districts.

Active work is to begin the first of January at the **D.W.K.K.H.** mines, Victorville,

The HARDINGE LIBRARY

*examine it with your problems
and requirements in mind!*

BULLETIN NO. SUBJECT

- 8 —Metal Reclamation
- 13C—Hardinge Conical Mills
- 16B—Ruggles-Coles Dryers
- 18 —Hardinge Tube Mills
- 19A—Hardinge Batch Mills
- 22 —Hardinge Material Distributors
- 23 —Keystone Lime Kiln
- 24A—Operation Notes
- 25A—Hardinge Conical Rod Mills
- 30A—Hardinge Sand Filter, Clarifier & Super Thickener

BULLETIN NO. SUBJECT

- 31B—Hardinge Spiral Thickener & Clarifier
- 32 —Hardinge Diaphragm Pump
- 33C—Hardinge Feeders
- 35A—Hardinge Sanitation Equipment
- 36 —Hardinge Sewage Sludge Digestion Equipment
- 37 —Hardinge Conical Scrubbers
- 38 —Hardinge Clarifiers
- 39A—Hardinge Counter-Current Classifiers
- 41 —Hardinge Operation Data

*Take Advantage of it. Write for
Bulletins you need.*

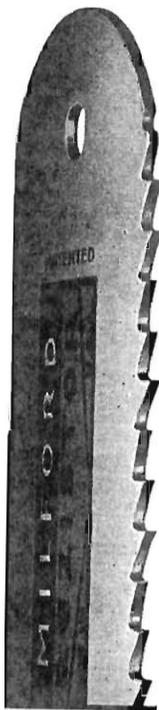
HARDINGE COMPANY INCORPORATED

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.

When you buy MILFORD

REZISTOR



↓
you
buy
25%
MORE
CUTTING

FOR the same amount of money that Industry pays for the old type Tungsten High Speed Steel Power Blades, MILFORD REZISTORS will give 25% more cutting. Why? Simply—you get 25% more blades for the same amount of money. MILFORD REZISTORS in power sizes cost less than old type Tungsten High Speed Blades and will give the lowest cost per cut.



In Hand Frame Sizes also, conveniently marked.

Ask for Facts and Figures

Pratt-Gilbert Hardware Co.

701 S. Seventh St.
PHOENIX

Phone 3-5145
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

California, according to Earl Davis, secretary. The property, which consists of eight claims, has been opened by a 50-foot tunnel and several open cuts. Assays range from \$17 to \$42 in gold with some silver.

J. D. Murphy, Rosamond, California, is reported to be operating the old Frazier mine on Frazier Mountain. Satisfactory values are being recovered from the old dumps and considerable mining in the old property and adjacent mines is planned for the future.

Nicholas Baxter, 415 Court Street, San Bernardino, California, and Long Beach associates plan the erection of a plant to treat a deposit of alunogen which they have located near Corona, California. The new plant will employ from 80 to 100 men and will produce aluminum oxide, iron oxide, sulphuric acid, and aluminum chloride which is used in the cracking of crude oils.

The Los Prietos Quicksilver Mines Company is operating its property located at Gibraltar Lake about eight miles north of Santa Barbara, California, on a small scale. About five flasks of quicksilver per week are being produced. T. H. Canfield is secretary-treasurer and manager.

Operations are progressing satisfactorily at the Tungstore mine, Posey, California, under the direction of A. A. Helfer, superintendent. The property is equipped with three 16 by 6-foot concentrating tables, three ball mills, a hoist, dragline, stacker, magnetic separator, and water pumps. The plant is powered by a Caterpillar Diesel D17000 engine direct-connected to an 80-kilowatt generator.

Due to inability to make satisfactory arrangements with the owners of one of the properties adjoining its mine at Eureka, Colorado, the

COLORADO

Sunnyside Mining and Milling Company has discontinued all preparatory operations in connection with the proposed three-mile tunnel to tap its mine workings at depth. The property has been placed in charge of a watchman. Operations were under the supervision of the United States Smelting Refining and Mining Company of which F. S. Mulock, Newhouse Building, Salt Lake City, Utah, is vice-president and general manager in charge of western operations.

The Big Four Mining and Milling Company of Blackhawk, Colorado, has leased its milling plant at Blackhawk, known as the Bolen mill. It is understood that the new operators will continue to work the plant on a custom basis. Capacity is 50 tons daily. Edward F. Krewinghaus of Blackhawk is president and E. L. Cull, also of Blackhawk, is manager of the Big Four company.

By next fall the Carter Mines Company of Ohio City, Colorado, expects to have a Diesel engine installed and to be able to maintain a steady supply of water throughout the year. At present work is curtailed until spring because of shortage of water. Carroll M. Carter of 1447 Gilpin Street,

Denver, and Ohio City, is president and general manager.

It is reported that the Colorado and Southern railroad from Leadville, Colorado, to Climax, a distance of about 18 miles, is to be changed from narrow to standard gauge. Surveys have been made and ties have been distributed at various points along the line. Total cost is estimated at \$80,000. Maintenance of this section of the railroad after the rest of it had been abandoned was necessary in order to service the Climax Molybdenum Company.

The Trail Run Mines, Inc., was recently organized to operate the Wheatland mine in the Trail Creek district of Clear Creek County near Idaho Springs, Colorado. Charles Gresser, 411 North Seventh Street, St. Louis, Missouri, is president of the company which purchased the mine outright early in January. The Wheatland tunnel is in 260 feet on the vein and production is to be started as soon as all machinery and equipment installation is completed. C. R. Wilfley, 1948 Broadway, Denver, is general manager. New equipment, including a hoist and compressor, has been installed and ore is being hauled to a near-by custom mill.

The American Smelting and Refining Company ceased work at the Fairview mine near Telluride, Colorado, about December 15, 1938. The property was reopened by the company last spring under the general direction of J. Fred Johnson, 609 McCormick Building, Salt Lake City, Utah.

Because of an inadequate water supply the Cameron Gold Mines, Inc., has curtailed mining and milling operations to a one-shift schedule. The new 100-ton flotation mill is proving a success and is treating 35 tons of ore in one shift. Water for milling is pumped from the mine. The company will install a thickener to recover additional water and the mill will then operate on a three-shift schedule. W. H. Webber, 512 Equitable Building, Denver, Colorado, is president and general manager. Walter O. McClintock is mill superintendent and Hereford Peiffer is mine superintendent, both at Cripple Creek.

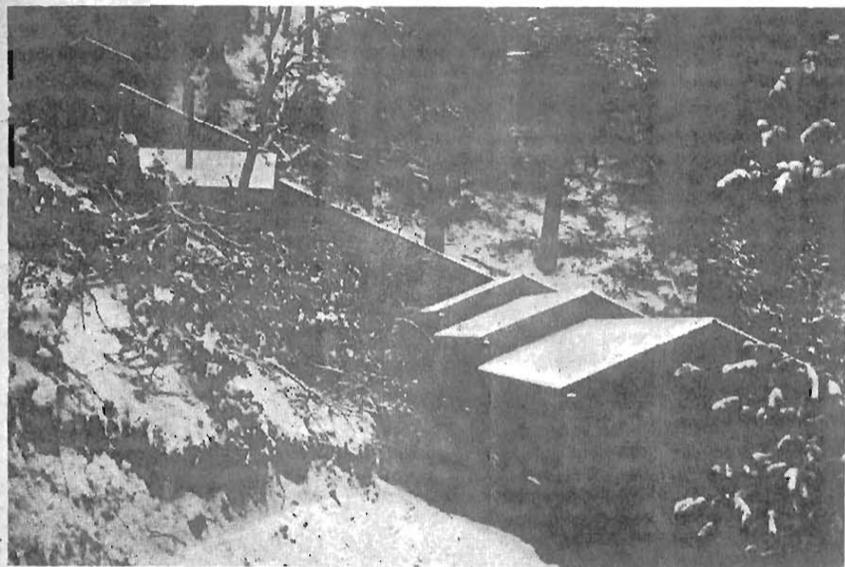
Construction of a new mill in the immediate future is planned by the Claflie County Fluorspar Company which Steve Trefone of Salida, Colorado, and associates are operating. A gasoline compressor has been installed preparatory to driving a new tunnel for increased production and another shaft will be sunk. The property is located about 11 miles northwest of Salida in the Browns Canyon area.

A mill is being installed at the Red Cross mine, Dobbins, California, under the direction of E. S. Van Dyck, general manager, to replace the plant destroyed by fire several years ago. Several men are employed at the property at present. Underground work to supply ore for the mill is expected to be resumed shortly.

Development work on behalf of the American Smelting and Refining Company has been resumed by the Shenandoah-Dives Mining Company after a suspension of three months. Work will be continued

THE MARKET PLACE

Another member of the ever-growing family of WESTERN KNAPP MILL INSTALLATIONS



Cyanide Leaching Plant

designed and built for

HUMMING BUG MINES, INC.

Yreka, California

Completed November 15, 1938

Let Us Engineer Your Job

WESTERN KNAPP ENGINEERING COMPANY

CONSTRUCTION ENGINEERS - COMPLETE MINE AND MILL INSTALLATIONS

760 Folsom St.
SAN FRANCISCO, CALIF.
1649 Blake St.
DENVER, COLO.

3849 Santa Fe Ave.
LOS ANGELES, CALIF.
228 N. LaSalle St., Chicago
1025 So. Central Ave.
PHOENIX, ARIZONA

210 S.W. Temple St.
SALT LAKE CITY, UTAH
500 W. First Ave.
SPOKANE, WASH.

500 N. 16th St.
SACRAMENTO, CALIF.
2927 Louisville Street
EL PASO, TEXAS

No Job Too Tough For Our Organization!

INDEX TO ADVERTISERS

THE ADVERTISERS' INDEX is published as a convenience to our readers and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

Allison Steel Mfg. Co..... 19th Ave. and Harrison, Phoenix	Atlas Imperial Diesel Eng. Company 1000 19th Ave., Oakland, Calif. 228 N. LaSalle St., Chicago	Bucyrus-Erie Company South Milwaukee, Wis. 390 Bayshore Blvd., San Francisco 816 W. 20th Ave., Spokane 3408 First Ave. S., Seattle	Claussen Electric Co..... Page 42 1516 Blake St., Denver
Alloy Steel & Metals..... Page 31 1862 E. 55th St., Los Angeles	Atlas Powder Co. (Plant Division) Wilmington, Delaware 1 Montgomery St., San Francisco Continental Bldg., Salt Lake City Old National Bk. Bldg., Spokane 411 W. Fifth St., Los Angeles J. S. Vance Bldg., Seattle Midland Savings Bldg., Denver	Business Mens Clng. House Page 38 Midland Savings Bldg., Denver	Cleveland Rock Drill Co..... Page 8 3734 E. 78th St., Cleveland, Ohio 41 E. Broadway, Butte, Mont. 1417 Texas St., El Paso, Texas 2001 Santa Fe Ave., Los Angeles 418 Dooley Bldg., Salt Lake City 1835 S. Emerson St., Denver
Alvo Nut & Bolt Co..... Page 42 2314 E. 8th St., Los Angeles	Baron Co., H. J..... Page 36 805 Mills Bldg., El Paso	Byron Jackson Co..... Page 12 5th and Carlton Sts., Berkeley Box 1307, Arcade Sta., Los Angeles Box 409, Bethlehem, Penna. Eyer-Greenawalt Co., 451 First Nat. Bk. Bldg., El Paso 358 North H. St., Fresno 1415 Graybar Bldg., New York City 407 S. Dearborn St., Chicago 704-A Gulf Bldg., Pittsburgh P. O. Box 2198, Houston 208 S. W. Temple St., Salt Lake City	Colorado Fuel & Iron Co..... Continental Oil Bldg., Denver, Colo. 801 Bassett Tower, El Paso, Texas 739 E. 60th St., Los Angeles 902 Porter Bldg., Portland 614 Walker Bank Bldg., Salt Lake City 914 Balboa Bldg., San Francisco 727 Old Nat'l. Bank Bldg., Spokane, Wash.
American Cyanamid Co. Page 16 30 Rockefeller Plaza, New York Azusa, California 1688 La Loma Ave., Berkeley, Calif.	Beecon Engineering Co..... Page 42 2501 E. 52nd St., Los Angeles	Card Iron Works..... Page 25 1801 Alcott St., Denver, Colo.	Colorado Iron Works..... 1824 Seventeenth St., Denver
American Forge Co..... 750 Potter St., Berkeley, Calif. 1823 E. Wash. Blvd., Los Angeles Sundfelt Equipment Co. 3315 First Ave. So., Seattle	Bemis Bro. Bag Co..... Page 23 414 Poplar St., St. Louis, Mo.	Carpenter & Co., Don A..... 303 San Francisco St., El Paso	Columbian Steel Tank Co... Page 16 Dept. MJ Sta. A., Kansas City, Mo.
American Lumb. & Treat. Page 34 1081 S. Broadway, Los Angeles 118 New Montgomery, San Francisco Box 1676, El Paso, Texas 37 W. Van Buren, Chicago, Ill.	Bethlehem Steel Co..... Bethlehem Penna. 20th & Illinois, San Francisco Box 1227 Arcade Annex, Los Angeles 924 Kearns Bldg., Salt Lake City 231 U. S. Natl. Bk. Bldg., Denver W. Andover St., Seattle	Caterpillar Tractor Co..... San Leandro, Calif. Peoria, Illinois	Delster Concentrator Co..... Page 27 925 Glasgow, Fort Wayne, Ind.
American Smelt. & Ref. Co. Page 35 El Paso, Texas	Bodinson Mfg. Co..... Page 18 2401 Bayshore Blvd., San Francisco	Chicago Pneumatic Tool Co. 6 E. 44th St., New York City 855 Bryant St., San Francisco 655 Santa Fe Ave., Los Angeles 119 W. 2nd South, Salt Lake 426 Mills Bldg., El Paso 1928 First Ave. So., Seattle 1720 California St., Denver	Denver Equipment Co..... Page 9 1419 17th St., Denver, Colo. Baker Bldg., Mexico, D. F., Mexico McIntyre Bldg., Salt Lake City P. O. Box 2205, Phoenix
Apache Powder Company..... Page 36 Benson, Arizona 411 W. Fifth St., Los Angeles	Braun Corporation Page 23 2280 East 15th St., Los Angeles		Denver Fire Clay Co..... Page 27 P. O. Box 5510, Denver, Colo. 209 Mills Bldg., El Paso, Tex. Box 836, Salt Lake City
Arizona Iron Works, Inc..... Page 18 P. O. Box 575, Phoenix, Ariz.	Brown-Bevis Equip. Co..... Page 42 4900 Santa Fe Ave., Los Angeles 825 E. Madison St., Phoenix		
Arizona Printers, Inc..... Cover Home Bldg. Bldg., Phoenix, Ariz.			

the Ajo district was fourth with 25,000 ounces, a decrease of 8,800 ounces; and the Old Hat (Mammoth) district was fifth with 21,175 ounces, an increase of 9,115 ounces.

Nearly half of the state's silver output in 1938 came from the Copper Queen and United Verde mines of the Phelps Dodge Corporation; other large producers of silver were the Eagle-Picher, Ash Peak, Magma, New Cornelia, Reymert, Arizona Magma, Alpha-Keystone, Denn, and Tombstone properties. The output of silver from the Warren district decreased from 3,491,735 ounces in 1937 to about 2,540,000 ounces in 1938; the Verde district decreased from 1,840,150 to 1,150,000 ounces; the Pioneer district was virtually the same as in 1937 (749,492 ounces); the Oro Blanco district decreased from 641,382 to 556,000 ounces; the Ash Peak district increased from 465,382 to 517,582 ounces; the Wallapai district decreased from 528,640 to 490,000 ounces; and the Ajo district decreased from 436,004 to 285,000 ounces.

ARIZONA continued as the largest copper-producing state, although its output decreased to 415,500,000 pounds in 1938. The New Cornelia mine of the Phelps Dodge Corporation at Ajo was again the largest producer of copper in Arizona, followed by the Copper Queen, United Verde, Miami, Inspiration, Magma, Nevada Consolidated, and Morenci properties. These eight mines accounted for about 400,500,000 pounds of copper or 96 per cent of the total, and each produced more than 23,000,000 pounds. Other large producers of copper were the Denn, Arizona Molybdenum, and United Verde Extension mines. The entire output of the Morenci branch of the Phelps Dodge Corporation was recovered by leaching.

The Warren was the chief copper-producing district in Arizona in 1938, although its output decreased from 111,982,727 pounds in 1937 to about 93,000,000 pounds in 1938. The Globe (Inspiration-Miami) district, the chief copper-producing district in 1936 and 1937, dropped to second place in 1938 as its output declined from 177,618,025 pounds in 1937 to 87,500,000 pounds in 1938. The Ajo district with a decrease of 24,250,000 pounds ranked third. The output of the Verde district decreased from 84,742,620 to about 57,600,

000 pounds, the Pioneer (Superior) district from 34,205,496 to 32,450,000 pounds, and the Mineral Creek (Ray) district from 34,615,149 to 29,600,000 pounds; but the Copper Mountain (Morenci) district increased from 13,644,322 to 23,500,000 pounds.

The copper smelters at Douglas, Clarkdale, Miami, and Superior were active throughout the year, but receipts of crude ore and concentrates were considerably less than in 1937. 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 custom material from mines in Mexico; the smelter of the Phelps Dodge Corporation at Clarkdale treated chiefly crude copper ore and concentrates from the United Verde mine and siliceous gold ore from various properties in Arizona; that of the International Smelting and Refining Company at Miami treated chiefly concentrates from the Miami mill; 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 American Smelting & Refining Company at Hayden operated intermittently during the first three quarters of the year and regularly during the last quarter. The copper smelter of the Phelps Dodge Corporation at Clifton was closed in March after treating several thousand tons of copper concentrates produced from New Cornelia ore.

Virtually all the lead concentrates and nearly all the gold concentrates produced from Arizona ores are shipped to the smelter of the American Smelting & Refining Company at El Paso, Texas, and the zinc concentrates go either to the American Smelting & Refining plant at Amarillo, Texas, or the National Zinc Company plant at Bartlesville, Oklahoma. The 10-ton lead smelter at Mammoth, Arizona, owned by the Mammoth-St. Anthony, Ltd., was operated regularly in 1938 on concentrates (containing gold, silver, lead, molybdenum, and vanadium) produced from Mammoth-St. Anthony and New Year-Mohawk ores.

The decline in the production of lead in Arizona in 1938 was due chiefly to a general decrease in output of silver-lead ore and to a decrease in zinc-lead ore. About 55 per cent of the lead output in 1938 was

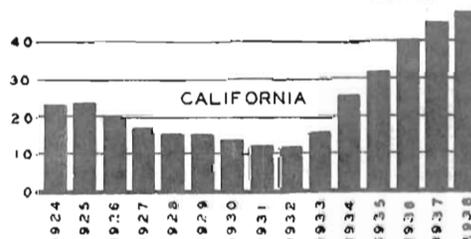
recovered from zinc-lead ore and the rest largely from gold ore and lead ore. The Eagle-Picher Mining & Smelting Company, operating the Montana mine at Ruby, continued as the largest producer of lead in Arizona; it was followed by the Tennessee-Schuylkill, Mammoth-St. Anthony, New Year-Mohawk, Hillside, Tombstone, and "79" mines.

Nearly all the zinc produced in Arizona in 1938 came from three properties—the Montana at Ruby, the Tennessee-Schuylkill at Chloride, and the Magma at Superior. The Magma Copper Company completed in September 1937 the construction of a new 250-ton flotation unit at the copper concentrator designed to treat zinc-copper ore; in 1937 the plant was used a few months to treat copper ore, and in 1938 several thousand tons of zinc-copper ore were treated in the new unit.

Final annual figures for both 1937 and 1938 and further details by counties and districts will appear in Minerals Yearbook, 1939.

CALIFORNIA

MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD, AND ZINC IN CALIFORNIA, 1924-1938, IN MILLIONS OF DOLLARS



THE QUANTITY of recoverable gold produced in California during 1938 is estimated to have exceeded that for any year since 1862 and its value exceeded that for any year since 1859; the production of silver, copper, lead, and zinc (in terms of recoverable metals) was smaller in both quantity and value than in 1937. Preliminary figures estimate gold production in 1938 as 1,294,400 fine ounces, silver 2,755,000 fine ounces, copper 2,210,000 pounds, lead 1,000,000 pounds, and zinc 20,000 pounds—valued in all at \$47,849,570. These figures compare with a production in 1937 of 1,174,578 ounces of gold, 2,388,265 ounces of silver, 10,502,000 pounds of copper, 2,372,000 pounds of

SOME STATISTICS ON 1936, 1937, AND 1938 PRODUCTION OF GOLD, SILVER, COPPER, LEAD, AND ZINC IN THE WESTERN UNITED STATES

State	Gold—Fine Ounces			Silver—Fine Ounces			Copper—Pounds		
	1936	1937	1938	1936	1937	1938	1936	1937	1938
Alaska	540,580	627,940	626,200	484,306	494,340	444,000	37,700,000	34,672,000	29,614,000
Arizona	322,408	332,694	310,000	8,386,043	9,422,552	7,600,264	422,550,000	576,956,000	415,500,000
California	1,007,442	1,174,578	1,294,400	2,103,799	2,858,265	2,755,000	8,762,000	10,502,000	2,210,000
Colorado	366,607	363,905	370,100	5,902,776	6,260,693	7,776,600	17,730,000	21,868,000	27,090,000
Idaho	80,291	81,861	101,000	14,537,530	19,587,766	18,601,127	2,954,000	4,464,000	4,200,000
Montana	180,209	202,252	197,200	11,600,563	11,812,093	6,306,792	219,088,000	289,056,000	153,886,000
Nevada	286,370	281,332	289,700	5,068,785	4,364,750	4,978,000	141,392,000	149,206,000	97,860,000
New Mexico	33,037	41,171	38,600	1,163,255	1,243,766	1,015,200	6,332,000	64,106,000	35,094,000
Oregon	80,763	52,662	77,100	85,061	60,564	105,000	574,000	820,000	92,000
South Dakota	586,353	581,544	594,000	144,448	139,638	160,000	.....	.....	.....
Texas	613	582	455	1,361,459	1,325,000	1,445,100	53,000	320,000	34,000
Utah	223,444	322,759	210,650	9,997,645	12,869,117	9,629,713	252,434,000	411,933,000	215,798,000
Washington	12,217	36,310	73,400	66,900	126,304	290,582	204,000	128,000	11,744,000
Wyoming	1,964	1,776	877	1,118	203	400	.....	.....	.....

lead, and 40,000 pounds of zinc—valued in all at \$44,757,593.

The gross value of California production at average yearly prices in 1938 of \$35 per ounce of gold, \$0.646 per ounce of silver, \$0.098 per pound of copper, \$0.047 per pound of lead, and \$0.049 per pound of zinc was: Gold, \$45,304,000; silver, \$1,781,010; copper, \$216,580; lead, \$47,000, and zinc, \$980. The average yearly prices in 1937 were: \$35 for gold, \$0.7735 for silver, \$0.121 for copper, \$0.059 for lead, and \$0.065 for zinc, and the gross values were: Gold, \$41,110,280; silver, \$2,234,073; copper, \$1,270,742; lead, \$139,948; and zinc, \$2,600. The total value of the five metals in 1938 increased 6 per cent compared with 1937 for a moderate increase in California's enormous gold production more than counterbalanced declines in the values of the production of the other four metals.

California was again the leading gold-producing state; its 1938 production represented a value over five times that in 1929, when the state total was only \$8,526,703. Expanded output at working mines, reopening of former producing mines, and bringing into production of prospects and new discoveries, together with the higher price of gold beginning in 1933, have all been factors in bringing about this tremendous expansion of the industry.

The Grass Valley-Nevada City district continued to be the center of the gold-producing industry in California. The Empire Star Mines Company, Ltd., (operating the Empire, Pennsylvania, North Star, and Murchie mines in the Grass Valley-Nevada City district in Nevada County, the Zeibrich mine near Emmigrant Gap, also in Nevada County, and the Pennsylvania mine at Brown's Valley in 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) was again the second largest contributor to California's gold production; toward the end of the year operations at the company's Forbestown unit

were suspended. Large outputs were also reported by the Lava Cap Gold Mining Corporation from its Lava Cap, Banner, and Central properties and at the Golden Center mine operated by Cooley Butler, all in the Grass Valley-Nevada City district.

Near by, 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 Central Eureka Mining Company expanded its production considerably; the Argonaut and Kennedy mines continued as leading producers. To the north in Eldorado County, the Big Canyon mine of the Mountain Copper Company, Ltd., was the leading producer, and the Black Oak mine at Garden Valley and the Beebe mine at Georgetown had substantial outputs. On the Mother Lode in Calaveras County the largest producer of gold was the Carson Hill Gold Mining Corporation at Melones; this company treated a large tonnage of low-grade ore. Still farther south along the Mother Lode in Tuolumne and Mariposa counties a number of smaller producers were active, of which the Pacific Mining Company, Bear Valley, Mariposa County, was outstanding.

In Kern County, the output of the Mojave district, almost dormant five years ago, was large; the Golden Queen Mining Company, Burton Brothers, Inc., the Cactus Queen Mining Company, and the Lodestar Mining Company were the the outstanding producers, although a number of other properties reported favorable developments. Also in Kern County, in the Randsburg district, the Anglo-American Mining Corporation was successfully mining a large tonnage of very low-grade gold ore. In Sierra County the original Sixteen-To-One mine in the Alleghany district was the largest producer. In Inyo County production from the Cardinal Gold Mining Company was much smaller than in former years and late in the year the company's mine was shut down, due to exhaustion of known ore

bodies. In Shasta County the Iron Mountain unit of the Mountain Copper Company, Ltd., was the only first-rank lode mine. In Plumas County the Walker Mining Company produced a substantial quantity of gold as a by-product of its copper ore after large-scale operations were resumed late in the year.

THE LEADING producers of gold from alluvial deposits were almost exclusively dredging operations, chiefly connected-bucket floating dredges, but also including several companies using the dragline type of equipment. In Sacramento County the Natomas Company, Capital Dredging Company, and Cosumnes Gold Dredging Company were the leading operators. The Yuba Consolidated Gold Fields in Yuba County was one of the state's leading gold producers. In the Snelling dredging area, Merced County, the Snelling Gold Dredging Company, Yuba Consolidated Gold Fields, Merced Dredging Company, and the San Joaquin Mining Company were the leading producers. 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. In addition, a large number of dragline dredges were in operation, notably southwest of Redding in Shasta County, near Oroville in Butte County, around Lincoln in Placer County, and on scattered bodies of gravel in the Sierra foothills.

Silver ranked next to gold in value of output. The principal center of silver production was the Mojave district, Kern County, where the Cactus Queen Mining Company, Lodestar Mining Company, and Golden Queen Mining Company were very large producers; all three mines, however, derived their principal revenue from gold. Other large producers of silver were the Kelly mine in the Randsburg district, Kern County, the Grigsby mine in the Calistoga district, Napa County, and the Silverado mine in the Mt. Patterson district, Mono County. The Silverado property was the largest producer in

SOME STATISTICS ON 1936, 1937, AND 1938 PRODUCTION OF GOLD, SILVER, COPPER, LEAD, AND ZINC IN THE WESTERN UNITED STATES

State	Lead—Pounds			Zinc—Pounds			Total Value in Dollars		
	1936	1937	1938	1936	1937	1938	1936	1937	1938
Alaska	1,882,000	1,646,000	2,150,000	.....	.....	.....	22,850,367	26,652,698	25,238,000
Arizona	21,376,000	24,708,000	20,600,000	7,178,000	10,052,000	10,600,000	57,996,073	90,855,462	57,969,900
California	964,000	2,372,000	1,000,000	16,000	40,000	20,000	40,191,110	44,757,593	47,349,570
Colorado	14,534,000	19,572,000	19,756,000	2,344,000	8,494,000	9,318,000	19,819,869	22,107,207	22,020,731
Idaho	182,678,000	207,422,000	181,000,000	98,200,000	108,398,000	87,000,000	27,654,472	37,840,184	28,742,000
Montana	38,118,000	35,914,000	17,228,000	99,434,000	78,336,000	15,410,000	42,173,182	58,402,016	27,625,000
Nevada	21,424,000	18,694,000	9,100,000	26,954,000	28,472,000	18,910,000	29,289,993	34,617,056	23,720,353
New Mexico	13,252,000	13,024,000	9,486,000	41,336,000	47,854,000	51,954,000	5,316,172	14,038,790	8,438,091
Oregon	158,000	218,000	46,000	122,000	48,000	.....	2,258,411	2,005,218	2,777,557
South Dakota	.....	.....	.....	.....	.....	.....	20,634,244	20,462,050	20,898,434
Texas	935,000	790,000	703,000	.....	.....	.....	1,123,791	1,130,398	986,739
Utah	139,772,000	178,916,000	132,076,000	72,384,000	96,002,000	68,372,000	48,836,356	87,897,549	44,304,023
Washington	1,680,000	5,660,000	8,286,000	8,806,000	8,232,000	22,794,000	1,015,771	2,253,054	5,414,000
Wyoming	.....	.....	.....	.....	.....	.....	69,616	62,317	30,954

1936—Average metal values: Gold, \$35.00 per ounce. Silver, \$0.7745 per ounce. Copper, \$0.092 per pound. Lead, \$0.046 per pound. Zinc, \$0.050 per pound.

1937—Average metal values: Gold, \$35.00 per ounce. Silver, \$0.7735 per ounce. Copper, \$0.121 per pound. Lead, \$0.059 per pound. Zinc, \$0.065 per pound.

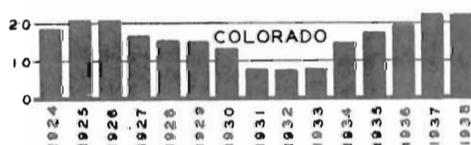
1938—Average metal values: Gold, \$35.00 per ounce. Silver, \$0.646 per ounce. Copper, \$0.098 per pound. Lead, \$0.047 per pound. Zinc, \$0.049 per pound.

the state in 1937, but during 1938 exhausted its known ore bodies and suspended operations. The Walker Mining Company in Plumas County, usually a large producer of by-product silver from its copper ore, produced almost nothing until operations were expanded toward a normal rate late in the year. Most of the remaining silver produced in the state was recovered as a by-product of gold mining; some of the large gold producers, such as the Lava Cap Gold Mining Corporation and the Empire Star Gold Mines Company, Ltd., as well as some of the dredges, had substantial yields of silver in addition to their gold.

Copper output fell from 10,502,000 pounds of recoverable metal in 1937 to 2,210,000 pounds in 1938. The Walker Mining Company, an affiliate of the Anaconda Copper Mining Company, although virtually closed down until the last two months of the year, produced most of the state total. For both 1937 and 1938 the output of lead was small and that of zinc negligible.

COLORADO

MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD, AND ZINC IN COLORADO, 1924-1938, IN MILLIONS OF DOLLARS



REPORTS of mine operators and actual receipts at smelters and United States mints, covering production for the first 11 months of 1938 with estimates for December, indicate that lode and placer mines in Colorado yielded, in terms of recovered metals, 370,100 fine ounces of gold, 7,776,600 fine ounces of silver, 27,090,000 pounds of copper (record annual), 19,756,000 pounds of lead, and 9,318,000 pounds of zinc. These figures compare with a production in 1937 of 368,905 ounces of gold, 6,260,693 ounces of silver, 21,858,000 pounds of copper, 19,572,000 pounds of lead, and 8,494,000 pounds of zinc and show increases of 1,195 pounds in gold, 1,515,907 ounces in silver, 5,222,000 pounds in copper, 184,000 pounds in lead, and 824,000 pounds in zinc.

The gross calculated value of the output of these metals in Colorado in 1938, with the comparative figure for 1937 in parenthesis, is: Gold \$12,953,500 (\$12,911,675 in 1937); silver \$5,027,297 (\$4,842,646); copper \$2,654,820 (\$2,646,028); lead \$928,532 (\$1,154,748); and zinc \$456,582 (\$552,110)—a total of \$22,020,731 in 1938 compared with \$22,107,207 in 1937. The price of gold fixed by the United States government remained at \$35 per ounce throughout 1937 and 1938, but the price of domestic newly mined silver was reduced by Presidential proclamation on December 31, 1937, from \$0.7757 to \$0.6464 per ounce and was kept at the lower figure throughout 1938. The average weighted yearly price per pound of copper declined from \$0.121 in 1937 to \$0.098 in 1938, lead from \$0.052 to \$0.047, and zinc from \$0.065 to \$0.049.

While the downward trend in prices of lead and zinc from January to June, 1938,

was followed by a curtailment of mining operations in some Colorado districts where lead and lead-zinc ores predominate, ore production, prospecting, and mine development were continued throughout the year in most of the districts yielding chiefly gold, gold-silver, and silver ores or base-metal ores mined profitably because of their gold and silver content. The number of producing lode mines, prospects, and dumps was about the same as in 1937, when the final count was 655.

There were 74 active ore reduction mills in the state in 1938, of which 24 were operated continuously (except for short temporary shutdowns for repairs or because of weather conditions) and 50 for periods ranging from a few weeks to 10 months. The 24 continuously operated mills had capacities ranging from 10 to 1,650 tons daily and averaged 200 tons; those operating less than 10 months had capacities ranging from 5 to 1,500 tons, averaging about 113 tons, and their operating time averaged about 4½ months. Included in the foregoing groups are 17 mills that handled custom ores, either exclusively or along with company ores. Two of the mills—the Golden Cycle mill at Colorado Springs and Creede Mills, Inc., at Creede—purchased outright all the ore they treated. The Arkansas Valley lead bullion-lead copper matte custom smelter at Leadville, which has a daily capacity of 500 tons of charge, was active throughout 1938 but did not operate at full capacity.

The largest ore reduction plant in Colorado is used in the treatment of molybdenum ore at Climax, Lake County, and has a rated capacity of 12,000 tons daily; it was operated continuously in 1938. The 300-ton vanadium roasting and leaching plant at Uravan, Montrose County, was run throughout the year. Several tungsten mills in Boulder County were operated intermittently. The molybdenum, tungsten, and vanadium industries are reviewed in detail in other releases of the Bureau of Mines, but it is of interest to note here that the aggregate gross value of the output of these metals (used principally in alloy steels) in Colorado in 1938 was at least \$21,000,000.

Placer mines yielded approximately 17,500 ounces of gold from an estimated 600 operations in 1938, compared with 14,871 ounces from 490 placers in 1937. The gravels at 20 operations producing 74 per cent of the total placer output were handled by machinery consisting of dragline excavators or power shovels and sluicing plants or special amalgamators, most of which were portable; one was a floating dredge-type boat with dragline excavator. One floating connected-bucket dredge was active for several months, and many small-scale sluicing, hydraulic, and drift mining operations were carried on by individuals.

THE CRIPPLE CREEK district (Teller County) produced, in terms of recovered metal, 145,973 fine ounces of gold in 1938, compared with 145,071 ounces in 1937. Shipments of mine and dump ore from the district to the Golden Cycle custom mill at Colorado Springs totaled 521,000 tons in 1938, and in addition some

ore was treated in the Kavanaugh cyanide leaching plant at the Iron Clad group and in the new 100-ton flotation mill placed in operation in October at the Cameron mine. The concentrates produced in the Cameron mill were shipped to the Leadville smelter. The Golden Cycle plant, which ranked fourth among producers of gold in the United States (including Alaska) in 1937, comprises a sampling mill, secondary crushing unit, 550-ton flotation mill, 1,200-ton roasting section, fine grinding-amalgamation-classification section, sand and slime cyanide plant, and precipitation and refining department. Improvements permitting more efficient operation in all departments have been made during the past six years, the latest being those made in 1938 in the crushing equipment of the sampling mill and the secondary crushing unit, and in the grinding equipment in the flotation mill. The economies effected by these and previous changes enabled the management to try to stimulate development work and prolong the productive life of the Cripple Creek district, its chief source of ore, by making a reduction in freight and treatment rates, effective December 1, which will increase the revenue to the shipper by 40 cents per ton on ore having a gross value of \$5.00 a ton up to \$1.15 on ore at \$11.30 per ton.

The three largest producers of gold in the state in 1938 were operating in the Cripple Creek district. They comprised the Cresson Consolidated Gold Mining & Milling Company, from the Cresson, Dante, and Gold Sovereign mines; United Gold Mines Company, from its Vindicator, Portland, Theresa, Rose Nichol, and other groups; and the Golden Cycle-Ajax operations, from the Granite-Ajax group.

Eagle County continued to furnish the bulk of the state's output of silver and copper and considerable gold and lead. Since 1933 the county has made a steady gain in production, attaining first place among Colorado counties in total value in 1937, and maintaining that place in 1938 by an increase in production which raised the total value above that in 1937 despite the lower average prices of silver, copper, and lead. Extensive ore bodies (containing chiefly copper, iron, silver, and gold) developed by the Empire Zinc Company, subsidiary (changed in 1938 to Division) of the New Jersey Zinc Company, in the company-owned Eagle mine group on Battle Mountain have been the major source of the large output since 1931. Most of the ore mined from these ore bodies has been shipped to the Garfield (Utah) smelter. The company mined no zinc-lead ore in 1938 and its 600-ton underground flotation mill in Eagle Canyon below Gilman remained idle.

The San Juan region produced the greater part of the state's output of lead and zinc and an important part of the gold, silver, and copper. The Sunnyside Mining and Milling Company, which reopened the Sunnyside mine in San Juan County and began production on September 1, 1937, continued operations to June 1, 1938, when the mine was closed. The ore was treated in the company's 1,000-ton selective flotation mill at Eureka.

John W. Sherman is now employed in the Magna plant of the Utah Copper Company at Magna, Utah. He was until recently at Murray with the American Smelting and Refining Company.

Alva Edwards is general manager of the Edwards and Granath Mining Company, Orange, California. He was formerly mill superintendent for the Pioneer Gold Producers, Hesperus, Colorado.

W. H. Reck is associated with the Denver Equipment Company and receives mail at Box 268, Salt Lake City, Utah. He was formerly at Osburn, Idaho, as metallurgist for the Sunshine Mining Company.

Donald Foot of Niagara Falls, New York, is employed by the Utah Copper Company in the flotation department of the Magna plant at Magna, Utah. He receives mail at the Magna Mill Dormitory, Magna.

Rollien R. Wells has left Anaconda, Montana, where he was employed as gas engineer by the Anaconda Copper Mining Company, and is flotation helper at Garfield, Utah, for the Utah Copper Company.

C. H. Griffith, president and general manager of the Granite Gold Mining Company, which has holdings in Powell and Lewis and Clark counties, Montana, has moved from Spokane, Washington, to Avon, Montana.

George Heim, who returned from South America after completing a three-year contract a few months ago, is now at 18 Jefferson Street, Deadwood, South Dakota, where he is connected with the Canyon Corporation.

Major J. Paul Jones, formerly general manager of Operator Consolidated Mines Company at Randsburg, California, is now engineer for Ore Metal and Engineering Corporation, 112 Market Street, San Francisco, California.

Ben H. Donnelly of Hawthorne, Nevada, has returned from Los Angeles where he consulted mine operators concerning proposed installation of a small milling plant at his Big King mine in the King district east of Rawhide, Nevada.

Dale Culver has left Silverton, Colorado, where he was manager of the Culver Leasing Company, and is now at 3722 Bales Street, Kansas City, Missouri. The leasing company operated on the Jenny Parker mine of the Mystery Gold Mining Company.

M. A. Cook, who for the past several months has been engaged in converting the old amalgamating mill on the French Henry property at Ute Park, New Mexico, to a flotation unit, has moved to Trinidad, Colorado, where he is addressed at 915 Arizona Avenue.

W. Rex Storms is general superintendent of the Malaguit mine, which is being operated by Elizalde and Company. The mine, which is located near Paracale, Camarines Norte, Philippine Islands, was formerly worked by Mineral Enterprises, Inc. Storms' address is Box 63, Paracale.

Walter B. Lenhart, formerly mill superintendent for the Cardinal Gold Mining Company at Bishop, California, is now at

E. O. SLATER IS CHAIRMAN OF LOS ANGELES MINING COMMITTEE

SUCCEEDING Joseph A. Hartley of the Braun Corporation, E. O. Slater, president of the Smith-Emery Company, has



E. O. Slater

been named chairman of the Los Angeles Chamber of Commerce mining committee for the coming year. Hartley was made a vice-president of the organization. Slater has announced that the committee this year will stress further development and use of nonmetallic minerals in the southwest. He pointed out that the southwest, embracing Arizona, more than half of Nevada and southern California, produces roundly \$150,000,000 worth of minerals and metals annually, exclusive of oil and gas. While admitting that the precious metals are of great importance in the scheme of things, he declared that the non-metallics are the backbone of industrial Los Angeles.

Slater established the Los Angeles office of the Smith-Emery Company, testing laboratories, in 1910 after having been with the organization in San Francisco for some time following his graduation from the College of Chemistry, University of California.

He has been a member of the manufacturing and industries committee, the construction committee, and the mining committee of the chamber of commerce for many years. He also is chairman of the nonmetallics committee of the Mining Association of the Southwest.

De Lamar, Idaho, acting as superintendent for De Lamar Milling Corporation. The company has installed a 100-ton mill to treat the various dumps in the district.

Ralph S. Baverstock, 522 South Figueroa Street, Los Angeles, California, recently sampled the Never Sweat mine in Death Valley, California, for Salt Lake clients. He is now engaged in examining properties in the Parker, Arizona, district formerly developed by Senator Tom Drennan and Joe Curtis.

Robert A. Blake of Butte, Montana, has become a member of the research department of the American Cyanamid Company at Stamford, Connecticut. Since his graduation from the Montana School of Mines last spring, Blake has been employed as laboratory assistant for George G. Griswold at Butte.

Robert T. Banks, long connected with the Sullivan Machinery Company on both the east and west coast, has been made manager of the Intermountain office with headquarters at 117 West Second South, Salt Lake City, Utah. He succeeds L. C. Rhodes who has been made manager of the Butte-Spokane section.

Norman T. Annett, mining engineer who has been working in Nevada recently, is now located at Kingman, Arizona. Annett was formerly mine superintendent of the

Sierra Consolidated Mines, Inc., working out of Wellington, Nevada, and more recently was superintendent of the Nevada Corporation and of the Diamond Gold Mining Company.

E. C. Stephens, who has been chief mine engineer and assistant superintendent at the Mountain City Copper Company, Rio Tinto, Nevada, will become field geologist for the International Smelting and Refining Company, parent company of the Mountain City concern. His headquarters will be at the head offices in the Kearns Building, Salt Lake.

J. E. Meinhardt has been elected president of the Shamrock Silver Mining Company, succeeding W. A. Reed, who resigned because he was moving from the Coeur d'Alene district and could no longer give the work his close attention. Joseph G. Sullivan of Hayden Lake, Idaho, locator of the ground, will continue as general manager for the company.

Charles E. Stott has been named assistant general manager of Cia. Minera de Penoles with headquarters at Apartado 251, Monterrey, Nuevo Leon, Mexico. He was formerly general superintendent of the Presidio mine of the American Metal Company of Texas at Shafter, Texas. The Penoles company is a subsidiary of American Metal Company, Ltd.

Reno H. Sales, chief geologist of the Anaconda Copper Mining Company at Butte, Montana, will be presented with the Penrose medal by the Society of Economic Geologists at the annual dinner of the society to be held in New York on February 14. This is the highest honor that can be paid by the organization. Sales was president of the society during 1937.

Michael Curley, manager of the New Cornelia Branch, Phelps Dodge Corporation, Ajo; **E. F. Bohlinger**, manager of the Richardson Corporation, Patagonia, and **William Koerner**, general manager of the Magma Copper Company, Superior, have been appointed to membership on the Arizona Copper Tariff Board. **Lin Orme**, Phoenix, and **Sam Morris**, Globe, were re-appointed to the board.

Edwin Letts Oliver was elected chairman of the San Francisco section, American Institute of Mining and Metallurgical Engineers for the year 1939. Other officers elected were **Charles White Merrill**, vice-chairman; **Herbert A. Sawin**, secretary-treasurer; **Robert Hawxhurst, Jr.**, **Robert A. Kinzie**, **Clyde M. Eye**, and **Henry W. Gould**, members of the executive committee. The new officers will be installed February 14.

Ford Young has resigned his position as chief clerk and mining engineer for the Horse Heaven Mines, Inc., at Horse Heaven, Oregon, and has accepted a position as instructor of geology at the University of Oregon. He receives his mail through Route 4, Eugene. **Roy Leigh**, a graduate of Washington State College, will replace Young; at Horse Heaven and will be assisted by **Vernon Seely**, a graduate of the Oregon State College.

John A. Fulton, 146 West First Street, Reno, Nevada, has resumed his work as director of the Mackay School of Mines in



There is no other law on earth which the true prospector holds in such high respect as the Grubstake Law. It is not a law in the usual sense of the word, but is in reality an agreement whereby one man accepts the given promise of another to uphold the code of the desert, the mountain, and the river.

As far back in history as one may care to delve, the great grubstake practice has held sway in all parts of the world. Those men who acted as benefactors to their fellowmen were necessarily of high moral character, or were men who realized the tremendous profits that might be had through outfitting a prospector to search for precious metals and minerals. Fabulous mines have been discovered by many grubstaked miners who had a "nose" for metal, but who were usually inclined to kick out of the traces when they returned to civilization. These men possessed a talent that appeared only when they were in their natural environments—the mineral belts of the world.

The spirit of generosity which characterizes these miners is unequalled by anything this side of heaven, itself, and they should not be condemned for believing in good comradeship at all times and places. During the late 90's, the western United States witnessed some high, wide, and handsome spending by these great-hearted fellows for no article was priced too high for them to buy to make some friend happy. Many apparently ridiculous spending spasms were recorded during those hectic days, but it is evident that the spenders got a real kick out of them for they had known what it was to be flatter than a pancake and among strangers who eyed them with cold disdain.

These same men were the grubstake benefactors who loaned money in untold sums to every wandering prospector who crossed their paths in order that he might continue to help in the development of this great western country of ours. It can be said that their generosity helped to pave the roads through the hills, up to the heart of the mountain country and down into the desert—for did they not finance the prospector on his trips into the new country where discoveries were made that brought civilization to the very shafts of the mines?

The western states are indebted for much of their present-day activities to the grubstake law and to the wandering prospector who helped to place them on the industrial map by his efforts while in the field of mineral prospecting.

It is highly questionable whether or not some of our busy cities in the west would be on the map today if there had not been a prospector in that particular district.

An 11,000-volt power transmission line has been completed from Crown King, Arizona, to the Oro Belle mine, and extensive development is planned by Mammoth-St. Anthony, Ltd., Mammoth, Arizona, which is operating the property. Work at the mine is directed by Seth S. Langley, mine superintendent.

A number of small mining operations are under way in the district around Patagonia, Arizona. Ed Farley is working the Homestake property in the Quijolate Flats district. At Duquesne camp C. W. Walker is employing three men in development and shipping of ore. Joe Bond is working two men and O. A. Reid is also employing two men in developing and shipping in the Josephine Canyon district. E. D. Walsh, working in the Temporal district, is also employing two men and is shipping ore. Six men are employed by T. G. Dunham, operating in the Red Rock district, and he is also making ore shipments.

It is reported that a portion of the equipment of the Verde Central mill, recently purchased from Phelps Dodge Corporation by the American Smelting and Refining Company, will be used in the installation of a 200-ton custom mill at the Trench mine near Patagonia, Arizona. The Trench is being worked under lease and bond by A. S. and R. A crew of 41 men is employed under the direction of M. B. Lovelace, superintendent, and satisfactory ore is understood to have been opened recently on the 700-foot level. Values are in silver and lead. B. R. Hatcher, Box 2028, Tucson, Arizona, is division manager for the American Smelting and Refining Company.

An expenditure of \$50,000 for new machinery and rehabilitation work at the Lucy Bell mine in Ash Canyon near Hereford, Arizona, is planned by the Lucy Bell Mining Company, J. Frank Jones, president. The work will be financed by New York interests and A. L. Rose, engineer for the group, recently made an examination of the property. About 25 men will be employed. The mine was first developed about 10 years ago but was shut down in 1931. Frank Bowling is vice-president and general manager.

The Oriental mine at Alleghany has been reopened, following a shutdown of about two months, with a small crew employed under the direction of Charles B. Foster. Two shifts are carrying on a diamond drilling program to secure geological data and to explore and develop bodies of disseminated ore in a large granite dike. The drilling program will total about 6,000 feet. The mine was taken over recently under sublease by Mrs. Florence V. V. Dickey, Twin Peaks Ranch, Ojai, California. The original lease is held by F. F. Cassidy of Grass Valley, California.

F. W. Clayton, Reno, Nevada, mining man, is reported to have encountered pitchblende at his claims on Conway Summit

near Bridgeport, California, and tests are being made to determine whether or not there is radium present. Low-grade gold ore, with some rich streaks, was also discovered on the property, the assays averaging about \$10 per ton.

A. E. Missio and Floyd Morris are sinking a shaft on the Robin mining claim in the Bull Creek district near Mariposa, California. They recently acquired the property from the Porath interests.

Charles Denman, Trona, California, is working the Lakeview mine in Sand Canyon, employing a crew of five men. The ore, which is milled at the Burton Brothers plant at Rosamond, California, is said to be giving a net return of \$25 per ton. Development work consists of a 120-foot tunnel with a 100-foot back. Denman has a purchase option on the property, which is owned by Charles Bishop. Sand Canyon is in the Slate Range south of Valley Wells between Layton Canyon and the Gold Bottom mine.

Sherman O. White, Michael F. Jackman, and W. P. Weimar, all of Alleghany, California, have optioned the Jay A. Carpenter property located in Six Mile Canyon. The option includes the Butters plant and the tailings ponds. A small mill has been installed for treatment of the tailings on a royalty basis and the first shipment of cyanide precipitates is being prepared.

Twelve men are engaged in developing and mining in several tunnels at the Arctic mine, Washington, California, under the direction of L. F. Utter, operator. The mill has been working two shifts due to a shortage of water, but is expected to be put on a full-time basis now that sufficient water is available. Don C. Billick is mill superintendent at the Arctic and A. Barnhart is mine superintendent.

Approximately 70 tons of ore per day are being trucked from the Grass Valley Bullion mine to the Idaho Maryland mill at Grass Valley, California. The mine is operated by Idaho Maryland Mines Corporation under an agreement with Grass Valley Bullion Mines, Inc. Principal work at present is proceeding on the 2,200-foot level reached through a 500-foot winze from the 1,700-foot level. The surface shaft descends to the 1,500-foot mark and at a point 1,200 feet from the 1,500-foot station a winze goes down to the 1,700, thus making three hoists of ore. Electric trains have been provided on the underground levels to haul the rock from ore pockets to stations. The operation has shown profitable production since its reopening in May, 1937. Howard Dennis is superintendent and Phil Folck is foreman at the Bullion.

El Oro Dredging Company, Marysville, California, is operating on the D. D. Rice property in Oregon Gulch near Redding, California. It is estimated that there are 50,000 cubic yards of gravel to be treated on the Rice ground, and work will be conducted on a royalty basis.

John M. Maynard, Strawberry Valley, California, is having surveys made of the Lost Channel mine and it is reported that operations are to be resumed in the spring. The mine has been idle for some time.



Ben H. Carlow, Box 836, Angels Camp, California, is negotiating for leases on property of the South San Joaquin and Oakdale irrigation districts with a view to carrying on dredging operations. Included in the tract to be leased is the Melones reservoir. He proposes to install a bucket dredge capable of handling 2,000 yards per day and in addition plans to use several smaller dredges for treating ground which cannot be handled by the larger plant. The property will be worked under a royalty agreement which calls for the payment of 5 per cent on values up to 50 cents per yard; on gravel containing values of more than 50 cents a royalty of 10 per cent will be paid.

It is reported that additional shifts may be put on at the property of the **Operator Consolidated Mines Company**, Johannesburg, California. Present operations are on a one-shift basis. Work is directed by H. G. Hunt, secretary and manager, 1020 Bank of America Building, San Jose, California.

A 10 by 10 No. 220 compressor has been installed at the **Gaylord** gravel mine near Auburn, California. The mine is being worked by Al Swinburn, Box 106, Station A, Auburn, and associates on a partnership basis. It is equipped with a trommel and sluice boxes. Work is being carried on through an old tunnel which has been rehabilitated.

The **Frederick Gold Mining Corporation** has been organized by Fred A. Finkeldey and George Goebel, both of Santa Cruz, California, to develop gold property at Willow Creek, Humboldt County, California. A combination of hydraulic and mechanical methods will be used and it is planned to treat 2,000 yards per day. This capacity will be increased to 4,000 yards during the next four months.

A number of improvements were made at the mill of the **Golden Queen Mining Company**, Mojave, California, during 1938. One of the largest of these was the addition of another agitator tank measuring 40 feet in diameter and 24 feet in depth, bringing the total number of large tanks to 16. A third crusher, a Symons, was introduced into the milling system to bring the ore to a smaller degree of fineness before transferring it to the ball mills. A huge dust collector was installed, connected with all parts of the crusher towers, as a means of protecting the operators. Another safety measure was that of fitting all exposed moving parts of machinery with guards. In the mine the most important improvement was the completion of a haulage tunnel connecting the Soledad and Lodestar mines with the Golden Queen. This tunnel runs completely through one part of Soledad Mountain and was driven to facilitate the transportation of ore from the Soledad and Lodestar properties to the Golden Queen mill. An increase in the battery charging facilities on the 600-foot level was made necessary by the completion of this new haulage tunnel and the battery station has been enlarged so that it will hold three locomotives and their batteries. William C. Browning, Pacific Mutual Building, Los Angeles, California, is general manager of the Golden Queen Mining Company.

Construction of a filter plant and concentrate bins and further mining work are contemplated for the Big Blue mine of **Kern Mines, Inc.**, Kernville, California. The company is at present employing a crew of 35 men and work is being confined to the Big Blue shaft down to the 360-foot level. Approximately 150 tons of ore per day are being mined. New crushing equipment was installed last fall. Eirind Knutsen, Box 77, Kernville, is general superintendent.

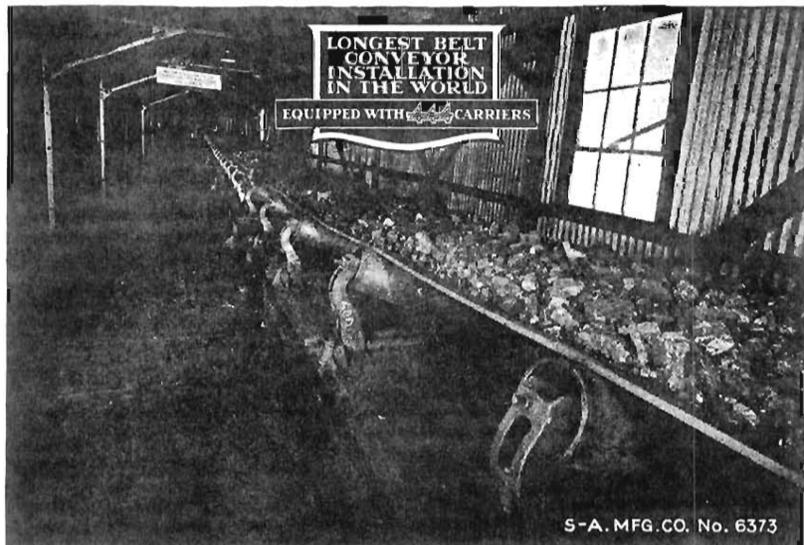
A new headframe and a compressor and hoist are being installed at the Sarah Jane shaft of the **Beauregard Extension** group, Kernville, California, preparatory to active mining operations. The group is being de-

veloped under the direction of George R. Holmes, general manager, Kernville.

Further activity in the near future is anticipated for the **Mammoth** mine, Isabella, California. The property is held by the Mammoth Mine Syndicate, 321 West Third Street, Los Angeles, California, headed by George W. Russell, president and general manager.

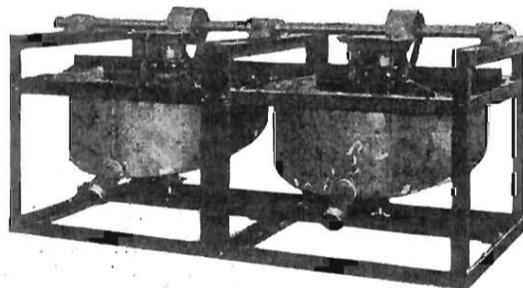
The **O. D. Woodman** gravel mine located adjacent to the Nevada City, California, airport is now owned by the University of Maine. The property was left to the university by Charles Woodman, brother of O. D. Woodman. An option held by Los

S-A Conveyor Products



BELT CONVEYORS — BUCKET ELEVATORS — PAN CONVEYORS — MANGANESE FEEDERS — PLATE FEEDERS — ORE GATES — SCREENS, VIBRATING AND REVOLVING

Ainlay Centrifugal Bowls



Complete
Placer
Plants

Conveyor
Tailing
Stackers

Double Ainlay Bowl Machine

Write for Circulars and Catalogues

STEPHENS - ADAMSON MFG. CO.

2227 EAST 37th ST.
LOS ANGELES, CALIF.

85 SECOND ST.
SAN FRANCISCO, CALIF.

PULMOSAN

Safety
Headquarters
for

RESPIRATORS

Safety Hats Safety Gloves
Safety Goggles Safety Belts
Safety Shoes Knee Guards
Toe Guards Gas Masks

Everything for Industrial Safety



PULMOSAN

D-4100

Duo-Filter

DUST RESPIRATOR

Approval BM-2120 of
U. S. Bureau of Mines

Add this efficient duo-filter dust respirator to your safety program, to protect workers against Type "A" dusts. The D-4100 has everything: safety, comfort, lightness, easy breathing, serviceability and official approval. Try it. Order several or write for details and prices.

WRITE for information and prices on any Safety items shown. Let us advise you on any safety problems.

PULMOSAN

SAFETY EQUIPMENT CORP.

Dept. MJ, 176 Johnson St., Brooklyn, N.Y.

Angeles interests who have been working the mine has been extended by the university.

Installation of a small mill is planned as soon as possible by the **Edwards and Granath Mining Company**, Alva Edwards, general manager, Orange, California. The company has leased the old Morrow property in the Santiago mining district owned by the Landsdale Investment Company and it is being prepared for operation. The company also holds a silver-lead property which is said to carry ore of sufficient value to permit shipment direct to the smelter. John Granath is superintendent.

The old **Lucky Baldwin** gold mine at Lake Baldwin near Big Bear Lake, San Bernardino County, California, has been acquired by the **Gold Mountain Mining and Development Company**, headed by F. Tyler Daniels, Fred E. Cline, and A. W. Meier. The ore, which is low-grade, is said to average \$7 per ton, with approximately 240,000 tons in sight. The group is understood to be fully financed and it is planned to handle the ground with steam shovels as an open-cut proposition. Work will be on a three-shift basis. A power line extends across the property and water is available from Baldwin Lake. Work is to begin at once on the installation of two 400-ton crushers, primary and secondary, and amalgamation plates in the mill on the property. Previous development at the property includes a glory hole 600 feet long, 40 feet wide, and 50 feet deep, and a 700-foot adit tunnel. Cline will direct operations at the mine. The property was worked from 1860 to 1900 by Lucky Baldwin and in that year was sold to Captain J. R. DeLamar. It was acquired by James Hulmes of Berkeley, who disposed of it to the present operators.

The **Holmes and Nicholson Mining and Milling Company**, Kenneth Holmes, general manager, Box 828, Yuma, Arizona, is employing from 15 to 18 men at its property located in the Cargo Muchacho district near Ogilby, California. The company operates a 100-ton milling plant at Winterhaven, nine miles east of Ogilby on the Colorado River.

Approximately 150 tons of ore per day are being treated in the 175-ton flotation mill at the **American Girl** mine, Ogilby, California. A crew of 100 men is employed under the direction of W. D. McMillan, resident manager. The property is operated by **O'Brien Mines, Inc.** Operating officials at the mine include A. O. Wilson, mine superintendent, and B. L. Cope, mill superintendent.

A 250-foot shaft is being sunk at the **Little Bear** mine in the Cargo Muchacho Mountains near Ogilby, California, by B. W. Bellyea, 6800 South Alameda Street, Los Angeles, California, who is carrying on extensive development work at the property. Eight men are employed at the mine. The Little Bear is owned by R. E. Bennett, J. H. Price, Ramon Lopez, and A. E. Stephenson, 221 Gila Street, Yuma, Arizona.

Dr. Calvin Eaton of Yuma, Arizona, is employing a crew of six men in developing property located north of the Holmes

and Nicholson Mining and Milling Company's holdings near Ogilby, California. Eaton is operating the mine under lease. There are said to be from 40 to 50 men prospecting claims in the Ogilby district.

The **Idaho Maryland Mines Corporation**, Albert Crase, general manager, Grass Valley, California, has discontinued work at its Forbestown, California, properties, where an extensive development program has been in progress for the past two years. At one time the corporation employed approximately 150 men at its Forbestown properties, which included the Gold Bank and King Midas mines. The mines produced well when operations were started but the gold content of the ore is said to have decreased with depth. Roger K. Kirkpatrick was general superintendent of the Forbestown operations. At Grass Valley the company is employing approximately 800 men at the Idaho and the New Brunswick mines. On January 25 the company paid its regular monthly dividend of 5 cents to stockholders of record January 16.

Lord and Bishop, Box 812, Sacramento, California, have leased gravel deposits on the Cosumnes River about six miles north of Valley Springs, California, estimated to contain between 7,000,000 and 10,000,000 yards of gravel. Under the contract the work must be completed within five years. The first dragline dredge, with a crew of 15 men and working three shifts daily, will be placed in operation within 60 days. The plant will have a capacity of 100,000 cubic yards per month. A second dredge will be added within a year. The dredge to be used on the Cosumnes River is one of three operated in California by Lord and Bishop. Another is working at Oroville and the third on the Feather River.

The **Pacific Gold Mining Company**, John T. Collins, president and general manager, Box 32, Mariposa, California, is carrying on development operations at the Golden Key mine six miles from Mariposa. The main ledge, developed to a depth of 350 feet, averages seven feet in width and several smaller veins and shoots have also been opened. Equipment includes a surface plant and a 10-stamp mill. The mine is located in the Whitlock district.

Randall P. Sharpe, who has been engaged in rehabilitating the 2,000-foot tunnel of the old **Mountaineer** mine near Nevada City, California, expects to start milling ore shortly. Five men are engaged in stoping ore of milling grade in the tunnel between the 700 and 800-foot points and it is planned to mill approximately 90 tons per month. Sharpe is operating the property under lease and option from Edward and Jesse Mooney.

Production has been stepped up to approximately 300 tons per day at the **Duncan-Hallsted** group of gold claims operated by the **Virgilia Mining Corporation**, C. H. Potter, superintendent, Virgilia, California. Additional equipment recently installed has increased the capacity of the flotation plant to 300 tons. The bulk of the present production is from the 350-foot level and ore reserves in sight are said to be sufficiently extensive to permit prolonged operations. Matt I. Sullivan, Mills Tower, San Francisco, is president of the company and A.

H. Cohen, c/o George Wagner, 181 South Park Street, San Francisco, is engineer and manager.

The **Pride of Mojave Mining Corporation**, Mojave, California, has completed and placed in operation the first unit of its new flotation plant. The new unit, which was originally scheduled to have a capacity of 50 tons, is understood to be of 75 tons capacity. The mill utilizes two-stage crushing, a ball mill, and a sampler. The company operates the **Pride of Mojave** and the **Four Star** mines, located about 200 yards apart. The mill is located at the former shaft. The new ore bins completed at the mine are said to have a capacity of 500 tons. J. J. Murray is supervising engineer at the property. It is understood that the corporation may consider the treatment of custom ore if the two mines do not utilize the full capacity of the plant.

Further reduction in production accompanied by lower ore recovery values entailed a corresponding drop in December operating profits for the **Alaska Juneau Gold Mining Company**, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California. Operating profit for the month, including miscellaneous revenue but before provision for depreciation, depletion, or income taxes, was \$140,500, compared with \$173,000 in November and \$149,200 in December, 1937. For the year 1938, cumulative estimates of operating profit aggregated \$2,048,000 against \$2,456,700 in 1937, a decline of \$408,700 or 16.64 per cent. Operating revenues amounted to \$5,196,000 last year against



\$5,347,500 in 1937, a decrease of \$151,500 or 2.83 per cent. The difference in percentage declines between operating revenues and estimated operating profits illustrates higher operating costs prevailing during 1938. Directors have declared a dividend of 25 cents payable February 1 to stock of record January 3. The dividend is in accordance with the new policy inaugurated by the board providing for payment of a regular 25-cent quarterly dividend.

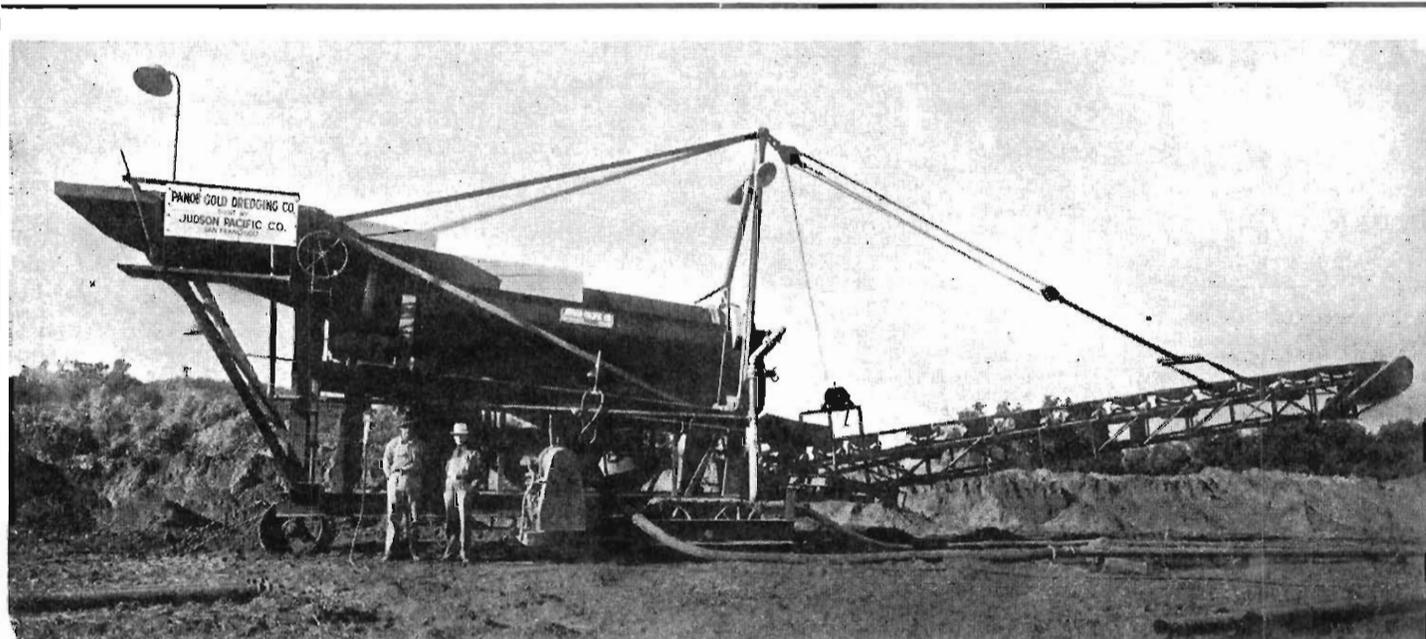
Employment at the **Walker Mining Company**, Walkermine, California, is gradually being increased to the prospective maximum of 500 men. Regular shipments of concentrates are being made to the Tooele smelter. Should the price of copper remain fairly level it is indicated that the mine will continue at near peak production for an extended period. Available ore reserves are termed quite good. L. F. Bayer is manager at the property. Other operating officials include M. R. McKenzie, mill superintendent; Ralph Hayden, assist-

ant mill superintendent; Leonard Cox, tram foreman; S. K. Droubay, geologist and chief engineer; and C. C. Caldart, master mechanic.

Jerome J. McLaughlin, Mojave, California, is continuing shaft sinking operations at his property located on Bowers Hill six miles south of Mojave. The shaft is down more than 60 feet. McLaughlin is also developing property on Soledad Mountain near the Four Jacks mine. He is using the Whitmore mine shaft No. 3 as headquarters for his operations.

High-grade ore has been encountered in sinking the main shaft at the **Stockton Hill** mine, Grass Valley, California. The shaft is down more than 410 feet and will be driven to the 600-foot level. It is said that good values have been encountered throughout from the 265-foot level to the 410-foot level. In excavating a pocket at the 410-foot point for a pumping station a quartz vein was encountered about 20 feet from the talc vein and running parallel. The high-grade ore is being shipped and is paying the operating costs. The development ore is being stored pending installation of a mill. Preparations had been made to install a 50-ton plant but it is now believed possible that the capacity may be increased to 100 tons. The property is being developed by the **Stockton Hill Corporation**, Walter R. Woock, president, Box 126, Auburn, California.

Twenty men are employed at the **Klau** quicksilver mine, Paso Robles, California, in active mining and roasting of ore. The mine is equipped with a 50-ton Gould



This Judson-Pacific Dragline Dredge handles 100 cu. yds. per hour and is over 95% efficient.

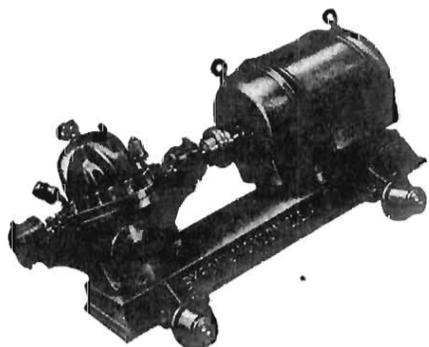
Watch future issues of this magazine for more information about it or write, without obligation, to:

JUDSON-PACIFIC COMPANY

609 MISSION STREET

SAN FRANCISCO, CALIF.

This
BYRON JACKSON
MULTIPLEX
 SERVES A
 VARIETY OF USES!



For Instance: Incline mine shafts of any slope up to 76 degrees from horizontal may be unwatered. Then, without any change, the Multiplex may be subsequently installed in horizontal position as a mine station pump.

This Byron Jackson Multiplex pump is ruggedly constructed, compactly designed, and highly efficient. Its few wearing parts are easily accessible for inspection. Impellers are mounted back to back to equalize thrust, *Head Range:* 100-1000 feet. *Capacity:* 50-5000 g.p.m.

Byron Jackson Co., Dept. MI-126
 P. O. Box 1307, Arcade Station,
 Los Angeles, California.

*Please send me complete information about the
 Byron Jackson Multiplex Pump.*

Name.....
 Position.....
 Address.....
 City..... State.....

Established 1872

BYRON JACKSON CO.

Factories at: Berkeley and Los Angeles, Calif.,
 Bethlehem, Pennsylvania.

Sales Offices at: New York - Pittsburgh - Chicago
 Atlanta - Houston - Salt Lake City

BYRON JACKSON
 CENTRIFUGAL
PUMPS
 Estab 1872
FOR EVERY SERVICE

rotary furnace. B. A. Gould is general manager at the Klau.

H. A. Speidel, Valley Springs, California, has been authorized to divert 0.5 cubic foot of water per second from the North Fork of the Calaveras River for mining and domestic purposes. Estimated cost of the diversion is \$1,500.

A crew of six men is carrying on development work at the **Rinconada** quicksilver mine located 11 miles southeast of Santa Margarita, California. The mine is equipped with an 80-ton Gould rotary furnace but there has been little production at the property since 1929. Mrs. H. F. Bell of Santa Margarita is the owner of the Rinconada.

The division of water resources has issued a permit to Vern Carpenter, Orleans, California, for diversion of three cubic feet of water per second from Wilbur Creek for mining purposes. Henry R. Balch, Weaverville, California, has been authorized to divert 25 cubic feet per second from East Weaver Creek for mining and domestic purposes.

Installation of a retort furnace is planned at the **Fourth of July** quicksilver mine, Hernandez, California. The property is being developed by Webber Brothers, who are operating under lease from the Thomas Flint Estate, Hollister, California. The mine is a part of the Flint group.

The South Bitterwater claim of the **Bitterwater** quicksilver group in the Llanada district has been placed on a production basis by Juan Quinonez. Ore mined last summer and placed on the dump is being treated and recovery is made in a two-pipe retort unit. The Bitterwater group is owned by H. V. Underwood and E. A. Matthews, both of Hollister, California.

Hill Sanchez of Hollister, California, has completed a 40-foot drift across an ore body on the **Lily Berg** quicksilver property in the Llanada district. The ore body ranges from 15 to 17 feet in width and is in soft sandstone.

Frank R. Wicks, 200 Metropolitan Building, Los Angeles, California, and associates have taken an option on the gravel property of the **Shields Mining Company**, H. M. Shields, manager, Box G, Newcastle, California. Due to the depth of the deposit it is believed the ground will be worked with a stationary washing plant.

The **Ophir Nevada Mining and Milling Company** has taken over under lease the **Eclipse** mine near Auburn, California. Dan J. Frost will direct work for the company. The lease was acquired from Mark U. Weber and William Anderson, who have held the property for some time.

Denman Dorr is carrying on drilling operations at the **Lebanon Consolidated Mines** property located near Iowa Hill, California.

P. C. Sacchi and E. L. Spellenberg of Arcata, California, have placed in operation a new Judson-Pacific floating type dredge and dragline at the **Sacchi-Spellenberg** mines, Forks of Salmon, Siskiyou County, California. The new plant, of the latest Judson-Pacific design, is handling 3,000 yards of gravel per day. Headquarters are located at Arcata.

Charles Forbes, E. C. Wright, Fred D. Cutler, R. G. Conner, and Mrs. N. L. Cutler, Box 307, Compton, California, report that they have located another tungsten deposit six miles southwest of the deposit at Shadow Mountain, Adelanto, California. The new strike has been crosscut at one point by a 60-foot tunnel and there is said to be an additional 40 feet across the dike averaging one-half of one per cent or better which has not yet been opened up. Sufficient material is reported available for steam shovel operation. This is the second deposit located by the group in the past year. At the **Shadow Mountain Tungsten Mines, Inc.**, a 500-ton milling plant is reported being installed. Fay L. Wright, 811 West Seventh Street, Los Angeles, California, is general manager of the Shadow Mountain company.

Two gravel claims on Sherlock Creek near Mariposa, California, have been leased to San Francisco and Turlock, California, interests. The claims are owned by William D. Weston and Bud Apperson. Also included is the 465-acre ranch owned by Weston. Six men, under the direction of C. A. Varenkamp of San Francisco, have been sampling the property for the past two months. It is said that 6,000,000 yards of gravel are available and that the values may run from 30 cents on the high banks to as much as \$6 per yard at bedrock. Dr. Julian of Turlock is one of the interested parties.

The **Mary Ann** quartz mine on the South Fork of the Stanislaus River two miles above Pine Log Crossing has been leased for two years to Frank and Ed W. Schweikert of Redwood City, California. The property is owned by Millard A. and Nettie Kimball, who will receive 20 per cent of the gross income.

At the **Franciscan** quicksilver mine, formerly known as the Patriquin, near Parkfield, California, a crew of 19 men is employed in development and production. The mine is equipped with a 50-ton Gould rotary furnace. The property is being operated by Captain William Gottschalk, 690 Mills Building, San Francisco, California, and associates.

The **Columbus** gold mine near Tuolumne, California, is reported to have been sold by the Blythe and Crocker interests to P. Bacharach, 833 Mission Street, San Francisco, California. The mine and equipment, consisting of mill, cyanide plant, hoist, and two compressors, are scheduled for sale at public auction January 30. The property was worked for a short while during the past summer, but has been closed recently due to lack of funds.

Operations at the **Densmore** mine, Columbia, California, are to be transferred from the Number 5 level to the New York shaft. The latter will be strengthened and widened to make a working shaft, thus eliminating excessive tramming. The Number 5 level will probably be entirely abandoned. If production warrants the expansion, tentative plans call for a tunnel following the vein in from the bottom of the canyon. The milling process will also be changed as the present recovery is said to be unsatisfactory. Exploration work is

continuing and sufficient ore is being mined to keep the 50-ton mill in operation part time. The mine is owned by the Densmore Gold Mines, Inc., B. A. Ogden, manager. Thomas M. Baines is superintendent at the property.

Gold Butte Mines, Inc., John W. Ross, president and general manager, Berry Creek, Butte County, California, has been authorized by the state corporation commission to sell \$25,000 of its capital stock at \$1 a share to finance operation of the property.

A permit has been issued to the **Lost Camp Mining Company** of Blue Canyon, California, to sell \$25,000 of its capital stock at par. Of this amount, \$20,000 is to be impounded under an agreement. A. O. Johnson is president of the company and Walter Jansen, Lincoln, California, is secretary-treasurer. The company is capitalized at \$350,000.

The **Channel Mining Company**, Julius A. Cassano, superintendent, Camptonville, California, is preparing for large-scale hydraulic operations at the old Weeds Point hydraulic mine. A high-line boulder stacker and additional hydraulic equipment have been installed at the property and a "coyote" blast, using 2,600 pounds of black powder, was set off recently to break down the cemented gravel preparatory to washing operations. Wayne A. Fox is president and general manager of the company.

D. A. Hatfield has optioned a one-acre site at the east end of Seventh Street in Marysville, California, as the location for

his proposed 25-ton reduction plant for treating black sands and concentrates. The ground is on the river side of the east city levee and will afford tailings disposal in the river bottoms.

The **Minnesota Mines, Inc.**, has completed the addition to the cyanide plant and installed a new electric hoist. The hoist handles ore from the 700 to the 400-foot level. In 1938 the company ranked as the largest producer of gold in Clear Creek County, which stood third among the counties of the state. The mine and 250-ton mill above Empire were operated continuously throughout the year. C. P. Clifford of Empire is treasurer and general manager.

The **Elizabeth Metals Company** is reported to be the company organized by A. J. Persel and Frank Roos of Wilkes-Barre, Pennsylvania, to reopen and operate the Gold Chloride and Milton mines in Clear Creek County near Dumont, Colorado. Mike Evans of Idaho Springs has been appointed superintendent. A new compressor has been installed at the tunnel portal and other machinery is on the ground. This property has been idle for about 30 years.

The **Golden Gopher Mining Company** is to be incorporated in the near future by Merritt Hutcheson, Bill Gerber, and A. L. Pearson of Pitkin, Colorado, to operate the

Chicago and Climax mines and the Pitkin mill. This group, at present operating as a partnership, took a lease on the Chicago and Climax mines from the owners, E. R. Williams and Ashton Winslow, both of Gunnison, with option to purchase, the royalties to apply on the purchase price. When the royalties total \$10,000, the present operating group will take title to the ground. Work was started August 10 at the mine under the direction of Ray McDonald, Ohio City, who was mine boss for the Carter Mines Company for eight years. Present mine work is confined to the Climax claims and is located in the 600-foot tunnel. A considerable quantity of milling ore is stated to have opened, carrying gold and silver values. On November 1 the company leased the so-called Pitkin mill of the Colorado Molybdenum Corporation and put it in shape to start milling December 1. Recoveries were satisfactory, but for more successful operation, a 25-ton ball mill will be installed to replace the small one in use. As soon as this installation is completed, production will be resumed. A total of 10 men is on the payroll, with A. L. Pearson as mine and mill manager.

Construction of a 100-ton concentration mill is projected by James R. Macon, U. S. National Bank Building, Denver, Colorado, and associates who are said to be backing the **Around the World Grubstake, Inc.**, and the **Kolman Grubstake, Inc.** The former concern is operating the Mary Nevin mine at Cripple Creek and the latter works the Fountain Valley, Canton

COLORADO

THREE BETTER WAYS!

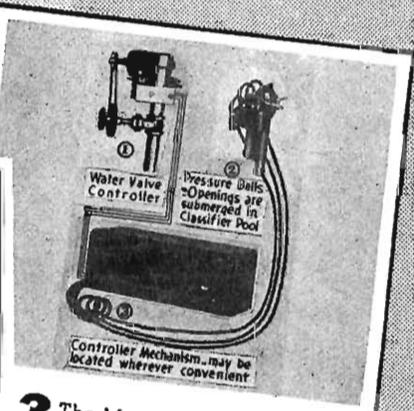
DEVELOPED BY
MASSCO
DURING 1938



1 Many operators have positive evidence in their own plants that the recently developed **MAR-CY Open End Ball Mill** with grating discharge does the job better, faster and cheaper.



2 The new **MASSCO-GRIGSBY Rubber Pinch Valve** handles all abrasive or corrosive pulps and solutions. Full clearance when open; no valve friction. No metal touches fluids. No bonnets or packing glands. A long life valve. 4", 6" and 8" diameters.



3 The **Massco Density Controller** automatically regulates dilution within narrow limits. Thus maintains uniform grinding at optimum capacity and improves classification immediately.

El Paso - Salt Lake City - San Francisco - Seattle - New York
Canadian Vickers, Ltd., Montreal - Edw. J. Nell Co., Manila, P. I. - W. R. Judson, Santiago, Chile

The MINE and SMELTER SUPPLY Co.
Main Office, DENVER, COLO., U. S. A.

meeting. Glenn S. Finlayson was elected vice-president; O. A. Jones, secretary-treasurer; and L. G. Young and J. E. Rothrock were elected directors. Work will be continued through the winter months in the main development tunnel. A small production is maintained, values being in gold, silver, lead, copper, and zinc. The property is in the Alta district and a portion of it is under lease and option from the Big Cottonwood Silver King Mining and Milling Company.

Milling facilities of the Pend Oreille Mines and Metals Company have been enlarged and are now capable of dressing between 700 and 750 tons of ore daily. Recent additions included crushing equipment. The company is maintaining steady production from its ground near Metaline Falls, Washington, despite the reduction in zinc prices. L. P. Larsen, Old National Building, Spokane, is president and Charles A. R. Lambly of Metaline Falls is general manager.

All of the properties controlled by the Aurum Mining Company, Jerome J. Day of Wallace, Idaho, president, are reported to be under development. The claims, located at Republic, Washington, include the Black Tail, San Poil, Pearl, Little Cove, Tom Thumb, and Lone Pine-Surprise. C. H. Carmichael is at Republic superintending the work for the Day interests. Only ore broken in the course of development is being shipped, its destination being the Tacoma smelter. Around 60 men are employed.

W. W. Wagner, 445 Sixteenth Street, Bellingham, Washington, is the new owner of the property of the International Gold Mines, Ltd., in the Cascades near the Canadian border. The company was in bankruptcy, with Elmo T. Hurley of Bellingham as receiver. Wagner's bid of \$12,000 for the mine has been allowed by the court, with a cash payment of \$7,000 and the balance of \$5,000 due within one year from the date of sale. Unpaid taxes alone totaled \$2,160, and there were also material, labor, and other debts. The claims include the Klondike, Climax, Mountain Boy, Rocky Draw, Glacier, and Extension

No. 1, all of which are patented. The property is generally known as the Boundary Red Mountain mine, a gold producer which has been idle recently because of litigation.

A corporation is being organized by R. L. Rowland, 2301 West Pacific Avenue, Spokane, Washington, and William H. Pringle, Realty Building, Spokane, and associates to take over the operation of the Juno Echo group of six claims near Chewelah, Washington. A 50-ton selective flotation mill for the recovery of molybdenum and copper is now under construction at the mine and is expected to be ready for operation around March 1, 1939. The new company will be known as the Western Molybdenum Corporation. Joseph Ott is in charge at Chewelah and Ernest E. Ferguson has been placed in charge of mill construction. A crew of 10 men is employed now and the company expects to have a working force of about 18 men when full production is reached. The entire plant will be electrified, serviced by a high tension power line to be built from the main transmission line of the Washington Water Power Company near Chewelah. Rowland and Pringle took a lease and bond on the property in May of 1936.

A 150-ton smelter is under construction by the Chinto Mining Company, headed by E. M. Spedden of Grangeville, Idaho. The company owns the Copper King mine and has a bond and lease on the Amazon mine, both located about eight miles northeast of Chewelah, Washington. The ore is stated to contain fluxing elements and copper, gold, and silver. Completion is expected in the spring. Thomas Condit, Chewelah, is superintendent.

High-grade gold ore is stated to have been opened by a crosscut in the property of the Baltimore Mines, Inc., in the Slate Creek district of Whatcom County, Washington. Development work is being carried on at the mine, which is now snowed in, with W. B. Hancock in general charge. A mill is to be installed in the spring.



CALMICH COMPANY TAKES OVER BLUE POINT MINE

THE Calmich Mining Company, controlled by Mack C. Lake, consulting geologist, 74 New Montgomery Street, San Francisco, California, has secured a lease on the Blue Point gravel mine located near Smartville, California. Lake is president and treasurer of the company and Carlo S. Morbio is secretary. James R. Elmendorf, superintendent, is in charge of operations at the mine.

The property will be worked by underground drift methods and double-drum slusher hoists and scrapers will be used. The cemented gravel will be disintegrated in a cylindrical mill and trommel. The gold occurring in the undersize material will be recovered in a Pan-American pulsator jig, supplemented by sluice-box riffles. The oversize tailings will be sluiced into a bin from which they will be drawn into a dump truck for transportation to the dump pile. Production is expected to average about 100 tons of gravel per day.

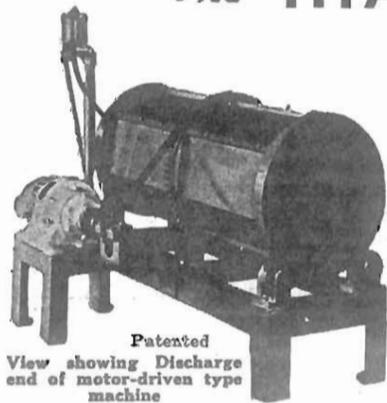
WORK STARTS ON SECOND CALIFORNIA DEBRIS DAM

PRELIMINARY work is in progress at the site of the proposed new Upper Narrows debris dam to be built on the Yuba River above Marysville, California. The contract for construction of the new structure is held by the L. E. Dixon Company, 609 South Grand Avenue, Los Angeles, California, and the Arundel Corporation of Baltimore, Maryland, who submitted a joint low bid of \$2,175,271.

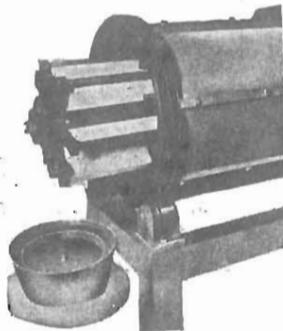
Business offices have been established at Marysville and K. C. Parker will be in charge as resident engineer. Construction of a camp for engineers and workmen has been started at the dam site together with roads to facilitate the hauling of supplies and equipment. The camp will include lodgings for the men, a commissary, hospital facilities, warehouses, and machine shops, and will be provided with water, electricity, and sanitary facilities. A telephone line from Smartville, California, will serve the camp.

One of the first major jobs on the project will be the driving of a 1,600-foot diversion tunnel which will carry water to a power plant to be erected when the dam is completed. The tunnel will be located

The TITAN ROTARY AMALGAMATOR



Patented
View showing Discharge
end of motor-driven type
machine



Discharge Head removed, and
Plates partly withdrawn



Titan
Mercury
Feeder
Patented

FOR USE IN THE RECOVERY OF FREE GOLD
Recovers finest flour gold also dirty, rusty or
coated gold. As high as 98% recovery reported
QUICKLY CLEANED

Core can be removed, plates cleaned and core
replaced ready for operation in 32 minutes.
Or core withdrawn and replaced by spare core
ready to run in 8 minutes.
Cost of Maintenance very low.
Installations of highest efficiency in Milling
Plants, on Mill Dumps and in Dredging and
other placer operations.

MILL & MINE SUPPLY, Inc.
MANUFACTURERS

2700 FOURTH AVE. SO. SEATTLE, U. S. A.

about 100 feet above the toe of the dam and will not be used to divert the water during construction. Instead, the river will flow through an opening in the foot of the dam until the work is completed, when it will be sealed.

The huge structure, to be completed within the next two years, will be 257 feet high from the river bed to the crest and will be 1,200 feet long. Its cost, financed by the federal government, eventually will be paid by the mine operators who will be taxed about 2 cents per cubic yard for debris stored behind the dam. It will be of the concrete arch type with an overflow spillway discharging over the central portion of the dam. It is estimated that there will be approximately 231,500 cubic yards of foundation excavation, and construction of the dam is expected to require approximately 334,410 cubic yards of concrete.

Aside from the storage of debris, the dam also will be a factor in improving navigation in the Sacramento River by preventing debris from entering that stream from the Yuba watershed, and in high-water control. The water in the eight-mile-long lake which the dam will create will be used to develop power and for irrigation purposes.

ACTIVE MINING OPERATIONS UNDER WAY AT ALBATROSS

THE property of the Albatross Gold Mines, Inc., Arivaca, Arizona, has been placed on a three-shift basis with a crew of approximately 12 men employed. A six-foot Huntington mill, equipped with a 6 by 14-foot Deister Plat-O table, has been installed on the property by William T. Plum, Jr., consultant in charge at the mine, and it is planned to handle approximately 100 tons of ore per 24-hour period, and to net not less than 10 tons of concentrates. The mill will employ nine men.

It is hoped to build the mine up to not less than 500 tons daily production within the next three months, at which time additional equipment will be installed to take care of the mine output.

The old tunnel, 135 feet long, has been extended to a depth of about 225 feet and several other openings have been made on the side wall. The ore is said to run from \$1.50 to \$99 per ton, averaging about \$25 per ton as mined. The smallest vein is 3 1/2 inches wide and the largest is about six feet. These veins have been traced for 2,200 feet and have been measured in depth to 130 feet. A geophysical survey made by Plum is being checked by present work and is showing fairly accurate predictions.

From December 5 to January 10 approximately 120 tons of ore were mined under the new working program now in effect, and the ore has been moved to the mill for treatment. The concentrates, which are graded so that assay values of \$100 per ton will be realized, are shipped to the smelter. Mine foremen at the property include Ernest and John Cates and Elmo Nelson, all of Arivaca.

At present the mine is being financed through the combined efforts of the officers, directors, and some of the stockholders of the company.



The ASSAYER "Key Man" OF THE MINING INDUSTRY

No one in mining has greater single responsibility, or discharges his trust with more universal satisfaction, than the Assayer.

Experienced Assayers know that the surest way to make close-to-perfect assays, day after day, is to use clay goods of PROVED UNIFORMITY.

Write for Catalog 13

CRUCIBLES - MUFFLES - SCORIFIERS - CUPELS
ANNEALING CUPS - ROASTING DISHES
TRAYS, ETC.



DFC METALLURGICAL CLAY GOODS

... are as uniform and thoroughly dependable as extreme care and scientific control can make them.



The product of 60 years experience.

The DENVER FIRE CLAY Company
EL PASO, TEXAS
NEW YORK, N. Y.
SALT LAKE CITY, UTAH
DENVER, COLO., U.S.A.



Southwestern Air Flotation Machine

24 YEARS OF SERVICE TO THE MINING INDUSTRY

It will pay you to consult Southwestern when you have any problems requiring the service of experts trained through years of experience in mining problems of every character.

SOUTHWESTERN ENGINEERING CO.

Substantially Increased TONNAGE

with greater metallurgical efficiency

The Southwestern Air Flotation Machine is highly efficient in the recovery of gold or any floatable ore. Low in first cost and operation, it provides a most economical means of producing a high recovery at minimum cost. It builds profits, because it's built by engineering experts who know the problems through experience.

4800 SANTA FE AVE. LOS ANGELES, CALIF.

Kennecott Copper Corporation, at Santa Rita, in the Central district, was by far the largest producer. The ore is mined with electric shovels and concentrated in the 15,000-ton mill at Hurley. The company's new smelter at Hurley, on which work was begun in 1937, was nearly completed in 1938 and is scheduled to be placed in operation in March, 1939. In 1938 the mill was operated at about one-half capacity from January to June 14; it was then idle until October 16, when operations were resumed at about the same rate as before and continued to the end of the year.

Zinc was the next most important metal produced in the Central district in 1938. The Hanover zinc mine and 300-ton flotation mill of the Empire Zinc Division of the New Jersey Zinc Company were operated continuously. The Peru Mining Company operated its Pewabic mine at Hanover and 500-ton mill at Wemple, near Deming, from January to July, when it suspended production. Shipments of ore were not resumed until October, when the company leased the mine and mill to the Callahan Zinc-Lead Company, which operated them to the end of the year.

The Ground Hog and San Jose mines, operated as a unit by the American Smelting & Refining Company, for the past 10 years, were important producers of silver, lead, zinc, and copper, and a large part of the ore was treated in custom mills. In April, 1938, the company ceased shipping to the Black Hawk Consolidated Mining Company's 250-ton Combination custom mill at Hanover, which had received the bulk of its mill feed from these mines since 1930, and as a result the mill was closed. Later in the year the American Smelting & Refining Company leased the mill and made some changes necessary for the handling of the Ground Hog ore, which changed somewhat in character as development proceeded downward to the 1,600-foot level. Production from the new ore body developed from the 1,200 to the 1,600-foot levels is planned to begin about February 1, 1939.

Shipments of dry and siliceous gold-silver ore from the Steeple Rock district to smelters in Arizona and Texas totaled approximately 15,000 tons in 1938. The principal producing mines were the East Camp group, Carlisle group, Alabama, and Laura. Approximately 1,700 tons of ore, chiefly gold ore, were shipped from the Pinos Altos district to the El Paso smelter, and some ore was treated in a small custom mill near Pinos Altos.

THE PECOS mine of the American Metal Company of New Mexico, San Miguel County, continued in 1938 (its twelfth year of production) as the state's largest producer of zinc, lead, and gold and as an important producer of silver and copper. The mine office announced that the mine will be closed on March 1, 1939, because of a shortage of ore in paying quantities, and that the mine and mill machinery will be removed and the 12-mile aerial tram connecting the mine and mill will be dismantled. The mill in 1938 produced 24,905 tons of zinc concentrates and 12,264 tons of lead-copper-silver-gold concentrates, as compared with 24,389 and 11,172 tons, respectively, in 1937.

Zinc concentrates produced in New Mexico in 1938 amounted to 55,666 tons, averaging 54.14 per cent zinc, and contained 60,272,461 pounds of zinc. Zinc and zinc-lead ores shipped from the state to the Ozark Smelting & Mining Company's pigment plant at Coffeyville, Kansas, totaled 1,741 tons, containing 866,681 pounds of zinc and 120,828 pounds of lead.

The Mogollon district, Catron County, was the largest silver-producing district in the state in 1938 and ranked second in gold production. Most of the output was in the form of gold-silver bullion produced by the Black Hawk Consolidated Mines Company in the Little Fanney 200-ton cyanide mill at Mogollon.

In the Lordsburg district the Banner Mining Company maintained production of copper-gold-silver ore from the Bonney group of mines throughout 1938 at a higher rate than in 1937. The ore was treated in the company's 300-ton flotation mill. Intermittent shipments of ore direct to smelters were made from several mines and prospects in the Lordsburg district. The Sylvanite Gold Mining Company shipped several cars of ore per month to the El Paso smelter from its property in the Sylvanite district, and smaller quantities of ore were shipped from the Red Hill, Wilcox, and Jim Bennett properties.

In the northern part of the state the Aztec mine group of the Maxwell Land Grant Company in the Mount Baldy district, Colfax County, was the principal producer. The ore was treated by flotation in the company's 75-ton flotation mill, yielding gold-silver-copper concentrates which were shipped to the El Paso smelter. The A. J. S. Mining Company erected a mill at the Badger-Hidden Treasure group in the Headstone district, Rio Arriba County, which was reported placed in operation on November 1. The Molybdenum Corporation of America operated continuously its molybdenum mine and 40-ton mill at the junction of Sulphur Creek and Red River above Questa.

About 2,600 ounces of gold were recovered from an estimated 200 placers in New Mexico in 1938, compared with 3,027 ounces from 160 placers in 1937. The John I. Hallett Construction Company, operating its two draglines and Ainlay recovery plant on the Animas Consolidated and Slease Leases in the Las Animas district, Sierra County, was much the largest producer of placer gold. Other districts that produced some placer gold in 1938 were the Pittsburgh, also in Sierra County; Jicarilla and Nogal, Lincoln County; Pinos Altos and White Signal, Grant County; Orogrande, Otero County; Golden, Santa Fe County; and Mount Baldy, Colfax County.

OREGON

THE VALUE of gold output in Oregon in 1938 was larger than that for any year since production started in 1852, according to preliminary figures. This high value of the output of gold was due in part to the price of \$35 a fine ounce as compared with the old price of \$20.67+, but the quantity produced in 1938 exceeded that for any year since 1916. Preliminary

figures credit the state with a production in 1938 of 77,100 fine ounces of gold, 105,000 fine ounces of silver, 92,000 pounds of copper, 46,000 pounds of lead, and no zinc—valued in all at \$2,777,557—compared with a production in 1937 of 52,662 ounces of gold, 60,564 ounces of silver, 820,000 pounds of copper, 218,000 pounds of lead, and 48,000 pounds of zinc—valued in all at \$2,005,218. The total value of the five metals increased 39 per cent compared with 1937.

These figures indicate that gold supplied 97 per cent of the total value of the metal output of Oregon in 1938 compared with 92 per cent in 1937. In 1937 approximately two-thirds of the total gold was taken from placer operations and one-third from lode properties; although preliminary figures for 1938 do not segregate outputs by 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 in the Cornucopia district of Baker County, the largest lode producer in the state for several years, expanded its operations during 1938. Production work was suspended at the Highland Maxwell mine during the year. Operations were expanded at the Macy mine, and it became one of the larger lode producers of eastern Oregon. In western Oregon the larger lode-mine operations included the Ashland, Benton, and Greenback properties. Most of the placer production of Oregon came from Grant, Baker, Josephine, and Jackson counties, in each of which one dredge or more provided the bulk of the placer gold output.

The largest placer producer in the state in 1938 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 in the world, if not the largest, was operated by Ferris & Marchbank. The Timms Gold Dredging Company, which operated a connected-bucket dredge in Grant County, continued to be a large producer. During 1938 several new dragline dredge operations were started, including that of the Western Gold Corporation in the Granite district, H. F. England & Company in the Sumpter district, the Consuelo Oregon Mines Company in Baker County, and the Blue Mountain Gold Dredging Company in the Granite district. 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 near Jacksonville, Jackson County.

The silver output of Oregon in 1938 was recovered entirely as a by-product of other metals, principally gold. Expanded gold production and increasing activity at Cornucopia Gold Mines, the outstanding silver producer of the state, contributed to the rising silver output.

The shutting down of operations by the Balm Creek Gold Mining Company in Baker County was the leading cause of the decline in copper production, and lack of activity in the Bohemia district in Lane County was the principal cause of the decline in output of lead and zinc.

wide. During the first 18 months, operations will be devoted to leveling off the outcrop to the general surface elevation and thereafter the sides of the pit will be maintained at an angle of 45 degrees to assure safety and provide roadways.

**MT. GAINES MINING COMPANY
REPORTS SATISFACTORY YEAR**

THE Mount Gaines Mining Company, Nielsen L. Wagner, general manager, Hornitos, California, reports production totaling more than \$250,000 for the year 1938. Development work during the period consisted principally of opening up the 270 and 700-foot levels of the mine. Most of the mining in 1938 was done on the 400 and 500-foot levels. The operation has shown a profit for the past two years.

Additions to the milling plant during 1938 included the installation of more flotation cells and two Wilfley concentrating tables. Other improvements made in the mill included the installation of an automatic dryer for concentrates.

A committee of three trustees was established last year by the superior court of Mariposa County, California, to take over, administer, and conserve all assets of the Mount Gaines Mining Company and the International Mining and Milling Company, as a compromise following a hearing on an application for a receivership. Mount Gaines is a wholly owned subsidiary of the International company.

The trustees have issued a report of finances for the period from May 9 to September 30, 1938. Receipts for the period totaled \$72,625 and cost of operation amounted to \$54,101, leaving a net operating surplus of \$18,555. Operations at the Mount Gaines property were reported as being satisfactory and ore recently encountered is expected to increase the monthly gross returns. Extensive development work is planned for 1939.

**HOWE SOUND COMPANY
MAKES QUARTERLY REPORT**

HOWE SOUND Company, William J. Quigly, president, 730 Fifth Avenue, New York, New York, reports for the quarter ended December 31, 1938, a net income of \$641,613, equal to \$1.36 a share on the capital stock. This compares with \$593,879 or \$1.26 a share in the preceding quarter and \$625,888 or \$1.38 a share in the December quarter of 1937.

On the basis of quarterly statements, net income for 1938 was \$2,153,662, which is equal to \$4.55 a share, against \$4,753,044 or \$10.03 per share in 1937. The company operates in northern Mexico, Washington, and British Columbia.

**NEW MEXICO MINE BOOSTS
SALARIES BY 5 PER CENT**

THE Chino Branch of the Nevada Consolidated Copper Corporation on January 1 increased wages of all day-rate employes in the mines and plants of the company by 5 per cent. This increase, which approximated 25 cents per shift for each class of employe, restored the wage scale to that in effect prior to July 1, 1938. Horace Moses, Hurley, New Mexico, is general manager.

**PLUMMER'S IMPROVED
ORE BAGS**

Satisfy the Most Exacting Buyers — THEY LAST

SAMPLE BAGS

MADE OF NEW OR USED MATERIAL

BURLAP-CANVAS-COCOA MATTING FILTER BOTTOMS

CLARIFIER LEAVES - PRECIPITATION BAGS

CORDUROY - MUSLIN TAMPING BAGS

WIRE TIES & TWISTERS - VENT PIPE

PLUMMER BAG MFG. CO.

748 S. SAN PEDRO ST.

LOS ANGELES

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

HOLLOW

DETACHABLE DRILL RODS

MINING DRILL STEEL

CHISEL STEELS

SOLID

SANDVIK STEEL INC.

OF CALIFORNIA

651 West Washington Boulevard

Los Angeles, California

**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 KA.*



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

411 West Fifth Street
LOS ANGELES, CALIFORNIA

**Buy Your Technical Books From
The Mining Journal**

Mining Legislation in Western States

MEASURES affecting the mining industry found their way into legislative hoppers of all western states during the past month. In several instances, these measures had progressed some distance through legislative channels and appeared likely to gain enactment into laws, but in most cases bills had not proceeded far beyond the introduction stage at the month-end.

Only two types of legislation—wages-and-hours proposals to tie in with the National Fair Labor Standards Act of 1938 and labor relations measures—had made their appearance in sufficient number of the states to class them as general legislation affecting the industry.

The wage-hour measure introduced in Montana is considerably more drastic than the national act, and many legislative leaders predict its defeat. This measure seeks to make mandatory on July 1, this year, a 42-hour week, with a downward revision of maximum hours to 40 a week in October, 1940. A 40-cent minimum wage would become effective this July, and in January, 1945, would be superseded by a 50-cent hourly wage. Other phases of the bill which were meeting strenuous opposition were the ones which would prohibit overtime employment except in dire emergency and which give the labor director dictatorial power.

Following is a state-by-state summary, treating of executive recommendations, bills introduced and their status, and measures prepared for introduction at the time *The Mining Journal* went to press:

ARIZONA—Specific mention was given by Governor Bob Jones, in his message to the legislature, to the program of the Arizona Small Mine Operators Association. "This organization has a sound program and one worthy of encouragement, for the small mines of today will be the big mines of tomorrow," said the Governor. In speaking of mining in general, Governor Jones addressed these remarks to the Arizona legislature:

"As the greatest copper-producing state in the union, and an important producer of gold, silver, lead, and other valuable minerals, it behooves us to lend an attentive ear to the needs and requirements of the mining industry."

Introduction has been made of the Department of Mineral Resources bill, H.B. 105, which embodies much of the legislative program of the Arizona Small Mine Operators Association. The measure would set up machinery, administered by a five-man board of governors and a full-time director, to aid in the development of mineral resources by seeking solution to the economic problems of prospectors and mine

Bills affecting the mining industry, some good and some bad, have been tossed into the legislative hoppers of all western states. Wage-hour and employe relations' laws have made their appearance generally.

operators, by making surveys of minerals, and by interesting capital in mine development.

Other measures refer to the removal or destruction of mining equipment on idle properties, exempting mining property from provisions of the real estate act relating to sales of real estate on contract so as to permit the prompt eviction of a person who does not live up to his contract, and exempting mining property under the real estate department code, thereby allowing sales to be made by and sale commissions paid to other than licensed real estate brokers. A measure meeting with little favor would require mine owners to declare their own assessed valuation for taxation purposes, with the additional stipulation that the state may purchase the property, if it so desires, at its assessed valuation plus 10 per cent and pay for it within 10 years. Several bills on occupational diseases, workmen's compensation, and wage collection have made their appearance.

A favorable recommendation has been given a senate memorial asking congress to maintain the excise tax on foreign-produced copper at not less than 4 cents per pound, its present level. The house has passed and sent to the senate a \$7,500 appropriation bill to defray expenses of the Arizona Copper Tariff Commission in its effort to have the excise tax on copper maintained.

CALIFORNIA—Indication that the mining industry may escape a severance tax came with the governor's budget message, in which a severance tax of 2 per cent on crude oil and natural gas was recommended, but no mention made of minerals. This does not mean, however, that proposals to tax the products of the state's mines will be lacking. In fact an assembly bill, No. 212, sets severance taxes on all natural resources at various rates, with 1 per cent tax on minerals to be figured on the market value at the mine.

Another measure proposes to remove the present division of mines, exclusive of petroleum and natural gas, from the department of natural resources and to establish an independent state department of mines to be administered by a director responsible to a non-salaried board. An assembly

bill would return the bureau of mines office from San Francisco to Sacramento.

Leading a long list of labor measures are the state wage-hour and labor relations measures. Other bills would eliminate the employe's payment to the state unemployment fund and place responsibility for full support of the fund on the employer; establish a health insurance program for workers financed by pay roll taxes; prohibit issuance of injunctions against strikers; prohibit employers' blacklists; and penalize employers who made derogatory remarks about workers formerly in their employ. The Unemployment Reserve Commission has recommended amendment to the unemployment reserve act to include employers of one or more persons. It now applies to four or more.

The California legislature has now adjourned to reconvene March 6, at which time the legislative maneuvering will start in earnest.

COLORADO—Organized labor's bill for a "little Wagner act" will be strenuously opposed by the mining industry because of its intention to do away with the present law calling for 30-day notice of intention to strike. Other measures would bring employers of four or more under provisions of the unemployment compensation act, would increase workmen's compensation maximum payments from \$14 to \$18 and minimums from \$5 to \$7, and raise the percentage of wages to be compensated from 50 to 66-2/3 per cent.

At a two-day meeting of the Colorado Mining Association a special memorial on wage-hour legislation was adopted. It said:

"Our industry cannot increase wages and and exist. Its minimum wage scales are already far above the minimum levels of the act. Being unable to increase wages and keep within the law, the industry can pay for the shorter week only at the established daily rates heretofore paid for the longer week."

IDAHO—Senate Bill No. 74 would set seven hours for a day's work in mines, smelters, ore reduction plants, and other places where metalliferous ores are treated. It was introduced, along with measures requiring security from mine operators for payment of wages to workers and providing for publication of notice and public hearing before lease by the state of mineral rights in beds of navigable rivers, on the last day for introduction of personal bills, January 31. A bill calling for repeal of Idaho's 3-per cent tax on net profits of mines is being prepared for introduction, while wage-hour legislation is expected.

Arthur Campbell, state mines inspector, has outlined a legislative program to eliminate "some of the things which have made a decrease in mining activity in Idaho."

*Milwaukee, Wisconsin.

He referred to 16 Idaho mining properties which the year before had been employing from 8 to 50 men each and are now closed. He said:

"I attribute this unfortunate condition to excessive taxation, low prices of the base metals, and labor trouble caused by the Wagner act and the wage-hour bill. As a democrat, I approve of the objectives of the Wagner act and the wage-hour bill. As a man who has engaged in the mining business for all the years since I was 14, I can't help but object to the present form of the act. It's unfair to the operators, and in the end it works a hardship on the very men it was intended to help."

MONTANA—A public hearing was held on House Bill 55 which would provide that eight hours of work performed by underground miners shall be "computed from the time the workman enters such mine, working, or tunnel, until he emerges." Opposition to the bill was presented by the Montana Mining Association, speaking for 5,000 small operators, and by the major operating companies. The various speakers estimated that the bill would cause an increase of from 10 to 20 per cent in operating costs. As a result of the hearing a majority report recommended that the bill be killed. The house upheld the committee recommendation and killed the bill by a vote of 67 to 31.

The Montana house approved a bill requiring the posting of bond as security for wages by mines and oil well operators who do not own half the property they are working. Small mine operators endorsed the general purpose of the measure, but suggested amendments that would make it less burdensome.

House disapproval of the wage-hour measure has given the mining industry some hope that a proposed "little Wagner act" will meet a similar fate. Public hearings on identical bills introduced in both branches of the legislature were scheduled for early February. Bills to repeal plan two of the workmen's compensation act, providing that industry may insure workmen with private underwriters, were killed in both houses. A joint memorial asking congress for a basic metals control board was passed by the house by a vote of 98 to 4. Another measure was a joint resolution asking greater use of copper as a conductor in projects under TVA and REA.

Other bills would require dredge operators to level off heaps of rocks and dirt left behind, would cancel the federal government's power to acquire Montana land for addition to Yellowstone or Glacier national parks so as to conserve certain mining regions, and would authorize an investigation into the smelting and refining business.

NEVADA—The first measure to affect mining, introduced in the Nevada legislature, was a wage-hour bill. An assembly bill would repeal the act permitting optioning by counties of mine property upon which taxes had become delinquent and make it necessary to sell mining claims the same way as other delinquent property is sold. Another bill would attempt to



check the theft of mining equipment by requiring those transporting such equipment to produce evidence of ownership.

A measure to eliminate the district recorders as a means for recording mining claims and also to make it mandatory that claims be filed with county recorders has been defeated.

A bill to require employers to subtract union dues from the pay envelopes of union members at their request was defeated in the assembly on January 31, but a similar measure was introduced a day later in the senate.

Governor E. P. Carville, in his message to the legislature, stressed the importance of mining to the state and asked special consideration be given to certain recommendations of the state mine inspector, dealing with safety measures and the granting of licenses to hoist men.

NEW MEXICO—Governor John E. Miles, in his address to the legislature, recommended revision of existing mining inspection laws to provide for greater protection of workers. He also asked for a state wage-hour law and an anti-injunction act for labor.

A comprehensive legislative program was formulated by 75 mine operators who met in Albuquerque January 28 at the call of the newly organized New Mexico Miners and Prospectors Association. An office was authorized at Santa Fe to function during the legislative session. This organization condemned the proposed wage-hour legislation and a measure to establish a state labor relations board.

OREGON—Associated Farmers of Oregon, Inc., is leading the fight against labor's demand for a "little Wagner act." A bill outlawing the closed shop in industry, which would make "unlawful any contract of employment which requires employes to become or continue members of labor unions in order to secure or retain employment," has been introduced in the lower house.

Other bills would require employers in mining operations to provide security for payment of wages, would provide for the recording of an affidavit of annual labor or improvements upon a mining claim, and would give the corporation commissioner larger authority over sale of securities.

UTAH—Of considerable importance to small mine owners in Utah is the measure introduced in the senate to exempt from provisions of the occupation tax producers of metals with an annual net income of less than \$20,000, provided that claims shall not be segregated by the owner or operator for the purpose of exemption.

A house measure would make silicosis, dermatitis, and poisoning by lead, zinc, mercury, phosphorus, arsenic, sulphur, and debilitating fumes compensable at the same

rate now applying to injury disabilities. The measure, if enacted, would become effective October 1, 1940, by which time the state industrial commission would make a study of hazards and fix premium rates.

A senate resolution asks for the legislature's endorsement of the McCarran bill proposing a \$1 an ounce price for silver.

WASHINGTON—In line with the recommendation of Governor Clarence D. Martin, there has been introduced H.B. 192 which would appropriate \$100,000 for joint consideration and construction of mine-to-market roads by the highway director, the state planning council chairman, and the director of conservation and development. Another house bill would provide for assessment and taxation of minerals with counties, schools, and old-age pension funds to share the revenue.

A senate bill would liberalize the workmen's compensation act by guaranteeing \$150 burial allowance for a workman killed on the job, raise a widow's pension from \$35 to \$50 a month, and increase all general family allowances. It would raise the total disability maximum for a married man from \$40 to \$60, with total settlement limited to \$4,500 for injury or death rather than \$4,000.

The house committee on labor and labor statistics has reported favorably on a bill which would make employers subject to misdemeanor charges if they employ at a lower rate than employes are entitled to by a statute or through collective bargaining. A senate bill would prohibit aliens from joining or taking part in state labor unions.

WYOMING—Protests against S.B. 20, a wage-hour measure modeled after the national act, were pouring into the legislature from all sections of the state. Other bills introduced would provide that abstracts of title to mining and other real property claims be used as evidence of ownership in legal actions, and would make it unlawful for employers to interfere with their employes in collective bargaining or with labor organization activities.

EL PASO SMELTER SIGNS NEW LABOR CONTRACT

OFFICIALS of the El Paso Smelter of the American Smelting and Refining Company announce the signing of a contract with the El Paso Metal Trades Council, an A. F. of L. affiliate, as representative of approximately 350 union men employed at the smelter. The total number of employes has averaged 516 during the past year. Foremen, office, and laboratory forces are exclusive of the number of union men, who are members of 12 unions.

The contract, which runs for one year and is subject to renewal, provides for a small increase for lower paid employes, according to Brent Rickard, manager. A seniority rating is established together with an eight-hour working day. A 42-hour week is also provided for in the contract. A grievance committee has been set up to cooperate with the management on problems of the workers.

The Sampling Mill by Fisher Lane



*** "Gold and silver always have been and always will be the monetary base. Silver always has been the medium of circulation—the money of the masses. Congress must treat it as money."

Pat McCarran speaking on the floor of the Senate . . . McCarran, fighting Irish-American re-elected to wear the senatorial toga of the Silver State. He is fighting for \$1.29 silver—not for mere restoration to the 77-cent price pegged for some months as that for new-mined American silver, from which it was lately pared down to 64 cents. But he is also fighting for something else—fighting a battle in which every American non-ferrous metal mining man should be his stalwart ally . . . removal of the setting of silver's price from presidential manipulation, direct or indirect.

"As long as any Government agency," said McCarran, "whether the President or the Treasury Department, has the power to fix the price for silver, the metal never will have stability."

*** Senator, you are exactly 100 per cent correct. This writer long has wielded the cudgels in behalf of a stable metal-founded national currency—for an INDESTRUCTIBLE DOLLAR. And if you, Senator, and enough determined and far-sighted colleagues in your own and the lower house with you, will really get behind the combination of a stable metal dollar and a stable paper currency based upon it, it will be a tremendous force in the direction of economic recovery, of business and industrial stability, and of restoration of public confidence in the American Government.

*** There has long been too much "psychological money" of various sorts in the American industrial and business scene, while buried billions in gold lie fallow in the basement at Fort Knox. Quoting a current writer, "psychological money" is minted out of popular delusions. It is subject to changing mental fashions . . . One type of "psychological money" is illustrated by a mining property in Utah, whose stock sold vastly higher during a manipulative spree while the property was out of production than it subsequently did when it got into production and operated in the black. Apparently the modest actual earnings were less glamorous than the unbridled dreams which the promoters had earlier stimulated."

*** Bang! Another bull's-eye! And—it's rank promotions of that sort whereof the mining industry MUST BE PURGED. And as this column has said before, the delousing of our industry MUST COME FROM WITHIN ITSELF.

*** Our own mining industry is replete with magnificent, safe opportunities for good jobs for capital seeking investment. Money made in mining is clean money. It comes from the ground, not out of the pockets of bad guessers. There's plenty of cash looking for work. A SYSTEMATIC CAMPAIGN OF ORGANIZED EDUCATION WOULD BRING SOME OF IT INTO LEGITIMATE MINING.

prepared a bill for introduction into the Montana legislature, which, if adopted, will create a division of Industrial Hygiene, define its powers and duties, require the reporting of occupational diseases, and provide for inspection of all places where occupational diseases may occur.

MANY SMALL MINES OPERATING AT RUBY CAMP IN WASHINGTON

CONSIDERABLE activity is reported from the Ruby camp in the central portion of Okanogan County near Okanogan, Washington, with more planned as soon as the weather moderates. One of the largest mines in the area is the Arlington Mines, Inc., which employs 30 men, operating three shifts. During the past year the company is stated to have produced \$60,000 in silver, gold, and copper. George Phillips of Malott is president and general manager and Walter Mufley of Okanogan is superintendent. About 50 tons of ore are mined and milled daily.

The Ruby Mountain Mining Company has just installed a flotation plant which is being put into regular operation. This company holds the Horn Silver mine adjoining the Arlington claims on the north. George Turner of Okanogan is president and manager, employing a crew of 14 men.

Also in the Ruby district is the No Moniker mine, owned by Thomas M. Applington and associates. Five men are doing tunnel work in this property.

Said to be the first claim in the county to be surveyed for patent is the Woo Loo Moo Loo mine, now under option to Charles H. McLean of Okanogan. A small ball mill has been purchased and will be installed in the spring.

A large body of low-grade silver ore is stated to have been opened in the Lady of the Lake mine near Conconully, which is being operated by William Gamble of Conconully and associates. Near by is the Sunshine Chief mine from which some high-grade is being shipped to the smelter at Kellogg. Charles Davidson and sons of Conconully are the operators of this mine and are preparing to install a small ball mill.

On Mineral Hill the Central Mining Company of Seattle is working the old Wheeler property and a 20-ton ball mill. A drift is being run on the Frankie Boy vein on the 1,300-foot level. This ledge is stated to carry \$5.60 a ton in gold, with some silver values, and to be a good fluxing ore. The property is also known as the Seven Devils or Mineral Hill group and was developed by Ed Forbes and associates last year.

A mill is to be installed on the Gubser claims as soon as weather permits. This ground was recently acquired by Puget Sound interests from Charles H. McLean.

Another recent purchase was recorded when Henry Barker of Conconully bought a half interest in the Copper Zone mine from William Hargrove. The property is on Peacock Mountain and will be put into production as soon as the weather permits.

The camp, known as the Ruby or Conconully mining district, was first opened in 1888 and is credited with a production of about \$500,000 in silver, gold, copper, and lead.

NEW INTERESTS REOPENING WIELAND CONSOLIDATED MINE

THE Wieland Consolidated mine near Jackson, California, has been taken over by Wieland's Mine, Inc., and cleaning and retimbering work has proceeded to a depth of 150 feet in the 585-foot shaft. L. H. Rogers, formerly associated with Phelps Dodge Corporation and National Lead Company, is superintendent.

The new operators plan the installation of a ball mill when the shaft is reopened to the 400-foot level, which is expected to be within from 60 to 90 days. Four men are working at the property and in addition to the restoration underground they have completed a new hoist frame on the surface. Samples taken as the work proceeds in the shaft have shown values ranging from \$11 to \$252 per ton. The ledge is six to seven feet wide. Stations are available at each 100-foot level from which drifting may be carried on and a considerable amount of this type of work had been done in previous operations.

James J. Williams, Jackson, is president and manager of the company and other officers include Tom Allen, Marysville, California, vice-president; Dave Sprague, Hammonton, California, secretary; Myrtle Williams, Jackson, treasurer; and P. M. Reedy, Francis Hall, and Lou Dunning, all of Marysville, directors.

The mine was formerly owned and operated by the Wieland brewing family of San Francisco, and also by Captain Matson of the Matson Steamship Company, and was at one time the second largest operation in Arnavor County. It has been closed down for 40 years and has not been unwatered since its closing in March, 1898.

NEW CALIFORNIA DIVISION OF MINES BULLETIN AVAILABLE

THE DIVISION of Mines, Department of Natural Resources, under the direction of Walter W. Bradley, state mineralogist, announces the release of the July, 1938, issue of California Journal of Mines and Geology.

This chapter contains a report on the Mineral Resources of El Dorado County, by C. A. Logan, district mining engineer.

The geologic branch presents a timely paper on Strategic Minerals in California, by Charles W. Merrill, supervising engineer of the San Francisco office, United States Bureau of Mines; Mineral Highlights of California, by Walter W. Bradley, state mineralogist; and a Geologic Study of Submarine Canyons off the California Coast, by Francis P. Shepard, Scripps Institution of Oceanography.

Four special articles entitled: "The Mountain Copper Co., Ltd., Cyanide Treatment of Gossan" by Charles V. Averill, district mining engineer, Division of Mines, Redding; "Use of Ultra-Violet Light in Prospecting for Scheelite," by Ott F. Heizer, general manager, Nevada-Massachusetts Company, Inc., Mill City, Nevada; "New State Lands Act of 1938," "New Amendment to the Caminetti Act, 1938," and the usual notes on statistics, laboratory, and library complete the number. The price is 60 cents postpaid.

and gold ore is being shipped. Two men are employed.

Dye and Bathrick, Box 456, Ray, Arizona, are mining and shipping steadily at the Ray Silver-Lead property three miles from Ray. Two men are employed.

Ramon Mugaray, Christmas, Arizona, is mining and shipping high-grade gold ore from his property near Christmas. He is employing three men.

The Old Gold mine near Oracle, Arizona, is being operated with a crew of five to six men employed. Gold ore is shipped to the Hayden smelter. The Old Gold was developed in 1936 by the late Harry Hendrickson. It is owned by R. B. Sanderson, 1699 Pinchot Street, Phoenix, Arizona.

Rumors are current that operations will be resumed April 1, 1939, at the property of the Bunker Hill Arizona Mining Company, Sombrero Butte, Arizona. The company completed construction of a new 50-ton flotation-concentration mill at the property last year. Charles R. Dobler, 1325 Wetmore Avenue, Everett, Washington, is president of the company.

Tagmar Mines, F. C. Ricken, superintendent, Oracle, Arizona, has leased the Van Rick claims in the Canada del Oro from L. H. Van Horn of Oracle and ore is being shipped to the Tagmar mill on the Valenzuela claims for treatment. The mill, a 50-ton plant, was erected by the company on the Frank Valenzuela property which is held under lease. A shaft was sunk at the latter property and some drifting was completed. The Valenzuela group comprises 16 claims. Tagmar Mines was organized by C. T. Marsh of California; P. J. Martin of New York City; and J. M. Taggart of Detroit, Michigan. Eight men are employed. Values are in molybdenum, vanadium, tungsten, gold, and silver.

M. G. Tarr, Mammoth, Arizona, is mining copper ore at his property near Mammoth and is shipping to the Hayden smelter.

The old Fortuna gold mine 30 miles southeast of Yuma, Arizona, is being operated under lease and bond by a California group. A crew of 15 men, under the direction of William B. Maitland, superintendent, is sinking two shafts. A newly discovered vein has been developed to a depth of 150 feet. No work is being done in the old shaft, which is now caved.

Joe Lee and Dan Hill, operating the Eagle group of claims near Kingman, Arizona, are reported to be getting substantial results from the development work. The shaft is down 100 feet with drifts from that level for 50 and 30 feet along the vein. All rock removed in sinking and drifting has been commercial ore and more than 200 tons have been trucked to the Vivian mill at Oatman in addition to 12 carloads that have been shipped to the A. S. and R. smelter at El Paso. The average value of the ore shipped is reported to have been more than \$42 per ton in gold and silver. A road has been built to the property and a 25-horsepower Fairbanks-Morse gasoline hoist has been installed. The mine is located northwest of the C. O. D. property and almost directly north of the Rico.

A new bucket-ladder dredge is being built by the Yuba Manufacturing Company for the Carrville Gold Company, Edward C. Congdon, president, and Harvie A. Garver, secretary, 807 Lonsdale Building, Duluth, Minnesota. The dredge will be operated on company's property located on the Trinity River near Carr-



ville, California. Upon exploration of the property under the direction of the RFC, the company qualified for a loan which will cover a large part of the cost of the dredge and other plant equipment.

Charles H. Thurman, 420 Market Street, San Francisco, California, has taken over the leasehold rights and equipment of the San Andreas Dredging Company which has been operating near San Andreas, California. Previous operators were E. M. Clark and L. G. Graves. Thurman, who is president of the Snelling Gold Dredging Company and manager of the Lewiston Dredging Company, has announced that the dredge will continue operations. J. M. Sobrero will be superintendent at San Andreas.

A 10-ton mill will be installed at the Bumble Bee quartz mine near Oregon City by the operators, Williard Harrington and Clem Baker of Oroville, California.

Announcement!

For the past six months we have been compiling data for a new and revised edition of our Metallurgical Bulletin to take the place of the 1929 and 1932 editions.

The data in this bulletin have been compiled by collaboration amongst all three of our companies and will be of particular interest to managers of mining properties, metallurgists, mill superintendents, operators and senior students in ore dressing.

The bulletin will contain approximately 125 pages and we hope will be ready for distribution the latter part of February.

Following our usual practice, we shall be glad to mail a copy to those who are interested upon receipt of prompt request addressed to our Salt Lake City, Toronto or London offices.

The General Engineering Company
CONSULTING METALLURGICAL ENGINEERS

159 Pierpont Ave., Salt Lake City, Utah

The General Engineering Company (Canada) Ltd., 100 Adelaide Street, West,
Toronto, Canada

British Geco Engineering Company, Adelaide House, London E. C. 4., England

The **Pigeon Creek Mining Company** is operating a stationary washing and gold recovery plant in Shenadoah Valley near Plymouth, California. The unit, which has a capacity of 60 cubic feet per hour, is working on Pigeon Creek on the Henry Bell Ranch. A Caterpillar and carry all are used to transfer the material to the plant. A. H. Ruoff, general manager, plans to have three shifts working soon.

John L. Bischer and associates of 1212 Spring Arcade Building, Los Angeles, California, have leased the **Falcon** mine located on Mill Creek 20 miles south of Palm-dale, California, from A. R. Hewitt, 426 South Spring Street, Los Angeles, and Charles Armstrong. A 600-foot drift is being run to open up a newly encountered vein and old ore bodies where there are said to be many tons already developed or blocked out. Upon completion of this work it is planned to install a 25-ton mill, probably of the screen type. Ore which runs from \$12 to \$25 per ton has been developed in several upper tunnels.

Officials of the **Portola Mines and Milling Company** report that large deposits of commercial gold ore have been encountered at the property near Portola, California. Several drill holes have been sunk to a depth of 50 feet and pits and open cuts are said to be in ore with a large tonnage sampling \$2 to \$4 a ton reported exposed. Erection of a plant capable of treating 1,000 tons of ore daily is said to be under consideration. H. P. McCormack, 337 West Taylor Street, Reno, Nevada, is general manager of the company.

The **Bagdad Chase** mine south of Ludlow is to be reopened soon according to present plans of F. C. L. d'Aix, Union League Club, Chicago, Illinois, who has been at Daggett, California, recently preparing the property for operation. The engine has been installed, shafts have been cleared, and other work completed at the property. A milling plant is located at Daggett.

F. R. Jackson and Bob Skil's plan active development of the **Lost Nugget Placer Mines** on Jackson Creek near Callahan, California, and actual placer operations are to be started early in May. The mine is reached by a three-mile trail from the end of the Callahan road and machinery will be packed in by mule. According to present plans, two hydraulic nozzles will be used to work the ground and a hydraulic hoist will handle the rock. Several old creek channels and a recently uncovered river channel will provide sufficient ground for many years operation on a profitable basis. Ground values are estimated to be \$1 per yard. From four to six men are employed in getting ready for spring operations.

The strike at the **New Idria Quicksilver Mining Company** property at Idria, California, has been settled, according to C. Hyde Lewis, mine superintendent. An agreement was reached with the International Miners and Smelter Workers Union following negotiations through the M. L. R. B.

John Rowell, H. G. Clayborn, and G. C. Frew are working an old shaft near Randsburg, California, which they have recently

located as the **New** claim. The shaft has been cleaned out to a depth of 40 feet and a pocket of ore encountered just below the collar of the shaft has been removed and shipped to the Burton Brothers mill at Rosamond. At the bottom of the old shaft there is an old 40-foot drift which is said to show mill ore for the full distance. A headframe and hoist have been installed and it is planned to take out the ore in the drift before further sinking is started.

Isham and Isham, geophysical engineers of Sacramento, California, have recently completed a survey which has definitely located the Ford channel, according to F. F. Ford, president of the **Golden Empire Company**, Oroville, California. There are said to be six miles of channel of the ancient Yuba River in place, undisturbed by cross erosion. The bottom of the channel has from 100 to more than 300 feet of gravel overburden.

W. L. Baker and J. L. Jackson are installing another mill at the **Hot Water** mine, Graniteville, California, to replace the five-stamp plant destroyed by fire last fall. The mine is said to carry ore averaging an ounce of gold per ton.

Directors of the **Central Eureka Mining Company**, C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, California, declared a dividend of 6 cents a share on preferred and common stock payable February 15 to stock of record January 31. Stockholders have approved a reclassification of the company's capital stock and the necessary legal procedure is now under way. Under the new plan, all stock will be reclassified and there will be only one type of shares instead of pre-

ferred and common as at present. The company operates property at Sutter Creek, California, James Spiers, superintendent.

The **Rosalie Mining and Milling Corporation**, W. T. Williams, president, Maricopa, Kern County, California, has been authorized by the state division of natural resources to make three diversions of water in Plumas County totaling nine second feet. The water will be diverted from Long Rock Creek, West Fork Light Creek, and Morton Creek for mining purposes at an estimated cost of \$1,000.

W. E. Wilson and Palmer Gillette of Foresthill, California, have applied for a permit to divert 20 second feet of water from Volcano Creek, tributary to the Middle Fork of the American River in Placer County for mining and domestic purposes. Cost of the development is placed at \$10,000. Wilson and associates recently took over the old **Paragon** mine two miles east of Foresthill.

Arthur Greer and associates have taken over the **McKenzie** mine adjoining the Champion property on the west and north. The property comprises about 200 acres and the new group is reported to be working on the gravel channel. The mine is near Nevada City, California.

The dredge of the **River Pines Mining Company** located about 12 miles north of Plymouth, California, which was destroyed by fire last November, has been rebuilt and placed in operation. The boat is working gravel on the Frank Lawrence ranch on the South Fork of the Cosumnes River and has been in operation for more than a year. Frank C. Cuffe is manger.

The **Climax** mine located five miles north of Jackson, California, is to be reopened after having been shut down since 1936. Work will be resumed under the direction of A. J. Raggio, superintendent. The Climax has been a producing mine since the early eighties. It was opened up in 1934 by New York and Chicago capital under the direction of Frank Garbarini, superintendent, and a new shaft was sunk to a depth of 200 feet. An extensive program of prospecting and development was undertaken and ore bodies averaging three feet in width were opened up before work was discontinued at the end of 1936.

Ten men are employed at the **Golden Bear** drift gravel mine five miles south of Downieville, California. Present work consists of breasting with a view to reaching the channel. J. F. Thomas, 47 Second Street, San Francisco, California, is general manager of Golden Bear Mines, Ltd.

Bert Wegmann, Jr., is reported to have struck rich gold ore on the **Silver Girl** claim high on the north side of Soledad Mountain near Mojave, California. He is at present engaged in constructing a road which will enable him to haul equipment and supplies to the mine. The work will be difficult because of the isolated location of the property, which is approximately 1,000 feet up on the mountain, and the slope is said to be very steep. A part of the development work at the mine will be construction of a 600-foot tramway between the mine and the road which

AVERAGE PRICES OF METALS
(Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.344	68.781
1925	14.042	9.020	7.622	69.065
1926	13.795	8.417	7.337	62.107
1927	12.920	6.765	6.242	56.370
1928	14.570	6.305	6.027	58.176
1929	13.107	6.833	6.512	52.993
1930	12.982	5.517	4.556	38.154
1931	8.369	4.244	3.638	28.701
1932	5.792	3.181	2.881	27.892
1933	7.276	3.870	4.031	34.728
1934	8.658	3.8595	4.162	47.973
1935	8.880	4.0648	4.331	64.273
1936	9.710	4.7091	4.903	45.088
1937	13.391	6.0085	6.517	44.805
1938	10.225	4.7388	4.613	43.222
1937				
Jan.	12.660	6.00	5.86	44.912
Feb.	13.60	6.2386	6.436	44.75
Mar.	15.990	7.1899	7.377	45.130
Apr.	15.346	6.175	6.989	45.460
May	14.00	6.00	6.75	45.025
June	14.00	6.00	6.75	44.818
July	14.00	6.00	6.929	44.750
Aug.	14.00	6.4519	7.205	44.75
Sept.	13.780	6.400	7.179	44.75
Oct.	12.060	5.740	6.087	44.75
Nov.	11.022	5.0326	5.632	44.75
Dec.	10.236	4.875	5.011	43.810
Ave. 1937	13.391	6.0085	6.517	44.805
1938				
Jan.	10.425	4.870	5.00	44.714
Feb.	10.00	4.8318	4.816	44.75
Mar.	10.00	4.50	4.413	44.446
Apr.	10.00	4.50	4.156	42.75
May	9.60	4.40	4.048	42.75
June	9.00	4.1481	4.143	42.75
July	9.810	4.882	4.75	42.75
Aug.	10.125	4.90	4.75	42.75
Sept.	10.265	5.00	4.856	42.75
Oct.	10.981	5.10	5.015	42.75
Nov.	11.25	5.0918	4.913	42.75
Dec.	11.25	4.8423	4.50	42.75
Ave. 1938	10.225	4.7388	4.613	43.222
1939				
Jan.	11.25	4.826	4.676	42.75

is being built. Wegmann is also associated with Louis Meehl, his brother-in-law, in operating a lease on property owned by the Yellow Dog Mining Company.

The Martel property on Squirrel Creek west of Grass Valley, California, is being worked with a small dredge by the **Calvea Mining Company**. The work is on a 24-hour basis.

Trustees of the Bonnie Bee Quartz and Development Company, Mrs. G. A. Stuart, secretary, Auburn, California, have bonded the **Bonnie Bee** to Elmer Bray of Auburn, who plans extensive drilling and testing at the mine. The property is located in the Blue Canyon district across from the Zeibright mine at Emigrant Gap, California. It is opened by two tunnels, one 700 feet in length.

Sinking of the Central shaft of the **Lava Cap Gold Mining Corporation** a distance of 400 feet to the twelfth level is practically completed, according to Otto E. Schiffner, general manager, Nevada City, California. Completion of the shaft to that depth will enable the company to work undeveloped ore bodies from those levels. The sinking has been done by contract with two shifts of four men each employed, and work has progressed at the rate of about six feet per day. No sensational developments have been made at the Lava Cap but the property is comfortably holding its own with ore for another two years blocked out and development work continuing steadily. At the present time 350 tons of ore per day are being milled with 265 men employed.

S. S. and O. W. Chatfield have taken over the operation of the **Gracey** mill at Nevada City, California, on a contract basis. They have just completed the treatment by flotation of 400 tons of ore from the **Stockton Hill** mine. The Stockton Hill ore is the most complex in the district, coming from a serpentine and diorite contact, and its talcose content makes it treacherous for saving of values. The Gracey mill was not designed to handle complex ore but after a few alterations and additions, including installation of a Miners Foundry gold jig, a high recovery has been obtained. The Stockton Hill mine at Grass Valley, California, is being operated by the Stockton Hill Corporation, Walter R. Woock, president, Box 126, Auburn, California.

Installation of a new 400-ton mill has been completed at the **Mayflower** gravel mine near Foresthill, California. The plant was installed by the Miners Foundry of Nevada City, California. The property is being worked under lease by the Ish, Trippe and Alegard Company and a crew of 20 men is employed. Values are reported to average \$6 per ton. Recovery is made by means of jigs instead of sluice boxes. The mine is owned by the Mayflower Gravel Mining Company, Richard Detert, president, Mills Tower, San Francisco, California.

The **Pacific Placers Engineering Company**, Valley Springs, California, has been authorized to issue 2,500 shares of stock. The company is capitalized at 7,500 shares with a par value of \$10. Operations are

at present centered on dredging the Robbins property near Valley Springs. Directors of the company are J. K. Wadley, William W. Allen, E. H. Seaver, Lucius F. Chase, Laurence A. Peters, and Thomas R. Suttner.

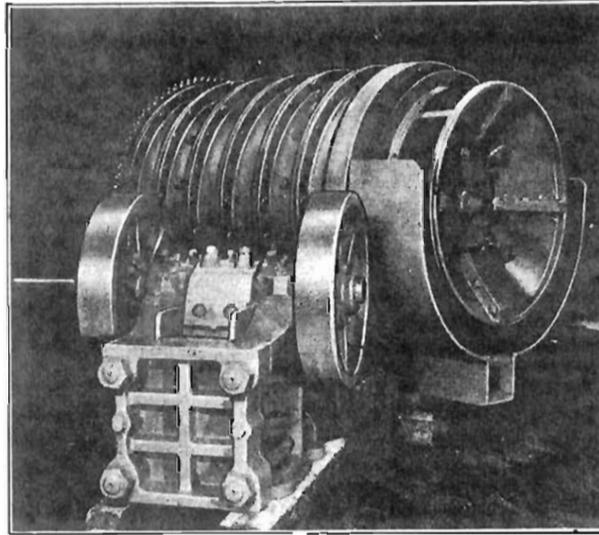
The property of **Pyramid Gold, Inc.**, Hornitos, California, which has been temporarily shut down, is to resume development work and the milling plant will again be placed in operation. A report to the stockholders issued January 20, 1939, stated that a gross recovery of \$101,973 was made from 3,704 tons of ore.

E. E. Hemrich of Seattle, Washington, and associates are treating with dry methods, the **Austin Landes** property near

Randsburg, California. The ground is reported to yield \$1.50 per yard in gold and tungsten. Approximately 450 yards per day are being handled.

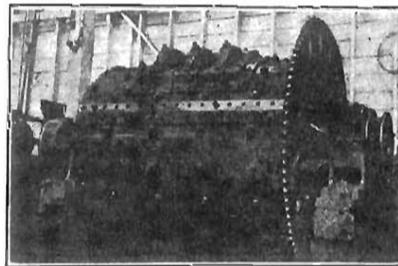
The **Lode Development Company**, operator of the **Rosencranz** mine at Garden Valley, California, has purchased the **Taylor** mine, adjoining the Rosencranz. The Taylor is opened to a depth of approximately 1,200 feet and was last worked about 1902. The Rosencranz shaft, a three-compartment unit down to the 130-foot level and two-compartment to the 350-foot level, is being extensively developed. A drift which runs toward the Taylor property is now only about 70 feet from the claim line. A crew of 25 men is employed and the mill is operated two shifts daily.

PACK RIB-CONE MILLS ANYWHERE!



Shop assembly of a sectionalized change-head Rib-cone mill and a Straub sectionalized crusher.

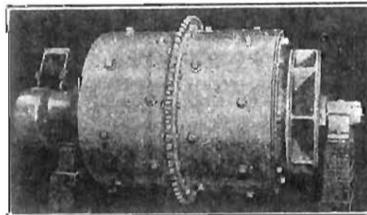
By muleback, plane, canoe or porter, **Straub** sectionalized mining machinery may be packed in to the most remote locations. It gives the same trouble-free, low cost operation as our standard type. Every sectionalized machine is completely assembled in our shop before shipment. This insures easy and correct assembly in the field. Our long experience is at your service.



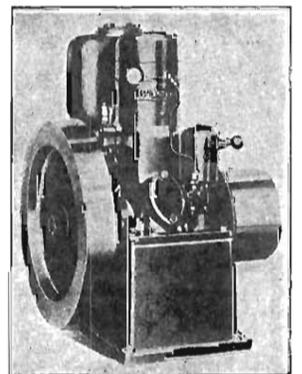
25-ton sectionalized type DB mill with chain drive.



All-steel portable boiler. Very economical. Wood or coal may be used for fuel.



Sectionalized No. 253A Rib-cone with screening head and chain drive.



Diesel engines 10 to 100 HP. Smaller sizes may be knocked down with heaviest piece only 175 lbs.

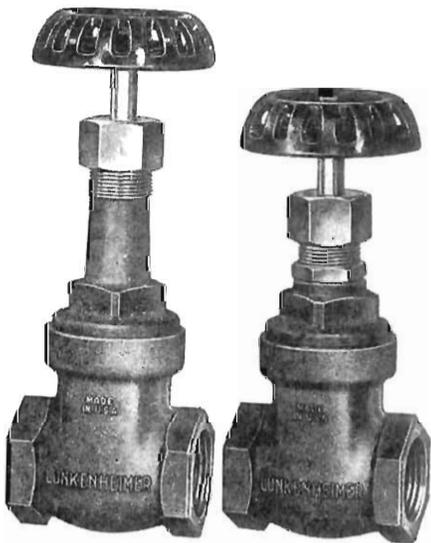
We also build tables, screens, classifiers, amalgamating barrels, etc. Write today for Bulletin 302 for milling equipment. Send for Bulletin 600 describing the new Kue-Ken balanced crusher.

PIDANOS CATALOGO ESPANOL

STRAUB MFG. CO.

505 CHESTNUT ST., OAKLAND, CALIF.

LUNKENHEIMER
125 lb. SP
 Bronze
GATE VALVES



Ask to see one of these valves. You will be surprised that so many service-giving features can be built in a 125 lb. Bronze Gate Valve. We invite a comparison with any 125 lb. Bronze Gate Valve you are now using. You be the judge.

Double Wedge Disc Rising Stem and Single Wedge Disc Non-rising Stem types.

PRATT-GILBERT
Hardware Co.

Distributors

PHOENIX, ARIZONA

701 S. Seventh St. Phone 3-5145

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. 8-2984 P. O. Box 575
 Phoenix, Arizona

DRY BANK PLANTS

BODINSON
BUILT
DRAG LINE DREDGES

2401 Bayside Blvd., San Francisco

Charles Hopper Brown, Garden Valley, is superintendent.

The California Gold Dredging Company is engaged in drilling the dredged-over land along the Feather River west of Oroville, California, to determine whether or not the unrecovered values are sufficient to warrant re-dredging. The lands are owned by the First National Bank of Oroville. A contract to purchase is held by Mrs. Elizabeth Leggett Swords but it is understood that she has not kept up her contract and an option has therefore been granted to the dredging company. Mrs. Swords is understood to be opposing the cancellation of her contract.

Net earnings of the Carson Hill Gold Mining Corporation, 206 Sansome Street, San Francisco, California, after deductions for depreciation, depletion, etc., are reported to be exceeding \$14,000 per month. The company is milling approximately 32,000 tons of ore monthly at its mines located in the Melones, California, district. John A. Burgess is general superintendent at Melones. Carson Hill is controlled through stock ownership by the Anglo American Mining Corporation.

A. L. Morton of Palmdale, California, has acquired the Hematite group of claims located in the Middle Buttes 15 miles southwest of Mojave, California. The consideration is understood to have been \$7,750, payable in monthly installments. The property has been opened by several shafts ranging from 40 to 140 feet in depth and numerous drifts and crosscuts have been run. The owners, George Stambrook, Bruce Minard, and C. N. Brown, retain a 3 per cent unassessable interest in the claims.

The Greystone Gold Mines Company, Edward W. Cardinal, president, Washington, California, is employing a crew of four men in extending a drift along the footwall of the contact vein of the property. The mine is well equipped and a ventilating system is being installed. A new road has been built, connecting the property with the state highway. It was formerly accessible only by trail. Work is directed by F. W. Twiford, superintendent at the mine.

The Burns mine on the Mono Highway above Camp Sunshine is being operated on a partnership basis by Bob Fordham, Tolumne, California, and A. C. Colvin, Ray Franklin, and Melvin Dobson, all of Sonora, California. Dobson is manager at the property. A hoist, six by nine compressor, and 35-ton ore bin have been installed and underground work includes a 70-foot shaft and 30 feet of drifts.

George McCutchen plans to begin operations at his Wonder quicksilver mine near Idria, California, in the spring. He is the owner of the property, which is located south of the New Idria quicksilver mine.

The Knapp Construction Company of Oakland, California, which is operating under lease the Aetna quicksilver mine at Middletown, California, has reduced the mine crew for the winter months.

The Confidence mine at Confidence, via Sonora, California, is being dewatered under the direction of Thomas Thompson, 2014 Smith Tower, Seattle, Washington, who is reported to represent large eastern

mining interests. The Confidence is owned by Hales and Symonds of Sonora who recently purchased the mine from John O. England, receiver for the Confidence Gold Mining Company, former operator. Thompson also has a crew of several men exploring and rehabilitating the old Fortuna mine located one mile north of the old Belleview mine near Sonora.

The Spangler mine located about 12 miles from Randsburg, California, has been equipped with a 50-ton ball mill by a California group and it is planned to have the property on a production basis shortly. The backers of the project include W. H. Nicholson of the Nicholson Welding Company and O. A. Taber, oil man, both of Taft, California, and associates of Taft and Los Angeles. J. M. Quigley is directing work at the mine.

Carlson and Sandberg, Redding, California, have completed arrangements for dredging the John A. Yager property east of Ione, California. A dragline dredge will be used and a crew of 15 men will be employed on a three-shift basis. It is estimated that from one and one-half to two years will be required to work the property.

Edgar R. Larsen, metallurgist for the Beryllium Alloys Company, Vista, California, reports that the company is being reorganized and it is planned to construct a 100-ton daily capacity plant at Vista immediately. It is hoped to have the plant completed and ready for operation during February.

Ray M. Henriksen, consulting mining engineer, 901 Pacific Mutual Building, Los Angeles, California, and associates have taken over several claims in the Garden Valley district. Included in the group are the Russell mine and the Rymal property. A 25-ton pilot mill has been installed and active development is planned.

Yuba Consolidated Gold Fields, Inc., F. C. Van Deirse, vice-president in charge of operations, 351 California Street, San Francisco, California, paid a dividend of 15 cents a share on February 1 to stockholders of record January 11. This followed three regular quarterly dividends of 10 cents a share each and brings payments for the year ending February 28 to a total of 45 cents a share. The company recently launched what is said to be the largest gold dredge in the world at Hammonton, California. The huge dredge will dig to a depth of 124 feet and will be put into service in May, following the installation of hundreds of tons of equipment. It will cost approximately \$800,000.

The Black Swan Extension in the Mooney Flat district on Slacks Ravine is being operated by Monte Walker and T. F. Towers, Smartville, California. They are operating through a 20-foot shaft and the material is run through a small tube mill followed by a series of riffles. It is planned to continue the shaft to a depth of 100 feet and a steam hoist will replace the hand hoist now in use. The present shaft taps gravel of an old river bed. Walker and Towers are leasing 20 acres from the Interstate Land Holding Company, Smartville.

The new 60-ton flotation-cyanide plant of the Ramsey Mining Company, Lucerne

Valley, California, has been placed in operation and the mill will treat ore from the Ramsey mine. There is said to be sufficient ore blocked out to keep the plant in operation for several months and no custom ore will be accepted for at least four months. At that time it is planned to enlarge the present four by four-foot ball mill. A new road is to be built up Grapevine Canyon and an assay office is to be established at the mill. The simultaneous clarification and precipitation plant is a product of the Elmco Corporation. Power is supplied by 11 Fairbanks-Morse motors and a 90-horsepower Diesel electric engine. The steel tanks, thickeners, and agitating mechanisms were supplied by the Southwestern Engineering Company and the reinforcing pipe fittings were furnished by the Triangle Steel Company. Milton G. Ramsey is the owner of both the mine and the mill.

Employees at the Murchie mine of the Empire Star Mines Company, Grass Valley, California, are reported being transferred gradually to other properties of the company preparatory to closing down the mine. It is understood that as work proceeded to greater depth the paying veins dwindled until the company now regards further exploration as useless. The mine yielded good ore to a depth of 1,300 feet but beyond that profitable ore has diminished and on the 2,650-foot level nothing of promise was found. The mine will be operated until the present ore reserves are exhausted, which is expected to require not more than two or three months. It is understood that the company plans to sink an entirely new, standard three-compartment shaft at the North Banner claim during the spring months. The North Banner was purchased about four years ago and efforts were made at that time to open the tunnel but the solidly caved condition of the old workings and the appearance of the ground, softened by heavy rains, brought a postponement of the work. The new shaft will be vertical and the eventual depth will be determined by conditions encountered as the work proceeds. At the company's Pennsylvania mine in Browns Valley the main shaft has reached a depth of 1,400 feet and sinking is continuing.

The Sterling Queen mine in the Argus Range east of Coso Hot Springs, California, has been sold by Bruce and Bill Minard, Box 414, Mojave, California, to Smith Brothers of Wilmington. The mine is located about six miles from the Ruth mine and a concentrating unit has been installed to treat the hematite ore which ranges in value from \$19 to \$30 per ton. It is planned to start production soon. Bruce Minard is directing work at the mine for the new owners.

Shaft sinking at the property of the Susanville Mining Company, Susanville, California, has reached a depth of 70 feet and drifting is in progress to the east and west. Assays are said to have shown values ranging up to \$42 per ton. The mine is equipped with a power hoist and other necessary machinery. Buildings include bunkhouses, machine shop, office, bath house, and machinery house. R. L. Chester is manager of the company.

SAVES GOLD OTHERWISE LOST

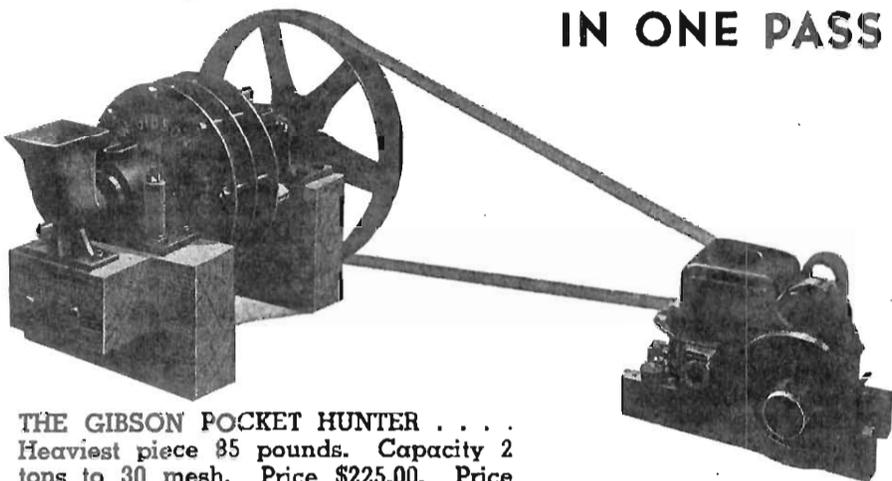


The Gibson Impact Amalgamator

Built in sizes from 25 tons to
2000 tons capacity

Repeat orders coming in from all parts of the world are positive proof of the efficiency of the Gibson Impact Amalgamator in saving the fine gold, amalgam and mercury that escape from the other amalgamating devices.

CRUSH, GRIND and AMALGAMATE IN ONE PASS



THE GIBSON POCKET HUNTER

Heaviest piece 85 pounds. Capacity 2 tons to 30 mesh. Price \$225.00. Price with belting and 1½ h.p. engine \$290.00.

The Pocket Hunter will crush two-inch material, grind and amalgamate in one pass. The wearing parts of the mill are built of manganese steel and the balance of heat-treated chrome-nickel steel. The mill is built for mule-back transportation and is guaranteed unbreakable. Will be taken back in exchange for 10-ton mill any time inside of one year. Never before has such value been offered to the mining public. Also built in 5, 10, 12, 25, 50, and 100-ton capacities, which will handle FOUR, SIX, and EIGHT INCH material without a rock breaker.

Write for catalogue describing Gibson Counter Balanced Rod and Ball Mills, Prospectors' Friend Mills, Flotation Cells, Amalgamators, Concentrators, Rock Breakers, Ore Feeders, Mercury Feeders, Oil Feeders, Retorts, etc.

W. W. GIBSON

1801 Webster Street

Alameda, California

BAGS

ORE - SAMPLE PRECIPITATION CLARIFIER

Plummer Bag Mfg. Co.

748 S. San Pedro St.
Los Angeles, Calif.

ADDISON N. CLARK* tells how

See page 20

A City Stymies a \$1,000,000 Mining Industry

WHILE at first glance you may hesitate at characterization of the "saline" industries on California's Owens Lake and Searles Lake as mines, on consideration you will agree, and will view the picture I shall paint through the same glasses you don to scrutinize any other problem of our industry. Regardless of the means whereby commercially valuable minerals (aside from liquid hydrocarbons) are brought from underground, to refine for human use, an industry created and administered for that purpose is essentially a mining industry. As a matter of fact, early-day petroleum recovery in California was called "mining for oil."

Since the metallic salts recovered from beneath the beds of these lakes are water-soluble, exist as strong brines, hence are recovered by pumping and refined by selective evaporation, the process differs in no essential point from recovery of metallic copper, by precipitation from mine waters carrying CuSO_4 , upon scrap-iron or de-tinned cans. Millions of pounds of copper have been recovered from once-wasted mine waters, since a miner in Butte used his head and plugged that leak. Thus we can catalog the dry-lake "saline" industries of the southwest as mining enterprises and go on from there.

AS A BACKGROUND for the picture, recall the "rape of the Owens River Valley" by the Water and Power Department of the City of Los Angeles some three decades ago. It is a matter of widely published history, so no space need be taken to discuss it here. About the best and most dramatic account of it is in Chapter XVII of Harry Carr's book "Los Angeles—City of Dreams" (D. Appleton-Century) which you will find in any public library. It is a book worth reading, too; that chapter especially so for mining engineers. How Fred Eaton, a former mayor and an engineer, optioned Owens Valley farms and orchards, home-ranches of descendants of the party of immigrants who in 1849 survived Death Valley horrors and settled in well-watered Owens River Valley; how Eaton camouflaged his real purpose, letting the ranchers think it was for a great Federal reclamation project such as Imperial Valley; how Eaton and the late William Mulholland, chief engineer of Los Angeles' Water and Power Department, rode rough-shod over the betrayed valley ranchers.

Having gained its water that way, dried up the Owens River between Lake Tinemaha aqueduct-intake and Owens Lake, hence dried up the bed of Owens Lake itself — incidentally, having "wangled" President Theodore Roosevelt into helping the game along by declaring all homestead land in the valley a "forest reserve" (though the "trees" were sagebrush)—Los

*Consulting Mining Engineer, San Francisco.

Through tactics as indifferent to the rights of private enterprise as those by which it tore the Owens River Valley from the ranchers and sent it back to desert waste, Los Angeles has forced a prosperous mineral-recovery industry into idleness by letting surplus water "spill" into the long-dry Owens Lake bed. This act has wrought huge economic loss to employers, workers, and even to the State of California as lessor.

Angeles settled down to its amazing growth, and to enjoyment of the ample supply of mountain water thus provided.

Meanwhile, with the bed of Owens Lake dried up by evaporation after the Owens River inflow was cut off, saline products recovery industries were established on the shores of the lake bed. Subsurface brines, concentrated greatly by natural evaporation in the intense heat of the region, were pumped to their plants and there commercially refined by selective evaporation, natural and artificial.

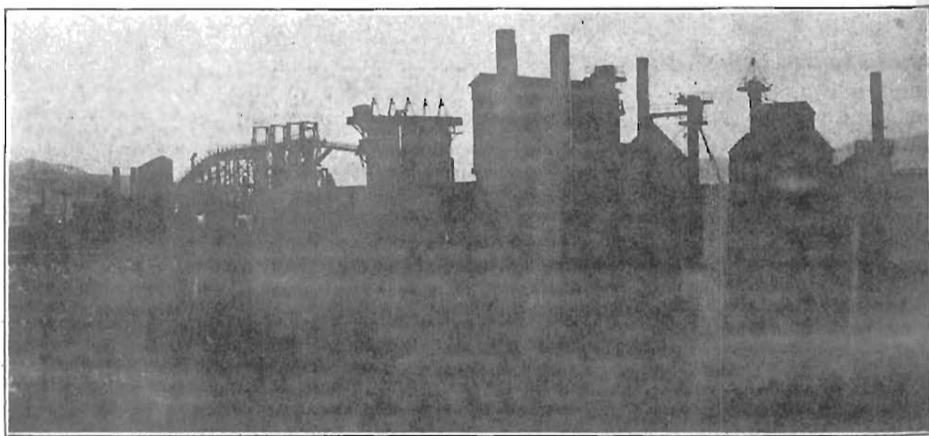
Under California law, the lake-bed area was (and is) state property. It was leased from the state, on an annual royalty plan based upon tonnage of salines produced and refined. Since Owens Lake was a wet lake up to the appropriation of its feeder river 30 years ago, and only dried up since then, the problems there differed from those at Searles Lake where the actual ancient "floor" of the lake is covered to a considerable depth by alluvial matter.

An idea of the economic potentialities of Owens Lake's bed proper is had from

the estimate, given in Bulletin 580 of United States Geological Survey, of a total content of chlorine alone, in its subsurface brines, of more than 40,000,000 tons, with sodium, potassium, and borax in proportion. In that bulletin it is stated that by a test of the Owens River in 1908 at Charles Butte, far above the lake, in that year "at least 17,000 tons of sodium and 9,500 tons of chlorine were contributed to Owens Lake" by the river. That was prior to appropriation by Los Angeles. Average discharge of the river over a period of years, the bulletin states, was about 300,000 acre-feet. Age of the lake (presumably since it ceased to flow over the rim of its basin on the south, and began to recede through evaporation) is estimated by the U.S.G.S at "about 4,000 years—possibly less."

FOR A further idea of the lake's commercial potentialities, under conditions set up by diversion of all inflow waters save runoff from rainfall on watershed below the Tinemaha intake, let us examine one of the plants referred to—that of the Natural Soda Products Company at Keeler. The accompanying photograph, with caption, indicates the magnitude of this industry alone. Established about 20 years ago, it has grown in size of plant and volume of output until it recorded a production of 100 tons of soda ash per day, from an expanded plant valued at more than a million dollars, and employed normally about 100 men. For years up to and including 1937, this company alone paid the State of California approximately \$10,000 annually in royalties.

In 1938, however, with plans approved for additions to plant and equipment to step up its output of upwards of 36,000 tons of soda ash per year, things began to happen.



The plant of the Natural Soda Products Company at Keeler, California, on the easterly shore of the legally dried-up Owens Lake. This lake was fed by the Owens River until Los Angeles appropriated all its waters three decades ago. Last year Natural Soda's million-dollar plant was forced to shut down when the lake bed was flooded by spillage of excess water from the Los Angeles aqueduct intake (Lake Tinemaha dam) into the river.

See page 20

That year the Los Angeles Water and Power Department had too much water. For reasons unnecessary to discuss here (save to say that the main one is reported to have been the eternal feud between Messrs. Eaton and Mulholland) the city's Owens River system never has had an adequate, safe, equalizing reservoir to handle excess water in a wet year. Lake Tinemaha dam, an earth dam, is apparently feared by the city's engineers with any considerable volume of water behind it. So for reasons of their own, never yet satisfactorily nor logically explained so far as I can ascertain, and despite many protests and requests to desist dumping, the city's water officials turned the surplus water into the bed of the Owens River . . . to run 45 miles down into the long-dry bed of Owens Lake to join the run-off from the immediate lake basin and from valley tributaries below Tinemaha.

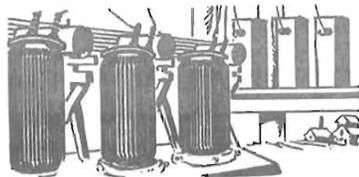
Disastrous after-effects of that mode of disposal of excess water included ruining the company's roads across the lake bed from plant to pumping plants, along its pipeline, and flooding the bed so that pipeline inspection normally done with a truck had to be done with a skiff equipped with an outboard motor. The pipeline itself was washed out. Repaired, and elevated atop five-foot bents to be above anticipated high-water levels, it was again washed out by flood water dumped into the river and lake by the city.

Response by Los Angeles officials to very natural protests was reminiscent of the response of the Japanese army and navy to United States protests at bombing of the Panay on the Yangtze—"scuse please, ver' sorry" . . . along with sidelights of intimation that the flooding was "an act of God."

One direct result of that "act of God" was that royalty paid by this one company alone to the state in 1938 was only about \$1,250 as against the normal, on soda ash production alone (with no potash or borax, though Owens Lake brines are rich in both) of \$10,000 a year. And since water continued to be dumped into the Owens River, and now stands so deep that operation of the plant is impossible, royalty to the state in 1939 will be nothing.

Complete shut-down, with entire stoppage of production and sales revenue, while naturally hitting its operators a hard blow in the region of the bank balance, has not appeared to worry Los Angeles Water and Power Department officials. Being responsible to the stockholders who provided funds for establishment and upbuilding of plant, pipelines, and pumping plants, company executives more or less naturally view the ruin thus wrought with a somewhat jaundiced eye. And when conversation shifts to the enforced layoff of a hundred-odd workers, and to effects on their families who lived either in the company's commodious camp or in near by Owens Valley towns, a by-product is one usually associated with copper smelters—strong sulphur fumes.

THE COMPANY, however, is not taking it lying down. Suit has been filed against the City of Los Angeles, and is pending in the superior court of Inyo County. Civic and mining organizations of



Inyo and Mono counties are solidly sympathetic with the saline industries on the lake and lending no end of moral support.

The Attorney General of California, awake to the costly effects of such loss of royalty revenue, has jumped into the fight by joining in the company's suit for an injunction, as a preliminary to suing for damages in the sum of a million dollars. The combination, in the opinion of close observers of the situation, may inspire Los Angeles water officials to find some other way to dispose of excess water. An interesting sidelight on the picture, from the angle of cost to the city, is the fact that the plant and brine pumps, electrically operated, could be driven with current from the city's own Owens River hydro-electric plants. At present, current consumption is of course nil.

As further possible inspiration to remedial action of some sort by Los Angeles officials, on January 25 a bill (A.B. 2599) was introduced by Assemblyman Harrison W. Call of San Mateo County into the California legislature. It is titled: "An Act to protect royalty payments to the State of California derived from residual lake areas and to protect operators of residual lake areas paying royalties to the State of California, and to provide penalties for violation thereof." Boiled down, the bill provides (a) that when all waters have been diverted from residual lake areas and the state has leased the beds for mining of mineral or non-metallic substances in consideration of royalties or rentals, appropriators are prohibited from returning to such areas any part of appropriated waters; and (b) that on failure of such appropriators to desist from flooding and damaging such lake areas, they shall be liable for and pay to the state on demand full damages for royalty loss—likewise shall pay to lessee-operators full damages done to their properties, plus full amount of loss of income through "inability to operate during periods when said areas may be flooded or damaged by said appropriated waters."

California's "bifurcated-session" legislature reconvenes next month. Operators, engineers, and legislators are watching the situation closely.

NO MILL CONSTRUCTION NOW, COMBINED METALS STATES

CONSTRUCTION of the proposed 800-ton selective flotation mill by the Combined Metals Reduction Company at Pioche, Nevada, will depend entirely upon the silver and zinc markets. No action will be taken at this time and it is probable that nothing will be done until late in 1939.

The proposed plant will treat Combined Metals ore and will also accept custom work. Plans call for the mill building to be constructed without windows, artificially lighted, and air-conditioned. E. H. Snyder, Salt Lake City, is general manager.

ASSESSMENT MORATORIUM BILL INTRODUCED INTO CONGRESS

SENATOR MURRAY of Montana has announced that he will demand prompt congressional action on his proposal to continue the assessment moratorium during the current fiscal year. The bill introduced by the senator is the same as those which have been adopted by congress yearly since early in the depression despite opposition by the Department of the Interior and the United States Bureau of Mines.

The bill would waive the provision in federal law requiring prospectors of the United States and Alaska to perform \$100 worth of assessment or development work annually in order to hold their claims. Only individuals exempt from payment of an income tax for the 1938 taxable year, however, would be eligible for relief under the legislation.

The proposed moratorium would apply to not more than six lode mining claims held by the same person or to not more than 12 held by the same partnership, association, or corporation. Similarly, it would apply to not more than six placer mining claims of not to exceed 120 acres held by an individual, or to not more than 12 such claims of not to exceed 240 acres held by the same partnership, association, or corporation.

If the moratorium is extended, individuals or groups coming under its provisions will have to file notice of intention to hold their claims by noon, July 1.

KING LEASE CREW PRAISED RECEIVES SAFETY AWARD

THE COLORADO safety award for 1938 was presented to King Lease, Inc., operating the Camp Bird mine at Ouray. Presentation was made by the Colorado industrial commission and the state compensation insurance fund and was in the form of a shield of silver mounted on walnut. This recognition was given for the mine in the state, employing 50 men or more, with the best safety record, that is a record showing least compensation received in proportion to the money paid into the state insurance fund.

Dan McNaughton, mine inspector for the territory stated, "This honor is one that reflects extreme credit, not only upon the management of the mine, but upon the entire crew of the King Lease. It means that no safety measure in the operation of this mining concern has been neglected and it also means utmost care on the part of superintendents and foremen and close cooperation on the part of every employe." In connection with this latter statement, credit was given R. S. Dunn, general superintendent; Franklin A. Bell, mill superintendent; and Thomas Wright and Charles N. Bell, Jr., mine foremen.

The King Lease, Inc., Charles N. Bell of Ouray, president and general manager, employs over 50 men and produces about 100 tons of gold, silver, lead, and copper ore daily. In 1938 the company extended its development and mining below the third level and started development in the west heading of the lower adit level, 1,450 feet below the third level.

and the operators are planning to install a cyanide mill.

The **Western Exploration Syndicate**, H. D. Ramsay, manager, and David Lawrence, field representative, has established offices at 10 I. M. George Building, Kingman, Arizona. E. Ross Housholder of Kingman has been retained as consulting engineer. The syndicate will carry on mine operation and exploration and several properties have been taken over in the Kingman district. A carload of lead ore was shipped recently from the Kane mine in the Cerbat district 16 miles north of Kingman, one of the properties under development. The ore is being shipped to manufacturers of chemicals and paints at Richmond, California. Regular shipments are to start as soon as the mine is equipped to assure a steady output.

Burton Brothers' 100-ton **Tropico** mill at Rosamond, California, recovered approximately 8,800 fine ounces of gold from



more than 35,000 tons of ore during the past year. A large portion of the ore milled was from small mines and prospects in the district. There were 43 regular shippers during the year in

addition to many who made single or intermittent deliveries. In addition to its custom business, the mill treated ore from the **Tropico** mine, also operated by Burton Brothers.

Extensive development work is planned at the **Alpha-Derrer** mine properties near Goodyears Bar, California, as soon as weather will permit in the spring. The properties have been under option to the Rare Minerals Association, McFarland, California, since July 1, 1937, and this option is still in effect. The claims are owned by the **Alpha Gold Mining Corporation**, W. A. Derrer, president, 4609 Palm Drive, La Canada, California.

The main tunnel at the property of the **Genesee Consolidated Mines Company** near Walkermine, California, is in more than 670 feet and good progress is being made. The material taken out in the process of driving the tunnel is said to show copper values of from 3 to 5 per cent and it is being stockpiled for milling later on. Operations are directed by George Baglin, vice-president and general manager, Felt Building, Salt Lake City.

The water in the shaft at the **Redman** mine, Julian, California, has been lowered to the 180-foot level and pumping machinery has been installed to handle almost any amount of water. The shaft has been re timbered. The property is being developed under lease from the **Moro Bay Copper Company** by Carsten and Dewey S. Truelssen.

The new two-compartment shaft at the **Ranchito** mine, Julian, California, has been sunk to a depth of 330 feet and crosscutting is under way to reach the old workings. A rich streak of high-grade ore was encountered in the mine recently. Martin Brothers of Hemet, California, are devel-

oping the property. The mine is equipped with a stamp mill.

Lane and Jacobs, Julian, California, are driving a crosscut tunnel at the **Gardner** mine with a view to opening up the property several hundred feet below the old shaft. The vein is expected to be reached with another 40 feet of tunnel. Much high-grade ore is reported to have been taken out in previous operations.

Carl Lomax and associates have installed sand pumps mounted on pontoons in Coleman Creek near Julian, California, and are carrying on placer operations. Bedrock is expected to be reached at a depth of 40 feet, where coarser gold is expected. The upper sands were worked by pioneer placer miners and still contain much fine gold.

A stamp mill is being installed at the **Ella** group of claims near Julian, California, by J. M. Collins and his wife. Before reopening the mine it is planned to mill the old dump, which is said to carry values averaging close to \$8 per ton in gold.

William Keener and associates are mining a high-grade streak of ore on the **Harper** ranch near Julian, California, and are considering installation of a mill in the near future.

Despite an increase of 6.36 per cent in tons mined, **Alaska Juneau Gold Mining Company**, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reported a decrease of 12.24 per cent in total estimated profit before depreciation, depletion, and income taxes for January, 1939, compared with the preceding month, and a decrease of 21.26 per cent compared with January, 1938. The estimated profit for January amounted to \$123,300. A total of 415,390 tons of ore were mined and trammed to mill, producing an average revenue of 98 cents per ton. Stockholders of the company, at the annual meeting, April 4, will vote on board actions of 1938. The company purchased 12,500 shares of its stock in the open market and the board desires that they be regarded as surplus funds and not as stock to be retired. Approval of contract whereby Juneau takes full possession of property and equipment of the **Harvard Gold Mining Company** at Jamestown, California, is also sought. The board further desires to acquire 700 of the 950 shares of the **Pacific Mining Company** stock outstanding. Salary and bonus arrangements made some years ago by F. W. Bradley, former president of the company, have been extended to include present officials, and the stockholders will be asked to approve this plan as well.

Extensive development is planned in the spring for the **Reliance** group of claims located near Graniteville, California. The property is owned by the **Reliance Placer and Quartz Mining Company**, Mrs. Kittv B. Kimball, president, Nevada City, California. A tunnel now in 172 feet will be extended to a depth of 800 or 900 feet. Water from the Middle Yuba River will be drained through the tunnel in order to mine about 3,000 feet of river bed.

The **Greenhorn Dredging Company**, Nevada City, California, is operating a drag-

line in the **Greenhorn** district above **Red Dog**. Testing operations have been under way for several weeks. Six men are employed.

William Tompkins, Nevada City, is leasing the **Golden Poppy**, **Fort Washington**, and **Mountain Side** claims on Round Mountain and is driving a tunnel to contact the channel.

R. L. Turner, Mojave, California, and Lawrence Smith, Bakersfield, California, will begin mining operations shortly at their property in the **Piute Mountains**. A portable compressor will be used and all work will be done with air drills.

Officials of the **Pride of Mojave Mining Corporation**, Mojave, California, have announced plans for accepting custom ore at the company's flotation plant. The plant was recently completed as the first unit of a 75-ton installation. J. J. Murray is supervising engineer at the property.

F. N. Tillotson, Auburn, California, has made application to the California Debris Commission for a permit to carry on hydraulic mining at the **Big Chief** mine near Michigan Bluff in Placer County, with drainage into the Middle Fork of the American River. It is planned to store tailings in a dry ravine across from the mine and later behind the proposed **Ruck-A-Chucky** dam.

The **Lost Camp Mining Company**, Blue Canyon, California, has applied to the California Debris Commission for a permit to carry on hydraulic mining at its property in Placer County. Drainage will be into Blue Canyon Creek, thence into the North Fork of the American River where tailings will be stored behind the North Fork dam. A. O. Johnson is president of the company. Dan A. Nippell is general manager at the mine.

The **E. L. Lilly Company**, Ernest L. Lilly, operator, 828 North Tuxedo Street, Stockton, California, has been authorized to divert one cubic foot of water per second from the Cosumnes River for mining purposes. The company is working a gravel property in the **Jenny Lind** district near Wallace, California.

A permit has been issued to the **U. S. Chrome Mines, Inc.**, A. H. Wild, president, 2238 Hyde Street, San Francisco, for diversion of 200 gallons of water per minute from the North Fork of the American River for mining purposes. The diversion will cost approximately \$10,000. The water will be used in the operation of the company's new 100-ton chrome concentrating plant at its properties in El Dorado County. The plant is to be increased to 150 tons as soon as the water is made available.

C. L. Hebenstreit has installed a gravel plant at his drift gravel property located about three miles from Auburn, California. A crew of several men is employed under the direction of Joe Foster, foreman.

The **Two Orphans** mine in the Rock Creek district near Auburn, California, has been optioned to E. Y. Taylor. The mine, also known as the **Locatelli** property, was opened to a depth of about 100 feet several years ago when it was being operated under the direction of Thomas Campbell for Herbert Hoover and associates.

Joseph Bardini of San Francisco has bonded 300 acres near Pine Grove, California, from F. A. Kimball of Pine Grove. He has sunk a 100-foot shaft through the lava cap and is now in gravel which shows some gold. Drifting is under way with a view to opening up the channel.

E. B. Cleveland and E. E. Morrow of Modesto, California, have taken a lease and option on the Miller mine near Jamestown, California. The agreement covers a period of five years during which time the lessees may purchase the property for \$10,000. The owners will receive 25 per cent of any proceeds from operations.

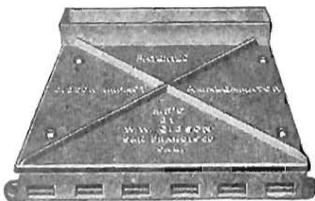
Emery Barney and Ralph Watson are engaged in developing the Lindy mine near Clear Creek, Siskiyou County, California.

The September Queen Mines Company, recently incorporated with a capitalization of \$200,000, has been authorized to sell 115,047 shares of stock. The company, whose headquarters are located in the office of Manwell and Manwell, Odd Fellow Building, Marysville, California, will operate a quartz property two miles from Berry Creek, Butte County, California. Dr. E. A. MacBeth, retired heart and nerve specialist of New York City, heads the company. MacBeth and associates acquired the property last September from C. H. Johnson of Berry Creek and extensive development work has been done. A 30-ton ball mill and flotation plant has been installed and is operating on a 24-hour basis. Approximately 10,000 tons of ore have been blocked out which are said to average about \$15 per ton. A tunnel being driven through Yankee Mountain struck the vein at 280 feet and at 350 feet the values are said to be increasing. At present a crew of 23 men is employed and this number will be increased as work progresses. Plans are being laid for a new mill and a smelter. Cottages to house the workmen are being constructed near the mine. Other officials of the company include Jessie N. Way, Berry Creek, vice-president, and Trevor J. Long, Oroville, California, secretary-treasurer.

John Garavanta, Sonora, California, has taken a lease and option on the Champion mine of the Carda Mining Company located near Coulterville, California, for a consideration of \$60,000. Frank Notterman of Coulterville has been in charge of the property for the mining company. The mine, which has been closed down for about three months, is to be placed in operation at once.

The 50-ton all-slime reduction plant of the Gold Crown Mining Company has been moved from Riverside County to San Bernardino County, placing it much closer to Twentynine Palms, California. The plant, which handles custom ore in addition to the company's output, is operating on a three-shift basis. A crew of about 40 men is employed. The mill is powered by a 300-horsepower Diesel which also furnishes power for all other equipment as well as light, heat, and refrigeration to all the homes of the Gold Crown community. George A. Novell, 823 Petroleum Securities Building, Los Angeles, is president of the company. Edward Novell is general manager at Twentynine Palms.

SAVES GOLD OTHERWISE LOST

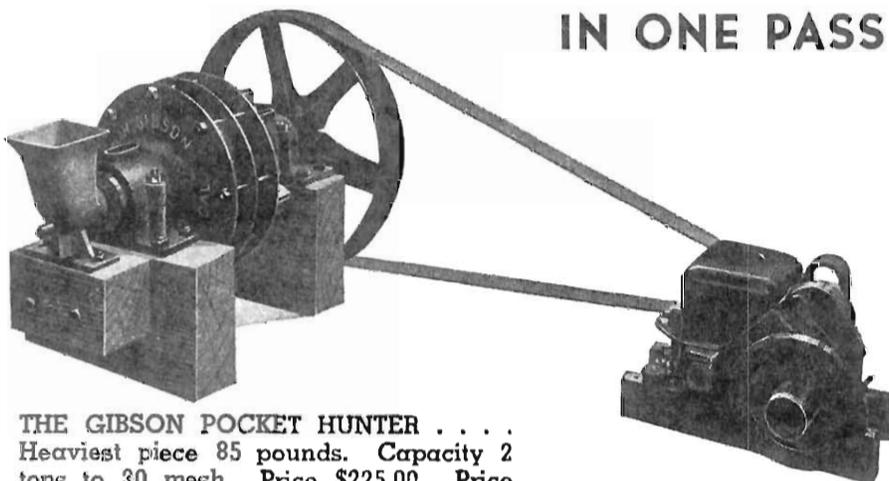


The Gibson Impact Amalgamator

Built in sizes from 25 tons to 2000 tons capacity

Repeat orders coming in from all parts of the world are positive proof of the efficiency of the Gibson Impact Amalgamator in saving the fine gold, amalgam and mercury that escape from the other amalgamating devices.

CRUSH, GRIND and AMALGAMATE IN ONE PASS



THE GIBSON POCKET HUNTER

Heaviest piece 85 pounds. Capacity 2 tons to 30 mesh. Price \$225.00. Price with belting and 1½ h.p. engine \$290.00.

The Pocket Hunter will crush two-inch material, grind and amalgamate in one pass. The wearing parts of the mill are built of manganese steel and the balance of heat-treated chrome-nickel steel. The mill is built for mule-back transportation and is guaranteed unbreakable. Will be taken back in exchange for 10-ton mill any time inside of one year. Never before has such value been offered to the mining public. Also built in 5, 10, 12, 25, 50, and 100-ton capacities, which will handle FOUR, SIX, and EIGHT INCH material without a rock breaker.

Write for catalogue describing Gibson Counter Balanced Rod and Ball Mills, Prospectors' Friend Mills, Flotation Cells, Amalgamators, Concentrators, Rock Breakers, Ore Feeders, Mercury Feeders, Oil Feeders, Retorts, etc.

W. W. GIBSON

1801 Webster Street

Alameda, California

HOLLOW

DETACHABLE DRILL RODS

MINING DRILL STEEL

CHISEL STEELS

SOLID

SANDVIK STEEL INC.

OF CALIFORNIA

651 West Washington Boulevard

Los Angeles, California

FLUORESCENT ANALYSIS WITH ULTRA-VIOLET RAYS

Do you mine scheelite?, mercury?, or gold and silver which is associated with zinc? If so the FLUOROLIGHT is absolutely essential to you. It is saving many mines thousands of dollars annually.

Over 25 Fluorescent minerals are found in the Western States.

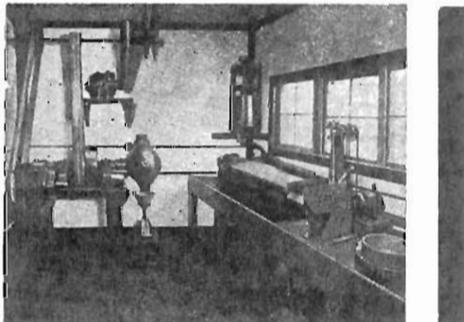
Lamps sold on Money Back Guarantee basis.

Write for complete information at once.

Dept. MJ3

ULTRA-VIOLET PRODUCTS, Inc.

6158 Santa Monica Blvd.
LOS ANGELES, CALIF.



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.

Salt Lake City - McIntyre Building
Mexico, D. F. - Boker Building



DRY BANK PLANTS
BODINSON
BUILT
DRAG LINE DREDGES

2401 Bayshore Blvd., San Francisco

Cosumnes Mines, Inc., Edward S. Miller, president and manager, Grizzly Flat, California, has secured approval of a \$20,000 RFC mine development loan for use at the company's property located near Grizzly Flat.

A profit of \$37,706 for December is reported by the Argonaut Mining Company, Ltd., Jackson, California, which includes other income and is after the Plymouth mine and fire account losses but before depreciation, depletion, or income taxes. This compares with a profit of \$36,931 in November and \$20,810 in December, 1937. Improvement in the company's earnings in October, November, and December was sufficient to overcome partially the loss caused by the fire and flood at the company's mine at Jackson a year ago. A loss, before depreciation, depletion, and taxes, of \$9,588 is reported for the year 1938. Alex Ross, Jackson, is general superintendent of the company.

The Canyon Creek Gold Syndicate, Harold A. Wootton, manager and director, 308 Jackson Building, Buffalo, New York, has been organized to develop several placer gold claims in the Howland Flat mining district of Sierra County, California. The syndicate proposes to drill several test holes to determine the location of the gravel bed. If values in commercial quantities are found, it is planned to sink a shaft to bedrock through which the gravel will be hoisted to the surface. Recovery will be made by means of sluice boxes.

The California Debris Commission held a public hearing February 1 to receive protests against the granting of an application of F. C. Cutland to mine by hydraulic methods at the Cutland lease located 15 miles northeast of Chico, California. The tailings would drain into Butte Creek.

Whitmore Mines, Inc., has made a rich gold strike at its property on Soledad Mountain near Mojave, California, according to an announcement by George J. Andersch, vice-president. The company has shipped approximately 500 tons of ore recently to the Golden Queen mill for treatment, from which an average of \$15.80 was realized. The high-grade samples carried values ranging from \$52 to \$122 per ton. An extensive deposit of ore is indicated, and several thousand feet of development work have been completed. Three shafts are in ore. Bin storage capacity has been increased to permit shipping in 50-ton lots. C. D. Wilkerson is engineer in charge of operations and Glenn Lowry is mine foreman.

A gold strike of considerable proportions has been reported at the Our Chance mine in the Sherlock district near Mariposa, California. The property is owned by A. E. Clark who is continuing development. The mine has been operated by Clark for a number of years.

The new 60 to 75-ton capacity milling plant at the property of Quail Gold Mines, Inc., Coulterville, California, is operating one shift daily, due to an insufficient supply of water. Plans for developing additional water are being considered. About 1,000 tons of ore from the dump have been put through the mill during trial runs and at present ore is being mined from

shoots developed the past four years, which have carried good milling values. The plant includes a ball mill and recovery is by flotation. Otto D. Rohlfis is superintendent.

First ore extracted below the 550-foot working level of the King Solomon mine, Randsburg, California, is reported to have returned almost \$75 per ton from a trial shipment of 20 tons. The ore was taken from a winze on the Nosser vein. The mine is being worked under lease by several groups, one composed of James Nosser, J. H. Christensen, Emil Schultz, and Max Hess, all of Randsburg.

The Saline Valley Mining Company is employing 10 men at the Big Silver mine near Darwin, California. The mine, which carries values in silver, is being developed under the direction of Paul Bolton, president, 203 1/2 South Park View Avenue, Los Angeles, California. A number of other properties in the Saline Valley district are also under development. Among these are the Blue Monster, where Dr. McLean of Los Angeles is employing four men; the Gold Standard, also working four men; and the Sam Spear property where Bill Sandy is doing development work with a crew of six men.

The Operator Consolidated Mines Company, Johannesburg, California, reports a gold production of approximately \$6,000 for January, according to E. A. Weller, president, Bank of America Building, San Jose, California. Operating expenses for the month totaled \$2,200. The newly encountered vein at the property is said to be maintaining its width and value as work progresses. The company operated the mill on a two-shift basis during the latter part of the month. Harold G. Hunt, secretary and manager, is directing work at the property.

Metallic Mines, operating the Longfellow property at Big Oak Flat, California, has amended its articles of incorporation to provide for a capital stock increase from 25,000 shares to 100,000 shares at \$1 par value. A. L. Blair, 8 West Weber Avenue, Stockton, California, is president.

J. F. Foran, 6362 Hollywood Boulevard, Los Angeles, California, and Lee Richardson, Los Angeles, have organized the Dale Chemical Company to carry on operations in the Dale dry lake district on the Mojave Desert, near Dale, California. They have acquired a 99-year lease with an option to purchase 40 claims in the district, comprising 1,400 acres. The lease was secured from the Chemical Mining Company of Nevada, owner of the property. Sodium sulphate, sodium chloride, and other sodium products will be extracted, and the agreement calls for installation of equipment capable of producing 50,000 tons of sodium sulphate and other sodium compounds annually. Minimum royalties of \$15,000 per year are provided for, each to be deducted from the purchase price of \$1,250,000. Irving E. Bush, 1204 West Thirty-first Street, Los Angeles, vice-president, and C. W. Hobson, assistant secretary, represented the Chemical Mining Company in the transaction.

The Shaffer Gold Mines, Seneca, California, has completed a 900-foot six by

seven foot work tunnel at its **White Lily** mine located six miles below Lake Almanor on the North Fork of the Feather River. The new tunnel taps the old Del Monte workings 2,000 feet behind the portal of the original haulage tunnel which has been caved for several years. The old Del Monte workings include some 3,000 feet of drifts, crosscuts, and raises, all in hard rock, which were last worked about 16 years ago. The main vein, known as the Van Winkle, is 90 feet wide and has assayed up to \$65 per ton in the past. The vein has a pitch of 47 degrees and runs southwest. It has a greenstone footwall and a slate hanging wall. More than 1,000 feet of backs are available. B. F. Barbee is superintendent at the mine. The company is headed by C. B. Shaffer, 33 South Clark Street, Chicago, Illinois.

Construction of the new No. 20 dredge of the **Yuba Consolidated Gold Fields, Ltd.**, at Hammonton, California, is well ahead of schedule according to the Yuba Manufacturing Company, San Francisco, California, the builders. About 185 men are employed and the boat is expected to be in production some time in May. Designed to be the world's largest gold dredge, the hull of the boat was launched December 21, less than one month after work was started. General specifications of the dredge, as released by the builders, are as follows: A steel hull 250 feet long, 80 feet wide and 11 feet deep. The total weight will be about 3,750 tons and the boat will have a digging depth below water level of 115 feet, but will be capable of working against a bank which may include a tailings pile 50 feet or higher. It will be equipped with a monitor on the bow which will be used for knocking down high banks. The boat will be electrically operated by equipment capable of generating 2,000 horsepower. F. C. Van Deirse, 351 California Street, San Francisco, is vice-president in charge of operations for Yuba Consolidated.

The **Desert Gold and Aluminum Corporation**, S. C. Hedrick, president, Arcade Building, Seattle, Washington, is engaged in testing a new type of washing plant at the company's 2,200-acre property in the Chocolate Mountain area in Imperial County, California. Test holes have been drilled to determine the values, water has been developed at a depth of 700 feet, and considerable underground work has revealed a large yardage of pay gravel. Approximately \$100,000 has been spent by the company in development of the property and in the erection of a plant with a capacity of 600 cubic yards per day. Power is supplied by two Diesel engines of 150 and 85 horsepower. Sixteen men are employed.

Hydraulic mining is to get under way at the **Eureka** mine seven miles northwest of Downieville, California, as melting snows provide the necessary water. The property has been equipped with two monitors. Approximately 20 miles of flume and ditch have been constructed and a storage dam has been built to retain the water. The operating season only lasts about 90 days and it is expected that 100,000 yards of gravel will be washed during

the present season. The mine is owned by Jerry Bickel of Nevada City, California, and John Lee, Goodyears Bar, California, is mine foreman.

The management of the **Amethyst** mine in Mineral County near Creede, Colorado, has been taken over by the **Creede Mills, Inc.**, Thomas P. Campbell, Patterson Building, Denver, president. The Campbell interests acquired the property as of February 1 and it is understood that other mines in the Creede district will also be acquired. On February 6, 1939, Creede Mills, Inc., signed a 10-year lease with Creede Mines, Inc., controlled by A. E. Humphreys, First National Bank Building, Denver. Development of a large area of unopened ground will be carried on through the Amethyst No. 5 tunnel. The Amethyst mine has been worked by W. C. Sloan, the Nelson brothers, and other lessees during recent years. The milling concern has been treating district ores in its 100-ton plant for the past year.

Plans to sink deeper in its property have been announced by the **Allie Bell Mining Company**, operating on the Proper mine at Cripple Creek, Colorado. A new five-drill 75-horsepower compressor and generator have been ordered and a change room is under construction to accommodate an increased number of employes. Production will be increased to about two

carloads of ore daily. The company, working in a winze below the Proper tunnel, struck high-grade gold ore. The present crew numbers 18 men under the superintendency of Eugene Duffy, Cripple Creek.

Deeper development work will be undertaken in the **American Eagles** mine at Victor, Colorado, of the **American Gold, Inc.** High-grade was recently opened in the Giblin lease on the 2,130-foot level, the bottom level of the mine, and further work will be carried on from that section of the property. Henry Pavlat, 1620 Cook Street, Denver, is president and Lynn Richmond of Victor is general superintendent. Work is being done by split-check lessees.

According to reports, the **Boulder Tungsten Products Company** has succeeded the **Tungsten Sampling and Refining Company** and will operate the plant west of Boulder, Colorado. Offices are at 200 Pearl Street, Boulder, and M. E. Schulz of Boulder is president. John H. Harnly is general manager. F. A. Plummer, Boulder, metallurgist for the Tungsten Sampling company, will continue in this post under the Boulder Tungsten Products Company. D. W. Schmitt, Box 470, Boulder, was in charge of the new company's predecessor.

A regular quarterly dividend of \$1 a share, amounting to \$187,500, has been declared by the **Golden Cycle Corporation**, payable March 10 to stock of record Feb-

★
SMASHING THEIR WAY
 ★
 ...to Lower Grinding Costs!
 ★
COLORADO Forged Steel GRINDING BALLS
 Gen'l Offices: Denver, Colo. **The Colorado Fuel and Iron Corporation**
 Steel Works: Pueblo, Colo.

The Effect of Government Purchases of Silver

THE DEBASING of silver coinage, which occurred on a world-wide scale after the World War, and the widespread abandonment of silver as a monetary metal provoked severe repercussions in the silver market. Prices declined sharply from 89.1 cents per ounce (New York) in 1925 to 53.0 cents in 1929 and to 27.9 cents in 1932. This was accompanied by an abrupt fall in domestic mine production from 66,700,000 ounces in 1925 to less than 61,000,000 ounces in 1929. With the advent of the depression silver production fell to less than 23,000,000 ounces in 1932.

During the first two months of 1933 the price of silver averaged less than 26 cents an ounce, but following the inauguration of the new administration on March 4 various laws pertaining to monetary metals were enacted as a result of which silver prices advanced rapidly. On December 21, 1933, the President, by proclamation, established the price of newly mined domestic silver at 64.6465 cents. On April 10, 1935, the price was increased to 71.11 cents and on April 24 to 77.57 cents, where it remained until January 1, 1938, when it was reduced again to the 64.6465-cent level.

Since 1933 mine production of silver in the United States, exclusive of the Philippine Islands and Puerto Rico, has been as follows:

1933	23,130,596
1934	32,782,304
1935	48,518,639
1936	61,152,534
1937	70,936,074

Production in 1937 was over three times greater than in 1933 and was the largest annual output since 1916. Owing to the fact that two-thirds of the silver is obtained as a by-product from ores mined principally for other metals all of the above increase cannot be attributed solely to the increase in the price of silver. Increasing industrial activity during these five years has called for larger tonnages of copper, lead, and zinc and the production of by-product silver has risen accordingly.

Nevertheless, higher prices have stimulated straight silver mining to a surprising degree. From 1933 to 1937 the quantity of silver obtained from ores mined chiefly for their silver content increased over 400 per cent, from 4,400,000 to 23,400,000 ounces. Most of the western states participated in this increase as is shown by the adjoining table.

Further evidence of the importance of silver and silver prices to our western mining industry is found in various volumes of Minerals Yearbook, the official annual

*Washington, D. C.

The United States Bureau of Mines has determined that the higher prices paid for silver by the United States government since 1933 have stimulated mining and employment to a surprising degree. The quantity of silver produced from silver ores increased over 400 per cent from 1933 to 1937.

statistical publication of the bureau of mines. As early as the summer of 1933, when the price of silver was rising, this agency called attention to the idleness prevailing at silver mines in the following statement taken from page 12 of Minerals Yearbook 1932-33:

"United States production in 1933 will be under 24,000,000 ounces, because, with the condition of mines known for the first six months of 1933 and with all possible factors taken into account, silver-bearing properties cannot be opened quickly enough during the last six months of 1933 to increase the yearly production over that of 1932."

Page 130 of the same volume contains:

"Any revival in the price of silver will benefit mining as it is a by-product in almost all of the copper, lead, and zinc ores mined in Nevada."

The 1934 volume (pages 265-6) states:

"The improvement in price of silver at the close of the year resulted in immediate reopening of the Park City Consolidated property at Park City and the Utah-Apex mine at Bingham."

In a discussion of the President's proclamation of December 21, 1933, wherein the price of silver was fixed at 64.6465 cents, the following comment is made:

"The results of this proclamation were the reopening almost immediately of those mines which had known reserves but had closed in July, 1930, when silver reached 30 cents an ounce, such as the Presidio mine at Shafter, Texas, and the mines at Creede, Colorado, and an increase in production of those which had struggled to exist from 1930 to 1933, such as the silver-lead mines of Utah and Idaho." (Minerals Yearbook 1935).

Again the impetus to silver mining resulting from rising prices is emphasized in a review of the mineral industry in 1935.

"The mine output of silver increased from 82,850,000 ounces in 1934 to 48,500,000 in 1935 (excluding the Philippine Islands) under the im-

Silver Produced in the Western States from Silver Ores 1933 and 1937, in fine ounces.

State	1933	1937
Arizona	28,914	1,093,141
California	1,381	966,874
Colorado	70,803	698,050
Idaho	3,415,524	14,119,025
Montana	52,416	1,978,490
Nevada	469,249	1,224,909
New Mexico	987	9,855
Oregon	6,929	134
Texas	160	1,325,660
Utah	376,358	1,963,837
Washington	613	17,866

Total for Western States 4,423,339 23,402,391

petus of a rising price paid by the United States Treasury for newly mined silver." (Minerals Yearbook 1936, page 22).

Beneficial effects of higher prices for gold and silver in Nevada and Colorado are recorded as follows:

"The higher price of silver established by the United States Treasury in 1935 continued to stimulate mining in the state." (Minerals Yearbook 1937, page 431).

"Because of the widespread occurrence of gold and silver in Colorado ores, the maintenance by the government of the price of gold at \$35 per ounce and of silver at \$0.7757 per ounce helped greatly to stabilize employment and encourage expansion in the metal-mining industry of the state in 1937; the combined gross value of the output of these two metals was \$17,754,321." (Minerals Yearbook 1938, page 258).

Conversely, adverse effects on production in Nevada as a result of the reduction in the silver price in 1938 were anticipated on page 362 of the 1938 volume.

"The leveling off in the rising productions of the gold and silver industries seemed significant; there appeared to be a strong probability that the stimulus given Nevada's precious-metal mines by the higher prices offered by the government for gold and silver had run its course. The lower price announced for domestically mined silver for 1938 seemed likely to bring about a recession in silver production."

In discussing the trend in metal mining in Texas from 1933 to 1937, the importance of the price of silver is cited.

"As virtually all the gold and lead and much of the copper produced were by-products of silver mining, the comparison shows that a silver price high enough to keep the silver mines working is essential to the mining industry to remain an important one." (Minerals Yearbook 1938, pages 427-8).

STATISTICS are not available showing employment resulting directly from higher silver prices, but from the foregoing quotations it is evident that substantial numbers of idle workers have been reemployed. Such employment as has resulted from the increase in straight-silver mining previously mentioned, may be credited largely to the increase in the price of silver. This gain cannot be stated in numbers, but along with the added employment in gold mining it has been an important factor in the following rise in employment in gold, silver, and miscellaneous metal mining (mostly gold and silver) as reported by the bureau of mines:

Year	Employment	
	Men	Man-Shifts
1932	21,094	5,000,040
1933	23,777	5,538,101
1934	29,781	6,936,991
1935	53,018	11,209,789
1936	51,152	12,316,194

The figures indicate increases of 143 per cent in men employed and 146 per cent in man-shifts between 1932 and 1936. Besides this increase in employment higher prices of gold and silver have contributed to higher wages and other worker benefits.

Higher prices for silver likewise have increased the money yield of ores mined, principally for gold, copper, lead, and zinc,

(Continued on Page 28)

Action Taken by Western Legislatures

DECISIVE action had been taken on scores of mining measures in western state legislatures by early March as most lawmaking bodies cleared their desks for adjournment. Although important measures were still pending in several of the states, two of which had barely started action on bills, legislatures of Wyoming, Idaho, and Montana had completed their work and adjourned.

In Oregon, the legislative session had passed the 40-day mark and legislators were working on without pay. Legislatures in California and Colorado will probably be meeting well beyond the end of the current month, while those of Arizona, Nevada, New Mexico, Utah, and Washington are nearing adjournment.

Developments of the past month occupying the attention of the mining industry follow in a state-by-state summary:

ARIZONA—Final legislative approval has been given the Department of Mineral Resources bill which embodies much of the legislative program of the Arizona Small Mine Operators Association. The law sets up the machinery for aiding the development of mineral resources by studying the problems faced by prospectors and mine operators, making mineral surveys, and by disseminating information to encourage capital to invest in the development of the state's resources. The measure carries an appropriation of \$30,000 annually.

The bill, also sponsored by the small mine operators, relating to the stealing of mining machinery was enacted. The enactment of this law makes stealing or destroying mining equipment on idle or isolated properties a felony and requires those who have mining machinery in their possession to have evidence of ownership.

Bills are pending to extend from the 2,400-foot to the 5,900-foot level the bell signal code for mines, to require heated washrooms at all mines employing 10 or more men instead of the present 25 or more, to recommend to the highway department that the greatest possible use be made of copper in the construction and maintenance of highways, and to require that mining operators post bonds with the industrial commission for double the amount of the semi-monthly payroll.

CALIFORNIA—After a recess of almost six weeks, the California legislature resumed its deliberations March 6. Among the more important measures receiving consideration, none of which has yet been subjected to a decisive vote, is the bill which provides for the creation of a state department of mines. It is proposed that the new department be administered by a director responsible to a non-salaried board in much the same manner as Arizona's Department

The outstanding piece of legislation of interest to mining men has been the passage and signing of the bill which establishes a Department of Mineral Resources for Arizona. To date, wages-and-hours legislation in the western states has not been meeting with favor.

of Mineral Resources. The enactment of this measure would remove the present division of mines from the department of natural resources.

Another bill aims to discourage high-grading of gold by requiring that on delivery of ores, concentrates, gold dust, bullion, nuggets, or specimens to a licensed gold buyer, the seller must sign the record book and be finger printed.

A severance tax bill is being considered which would levy a tax of 1 per cent on the market value of minerals extracted. There is also a long list of labor measures pending which would affect mining.

IDAHO—Three measures that would have seriously hampered Idaho's mining industry failed to pass. A house bill seeking to increase the mine operators' license tax from 3 to 5 per cent of the value of ores extracted was killed without reaching the floor for a vote. Without debate, the senate killed by a vote of 32 to 10 a bill which would have established a seven-hour day instead of the present eight-hour day for workers in mines, mills, and smelters. The senate also killed a bill to curb stream pollution by a 30-to-9 vote.

Bills were approved to set up a department of research for occupational disease, to provide that permits for dredging must be obtained from the state land board, to restrict picketing to persons who had been employes of the firm picketed for a least 30 days prior to the calling of a strike, and to exempt trucks transporting products of mines from regulation under the public utilities commission. The latter measure is designed to permit truckers to resume hauling ores to Mountain Home, Idaho, from Mountain City, Nevada. At present Mountain City ore goes to Elko, Nevada.

After receiving a substantial senate majority, a bill that would have provided that any company or person about to go into

the mining business must have sufficient funds on hand to pay workmen for all contemplated work was killed by the house by a 34-to-4 vote. The measure was described as favoring big companies and restricting the work of prospectors.

MONTANA—The house killed a bill which would have made silicosis a compensable disease by adopting an unfavorable committee report. The bill was described by mining industry representatives during a public hearing as one which would work a hardship which no mining business could stand.

Resolutions approved asked congress to continue the present price of silver, and urged that silicosis victims be included under the public welfare act, that copper be used to a greater extent as a conductor in projects under TVA and REA, the establishment of a basic metals control board, and requested that encouragement be given the development of the manganese and chromium industry.

By an overwhelming standing vote in committee of the whole, the house of representatives killed a bill which would have established a labor relations board. A month ago, a state wage-hour bill was defeated. A bill which would have made mandatory the leveling of plant tailings was also killed.

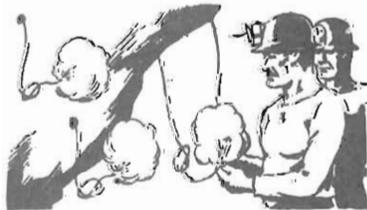
The legislature approved and the governor signed a bill requiring posting of bond as security for wages by mine and oil-well operators who do not own half the property they are working. The governor's approval was also given a measure appropriating \$1,080 to continue an investigation of occupational diseases.

NEVADA—Senate approval was given a joint resolution asking congress to pass appropriate legislation for erection and construction of four milling plants at federal expense. Terms leading to payment to the government of principal and interest for its investment in such plants are suggested in the resolution, after which title to the mills would rest in the state. The resolution awaited house action and the governor's signature, both expected to be favorable to the resolution.

Other resolutions urged congress to approve the silver purchase act, to pass legislation providing for loans on mining property, to continue the excise tax on foreign copper at not less than 4 cents per pound, and to provide legislation calling for the purchase and storage of war metals.

The house approved a bill requiring evidence of ownership of used mine equipment before it may be transported, and the same body killed a bill which would have eliminated exemption of owner-operated property and thus placed all mines under the provisions of the mine inspection act.

(Continued on Page 32)



*Milwaukee, Wisconsin.

months of the time the mill was placed in operation. A crew of 34 men is employed at present.

The flotation and cyanide plant at the Octave mine of the American Smelting and Refining Company, Octave, Arizona, is treating 75 tons of gold ore daily, the ore coming from the workings of the Joker shaft. The company is unwatering the old workings from the No. 3 shaft where ore left by early operators will be uncovered and mined. The Octave is worked under lease from the Arizona Eastern Gold Mines Company. M. E. Pratt is general superintendent for A. S. and R. and T. A. Snedden is mine foreman and George Gemmell, mill foreman. A crew of 75 to 80 men is employed.

A filter is being installed at the Sullivan mine, Congress Junction, Arizona, to recover the water from the tailings, and another filter is being installed for the concentrates. The mine is equipped with a 40-ton plant. Operations are directed by R. A. Fredricks, general manager. E. N. Beach is mine superintendent, John M. Price is mill superintendent, and Walter R. Vreeland is mill shift boss and assayer. The mine is operated by the Navajo Exploration Company. Values are in gold.

The M. A. Hanna Company, G. M. Humphrey, president, 1300 Leader Building, Cleveland, Ohio, reports a consolidated net profit of \$799,507 for the year 1938, which is equal to 15 cents a share on common stock. This compares with \$3,048,462 or \$2.86 per share in 1937.

The installation of a 50-ton mill is being considered by officials of the Golden Key Mining Company at their property near Congress Junction, Arizona. The Golden Key is an extension of the Congress ore body and a shaft has been sunk 240 feet and is apparently very close to the ore shoot. A dump on the company's property contains 40,000 tons of material and shipments of 5,000 tons to various smelters, including the Magma Copper Company and the Clarkdale smelter of Phelps Dodge Corporation, have averaged \$7.81 per ton in gold. It is believed that the new mill will include flotation equipment, but a flow-sheet has not yet been worked out and a test shipment of ore to the Denver Equipment Company is being contemplated for that purpose. At the present time five men are working in the mine and five on the dump. P. J. Morgan, Jr., Route 10, Box 205, Phoenix, is managing the operation.

Directors of the Phelps Dodge Corporation, 40 Wall Street, New York City, have declared a dividend of 25 cents a share on common stock payable March 10 to stockholders of record February 25. The company in 1938 paid 10 cents in March, 15 cents in June, 20 cents in September, and 55 cents in December.

Magma Copper Company, 14 Wall Street, New York City, has declared a dividend of 25 cents a share on common stock payable March 15 to stock of record February 27. The 1938 payments made by Magma were 35 cents in March and June, 25 cents in September, and 55 cents in December.

Conway Brothers of Tonto Basin, Arizona, are developing the Ember vanadium claims by means of crosscuts.

Santa Fe Gold Mines, Inc., has been organized to develop the Arlington mines in Black Hawk Canyon 35 miles east of Victorville, California. It is understood that the company has a working capital of about \$250,000, and that installation of a 600-ton cyanide plant is under way at the mouth of the canyon. Ore will be mined by means of power shovels and glory hole operations, to be followed later by caving underground. The Arlington has been worked more or less intermittently

for some years by Algernon Del Mar of Pasadena, son of the original owner of the property, and associates. The process to be employed in the new plant was developed by Del Mar, who is consulting metallurgist for the new company.

Many permanent improvements have been made at the property of Cosumnes Mines, Inc., Grizzly Flats, California, and the management looks forward shortly to being able to run the 70-ton mill 24 hours a day on reasonably good ore. The company received approval of a \$20,000 RFC mining development loan, but owing to the huge amount of red tape and delay involved in its execution, and due to the more rapid development of the property



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.



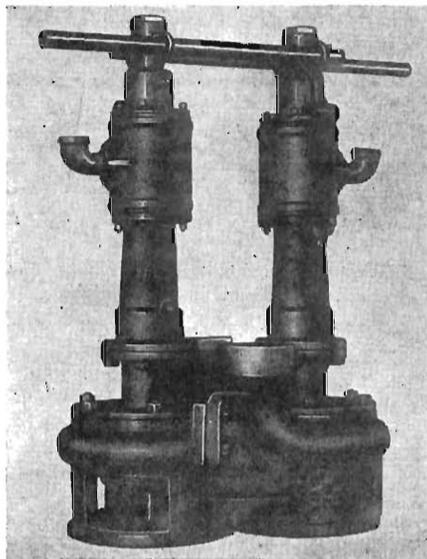
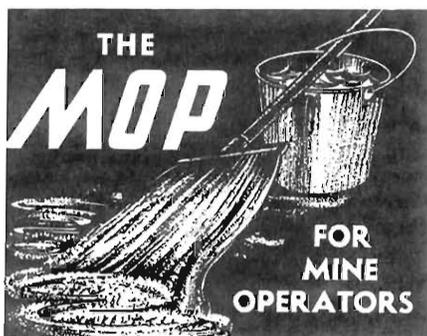
• Let us demonstrate Edison Electric Cap Lamps under your own conditions—and show how they may be installed in your mine without any initial capital outlay.

MINING SAFETY APPLIANCE COMPANY
Bradock, Thomas and Meade Streets, Pittsburgh, Pa.
District Representatives in Principal Cities



1914—25 YEARS OF
SAFETY PROGRESS—1939

EDISON ELECTRIC CAP LAMPS
M·S·A SKULLGARDS



BYRON JACKSON 2-STAGE PNEUMATIC SPONGE

Here is the handiest and most economical pump ever developed for "mopping-up" and general utility work in mines. It operates on compressed air—lowers the water level to within 3 inches of the bottom of the shaft or sump—and lifts the water 300 feet. Handles sand and other abrasives with minimum wear—passes $\frac{3}{8}$ -inch solids. For lighter service the 2-stage can be separated, each stage operating as an independent unit. Capacities on 90-pound air pressure: 25 gpm at 300 feet; 60 gpm at 250 feet; 80 gpm at 200 feet; 100 gpm at 160 feet.

SEND FOR COMPLETE DETAILS

Name.....
P. O. Box..... or Street Address.....
City..... State.....

BYRON JACKSON CO.
Dept. MI-129
Berkeley • LOS ANGELES • Bethlehem

BYRON JACKSON
CENTRIFUGAL
Established **PUMPS** 1872
FOR EVERY SERVICE

than had been originally anticipated, the loan has not been accepted. New officers of the company, who took over the management as of October 1, 1938, are Ralph Penn, president; J. Edgar Masters, vice-president and manager; and Charles G. Ranney, secretary.

The old Othick gravel property near Coloma, California, is being operated under the direction of A. C. Derrick. It is estimated that there are more than 100,000 yards of gravel to be treated. A one-half yard gasoline shovel is being used at present but heavier equipment will be installed later.

Plans for immediate construction of a mining engineering and research laboratory at the D. F. Young property two miles above Willow Creek, California, have been announced by the Frederick Gold Mining Corporation, Fred A. Finkeldey, president, Casa Del Rey Apartments, Santa Cruz, California. The laboratories will also serve two other mining operations projected by the Frederick company, both in northwestern California, and both of which are expected to be in full operation by the middle of the year. These operations will be similar to that planned for the Young property, which is to be developed under contract by Dumond and Sandberg. Equipment at the Young mine will include a 100-yard-per-hour Judson-Pacific plant with a Caterpillar Diesel generator and four Ainlay bowls. A Diesel-powered $1\frac{1}{4}$ -yard dragline will be used to move the material. Dumond and Sandberg will employ about 20 men at the outset with a possible increase if warranted. They also plan to resume work at their property near Minden, Nevada, as soon as weather conditions permit.

The St. Joseph Lead Company, 250 Park Avenue, New York City, and subsidiaries report a net profit for 1938 of \$1,331,256 after charges and federal income taxes, against \$7,127,945 in 1937. Reduced shipments and lower prices account for the falling off in earnings for the year 1938 as compared with 1937.

Extensive placer holdings near Happy Camp, California, have been acquired by the Lincoln Gold Dredging Company, headed by E. M. Clark of Oroville, California, and preparations are being completed for installation of two dredges on the property. One of the plants has been operated near Lincoln for four years. About 35 men will be employed.

Ernest Crawford and associates of Los Angeles, California, have taken a five-year lease on the Long Shot mining claim adjoining the Soledad Extension property near Mojave, California. The lease, which was secured from Lulu M. Hedman of Santa Monica and George B. Ward of Inglewood, covers 20 acres. About 100 feet of development work has been done on the claim and there is said to be \$17 ore showing in the shaft. It is the intention of the new group to drift 250 feet on the side hill in order to enter an old tunnel where development work will begin. Work is to start immediately with entirely new equipment.

The main shaft at the property of the Kennedy Mining and Milling Company,

William Sinclair, superintendent, Box 501, Jackson, California, has reached the 5,700-foot level and an exploratory drift is being run from that point. The purpose of the present work is to further develop an ore body encountered on the 5,500 level. The 1,500-ton cyanide plant, located about a mile from the mine, is operating at capacity on accumulated tailings. Murray N. Colman is directing work at the plant. The company is headed by Edward C. Hutchinson, 519 California Street, San Francisco, California.

A new dredge is under construction at Oakdale, California, for Cumle and Son, dredge operators, for use in the Orange Blossom Colony district. The new boat will be used to work the Woods, Carpenter, and Vanciel lands, which have been thoroughly tested during the past four months. It is planned to place the new dredge in operation about the first of June. Cumle and Son are also operating a boat at Le Grand and another in the northern part of the state.

A concrete bulkhead and a flume designed to divert the creek waters past the mine dump have been completed at the Palisades mine, Calistoga, California. This installation is to prevent pollution of water in the drainage area below the mine and tributary to the Napa River. The mine is operated by the Graham & Loftus Oil Corporation, whose main office is 811 West Seventh Avenue, Los Angeles, California.

Installation of a Symons cone crusher is planned for the Tropic mill, Rosamond, California, in order to handle the recent increase in the amount of custom ore presented at the mill for processing. Workmen are at present enlarging an ore bin as a preparatory step to the installation of the crusher and the bin's capacity will be increased from 100 tons to 200 tons. Mining operations have been slowed down in the Tropic mine in order to leave the mill free to handle the custom ore, and work has been confined principally to development. The Kid shaft is now lower than the ninth level of the Tropic and sinking operations have been halted. Miners are engaged in driving a crosscut at the bottom of the Kid shaft but no ore has been encountered as yet. A raise is being run from the Kid to the ninth level of the Tropic. In the Fairview shaft a drift is being run to connect with the Tropic also. Burton Brothers, Rosamond, operate both the mine and mill.

Fire in the underground workings of the Argonaut mine, Jackson, California, and a shutdown of the company's property at Plymouth, California, were factors largely responsible for a loss of \$20,660 for the year 1938 according to the annual report of the Argonaut Mining Company, Ltd. This figure is after depreciation, taxes, (except federal income), and extraordinary expenses of \$58,494 due to the fire loss and shutdown charges, but before depletion. There is no basis for determination of the last item, hence it is not reflected in the accounts. This compares with a net loss of \$5,800 on the same basis for 1937 and a net profit of \$187,539 in 1936. A reduction in other income also con-

tributed to the poorer 1938 results. During the year the company milled a total of 52,600 tons, extracting \$236,534 worth of bullion, or a net average of \$4.50 a ton. Concentrates produced, less refining charges, accounted for \$190,396 or \$3.62 a ton. After a shutdown in February due to the fire and flood, milling was resumed at the Argonaut July 15 and operations reached approximately a normal rate in August. Due to an impairment of cash position as a result of the fire losses, a total of \$30,000 was borrowed from banks and a portion of marketable securities was deposited as collateral. This amount was standing on the books at year-end. Alex Ross is general superintendent at Jackson.

George Watkin Evans, consulting mining engineer with offices in the Smith Tower, Seattle, Washington, has taken an option on the **Golden Queen** mine near Ogilby, California. The property was operated profitably for many years until commodity prices, scarcity of wood to provide fuel for pumping water from the Colorado River, and other rising costs necessitated its shutdown in 1914. It is believed that with low-cost Diesel oil and well water available nearby, together with the increased price of gold, the mine can again be made a profitable operation.

The old **Ancho-Erie** mine near Graniteville, California, has been taken over under lease and option by Gus Helbach and Fred Anderson of Grass Valley, California. They plan to start work about April 25 and will drive an 1,800-foot tunnel to contact a four-foot vein. It is exposed on the surface for a distance of about 1,000 feet.

The **Dakins Company**, Robert D. MacAfee, Jr., superintendent, Nevada City, California, is testing property along Deer Creek below Nevada City with a view to installation of a dredge there soon. The company is at present operating in the Lime Kiln district below Grass Valley.

A. H. Farran has been granted a three-year lease on property in the Melones Dam basin near Angels Camp, California. The lease was granted jointly by the Oakdale Irrigation district and the South San Joaquin Irrigation District. Farran will carry on gold dredging operations, from which the joint districts will receive a royalty of 5 per cent of the gross income.

H. C. Dudley, 704 Lonsdale Building, Duluth, Minnesota, who optioned extensive holdings in the Grass Valley-Nevada City, California districts last fall, has relinquished his options. Included in the group was the **Banner Mountain** property owned by Charles H. Taylor. Dudley also held options on the **Clark** and **Penrose** properties in the same district.

The **Emerson Gold Ridge** mine near Victorville, California, has been sold by Mrs. Sarah L. Emerson to O. D. Thomas, 924 South Catalina Street, Los Angeles, California, and E. R. McClelland. The new operators plan the installation of a mill on the property. The property was formerly known as the **Fortuna** and is reported to have yielded \$85,000 in gold from the main shaft which is 412 feet deep.

Chris Lindell and Frank Webb are reported to be contemplating the installation

of a larger plant to replace the present small pilot mill at the **Old mine** in the Union district near **El Dorado**, California. Consistent values are reported from the eight-foot ore body being mined at present.

The **MacDonald** property located north of the **Governor** mine at Acton, California, is reported to have been taken over by new interests who plan development work in the immediate future. Ore bodies on this property are considered by many to be an extension of the **Governor** vein.

William Pike, owner of a mercantile establishment at **La Porte**, California, has taken over the old **Bellevue** mine and rehabilitated the property preparatory to ac-

tive operation. The **Bellevue** is said to be one of the largest drift properties in the state.

Milling operations are in progress at the **Black Eagle** mine in Inyo County, California, operated by the **National Consolidated Mines Company**, Homer Johnstone, president, 1125 Central Building, Los Angeles, California. There is said to be sufficient commercial ore blocked out to insure at least three years' operation of the mill on a 25 to 35-ton daily basis. Much of the ore is on mine dumps, left from former operations when high-grade ore was sorted and much ore of good grade rejected. In addition to the **Black Eagle** the



CHEMICALS

Cyaniding

Lead Acetate, Sodium Silicate, Soda Ash, Zinc Dust, Sodium Cyanide, Zinc Shavings and all other chemicals.

Flotation

Pine Oil—Steam Distilled, Sodium Sulphide — 60-62%, Cresylic Acid — 98%, Bear Brand Xanthates, Copper Sulphate, Zinc Sulphate, Sodium Silicate, Soda Ash.

Amalgamation

Mercury, Soda Amalgam, Nitric Acid, Amalgamation Plates, Retorts.

Braun Corporation is prepared to meet your most exacting requirements for chemicals of dependable quality and uniformity. Immediate shipments made from our complete stocks. For satisfaction when you need chemicals order from BRAUN.

BRAUN CORPORATION

2260 EAST FIFTEENTH STREET, LOS ANGELES, CALIFORNIA

San Francisco
Braun-Knecht-Heimann-Co.

Seattle, Washington
Scientific Supplies Co.

MANUFACTURERS OF BRAUN LABORATORY LABOR SAVERS

For Use In FLOTATION PROCESSES



NICHOLS Triangle Brand COPPER SULPHATE

99%
PURE

Specially Screened

**PHELPS DODGE REFINING
CORPORATION**

40 Wall Street, New York
230 N. Michigan Ave., Chicago

SOUTHWESTERN DISTRIBUTOR

**ASARCO
MERCANTILE
CO.**

Miller Bldg.,
EL PASO, TEXAS

company owns 160 acres near Mojave, California, on which several lessees are operating.

Directors of the **Newmont Mining Corporation**, 14 Wall Street, New York City, have declared a dividend of 50 cents payable March 15 to stock of record March 1.

The **Carlin mine** at Jamestown, California, following many years of inactivity, is being reopened initially on a small scale under the direction of John F. Dwyer, mining engineer, who is one of the controlling group. The mine is being developed by the **Paragon Mining and Milling Company**, an old closely-held corporation owned by Philadelphia interests. The property, which has been under the same ownership since its location in the early fifties, has produced a fortune in high-grade ore.

The **Atolia Mining Company**, David D. Baker, superintendent, is treating 150 tons of tailings per day in its flotation plant. The company is engaged in filling an order for three carloads of low grade tungsten concentrates and between 40 and 50 men are employed at present. At the **Amity mine** a new hoist is being installed together with a new headframe and ore bins. New crushing rolls are also being put in at the plant which is located at Atolia, California.

Installation of an up-to-date milling plant is planned at the **Alabama Mohawk mine**, Lone Pine, California, as soon as a sufficient tonnage of commercial ore has been blocked out. A test plant at the property has shown that a high percentage of gold values can be saved by amalgamation. The mine, which is owned by James A. Hodgman and Frank E. Hilton, is under lease to the **Alabama Mohawk Mining Company**, headed by Gus Lawrence. The **Alabama Blue Ridge mine**, adjoining the Mohawk, and owned by Hodgman, Hilton, and associates, has also been extensively developed and approximately \$70,000 has been spent for mine equipment, labor, and development on the two properties. When in active operation the two mines employ 12 to 14 men and it is expected that both will be on full time schedule again about the first of April. The **Alabama Blue Ridge** is opened by a 170-foot shaft from which drifts are being run east and west. Main working shafts of the two mines are on parallel veins about 1,000 feet apart.

The **Genter Gold Mining Company** is resuming operations at the Genter mine near Alleghany, California, following the winter shutdown. Drifting operations are planned to cut two ledges which are located 350 and 1,400 feet respectively from the present face which is about 250 feet from the portal of the tunnel. Complete new equipment has been installed at the property since it was acquired about three years ago by the Genter company. James G. Pierce of Detroit is president and general manager of the company, E. H. Hatch of San Francisco is vice-president, and Carl G. Genter, National Hotel, Nevada City, California, is secretary-treasurer and local manager in charge of development.

At the auction of all property of the **Columbus gold mine** near Tuolumne, California, a number of companies purchased

the various pieces of equipment. The **Gold Diggers Syndicate**, operating the App, Heslop, Sweeney, and Dutch groups at Jamestown, California, purchased the complete grinding section of the mill, comprising a six by four Traylor ball mill, a single-cell Bendelari jig, a duplex classifier, and an ore feeder. The syndicate also purchased the coarse ore plant, comprising a Traylor Blake type 10 by 10 crusher together with motors and equipment, and a Tyler-Niagara double-deck vibrating screen together with motors and fixtures. In addition, mining tools, drills, and other equipment were acquired by the syndicate. All will be transferred to the company's properties near Jamestown. The ore conveyor equipment was purchased by the **United States Lime Products Company** of Sonora, California, and all the wire and cable was acquired by A. E. Clink, Sonora electrician. Charles H. Segerstrom of Sonora purchased for the **Boston-California** and **Keystone** interests the flotation machines with all accessories and also the concentrating regrind section of the plant, complete with cyanide plant and refining section. He also purchased the mill building and other miscellaneous equipment. The **Pacific Mining Company**, operating the Pine Tree and Josephine mines, also purchased a portion of the equipment. L. MonteVerda of the Angels Iron Works at Angels Camp, California, purchased all the iron rails and miscellaneous equipment, including the saw mill and shed.

Retimbering and widening of the shaft at the **Maryatt mine**, Tuttletown, California, has been completed and work is now in progress in the drifts, which are being renovated. Progress is being made in the south drift of the 180-foot level and it is also planned to continue present tunnels on the 350-foot or bottom level north to the property line and south to the Gagnear shaft, located on the property. Aside from this work, no definite plans have been made for future operation. The business organization of the mine has been incorporated under the name of the **Tuttletown Mining Company, Inc.** Operations are directed by Robert O. Long, one of the owners of the mine.

An increase of approximately 36 per cent in total tons of ore milled, together with recoveries averaging 16.6 per cent higher per ton, resulted in a net profit of \$409,836 in 1938 for the **Central Eureka Mining Company**, C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, California, after deductions for depreciation, depletion, and taxes. This compares with a net profit of \$131,614 in 1937. The company milled 49,253 tons in 1938, compared with 36,264 tons in 1937, and average value recovered per ton amounted to \$21 in 1938 as compared with \$18 the previous year. The 2,650-foot level of the Old Eureka mine produced 32,590 tons or 66 per cent of the total tonnage. The ore body on the 2,800-foot level of that mine produced 11,338 tons, 23 per cent of the total. During 1939 it is planned to develop the ore body below the 3,000-foot level. The 3,000-foot winze will be sunk to the 3,500-foot level and the shaft will be unwatered and reconditioned to that level also. The 3,500-foot level north

drift will be continued to connect with the winze. James Spiers is superintendent at the mine, which is located at Sutter Creek, California.

A geophysical survey of the Gum Tree mine, Mojave, California, recently completed for H. E. Robinson, lessee, is reported to have located a vein of gold-bearing ore which had not been known to exist. The survey was intended to determine the position and extent of a fault known to run through the property, but when the findings indicated the presence of a body of mineral bearing ore immediate steps were taken to verify the report, and a tunnel is being driven to cut the vein. It is said to run about 40 yards south of the Gum Tree shaft.

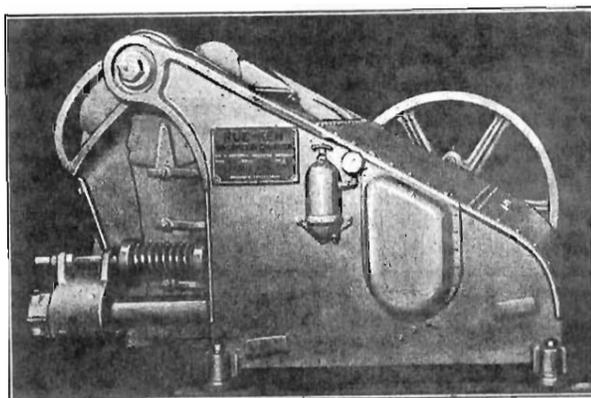
The Swanson Mining Corporation, Salyer, California, has made application to the federal power commission for license for its newly constructed power plant on Campbell Creek. The new plant has a capacity of approximately 2,140 horsepower, and the project consists of a low concrete diversion dam; a conduit 9,065 feet long; a 5,400-foot welded steel penstock; a power house with an installed capacity of approximately 2,140 horsepower operating under a head of 600 feet; and 1.08 miles of transmission lines connecting the power house with the company's pump houses. The company mines by hydraulic methods and the energy generated is used for mining purposes. Alvin J. Swanson is president of the company, C. A. Swanson is vice-president, and J. B. Blair is secretary-treasurer. Work at the property is directed by L. T. Henderson, superintendent, and C. M. Salyer is in charge of recovery.

The Red Elephant Metals, Inc., representing a consolidation of a group of silver-lead mines, including the Red Elephant claims, at Lawson, Colorado, is producing both milling and smelting ore. Milling ore is sent to a local custom plant and direct smelting ore is sent to Leadville. Z. G. Stoecklin of Wood River, Illinois, is president of the company and C. A. Carlson is at Lawson as superintendent. Clifford R. Wilfley, 1948 Broadway, Denver, is consulting and chief engineer. Old workings have been reopened and work now consists principally of raising and drifting. The main 3,500-foot crosscut is being reopened and extensive development of several areas in the mine is under consideration.

Milling will be started by the Rico Argentine Mining Company at Rico, Colorado, as soon as ore chutes between the main haulage tunnel and the upper workings are completed, it is announced. Development work, started in August of 1937, is stated to have exposed ore in the seven known productive beds. The 135-ton flotation mill was recently completed and K. L. Erickson, Rico, is mill superintendent. Edward Bauer of Rico, continues as mine superintendent and J. C. Johnson, 132 Main Street, Salt Lake City, Utah, is president. Values are in lead and zinc with some copper and silver. A new elec-

KUE-KEN BALANCED CRUSHERS

ELIMINATE THINGS THAT HURRY ORDINARY CRUSHERS TO THE "SCRAP PILE"

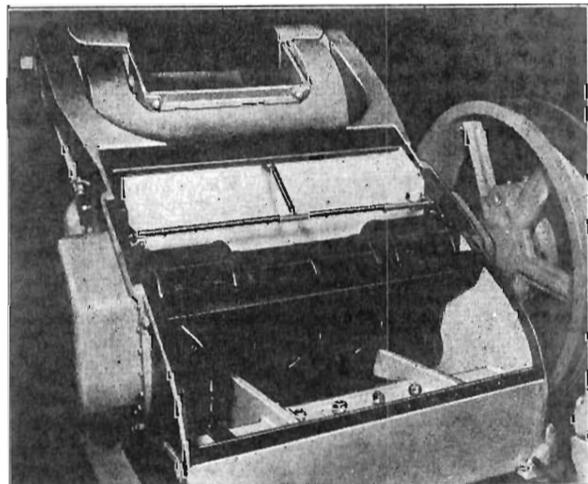


Side view of a KUE-KEN crusher. Notice the accessibility of the jaws, the sealed streamline housing, the automatic oil filter and the absence of outside oil pipes.

1. Abrasion and rubbing between jaws.
2. Unsealed, poorly lubricated bearings.
3. Vibration.
4. High bearing pressures.
5. Severe stresses in frames.

These destructive features, present in all ordinary crushers, have been eliminated in the KUE-KEN balanced crushers.

Using a new principle, KUE-KEN crushes faster and finer, without abrasion or vibration. Uses less power and does not require foundations. Several sizes available. Write today for bulletin #00 giving details of KUE-KEN crushers and information on free crushing test service on your own ore. We also manufacture Rib-cone mills, feeders, screens, tables, classifiers, etc. Bulletin #02 describes milling equipment and contains several helpful blueprints of typical plants.



Rear view, with cover plates removed, every working part is really accessible. No reaching—no crouching. Note the interior, finished in glossy oil-proof white enamel.

STRAUB MFG. CO.,

505 Chestnut St.
OAKLAND, CALIF.

"FAGERSTA-8-B-6"

The New Alloy Hollow Mining Drill Steel Exclusively for Rods Using Detachable Bits.

Write To

GREAT WESTERN STEEL CO.

Hall Perry Mach. Co.
Butte, Mont.

1011 East 61st ★ LOS ANGELES

Baker Hamilton & Pacific Co.
San Francisco - Oakland

Bards Steel Co.
Portland - Seattle

WOLMANIZED LUMBER

is used for timbers and lagging in the main heading of Eureka Mine No. 37, Berwind-White Coal Mining Co., Windber, Pa.

YOU, too, can save by using this pressure-treated lumber. Clean, paintable, non-leaching, non-corrosive, it stops termites, decay, and repair costs.

AMERICAN LUMBER & TREATING CO.
1419 OLD COLONY BLDG. CHICAGO

Los Angeles
1031 South
Broadway



San Francisco
116 New Mont-
gomery St.

WOLMANIZED LUMBER
PROTECTED AGAINST DECAY AND TERMITES

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

P.G.B. MORRIS Mgr.

NATIONAL LEAD COMPANY SHOWS DECREASED PROFIT FOR 1938

THE National Lead Company and domestic subsidiaries reported for the year ended December 31, 1938, a net profit of \$4,288,140 after depreciation, depletion, federal income taxes, undistributed profits taxes, etc. This is equal, after Class A and B preferred dividend requirements, to 75 cents a share on 3,095,100 common shares, excluding 3,210 shares held by the company. In 1937 the company showed a net profit of \$4,886,951, equal to 94 cents a common share.

In addition to the reported net profit the company's equity in undivided profits or losses in foreign subsidiaries or controlled companies not wholly owned is estimated at 7 cents a share on common stock. Earnings of the two German companies are not included in this estimate. Estimated profit from this source in 1937 was 20 cents a share.

Fletcher W. Rockwell is president of the company which has head offices at 111 Broadway, New York. While mainly a manufacturing company, National Lead holds a considerable amount of stock in the Combined Metals Reduction Company, operating in Nevada and Utah, and in the St. Louis Smelting and Refining Company at Rico, Colorado.

DU PONT DEVELOPS LOW COST RECOVERY PROCESS

A NEW process for extracting minerals from ores, one which may add 285,000,000 tons to the nation's coal supply and increase potential iron ore reserves in the Mesabi Range alone by 3,250,000,000 tons, was described at the recent meeting of the American Institute of Mining and Metallurgical Engineers in New York City. The new method is known as the "sink-and-float" ore extracting process, and was developed after 35 years of research by the E. I. du Pont de Nemours and Company, Inc., Wilmington, Delaware. It was described to the institute members by W. B. Foulke of the minerals separation division of the company.

According to Foulke, the process is not confined solely to coal and iron, but is applicable to all other types of ores and promises to open up for further exploitation a number of abandoned mines. It will not, however, make present ore separation plants obsolete.

The sink-and-float method works on the principle of straight gravity separation employing a layer of water floating on a liquid with a specific gravity of between 1.3 and 3. The heavy liquid is made up of chemicals known as halogenated hydrocarbons which have been used in laboratories for many years, but have been impractical to use commercially heretofore because of the cost involved.

In the past researchers have found that each ton of ore absorbed about 50 pounds of the hydrocarbon fluids which cost from 10 to 40 cents a pound. Recent investigations, however, showed that if the ores were first sprayed with tannic acid or starch acetate they would absorb only eight ounces of fluid a ton. This treat-

ment is reported to cut the cost about 400 per cent and to make the process commercially practical.

In operation, the ore is dumped into the solution made up of the two layers, water above and the hydrocarbon fluid below. That part of the ore which has a specific gravity greater than the heavier liquid sinks to the bottom. Those particles lighter than the heavy liquid will float on the top of it at the interface between the heavy liquid and the water, while still lighter particles will remain floating on the surface of the water.

A du Pont plant is already using the sink-and-float process to separate slate from anthracite coal, the slate sinking while the coal floats. This experimental installation is located at Shenandoah, Pennsylvania, and has a capacity of 150 tons of coal an hour. It has been in operation since 1936.

EFFECT OF GOVERNMENT PURCHASES OF SILVER

(Continued from page 4)

and have thus aided employment in these industries.

Owing to the fact that the rise in the world price of silver since 1932 was due largely to action taken by the United States government, it is reasonable to assume that had this action not been taken the price of silver would have remained at 30 cents or less. Domestic producers thus have obtained from 30 to 50 cents more per ounce of silver produced than they would have had the trend prior to 1933 been allowed to continue.

They have received \$95,460,403 more for the products of their mines during the five-year period 1933-37 as a result of the higher silver prices paid by this government. Obviously this sum must have provided much in the way of employment, higher wages, improved dividends, and in general rehabilitation of the non-ferrous metal mining industry which was so badly hit by the depression.

On the basis of the foregoing assumption the benefits derived from higher prices for domestic silver from 1933 to 1937, inclusive, have been distributed as follows:

Comparison of Silver Revenue Actually Received By Domestic Producers in Silver Producing States With That Which Would Have Been Received Had Silver Remained At 30 Cents Per Ounce For The Five-Year Period

State	Revenue actually received	Revenue at 30 cents per ounce	Increment due to higher prices
Alaska	\$ 1,127,899	\$ 477,454	\$ 650,355
Arizona	21,913,568	9,247,848	12,665,720
California	5,406,367	2,229,054	3,177,313
Colorado	15,801,483	6,756,406	9,045,283
Idaho	40,996,977	17,624,508	23,372,471
Montana	28,343,446	11,820,833	16,522,613
Nevada	13,224,757	5,559,809	7,664,958
New Mexico	3,726,189	1,718,683	2,012,506
Oregon	229,430	96,999	132,431
So. Dakota	434,325	198,087	238,738
Texas	3,361,711	1,362,804	1,998,907
Utah	30,895,986	13,456,112	17,439,874
Washington	222,182	92,455	129,677
Wyoming	2,397	1,631	1,366
Others	752,160	338,969	418,191
Total	\$166,431,447	\$70,971,044	\$95,460,403

**ANNOUNCES NEW SYSTEM
OF DRY CONCENTRATION**

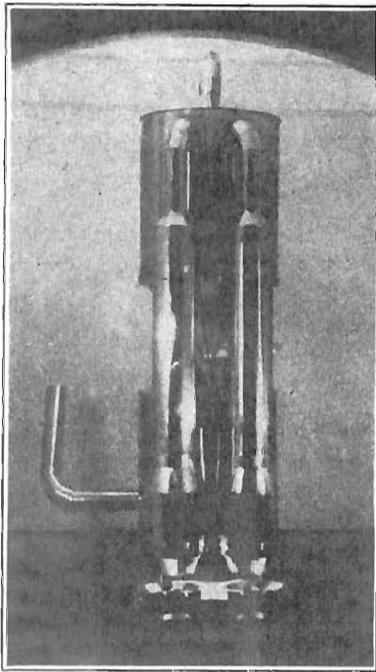
A NEW non-mechanical air separator or concentrator for the close separation of minerals or materials of different specific gravities, as well as for the classification of materials of a similar specific gravity by sizes, has been introduced under the name of the "Schramm System" of dry concentration. The development of the separator was announced by New York Concentrators, Ltd., Suite 3411, R.C.A. Building, Rockefeller Center, New York.

The principle employed by the "Schramm System" is based on the movement of solid particles in a rising air column. If solid particles are all of the same size, but of different specific gravities, the more dense or heavier particles will settle against the rising medium or air column, whereas the least dense or lighter particles will rise.

In commercial practice, the grinding is carried out as close to granulation as possible, this granulated product then being fed to a series of Deister multirap vibrator screens. The number of screen sizes necessary depends upon how great an increment of difference is in the specific gravities of the materials to be separated. The smaller this increment, the closer is the screening necessary and vice versa.

With the exception of the first screen, which is used as a scalping screen, the product of each screen is delivered to a single unit or set of Schramm concentrators, depending on capacity requirements. Concentration takes place on all of the sized products, through the scalping screen, in one single concentration operation. The tails from the concentrators working on sizes below the point of released values are recirculated through the grinding units until they pass through the mesh size of released values and from there on become final operations tails.

To illustrate this, an ore having its values released at 80 mesh would be concentrated on all meshes, but up to 80 mesh the tails would be recirculated for further grinding. The final tails of the operation would all be the tailing product of the -80 mesh concentrators. This affords the concentration of all of the values as soon as they are released from the gangue. The system results in the production of a dry



The model concentrator used by New York Concentrators, Ltd., for demonstrations and tests of its new dry concentration system.

concentrate which can be shipped to the smelter without drying.

The concentrator consists of a vertical cylindrical column, constructed of sheet metal with an encased particle distributor and vacuum chamber. The separation is effected by a rising air medium constant throughout this column.

The material is fed into the center of the column and on to a central static distributor. The particles fall over a series of such distributors thus allowing each particle to rise with the air column or fall against it. The rising product is then fed automatically to a recirculation vacuum chamber which allows the heavier particles, of the light product, to be redistributed into the air column and affords a recleaning action. The finished light product is carried out of the concentration chamber over to a cyclone collector where it settles and discharges through a series of pressure balanced gates as final tails.

The complete air column is activated by a blower and control of this air velocity is made by a hand-regulated valve and is read direct by manometer readings of air pressures. Once these readings are established on a specific material of any single mesh size, they never vary.

The concentrator itself is simple in construction. It has no moving parts, it is light in weight and its operation cost is extremely low. The component parts of the Schramm concentrator are easily assembled or dismantled and can be readily moved by rail or truck and, if necessary, transported by airplane.

The outstanding feature of the "Schramm System" is said to be its low cost of operation. Furthermore, its special adaptability to mines located in arid regions or areas where the water supply is scarce or uncertain, makes this system invaluable in the operation of properties thus handicapped. Further information may be gained by sending to New York Concentrators, Ltd., for Bulletin No. 22.

**CALIFORNIA ENGELS COMPANY
REPORTS NET LOSS FOR YEAR**

THE California Engels Mining Company, 350 California Street, San Francisco, California, reports for the year ended December 31, 1938, a net loss of \$16,987 after all charges.

A. J. Heller is now president of the company, succeeding Daniel Fessenden. Other officials include J. P. Warren, vice-president; J. F. Humburg, secretary; Keene Fitzpatrick, treasurer, and L. E. Adams, assistant treasurer.

The company's balance sheet shows current assets of \$53,321, including \$50,838 cash, and current liabilities of \$3,926. During the year the company marketed 400,000 shares of 25-cent par value stock and proceeds were used for payment of uncontested obligations and for development work at the Groom mine, Wickenburg, Arizona, acquired during the year.

Active mining of ore at the Groom property is expected to start early in April and it is hoped that sufficient ore will be proved by the middle of the year to justify erection of a milling plant. The company plans to move the equipment formerly used at the Engel mine to the Arizona property.

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 is 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.

**CALUMET AND HECLA COPPER
GIVES FIGURES FOR 1938**

THE Calumet and Hecla Consolidated Copper Company reports a net gain carried to earned surplus of \$2,443 for the year ended December 31, 1938. The company received \$3,099,731 in revenue from copper sold. The production costs were \$2,061,126 and selling, administration, and taxes amounted to \$297,848, leaving a net operating income of \$740,757. Other income, net, totaled \$48,491. Against copper sold depreciation of \$445,259 was charged and \$340,765 for depletion. Deducting \$781 for federal income tax the company reports a net gain of \$2,443.

For the nine-month period of 1938, ended September 30, the company reported a net loss of \$79,638. Principal operations are in Michigan. From 1935 until the middle of 1938 Calumet and Hecla operated through wholly owned subsidiaries in the Goldfield district of Nevada. Last fall, however, that work was suspended.

**THE AMERICAN SMELTING AND
REFINING MAKES ANNUAL REPORT**

THE American Smelting and Refining Company, 120 Broadway, New York City, reported for the year ended December 31, 1938, a net income after all charges, including income and corporate taxes, of \$10,611,809, as compared with \$18,285,426 in 1937. During the year a total of \$8,431,255 was paid in dividends, of which \$3,500,000 was on preferred shares and the balance on common shares.

There was a lesser volume of business and a consequent lesser employment of labor in 1938 than in 1937. A comparison of production and employment for 1937 and 1938 is shown in the following table which lists the production of refineries from products treated on toll for account of others, products of purchased materials, and products of owned, partly owned, or leased mines:

	1937	1938
Ounces gold	2,018,605	2,065,992
Ounces silver	197,507,924	146,421,339
Tons lead	478,761	411,339
Tons copper	481,812	320,932
Tons zinc	79,381	85,986
Tons smelted	4,943,199	4,351,297
Tons ore mined	2,880,597	2,295,593
Men employed	32,858	28,734

Labor disturbances, while still occurring, were much fewer than in 1937. While employment and volume of business decreased in 1938, the scale of wages was not diminished. The company's main operations are in the United States, but it also has various degrees of ownership in operations in Mexico, Nicaragua, Bolivia, Peru, Chile, Australia, Canada, Newfoundland, and Saudi Arabia.

In January and February, 1938, approximately 18 per cent of the company's earnings were from Mexico, the percentage for the entire year was still less, the last quarter being the poorest, and December, the poorest month. Increase in earnings from operations outside of Mexico, however, more than counterbalanced the fall in Mexican earnings, so that in the last six

**AVERAGE PRICES OF METALS
(Figures by American Metal Market)**

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.344	66.781
1925	14.042	9.020	7.622	69.086
1926	13.735	8.417	7.337	62.107
1927	12.920	6.756	6.242	56.370
1928	14.570	6.305	6.027	58.174
1929	13.107	6.333	6.512	52.993
1930	12.982	5.517	4.556	38.154
1931	8.369	4.244	3.638	28.701
1932	5.792	3.191	2.881	27.392
1933	7.276	3.870	4.081	34.728
1934	8.658	3.8595	4.162	47.978
1935	8.880	4.0648	4.331	64.273
1936	9.710	4.7091	4.908	45.088
1937	13.391	6.0085	6.517	44.805
1938	10.225	4.7388	4.618	43.222
1937				
Jan.	12.660	6.00	5.86	44.912
Feb.	13.80	8.2886	6.435	44.75
Mar.	15.990	7.1889	7.377	45.130
Apr.	15.346	6.175	6.989	45.460
May	14.00	6.00	6.75	45.025
June	14.00	6.00	6.75	44.818
July	14.00	6.00	6.929	44.750
Aug.	14.00	6.4519	7.205	44.75
Sept.	13.780	6.400	7.179	44.75
Oct.	12.060	5.740	6.087	44.75
Nov.	11.022	5.0226	5.632	44.75
Dec.	10.236	4.875	5.011	43.810
Ave. 1937	13.391	6.0085	6.517	44.805
1938				
Jan.	10.425	4.870	5.00	44.714
Feb.	10.00	4.6318	4.816	44.75
Mar.	10.00	4.50	4.413	44.446
Apr.	10.00	4.50	4.155	42.75
May	9.60	4.40	4.043	42.75
June	9.00	4.1481	4.143	42.75
July	9.810	4.882	4.75	42.75
Aug.	10.125	4.90	4.75	42.75
Sept.	10.255	5.00	4.855	42.75
Oct.	10.981	5.10	5.015	42.75
Nov.	11.25	5.0913	4.913	42.75
Dec.	11.25	4.8428	4.50	42.75
Ave. 1938	10.225	4.7388	4.618	43.222
1939				
Jan.	11.25	4.826	4.876	42.75
Feb.	11.25	4.8045	4.50	42.75

months of the year total earnings from all sources were \$380,000 more than in the first six months, notwithstanding the steady and drastic decreases in earnings from Mexico.

The immediate future of Mexican operations, the report states, is clouded with uncertainty and doubt. Because of its existing plants and organization in Mexico, and the undeveloped mineral resources of that country, the company has for many years steadily enlarged its investments there. However, due to the uncertainty as to future labor costs and taxation, the company, for the time being at least, has turned its attention elsewhere.

**LEGISLATIVE ACTION
TAKEN BY WESTERN STATES**

(Continued from Page 5)

NEW MEXICO—The house, with a 30-to-14 vote, killed a state labor relations bill. That body's committee on labor reported without recommendation a substitute for a labor-sponsored wage-hour bill. The substitute measure sets maximum hours at 52 a week and nine a day, compared to 44 a week and eight a day contained in the original measure.

Among pending bills are measures to create an office of state safety engineer and inspector under the labor and industrial commission.

A senate resolution would ask congress to extend the moratorium on assessment work.

OREGON—The senate approved a bill providing for a mine safety director, a code, inspection and enforcement of industrial accident commission orders, and also adopted a bill providing for recording of affidavits of annual labor and improvements on mining claims. The house judiciary committee favorably reported a bill submitted by the state corporation department to provide a new blue sky law.

UTAH—The house of representatives on February 28 refused to reconsider a house bill previously killed which would have raised from 1 to 2 per cent the occupation tax rate on gross mine proceeds in excess of \$100,000 annually.

After making radical changes in a memorial to congress relative to stabilizing the price of silver, the house approved the measure. As introduced, it would have asked congress to remonetize silver at a ratio of 16 to 1 with gold. When it was pointed out that this would, in effect, request a price of \$2.18 an ounce for silver with gold at \$35, whereas the best western senators ever hoped to gain was \$1.29, the resolution was changed to endorsement of the McCarran bill for stabilizing silver at \$1 per ounce.

Two measures dealing with taxation of metalliferous mines were introduced in the senate at the request of the state tax commission. The first would place their valuation on a basis of two times the average net proceeds over a period of three years, in place of the present valuation based on net proceeds for one year. The second would provide a penalty of 10 per cent plus interest at the rate of 1 per cent a month on delinquencies.

WASHINGTON—The house passed and sent to the senate a bill to appropriate \$100,000 for construction of mine-to-market roads, the funds to be matched by counties, the federal government, individuals, or private firms. The measure carries out a recommendation of Governor Clarence D. Martin.

There are a number of pending bills on which no decisive action has yet been taken. Among these are measures which would prevent a city council from restricting use of any land so as to deprive a person of his right to extract metalliferous or non-metalliferous substances, which would require that persons selling mining leases be licensed, and which would compel the filing of notices of mining locations with the department of conservation and development by county auditors.

WYOMING—A state wage-hour bill died in the closing hours of the session, while the senate previously killed a bill which would have authorized the state labor commission to assist and cooperate in enforcement of the National Fair Labor Standards Act of 1938.

Final legislative approval was given a house bill providing that each abstract of title to any real property or mining claim, certified to by an abstractor bonded in accordance with present state law, shall without further proof be prima facie evidence of the facts therein stated in any action in any Wyoming court.

PAGE
LOOSE

PHIL BURCH* describes

The Safety Program at the Lava Cap Mine

FOR some three thousand years the Chinese have held the idea that a doctor should fit into the scheme of things, not as a healer, but as a protector. Which simply means that if you are a doctor in China and you let a patient become sick, your pay automatically ceases. In consequence, very few Chinese who can afford a doctor ever get sick.

John C. Franz, safety engineer at the Lava Cap Gold Mining Corporation, Nevada City, California, is something of a Chinese doctor. Not that Franz is a Chinese, nor is his job one of always running underground with a handful of picked rescue men and a couple of stretchers. Rather, he is ever anticipating ways and means of preventing such a necessity.

Safety is the password at the Lava Cap; a dynamic, moving force that manifests itself in the mine's every operation—a force that is kept constantly alive by action and not words. Indeed, the whole program seems to be based on the trite old bromide that "an ounce of prevention is worth a pound of cure." Consequently, there is very little preaching on the subject, but much discussion and a hell-of-a-lot of practice, with the net result that, while located in a state whose metal-mine accident record tops the list in severity, the Lava Cap has a comparative record second to none. Its accident cost for the month of August, 1938, reads:

1. Actual cost:	
Medical and surgical.....	\$400.60
Re-insurance (calamity for claim over \$5,000).....	179.41
Legal and administrative, including part of safety engineer's salary.....	102.62
Compensation paid.....	303.10
Total.....	\$985.63
2. Total self-insurance payroll.....\$43,545.41	
(About 270 men employed.)	
3. Per cent operating cost this month.....2.26	
last month.....2.26	
this year.....2.48	
Per cent operating cost over 2½ years.....3.07	
Outstanding accident liabilities over 2½-year period.....\$2,200	

Such a record is not a matter of luck; for the success of any safety program is primarily dependent upon the elimination, as nearly as possible, of the element of chance. Such a record has been made possible only by intelligent provision of common-sense safety equipment—whether required by law or not—plus a sincere and consistent educational program under competent direction.

Otto Schiffner, general manager of the property, expressed the attitude of both the company and its employes relative to safety when he said: "We're glad to have you come around. We try to be safe miners—if you have any suggestions that might help us we'd be glad to have them."

The success of the safety program at the Lava Cap Gold Mining Corporation has not been a matter of luck. It has been brought about by sound engineering and sound management, plus a splendid spirit of cooperation which pervades the entire organization. Lava Cap's accident experience record is less than one-third that reported for the mining industry of California.

Safety! It permeates the very atmosphere at Lava Cap. You feel it and you see it, all about you. Vital buildings are steel framed and paneled with corrugated iron; stairs and cat-walks have hand rails; wire netting closes off moving machinery; and there are no antique piles of trash under the work benches, nor inches of dust in the crusher house. Things have been built for use and safety.

THE mine operates through two shafts: the Central, where the mill is located, and the Banner¹ which dumps into an underground ore pocket from whence the ore is transported via a 5,420-foot haulage tunnel to the Central shaft.

The Central shaft is now 2,000 feet deep and going down. Hoisting equipment consists of a 300-horsepower hoist with automatic controls, hydraulic brakes and clutch. The hoist has an operating rope speed of 1,000 feet per minute with over-speed, over-wind, and under-wind control supplemented

¹The old Banner shaft is used very little at present. The one herein referred to as the Banner shaft is technically a winze inasmuch as it does not go clear to the surface.

by an independent cut-out in the head-frame designed to stop the hoist if the skip passes the dumping position. Further automatic hoist control is provided in a set of electric eyes located just below the collar of the shaft. These control speed, ringing a warning bell in the hoist room, and if speed is excessive, automatically stop the hoist. An extra hoist motor is kept serviced and at hand to replace the one in use in case of failure.

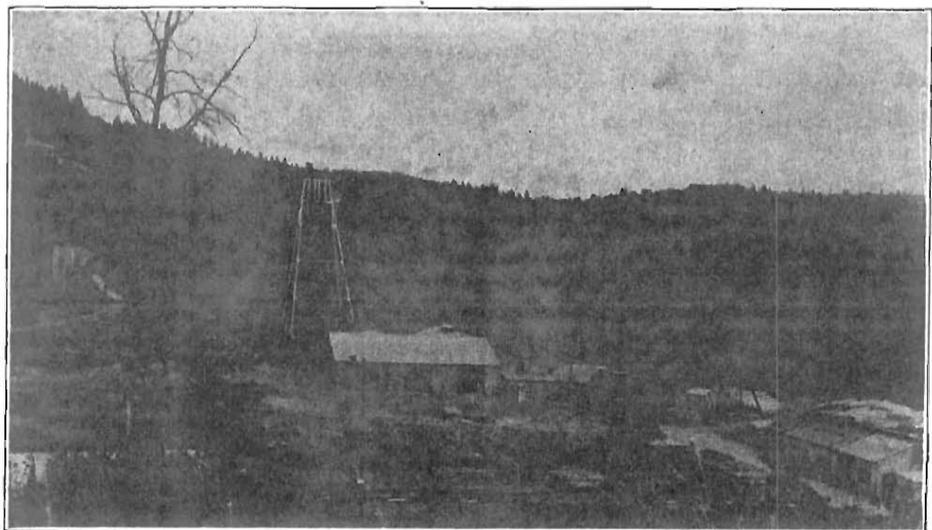
The Banner hoist room is located underground, and is fitted with a 150-horsepower Allis-Chalmers hoist with an operating rope speed of 600 feet per minute. Safety controls are similar to those used at the Central shaft.

All hoist compartments have full clearance, the only thing in them, except the skip, being the bell-cord and the rails. Bell cords are of three-eighths-inch stainless steel cable running inside one-inch pipe through all stations. An independent signal system is provided for calling the skip.

The Central shaft is also provided with 4 by 6 wood guard rails between the regular iron rails to prevent skip derailment. Shoes on the skip ride these rails. There have been no derailments in this shaft in the past year.

A close check is kept on hoist men (hoist men are not licensed in California) and a physical examination is required every six months. Shafts are inspected weekly, hoisting ropes monthly. Written reports of these inspections are made and filed, thus fixing permanent responsibility for proper execution of the work.

The ore skips are of two tons capacity, double connected to the hoist rope. Iron dollies are used for man skips, and plans are now being made to test a new safety-type man skip by the Pacific Coal Com-



General view of the Central shaft showing hoist house and mine buildings of the Lava Cap mine, Nevada City, California.

*Oakland, California.

pany. Man transportation in and out of the mine is by way of the haulage tunnel by means of specially designed 16-man, all-steel cars.

Equipment includes two compressors, a 300-horsepower Chicago Pneumatic at the Central and a 250-horsepower Chicago Pneumatic at the Banner. The Banner compressor is located underground and is, so far as the writer knows, the only underground compressor of any consequence in the state. A chemical is used in both compressors to provide stench warning underground in case of fire or catastrophe.

Water for fire protection is piped throughout the mine plant from a large reservoir. Two and one-half and two-inch fire plugs with hose are provided on the surface at a hose pressure of 250 pounds per square inch. Connections have been arranged for turning the water into underground airlines in case of fire. Water apparatus is supplemented with chemical extinguishers where necessary to provide adequate protection.

Underground stations are fitted with 100 gallon water barrels and two fire buckets; and all underground welders are required to carry an Indian fire pump (back pump) with which to wet down inflammable material near the job both before starting work and after finishing.

Every possible precaution has been taken to eliminate fire hazards in the Banner underground hoist and compressor room. Particularly outstanding are the electrical installations. Power is transmitted from the surface high line at 11,000 a.c. through a special armored cable inside a 700-foot vertical diamond drill hole. At the hoist room a bank of transformers converts the juice to 440 a.c. These transformers are completely isolated in an underground chamber and filled with Pyranol fire-proof oil. Both the underground transformers and the surface take off are double fused and fitted with oil switches.

Vital mine buildings are constructed of steel and corrugated iron; and all are strategically located so as to prevent fire spreading from one to the other. The tunnel level, which cuts the Central shaft at the 100-foot level, is protected by fire plugs at the portal and by fire doors.

THE main artificial ventilating system is located on the tunnel level, about 750 feet from the portal. It is also isolated in a hard-rock chamber with control doors and consists of a No. 90 Sturtevant fan with a 33-inch blade, delivering 21,000 feet of air at 900 r.p.m. The water gauge pressure is one inch, and the fan can be reversed in case of emergency. Supplementary fans are used in all dead-ends, five being employed at present. The mine's dust count is less than that on the main street in Nevada City.

Although the mine's water problem is not very great, no chances are taken. Pumps are equipped with automatic starting and stopping controls, pressure controls to prevent operation if the prime is lost, and thermostatic control for automatic stopping in case of over-heating. Each pump is also connected to a horn on the surface which sounds a warning if the



John C. Franz
Safety Engineer of
Lava Cap Gold
Mines Corporation

ing the workings. Auxiliary pumps are available at all times, and can be installed within half an hour following a pump failure underground.

Explosives are handled with a maximum of precaution. Caps and fuse are made up on the surface and sent underground in specially built iron buckets with rubber linings. There they become the charge of one man on each shift until delivered to the working face. Primers are made up at the working face. Powder is in charge of a designated man on each shift. There has been only one explosion accident at the mine in the last 2½ years.

There are two underground powder magazines, isolated and so constructed that an explosion would kill itself before reaching the main tunnel and fumes would be dissipated before circulating through the mine. Magazines are kept under lock and key, and only non-metallic tools are used when possible.

Powder is brought into the mine in an all-steel, rubber-lined car with a wooden floor, copper riveted. This car will carry 18 boxes and is locked shut like a trunk. The surface magazine, located behind a hill, has two-foot dirt walls and double steel doors.

When the powder car is on the main line, signs are dropped down from the caps at intervals, stopping all haulage traffic. Incidentally, all motor trains are equipped with steel brackets designed to accommodate an ordinary electric hat lamp which screws as a tail-light. The powder car is equipped with a red tail-light and red reflectors.

Powder and capped fuse are delivered in separate canvas bags to the working faces, all excess of both being returned immediately to proper storage. Hot wire spitters are used exclusively.

Electric primers are employed in shaft sinking, station cutting, in long crosscuts, in wet work, and in long straight drifts where the miners cannot safely get away. Electric blasting is controlled by two station switches, one of which must be unlocked before the blast can be set by the other. Also, a female and male plug connection in the blasting line between the control switch and the face must be made before firing can be accomplished.

Shaft stations are equipped with toe boards, to prevent foreign material from falling into the shaft, and with removable

pump fails to start when the sump has filled to the prescribed level. Pumps are also hooked in an inter-locking relay system which keeps more than one unit from starting at a time, thus preventing unnecessary power surges.

Bulk-heads and doors are so located throughout the mine that all pumps can be out of operation for as long as 70

hours without flooding the workings. Auxiliary pumps are available at all times, and can be installed within half an hour following a pump failure underground.

Explosives are handled with a maximum of precaution. Caps and fuse are made up on the surface and sent underground in specially built iron buckets with rubber linings. There they become the charge of one man on each shift until delivered to the working face. Primers are made up at the working face. Powder is in charge of a designated man on each shift. There has been only one explosion accident at the mine in the last 2½ years.

There are two underground powder magazines, isolated and so constructed that an explosion would kill itself before reaching the main tunnel and fumes would be dissipated before circulating through the mine. Magazines are kept under lock and key, and only non-metallic tools are used when possible.

When the powder car is on the main line, signs are dropped down from the caps at intervals, stopping all haulage traffic. Incidentally, all motor trains are equipped with steel brackets designed to accommodate an ordinary electric hat lamp which screws as a tail-light. The powder car is equipped with a red tail-light and red reflectors.

Powder and capped fuse are delivered in separate canvas bags to the working faces, all excess of both being returned immediately to proper storage. Hot wire spitters are used exclusively.

Electric primers are employed in shaft sinking, station cutting, in long crosscuts, in wet work, and in long straight drifts where the miners cannot safely get away. Electric blasting is controlled by two station switches, one of which must be unlocked before the blast can be set by the other. Also, a female and male plug connection in the blasting line between the control switch and the face must be made before firing can be accomplished.

Shaft stations are equipped with toe boards, to prevent foreign material from falling into the shaft, and with removable

loading platforms running from the toe boards to the skip for loading steel, etc.

All manually operated chutes have run-control gates on the lip, and the chutes at the Banner underground pocket are air operated with the operator standing in a protected position across the drift from the loading operation. These gates are locked shut by manual control, removable only by the operator.

Square sets are used in all wide stopes with heavy ground. All square and drift sets are framed mechanically with a Knight timber framer. Due to a bad sluffing condition arising from slate hanging-walls, all narrow stopes are stilled and when mined are well filled.

Grizzlies are kept to a standard size of 8 inches, and all new machine bars are of aluminum alloy.

FIRST-AID equipment underground includes Stokes stretchers with a rolled rubber blanket, one wool blanket, and 75 feet of ½-inch rope, all tied to the stretcher, along with waterless hot-water bags and a first-aid box. Shaft stations are also equipped with permanent first-aid cabinets, and red skip ladders for use only when it becomes necessary to transport an injured man in the ore skip. All stations and hoist rooms are equipped with telephones.

An effort is now being made to provide each man with individual first-aid kits containing: one 3-inch compress; two 2-inch compresses; three iodine swabs, and two ammonia inhalators.

Employees are encouraged to see the doctor about the slightest injury and are not permitted to return to work until released by the doctor. A doctor is retained on a contract based upon the injuries treated per month.

Three stretchers and complete first-aid equipment to meet any emergency are also kept in the foreman's office for underground use only. This equipment is also duplicated at the Banner underground hoist room. The entire mine is 100 per cent first-aid trained by the United States Bureau of Mines, and two five-man crews of mine rescue men are maintained. These crews are trained in cooperation with the Grass Valley Mine Rescue Station, maintained at the Empire mine, Grass Valley. Not more than half these men are allowed underground at one time.

Spectacle-type glass goggles must be worn when breaking boulders, cutting hitches, pulling chutes, etc. They may be ordered by prescription, if desired. All mill reagents are handled by a pipe system whenever possible; crusher men and men handling reagents wear respirators; hard-toed shoes are required underground, and men are encouraged to wear gloves which are sold them at cost by the company. Hand injuries have been reduced 60 per cent by this practice.

The writer has yet to see a crushing plant freer of dust than the secondary crusher at the Lava Cap. The secondary crushing equipment includes both rolls and a Symons cone with a vibrator screen and shuttle conveyor. These are so connected as to enable operation of either the Symons or the rolls individually or to-

gether. Dust control is by way of an enclosed cellar under the crushing equipment from which dust is drawn through a Buffalo blower via a 12-inch line to a bag house under a water gauge pressure of 1½ inches. After collection the dust is dropped in the fine ore bin and milled.

The assay bucking room is also equipped with dust control on the pulverizers.

Edison Model K electric hat-lamps are standard throughout the mine. The total lamp installation is 240—about the largest, if not the largest gold mine installation in the state. Individual battery life is from 8 to 12 hours per charge.

Every effort to keep employes healthy and comfortable has been made. The change room is air conditioned and has a floor temperature, even in winter, of 95 degrees. Mercury sun lamps, recently installed in the showers, give the men the equivalent of 6 hours sunshine in 5 minutes, and have reduced cases of sinus trouble and rheumatism to a minimum. The underground lavatory problem has been successfully handled by using a solution of brackish water (mostly sheep dip) mixed with saw dust to kill odors. This is brought to the surface daily and dumped into a large cesspool.

Employes are transported to and from work—about seven miles—in buses at an individual cost of 10 cents per day. The balance of the transportation contract is paid by the company.

PROBABLY the most important factor in a successful safety program is the personality of the man charged with carrying

the work along day by day, month by month. He must not only be practical in his methods, but he must also be able to gain the confidence of the men under him and their cooperation. In this John Franz has apparently been highly successful.

Safety committees, composed of three men on each shift, have been selected by popular vote of the employes to make monthly inspection tours through the mine. They submit written reports at regular safety meetings, also held monthly, recommending correction of any unsafe conditions seen. If practical, and they usually are, these recommendations are acted upon immediately. By this, and similar methods, employes at the mine have developed a personal interest in the safety program as an engineering problem, if nothing more. The following is a typical committee report:

SAFETY INSPECTION TRIP—MAY 2, 1938

T. Oates, Chairman
M. Turner
O. Shaffer

1. In the new shaft where the joints in the ladders do not come on the wall plates, the joints should be reinforced with 1"x4" to prevent sagging when men are climbing the ladders.
2. More precaution should be taken in barring down throughout mine.
3. In 6-5-7 chute, spreaders have been placed between posts, under caps, giving trainloader no chance whatever to get away in case of a run of rock.
4. Extra floor boards should be piled to one side in a neat manner, instead of being thrown haphazardly around stope, so that men are not continually falling over them.
5. Scraps of timber, especially round, should be kept from under foot.
6. Removable platforms should be placed at stations. When a skip is at station, platforms should be placed to fill the hole that now

exists between skip and station floor. This would prevent skiptender from dropping steel down shaft and also give him a chance to stand on balance without danger of falling.

7. The 600 shaft station should be barred down.
8. Practice of throwing scrap timber in crosscut leading to powder magazine should be stopped.
9. Scrap timber should not be piled over man-way leading to 800.
10. Grizzlies should be kept to regular 8" size. Some are wide enough for a man to fall through.
11. The 7-3-10 South Drift should be barred down 10 feet south of the 8-3-10 raise.
12. Straps on 600 stretcher should be changed. They are rotten.

In addition to this a safety bonus system for shift bosses was started in July. It provides: "Shift bosses will be paid safety bonuses on the basis of 1½ cents for each man shift supervised, less \$5 for each lost-time accident of one day and \$10 for each lost-time accident of more than one day. No bonus will be paid to the shift boss who has a compensation accident during the current month. If at the end of the current month, a boss is in the hole with too many deductions, his record will be cleared for the next month . . ."

The accident report for the month of September and bonuses paid follows:

**LAVA CAP GOLD MINING CORPORATION
ACCIDENT REPORT FOR MONTH OF
SEPTEMBER, 1938**

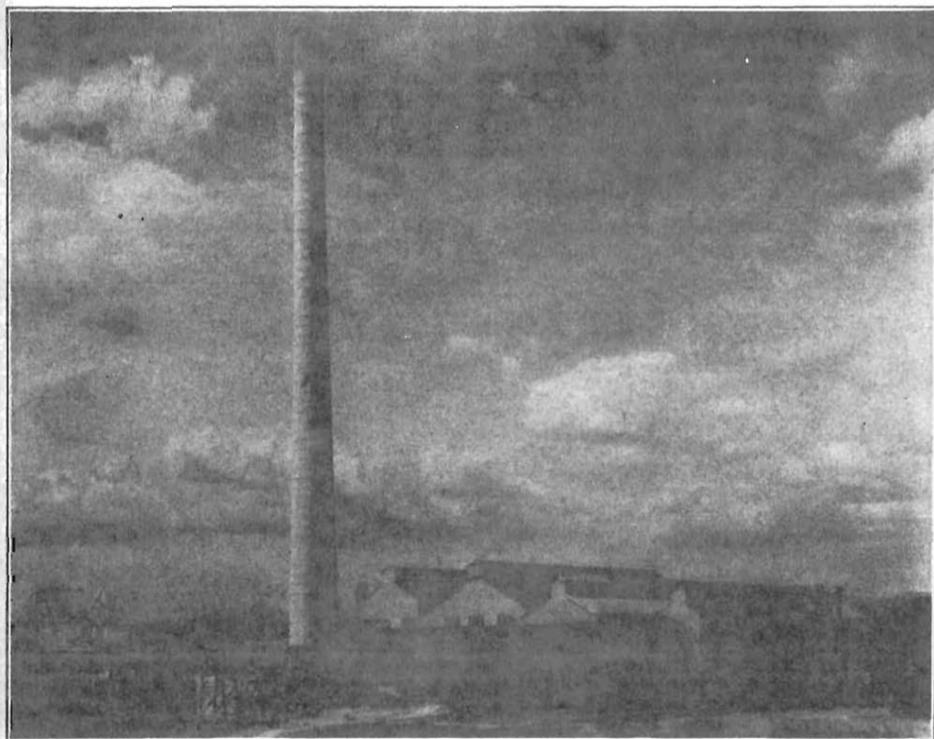
	Days
W. Burrows	
Ted Darling, injured finger, 9-4-38.....	0
Robert Hullender, cut chin, 9-8-38.....	1
Telford Oates, eye, 9-9-38.....	0
John Piantoni, eye, 9-12-38.....	1
Alex Ford, pain in chest, 9-24-38.....	0
A. Hullender	
J. A. Gorden, injured hand, 9-2-38.....	0
Chester Morrison, cut finger, 9-20-38.....	0
Merlin Neish, blister on finger, 9-24-38.....	0
C. Gibson	
M. A. Lowrie, cut over right eye, 9-20-38.....	0
O. L. Salmon, sprained ankle, 9-21-38.....	0
Ralph Santelli, eye, 9-27-38.....	0
J. Odgers	
Frank Joyal, sprained back, 9-17-38.....	0
Wm. Talbott, bruised elbow, 9-22-38.....	0
Paul Smith, bruised foot, 9-24-38.....	0
J. O'Donnell	
Floyd Menne, cut finger, 9-13-38.....	0
H. E. Phagon, bruised finger, 9-26-38.....	0
Geo. Pearney, cut wrist, 9-27-38.....	0
E. Martz	
Ted Boyer, sprained neck, 9-2-38.....	0
F. Sifers, C. Farrar and O. Antonsen	
None	

Shift-boss	Shifts in Mo.	Bonus at 1½c	Accident Cost	Bonus to be paid
Burrows	1109	\$16.68	\$10.00	\$ 6.68
Hullender	983	14.74	0.00	14.74
Farrar	45	0.67	0.00	0.67
Antonsen	43	0.64	0.00	0.64
Gibson	502	7.53	0.00	7.53
Odgers	1043	15.64	0.00	15.64
O'Donnell	659	9.88	0.00	9.88
Sifers	427	6.40	0.00	6.40
Martz	529	7.92	0.00	7.92

The best safety engineer in the world, however, is naught but a snare and a delusion if he does not have the support, cooperation and constructive criticism of the rest of the supervising personnel of the organization. To put it in Franz's own words: "Safety must start at the top."

Not only has this been done at Lava Cap, but all key men live at the mine where they are immediately available in case of emergency. These are: John W. Chandler, general superintendent; John C. Franz, safety engineer; Tom Leehy, Central mine forman, and in charge of safety until Franz came to the mine a year ago; Earl Belding, Banner mine foreman; W. W. McClish, chief electrician; Charles Miller, master mechanic. Other officials include: I. O. Proctor, mill foreman; J. F. Seigfried, engineer; and Otto Schiffner, general manager.

(Continued on Page 34)



The \$5,000,000 smelter of the Nevada Consolidated Copper Corporation, recently completed at Hurley, New Mexico. The new plant will make blister copper and is capable of handling the entire output of the mine, which has a daily capacity of approximately 16,000 tons. The giant cement-brick stack, which rises 520 feet above the base of the foundation, is reported to be the third highest of its type in the United States. The huge smelter, construction of which was started in August, 1937, was designed by Frank H. Buchella, who is now assistant general manager of the Chino Mines Division of Nevada Consolidated.

TREASURE MOUNTAIN gives

Realistic Portrayal of Mining Methods

THE Mines, Metals and Machinery Building at the Golden Gate International Exposition at San Francisco presents the complete story of mining—the mining of gold, silver, copper, and iron, as well as the complex story of how these metals are treated and processed before they become an integral part of the every-day life of every human being. Much of this is portrayed in dramatic fashion by Treasure Mountain, the mammoth exhibit which occupies all of the south end of the building.

One of the most popular showings of the mines exhibit is presented along both sides of a winding hallway which leads to the left from the South Tower entrance. The wall to the left side is enlivened with six richly colored murals portraying the development of mining and metallurgy from early Egyptian days to the present time. To the right is the famous bullion balance, made in Boston a century ago, and since employed at many old-time California gold mines. This balance is said to have weighed over \$20,000,000 worth of bullion. Distributed about it are hundreds of free-gold specimens worth many thousands of dollars. Farther along are three striking displays, one representing the Stone Age, another the Bronze Age, and a third the Iron Age, each containing authentic tools and implements of its respective period.

Treasure Mountain is a replica of the typical western mining country. It is 160 feet long, 85 feet wide, and rises to a height of 50 feet above the floor. From the entrance ramp one goes immediately underground and walks through timbered sections of a tunnel, stope, and drift, and at one point finds himself at a station with three walls of rock, the fourth facing

Treasure Mountain, built, assembled, and maintained by the California Commission for Golden Gate International Exposition, tells the story of mining, milling, and smelting methods throughout the west. The exhibit has been created to give the general public a fuller realization of the part mining plays in the daily life of the nation.

a two-compartment shaft, a cage in one compartment, a skip in the other.

As one passes through the various parts of the "mine," he sees the Quartz Vein stope with drill set up ready to work and a loaded ore car standing under the chute. There is a miner's lamp station, a primer room, a machine drill set up as a stoper, and "Old Workings—Keep Out" signs to warn the miner from dangerous ground. In a copper stope is a typical timbering arrangement with two drills in position and an ore chute at one side. At another point the figure of a man stands in operating position at his drill, the light from his lamp shining along the machine to the face of the drift. The vein is shown clearly at various underground points, as are the hanging wall and footwall. If one looks carefully, he may identify the various copper ores.

Atop Treasure Mountain is the largest true-to-scale working model on Treasure Island. There is portrayed from the surface angle what amounts to practically the whole range of activities associated with the extraction of gold from underground or lode mines to open-cut mines,

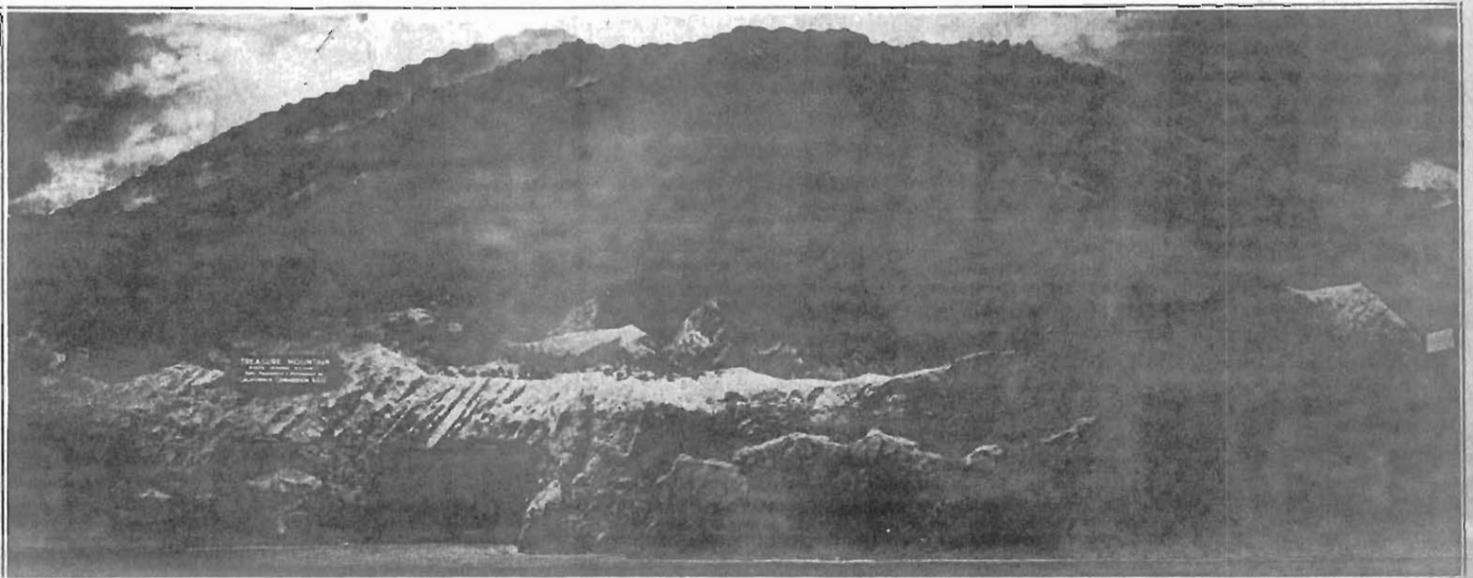
and from machine dredging to the panning of gold by hand.

Out of the shoulder of a near-by hill comes an electrically operated train loaded with ore; it passes over a timber bridge, that in real life would measure 162 feet high, and on to the smelter. This plant, scale-built, consists of a concentrator building and a blast furnace building with its tall stack. Tiny trains also run along the open cuts where working models of steam shovels dig away at the loose rock. High along the mountain side are perched two more mines with surface plants—one for treating silver-lead ore, the other a cyanide plant for handling gold ore.

Out of the box canyon, and under the 162-foot bridge, roars a mountain torrent. At one point along the bank is a working dredge, bringing up gold sands for washing; farther on is a miner squatting over his gold pan. Along the hillside, the hydraulicers are gouging out the surface with huge monitors that represent the one-time "pride of California" in a gold-mining sense.

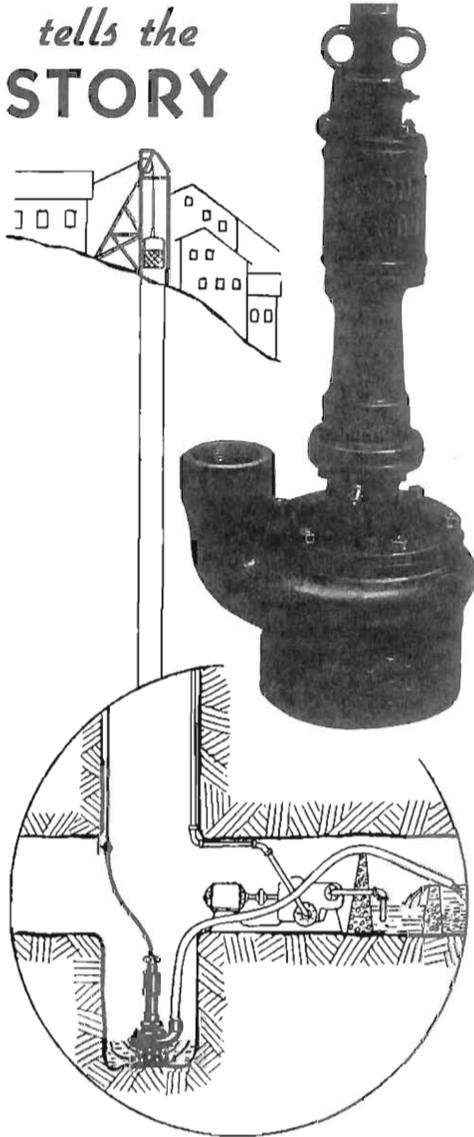
A replica of a mining camp, complete with dwellings and false-front stores, makes the mining scene bristle with life and action. In the foreground is a group of miners putting up a house; at one side, two old-timers of the prospector type are in the act of winding up a windlass; others are strolling about the town, one or two behind a string of plodding burros. Altogether, 28 carefully wrought figures of men and beasts animate the scene, breathing life into the mining camp of the hills.

It is said that between the working scenes atop Treasure Mountain and the generous sample of underground activities, visitors are gaining authentic impressions of what it means to produce an ounce of gold, a pound of copper, and a ton of non-metallic ore for the chemical industries. In terms of travel, a visit to Treasure Mountain is equivalent to a tour of some 2,500 miles through the mineralized zones of the west.



Treasure Mountain as it appears in the Mines, Metals, and Machinery Building at the Golden Gate International Exposition. This exhibit, which tells the story of mining, is a life-like mountain which contains drifts, shafts, and tunnels lined with ore-bearing rock. Various types of underground and surface mining and recovery methods are demonstrated.

THIS PICTURE tells the STORY



For "MOPPING UP" and many other Mine Uses the BYRON JACKSON PNEUMATIC SPONGE IS UNSURPASSED

Uses compressed air at usual pressures. Operates in any position; lowers water to within 3 inches of bottom of sump; will pass $\frac{5}{8}$ -inch solids. Single stage, weight only 85 pounds. A 2-Stage is also available for higher heads.

Special Mining Representatives will supply you with details:

EYLER-GREENAWALT CO.

El Paso, Texas

ATKINS-KROLL CO.

Manila, Philippine Islands

or inquire from any Sales Office listed in back of this publication, or write to

BYRON JACKSON CO.

Dept. MI-130

Berkeley • LOS ANGELES • Bethlehem

market for leases on properties carrying values above \$15 per ton in gold and silver. Jerry Jacobson of Kingman, chief engineer for the Bessie company, will supervise installation of the stamp mill.

Reconstruction of the flotation mill and assay office at the property of the **Indian Valley Mining Company**, Greenville, California, will begin about April 15. They were recently destroyed by fire which caused an estimated loss of \$90,000. The mill was completed last summer at a cost of \$75,000 and had a capacity of 150 tons. Both buildings were of frame construction. Two shifts totaling 32 men were employed at the property. C. L. Hibbard, 1210 Western Avenue, Seattle, Washington, is president of the company. Gerald L. Johnson, vice-president and general manager, is in charge at Greenville.

R. O. Greeves, Columbia, California, is carrying on steady operations at his **Wind-wheel lode mine** located near Columbia. He is working the property himself, and is employing one man. The mine was patented in January.

The mill at the **Our Chance mine** in the Sherlock district near Mariposa, California, will be placed on a 24-hour basis shortly. The plant has been on a two-shift basis up to the present time. When full operations are reached the crew will be increased from 10 men to 20 men, and the plant will treat a total of approximately 25 tons per day. The mine was taken over recently by a group composed of E. R. Baker, Earl Baker, A. A. McMillan, O. P. Gridley, and associates who plan to form a corporation. This group is also interested in the Diltz mine. The Our Chance is owned by A. E. Clark, Mariposa.

Installation of a mill is proceeding rapidly at the **Washington mine**, Hornitos, California, under the direction of J. E. Newcomb, general manager. Milling equipment is being moved to the property from the Malvina mine. A pipe line has been laid and tanks installed to provide a constant flow and sufficient pressure for all purposes. The plant is expected to be ready for operation before the first of April. The property is owned and operated by the Mariposa-Washington Mining Company, a limited co-partnership composed of E. Bradford Newcomb, manager and engineer in charge at the mine; Robert Gray, treasurer, 385 East Green Street, Pasadena, California; and W. H. Cornes, in charge of accounts, 500 Bartlett Building, Los Angeles, California.

At the annual meeting of stockholders of the **California Engels Mining Company**, 350 California Street, San Francisco, California, all directors were reelected and capitalization of the company was increased from 1,000,000 to 4,000,000 shares, par value 25 cents. Acquisition of the **Groom mine** near Wickenburg, Arizona, was also approved. Roger L. Beals, general manager at the Arizona property, reported that the crosscut on the 350-foot level is being

cleaned out and ore shipments are to be started within a short time. The company plans to abandon and offer for sale the Indian Valley railroad which served the old Engel mine at Engelman, California. A. J. Heller is president of the company.

A corporation has been formed by a group of Escondido, California, men to develop gold deposits at Black Mountain south of Lake Hodges. Included in the group are Earl Kenton, Virgil Deaver, Howard Donaldson, and Frank Hopkins, all of Escondido. The property has been examined by J. N. McLeod, mining engineer, who reported the presence of gold in commercial quantities. There is sufficient water available to supply a small milling plant. The property was equipped several years ago with a plant for distilling arsenic, which is also found in the ore, and this mill consists of a crusher, roller, and revolving furnace, from which fumes were to be condensed in a long series of concrete chambers. The plant is still in good condition. According to McLeod, the main values at Black Mountain are in gold, carried in arsenopyrite. Tests have shown that about 70 per cent of the gold can be recovered by fine grinding and amalgamation, while the balance can be cyanided or amalgamated after roasting to free the gold from the arsenic. The new corporation plans to undertake all development on a gradual basis, first installing a small mill and eventually increasing the capacity. A gyratory crusher and ball mill now available will be used for crushing and recovery will be made by means of an amalgamator. From there the material will be passed over concentrating tables or flotation cells to recover heavy arsenopyrite left after the free gold is recovered. There is a possibility that the arsenic recovered may be sufficient to cover the cost of operations.

Work is being resumed at the **Good Hope mine** located $4\frac{1}{2}$ miles southwest of Perris, California, and machinery is being installed preparatory to sinking a straight shaft in an attempt to strike the main vein. The milling plant is also being placed in running order and a large crew of men is employed at the property. Additional men will be put on as the shaft nears the vein.

W. L. and C. A. Apperson and Dennis Mullins, all of Mariposa, California, have leased the old **Clark mine** from Mrs. George Meyer of Midpines, California. While no definite plans have been announced, it is understood that development of the property will begin at an early date.

The **Empire Star Mines Company**, Grass Valley, California, is considering plans for running a footwall crosscut from the 400-foot level of the **Murchie mine** for a distance of 6,000 feet toward **Mt. Banner**. The purpose of the crosscut is to explore an area which gives promise of ore development, and this method has been decided upon instead of sinking a new exploratory shaft on Mt. Banner. Robert Hendricks, Nevada City, California, is manager of the Murchie.

A. M. Tweedt, 660 Vernon Street, Oakland, California; Leslie E. Johnson, 28 Stack Building, Reno, Nevada; and associates are operating under lease the **Comstock mine**, Groveland, Tuolumne County,

California, which is owned by H. O. Comstock, Brockway Resort, Lake Tahoe, California. The property is equipped with a five-stamp mill, Diesel-powered, and about 15 tons of ore are treated daily, averaging \$20 per ton. The vein is from one to two feet in width and lies rather flat. Mining operations are being carried on through a tunnel.

The **Pacific Molybdenum Corporation**, recently incorporated by H. K. Fast, Vancouver, Washington, in association with L. B. Proctor and Byron Reed, has acquired the old Jones property in the Cherokee-Oregon City district of Butte County, California. A new milling plant is being installed which is expected to be ready for operation early in the spring. The property carries four veins, one opened by a 145-foot inclined shaft, and it is possible to work all four from this shaft. In addition to handling its own ore, the corporation plans to do custom milling for mines in the vicinity of Magalia, Berry Creek, Yankee Hill, and Hurleton, and in the Cherokee-Oregon City district. Fast is vice-president and general manager of the organization.

Installation of a new milling plant is nearing completion at the **Campo** mine located one mile from Hornitos, Mariposa County, California. There are approximately 1,400 tons of ore on the dump which will be treated immediately upon completion of the mill, to be followed by ore extracted from the mine itself. The shaft is 200 feet deep with drifts on the 100 and 200-foot levels, and drifting on those levels is being continued. The vein is more than five feet in width and is said to average more than \$50 per ton. Several shafts and prospect holes sunk to prove the vein are also said to have shown exceptional values. The mine is being developed by Nielsen L. Wagner and associates and work is being directed by Wagner, who is general manager. He recently resigned as general manager of the Mount Gaines Mining Company in order to devote more time to his personal interests.

A 600-ton daily capacity sand-leaching cyanide plant is under construction and extensive road building is in progress at the property of **Santa Fe Gold Mines, Inc.**, located in Black Hawk Canyon, 35 miles southeast of Victorville, San Bernardino County, California. Eighty men are employed. The Santa Fe interests recently acquired the properties of the **Arlington Mining Corporation**, and the project has been privately financed in the east. A 25-ton cyanide plant and an aerial tramway were installed several years ago for preliminary testing of the extensive deposits of shattered gold-bearing limestone which are exposed on the property. There are several miles of underground and surface workings in the thick limestone beds which will be mined by both open-cut and block caving methods. Eastern offices of the company are located at 55 Liberty Street, New York City, and western offices are at 234 East Colorado Street, Pasadena, California. The mine address is Box 668, Victorville. Algernon Del Mar is consulting metallurgical engineer, R. K. Voorhies is resident manager, and T. G. Lewis and

P. E. Van Saun are construction engineers. Officers of the company are as follows: W. Lunsford Long, chairman of the board; Hewitt S. West, president; Roy K. Voorhies, vice-president; Daniel Heyward, vice-president; Edward H. Emerson, secretary-treasurer; Harlan H. Bradt, managing engineer.

Houston Brothers are operating a large dredging outfit on the old **Last Chance** mine property located on the Mother Lode highway near Vallicita, California. A 1 1/4-yard Diesel shovel is being used to move the material and approximately 3,000 yards are handled daily. About three feet of surface soil must be removed with a scraper before pay gravel is reached.

A water well is being drilled on property located on the Power Line Road three miles northwest of Randsburg, California, for the **Yuba Associated Engineers, Ltd.**, Bal-four Building, San Francisco, California. Engineers have tested the placer ground and it is estimated that there are some five million cubic yards of material available. Working of the ground will require approximately 10 years and is expected to provide employment over that period for about 20 men. Dredges will be used to work the ground as soon as water is made available. Sixty days are expected to be required for completion of the first well.

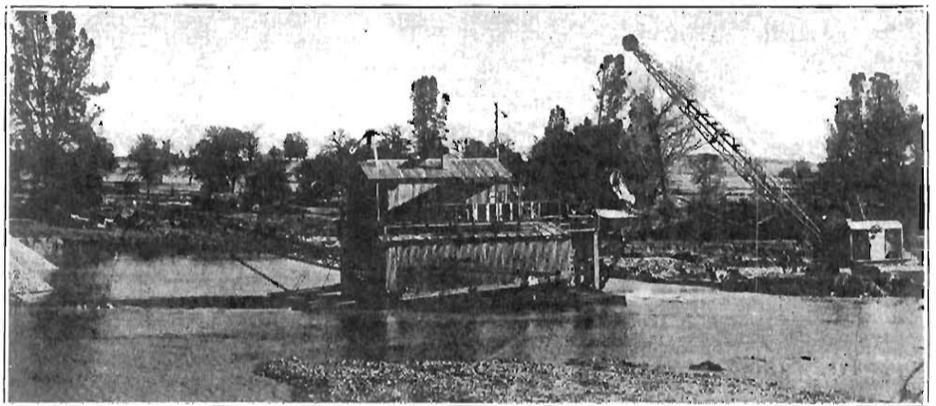
A two-compartment shaft is being sunk on the Taylor property, recently acquired

GOLD GOLD GOLD MILLIONS

BODINSON-BUILT DRAGLINE DREDGES are "digging out" millions of dollars in gold yearly for placer operators . . . under varying difficult operating conditions, each dredge designed to suit the specific property where it will operate . . . sectionalized construction to facilitate transportation and field assembly . . . ruggedly built for continuous operation.

PROPER EQUIPMENT ASSURES IMMEDIATE SUCCESSFUL OPERATION

You will want a copy of the new comprehensive treatise on "Dragline Gold Dredges" . . . write for it today, its free!



World's Largest Builders of Dragline Gold Dredges

BODINSON MANUFACTURING COMPANY

2401 BAYSHORE BLVD.

SAN FRANCISCO

For Use In FLOTATION



NICHOLS Triangle Brand COPPER SULPHATE

99%
PURE

We offer a specially
screened product for
this purpose.

Shipment from our El Paso Refinery

PHELPS DODGE REFINING CORPORATION

40 Wall Street, New York
230 N. Michigan Ave., Chicago

SOUTHWESTERN DISTRIBUTOR

ASARCO MERCANTILE CO.

Mills Bldg.,
EL PASO, TEXAS

by the Lode Development Company, Garden Valley, California, and construction of a headframe is under way. The company has also optioned the Clydesdale group of claims adjoining the Taylor property. Work is also progressing at the Rosencranz property, which has been under development for the past two years, and it is understood that a winze may be sunk from the 350-foot shaft. Two shifts, a total of 40 men, are now engaged in development work and the mill at the Rosencranz is treating about 75 tons daily. Charles Hopper Brown, Garden Valley, is superintendent of the properties.

W. J. Loring, Box 816, Oakdale, California, has taken a working lease on gravel property in Tuolumne County, California, and has also recently completed a working contract covering a large acreage of gravel in Trinity County. He has several million yards of gravel under contract and active work is expected to start soon. Some of the ground will be hydraulicked while other portions will be worked by means of drag-line equipment.

The Caledonia-McBride gravel claims near La Porte, California, will be tested with a pilot hydraulic outfit as soon as water is available and if the tests are successful it is planned to install monitors for active operations. Debris will be stored behind Bullards Bar dam and water for the hydraulicking operations will come from Canyon Creek. A ditch to carry the water is under construction. It is estimated that there are approximately 10,000,000 yards of gravel available in the La Porte district which can be handled if the present project proves profitable. The Gardner Point mine has also been acquired for development. Lewis F. Johnson of La Porte and associates are preparing the properties for active operation. They also hold an option on the Turner property near Placerville, California.

A new pumping plant is being installed at the Sliger mine of the Middle Fork Gold Mining Company, C. W. Plumb, superintendent, Greenwood, California, for the purpose of raising water from the Middle Fork of the American River to the milling plant. New transformers for the pumping station are on the ground, ready for installation. The operating crew at the present time totals approximately 80 men.

J. D. Loop and Joseph Johnson, Cima, California, are developing the New Trail mine near Cima.

The Comet mine near San Andreas, California, has been leased by Jose Lucientes, Sonora, California, and J. L. Craig, Stockton, California. The property is held under option by Raymond Hageman, Box 104, San Andreas, and is owned by Mrs. Francis B. Reed of San Andreas. The mine is opened by a 400-foot tunnel and an 85-foot winze. A 100-ton stamp mill is being used in making test runs and if results are satisfactory it is understood that a 300-ton mill will be installed.

Russell Wilson, Garden Valley, California, owner of the Black Oak mine, has acquired control of the Veerkamp group of claims near Garden Valley and he plans

to work an extensive deposit of surface ore by means of power shovels. Values are said to run from \$7 to \$9 per ton. The ore will be treated at the Rosencranz mill of the Lode Development Company. The mill is a 100-ton flotation plant equipped with a Bendelari jig. Earl M. Cooper is superintendent of the Wilson properties.

The Minnie Reeves placer, Happy Camp, California, has been equipped with two pontoon dredges to permit more extensive operations. The ground is being worked by the St. Lawrence Mining Company, George I. Fenton, general manager. H. E. Coleman, Box 173, Happy Camp, is mine foreman. Stripping operations are being carried on with three Caterpillar tractors and eight-yard carryalls.

Values ranging from \$7 to \$9 per ton are reported being recovered consistently from the blue sulphide ore body under development at the Premium quartz property located three miles north of Crescent Mills, California. The exposed ore is reported to be 33 feet wide and more than 320 feet in length. The property is equipped with a 40-ton mill. E. R. Zeigerst is directing operations at the mine.

The mine and mill of the California-Utah Mining and Milling Company located in the Middle Butte district 12 miles from Mojave, California, are reported to be operating steadily. The mill has a rated capacity of 30 tons per day and there is said to be sufficient ore available to keep the plant operating for some time. The company is not accepting custom ore. Much of the material treated in the mill is being surface mined. Seven men are employed at present.

Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reports an operating profit of \$76,700 for February. This includes other income but is before provision for depreciation, depletion, or income tax, and compares with \$123,300 in January and \$107,500 in February, 1938.

Natomas Company, Thomas McCormack, president, Box 1197, Sacramento, California, and subsidiaries report for the year ended December 31, 1938, a consolidated net profit of \$1,283,945 after depreciation, depletion, interest, and income taxes, which is equal to \$1.31 a share on 980,250 shares of capital stock outstanding. This compares with net profit of \$959,791 for 1937 on the same basis. Revenue from gold dredging amounted to \$2,981,889, compared with \$2,001,952 in the preceding year, a gain of 49 per cent. A total of 85,201 ounces of gold was recovered, as compared with 57,252 ounces for 1937. Four quarterly dividends of 20 cents a share were paid together with an extra 10-cent dividend at the end of the year. The company received dividends of \$24,000 from the Merced Dredging Company and \$30,000 from the San Joaquin Mining Company. During 1938 the company acquired additional stock of the Manhattan Gold Dredging Company in the amount of \$25,000, making a total investment of \$50,000, or a one-quarter interest. In accordance with a previous understanding

a loan of \$100,000 was made to Manhattan during the year. It is expected that the Manhattan company will be on a dividend basis in 1939.

A meeting of the board of directors of **Metallic Mines** was held February 14 at Stockton, California. The company holds under lease the Longfellow mine at Big Oak Flat, California, but the property is closed at present. The 100-ton mill and cyanide plant have been completed but will not be placed in operation until the tailings dam is built. Pump and pipe lines have been installed to bring in additional water and the mine stopes have been prepared for caving. A. L. Blair, 1202 North Hunter Street, Stockton, is president of the company.

Reports that the **Walker Mining Company**, Walkermine, California, had closed down have been denied by officials of the company, who state that the mine is operating as usual. L. F. Bayer is manager at the property. The road to the mine is closed by winter snows and ore is being shipped over the tram.

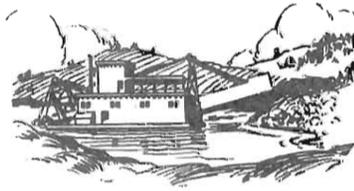
St. Joseph Lead Company, Clinton H. Crane, president, 250 Park Avenue, New York City, declared a dividend of 25 cents on common stock, payable March 20 to stock of record March 10. Similar amounts were paid in previous quarters.

The **K. B. P. Mining Company, Inc.**, has been organized by W. J. Kuhner, Julian, California, and associates, to develop mining property on the Harper Ranch near

Julian. The company is developing a vein ranging from one to four feet in width and carrying values of from \$25 to \$300 per ton. It is planned to run a tunnel at the foot of the mountain to tap the ledge at a lower level and a mill will be installed as soon as additional tonnage is available.

D. Chase Rich, 639 South Spring Street, Los Angeles, California, and H. D. Winger, also of Los Angeles, have secured lease and purchase rights on the **Old Rose** gold mine located 10 miles east of the noted Lucky Baldwin mine near Big Bear Lake, California. Machinery will be installed immediately preparatory to reworking the old tailings dump and developing a new ore supply. The property was discovered by Al Watts in 1895 and produced quite steadily until 1904 when its owner, John J. Rupp of Saginaw, Michigan, closed it down because of high-grading among the miners which made operation unprofitable.

The **Jumbo** group of six gold claims located about eight miles east of Independence, Inyo County, California, has been taken over by the **Cuban-American Holdings, Ltd.**, C. C. Coulter, president, 367 Mills Building, San Francisco, California.



Installation of a 100-ton concentration and flotation plant is planned near Kearsarge station on the Southern Pacific Railway, and custom ore will be handled in addition to the Jumbo ore. The project is being financed by New York capital.

In a recent letter to stockholders, **Whitmore Mines, Inc.**, Mojave, California, reported that work has been confined principally to development of the No. 1 shaft and regular shipments have been made to the Golden Queen mill from these workings. Assay values have ranged from \$11.50 to \$34 per ton on the shipments. Charles D. Wilkinson is consulting engineer in charge of operations. A new ore shoot has been uncovered on both the 100 and 200-foot levels of the No. 1 shaft, and drifting to the south is in progress on these levels. The ore shoot has been exposed for more than 70 feet on the 100-foot level and the vein varies in width from one to four feet. A raise is being put up from the 200 to connect with the 100-foot level and in this raise ore assaying from \$50 to more than \$100 has been encountered. Additional work will be started on other parts of the property as soon as the most economical method for development and extraction of ore has been determined. The company's entire indebtedness is only about \$3,000, including deferred payments on equipment, with sufficient money in the treasury to take care of all obligations, according to the report. Offices are located in the Rives-Strong Building, 112 West Ninth Street, Los Angeles, California.

OPERATE AT LOW COST PER TON with---

HENDY

CRUSHERS, FEEDERS AND BALL MILLS

Built to Endure

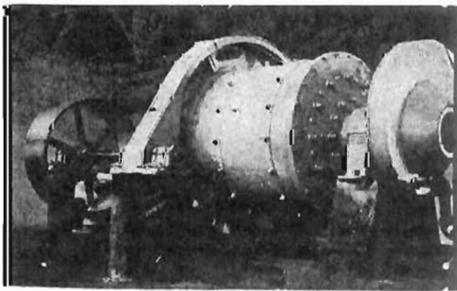
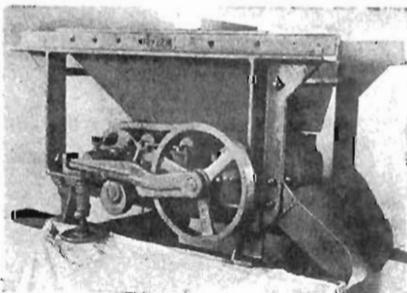
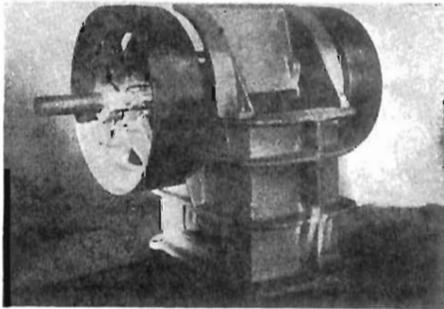
Complete Machinery for Mines and Mills
Lode, Placer and Dredge Mining

Send for Bulletins

See us at **TREASURE ISLAND**
GOLDEN GATE INTERNATIONAL EXPOSITION
Space 61, Mines, Metals and Machinery Building

JOSHUA HENDY IRON WORKS

Address: Sales Office 206 Sansome St., San Francisco, California



Clearly the separating process while simple in principle requires a number of adjunct operations for the sake of economy in reagents and from a physiological standpoint. The process is not applicable to fine particles. It is therefore limited to the treatment of minerals in a coarse state of subdivision and such a treatment cannot be expected to be successful unless the mineral is coarsely aggregated or unless low standards of recovery are permissible.

It would seem that the modern parting-liquid process may carve for itself a large place in the treatment of coal, of iron ores, and of some non-metallic minerals. In the field of treatment of the common metallic ores dealt with in western mining districts, such as copper, lead, zinc, gold, etc., the process will certainly not yield a finished concentrate; where operations are conducted on a large scale, however, it may result in some economy by making possible the discarding of coarse tailing.

CARSON HILL GOLD REPORTED \$50,000 INCOME FOR 1938

THE Carson Hill Gold Mining Corporation, in its annual report for the year ended September 30, 1938, showed a net income of \$52,658.

Obligations of the company were reduced during the year to a normal operating position and, in addition, dividend No. 1 of 2 cents per share was paid during September. The dividend totaled \$48,000. Since the close of the company's fiscal year, dividend No. 2, amounting to 1½ cents per share, was paid in December, 1938.

In comparison with the previous year, revenue from sale of bullion increased by 11 cents per ton milled, principally due to increased efficiency of recovery in the mill and cyanide plant, and at the same time comparable operating costs were reduced by 17 cents per ton.

Measurable ore reserves have been substantially maintained during the year and the ore bodies exposed on the 3,325-foot level, coupled with the work being done on the 3,500-foot level and the record of earlier operations, indicate the continuation of important ore bodies in the mine, both laterally and at depth.

A total of 367,818 tons of ore were milled, from which were recovered 24,018 ounces of gold and 6,998 ounces of silver, a recovery per ton of \$2.30. This is an increase of 32,638 tons milled over the previous year and an increase of \$110,158 in total recovery. The year's ore was produced from the Morgan and Calaveras mines and the Union and Calaveras shovel pits.

Development work for the year consisted of 3,597 feet of drifts, crosscuts and raises in the Morgan mine and 697 feet in the Calaveras mine. The mine operating cost for the year was \$1.80 per ton of ore milled, which compares with \$1.97 for the previous year.

The additions to the cyanide plant made in 1937, together with many miscellaneous improvements and economies in operation, resulted in an increase of 3.3 per cent in recovery of metal. No major construction was done at the mills.

For the quarter ended December 31, 1938, the company reported an operating profit of \$50,549 before deductions for depreciation, depletion, etc. A total of 98,605 tons of ore was milled, from which the revenue totaled \$234,167. Operating costs, which include all expenditures for development, repairs, and renewals, totaled \$183,818.

John A. Burgess is general manager at the property, which is located at Melones, California. Walter Lyman Brown, 206 Sansome Street, San Francisco, is president of the company.

6,000,000 TONS OF ORE RAISED FROM INCO'S MINES

NEARLY 6,000,000 short tons of ore were extracted from four mines by The International Nickel Company of Canada, Limited, in 1938 in order to meet market requirements for nickel, according to the annual report released by Robert C. Stanley, chairman and president.

At the same time, more than eight miles of shafts, drifts and crosscuts, raises, winzes, and box holes were added in these mines as "ordinary underground development at a rate compatible with ore production requirements." The total linear measurement of such development was thus brought to more than 136 miles, the Frood mine leading with 303,274 feet and Creighton coming next with 274,930 feet.

The four mines operated continuously throughout the year showed the following ore deliveries:

Frood	3,497,846 tons
Creighton	1,092,155 tons
Levack	814,513 tons
Garson	380,780 tons

In addition, open-pit mining was started at Frood, and a million tons of ore were developed by the year-end. Ore shipments started in January.

The ore mined and treated in 1938 produced approximately 80 per cent of the world's consumption of nickel, 6½ per cent of total world copper deliveries, 42 per cent of the world production of the platinum metals, and substantial quantities of gold, silver, selenium, and tellurium.

BOARD OF GOVERNORS APPOINTED FOR ARIZONA MINERAL BOARD

MEMBERS of the board of governors for the new Arizona State Department of Mineral Resources have been appointed by Governor R. T. Jones. They will meet at an early date to elect their officers and appoint the director of the new department.

The board members appointed are: Charles F. Willis, Phoenix, member-at-large, whose term will terminate January 31, 1944; J. Hubert Smith, Kingman, whose term will terminate January 31, 1943; Shelton Dowell, Douglas, whose term will terminate January 31, 1942; Norman H. Morrison, Phoenix, whose term will terminate January 31, 1941; and A. C. W. Bowen, Winkelman, whose term will terminate January 31, 1940.

The new department of mineral resources was created by the legislature just closed and \$30,000 a year appropriated for the 1939-1941 biennium.

STORY OF MONTANA MINING TOLD AT ROTARY MEETINGS

THE BUTTE Rotary Club has started a series of luncheon talks which are designed to cover Montana's basic industry of metal mining, smelting, and refining. These talks will be by leading mining men of the state, but will not be technical. Five are scheduled in March and two in April, with Samuel Barker, Jr., M. H. Gidel, J. J. Carrigan, Carl Trauerman, and Charles A. Lemmon included in the list of speakers. After these speeches have been made they will be printed in booklet form and distributed by the Butte Chamber of Commerce.

SAFETY PROGRAM AT THE LAVA CAP MINE

(Continued from Page 5)

S. H. Ash, in U. S. Bureau of Mines Information Circular 6861, says:

"... on the average 22 persons are killed annually in California mines, and for every person killed 60 others are injured. As a result of these non-fatal injuries, 60,000 days of wages are lost to the workmen... amounting to at least \$270,000 annually... returned in part by compensation insurance. The industry is now paying annually about \$1,074,000 for industrial awards—a tax each year of at least 10 per cent of California's gold production..."

In view of this statement, Lava Cap's record seems all the more noteworthy. This mine shows a 3.07 per cent operating cost during the last 2½ years. Included in that figure is a portion of the safety engineer's salary and payments for one fatality claim.

EDISON STORAGE BATTERIES

Mr. R. H. Weeks, Jr.
Edison Storage Battery
Supply Co.
1174 Howard Street
San Francisco, California

Mr. F. C. Gibson
Edison Storage Battery
Supply Co.
509 Polson Building
Seattle, Washington

Mr. D. F. O'Donnell
Thomas A. Edison, Inc.
Edison Storage Battery Division
1907 Continental Life Building
St. Louis, Missouri

Mr. W. A. Campbell
Mr. H. A. Woodin
Edison Storage Battery Supply Co.
605 Denver National Bldg.
Denver, Colorado

Box 626, Manila, is president of the managing concern.

Exploration and development work at the properties of the *Golden Gate Mining Company* and the *Dulangan Mining Interests Company, Inc.*, have been characterized as promising by Merle R. Schrock, consulting engineer of the two concerns.

At Dulangan's two groups of claims in Tayabas work is being carried on by R. H. Wygle, resident engineer. Camps have been built, an assay laboratory has been installed, and six drifts are now being driven which have opened commercial ore.

Development at the Golden Gate Mining Company property in Tayabas has resulted in the recovery of about 5,000 tons of chromite ore, now ready for shipment. Its principal work, however, is the development of gold deposits in the area where, because of the extremely rugged topography, backs as high as 1,000 feet can be obtained without shaft sinking. Work is being done both in tunnels and on the surface. Charles A. McDonough, 604 Heacock Building, Manila, is president of both companies.

ANNUAL REPORT OF THE PHELPS DODGE CORPORATION

(Continued from Page 7)

Operations at the Clifton Smelter, which were on a temporary basis, were suspended in March. New metal-bearing material, consisting of concentrates, precipitates, and scrap, treated from the first of the year to the date of suspension, amounted to 18,274 tons. One furnace was operated on raw charge.

The Moctezuma Copper Company in Sonora, Mexico, produced 153,598 dry tons of ore. Levels 400 to 700, inclusive, were in production during the entire year. The copper output remained small and little development work was done. The concentrator treated 150,943 dry tons of ore with an extraction somewhat lower than in the preceding year, due to the oxidized condition of some of the ores.

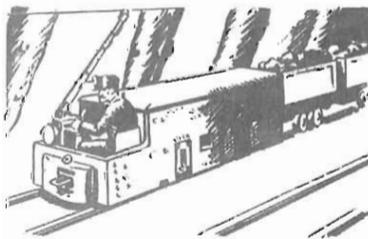
At the San Carlos property in Chihuahua, Mexico, while mining developments were under way in January, stopping and milling operations were not started until March. During the year the mine produced

34,239 dry tons of ore and 3,170 dry tons of ore were reclaimed from old dumps. Development work consisted of 1,234 feet of drifting and raising. The mill treated 38,798 dry tons of ore, the resulting concentrate being shipped to the Torreon smelter. Additions to the plant equipment consisted of a new power engine and increased air compressor capacity. Necessary new adobe buildings for the workmen and staff were constructed.

The Stag Canon Branch at Dawson, New Mexico, produced 225,068 tons of coal. The production came, as in past years, from No. 6 Mine, which operated 152 days. Both commercial and railroad sales declined, largely because of continued displacement of coal by substitute fuels. All necessary safety precautions in the mine were maintained at the same high standard in effect for many years.

During the year the name of Nichols Copper Company, a wholly owned subsidiary, was changed to Phelps Dodge Refining Corporation. This change did not affect the management, personnel, or conduct of the subsidiary's business, however. The refineries at Laurel Hill, New York, and El Paso, Texas, were operated continuously throughout the year and produced a total of 494,164,474 pounds of copper, 7,729,572 ounces of silver, and 193,659 ounces of gold. These totals include metals returnable to others on a toll basis, metals contained in blister copper and copper anodes received for treatment from Phelps Dodge Corporation, and metals contained in ores, concentrates, blister copper, and scrap copper received and treated on a custom basis.

The total of direct taxes applicable to the year 1938 paid by or accrued or assessed against the corporation and its subsidiaries was equivalent to 80 cents per share of outstanding capital stock of the



corporation and represented 32 per cent of the corporation's consolidated net income for 1938 before taxes. Stated in another way, the taxes for 1938 were equivalent to \$1.58 per day for each day worked by every employe on the corporation's payroll in 1938. These taxes do not include those indirectly paid, which are not susceptible of accurate calculation.

WESTERN CHROME ORES FAIL TO QUALIFY FOR U. S. PURCHASE

BECAUSE they are high-grade concentrates rather than high-grade lump ore, western chromites are being ruled out from government purchases. Owners of chrome deposits on the Pacific Coast need not expect development of their ores by action of the senate military committee, in approving expenditure of \$100,000,000 for acquisition of strategic raw materials for defense, especially those which must be imported.

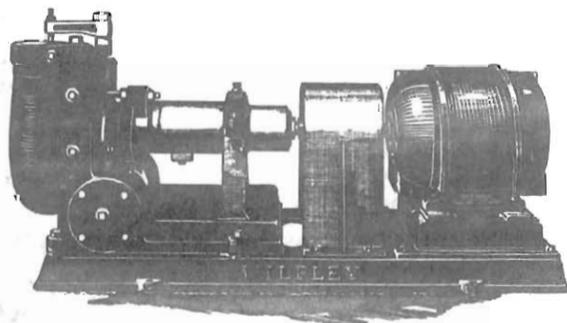
That warning was given by H. F. Byram of Grants Pass, Oregon, consulting mining engineer and vice-president of Rustless Mining Corporation, subsidiary of Rustless Iron and Steel Corporation of Baltimore. The companies have been developing chrome deposits in Oregon and California for the past two years, with several shipments being made to the Baltimore plant.

Byram's opinion is based on the type of contracts now offered by the naval department.

Byram said "severe specifications and penalties surround the whole situation" in government purchases of chromite.

"In the first place," Byram said, "the specifications require that ore furnished contain a minimum one part of iron to three parts of chromium metal; also that the minimum grade of ore shall be not less than 48 per cent chromic oxide contents. Such ore is a rarity in California and Oregon and where found does not occur in sufficient quantities to warrant large-scale operations or even the fulfillment of a small contract.

"The specifications further stipulate that the ore must be of lumps not larger than six inches and that not more than 10 per cent of the total quantity shall be smaller than one-half inch. This means when mined all larger lumps must be broken, with a



Write for Complete Details

A. R. WILFLEY & SONS, Inc.

DENVER, COLORADO

New York Office: 1775 Broadway, New York, N. Y.

Save Pumping Costs

Stuffing box, stuffing, gland water, shaft wear—ALL these UNCERTAIN elements are ELIMINATED in the WILFLEY pump. That is why the Wilfley handles the HARDEST jobs as if they were EASY—running continuously for long periods without attention. Use WILFLEY pumps in YOUR plant if you want to save pumping costs.

WILFLEY
centrifugal SAND PUMPS

PAGE
LOOSE

hammer which will increase the quantities of fines in the total amount. The ore must then be screened to eliminate the excess of these fines so that the total will not be greater than 10 per cent. The ore itself is usually easily broken and in the transportation from the west coast to the point of delivery in Philadelphia it is possible that the handling from truck to railroad, from railroad to wharf, from wharf to the hold of the vessel, and further handling into the final storage bins will cause additional fines to be made even to the point of showing an excess over government specifications.

"You will see from the foregoing that extreme hazard to any operator exists in his efforts to comply with the government specifications, and since he is by law compelled to put up a bond of 25 per cent of the contract price, eventual profit is almost impossible with the government protected at all points and the operator at none.

"The severity of these specifications leads one to suspect that they have been drawn up for purpose of discouragement of western development of chromite rather than its encouragement. There seems to be no good metallurgical reason to warrant these severe stipulations on the part of the government. It is easily possible in metallurgical practice to use concentrates of 48 per cent chromic oxide content which can be furnished at reasonable cost from western deposits and with a chromium-iron ratio sufficiently favorable for any reasonable manufacturing use."

1938 TREADWELL YUKON FIGURES BELOW ANTICIPATED LEVEL

The Treadwell Yukon Corporation, Ltd., reports a net profit of \$5,611 for 1938, the first year under the present capital structure.

Proceeds of production marketed, which includes both ore and concentrates, were \$1,533,351 from which was deducted marketing expenses of \$616,338, leaving a gross income from operations of \$917,013. Operating expenses amounted to \$692,236. Depreciation, depletion, royalties, and taxes were \$224,777 and other expenses less other income totaled \$62,427, leaving a net profit before provision for income tax of \$12,611. Estimated Canadian income tax is \$7,000, leaving a net profit for the year of \$5,611.

Operations during the past year were centered almost entirely in the Wernecke mines in the Yukon Territory, except for salvaging equipment of the Tybo mine plant in Nevada. The latter yielded a net recovery of \$61,466. Operating profit at the Wernecke totaled \$224,777 compared with \$801,749 in 1937. The company reports a greater tonnage produced from the Wernecke mine, but smaller recovery, which was partially offset by lower costs. The assets of the Keno Hill, Ltd., in the Yukon Territory were purchased and consist of 14 leased claims and three fractional claims as well as waterfront and warehouse facilities. P. R. Bradley, president, states "The outlook for the immediate future is entirely dependent upon metal price conditions and more particularly upon the world price for silver."

MINE

Redwood
Cooling Towers
Durable



TANKS

Douglas Fir
Wood Pipe
Economical

ACME TANK MFG. CO.

INCORPORATED

159 S. ANDERSON ST.LOS ANGELES

Complete Amalgamation Plants

5 TO 10-TON PLANT	15 TO 20-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.	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 . . . \$500	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

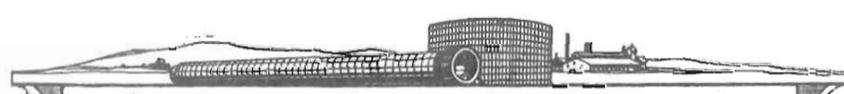
(A Voluntary Trust under Laws of Nevada)

ROCKAWAY BEACHBOX 128CALIFORNIA

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

WOOD TANKS

COOLING TOWERS + WOOD PIPE



PACIFIC TANK & PIPE CO.

THE STANDARD SINCE '88

4820 Santa Fe Ave., Los Angeles
Mail: Box 276, Arcade Station
400 High Street
Oakland, California

Classified Advertising

5¢ per word for the first insertion and 4¢ per word for consecutive subsequent insertions of the same ad. Minimum price \$1.00. Box number counts for 10 words to cover cost of forwarding replies. If desired in larger type and displayed, \$2.50 per inch per insertion.

POSITIONS WANTED

ASSAYER-CHEMIST. Many years varied experience, routine and research, mines, mills, and smelters. Address: Box B-56, The Mining Journal, Phoenix, Arizona. 4-15

MASTER MECHANIC—Electrical engineer. Experience in mine and mill construction, flotation, cyanide, all types of Diesels, maintenance, repairs. Design of power installations, power plants, hydro-electric, aerial tramways, mechanical installations, machine shop operation, electrical repairs. Age 38, married, steady. Address: Box F-29, The Mining Journal, Phoenix, Arizona. 3-30

MINE FOREMAN, shift boss. Over 20 years' experience. Will go to foreign country. Age 40 years. Knows how to handle large crews. Address: Box J-24, The Mining Journal, Phoenix, Arizona. 4-15

GRADUATE MINING ENGINEER, 30, five years' mining and milling experience wishes position with mining company in United States. Good health, speaks Spanish, available at once. Address: Box B-60, The Mining Journal, Phoenix, Arizona. tf

MINING ENGINEER, 29, graduate. Five years' experience engineer and superintendent surface and underground exploration and development gold and silver properties U. S. and foreign. Especially qualified for mine and geological mapping, topography, etc. Prefer engineering, geology, and exploration work. Address: Box B-61, The Mining Journal, Phoenix, Arizona. 3-4-30

COLLEGE MECHANICAL, electrical engineer. Experienced in mines, smelters, steel works, power plants. Steam, hydro-electric. Practical, theoretical armature winder. Installation and maintenance mechanical and electrical. Best of references. Health good, sober. Address: Box B-62, The Mining Journal, Phoenix, Arizona. 4-15

MINE WATCHMAN or ASSESSMENT WORK. Reference and Bond. Address: Box C-27, The Mining Journal, Phoenix, Arizona. 4-15

POSITIONS OPEN

Mill Designers (2) U. S. & Fgn. \$237.50 & \$275.00
 Mine Shift Boss, Single, Fgn. 225.00
 Mine Mechanic, Electrician, Fgn. 225.00
 Dredge Winchman, Fgn. 225.00
 Jr. Mine Engineers (4) U. S. & Fgn. 150 & 175.00
 Steno. Acct. Construction Exp. 165.00

GLENN B. WILSON
EMPLOYMENT SPECIALISTS

307 Conoco Bldg. Denver, Colorado

MACHINERY FOR SALE

COMPLETE PLACER EQUIPMENT including one-yard shovel and dragline all in good condition. Diesel power. Entire outfit ready to work. Excellent opportunity. Address: Box C-26, The Mining Journal, Phoenix, Arizona. 4-30

PUMPS

PUMPS FOR EVERY PURPOSE, from "The Pump House." A complete pump service. New and rebuilt Turbines. Allsteel Pump Company, 1751 East Slauson Avenue, Los Angeles. tf

MINES FOR SALE OR LEASE

SEVERAL GOLD CLAIMS six miles from railroad at Price, Arizona, and about 30 miles from Hayden and Superior smelters. Gold assays \$4 to \$75; some copper as high as 7 per cent. Address: R. D. Ramsey, Box 74, Florence, Arizona. 3-30

VIRGINIA'S BEST KNOWN ancient gold mine, the Booker. According to State Geological Survey report, a 10-foot vein averaging from \$14 to \$17 per ton. Ore shoot developed 1,200 feet. 1,500 acres near railroad and power. For sale reasonable price and favorable terms. Address: Marshall Haney, Geer, Virginia. 5-15

LEAD, ZINC, COPPER—6 claims. Free lease for one year to anyone with \$100,000 and reasonable lease after. Must take action on or before July 1. Address: John S. Smith, S.C.S. No. 2, Hereford, Arizona. 3-30

MINES WANTED

WANTED: SMALL placer property. Give details first letter. Address: 1410 S.W. Temple Street, Salt Lake City, Utah. 4-15

MISCELLANEOUS

HAVE MILLING PLANT, 300 tons capacity. Will put plant in on proven property and take interest for same. Give complete information. Address: Box R-20, The Mining Journal, Phoenix, Arizona. tf80

TAILINGS RETREATMENT. Large tonnage of tailings, residues from old Spanish mills available at very low price, containing high values of quick-silver, silver, gold, iron. Technical direction and financing of small retreatment plant necessary. Lucrative proposition. Address for information: Apartado 19, Zacatecas, Zac., Mexico. 4-15

GOLD SPECIMEN \$1.00—An ore overlooked by most prospectors. Don't pass up a good mine. Address: Seth W. Harris, Rocky Bar, Idaho. 3-30

WANTED: Financially responsible experienced mining man to lease on royalty basis my producing gold mine in Cripple Creek, Colorado. Address: C. Krug, 2718 Woodburn Avenue, Cincinnati, Ohio. tf

PROPERTY WANTED

Responsible person is interested in leasing with option to buy small property or good prospect. Please give all particulars. Proposition must stand rigid investigation.

Address: Box M-59

The Mining Journal Phoenix, Arizona

CERAMIC MATERIALS

New mines wanted of plastic and non-plastic refractory and pottery supplies; also red-burning plastics close to L. A. Send representative unground samples with details to

J. CLARK SUTHERLAND, Geologist
 Box 145, Station A, Los Angeles, Calif.

For Sale—Mill & Mine Equipment

Complete new 150 ton cyanide plant run less than 8000 tons. Includes Assay Office, Melting Furnace and Mining Equipment. In El Dorado County, California. Address:

Page Consolidated Mining Co.
 745 Peyton Building, Spokane, Washington

YELLOW PINE 100 TO 150 TON FLOTATION MILL

For description of equipment and prices, address
 Chas. K. Barnes, Goodsprings, Nevada

Tungsten - Molybdenum - Antimony

Fair Prices—Cash Settlements at
 New York Salt Lake
 Tucson Los Angeles

The David Taylor Company, Inc.

52 Broadway, New York City
 Cable Address—Caressing New York

Cables - Trupoint, N. Y.

DIAMOND DEVELOPMENT CO. OF AMERICA, INC.

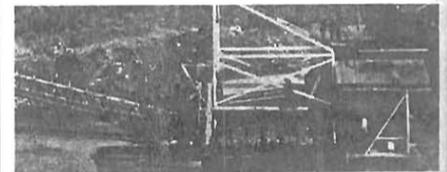
INTERNATIONAL BLDG. - ROCKEFELLER CENTER
 NEW YORK CITY

DIAMONDS FOR ALL TYPES OF CORE DRILLING

ELLIS MILLS WINS SUIT BROUGHT BY MINING COMPANY

THE SUIT brought against the Ellis Mills Manufacturing company by the New York Mining Company of Yreka, Siskiyou County, California, has been decided in favor of the defendant after nearly four years of litigation. The mining company claimed that a "Little Giant" 100-ton mill purchased from Ellis Mills in April, 1935, was worthless, was not built to do the work, and was faulty in general, while the manufacturing company asserted that the reason that the mill failed to live up to expectations was that instructions had been disregarded and the mill installed improperly.

In ordering judgment for Ellis Mills Manufacturing Company, the Superior Court of Shasta County found: "From a consideration of the evidence I am not convinced that the defects, if any, in the machinery were due to any fault of the defendant or its employes. Even the cracks are not proved to my satisfaction to have been in the machinery before it was accepted by the plaintiffs, and the operations were not according to the specifications and directions."



BARGAINS

1. Dragline fed floating type placer dredge with steel pontoon hull, 48" jacketed trommel screen 24 ft. long, tailings stacker 24"x60', individual electric motor drives plant in A-1 condition.
2. One 48"x20' trommel screen, trunnion rollers, bolsters, drives, etc. 7'x7' feed hopper, hepper grizzly, etc., for dryland or floating plant.

A. HACK

5409 ALCOTT ST. DENVER, COLO.

Technical Men Furnished

For every type of mine, mill, mechanical, electrical, metallurgical position.

Business Men's Clearing House
 Midland Savings Bldg., Denver, Colo.

MENFINDERS

WORLD WIDE EMPLOYMENT SYSTEM

416 U. S. Nat. Bank Bldg.

Denver, Colorado

Write or wire your needs and we will submit promptly qualifications of qualified men.

Phone - Circle 5-5956

The Sampling Mill by Fisher Lane



*** Three billion, nine hundred million dollars. That's a lot on money! It represents, in round numbers, the amount of excess reserves parked in the Federal Reserve Banks in January. In a way of speaking, it is "money-in-hiding." Skulking money. Money that ought to be on the job in industry, working . . . but right now "jobless."

Jobless dollars constitute America's biggest problem today. True, jobless men get more and bigger headlines, while jobless dollars receive casual mention in one-paragraph items tucked into column-bottoms on the financial pages of our newspaper . . . where such as we who actually peruse the financial pages can find them, wag solemn heads over them, view with alarm that which they signify.

*** For four years this column has urged a systematic campaign for the education of the American Investing Public into a clear comprehension of the simple horse-sense of LEGITIMATE MINING INVESTMENT.

Idle dollars are the Great American Curse today. They are idle because of FEAR.

Granting that much of that fear is amply justified by the strange behavior of strange people whom a strange gentleman at Washington has inexplicably (?) surrounded himself, SOME of the said fear could be allayed by a frank, inexpensive campaign of EDUCATIONAL ADVERTISING IN PERIODICALS OF GENERAL NATIONAL CIRCULATION. We, who read regularly the news periodicals of the mining industry, know all these things. We know the actual factors of safety that bulwark the dollars of those who invest in legitimate mining development . . . know how much fewer are the failures in legitimate mining business enterprises than are the financial flops in every other field of business and industry EXCEPT MINING. Any one who will take the time to consult Dun-Bradstreet official statistics can verify that statement.

*** Very well, then—let's ACT UPON IT. The thing must needs be STARTED though. Writing, thinking, mere talking about it, won't wind it up and set it going. Once going, it may well be sponsored officially by the American Mining Congress . . . but for the sake of progress let it be STARTED. Its financing is no trick at all. Assess each unit of the metal-mining industry, corporate or individual, a small monthly sum proportionate to its (or his) capital invested. Set up a simple executive organization with a Public Relations Director, give him a corps of assistants trained in that sort of writing and education, and then lay down the educational barrage. And right now isn't a minute too soon.

*** Gold production is another story! American gold mines kicked the record sky-high with a 1938 production of 5,056,308 ounces valued at \$176,970,800, topping the 1937 production by about \$9,000,000. With its price federally pegged at \$35 the ounce, gold can grin broadly at copper—which depends upon the caprices of an international market demand.

*** But nevertheless, gold's price in turn hangs on the whim of an admittedly capricious individual at Washington. So what? As for silver—WOW!

ARIZONA BOARD APPOINTS COUPAL AS FIRST DIRECTOR

JOSEPH SAMUEL COUPAL was named as the first director of the Arizona State Department of Mineral Resources at



J. S. Coupal

the organization meeting of the department's board of governors, held in Phoenix, Arizona, April 7 and 8. For the past year Coupal has served as field secretary and organizer of the Arizona Small Mine Operators Association, the organization which was largely responsible for the creation of the new state department by the 1939 legislature.

Coupal, a graduate of Massachusetts Institute of Technology, class of 1907, has been engaged in mining operations in many parts of the United States, Alaska, and Mexico, both on company and personal account. For several years immediately preceding his present work he actively directed the operation of several small mines in the Octave and Tip Top districts of Yavapai County. Through his work with the Arizona Small Mine Operators Association he has made many friends among the small operators and gained a wealth of information as to the mining resources of the state. This information will be of infinite value to him in organizing the activities of the new department.

Charles F. Willis was elected chairman of the board of governors, and W. J. Graham, president of the Small Mine Operators Association, was named assistant to the director and secretary to the board. The naming of the four field engineers for the new department will take place at a later date. The department expects to open offices about May 1.

UNITED GOLD MINES COMPANY SHOWS 1938 OPERATIONS

UNITED Gold Mines Company, Merrill E. Shoup, Colorado Springs, Colorado, reports a net profit of \$29,587 for 1938. This compares with a net profit of \$52,976 in 1937. The gross income for the year was \$313,117, compared with \$352,474 in 1937. Total expenses were \$275,699 against \$271,618 in the previous year. Operating profit was \$55,418 against \$80,355.

The company owns 15 mines in Cripple Creek district and has five different mining plants. A. H. Bebee, Cripple Creek, is general superintendent. During 1938 4,064 miles of development work were done in its property, which compares with 4,146 miles in 1937. During the year 121,580 net tons of ore were mined with an average value of \$10.56 a ton, or a gross value of \$1,284,243. In 1937 127,185 tons of ore with an average value of \$9.98 a ton were mined. The three largest of the company's operations are the Vindicator, Portland, and Rose Nicol. The

first two were operated largely by split-check lessees and the last chiefly on company account.

Ore production in 1938 was as follows:

	Lessees' Production for 1938	
	Net Tons	Gross Value
Vindicator	27,740	\$ 289,862.70
Rose Nicol	8,507	76,064.74
Theresa	9,279	124,425.11
W. P. H. Group	1,297	5,740.23
Deadwood Group	20,810	228,417.55
Londonderry Group	5,286	55,040.60
Hardwood Group	4,751	56,898.21
Empire Group	1,524	14,922.07
Portland	21,470	231,895.92
Last Dollar	12,748	120,859.80
Hull City	240	1,899.15
	113,652	\$1,205,026.08
Company Production for 1938		
Vindicator	8,026	\$ 11,161.87
Rose Nicol	4,621	66,284.95
Portland	281	1,769.55
	121,580	\$1,284,242.55

Lowered freight rates of the Golden Cycle mill, effective December 1, 1938, are expected to show favorable results during 1939. Dividends amounting to \$48,668 were paid in the past year.

HOUSE COMMITTEE APPROVES SILVER PURCHASE PROGRAM

THE coinage committee of the United States House of Representatives has virtually agreed on a bill to continue the treasury's \$2,000,000,000 stabilization fund, the President's power to alter the gold content of the dollar, and the treasury's authority to purchase silver. A motion to amend the bill so as to strike out provisions for continuing the power to devalue the dollar and to buy domestic silver was defeated by a 10 to 7 vote.

REVIVAL OF GOLD PLACER MINING IN THE WEST

IN AN effort to revive many old and develop a number of new gold placer mines and locations in the west, the Mining Research Bureau, Pasadena, California, announces a plan whereby it will be possible for men and women to participate in a cooperative gold placer project in California, Nevada, New Mexico, and Arizona.

The plan is completely financed by a group of public spirited men and women of Pasadena who desire no participation in any of the profits secured from the undertaking. It is estimated that approximately 10,000 persons will be able to secure reservations for placer ground assignments under this plan. Each applicant will be assigned a definite piece of placer ground fully equipped with machinery ready to operate.

In order to make proper assignments of ground locations the bureau will hold a series of public meetings throughout the western states starting in May. Any community desiring one of these meetings, which are free and open to the public, should make reservations direct to the bureau. Arrangements are being made for the showing of the motion picture films:—"Gold Placer Mines of the West," in connection with these meetings.

For reservation date application must be on file by April 29, 1939, with the Mining Research Bureau, P. O. Box 213, Pasadena, California. Dr. William Clay Barton of Pasadena is director of the bureau.

tioned to H. D. Ramsay and David Lawrence of the **Western Exploration Syndicate**, Kingman, Arizona. The property is owned by E. E. Bollinger.

The **Hope Metals Company**, Dr. Arthur C. W. Bowen, manager, Winkelman, Arizona, has placed in operation its milling plant and is treating approximately 100 tons of ore per day. It is hoped to bring the mill to a capacity of 200 tons daily by a minor addition to the crushing equipment. Operations at the plant are directed by Lon Briggs, mill superintendent.

The **Montana** mine, Ruby, Arizona, a subsidiary of the **Eagle Picher Mining and Smelting Company**, produced during 1938, 6,519 tons of zinc concentrates, 9,011 tons of lead concentrates, 6,055 ounces of gold, and 550,859 ounces of silver, according to the annual report of the **Eagle Picher Lead Company**, parent firm. A crew of 325 men is employed at the **Montana** mine under the direction of E. D. Morton, general manager.

Development at the Clearinghouse property of the **San Juan Ramsey Company**, Incline, California, is reported to have

opened downward extensions of known ore bodies which should insure years of operation. Ore produced by this work, which includes material from the **Lost Ferguson** ore body previously

mined in 1880, has enabled the mill to run steadily on a two-shift basis with a third shift part of the time. The increased ore production, coming from the new fifth level, will soon permit the operation of the mill on a three-shift basis and will warrant consideration of plans for enlargement of the present 30-ton flotation-amalgamation plant. A. S. Wyner is manager and general superintendent, J. H. Elliott is assistant to the manager, and G. W. Plantz is mine superintendent.

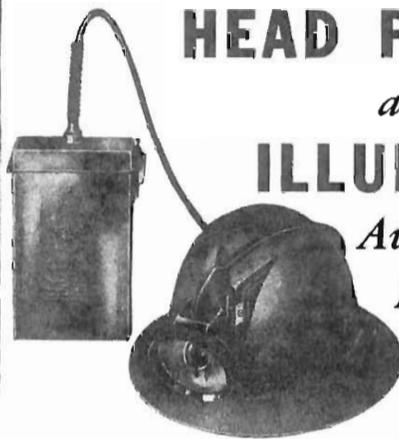
Work is to begin within the next two months on construction of a cyanide plant at the property of the **Lava Cap Gold Mining Corporation**, Otto E. Schiffner, general manager, Nevada City, California. Concentrates are at present shipped to Selby for treatment but the contract with the smelter expires October 1 and it is planned to have the new plant completed by that time. Tests are being conducted at present to determine what the capacity of the proposed plant should be. Mining operations will not be affected by the new construction program. A total of 325 tons of ore is being milled daily at the present time and a crew of 260 men is employed. Stations have been cut on the eleventh and twelfth levels and crosscutting is under way to contact the vein. Approximately 150 feet of crosscutting will be required.

A crew of four men is engaged in driving a 3,400-foot tunnel from the **Lucky Jane** mine toward the **Relief Hill** channel under the direction of C. E. Clark, manager of the **Relief Hill Mining Company**, North Bloomfield, California. This is the

only work being done at present by the company, which controls extensive hydraulic holdings in the **Relief Hill** district, but preparations have been completed for immediate hydraulic operations as soon as the **Narrows** debris dam near **Smartville** is ready for use. The company has conducted hydraulic operations behind its own debris dam for several seasons.

G. B. Rymal and Chris Lindell have taken a bond and lease on the old **Yellowstone** mine located one mile west of **Bear Valley**, California, and have installed a five-ton mill on the property. They are milling dump material and are reported to be obtaining satisfactory values.

Two shifts of seven men each are employed at the **French** quartz mine located near **Greenwood**, **El Dorado** County, California. Present work is being carried on in a 140-foot drift at the 60-foot level. As soon as water is cleared from the shaft it is planned to sink an additional 50 to 100 feet. A 25-ton ball mill is handling the ore mined and amalgamation plates are used for recovery. The mine is owned by G. M. Walker and E. W. Howe, and was first opened about eight years ago. After a short time they went to Arizona to handle property which they owned there and did not return to reopen the **French** until about four months ago.



Top-Ranking
HEAD PROTECTION
and Finest
ILLUMINATION
Available in a
MINER'S LAMP
Today!

**EDISON ELECTRIC
CAP LAMPS**

M·S·A SKULLGARDS

A safe miner is a better miner, every time! And it follows that the man who is served and protected by these premier products is able to do a better day's work—more efficiently, returning greater production per shift . . . in safety that is reflected in the lowered compensation costs entered in your yearly balance-sheet.

These constructive advantages work for an improved competitive position of the metal mine operator enjoying them. Take the first step in discovering how easily you can benefit by an Edison Lamp installation—with its easy rental plan of purchase—and the greater safety conferred by M.S.A. Skullgards . . . let us provide the details and an on-the-job demonstration, without obligation of any kind!

MINE SAFETY APPLIANCES COMPANY

BRADDOCK, THOMAS & MEADE STS., PITTSBURGH, PA. District Representatives in Principal Cities



Measured THOR

meant
FASTER
DRILLING
AT
LOWER COST



A THOR MACHINE FOR EVERY JOB

ROCK DRILLS

Made in several types and a wide range of sizes to meet varying requirements for sinking, drifting and stoping.



PAVING BREAKERS

Both valve and valveless types for light, medium or heavy duty demolition and street opening work.

CLAY DIGGERS— TRENCH DIGGERS

Light and heavy duty tools for digging gravel, clay and hardpan for trench digging, shaft sinking and excavation where ground is frozen or unusually stiff.



COCHISE ROCK DRILL MFG. CO.

A Division of the

INDEPENDENT PNEUMATIC TOOL CO.

6200 EAST SLAUSON AVE., LOS ANGELES, CALIF.
NEW YORK CHICAGO SAN FRANCISCO

FLEXIPIPE

The improved flexible tubing for
mine and tunnel ventilation

Saves time, labor, and money by
improving air conditions and
cutting tonnage cost.

Send for free sample and full
information.

BEMIS BRO. BAG CO., ST. LOUIS, MO.

Walter K. Janson and E. M. Clark, formerly operating the Lincoln Gold Dredging Company, have taken over the Minnie Reeves placer property near Happy Camp, California, and have placed their dredge in operation. A crew of about 30 men is employed and work is on a 24-hour basis.

Production at the Sliger mine of the Middle Fork Gold Mining Company, C. W. Plumb, superintendent, Greenwood, California, has been built up to 125 tons daily.

The Dakins Company, Robert D. MacAfee, Jr., superintendent, Nevada City, California, has moved its dragline and dredging equipment from Wolf Creek to the banks of Deer Creek several miles below Nevada City. The company carried on extensive testing operations on the new location prior to moving the equipment. Operations began April 1 and 1,000 yards of material a day are being handled. The washing plant is one of the most complete and modern in the field, using both jigs and riffles. Sufficient ground has been proven to provide 18 months' work.

Ore shipments from the Blue Bird Extension, Mojave, California, have been suspended for the present in order to continue with development work at the Blue Bird proper. The present work will consist principally of running a drift on the 200-foot level. The Blue Bird proper is equipped with a headframe, tram car and rails, compressor, and an air blower. The property is operated under lease by Elmer Renz, 204 West Manchester Avenue, Los Angeles, California. It is owned by C. C. Calkins. Perry Renz is superintendent at the mine.

A \$350,000 lease-purchase agreement has been filed with the San Bernardino County recorder, involving the Morning Star group of claims north of Cima, California. The group is owned by John B. Mighton of Cima and Howard T. Brown of Los Angeles, and is being taken over by Erle P. Halliburton, Inc., 907 National City Bank Building, Los Angeles, California. Under the terms of the agreement, Halliburton, Inc., will expend \$8,000 on exploration and development during the first six months following the delivery in escrow of the quit claim deed, and \$12,000 during each succeeding six-month period until construction of a mill shall have been completed.

The mine crew of the Gum Tree mine, Mojave, California, has been increased to permit establishment of another shift with a view to speeding the work at the property. A drift is being run south from the main shaft to reach an ore body indicated in geophysical tests. A north drift is also being run from the main Gum Tree shaft. On the adjoining Standard property, several sub-leases are being developed. All air for the Gum Tree work and for the Standard sub-leases is provided by a compressor at the former property but it is planned to install a new compressor very soon. Both properties are held under lease by H. E. Robinson.

The Alaska Juneau Gold Mining Company, F. R. Bradley, president, 1022 Crocker Building, San Francisco, Califor-

nia, on March 23 declared the regular quarterly dividend of 25 cents a share on capital stock, payable May 1 to stock of record April 4.

Roy Journigan, 709 East Beverly Boulevard, Whittier, California, has recently purchased all mineral rights on the O. H. Cline property located on White River two miles from the old town of White River in Tulare County. He is completing a gravel washing plant which will handle 75 yards per hour and has also purchased a 1¼-yard Link-Belt dragline which will be used to handle the gravel. Operations are expected to begin early in April. Journigan is president of the Journigan Mining and Milling Company, operating at Emigrant Springs, California.

C. S. Hutson, 557 South San Pedro Street, Los Angeles, California, and associates have taken a 25-year lease on approximately 3,120 acres of land lying 1½ miles northeast of Pacific House near Placerville, California. The land is located between the South Fork of the American River and Silver Fork, and is owned by El Dorado Mines, Ltd., T. G. Patton, president. The zone to be worked is known as the Placerville channel and runs for some five miles on the property.

A larger crusher, rolls, and rod mill are being added to the concentrating plant of the U. S. Chrome Mines, Inc., A. H. Wild, president, 2238 Hyde Street, San Francisco, California. The enlarged plant, which is to have a capacity of approximately 150 tons per day, will be operated by electricity, a five-mile extension line having been completed recently to the property. The company has been authorized to divert 200 gallons of water per minute from the North Fork of the American River for mining purposes, and this diversion will cost approximately \$10,000.

Several carloads of screened ore from the waste dumps of the Plumas-Eureka mine, Johnsville, California, are reported to have returned values ranging from \$12 to \$15 per ton. Colonel Dick Cunningham, lessee, estimates that approximately 100,000 tons of the large deposit can be treated profitably. The ore is largely sulphide.

Martin Brothers, Hemet, California, are reported to have exercised their option on the Ranchito mine at Julian, California. The crosscut being driven from the bottom of the new 330-foot shaft is reported to have cut a rich streak of high-grade ore. Due to a small amount of water, the mine has been shut down to await pumping machinery. A Diesel power plant has been ordered and will be installed at once. The property is equipped with a stamp mill.

A two-foot vein of quartz is reported to have been encountered in an extension of the Eclipse mine of the Indian Mining Corporation, Wasco, California. Pannings indicate that the ore runs to \$40 a ton and is free milling. The vein is perpendicular with the downward trend showing increased width. It is planned to block out additional ore with a view to installing a mill and possibly a cyanide plant. The Eclipse is located on the H. G. Vincent Ranch between White River and Woody, California, and about 30 miles northeast of Wasco.

The Indian Mining Corporation was organized early this year with a capitalization of 10,000 shares of \$1 par value. Directors are Tom M. Shafer, president; Jacob Camenisch, vice president; J. G. Binswanger, Box 835, Wasco, secretary; Henry Ifland, treasurer; and D. W. Benson, superintendent of mining operations.

John Barocato and Mr. Keenan of San Francisco, California, have completed arrangements for reconstructing the mill building at the **Lucky Boy** mine near Sierra City, California, which was recently damaged by fire.

The **Silver Prince** mine, comprising 120 acres which lie north of the **Cactus Mines** in the Middle Butte district near Mojave, California, has been sold by Joseph A. Otto to **Cactus Mines Company**, Rosamond, California. The new owners have launched a diamond drilling program for the Silver Prince and a campaign of development is planned for this summer. Cactus Mines is reported to have relinquished its lease on the 20-acre Winkler and Street tract, owned by Otto and F. L. Wright, and D. A. Robinson is now leasing that ground. Otto and Wright also plan to permit leasing on their 160-acre Crescent property at Rosamond during the remainder of the year.

Development work at the property of **Sixteen-to-One Extension Mines, Inc.**, Alleghany, California, is being confined to the 425-foot level where a 100-foot drift has been run. Satisfactory values have been encountered and the work will be continued by the five-man crew. George W. Hallock, Alleghany, is president of the company.

The **Sovereign Development Company**, Ogilby, California, is reported to be doubling the capacity of its 30-ton cyanide plant. A crew of 30 men is employed at the property, which is located in the Cargo Muchacho mining district. A new Diesel generating plant is being installed at the mine. W. M. Ballinger is superintendent. Stephen Nolan is treasurer of the company.

The mill at the **Funny Bug** mine in the Gold Hill district six miles northwest of Placerville, California, is operating one shift and treating seven tons of ore daily. The plant includes crushing machinery, a five-stamp mill, amalgamation equipment, and a concentrating table. The sulphides are heavy in iron and copper and the copper is said to frequently run 15 per cent and higher. Concentrates are shipped to the Selby smelter by rail. Ore is scraped from the 6,000-ton dump by means of the hoisting apparatus. The property is being worked by H. H. Smith, owner.

Shaft sinking is under way at the New Brunswick mine of the **Idaho Maryland Mines Corporation**, Grass Valley, California, which will extend to a depth of 2,350 feet. At that point it is planned to link the New Brunswick with the Idaho-Maryland mine by means of a long drift which is now proceeding eastward from the 2,000 or main operating level of the Idaho-Maryland. Approximately 1,200 to 1,400 feet of drifting remain to be completed.

The original option taken by the Raskob interests on the **Rogers-Gentry** property at Neenach, California, is reported to have

been extended. It is understood that the one-compartment inclined shaft has gone to the 200-foot level and that drifting has been done on an ore body at that level. Raskob headquarters are located at Suite 213, 29 East First Street, Reno, Nevada.

Jack Boaz and C. S. Murray, Dobbins, California, operating under lease the old Labadie mine, now known as the **Blue Lead** gravel mine, are using the ground sluice method and are on a production basis. They have sub-leased a portion of the ground to Mrs. Rose Privett and R. A. Dodd of Sacramento and Dodd is directing a crew of men in mining a portion of the ancient channel. Production is under way and tunnel operations are contemplated by the Dodd-Privett interests in the near future. The mine is owned by W. J. Labadie.

The **Camp Far West** mine located six miles east of Wheatland, California, has been reopened under new management after a shutdown of about a year. The mine will be operated by the **Far West Dredging Company**, headed by Earl Crouch of Stockton. Ted Walthers of Stockton is superintendent at the property. A dragline dredge, equipped with 2½-yard buckets and powered by a 185-horsepower Diesel engine, has been installed. A crew of 12 men is working three shifts.

E. A. Wiltsee, Pacific Union Club, San Francisco, California, has secured lease options on land in the Sacramento Valley west of Sutter Buttes for dredge mining purposes. Under the agreements, the land is to be prospected by drilling within 30 days. The options are for a period of one

HERCULES EXPLOSIVES

For Metal Mining

UNDERGROUND MINING

GELATIN EXTRA L. F.: Widely used because of plasticity, water resistance, and fume qualities. 30% to 90% strengths. 87 to 102 cartridges, 1¼"x 8", in 50 lbs.

GELAMITES: Can replace gelatins for most work at saving of 10% to 15%. Gelamite 1 replaces 60% gelatin and Gelamite 2 replaces 50% or 40% gelatin, cartridge for cartridge. 112 and 122 cartridges, 1¼"x 8", in 50 lbs.

HERCOMITES*: Economical for certain underground work where water resistance is not a factor.

HERCOMITE No.	Cartridge Count 1¼"x 8" per 50 lbs.	Equivalent Extra L.F. Dynamite on Cartridge-for-Cartridge Basis	Cartridge Count
2	120	50% Extra L.F.	108
3	130	40% Extra L.F.	108
4	140	40% Extra L.F.	108
5	153	30% Extra L.F.	108
6	165	25% Extra L.F.	108
7	175	20% Extra L.F.	108

OPEN PITS

GELAMITES*: Cost less than gelatins and give comparable results. (See above)

HERCOMITES*: Replace older types because of economy, performance, and added safety. (See above)

EXTRA L. F.: General-purpose explosive. Strengths: 20% to 60%. 108 to 110 cartridges, 1¼"x 8", in 50 lbs.

GELATIN EXTRA L. F.: Dense and strong; excellent water resistance. (See above)

BAG POWDERS: **Hercomite Bag**, free flowing, most economical Hercomite, has Hercomite No. 4 characteristics. The **Herculites** (20%, 30%, 40%) used where high strength of Hercomite Bag is not required, cost less. Both types are packed in 12½-lb. bags.

*Reg. U. S. Pat. Off. by Hercules Powder Company.

Use this coupon for further information about these explosives



HERCULES POWDER COMPANY
Incorporated

916 KING STREET WILMINGTON, DELAWARE

Please send a copy of the Hercules Explosives and Blasting Supplies Catalog.

Name _____ Company _____

Street _____ City _____ State _____ C-17



**SPLASH
PROOF**



**NO CUMBER-
SOME HOOD**



**MINIMUM
WEIGHT**

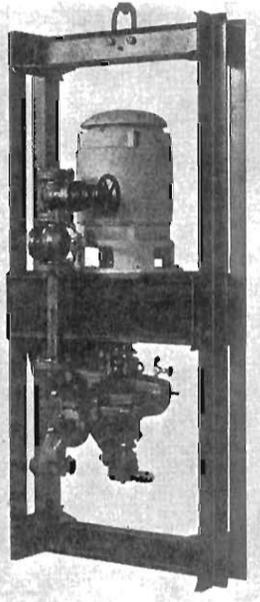


**SIMPLE
SUSPENSION**



**LOW OPERAT-
ING COSTS**

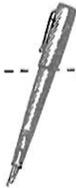
**BYRON JACKSON
VERTICAL SINKER PUMP**



By using a splash-proof motor it is possible to eliminate the cumbersome hood previously required. The fabricated steel frame, with vertical guides, provides a unit of minimum weight without sacrificing strength. Capacity range is 50-4000 gallons per minute. Head range is 100-1000 feet.

FILL OUT AND MAIL

BYRON JACKSON CO.,
Dept. MI-131,
P. O. Box 1307, Arcade Station,
Los Angeles, Calif.



*Please send complete information on
Vertical Sinker Pumps*

Name.....
Position.....
Address.....
City..... State.....

Established 1872

BYRON JACKSON CO.

Factories at: Berkeley and Los Angeles, Calif.,
Bethlehem, Pennsylvania
Sales Offices at: New York - Pittsburgh - Chicago
Atlanta - Houston - Salt Lake City

year. Included in the proposed leases are the Hoke and Tarke holdings.

The first shipment of concentrates was made recently from **Quail Gold Mines, Inc.**, Coulterville, California. The plant was placed in operation early in February, but milling has been curtailed due to a shortage of water. Concentrates are shipped to the Selby smelter. Otto D. Rohlf's is superintendent of the mine and mill.

Carson Hill Gold Mining Corporation, Walter Lyman Brown, president, 206 Sansome Street, San Francisco, California, declared a special dividend of 1½ cents a share on capital stock, payable March 30 to stock of record March 20. The company's property is located at Melones, California.

The Venture Operating Pool, leasing the **Big Blue Extension** group at Kernville, California, has sunk the Blue Gouge shaft to a depth of 50 feet and is drifting toward the contact between granite and schist on the footwall of the vein. Mineralization is reported to be increasing with each round. The Big Blue Extension is owned by B. D. Sawyer, Box 102, Kernville.

The **Keyes** mine, Isabella, California, is reported to have been leased by a syndicate headed by Carleton B. Swift, which will begin operations in the immediate future.

Directors of the **Central Eureka Mining Company**, C. C. Prior, president, 2012 Hunter-Dulin Building, San Francisco, have declared a dividend of 6 cents a share on capital stock, payable April 15 to stock of record March 30.

High-grade ore is reported to have been encountered in the 600-foot tunnel at the **Burgess** mine, formerly known as the Vivian, which is operated by John Burgess and associates of Sonora, California. Among Burgess' associates are his brother, Albert; Paul Kelly, Sonora; and Donald Watson, Stockton.

The **Cedarberg** mine near Placerville, California, has been taken over by a Los Angeles syndicate headed by Earle E. Rogers, 162 West Forty-first Place, Los Angeles, California. The mine is said to contain heavy sulphide ores. It was located in 1870 but was shut down in 1874.

Open pit mining operations are in progress at the **Daisy** manganese mine of the **Pacific Coast Manganese Corporation**, V. B. Whedon, president, 214 Bank of America Building, Beverly Hills, California. A crew of eight men is employed at the property, which is located in the Paymaster district of Imperial County.

The **Peggy O'Day Mining Company**, Earl W. Reis, president, 240 East Channel Road, Santa Monica, California, has made application for a permit to divert water from the South Fork of the North Fork of the Yuba River in Sierra County for the development of electrical power. Estimated cost of the project is \$10,000. The company holds under lease the Mammoth Springs mine.

Between 35 and 40 men are employed under the direction of Bramley L. Melvill, National Hotel, North San Juan, California, in testing gravel properties in the district.

Construction of a mill this summer is being considered by the **Resurrection Mining Company** at Leadville, Colorado. The



company is owned by the Newmont Mining Corporation and the Hecla Mining Company and is under the manage-

ment of the Hecla concern. Development of oxidized gold ore near Leadville was undertaken during 1938 and a moderate tonnage of commercial ore has been developed. L. E. Hanley of Wallace, Idaho, is general superintendent of Hecla interests and James F. McCarthy, Wallace, is president and general manager. Byron Wilson, until recently in charge of the Polaris mine at Wallace, is in charge at Leadville.

In the same camp the **Moraine Mining Company**, largely owned by the Newmont Mining Corporation, is prospecting, but has not yet encountered ore. This property is located about two miles west of the Resurrection ground which is northeast of Leadville, Colorado. Head offices of the Newmont concern are at 14 Wall Street, New York.

The **Climax Molybdenum Company**, 500 Fifth Avenue, New York, reports a net profit for 1938 of \$7,872,141 after depreciation, depletion, and federal income taxes. The figure equals \$3.12 a share on 2,520,000 no par shares of capital stock and compares with \$7,173,796 or \$2.85 a share in 1937. It is, however, exclusive of depletion of discovered increment which amounted to \$2,341,251 and which was charged directly to the discovered increment surplus account. Net sales in 1938 were \$15,377,537 as against \$17,037,586 in 1937. Gross costs of goods sold and selling expenses amounted to \$5,230,131, leaving a selling profit of \$10,147,406. Administration and general expenses were \$340,932. Other income totaled \$53,802. Provision of \$618,885 was made for depreciation and \$19,925 for depletion. A provision of \$1,349,322 was made for federal, state, and local taxes and to cover sundry other deductions. Over 28,000,000 pounds of molybdenum were produced during 1938, representing a gain of 27 per cent over the 1937 output. From 1935 to 1938, inclusive, total appropriations of \$5,765,126 were made for increased production facilities and of this amount \$151,823 was still unexpended at the close of 1938. Operations are at Climax, Colorado, and are under the general superintendency of William J. Coulter, Continental Oil Building, Denver.

Rich lead, gold, and silver-bearing ore is stated to have been opened in the **Hawkeye** mine in the Monarch district of Chaffee County, Colorado. S. E. Burleson, Box 387, Salida, and associates have been operating the mine under lease for some months and are employing about 20 men. Walter Burleson, Salida, is foreman and partner. The high values were found in the ore body being developed by a long tunnel, now in over 2,100 feet.

A hoist has been installed and a compressor will be added later at the **Kirk** mine in Gilpin County near Blackhawk, Colorado. E. L. Cull of Blackhawk, who

**IDAHO MARYLAND REPORTS
INCREASED PROFIT FOR 1938**

OPERATIONS in 1938 were the best in the history of Idaho Maryland Mines Corporation, according to Edwin Letts Oliver, president, 351 California Street, San Francisco, California. For the third consecutive year the corporation succeeded in enlarging gross revenues, operating profit, and net profit.

The annual report for the year ended December 31, 1938, shows a net profit of \$1,193,446 after depreciation, depletion, and income taxes, equal to 67 cents a share on 1,780,781 shares of capital stock outstanding. This compares with \$1,124,805 in 1937, equal to 64 cents a share on 1,768,281 shares outstanding at that time.

Total production amounted to 331,406 tons of ore from the Grass Valley operations, as compared with 305,107 in 1937. At the same time, as a result of exploration work, more than 400,000 tons of ore were developed during the year. Recovery value of Idaho Maryland-Brunswick ore was \$12.46 per ton, compared with \$12.17 in the preceding year.

Developments at the Forbestown properties proved so unsatisfactory, however, that late in 1938 the company ceased all operations and surrendered the leases. Much of the equipment removed from Forbestown can be used to advantage in Grass Valley. In addition to operating losses by these properties, capital write-offs of \$213,046 were charged against earned surplus.

During 1938 the company paid off the mortgage on the only piece of property upon which there was any encumbrance, and purchased the only remaining parcel of mineral land enclosed within its property lines, besides purchasing the surface rights to several small parcels on which the mineral rights were owned. Surface properties of Idaho Maryland now comprise a solid block of 2,180 acres adjacent to Grass Valley, California.

**NEW MEXICO MINING
ASSOCIATION MEETS**

MEMBERS of the New Mexico Miners and Prospectors Association met at Silver City on March 31 to consider problems affecting the mining industry. The association, organized in January, now has a statewide membership of more than 500.

The meeting was presided over by T. D. Benjovsky, president, and Robert S. Palmer, secretary of the Colorado Mining Association of Denver, was guest speaker. Palmer, who is widely known in western mining circles, outlined the activities of the Colorado association, and predicted that the New Mexico organization could render great service to the mining industry of the state by cooperative effort.

Reports were made by Benjovsky and Ira L. Wright, who attended the silver conference at Reno, Nevada, as representatives of Governor John E. Miles. Another delegate, Horace Moses, general manager of the Chino Mines Division, Nevada Consolidated Copper Corporation, was unable to make the trip to Reno.

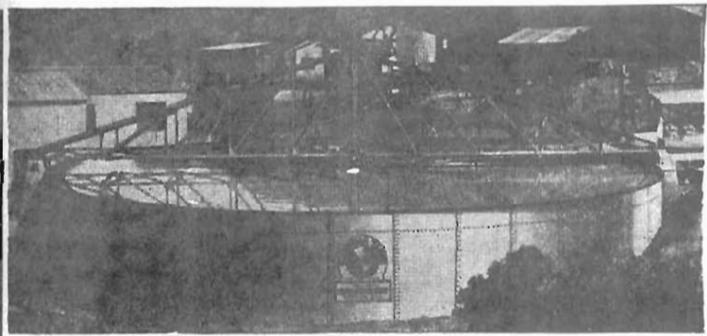
**MAGMA COPPER CO. ISSUES
ANNUAL REPORT FOR 1938**

MAGMA Copper Company and Magma Arizona Railroad Company, Superior, Arizona, report for the year 1938 a net profit of \$654,346 before provision for depletion. Dividends paid during the year amounted to \$1.50 per share, with a total disbursement of \$612,000.

The average net cost of producing copper, after deducting gold and silver values, was 7.75 cents a pound, which includes all operating costs, but does not include any allowance for mine depletion, capital stock tax, or federal income taxes. The comparable cost for 1937 was 7.67 cents a pound.

Of the copper produced in 1938, 7,003,179 pounds remained unsold at the end of the year. This amount was taken into the accounts at the average net cost of production for the year of 7.75 cents a pound. This copper has been sold since December 31, 1938. The average selling price received during 1938, in excess of all commissions and delivery charges, was 9.52 cents a pound.

A total of 18,729 feet of development work was completed in 1938, including drifting, raising, sinking, and crosscutting. Stopping operations were carried on satisfactorily throughout the year. On the west side of the mine ore was stoped from the 3,600 level to above the 2,250 level. On the east side of the mine a small amount of copper ore was mined on the E. 3,000 and the E. 2,800 levels. Copper-zinc ore



QUICK SHIPMENT COLUMBIAN BOLTED STEEL MINING EQUIPMENT

No costly delays when you want Columbian Bolted Steel Mining Equipment. Your order is handled in record time by an expert staff of engineers and designers. Then it is fabricated in one of the best equipped manufacturing plants in the middle west and with modern presses especially designed for the purpose.

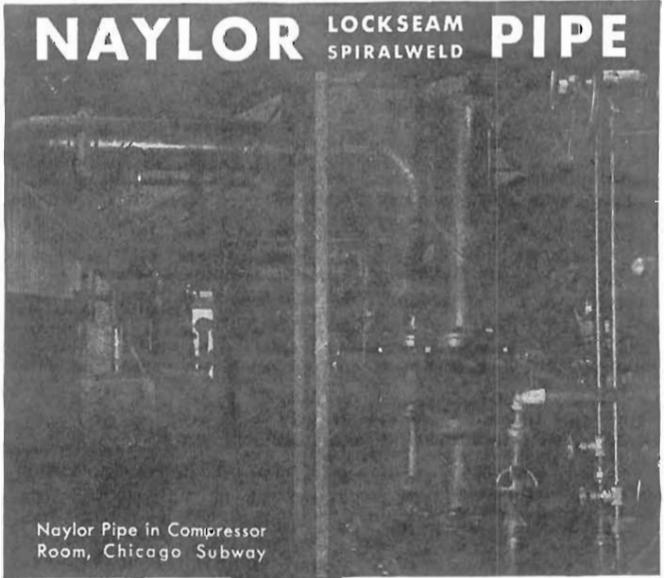
Order Now from our distributors listed below—or write direct to us for more complete information.

- AGITATORS
- THICKENERS
- SOLUTION TANKS
- ORE BINS, Etc.

Lower your costs with Columbian built mining equipment. Engineers and operators alike have learned from actual experience that it is best for endurance and trouble-free service. Bolted steel agitators, thickeners, ore bins, solution tanks, etc., are for permanent installation yet portable if change in location is necessary.

Standard construction for domestic use or for export via ocean freight. Special if for export via mule-back or aeroplane to final destination.

COLUMBIAN STEEL TANK CO.
KANSAS CITY, MISSOURI
DISTRIBUTORS
DENVER EQUIPMENT COMPANY, Denver, Colorado
EIMCO CORPORATION, Salt Lake City, Utah
HARDINGE COMPANY, York, Pennsylvania



Naylor Pipe in Compressor Room, Chicago Subway

LIGHT WEIGHT PIPE WITH SAFETY AND ECONOMY FOR PRESSURE LINES

Naylor's exclusive structure gives you light weight pipe that is leak-tight, safe, flexible. Cuts costs on pressure lines. Sizes from 4" to 30" in diameter. All types fittings and connections. Complete fabrication service.

WRITE FOR CATALOG NO. 37

NAYLOR PIPE COMPANY
1241 EAST NINETY-SECOND STREET
CHICAGO, ILLINOIS

UTAH MINE COMPANY ISSUES
CONSOLIDATED ANNUAL REPORT

THE Chief Consolidated Mining Company reported for 1938 a consolidated net loss on operations of \$70,405. Sales of ore and lime products brought \$186,626 from which was deductible \$235,860 for operating and administrative expenses and \$21,170 for depreciation. Other income, consisting of dividends and interest, amounted to \$806. Taxes were \$8,131 and loss on sale of securities was \$651, leaving a consolidated net loss, exclusive of loss on sale of capital assets, of \$78,381. The balance for January 1, 1938, was reported to stand at \$1,757,193. Deducting the net loss and loss on sale of capital assets in 1938, the consolidated surplus as of December 31, 1938, was \$1,644,586.

The main source of production during the year was from the Chief and Plutus mines, where the major development work was also performed. A small tonnage was taken from the Eureka Hill, Gemini, and Apex Standard mines. Exploration is being conducted from the main level of the Apex Standard mine which was recently reopened. About 30 sets of lessees are working in various parts of the mine. The company is considering ways and means of interesting new capital in an effort to raise funds for further exploration and development work.

Development during the year in the Chief Consolidated properties totaled about 4,000 feet and 6,567 feet of work was done in the Plutus ground. Metal con-

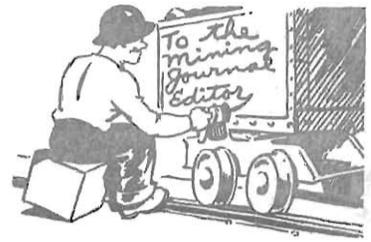
tent of the ore taken from the whole group of mines during 1938 was: 1,575 ounces of gold; 307,696 ounces of silver; 806,806 pounds of lead in lead ores; 106,233 pounds of copper in copper ores; 471,295 pounds of lead in zinc-lead ores; and 816,749 pounds of zinc in zinc-lead ores.

Cecil Fitch, Dooly Building, Salt Lake City, Utah, is president and general manager of the company. The claims are located in the Tintic district of Utah.

EL DORADO CANYON AREA
GROWING—NEEDS ROADS

BETTER road facilities into the El Dorado Canyon mining area in southeastern Clark County, Nevada, are being recommended by the Las Vegas, Nevada, Chamber of Commerce. The area is now said to have a population of about 450 persons, of which 140 men are drawing a monthly payroll of \$20,000. The mines are stated to be producing around \$60,000 monthly, sending 125 trucks and automobiles over the roads to Las Vegas with ore and supplies. About 18 mines in the district are being worked and three mills are in operation.

P. A. Simon, J. D. McPherson, A. E. Place, and other mine operators of the district, are agitating to have the road into the canyon from Searchlight via Nelson designated a state highway and improved under the set-up for "mine-to-market" and "farm-to-market" roads. Besides the growing mining industry in that area its scenic beauty could be a tourist attraction.



Dear Mr. Willis:

In my article on the drowning out of a major industry on Owens Lake in California, which appeared in The Mining Journal for February 28, I referred to figures cited in United States Geological Survey Bulletin 580 as to tonnage of salts of sodium, potassium, and boron in the lake bed. Since that article appeared, I have obtained a tabulated breakdown of the original itemized estimate given by Hoyt S. Gale in that bulletin. Gale itemized in terms of atomic rather than combined elements. Since neither sodium, potassium, boron, nor chlorine appear in nature in uncombined form, the breakdown form of tonnage estimate is more logical. It is likewise more impressive in its totals.

The converted figures are from Glen A. Keep, superintendent of the enforcedly idle Owens Lake plant of the Natural Soda Products Company. Keep is an experienced chemical engineer and knows his salines. Using his conversion factors, Gale's atomically expressed table in Bulletin 580 gives us the following tonnages

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 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)

BOX 126

ROCKAWAY BEACH

CALIFORNIA

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



Large or small, your mill is never remote from Cyanamid's stocks of cyanidation and flotation reagents at Azusa, California and El Paso, Texas.

By covering your complete needs from these convenient points, you get prompt delivery, reduce freight costs, and simplify purchasing routine.

Write for descriptive stock list and quotations

AMERICAN CYANAMID & CHEMICAL CORP.

AZUSA, CALIFORNIA



EL PASO, TEXAS

PAGE
LOOSE

THE MINING JOURNAL

EDITORIAL AND BUSINESS OFFICES — 520-528 Title & Trust Bldg., Phoenix, Arizona

CHARLES F. WILLIS,
Editor and Publisher

R. G. MOORE,
Associate Editor

JACKSON HOAGLAND,
Research Editor

R. R. LASALLE,
News Editor

M. H. PRYOR,
News Editor

Entered as Second-Class Matter at the Postoffice at Phoenix, Arizona, Under the Act of Congress of March 3, 1879

VOLUME 22, No. 28

APRIL 30, 1939

Year \$3.00—Copy 20¢

Drifts and Crosscuts

Regardless of the most favorable of conditions surrounding it, a prospect still remains speculative and it will always remain just a prospect unless funds for speculative investment are made available through which it may either be taken out of the prospect class or proved commercially valueless. Honestly presented, this type of promotion is as fully legitimate as any which may be opened to public participation. When it is made impossible for the prospector to obtain that type of speculative funds mineral development is immediately stagnated.

We have no complaint to offer against the Federal Securities Act insofar as it operates in the curtailment of market rigging, corporation pyramiding, holding company subterfuges, watered stocks, and widespread margin gambling—although the wisdom of some of its provisions in these particulars is open to question. The mining field in undeveloped sections presents an entirely different problem and is entitled to the individual consideration the importance of the continued growth of the industry justifies.

* * * * *

A propaganda campaign has been started to make us glad that we live in the United States and only have to pay an average of 20 per cent of our income out in taxes. The Public Affairs Committee, Inc., tells us that, although our federal taxes have increased 10 fold since 1900 and although our total tax bill is the largest for any country in the world, taxes still take a smaller proportion of the national income than in principal European countries.

Statisticians can prove anything by the simple device of forgetting to include certain sums that would upset the conclusion that they are trying to reach. It was simple to show that taxes collected gave a certain total and then ignore the fact that we are spending much more and still have to pay for that which we spent but failed to collect. Of course, the increasing national, state, and local debts will never have to be paid.

We pay about \$6,000,000,000 in federal taxes, but we spend about \$11,000,000,000; however, we will just ignore that extra \$5,000,000,000 for if we include that we would be unable to show how deficient we are in the program for bigger and better taxes as compared with England, France, and Germany. To show how superior Germany is in the art of taxation, the figures include her social security program, but it is omitted in totals for the United States.

However, it cannot continue to be said that the United States will let any country in the world beat it in anything, even taxes, so we are off to a bigger, better, and more painful tax program.

The governor of Oregon was reported at Reno, Nevada, to have refused either to be present or send a delegate to the Silver Conference called by Governor Carville, on the ground that Oregon was "not interested in silver and silver mining." There is need for providing a little education, both by those who mine in Oregon and by those in other states who do business with Oregon firms.

It is true that the state of Oregon is not a large producer of silver—105,000 ounces in 1938—however, there is no telling what that state might furnish if the metal were to have a fair and stable price. Silver production has been constantly increasing and Oregon has immense possibilities as a mining state which have only been brought to light within the past few years. The silver price can do much to stimulate other mining activity, particularly the base metals which need some help because their prices have not lined up with the 59-cent dollar.

However, the principal thing that the governor of Oregon apparently fails to comprehend is the volume of business done by Oregon firms with other states which are dependent upon silver. It behooves every mine operator in the western states to see to it that the business houses in that state are informed as to the value of mining business and that those concerns, in turn, let their governor know that Oregon business is really concerned with the prosperity of the western mining industry. With lessened mining in the western states, Oregon lumber production would suffer materially, for instance.

The chief executive of a great state is rather short-sighted when, because he cannot see the immediate and direct effect of a proposal, he will not even take the trouble to learn. I am sure that there are many in Oregon who will make him see that the business of his state is closely tied up to the prosperity of the western states; that they, in turn, are concerned with the activity of the mining industry. Conversely, all the rest of the public land states are vitally concerned with the proper solution of problems that are of the utmost importance to Oregon. That state would not want us to lightly dismiss its plea for cooperation by the statement, "not interested."

The governor of Oregon needs a bit of education, both from within and from without his own state. We had better give it to him directly, as well as through those in Oregon with whom we do business.

Charles F. Willis

PHIL BURCH* reports resumption of

Hydraulic Mining on American River

WITH ACTUAL construction completed on the first of the series of four debris dams planned by the federal government, the great hydraulic mining industry of California is looking forward to a long period of activity. The Sawyer decision of half a century ago forced upon the industry a state of suspended animation from which it has been awakened by the federal appropriations for these debris storage dams.

The North Fork Dam on the American River, six miles from Auburn, was completed March 27 and the outlet, which carried the stream flow during the construction period, was permanently closed. Eventually, a lake five miles long and with a depth of 150 feet will be formed behind the dam. Hydraulicking on the watershed of the North Fork will be permitted as soon as those mining companies who have obtained permits are ready to turn water through their nozzles, or can get the water for that purpose.

Hydraulic mining is technically defined as mining by means of the application of water under pressure, through a nozzle, against a natural bank, thus eroding the bank. It is a low-cost mining method which has enabled many large, low-grade gold-bearing deposits to be mined at a profit.

Nearly all of the earlier gold production of California came from gravel in the present-day streams, or in ancient river beds. The primitive methods of recovery started with the pan, then the rocker, the long tom, the ground sluice, and finally hydraulicking. The main deposits of gold-bearing gravel suitable for hydraulic purposes are found in the ancient river channels of the Tertiary period. These old channels were filled with gravel, covered with lava flows or other surface transformation, and have no relation geologically to the present day river systems. They usually lie high above present-day streams, the grade thus provided being an important factor in the disposal of debris.

There are many stories concerning the first use of the hydraulic principle in mining. However, research indicates that the method was first used by a group of Chinese near Timbuctoo in Yuba County, California, about 1852. At any rate, it is a typical Chinese invention—if they did not discover it, they should have.

The first equipment consisted of a hand-carved wooden nozzle and a canvas hose. About 1855 sheet iron pipe and the gooseneck (a flexible iron joint of two elbows to allow horizontal movement) came into use. Later developments introduced vertical movement and provided for shifting the direction of the discharge. About 1870

Construction of concrete, single-arch dams of the overflow type is making possible the resumption of hydraulic mining along the American and Yuba rivers in California. The North Fork Dam, with a storage capacity of 25,000,000 cubic yards of debris, was completed in March.

a hydraulic giant, comparable to the modern machine, was developed.

The first giants were directed by the dangerous and difficult means of pushing and pulling the nozzle around. The deflector, an amazingly simple and effective method of control, was later invented. The deflector is a sleeve which fits over the nozzle and is so attached that its outer end can be moved into the nozzle stream. (Sometimes the nozzle is made so that its tip may be moved either vertically or horizontally into the stream.) At any rate, the action of the discharge stream swings the giant at a mere touch by the operator.



Map showing the location of the three debris control dams on the American and Yuba rivers. They will provide a total storage estimated at 168,000,000 cubic yards of debris resulting from hydraulic operations. The map was prepared by the Corps of Engineers, United States Army, which is in charge of the entire construction project.

The hydraulic operations of the sixties and seventies were conducted on a tremendous scale. Pits several miles long and as much as three-quarters of a mile in width were excavated to a depth as great as 400 feet from surface to bed rock. Some 6,000 miles of ditch and flume and more than 10 miles of tailings tunnels were constructed. At one time 90 second-feet of water under a 600-foot head was directed against a gravel bank from a single nozzle. More than 3,000,000 cubic yards of gravel have been washed from one mine in a single season.

It was estimated¹ in 1914 that 1,555,000,000 cubic yards of debris resulted from hydraulic mining in the area tributary to Suisun Bay after 1849 and that over 100,000,000 more came from other forms of mining. About 11,000,000 yards have been mined since that date. On the Yuba and Bear alone 850,670 cubic yards have been moved, eight times more than that excavated for the Panama Canal.

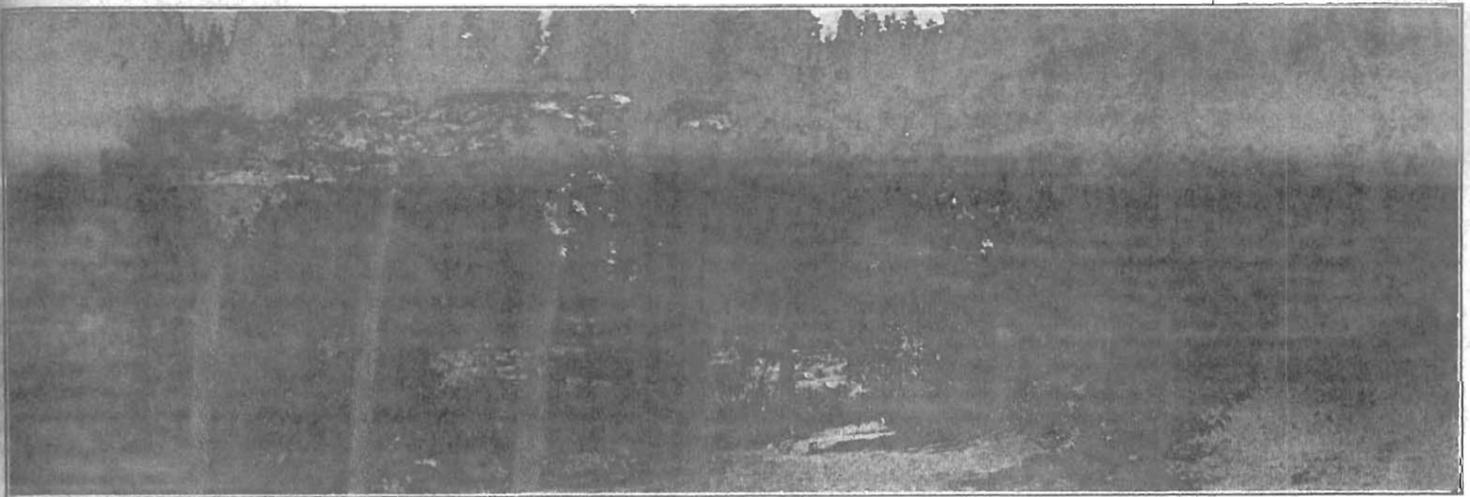
In the ordinary hydraulic operation the gold is caught by a series of sluiceways lined with some sort of riffles and, especially if the gold is fine, charged with quicksilver. The actual gold production from hydraulicking is not available, but a conservative estimate is believed to be \$300,000,000.

THE DEBRIS problem first developed following the heavy floods of 1861 and 1862 when large quantities of both mining and natural debris were deposited in the valleys and valley rivers. The large quantity of debris entering the navigable portions of the Sacramento and Feather rivers caused a considerable increase in the elevation of the beds of these streams. At Marysville, the bed of the Yuba River was raised about 15 feet, and at Sacramento on the Sacramento River, about 7½ feet. This resulted in injury to navigation in the Sacramento and in danger of flooding to the low lands adjacent to the Yuba.

The Anti-Debris Association was organized in the early seventies by the farming and real-estate interests in the valley communities to combat hydraulic mining. In 1876 the first suit was decided against the miners, and hydraulic mining was finally stopped by the famous Sawyer decision of 1884 which granted a permanent injunction against the mine operators without means of restraining their debris.

Up to that time miners had made no general effort to control the tailing and the valley lands were suffering serious damage. After the Sawyer decision, hydraulic mining on the drainage of the Sacramento and San Joaquin rivers was not possible until authorized under regulation by the California Debris Act of 1893. During this period of prohibition considerable

*Oakland, California



One of the hydraulic pits from early-day operations. The trees in the foreground are growing on the denuded bedrock. Closer to the vertical bank the bedrock dips sharply and was reported not to have been washed clean. With a resumption of hydraulic mining it is believed that properties such as this can be made to yield added gold—especially at the present price.

bootleg mining took place, but few of the large companies remained alive.

Efforts of mining men to do something for hydraulic mining resulted in the passage by Congress on March 1, 1893, of the California Debris Act. It was "an act to create the California Debris Commission and regulate hydraulic mining in California," and required that a commission composed of three officers of the Corps of Engineers, U. S. Army, be appointed by the President. The commission was to make plans and estimates for the improvement of the navigable rivers affected by hydraulic mining, provided it could be accomplished without injury to the navigability of the rivers or adjacent lands. The act also required study and research for practical methods whereby mining could be carried on without injury to the interests under protection.

Since the passage of the act, about 1,200 applications for mining licenses have been filed with the commission. Two-thirds of these were granted, the others rejected as the operators were unable to provide debris storage or did not go ahead for financial reasons. After the license is issued each mine and its storage provision is regularly inspected by representatives of the commission.

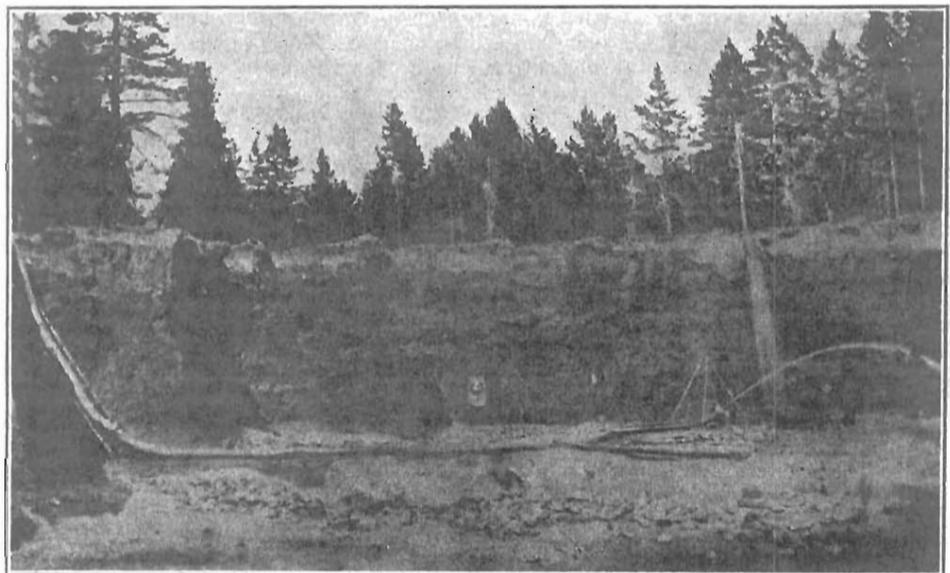
Debris storage, except where individually developed, has only been available behind the Pacific Gas and Electric Company's Bullard's Bar Reservoir on the North Fork of the Yuba River. The dam is 175 feet high, was built in 1924, and provides for both power development and debris storage. The reservoir has a water storage capacity of 31,500 acre feet, and about 40,000,000 cubic yards of debris storage space at 2 cents a cubic yard is available.

In recent years a number of reports were made on the practicability of debris storage development designed to at least partially rehabilitate hydraulic mining. Opposition to any renewal of activity came from the valley communities who recalled the damage done by previous mining. They questioned the possibility of regulating the mines if they were permitted to start again; of holding the debris where it would

Preliminary Memorandum of Workable Hydraulic Gravels
February 15, 1926, According to River Basins.

	Millions of cubic yards
North Fork American:	
Iowa Hill, Gold Run, Yankee Jim.....	115
Above Rice's Br. and N. Fork Br.	
Middle Fork American:	
Forest Hill, Michigan Bluff and Todd's Valley.....	30
Above Ruck-a-Chucky Canon.	
Bear River, with Greenhorn and Steep Hollow:	
Liberty Hill and Dutch Flat, Little York,	
You Bet, Red Dog, Chalk Bluff, Hunts Hill.....	43
Above Van Giesens and below Greenhorn Ck.	
South Yuba:	
Alpha, Omega, Sailor Flat, Blue Tent, Relief Hill.	
Above Edwards Br.	
N. Bloomfield, Malakoff, Lake City, N. Columbia,	
Esperence, Fr. Corral.....	415
Above Edwards Br. or Jones Ravine.	
Catch fines at Narrows.	
Middle Yuba:	
N. San Juan, Birchville, Badger Hill, Cherokee, Moores Flat.....	109
Above Emory Ford, Freemans Br. & Narrows.	
Total	712

After: Jarman.



This photograph, reproduced from an old print, shows one of the earliest hydraulic operations. The hose is of stitched canvas.



Hydraulicking at the Joubert Mine in Yuba County, California. A 20-inch stream of water with a vertical fall of 100 feet is being forced through a six-inch nozzle. The Joubert is the oldest continuously operated hydraulic mine in the state. Debris is stored behind Bullard's Bar Dam.

do no harm; of the advisability of using storage space which would otherwise be available for water. Mining interests, on the other hand, justified federal aid on the grounds that large amounts of gold would be recovered, that federal expenditures would be repaid, and that the operations would be conducted under strict regulation without harm to others.

AFTER DUE consideration Congress, in August of 1935, adopted a project for the development of hydraulic mining debris storage. The authorization covers the construction of four reservoirs: one at the Upper Narrows on the Yuba River; one at Dog Bar on the Bear River; one on the North Fork of the American River; and one on the Middle Fork of the American River. The law requires that a tax shall be assessed on the debris mined and stored in these reservoirs sufficient to liquidate the cost of construction.

The California Debris Commission is to construct the dams and collect the tax. The tax in each case will be equal to the total capital cost of the dam and reservoir divided by its debris capacity in cubic yards. It is estimated that the capital cost, without interest, will be returned over a 20-year period and that federal and gen-

eral benefits, including those to navigation because of the restraint of more than 20,000,000 cubic yards of natural erosion and old mining debris, will fully justify the exclusion of interest charges. Recent legislation provides for the selling of stored water for irrigation and power uses. As a consequence, it is believed that storage charges, previously estimated at between 2 and 4 cents a yard, will be reduced by at least one-fourth.

The reservoir on the North Fork of the American River has been completed and licenses for mining by the hydraulic method with storage in this dam are being issued. Construction of the dam at the Upper Narrows of the Yuba River is in progress under contract with possible completion by early 1941. The plans and specifications for the Ruck-a-Chucky Dam on the Middle Fork of the American River have been completed, and it is hoped to have it constructed by or before completion of the dam on the Yuba River. Construction of the debris dam on the Bear River has been prevented by the issuance of a court injunction restraining the deposit of debris in that stream.

Storage capacities of the various dams are given as follows:

	Cubic Yards
Upper Narrows	118,000,000
North Fork	25,000,000
Ruck-a-Chucky	25,000,000

The reservoir area through which the water must pass to reach the dam is such that an appreciable portion of the sediment contained in the water will be deposited. The dams will stop the discharge not only of mine debris, but also of debris resulting from natural erosion and thus will contribute additional protection to the agricultural lands below. There should be no fear on the part of agricultural interests that this resumption of hydraulicking will cause a repetition of conditions which caused so great damage during the 30-year period of uncontrolled mining.

'By Grove Karl Gilbert in "Hydraulic Mining Debris in the Sierra Nevadas." (U.S.G.S. Professional Paper 105.)

FINCH PRAISES GOVERNMENT SILVER BUYING PROGRAM

THE SILVER buying policy of the United States government was characterized as an economic aid by John W. Finch, director of the United States Bureau of Mines, when he appeared before the special silver investigating committee a short time ago. "The bureau does not hesitate to say that the silver buying program has been a tremendous aid to the non-ferrous metal mining industry," Finch stated.

He cited figures to show that there was an increase in gold and silver mining employment between 1933 and 1937 of some 36,000 workers. Had it not been for the silver program, in the opinion of Finch, the price of silver would be around 30 cents an ounce.

MIAMI COPPER TREATS LARGE TONNAGE OF LOW-GRADE ORE

MIAM I COPPER COMPANY, in 1938, mined and treated 3,338,845 tons of ore, recovering 54,910,255 pounds of copper. Average copper content of the ore was only 0.949 per cent. The scale of operations was about 27 per cent under that of 1937, the average daily tonnage treated being 9,326 tons for the 358 days the plant was in operation, compared with 12,772 tons daily for 360 days during the previous year.

In addition to the copper production there was also a small output of molybdenite which was recovered from the copper sulphide concentrates. This recovery was made possible by the construction of a small plant which was placed in operation in August of 1938 after considerable investigation and experimental work. To relieve the serious shortage of water existing as a result of the exceedingly dry year, nine additional wells were drilled and a 180-foot dewatering tank was installed for the recovery of additional water from the outgoing tailings. This tank was put in operation on March 7, 1939.

For 1938 an operating loss of \$29,014.27 and a net loss of \$281,133.89 was reported, after providing for depreciation. A. S. Winther, Miami, Arizona, is general manager of the company.

Mining Men and Their Activities

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

Ricardo Villareal C., mining engineer, is addressed at Juarez 34, Monclova, Coahuila, Mexico.

E. E. Jones is now in Bodie, California. He was formerly connected with the Producers Mines, Inc., at Chloride, Arizona.

M. E. Clark, 322 El Paso National Bank Building, El Paso, Texas, was a recent visitor in Arizona in connection with his mining interests.

C. L. Sharpe, formerly with the Ingersoll-Rand Company, is now at Fairplay, Colorado, as mine engineer for the London Mines and Milling Company.

Ted R. Tamney has gone from Los Angeles to Las Vegas, Nevada, where he receives mail at Box 508. He is the owner of the Climax tungsten mine near Las Vegas.

H. D. Barclay is at Golden, Idaho, reopening the old South Fork gold mine which he holds under bond and lease. Some \$50 to \$70 ore is stated to have been opened.

Charles H. Sabin, Jr., of 120 Broadway, New York, has resigned the presidency of the Austin Silver Mining Company, which has holdings near Austin, Nevada, but will continue as a director.

Edward B. Olds is at Kimberly, Nevada, with the Consolidated Coppermines Corporation. Until recently he was employed by the Westgate Mining and Milling Company near Fallon, Nevada.

William Amadon, Manhattan, Nevada, is reported to be opening a new mining area, located about four miles west of Manhattan. He is said to have uncovered a substantial vein of gold-silver ore.

Clarence H. Irwin, who has been working for the Iron King Mining Company at Dewey, Arizona, has moved to Hillside, where he is employed as mine superintendent at the Comstock Dexter mine.

Clair Hodsdon of Bonners Ferry, Idaho, is one of the incorporators of the Metals Production Company, a new concern. A. W. and M. G. Nelson of Spokane, Washington, were also named as incorporators.

G. Donald Emigh, mining engineer who has been on the staff of the U. S. Vanadium Corporation for the past two years, was recently transferred to Nevada. His mailing address is Box 632, Las Vegas.

Raymond J. Briggs, civil and mining engineer, has opened offices at 210 Noble Building, Boise, Idaho, and will operate a firm to be known as Raymond J. Briggs, Consulting Engineers. He has resigned all federal connections.

A. D. Burrow of Gibbonsville, Idaho, has returned after spending the winter in Los Angeles, California. Burrow has placer interests in the Gibbonsville district, including the Sundown placers, now under lease and option to the North Fork Placer Company.

WILLIAM A. FEALY WILL TAKE NEW POSITION MAY 15

WILLIAM A. FEALY, at present general superintendent of the Eagle Shawmut mine at Chinese Camp, California, has accepted a position as sales engineer in the wire rope division of the Bethlehem Steel Corporation and will be located at Salt Lake City, Utah. He will assume his new duties May 15.

Fealy was born at Cullman, Alabama, and is a graduate of the University of Alabama, class of 1923. For five years following graduation he was associated with the engineering division of the Tennessee Coal, Iron and Railroad Company at Birmingham, Alabama, and following that he joined the staff of R. J. Pearse and Associates, landscape and town planning engineers of Birmingham.

In 1929 and 1930 Fealy was chief engineer for the Southern Development Engineers and from that position he returned to the geologic division of the Tennessee Coal, Iron and Railroad Company. From 1931 to 1935 he was engineer in charge for the Ceylon Company at Burnet, Texas, also known as the Southwestern Graphite Company, a subsidiary of T. C. I. and R.

He joined the staff of the Eagle Shawmut mine at Chinese Camp, California, in 1936 as engineer and purchasing agent and remained with that organization until December, 1937, when he returned to the Southwestern Graphite Company as general manager.

In October, 1938, he assumed the position of general superintendent for Eagle Shawmut.

Jordan A. Hammer has been appointed as foreman of the Harvard Mine, Jamestown, California, replacing Robert Duncan, following the recent decline in underground operations. Hatfield Goudey is geologist, and Erick Puschmann is assayer.

Frank and Elmer Pitts of Rifle, Colorado, are reported to be perfecting a new method of extracting vanadium from the ore. The Garfield Vanadium Corporation of Rifle is stated to be negotiating for the process which is being patented.

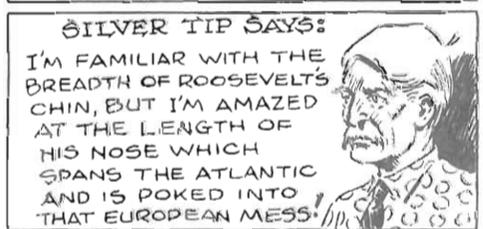
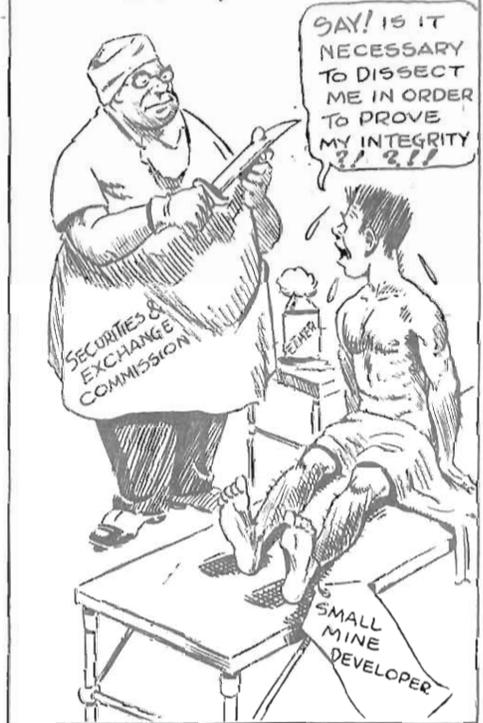
A. C. Ensign is reported to have been appointed superintendent of the Magna plant of the Utah Copper Company at Magna, Utah. This is a promotion from the post of assistant superintendent, a position which is now held by C. B. Ashby.

Raymond E. Sutton has moved from Oatman, Arizona, where he was employed as assayer by United States Smelting Refining and Mining Company, to Shingle Springs, California, P. O. Box 683. He is employed as ball mill operator at the El Dorado Crystal mine.

Ray E. Tower of Anaconda, Montana, is a director of the new organization, Southern Cross Mining and Milling Company. He

THE LEVITY LODE

By JOHN GOULDERS



PAGE
LOOSE

sence of any market improvement, production will remain suspended until certain development work is completed during the second quarter of 1939. A special reserve of \$100,000 was provided out of surplus account for certain contingencies that may arise in connection with this operation.

The only other property which the American Zinc Lead company holds in the western part of the country is the Middle Yuba ground in California. This property was idle throughout 1938.

All departments at East St. Louis, Hillsboro, and Columbus were operated during the year on schedules warranted by sales. Inventory of finished products shows a small reduction of tonnage for the year. Inventory of supplies and repairs was substantially reduced. The cadmium division was operated at capacity throughout the year and the entire production shipped.

At the end of 1938 the company had 1,412 employes which compares with 1,562 at the beginning of the year. Total expenditures for wages, salaries, and commissions were \$2,068,314, a decrease of \$597,999, or 22.43 per cent below the 1937 figure. Total expenditures for taxes, including social security, were \$189,902, which is approximately 54 per cent of the company's operating profit and is equivalent to \$134.49 for each employe on the payroll at the close of the year.

The company has concluded negotiations for exclusive rights for a new concentrating process, adding to this an improvement on the process that has been developed in connection with the treatment of iron ores.

It is cooperating with a prominent iron ore mining and milling company in the commercial development of this process. Since the end of 1938 the company has taken an option for the purchase of one-third of the capital stock of the company owning the patents on the processes.

The company's financial statement for 1938 shows net sales amounted to \$7,936,029, with \$7,269,744 for cost of goods sold, before depreciation and depletion. A net loss of \$53,269 was reported for the year.

ALASKA JUNEAU'S CALIFORNIA HOLDINGS INCREASED IN 1938

DUE TO A slight increase in operating costs, a small decrease in yield, and higher charge-offs for depreciation and depletion, Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reported a reduction in net profit for the year ended December 31, 1938.

The report shows a net profit of \$1,572,198 after depreciation, depletion, and income taxes, equal to \$1.06 a share on 1,487,500 shares outstanding in the hands of the public. This compares with a net profit of \$1,911,286 on the same basis in 1937, equal to \$1.29 a share on the same number of shares.

Relatively substantial investments were made in California property during the year. The company recently acquired by

direct purchase a 70 per cent interest in the stock of the Pacific Mining Company and now owns 75 per cent of the issue. The latter company secured an option on the Pine Tree mine in Mariposa County in 1931 and under the terms of the agreement the purchase price of \$200,000 is to be paid by a percentage royalty on the gold production. Up to December 31, 1938, \$146,585 had been paid under this arrangement.

The Pacific Mining Company also owns 80 per cent of the Beebe Gold Mining Company at Georgetown. This mine, however, is almost exhausted and will shortly be closed down. The Pine Tree mine, on the other hand, contains a large block of low-grade ore which can be treated profitably at some future time.

Alaska Juneau has also secured an option on the Harvard mine in Tuolumne County which is being thoroughly sampled and tested. The mine is said to be similar in many respects to Alaska Juneau and if the property stands up, operations will be based on methods and equipment found satisfactory in Alaska for achieving low mining and milling costs.

Tons of ore fine-milled in 1938 totaled 2,478,923, compared with 2,251,079 in 1937. Gold recovery per ton fine-milled amounted to 0.0515 ounce last year, compared with 0.0594 in 1937. A gradual increase in production was reported from the Perseverance area and a gradual decrease in production from the South ore body.

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 8" 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.

New Mexico, to operate the mines and plans to ship some of the higher grade ore while preparing for the installation of a mill. Mattox maintains offices at 307 Blumenthal Building, El Paso, Texas.

Ralph L. Crothwaite, Chicago, has secured a lease and option on the 40 Bluebird cobalt claims located in the Turnbull district near Safford, Arizona. The claims are owned by Walter L. Lombardi of Tombstone, Arizona, and Fred Mayhew of Benson, Arizona. Under terms of the lease and option, which fixes a price of \$50,000, the lessee must immediately begin development of sufficient ore to justify installation of a 50-ton mill.

The 200-ton mill under construction at the Trench mine, Patagonia, Arizona, is nearing completion and is expected to be put into production before May 1. More than 150 men are employed at the mine under the direction of M. B. Lovelace, superintendent. The property is electrically equipped throughout. The Trench is being worked under lease by the American Smelting and Refining Company, B. R. Hatcher, division manager, Box 2028, Tucson, Arizona.

The Pershing mine, formerly known as the Richie, is being developed by Jack McIver and associates of Chloride, Arizona, and a crew of 10 men is employed. The property adjoins the Pilgrim, operated by Producers Mines, Inc., and it is planned to ship to the Producers mill.

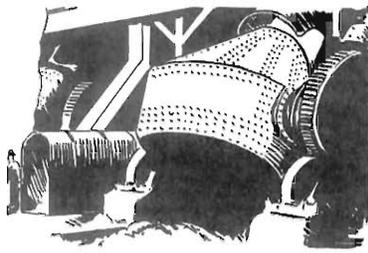
The E. R. Skinner mine, located about four miles west of Rescue, California, has been acquired by Thomas B. Sturgess, president of the Pittsburgh Drilling Company, Pittsburgh, Pennsylvania, and associates. It is reported that a new gravel plant will be installed on the property which will be capable of

treating between 200 and 250 yards of gravel daily. Work at the property is directed by A. L. Chappell, Ione, California. E. R. Skinner, 816 Sixth Street, Sacramento, California, was the former owner of the mine.

A San Jose, California, mining firm, known as Jose Oro, has taken over the Gaylord mine (also known as the Swinburn) on the Long Valley Road near Auburn, California. A new plant is to be installed for better recovery and equipment will include concentrating tables. The mine was formerly worked by A. L. Swinburn, Box 106, Station A, Auburn. Officials of the new Jose Oro concern include R. W. Bryant, W. A. Henderson, and others of San Jose, California, and A. B. Crosland of Auburn. Operations at the property will be directed by Henderson.

B. M. Stites of Marysville, California, is directing the reopening of the old Monarch mine, near Sierra City, California. He reports that the shaft has been retimbered and that extensive work is planned for the summer.

H. G. Kumle, Oakdale, California, president of Placer Properties, Inc., has pur-



chased 12 acres of the old Frank Bianchi place in the Orange Blossom Colony district, near Oakdale, for dredging purposes. Associated with Kumle is his son, Donald P. Kumle, and a brother-in-law, Leon Brier. At present the dredging company is located on a tract bordering the Stanislaus River, adjacent to the Orange Blossom Road. Some 25 men are employed erecting a dredge, and preparing for the pond to float the dredge, so that actual work may be started in July. Electric power lines have been run into the location on a special line from Jamestown by the Pacific Gas & Electric. A 600-horsepower motor will be used by the dredging firm. The plant will have a capacity of 500 cubic yards hourly.

Dr. W. J. E. Dillabough, 117 West Fifty-eighth Street, New York City, has been named president of the Smuggler Mining Company, Ltd., succeeding C. N. Miller of San Francisco. An assessment of one cent a share was levied recently on the outstanding stock of the company. Smuggler owns a two-fifths interest in the Lone Star group of placer claims at La Porte, California, and holds an option to purchase the remaining interest. During 1938, according to the annual report, the tunnel was extended 325 feet toward an ancient river channel.

The dragline dredging project of General Dredging Corporation on Mississippi Bar near Folsom, California, reports a recent clean-up of \$12,000. The two-yard dragline is handling approximately 4,000 cubic yards daily of gravel running about \$0.22 per cubic yard. Operating costs are estimated at approximately 7 cents per cubic yard. The company is also operating a 2,000-cubic yard dragline unit at San Andreas where a better grade of gravel is being handled. Field operations are directed by Ace Giddings. General offices of the company are located at 505 Bank of America Building, Sacramento, California, W. H. Haines, president. James O. Greenan, Beowawe, Nevada, is vice-president.

The estimated profit of the Alaska Juneau Gold Mining Company for the month of March came to \$61,700 before depreciation, depletion, and income taxes. This compares with \$76,700 in February, \$123,300 in January, and \$158,700 in March, 1938. The ore mined and trammed to the mill in March totaled 411,350 tons against 368,290 tons in February, and 403,120 in March a year ago. P. R. Bradley, 1022 Crocker Building, San Francisco, California, is president of the company.

Preliminary sampling of the Harvard mine is being brought to a close by the Alaska Juneau Gold Mining Company which has made more than 5,000 assays

of ores from the property. For the time being, further work will be in the nature of check sampling and the company has no immediate plans for operation which will depend on the outcome of the secondary resampling campaign. The investigation of the property is being made under a working agreement with the owner, the Harvard Gold Mining Corporation, headed by Robert Hooker of San Francisco, which calls for the construction of a 500-ton mill next year if the property seems to justify operations. Philip R. Bradley, Jr., is at Jamestown in charge of the work.

Mining and milling capacity of the Surcease mine at Oroville, California, has been increased to 80 tons daily during the past year by development work and by the addition of flotation equipment to the mill. Recovery is now by a combination of cyanidation and flotation. A new ore body has been opened on the 600-foot level assuring continued operations. About 70 men are receiving steady employment under Allan E. Jones, general manager, Box 1204, Oroville. W. E. Messner is mill superintendent, Bill and Jack Lawton are foremen of the mine, Kevin Malone is chief engineer, and Milo Horner is in charge of maintenance. The mine is owned by Hoefling Brothers, 1000 Fourth Street, Sacramento.

Steady shipments of ore are being made by the Ramsey Mining Company to the Selby, California, smelter of the American Smelting and Refining Company. The company is operating the old Wheeler mine in Grapevine Canyon near Lucerne Valley, California, and treating ore in its new 60-ton flotation-cyanide plant. The ore is said to run about \$50 per ton. Milton G. Ramsey is head of the company and is employing a 24-man crew.

Ellis E. Sterling and Tom Davies have leased the old Eclipse tailings ponds and have installed a 50-ton cyanide plant, which is reported to be giving very satisfactory returns. Sterling is addressed in care of the Eclipse mine, Star Route 1, Porterville, California.

The new 50-ton flotation and cyanide plant at the property of the Humming Bug Mines Company, Inc., Yreka, California, is now in full operation with a crew of 25 men employed, according to Joseph T. Buel, general manager. First operation of the plant in December did not prove satisfactory as considerable sulphides were encountered in the process. Both oil flotation and cyanide tanks were added to correct the situation. Sufficient ore for three years' operation is reported blocked out at the mine, which has been under development for some time. Full scale underground work is being carried on to keep the mill supplied. The flow-sheet includes two oil flotation units, which directly follow the ball mill, and which remove from 75 to 80 per cent of the gold in concentrates. The cyanide process, which comprises 13 tanks, is said to remove from 18 to 20 per cent of the values, thus making almost a complete recovery.

The Rose mine located 10 miles east of Big Bear Valley in San Bernardino Coun-

ty, California, has been taken over under lease and option by William Grassman, 489 West Dalehurst Avenue, West Los Angeles, California, and associates. The new operators plan to begin development of the property immediately. Included in the claims are the Rose, Christie, Coupon, and Even Up, and the mine has been opened by extensive underground workings. Three springs are located on the property and water has been piped into the mine. New machinery will be moved to the property and rehabilitation is to begin shortly.

The new mill at the **Red Banks** mine, Bagby, California, is operating three shifts and treating approximately 100 tons of ore daily. A crew of 15 men is employed under the direction of Fred W. Draper, operator of the property. Clarence Tedrow is foreman.

Production at the Malvina mine of the **Boston California Mining Company**, Coulterville, California, has been increased from 50 tons to 80 tons per day by the addition of a night shift, according to Ed McMahon, superintendent, Box 709, Sonora, California. Plans are being made to further increase the output to 100 tons per day. A body of ore has been opened recently on the 1,100-foot level of the mine which is said to carry very satisfactory values. Charles Segerstrom of Sonora, California, is president of the company.

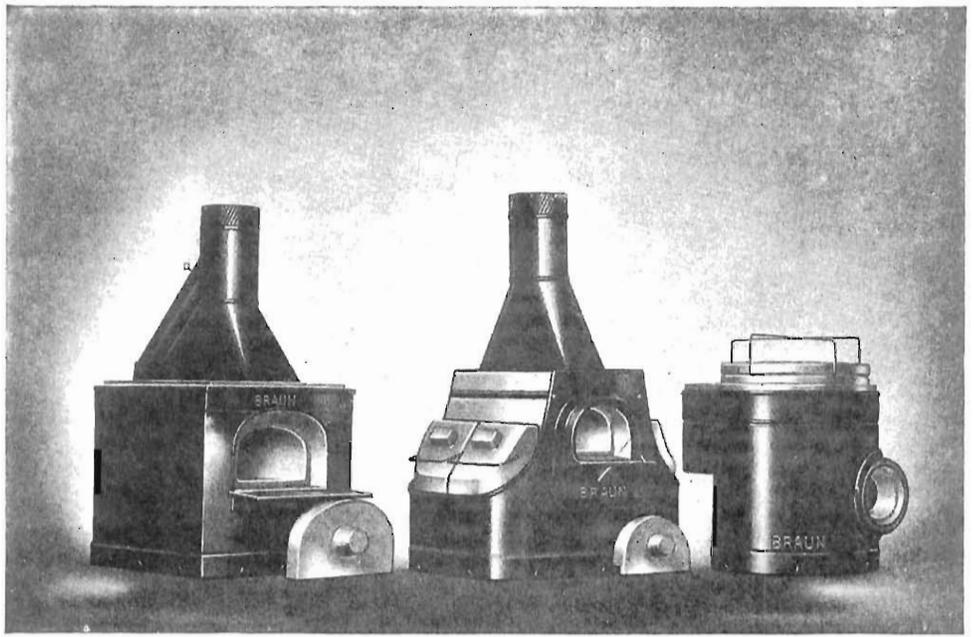
Following an examination of the **Fortuna** shaft, recently unwatered, Dr. Carl P. Jones, owner, Nevada City, California, has ordered a crosscut to be driven in a north-easterly direction from a point on Deer Creek to intersect the Fortuna shaft at the 400-foot level. Only a few men will be employed on a two-shift basis and work will be directed by John M. Hoff, who directed the unwatering of the Fortuna shaft. The Black Prince and Mountaineer veins are also expected to be intersected by the proposed crosscut.

The **Big Canyon Dredging Company**, George F. King, manager, Shingle, California, still has one more year of work on Big Canyon Creek, on ground which is said to have proven very profitable. The Big Canyon interests are at present testing ground at Orleans, California, on the lower K'amath River, which is reported to contain about 30,000,000 yards of gravel.

Work is to begin before May 1 on construction of a new mill at the Believe It Or Not mine of the **Susanville Mining Company**, R. L. Chester, manager, Susanville, California. Working full shifts, the company has sunk the main shaft to a depth of more than 90 feet and several strong veins and shoots are reported to be showing in the older workings.

Lord and Bishop, Box 812, Sacramento, California, have placed in operation their new dragline dredge unit on gold-bearing gravel north of Valley Springs, California. A three-yard shovel and steel hull dragline dredge, capable of handling 5,000 cubic yards of gravel every 24 hours, are being used in the new operation. It is expected that five years will be required to work the ground.

The shaft workings at the **Lukens** gold mine have been reconditioned and milling



Left to right—Braun Muffle Furnace, Combination Furnace and Bullion Melting Furnace

Out of the FIRE comes GOLD

Nothing is of much more importance to the assayer than his means of using fire. That's why Braun Assay Furnaces have become the standard in assay offices the world over. They permit close regulation of the heat, assuring fast melting and perfect cupellation.

plete selection of Muffle, Combination and Bullion Melting Furnaces. These furnaces are light in weight, ingenious in design and sturdy and durable in construction.

Braun Furnace Outfits are available with Gasoline, Oil, Gas or Cylinder Gas Burners. Install Braun Furnaces for complete satisfaction.

Braun Assay Furnaces include a com-

For detailed information write Dept. M-24 for Bulletin C-107

BRAUN CORPORATION

2260 EAST 15TH ST., LOS ANGELES, CALIF., U. S. A.

San Francisco, California
BRAUN-KNECHT-HEMANN CO.



Seattle, Washington
SCIENTIFIC SUPPLIES CO.



STRUCTURAL STEEL

Headframes

INDIVIDUALLY DESIGNED, FABRICATED AND ERECTED BY HERRICK IRON WORKS 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 Defonators, Fuse and Blasting Accessories.

Plant and General Office
BENSON, ARIZONA

411 West Fifth Street
LOS ANGELES, CALIFORNIA



PROSPECT the modern way — test placer properties quickly and at low cost with a Bucyrus-Erie 23-P prospecting drill. In driving and pulling pipe, and in accuracy of samples the 23-P is years ahead in performance and economy. Available on truck or wheel mountings. Write for bulletin TODAY.

BUCYRUS-ERIE CO.
SOUTH MILWAUKEE, WIS., U. S. A.



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.

The General Engineering Company
CONSULTING METALLURGICAL ENGINEERS
156 Pierpont St.
SALT LAKE CITY
TORONTO NEW YORK CITY LONDON

DRY BANK PLANTS
BODINSON
BUILT
DRAG LINE DREDGES
2401 Bayshore Blvd., San Francisco

equipment has been assembled at the property by Gordon and Kneebone, operators. Mining will be carried on from the 155-foot inclined shaft. The mine is located between Cool and Pilot Hill, California, and formerly was worked by the Lukens Gold Mining Company of Auburn, California.

Chesro Martin is using a 10-stamp mill and three concentrating tables in treating dump ore from the Church-Union and Klondyke mines near Eldorado, California. A substantial tonnage is reported to be available and the plant is handling from 50 to 70 tons of material daily with the mill feed said to average about \$4 a ton.

A full crew will continue development work at the Standart mine of the Indian Valley Mining Company, Greenville, California, pending reconstruction of the flotation plant destroyed by fire recently. The work of rebuilding the mill was started about the middle of April. Ten men are working underground and four on the surface. G. L. Johnson is general manager.

The Zaca Mining Corporation, N. H. Bennett, president, 558 Russ Building, San Francisco, California, has resumed operations at its mine located near Markleville, California, following the winter shutdown. Satisfactory ore has been encountered on the surface about 1,000 feet above the lower workings and the development program will include considerable surface work in addition to underground drifting. The surface ore body is said to be about 100 feet in width. The mine is equipped with a 100-ton flotation plant.

Work at the Spring Hill mine, Grass Valley, California, is being centered on development and the new 100-ton ball mill will operate on custom ore. Promising veins are reported to be showing in territory beyond the old workings with indications favorable for resumption of production. Work at the mine is directed by C. C. Cushwa, manager, and 15 men are employed. Stewart M. Marshall, 1915 Mills Tower, San Francisco, is general manager of Spring Hill Gold Mines, Inc.

Plans for the construction of a 100-ton mill at the Griffith property are being made by a group of Denver men headed by J. M. O'Connor. The Griffith mine is being operated with the Capital Price mine by the Griffith Leasing Company, W. E. Walthers of Georgetown, Colorado, general manager.

COLORADO
The Domino Mines Company has been organized by Ray J. Betasso, 1027 Penn Avenue, Boulder, Colorado; J. W. Brewster of Fort Lupton; and James C. Painter of Roggen, Colorado, to operate the Lucky Two mine near Boulder. Betasso has been operating the mine under lease from the Gold, Silver, and Tungsten, Inc., since August of 1937. Under his management the mine was unwatered and the workings cleaned out and retimbered. Last September mill construction was started and the 25-ton plant was recently finished. At present a crew of four men is employed, but more will be hired soon.

Plans are being made by the Fortune Lode Mining Company to extend the 200-foot Winona shaft at Gold Hill, Colorado, in order to carry out the extensive development program. The company holds the Winona-Trombo group of six claims and recently reopened the old workings. A drift from the Winona shaft on the bottom or 200-foot level has been driven 125 feet. It has reached the Trombo vein and is believed to be approaching the junction of the Trombo with the White Cloud vein. Shipments have been started to the smelter. E. A. Reardon, Box 277, Seattle, Washington, is president and Alex McLellan of Boulder is superintendent.

The India and Cumberland mines in the Magnolia district of Boulder County, Colorado, are being cleaned out preparatory to mining operations. Ohio interests are stated to be doing the work. The India mine was until recently operated by Edward F. Yates of Boulder. Values are in gold and silver.

The Bona Ventura mine near Boulder, Colorado, is reported to have been acquired by D. W. Schmitt, Box 470, Boulder, and his Kansas associates. Ore is being mined and will be sent to the Boulder Tungsten Products plant as soon as it is completed.

A compressor and other equipment are being installed on the Peg Leg claim on Gold Hill at Cripple Creek, Colorado, and mining will be started soon. Ted King and Leslie Myers of Cripple Creek have leased the claim which adjoins the Caledonia and Gold Bond property.

It is reported that directors of the Golden Cycle Corporation have authorized the driving of a tunnel 1,000 feet below the Roosevelt drainage tunnel in order to lengthen the life of the Cripple Creek mining district in Colorado about 10 years. The proposed tunnel will be driven from a point in Cripple Creek Gulch, directly below the Roosevelt tunnel. It will follow a direct line to the Ajax shaft on Battle Mountain and will continue to the No. 2 shaft of the Portland, which it will cut on the thirty-first or Winze level, 135 feet below the present bottom of the shaft. A lateral will go through to the Cresson property. The Golden Cycle and affiliated companies, long known as the Carlton interests, have been confronted with the problem of draining the lower levels of the district and with that in mind several surveys have been made. A pumping project was considered at one time as an alternative to the tunnel plan. While no details have been announced, the tunnel is expected to cost about \$1,000,000 and with laterals will take about four years for completion. Work will start around May 1, and a crew of 50 men will be employed. Merrill E. Shoup of Colorado Springs is president of the Carlton properties and A. H. Bebee of Cripple Creek is general superintendent and in charge of the surveys for this work. When completed, the tunnel will drain an area of approximately 30 square miles.

The Slide Mines, Inc., reports for the year 1938 gross smelter returns of \$168,502. Total expenses for the year, however, were \$175,778, leaving a net loss of \$7,-

of the Colorado Fuel and Iron Corporation at Sunrise, Wyoming. Harry A. Wright is mine superintendent at Sunrise and H. B. Lynch is chief mine engineer. Others on the staff include: Ralph E. Davis, chief electrician; Frank Allaman, chief clerk; Victor Birleffi, mine foreman; and O. A. Rockwell, extraction engineer. A total of 160 men are employed. Block caving methods are used, with open pit slusher and steam shovel. W. A. Maxwell, Jr., is president of the company with offices in the Continental Oil Building, Denver, Colorado. G. H. Rupp of Pueblo, Colorado, is general manager.

The Douglas Creek Mining Company is stated to be negotiating for a new lease, the old one having expired. The company operated near Laramie, Wyoming, last year and is now shut down for the winter. Nathan Sturdy, 1752 Barr Avenue, Crafton Post Office, Pittsburgh, Pennsylvania, is president and R. C. Sturdy, 706 Keystone Building, Pittsburgh, is secretary. Paul Jones of Holmes, Wyoming, is consulting engineer and general manager. The company also expects to secure a lease on some dry placer claims near Oracle, Arizona.

Twelve to fourteen men are employed by the Eastern Wyoming Bentonite Company at Moorcroft, Wyoming. The firm, L. E. Fletcher of Moorcroft, president, general manager, and purchasing agent, is producing from 60 to 80 tons of bentonite daily. Mining is by open pit methods and a drying plant handles the entire output. Diesel electric power is used. Construction of a fine grinding and air separation plant has been started. Charles Hagerman of Upton, Wyoming, is assistant mine superintendent and Harold Black of Moorcroft is mill superintendent.

NEWMONT CORPORATION ISSUES ANNUAL REPORT

THE Newmont Mining Corporation, 14 Wall Street, New York City, reports for the year ended December 31, 1939, a net income of \$2,422,105, after provisions for federal income tax. During the year the corporation paid cash dividends of \$3 per share, a total of \$1,594,938.

The annual report covered activities of the various properties in which the corporation holds interests, and among those in the western United States are the following:

Operations at the properties of the Empire Star Mines Company, Ltd., Nevada City, California, continued normally throughout the year under the direction of the Newmont staff, after some difficulty with labor organizations early in the year. Two additional mines, the Zeibright and the Browns Valley, previously in a development stage, were operated successfully in the latter half of the year and now offer considerable encouragement for added life to the Empire Star operations. That company produced a total of 132,676 ounces of gold in 1938. A cash dividend of \$4 was paid in addition to one share of Northern Empire Mines Company, Ltd., stock per issued share of Empire Star, so that Newmont now has, by reason

of this dividend, a substantial direct holding in the Canadian producer.

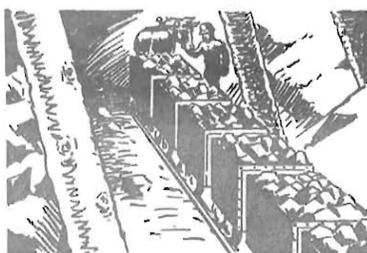
In the report for 1937 mention was made of an exploration effort of Gray Rock Mining Company at Jarbidge, Nevada, where Newmont has financed development having as its objective the re-discovery of the Long Hike vein. Profitable operation of that vein by former owners was terminated by a fault. A vein believed to be the displaced segment has been found, but efforts to develop it have been retarded by an unexpectedly severe flow of warm water. However, the work is being continued.

The Getchell Mine, Inc., also mentioned in the 1937 report, has continued to develop favorably under the direction of George Wingfield. Despite some metallurgical difficulties, which have been partially surmounted, the mine is now paying dividends and the tonnage indicated by development justifies a production considerably higher than the 500 tons a day averaged in 1938 after the mill was started in February.

During the summer of 1938 Newmont, by purchase of treasury shares, financed to the extent of \$125,000 a prospecting and drilling campaign conducted by the corporation's engineers on property of McLaren Gold Mines Company near Cooke, Montana, and at the same time purchased a block of privately owned stock of the company. Exploration has been unsatisfactory and has resulted in development of about half a million tons of gold-copper ore which would be of sufficient value if there were a larger tonnage. The property is handicapped by excessive snowfall but underground development has continued on a small scale during the winter months.

Newmont and the Hecla Mining Company, during 1938, joined in development of oxidized gold ore in the upper part of the Leadville limestone in the northeasterly corner of that formerly very productive Colorado camp. A moderate tonnage of payable ore has been developed and it is probable that a mill for the treatment of this ore will be constructed during the summer of 1939. This operation is being conducted by the Resurrection Mining Company and management is under the direction of the Hecla Mining Company.

In another portion of the Leadville camp a prospecting operation has been carried on through the Moraine Mining Company, largely owned by the Newmont corporation, but as yet no ore has been encountered. The Moraine company owns or has under operation a large area of patented mining claims about two miles west of the Resurrection project.



INSPIRATION CONSOLIDATED MAKES REPORT FOR YEAR 1938

INSPIRATION CONSOLIDATED COPPER COMPANY, Inspiration, Arizona, reports that in 1938 there were mined 1,484,614 dry tons of ore assaying 1.323 per cent copper, of which 0.635 per cent was oxide copper. The average tonnage mined per working day was 5,146 and was mined at the rate of 24.66 tons per man-shift chargeable to the mining department. During the year a scraper loading system was used with good results in areas where the thickness of the ore did not justify the usual development plan.

The metallurgical treatment of ores was by the ferric sulphate leaching process where the oxide and sulphide copper contents of the ores were dissolved by ferric sulphate in a dilute sulphuric acid solution. Production for the year amounted to 34,084,191 pounds of copper, of which 33,797,408 pounds were available for sale, the balance being an increase in soluble anode inventory.

In the main leaching plant there were treated 1,380,212 dry tons of ore from which the slimes had been removed. The slimes were sent to the concentrator for the recovery of their sulphide copper content by flotation. The tailings from this operation were treated in the slimes leaching plant by using dilute sulphuric solution to dissolve the oxide copper. The amount of slimes so treated during the year was 104,402 dry tons, or 7.03 per cent of the ore mined. The extraction in the main leaching plant was 88.476 per cent of the total copper in the ore treated. Extraction in the slimes leaching plant was 78.42 per cent of the total copper in the slimes.

The power consumed in the electrolytic precipitation of copper from the main leaching plant solutions was 1.274 kilowatt hours per pound of copper deposited. The power consumption has been improved by the installation of an anode cleaning machine.

The copper contained in the slime leaching plant solutions was precipitated on scrap iron and the resulting cement copper, with cement copper from the stripping of excess wash water solutions from the main leaching plant, was smelted at the International Smelter at Miami, Arizona.

The financial section of the company's report showed a net loss of \$324,616 after taxes, interest, depreciation, and obsolescence, but before depletion.

RECORD GOLD OUTPUT REPORTED FOR MEXICO

GOLD production in Mexico during 1938 totaled 28,734 kilograms, the highest output for any year in the past decade, according to an announcement by the ministry of national economy. Production in 1932 was 18,234 kilograms. In the five years from 1934 to 1938 inclusive, Mexico's gold production was 120,306 kilograms.

Greater demand for gold at home and abroad is said to account for the progressive increase in Mexico's production of the metal.

CYANIDATION AND CONCENTRATION of Gold and Silver Ores

By JOHN V. N. DORR

President and Chairman of the Board, The Dorr
Company, Engineers, New York

460 pages, 6x9, illustrated, \$5.00

- Discusses every typical ore, simple or complex, in any part of the world, with regard to treatment, and with examples from practice.
- Contains flow-sheets in use at the present.
- Includes test procedure and operating data received directly from contemporary plants.
- Includes cost data from representative mills.

HERE is a manual by which the operator or executive may check methods and improve results, in any part of his process, from examination of the ore to bullion recovery. The technical, economic and operating data of the industry, as it is being successfully carried on today, is placed before you in a clear, usable form.

Order from

THE MINING JOURNAL
Phoenix Arizona

ALLISON STEEL MFG. COMPANY

Mine and Mill Buildings Mine Rails
Ore Cars Steel Gallows Frames
Cochise Jackhammers Ball Mills
Muck Plates Crucible Drill Steel
 Detachable Bits — Sullivan
Regrinding of All Types of Detachable Bits

South 19th Avenue, Phoenix, Arizona
Phone: 3-5161

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

DRILL RODS AND DRILL ROD RECONDITIONING

ROCK BITS and ROCK BIT GRINDING

Shanks - Threads - Conventional Bits. All work scientifically heat-treated with electric pyrometer control. We pay freight charges both ways on used detachable bits sent to us for reconditioning.

A. COURCHESNE, INC.

El Paso Texas

BEESON ENGINEERING HANDLES GENERAL MOTORS DIESELS

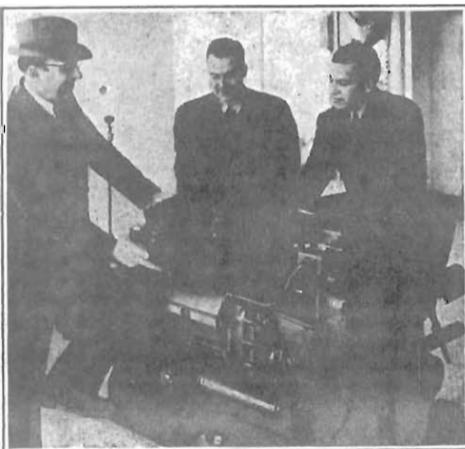
GENERAL Motors Corporation, Diesel Engine Division, has just announced the appointment of California distributors for General Motors "package-power" Diesel engines.

Headquarters for General Motors Diesel engine equipment in Southern California, Arizona, and Southern Nevada will be centered in the organization of the Beeson Engineering Company, 333 West Washington Boulevard, Los Angeles, California. Northern California distribution will be handled by the Moore Equipment Company, 525 Fourth Street, San Francisco, which will maintain branches in both Oakland and Stockton.

Heading the Southern California organization is Frank Beeson, identified with the Diesel engine industry since 1911, and familiar with the development of this type of equipment since first experiments were made with oil engines. Beeson has, over a period of years, become thoroughly familiar with the application of Diesel power to the problems confronting operators in the mining and milling field and has assembled statistics that will prove highly interesting to them. The wide range of models and sizes in the General Motors Diesel line offers a "package-power" Diesel plant for every purpose.

In order to make this service readily available to the mining and milling industry, plans are already under way for establishing sales and service facilities in Phoenix, Arizona, to care for the Arizona mining industry, and similar facilities are contemplated in Las Vegas, Nevada, for serving the Southern Nevada territory. A branch of the company has already been established in Bakersfield, California, under the direction of Earl Porter.

General Motors spent upwards of \$10,000,000 in research, testing, and development of its new industrial units before even one was sold. The new "package-power" Diesel units are modeled after the famous



Left to right: Frank M. Beeson, president of Beeson Engineering Company; Paul Beeson, sales manager; and Donald Beeson, service manager. They are viewing one of the new General Motors Diesel "package-power" units.

1,600-hp. "streamliner" Diesel engines used by railroads. The success of the railroad power units prompted the development of their smaller counterparts as industrial power units suitable for a broad field of applications in various industries and for a multiplicity of purposes. Ranging from the smallest units of 15 hp. to the 1,600 hp. streamliner type, the new General Motors line contains a model suitable for every purpose.

A feature of the General Motors' line that will probably be of interest to operators in mining and milling fields is the availability of replacement Diesel units engineered for installation in gas engine equipment now in use.

The Beeson Engineering Company has installed at its Los Angeles headquarters Diesel equipment and generator plant to supply its own heating and lighting and power for service department machinery. Actual testing and observation of these units will supply data for the computation of actual electric generation costs and should furnish interesting statistics for operators in the mining and milling industry.

RUSSELL-RITTER MINES ANNOUNCES NEW AMALGAMATOR

THE Russell-Ritter Mines Company of Molalla, Oregon, announces the completion of a new type of amalgamator, one which it has developed and used at its Oregon mine. This amalgamator is distributed by the Russell-Ritter Amalgamator Company, Box 94, University Station, Seattle, Washington. A number of the units have been built and are being introduced in various mining districts.

The amalgamator is said to have several advantageous features and to have been designed especially for the recovery of fine gold, from either placers or free-milling quartz ores. Outstanding features as reported by the company are the low cost of operation, elimination of loss of operating time, no enclosed parts, no scouring plates nor loss of mercury, and the ease with which the unit may be installed and operated.

The Russell-Ritter amalgamator comprises a series of metal trays built into a framework in step-line formation, the pulp flow entering the upper tray, then flowing downward by gravitation from one tray to another, through perforated holes in the lower half of the trays. The material falls through the perforations in a rain-like manner, and there is a checking action, a rolling over and tumbling of the entire material in every tray. The long drop (three to six inches) causes the gold and silver particles in the ore to strike the mercury covered plates with a decided impact, the amalgam building up in rings over the entire face of the plates. When it is necessary to clean up a plate, it can be lifted out and a spare plate inserted without any interruption of pulp flow.

At present the amalgamator is being built in only one size, 25-ton capacity, but the machines can be set up and operated in units to meet any tonnage requirements.

For Use In FLOTATION



NICHOLS Triangle Brand COPPER SULPHATE

99% PURE

We offer a specially
screened product for
this purpose.

Shipment from our El Paso Refinery

**PHELPS DODGE REFINING
CORPORATION**
40 Wall Street, New York
230 N. Michigan Ave., Chicago

SOUTHWESTERN DISTRIBUTOR

**ASARCO
MERCANTILE
CO.**
Mills Bldg.,
EL PASO, TEXAS

pany, 943 Paul Brown Building, St. Louis, Missouri, was reelected president of the American Zinc Institute. C. Merrill Chapin, Jr., John A. Robinson, and James O. Elton were reelected vice-presidents. Ernest V. Gent, secretary, was also reelected. John A. Good of the Eagle Picher Lead Company was named treasurer, succeeding the late James A. Caselton. The board of directors was also reelected and two additional directors were appointed: Marshall L. Havey, sales manager of the New Jersey Zinc Company, and G. A. Geatty, manager of metals sales of the National Lead Company.

Harlowe Hardinge was elected president of the Hardinge Company, Inc., of York, Pennsylvania, at a recent meeting of the board of directors. He succeeds H. W. Hardinge who is now chairman of the board. Harlowe Hardinge has personally directed the affairs of the company for the past 16 years as vice-president and general manager. Immediately after his graduation from Cornell University in 1916, Harlowe Hardinge entered the service of the company. During the war he was captain in the Signal Corps, in charge of radio training of the air service, tank corps, and artillery, and was stationed in France for two years. He has been granted a number of patents covering grinding, classifying, feeding, thickening, and drying equipment. He recently completed his "electric ear" invention, a device for controlling grinding by sound.

OBITUARIES

J. R. Lee of Nespelem, Washington, died recently. At the time of his death he was general superintendent and purchasing agent of the Grand Coulee Mines, Inc., at Nespelem.

Joseph M. O'Brien, 77, formerly active in the Alleghany mining district and at one time connected with the Tightner mine at Alleghany, California, died April 7 at San Francisco, California, of pneumonia.

T. W. "Tom" Kendall, 68 died at his home in Las Vegas, Nevada, April 11, 1939. Kendall was active in the early mining operations at Tonopah and Goldfield and was for over three years deputy mine inspector.

Tom V. Richards, for 30 years an Arizona mining man, died April 12 in a Los Angeles, California, hospital. He was 77 years old. Up until his retirement in 1929, Richards had worked in various mines near Wickenburg, Arizona.

James W. Hunter, 63, died at Akron, Ohio on March 5, 1939. For 32 years he has been superintendent of the diamond drilling division of the E. J. Longyear Company of Minneapolis, Minnesota, and as such was well known in the western mining states.

John Fairfax Berryhill, resident of Bisbee, Arizona, for 32 years, died at his home April 15. He was connected with the Copper Queen Branch of the Phelps Dodge Corporation and formerly was with the Calumet and Arizona Mining Company. He was 61 years of age.

F. C. L. d'Aix, 68, operator of the Bagdad-Chase and Roosevelt mines at Ludlow, California, died March 29 as a result of injuries received in an automobile accident. He had been directing operations at Daggett, California, where the milling plant for the property is located.

Frank J. Uhte, well-known mill and smelter designer, died recently at Carlsbad, New Mexico. He was associated with the American Potash and Chemical Company. At various times he had been connected with the Nevada Consolidated Copper Corporation, Phelps Dodge Corporation, Hudson Bay Mining Company, and Utah Copper Company.

ALEXANDER MOFFATT WILSON

ALEXANDER Moffatt Wilson, 75, pioneer Butte County, California, mining man, died April 6 at his home in Oroville, California. He was a native of Butte County and began his mining career at the age of 12, working during vacations. At 20 he was made manager of the Miocene mine and he later served as manager of the Swan Mining Company at Gibsonville. Other positions which he held in the early years were those of foreman at the Big Bend mine and shift boss at the Kennedy mine.

He moved to Tuscarora, Nevada, where he operated for a time, and a few years later he followed the gold rush to Leadville, Colorado, where he developed a large property. Returning to California, he was made general manager of the United Gold and Copper Company, which worked the Spring Valley mines, later known as the Cherokee, for several years. After the Spring Valley property was sold to T. L. Vinton, Wilson remained as manager for several years, and later operated the mine under lease in association with the late W. P. Lynch.

He was general manager of the Turkey Hill mine in Placer County for several years and when it was shut down by litigation he became superintendent of the IXL mines in Nevada County. He also served as foreman of the Eagle Bird mine in Nevada County, which was owned at that time by his brother, William M. Wilson.

He and his brother also operated the Omega, one of Placer County's outstanding hydraulic projects. Early in 1900 he was called to the Alaska gold fields as manager of the Alaska Mines. He was engaged by L. T. Graves, pioneer mining man, to report on mines on the west coast and one of the properties which he secured for Graves was the Granite Basin. A few years later he operated the American Eagle near Merrimac for Graves.

During the Blue Lead boom in the Wyandotte section, Wilson was named manager of the Catskill mine, and in the early days of the Magalia ridge he was active with Hearst and Haggin who later operated as the Princess Mining Company. Wilson also managed the Chipps Creek drift mines in Plumas County and other properties along the Mammoth Channel.

are owned. It is being worked under the direction of Ed Husson, superintendent. Twenty-eight men are employed at the mine, which is held under lease by J. Ben Ross, president of the **Bullard Gold Mines, Inc.**, Heard Building, Phoenix, Arizona.

Luke W. Williams, Thomas Building, Grass Valley, California, will install a 25-ton flotation mill on Deer Creek to treat ore from the **Manila** and **Niagara** properties. The Manila tunnel has been restored and ore samples from the old workings are said to show excellent values. Due to its refractory quality, the

ore could not be profitably worked under earlier operations. In addition to the Manila and Niagara, Williams also has under lease the J. Hamilton Smith and the Whitelaw Reid properties and some adjacent ground. Old tunnel workings exist on all of the claims. A dam 70 feet long and 14 feet high has been built and an old ditch has been cleaned out to bring water to the property. The Niagara, comprising four patented claims, is owned by Williams.

Installation of the new crusher has been completed at the **Tropico** mine, Rosamond, California, and the milling plant is running at capacity to handle the custom ore. The plant was shut down for a time during

installation of the new equipment. No ore is being taken from the **Tropico**, due to the rush of custom material. **Burton Brothers, Rosamond**, are the operators.

A \$2,200 shipment of gold bullion, representing two weeks' milling, was made to the U. S. mint recently by the **Ramsey Mining Company**, Milton G. Ramsey, president, Lucerne Valley, California. The plant is running at less than half capacity and substantial increases are expected when the mill goes on a full production basis. A crew of 22 men is employed. George H. Roseveare is mill superintendent.

Extensive exploratory work carried out during 1938 at the property of the **Cardinal Gold Mining Company**, Bishop, California, showed definitely that additional bodies of commercial ore were not to be found either below the main ore bodies or on either side thereof, according to the annual report of the company. It was therefore decided to liquidate the known bodies in the mine, to remove underground equipment, to close the mill, and to place all equipment in proper shape for storage. On August 25 all mining and pumping equipment had been removed from the mine and at the present time the water is standing approximately 30 feet below the shaft collar. All mining and surface equipment has been placed under cover, the buildings have been boarded up, and the property is in charge of a watchman. The company has been endeavoring to locate another mine and a number of properties have been examined in California, Nevada, Arizona, and other western states, but as yet nothing has been found with in-

dications of a commercially successful operation. During 1938 the company mined 35,681 tons of ore and milled 36,468 tons, from which was produced \$287,213 in gold, \$1,694 in silver, and \$6,611 in copper. The cost of production per ton was \$7.39, and gross recovery per ton was \$8.10. Percentage of recovery was 88.7 per cent. Victor Bongard is general manager of the company.

For the first quarter of 1939, the **Argonaut Mining Company, Ltd.**, Jackson, California, reports a profit of \$2,895 before provision for depletion, depreciation, and federal income taxes. No comparative figures for the like period of 1938 are available, as fire and flood at the property caused a shutdown in February and milling was not resumed until July 15. Tonnage mined aggregated 22,600, and 22,500 tons were milled. Gross receipts were \$169,907 while costs totaled \$176,870, leaving an operating loss of \$6,963. Interest paid and the loss on Plymouth operations brought the total operating loss to \$8,164, but this was offset by other income, principally dividends from stock holdings, amounting to \$11,059. Alex Ross, Jackson, is general superintendent.

A small dragline unit is being installed on the **Smile Pacheco Ranch** located about two miles east of Jenny Lind, California. The project is under the direction of William E. Funk, owner of the **Delta Construction Company**, Stockton, California.

Sampling is in progress at the **Mother's** mine, Bear Valley, California, under the



NAYLOR LOCKSEAM SPIRALWELD PIPE



Naylor Pipe in Compressor Room, Chicago Subway

FOR SAFETY PLUS ECONOMY

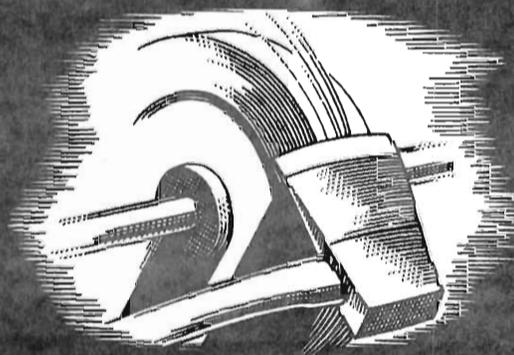
Why use heavy pipe for pressure lines? Naylor's exclusive Lockseam Spiralweld gives you light weight pipe that will save you real money. It is leakproof, safe and built to withstand tough service no other

light weight pipe can duplicate. Sizes from 4" to 30" in diameter. All types fittings and connections. Complete fabrication service.

WRITE FOR FREE CATALOG

NAYLOR PIPE COMPANY

1241 EAST NINETY-SECOND STREET
CHICAGO, ILLINOIS



NO AXE TO GRIND

Whether you use cyanidation or flotation or a combination of these processes with other recovery methods, you'll find the reagents you need in Cyanamid's convenient stocks at Azusa, California and El Paso, Texas. Concentrate all your orders with Cyanamid to save time, inventory charges, freight cost and purchasing routine.

Write for descriptive stock list and quotations

AMERICAN CYANAMID & CHEMICAL CORP.

AZUSA, CALIFORNIA



EL PASO, TEXAS

direction of Earl Tucker, superintendent. Upon completion of this work it is planned to make a mill test of a considerable tonnage. A 25-ton Huntington mill is already installed at the mine and later in the spring or early summer it is planned to move a larger ball mill and other machinery to the property from northern California. A power line also will be extended to the mine from Bear Valley. J. H. Causten, Redding, California, is manager of the property, representing new interests who have recently taken over the mine.

The tool sharpening shop at the property of the **Carson Hill Gold Mining Company**, Melones, California, was destroyed by fire, causing damage of \$2,000. Loss is covered by insurance. John A. Burgess is general manager at the mine. The company is headed by Walter Lyman Brown, 206 Sansome Street, San Francisco, California.

Arthur and Vernon Morrison are operating a power shovel and dragline at the **Conradi** mining property near Railroad Flat, California.

Cyanide agitator tanks are being installed at the **Red Cross** mine near Dobbins, California, by the **Miners' Foundry of Nevada City, California**, preparatory to increased activity at the property. E. S. Van Dyck is general manager at the mine.

A crew of five men is engaged in reopening the old Phoenix tunnel at the **McKenzie** mine, Nevada City, California, under the direction of Arthur G. Greer, who is working the property under lease. A tunnel is being driven to contact the **Mountaineer** vein also.

Preparations are being made to sink to a depth of 220 feet at the **Milburn** mine near Mariposa, California, with a view to opening a vein at that depth which is believed to carry good milling values. On the 90-foot level, development is proceeding under the direction of William C. Kreth, superintendent. The property is being developed by the **M. K. B. Mining Company**, recently incorporated by H. L. McPherson, Escalon, California; Edward M. Brennan, Stockton, California; and Kreth. The company is capitalized at \$100,000, made up of shares with a par value of \$1.

Sam Lebarry and C. O. Willey and son are reported to have opened a vein of high-grade ore at the **Nutmeg** mine in the Whitlock district near Mariposa, California.

The **Buzzard** mine located in the Rattlesnake district near Auburn, California, is reported to have been taken over by new interests who plan to reopen the property. The mine is said to carry a ledge 27 feet wide which contains values in gold, copper, silver, lead, zinc, and antimony. The gold averages \$6 per ton. The property is owned by members of the Darrington estate, including George and Bert Darrington, and Joe Foster.

H. V. Underwood, Hollister, California, and associates are opening the **Antelope** copper mine located in the Antelope district 25 miles southeast of Tres Pinos. The ore is reported to assay 6 to 30 per cent copper and also carries silver and nickel.

Development consists of three tunnels and a shallow shaft. Associated with Underwood in the project are E. A. Matthews and Louis Sciochetti, also of Hollister.

Hall Livingston, Auburn, California, is reported to have abandoned operation of his **Blue Eagle** mine in the Ophir district, and to have taken over the **TWA** mine located one mile west of Auburn. Livingston has purchased the equipment of R. E. Arsneau, who formerly operated the TWA.

The **Operator Consolidated Mines Company**, E. A. Weller, president, 1214 Sierra Avenue, San Jose, California, reports that receipts from sale of bullion for the first quarter of 1939 aggregated \$16,781. Expenses for the same period totaled \$10,415, leaving a net gain of \$6,366. Operations were conducted on a one and two-shift basis during the quarter, but the milling plant is expected to go on a three-shift basis early in May. George Basil Blonsky has been placed in charge of mine and mill operations at the property. Harold G. Hunt, Randsburg, California, is secretary and manager of the company.

Donald McClure, attorney, Latham Square Building, Oakland, California, is acting for a number of stockholders in the **Mother Lode Gold Mines Company**, who are making an attempt to rehabilitate the organization. The company operated a mine and mill at Drytown, California, but some months ago became involved in financial difficulties. Walter Lucot, Sutter Creek, California, is president.

The **Bishop Company** of San Francisco has secured options on the old **Massoni Ranch** located about a mile from Altaville, California, and is preparing to sample the ground. It is planned to dredge on the east side of the creek. The ranch has ample water rights and a gravel channel runs through the property. From 12 to 18 men will be employed and houses located on the property will be repaired for use of the company men.

The **Pilot** mine near Downieville, California, owned by the **Blue Ridge Midway Gold Mines Company, Ltd.**, D. J. Lyons, 124 Chaves Avenue, San Francisco, has been leased to C. L. Best of the **Caterpillar Tractor Company**, San Leandro, California. Best operates the adjacent **Ruby** mine. It is planned to start work at the Pilot property as soon as weather conditions permit. B. C. Austin, Mills Building, San Francisco, is consulting engineer for Best. Operations at the Ruby are directed by L. L. Huelsdonk, resident manager, Goodyears Bar, California. The **Blue Ridge Midway** company recently levied an assessment of one cent a share on its outstanding stock.

During the 217 days of operation in 1938, the **Argonaut Mining Company, Ltd.**, J. T. Smith, president, 251 West Fifty-seventh Street, New York City, milled 52,600 tons of ore at a profit of 29 cents a ton, totaling \$15,061. This compares with 94,200 tons milled the previous year at a loss of 77 cents a ton. Mine revenue per ton was \$8.12 as against \$6.36 for 1937. Operations were suspended from February 26, 1938, to July 16, 1938, on account of a fire in the mine, and fire expenses amounted to \$53,523. After allowing for

Only
85 lbs.,
but MAN...
WHAT A
PUMP!



The
**BYRON
JACKSON**
SINGLE-STAGE
PNEUMATIC SPONGE
CAN'T BE BEAT FOR
"Mopping-Up" Service

This little pump can be carried on a man's back, since it weighs only 85 lbs., but when it's set down and connected, it does a giant's work — 300 gallons per minute against a 25-foot head, or 120 gallons per minute against a 57-foot head, or 75 gallons per minute against a 125-foot head with only a 90-pound air pressure.

This Byron Jackson Single-Stage Pneumatic Sponge is easily set up or dismantled and will operate in any position. It is sturdily constructed with a two-port, non-clogging hardened impeller that passes $\frac{3}{8}$ inch solids and lowers the water to within 3 inches of the bottom. This design provides maximum resistance to abrasives, such as sand, pulverized rock, etc.

Byron Jackson Co., Dept. MI-133
P. O. Box 1307 Arcade Station
Los Angeles, California

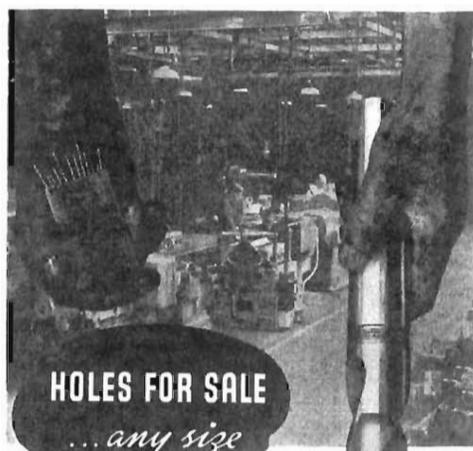
Please send me complete information about the
Byron Jackson Single-Stage Pneumatic Sponge.

Name.....
Company.....
Position.....
City..... State.....

Established 1872

BYRON JACKSON CO.
Box 1307 Arcade Station, Los Angeles, California.
Sales offices: New York, Pittsburgh, Chicago,
Atlanta, Houston, Salt Lake City.

BYRON JACKSON
CENTRIFUGAL
Established **PUMPS** 1872
FOR EVERY SERVICE



● You order drills and reamers — but actually you are buying holes. So, for greater economy, you will purchase tools that will stand the greatest number of grindings—and deliver the most holes per grind.

You can trust "Cleveland" Twist Drills and Reamers. You can trust the Company's 61 years of experience. You can trust the continuing improvement and reliability of its products. You can trust US, too, because both we, and the manufacturer, stand back of these fine cutting tools.

DISTRIBUTED BY

PRATT-GILBERT
Hardware Co.

PHOENIX, ARIZONA

701 S. Seventh St. Phone 3-5145

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

505 Mills Building

EL PASO

TEXAS

dividends received and miscellaneous income of \$23,374, the net result for the year was a loss of \$20,059. The company operates at Jackson, California, and Alex Ross is general superintendent.

A Straub concentrating table has been added to the recovery equipment at Sur-Nuf mine, Dobbins, California, and a very clean and complete concentrate is being produced, according to A. D. Hinton, manager of the mine. Drifting is in progress on the vein and several ore shoots have been cut. It is planned to raise on these as soon as the present development program is completed. The shaft will be extended to the 300-foot level as soon as stoping is started. Additional water storage facilities are planned for the property also. Hinton, who was president and general manager of the Gold Hub Mining Company, 1126 Ocean Avenue, Oakland, California, has severed all connections with that firm in order to devote his entire time to the Sur-Nuf mine.

W. D. Peele of Oakland is engaged in reopening the Hart mine in the Garden Valley district preparatory to placing it in active operation. Peele is making his headquarters at the American Hotel, Georgetown, California. He is also interested in the Flink mine at Garden Valley. The stamp mill at that property is being replaced by a 50-ton ball mill at the present time and the mine is being prepared for more extensive operations. A crew of about six men is employed at the Flink.

Reconstruction of the mill at the old Conzetti gold mine near Garden Gulch on the south fork of the Salmon River has been completed and new mining machinery has been installed at the property by A. Mills, owner, Cecilville, California. Underground work has been pushed at a steadily increasing rate in anticipation of the early opening of the plant. The property is reached by a spur road from the county highway.

A new gravel plant with a capacity of 200 to 250 yards daily has been completed at the E. R. Skinner gravel mine west of Rescue, California, and test runs have proved entirely satisfactory. The plant was installed by Samuel T. Shaw, Jr., and P. J. Robin, mining contractors. The Skinner property was acquired recently by Thomas B. Sturgess, president of the Pittsburgh Drilling Company, Pittsburgh, Pennsylvania. Operations at the mine are directed by A. L. Chappel, Ione, California.

San Francisco interests have taken over the Ore Flame mine at Alleghany, California, and a 200-foot shaft is to be sunk as soon as weather conditions permit. The mine is opened by a 700-foot tunnel. J. J. Connell, Alleghany, is the owner of the Ore Flame.

Major W. E. Harris, assistant U. S. engineer for the Sacramento, California, district, has announced that several companies are contemplating hydraulic mining operations back of the recently completed North Fork debris dam on the American River. At present, the only company which has secured a permit is the Lost Camp Mining Company, Blue Canyon, California. The company has an estimated 10,000,000 cubic

feet of gravel and can handle about 1,000,000 cubic feet a year, according to Harris. However, that amount probably will not be moved this year, due to a threatened water shortage. A. O. Johnson of Sacramento, California, is president of the company and operations at the mine are directed by Dan A. Nippell, general manager.

The United Mining Engineering Association of Nevada has secured a lease on the Swiss mine adjoining the Fine Gold holdings at Railroad Flat, California. It will be necessary to rehabilitate the former main working shaft to its intersection with the main working tunnel at the 130-foot level. The lower 120 feet of the 250-foot shaft are under water. The mine is said to carry values averaging \$48 per ton. The association plans the construction of a 50-ton flotation-concentration plant for the property.

Work at the property of the Walker Mining Company, Walkermine, California, was on a curtailed basis from January 1 to May 31, 1938; on a shutdown basis from June 1 to October 31 inclusive; and on an operating basis from November 1 to December 31, according to the annual report. More ore was developed than was produced. Deeper exploration of the North and Central ore bodies was started on the 1,200-foot level, and exploration of the area north of the Piute ore body on the 900-foot level was also undertaken. A total of 75,160 wet tons of ore was broken during the year and 66,822 dry tons were milled, from which were produced 2,516 dry tons of concentrates. There were delivered to the smelter 2,463 dry tons of concentrates and lime scale with a net recoverable content of 1,188,271 pounds of copper, 44,273 ounces of silver, and 2,029 ounces of gold. The entire production of silver and gold was sold. Copper sales totaled 878,742 pounds at an average price of 9.7678 cents per pound, leaving 2,278,388 pounds on hand and unsold at the end of the year. A loss of \$88,338 was reported for the year, after all charges except depletion. J. R. Walker, Kearns Building, Salt Lake City, Utah, is president of the company. L. F. Bayer is manager at the property.

It is understood that the Raskob interests did not exercise the option held on the Rogers-Gentry property at Neenach, California. The option expired April 5 and work at the property has been discontinued. W. J. Rogers is said to be planning to proceed with work at the property at an early date.

The Shovel Placer Mines, North Bloomfield, California, have been shut down temporarily pending a solution to the problem of crushing and milling 7,000,000 yards of cemented channel gravel. During ancient times water seeped into the clay and gold-bearing gravel, forming a solid cemented mass which must be broken up with dynamite. The operators are at present seeking a method of reducing the material sufficiently to permit running it through the trommels.

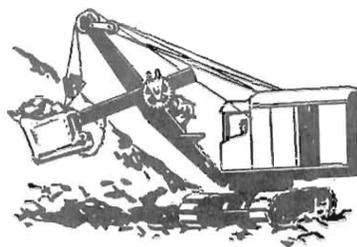
Ground has been broken at the old Plymouth Consolidated mine, Plymouth, California, for construction of a cyanidation and flotation plant for treatment of the

tailings dump. The **Argonaut Mining Company, Ltd.**, Jackson, California, is the owner of the Plymouth. The Central Tailings Company's 600-ton plant located at Sutter Hill is being dismantled for transportation to Plymouth. H. M. Lewers is superintendent at the Plymouth property.

The **Ortega** mine in the Paine Flat district near Mariposa, California, is being sampled by Robert Mueller of the Trebor Corporation, Mariposa. The mine is held by the Ortega Mining Company, headed by J. Q. Finrock, Mariposa.

The **Oro y Plata** mine, owned by the **Union Consolidated Mining Company**, J. C. Scoles, president, Murphy, California, is being examined and sampled by San Francisco interests. If results of the investigation prove satisfactory, the group plans to take over operation of the property. The company recently levied an assessment of 2 cents a share on its 164,000 outstanding shares of stock. Ore is also being tested at the company's West Union claim on the Comstock Lode, Virginia City, Nevada. Offices of the secretary, George Searle, are located at 155 Montgomery Street, San Francisco.

The **Mormon Hill** mine near Rescue, California, has been taken over by the **Warwin Mines, Inc.**, Harry Kaufman, president, 2020 Sacramento Street, Los Angeles, California. A crew of nine men is employed under the direction of Winfield Covey, manager. The property is equipped with a five-stamp mill and modern recovery equipment is being installed, including a Leahy



screen, vibrator, Deister Overstrom table, amalgamator, and Pan-American type jig. The mine is opened by two shafts and about 300 feet of drifts. The ore carries values in gold which average \$13 per ton.

Work is scheduled to start about the first of May at the **Ancho-Erie** mine near Graniteville, California, following reopening of roads to the property. The first work planned will be the driving of an 1,800-foot crosscut to contact a known vein which averages four feet in width. The mine was taken over under lease and option recently by Gus Helbach and Fred Anderson, both of Grass Valley, California.

T. L. Copening, Sierra City, California, has been authorized to divert 40 cubic feet of water per second from the South Fork of the North Fork of the Yuba River for mining purposes. Estimated cost of the project is \$10,000.

Application for a permit to divert water from the North Fork of the American River has been filed by George Duffy, Foresthill, California. The application seeks permission to divert 250 second feet and 75,000 acre feet per annum for use in

hydraulic operations at the **Mayflower** mine. Estimated cost of storing and transporting the water is placed at \$300,000.

W. E. Wilson, Foresthill, California, has made application for diversion of 225 second feet and 6,000 acre feet per annum from El Dorado Canyon, West Branch El Dorado Canyon, and Volcanic Canyon, tributary to American River.

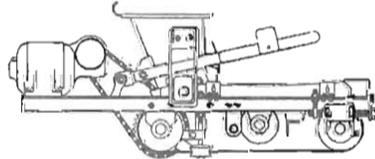
Contract for construction of a new 150-ton mill at the Indian Valley mine, Greenville, California, has been awarded by the **Indian Valley Mining Company** to the **Miners Foundry and Supply Company**, Nevada City, California. The contract calls for an all-steel building to replace that destroyed by fire about two months ago. Work will include installation of a ball mill, jig classifier, and other equipment. J. Robert Clarkson, mill superintendent, will supervise construction for the foundry. Gus L. Johnson is general manager of the Indian Valley company.

George L. Colburn of Los Angeles has secured a lease and option on extensive portions of the **You Bet-Red Dog** gravel properties near Nevada City, California, and is understood to be planning early operations there. The option was acquired jointly from Fred F. Cassidy and the Nevada Irrigation District, owners of a large portion of the old diggings, as well as considerable unexplored ground. The option is subject to earlier options held by Fletcher Hamilton.

The old three-compartment, vertical Kettle shaft at the **Cherokee** mine four miles south of Greenville, California, has

No. 4.

HARDINGE CONSTANT WEIGHT FEEDER



The Hardinge Constant Weight Feeder weighs, measures, and feeds, at the same time. It is the simplest and most accurate of rugged weighing feeders. It feeds coarse or fine materials without choking, and operates successfully with Rolls, Crushers, Ball Mills, Dryers, Kilns, Mixers, Conveyors and like equipment. Capacities range from 1 pound to 2000 tons per hour. Get Bulletin No. 33C.

HARDINGE

COMPANY, INCORPORATED - YORK, PENNSYLVANIA.

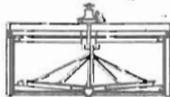
New York, 122 East 42nd Street Chicago, 205 West Wacker Drive San Francisco, 501 Howard Street Denver, 817 Seventeenth Street



CONICAL MILLS



COUNTER CURRENT CLASSIFIERS



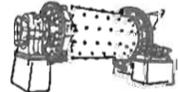
THICKENERS CLARIFIERS



RUGGLES-COLES DRYERS

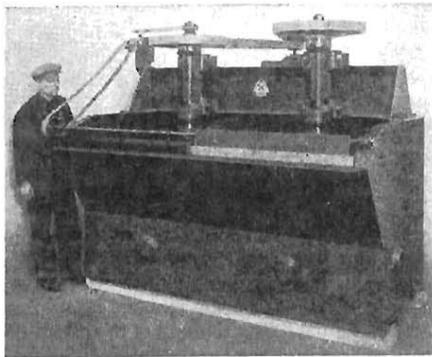


CONSTANT WEIGHT FEEDERS



TUBE ROD AND BATCH MILLS

DENVER TWIN FLOTATION CELLS



Denver Twin Flotation Cells can be easily installed at any point in the flowsheet as the machine is a self-contained unit. All the features of the standard Denver "Sub-A" (Fahrenwald) Flotation Machine have been incorporated in this design. With these cells you can save money, yet obtain highest metallurgical efficiency. Be sure and write for Bulletin No. 3801-T.

Denver Equipment Co.

DENVER: 1400 Seventeenth St.
PHOENIX: Post Office Box 2205
SALT LAKE CITY: McIntyre Bldg.
MEXICO, D. F.: Edificio de Boker



DRILL RODS AND DRILL ROD RECONDITIONING

ROCK BITS and ROCK BIT GRINDING

Shanks - Threads - Conventional Bits. All work scientifically heat-treated with electric pyrometer control. We pay freight charges both ways on used detachable bits sent to us for reconditioning.

A. COURCHESNE, INC.

El Paso

Texas

The Merrick Conveyor Weightometer

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

MERRICK SCALE MFG. CO.

178 Autumn St.,

Passaic, N. J.

FLEXIPIPE

The improved flexible tubing for mine and tunnel ventilation

This durable, cost reducing, flexible tubing has solved many ventilation problems peculiar to mining.

Send for free sample and full information.

BEMIS BRO. BAG CO., ST. LOUIS, MO.

been unwatered to a depth of 250 feet by means of a single-stage Sterling sinker with a capacity of 300 gallons per minute. A 350-gallon Sterling pump is being installed at the 200-foot level; a foundation is being put in for a 600-foot Sullivan two-stage compressor; and installation of a headframe and double-drum hoist is under way. Six veins have been crosscut from the 200-foot level, averaging five feet in width and \$7 per ton in value. Below 60 feet the 12 by 12 timbers were found to be in excellent condition. The mine is being reopened by Alfred L. Merritt of New York and San Francisco. Frederick E. Browne is consulting engineer, and Frank Humphrey, Greenville, is manager and superintendent in charge.

Test holes and shafts sunk at the property of the **Lucky L Mining Company**, Susanville, California, have disclosed a ledge 2,000 feet long with an average width of six feet. Samples of the ledge show values of \$12 in silver, \$5 in gold, and \$2 in copper. Paralleling this ledge to the south is another which is also being developed. While not as wide as the discovery ledge, it is considered to be of a higher grade. Workings at present include two double-compartment shafts, 500 feet apart, and shaft No. 2 is being sunk to greater depth. The company is composed of the Lackey family with Bernard Lackey in charge. The work is being financed by a group of business and professional men of Susanville.

It is understood that the **Empire Star Mines Company**, Grass Valley, California, plans to continue shaft sinking at the **Pennsylvania** mine in Browns Valley to a maximum depth of 2,500 feet, unless conditions arise to make a change in the program necessary. Work in the mine is now being pushed steadily ahead at approximately the 1,600-foot level. Both the 700 and 1,000-foot levels are said to have yielded good values. E. R. Bennett is superintendent at the Pennsylvania. Work is progressing on the new office building at the company's headquarters in Grass Valley. The new addition will include a large model room, vault, and furnace room.

A vertical depth of 500 feet has been reached in the **El Dorado Crystal** mine three miles south of Shingle Springs, California. By means of the cyanide process, values are recovered from an average daily mill run of 120 tons. Benoni Lockwood, Jr., is superintendent at the mine.

About 18 men are now employed at the **Copper Gulch** vermiculite and copper claims near Parkdale, Colorado. Company plans call for further testing of this prospect from the 145-foot level of the shaft now being sunk. L. L. Travis,

Baker Hotel, Dallas, Texas, and H. I. Grimes, 1910 First National Bank Building, Oklahoma City, Oklahoma, of the **Banner Mining Company** of New Mexico, are backing the project.

For the March quarter of 1939 the **Climax Molybdenum Company** reports a net

profit of \$1,257,524, which is equal to 50 cents a common share. This compares with \$1,991,806 or 79 cents a share in the like period of 1938. The **Climax** mine is at Climax, Colorado. William J. Coulter, Continental Oil Building, Denver, is general superintendent. Because of a large inventory at the end of March, the company has reduced production from 12,000 tons a day to 7,500 tons. The percentage of recovery is reported to have increased from a little over 83 per cent in 1937 to 88.3 per cent in 1938. During the first quarter of 1939 the company is stated to have made a recovery of 94 per cent. Economies will be effected in 1939 through lessened development expenses, as some 8,000,000 tons of broken ore reserve have been developed, equivalent to a two-year supply. More time will now be devoted to research work. Max Schott, 500 Fifth Avenue, New York, New York, is president.

Marshall Long of Boulder, Colorado, who has leased the old **Grafic** mine near Boulder, has been carrying on surface work during the past three months. A considerable quantity of high-grade and mill-grade gold ore is stated to have been developed. The mine is owned by Mrs. Fairhurst of Ward, Colorado.

The **Taylor River Mining Company** is employing four men in its mine in Gunnison County, Colorado, where a tunnel is being driven to cut a six-foot vein. The tunnel has about 20 feet to go before it reaches its objective. W. B. Ladd, 402 Chamber of Commerce Building, Denver, is president and purchasing agent and A. W. Ladd of the same address is secretary. Earl Cavanaugh, 448 University Boulevard, Denver, is mine superintendent. Values are in gold and silver. Work is being done by hand.

Fire is reported to have completely destroyed the compressor house and equipment therein at the **Champion** mine near Silverton, Colorado. The loss includes the compressor plant, light plant, steel sharpener, dry room, and Buick truck. The mine, owned by Joe T. Hinkley of Silverton, is being operated by Rush Sill, Los Angeles Athletic Club, Los Angeles, and Murray S. Vosburgh, 629 Edison Building, Los Angeles. H. G. Burgess of Silverton is superintendent. New equipment will be purchased and the building reconstructed.

A 4,000-foot flume to impound tailings is being built by the **Veta Mines Corporation** at its property near Telluride, Colorado. Holdings include the **Smuggler** Union and **Humbolt** groups of claims. The flume will be completed this spring and will help in keeping the San Miguel River clear. Dams will be built on the company's Gold Run placer. This construction will take care of the tailings for about two years, after which time a more elaborate plan, including pumping, will have to be devised. Robert H. Sayre, 507 Boston Building, Denver, is president and general manager.

It is understood that the **Texas Chief** and **Mountain Mead** mines in the La Plata Mountains about 17 miles northwest of Durango, Colorado, are being developed. J. A. Wright, Exchange Building, Denver, is interested in the work and Allen F. Wright of Durango is manager.

OBITUARIES

P. H. Miller, of Bellevue, Idaho, died April 8, 1939. He was in charge of the A. L. Heine Mines, Inc., and was a veteran miner of the western United States and of Alaska.

B. P. Howell of Reno, Nevada, mining engineer, died recently. Howell had a long experience in Nevada mining and was especially interested in assaying and cyanidation of ore.

James B. Dillon of Denver, Colorado, died after an operation in New Orleans, Louisiana, April 5, 1939. For many years he was on the staff of correspondents of *The Mining Journal*.

Charles C. Smith died April 26 at his home near Silver City, New Mexico. For some years he was a steam shovel foreman at the Santa Rita mines of the Nevada Consolidated Copper Corporation, but he retired in 1929 due to ill health.

Joseph A. Campbell, 85, resident of the Coeur d'Alene district since 1885, was found dead in his home west of Wallace, Idaho, April 19, 1939. He had been interested in mining most of his life and was identified with several Coeur d'Alene companies.

Joseph Warner Allen, secretary-treasurer of the Inspiration Consolidated Copper Company, Inspiration, Arizona, died at Elizabeth, New Jersey, May 10, of a heart attack. He had held the position of secretary-treasurer since the company was organized in 1911, and he held the same post with the Greene Cananea Copper Company.

Richard H. Kingston, 62, well-known mine superintendent of Nevada, Montana, and Washington, died April 11 at his home in Plymouth, California. He had been a resident of Plymouth for the past 11 years and at the time of his death was engaged in a dredging project on property west of Plymouth.

John R. Bloom, 35 years old, died May 7 at Jerome, Arizona, of pneumonia. He had been a resident of Jerome for the past 11 years and at the time of his death was pit superintendent at the United Verde Branch, Phelps Dodge Corporation. He was a native of Stillwater, Minnesota, and a graduate of the University of Minnesota.

Harry C. Bolyard, 54, pioneer merchant and mining man, died at his home in Libby, Montana, March 27, after an illness of about six months duration. Besides conducting a grocery business, Bolyard was interested in mining companies and at various times he headed the Montezuma Gold, Vermiculite and Asbestos, and Liberty Placer companies and was trustee for the Tip Top Mines, Inc.

Archie Thompson, 65, passed away at Jackson, California, April 4. He had been foreman of the Argonaut mill at Jackson since 1929, and prior to that had worked at other properties in the district. He was employed at the old Keystone mine from 1907 to 1920, and served as mill foreman at the Fremont mine and later at the Pacific mine near Plymouth, California, before joining the Argonaut staff.

JOHN N. BECKER WILL DEVELOP GRASS VALLEY BOUNDARY MINES

JOHN N. BECKER, well-known engineer and mine manager, has purchased the Grass Valley Boundary mines at Grass Valley, California, and is preparing to reopen and develop the property. Becker has spent 26 years in South Africa, during 19 of which he was associated with the Crown Mines, employing 24,000 men and producing 1,000 ounces of gold a month.

He returned from South Africa about three years ago and since then has been associated with the Empire Star Mines Company at Grass Valley and more recently with the Grayrock Mining Company at Jarbidge, Nevada.

The Boundary mines have lain idle for the past eight or nine years, following the shutdown at the expiration of the Condon lease and subsequent litigation. Although the mouth of the old shaft has caved, work will proceed with clearing away the debris with a view to reopening it. The Boundary has been mined to a depth of 300 feet.

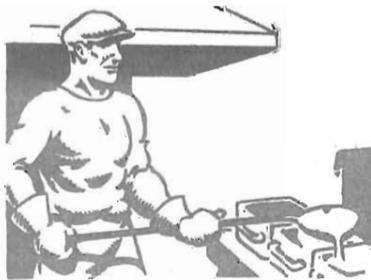
A hoist capable of lifting from a depth of 2,000 feet will be installed, together with other necessary mining equipment. At present a crew is engaged in cleaning up the property and making way for construction of the new surface plant. Arthur Hellings, who recently resigned his post with Empire Star Mines Company, has been retained by Becker as superintendent. He will have three shifts of men working at an early date.

PHILIPPINE MINING LEADERS VISIT IN SAN FRANCISCO

A NUMBER of prominent mining men from the Philippine Islands recently arrived in San Francisco, California, in connection with the opening of the Philippine Exhibit at the Golden Gate International Exposition. The leader of the group, J. H. Marsman, is president of Marsman and Company, Inc., Box 297, Manila, and a former president of the Chamber of Mines of the Philippine Islands.

Accompanying Marsman were J. O. Enberg, a director of Marsman and Company, Inc.; G. C. Dankwerth, a Marsman vice-president; A. Beckerleg, consulting engineer with the Marsman organization; Ralph Keeler, editor of the *Marsman Magazine*, and J. S. Sampson. The party is expected to be followed to California at a later date by other Manila mining leaders and capitalists.

While in this country, Marsman and his executives will investigate the possibilities of expanding the organization's activities here and offices have been established in the Russ Building in San Francisco. It is



expected that the new facilities will assist in the handling of bullion from the Islands and in the purchasing of bullion from the Marsman operated mines.

Marsman and Company is the second Philippine company to establish offices in San Francisco in recent months. L. R. Nielson and Company, which is active in mine management, operation, and brokerage in the Philippines, has opened offices at 329 Bush Street under the management of Mark Nestle who has acquired membership on the San Francisco Mining Exchange.

Marsman and Company manages and operates eight gold mines in the Philippines. It also includes in its activities ore buying, machinery and equipment distribution, financing, civil engineering, transportation, and lumbering. The Marsman operations also include a gold mine in Sumatra which will be brought into production late this year, a tungsten mine in the vicinity of Hongkong, and other projects in the Far East.

DAVID D. BAKER RESIGNS POSITION AT ATOLIA MINE

WITH the completion of testing work and installation of new plant equipment, operations at the property of the Atolia Mining Company, Atolia, California, have settled down to a steady routine, and David D. Baker, who has been superintendent at the property for the past year, is resigning his position and is planning a vacation.

He has been associated with the Bradley interests since 1936 when he was named mill superintendent of the Pacific Mining Company at Bear Valley, California. In 1937 he was advanced to the position of superintendent, and in 1938 was transferred to the Atolia property in the same capacity.

Baker is a graduate of the University of Arizona where he received his B. S. in mining engineering and metallurgy in 1923. After he left school he acquired his first experience in active mining at a number of the large copper mines in Arizona, including those of the Calumet and Arizona Copper Company, Miami Copper Company, United Verde Copper Company, and New Cornelia Copper Company.

In 1924 he went to Mexico as construction engineer for the Southern Pacific of Mexico and in 1926 he joined the staff of the Sombrerete Unit, American Smelting and Refining Company, as engineer. He was later transferred to the position of assistant superintendent at that company's Humboldt mine and also served as examination engineer for A. S. and R.

During 1928 and 1929 he was sales engineer for the S. K. F. Industries of New York and the next year was spent in mineral exploration work in the Peninsula of Lower California. For the next four years, 1931 to 1934, Baker engaged in private engineering practice.

He was named superintendent of the Big Horn Mining Company at Valyermo, California, in 1935, and the next year he joined the Bradley interests, with whom he has been associated up to the present time.

Development is being extended to greater depth at the **Arondo** mine located in the Argus Mountains 14 miles north of Trona,

California, and installation of additional mill equipment is possible. The camp has been completely remodeled and modernized. The Arondo is operated by the **Argus Mining Company, A.**

B. Carpenter, consulting engineer and manager, Room 1110, 448 South Hill Street, Los Angeles, California. The property is at present equipped with a 50-ton sand leaching cyanide plant which is now on production. A crew of 18 men is employed under the direction of **L. F. Hautier**, foreman, Trona. Offices of the company are located at 650 South Grand Avenue, Los Angeles.

Lord and Bishop, Box 812, Sacramento, California, have placed in operation a second dredge on the Calaveras River near Valley Springs, California. The plant, which has a capacity of 60,000 yards per month, was moved from Oroville, California, where it had been operated for several months. A third dredge operated by the company at Grey's Flat near Quincy also handles 60,000 yards a month.

R. L. Lane of Salinas, California, has opened up an old tunnel in the Santa Lucia Mountains near Bear Creek which he believes may prove to be the "Lost Mine of the Padres." He is employing a crew

of men in opening up the tunnel and has found values in gold.

An ancient river channel is understood to have been encountered on the old **Engels** mining property near Englemine, California, owned by the **California Engels Mining Company, A. J. Heller**, president, 350 California Street, San Francisco, California. A Keystone drill has been installed on the property and a crew is engaged in testing the ground. The work is directed by **M. A. Newman**, mining engineer. It is believed that the tests will indicate extensive dredging ground available. The Engels was one of California's largest copper producers in early days. The property was examined recently by **Roger L. Beals**, general manager of the company, and **Newman**. The company is also engaged in developing the Groom mine at Wickenburg, Arizona. Articles of incorporation were amended in March to increase the authorized capital stock of the company from 1,000,000 shares to 4,000,000 shares, par value 25 cents.

The **Quail Hill** mine near Copperopolis, California, is being reopened under the management of the **Bullion Gold and Silver Mining Company, Charles T. Neely**, president, 348 Russ Building, San Francisco. Two levels, the deeper at 170 feet, have been opened up and a preliminary examination of the old workings has been made by **Oscar Hershey**, mining engineer and geologist. It is understood that ore will be shipped by truck to a nearby custom mill, as there is no reduction plant at the mine. The Quail Hill is owned by

the University of California and is being worked under lease and option by the **Bullion** company.

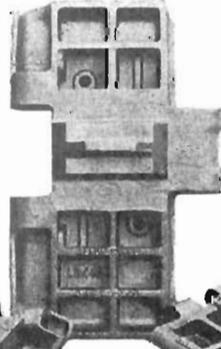
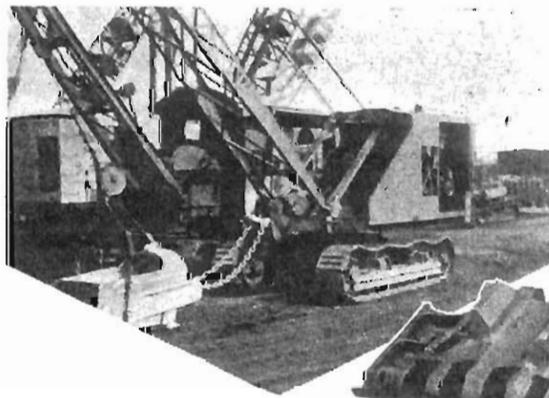
The **Best and Belcher Gold and Silver Mining Company, H. L. Slosson, Jr.**, president, 333 Kearny Street, San Francisco, plans to resume active operations shortly at its **Sceiffard Ranch** property near San Andreas, California. The mine is being kept free of water during its temporary period of inactivity. There is now pending an assessment of two cents a share on outstanding stock to provide funds for continued development.

The power plant at the **Arctic** mine, Washington, California, is being connected with the Alleghany power line which extends into the Washington district. A lack of sufficient water to generate power in the mine plant is responsible for the action. **L. F. Utter**, Washington, is the owner and operator of the property. **Don C. Billick** is mill superintendent and **A. Barnhart** is mine superintendent.

The **Saratoga Mining Association** has developed its property near **Murphy**, California, to a sufficient degree that a mill is now necessary and the installation of a **Straub** plant is contemplated. The property is located in the same area as the **Sheepbranch** mine and carries four well-defined veins ranging from six to 20 inches in width. A two-compartment shaft has been sunk to more than 50 feet and it is planned to mill about 10 tons of ore per day following installation of the new plant. Trustees of the association are



SHOVEL CRAWLER PADS



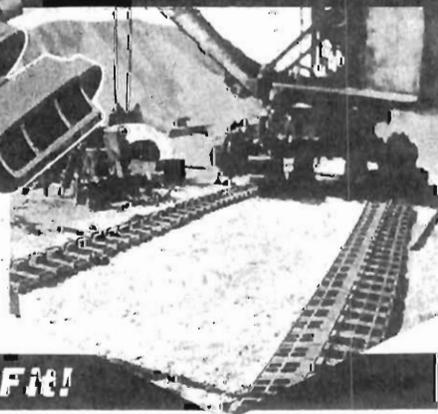
For all makes of excavating and mining equipment. Properly designed, of improved reinforced construction and toughened steel. Through our years of experience in the manufacture of dependable wearing parts you are assured of lasting satisfaction. You **Play Safe** when you order your replacement pads from us.

ALLOY STEEL & METALS CO.

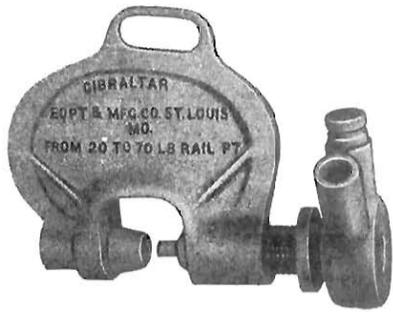
1862 E. 55th St., Los Angeles, Cal.

Manufacturers of **PACIFIC JAW CRUSHERS • PACIFIC BIT GRINDERS • HAND WINCHES • CRAWLER PADS, CRUSHER JAWS, MILL LINERS** and other Wearing Parts.

Reinforced for Longer Wear—Made to Fit!



GEMCO TRU-BLU RAIL PUNCH



What does it cost you to drill holes? This punch will save over twenty cents on every hole punched in your rail! Write us for proof of how you can cut your production costs by using all items in the "Gibraltar" line of mining tools: Standard and Ratchet Type Rail Punches and Rail Benders—Spike Bars—Mine Cars for Track Layers, Drillers, Shot Firers, Supplies, Trouble Shooting, Re-railers—Derailers—Mine Ambulances—Key-seaters—Grease Guns, Mine Car Wheels, etc.

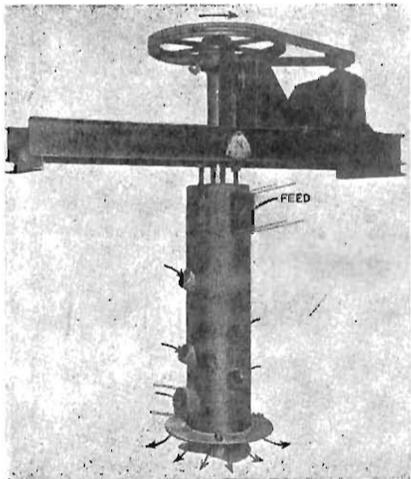
TOOLS FOR ALL RAIL FROM 8-120 LBS.
Profitable franchises open for live jobbers

"GEMCO TRU-BLU" Tools Lead
the Way to Savings with Safety!

Buy from your jobber's stock or write us for
complete data and catalogue.

GIBRALTAR EQUIP. & MFG. CO.
Madison at Fourteenth St.
ST. LOUIS MISSOURI U. S. A.

DENVER CONDITIONERS



The Denver Conditioner is widely used to agitate pulps prior to flotation treatment. This inexpensive unit quickly pays for itself by reducing the quantity of reagents or chemicals required. Write nearest office for Bulletin No. 3704-B.

Denver Equipment Co.

DENVER: 1400 Seventeenth St.
PHOENIX: Post Office Box 2205
SALT LAKE CITY: McIntyre Bldg.
MEXICO, D. F.: Edificio de Boker



Louis J. Bonnet, Robert Smith, August Boiseranc, and Lawrence and Clem Whalen.

A 35 to 40-ton mill is being installed at the Eclipse mine, Auburn, California, by the Ophir Nevada Mining and Milling Company, lessee. The plant has been in storage for the past two years, having previously been used in company operations on a Madera County property. The Eclipse is owned by Rhoads Grimshaw and is said to have a considerable amount of developed ore available. Operations at the property are directed by Dan J. Frost and a crew of six men is employed.

John C. Pantle, who has been operating his dryland dredge in the Lincoln, California, district, has moved his plant to a property in the Rough and Ready district in Nevada County, California.

The Indian Hill mine located 8½ miles from Camptonville, California, is being prepared by L. S. Farman, owner, for fall operations. There is sufficient water to operate two six-inch giants but it will be necessary to install 3,000 feet of new pipe. The property contains 1,460 acres. Farman is investigating a chrome deposit located on his ground, and he is also considering the possibility of dredging old hydraulic tailings.

A public hearing was held recently by the California Debris Commission, 203 Post Office Building, Sacramento, California, on the application of Harry L. Hind for a permit to mine by the hydraulic process. Tailings will be stored in a worked-out pit. He owns the Gold Crown mine near Johnsville, California.

Installation of a milling plant is under way at the property of the Genesee Consolidated Mines Company near Walkermine, California. The main tunnel is being driven to greater depth and ore taken out in development is being stock piled awaiting completion of the mill. The principal value is copper and the ore is said to contain from 3 to 5 per cent of that metal. Operations are directed by George Baglin, vice-president and general manager, Felt Building, Salt Lake City, Utah.

E. N. Sewell has placed in operation a Judson-Pacific plant equipped with Ainlay bowls on land owned by the Golden Empire Company seven miles north of Redding, California. The Golden Empire owns and controls an extensive yardage in the district, all of which is leased to Sewell and two other operators, who expect to begin work this summer. Frank F. Ford, Oroville, California, is president of the Golden Empire Company.

The Densmore mine located north of Columbia, California, has been purchased by a Fairbanks, Alaska, group headed by Ray, Wilson and Keen. A crew of 15 men is employed and present work is confined to three levels, beginning at the lowest one. The new company plans to move the present 50-ton mill to a point further down the hill toward the Stanislaus River.

Paul Gonzales, operator of the Wonder quicksilver mine near Idria, California, has started work on claims adjoining the old workings on the west. Present operations are confined chiefly to prospecting with a

crew of four men employed. Sufficient ore is being recovered to pay expenses, it is understood.

Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reports an estimated profit of \$63,300 before depreciation, depletion, and income taxes, for April, 1939, as compared with \$61,700 in March. Although revenue per ton continued to decline from the preceding month, the company effected economies that resulted in a proportionately larger decrease in operating costs.

A net profit of \$24,580 before depletion, depreciation, etc., was reported by the Anglo American Mining Corporation, Ltd., Walter Lyman Brown, president, 206 Sansome Street, San Francisco, California, for the quarter ended March 31, 1939. This compares with a net of \$20,101 for the preceding quarter and \$19,431 for the March quarter of 1938. Gross revenue for the first quarter of this year was \$151,922, of which \$129,566 represented sale of gold and silver bullion. Revenue from other sources included a dividend of 1½ cents a share on the stock of Carson Hill Gold Mining Corporation, held by Anglo American.

The mill of the Carson Hill Gold Mining Corporation, Melones, California, is processing 1,100 tons of ore daily. Development work is in progress on the 3,500-foot level and the 4,980 ore body, first found on higher levels, is being exposed. The Melones shaft is being deepened from the 3,000-foot level to the 3,500-foot level. Since the initial dividend of 2 cents per share was paid in September, 1938, two quarterly dividends of 1½ cents per share have been paid. For the quarter ended March 31, 1939, the corporation reported an operating profit of \$44,368 before deductions for depreciation, depletion, etc. A total of 97,371 tons of ore was milled and revenue from sale of bullion amounted to \$233,649. Operating profit for the preceding quarter was \$50,549. John A. Burgess is general manager at the mine. Offices are located at 206 Sansome Street, San Francisco, California.

At the annual meeting of stockholders of Nipissing Mines Company, Ltd., Excelsior Life Building, Toronto, Ontario, Canada, Hugh Park, general manager, reported that exploration work at the Picacho gold mine is showing encouraging results. The property is located 18 miles north of Yuma, Arizona, and four miles from the Colorado River in Imperial County, California. The Nipissing Company has advanced \$200,000 to the Picacho Mining Company on a first mortgage. Park is directing work at the property and it is understood that a tonnage of 1,800,000 or better is indicated, grading around \$2 a ton. Initial investigations show a cost ranging from \$1 to \$1.50 per ton. Sufficient ore has been developed to repay all advances made by Nipissing, it is stated, but before a plant will be erected, profit possibilities must be studied. Park is making his headquarters at Yuma, where he is addressed at Box 912.

The property of Sixteen-to-One Extension Mines, Inc., Alleghany, California, has

been closed temporarily, pending perfection of new plans for development. Complete surveys were made recently of the 425-foot shaft and the underground workings. George W. Hallock, Alleghany, is president of the company.

Discovery claims, under the name of **Eagles' Nest** Nos. 1 to 8, have been staked by Walter Horr, Jacumba, California; Jack Herndon, rancher and prospector; and King Ellis in the Long Canyon area of Cleveland National Forest, 60 miles from San Diego, California. Report of the gold strike has caused a miniature stampede to the district.

Recent mill tests of ore from the **Kentucky Ridge** mine in the Newton district near Grass Valley, California, are said to have indicated returns of \$17 per ton. The mine is owned and operated by A. B. Adams, Grass Valley, and is equipped with a five-stamp mill.

The **Negro Flat** placer mine near Placerville, California, has been leased by heirs of the Warren Green estate to Duncan Bathurst and George T. Salzman. The property comprises 720 acres in the Fruit Ridge district about five miles east of Placerville. A geophysical survey will be made in conjunction with a contour survey as the first step in development of the property.

The new 25-ton Straub ball mill is now operating on a two-shift basis at the property of **Alhambra-Shumway Mines, Inc.**, which is located approximately two miles east of Kelsey, California. Construction

of the new unit was started in January and was completed about March 15. Development and exploration have been continued during the construction period and the shaft has been sunk to the 225-foot level, where drifting is now in progress. Ore is being drawn principally from the 125-foot level of the two-compartment, inclined shaft. A jig and concentrating table are used for recovery of values and the concentrates are treated in an amalgamation barrel. A total of 16 men is employed on the two shifts. A pumping plant has been installed on Traverse Creek and a 2,500-foot pipe line has been laid. A two-mile line brings power to the mine, mill, and living quarters. The property is equipped with several surface buildings, including a work house, blacksmith shop, change room, and hoist house. Frank Lyons is superintendent at the mine and H. A. Walton is resident engineer. A. R. McGuire of Fresno, California, is manager.

A group of claims located about 20 miles southeast of Baker, California, is reported to have been optioned to Stephen A. Holman, 830 Mandana Boulevard, Oakland, California. The option was granted by John Durkin of Reno, Nevada, and A. C.

Sweet. A substantial showing of gold ore is understood to have been developed at the property during the past year.

Telegraph Mines, Inc., C. F. Robbins, president and general manager, 132 Pine Avenue, Long Beach, California, plans to add amalgamation equipment to its 50-ton flotation plant. The property is located 18 miles east of Baker, California, and one mile south of Yucca Grove. Unwatering of the mine has been completed. O. K. Waggoner, Yucca Grove, via Nipton, California, is superintendent at the property.

The milling plant at the **Ruth** mine, Trona, California, is to be enlarged in order to handle the increased tonnage from the **Davenport** property, which has recently been placed on a production basis. The cyanide plant is at present treating about 75 tons of ore per day from the two properties. The Ruth and Davenport are operated by Burton Brothers, Rosamond, California, and George Wyman and Nelson Sweetser, Trona. Wyman is mill superintendent and Sweetser is mine superintendent.

New mining plant equipment is contemplated for the **Eureka** mine, Mojave, California, and Morris Albertoli, lessee, plans to open the mine to greater depth. A new adit is to be driven. Ore shipments averaging from 500 to 600 tons a month are being made to the Golden Queen mill. The mine is being worked under a 10-year lease.

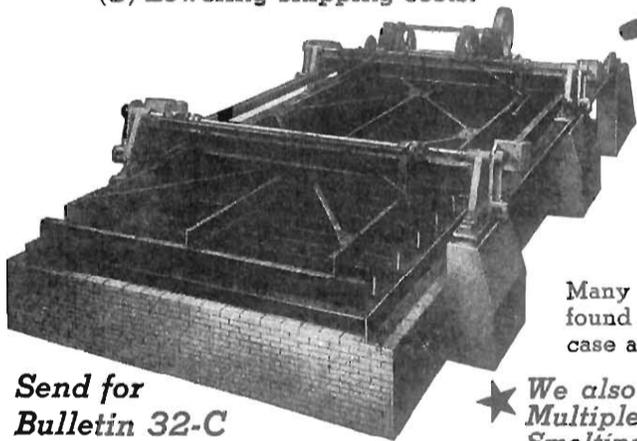
A ball mill and slime plant are to be added to the present mill of the **Operator**



LOWDEN

- For (1) Improving the physical character of your product;
 (2) Cutting drying costs; and,
 (3) Lowering shipping costs.

Dryers



THE LOWDEN Dryer handles flotation concentrates, graphite, clays, ground mineral products, paint fillers, pigments . . . in fact, any materials which are sticky when wet or which tend to dusting when dry. If the Lowden Dryer is not adaptable to your product, we will be the first to tell you so.

Many peculiar drying problems of widely varying types have found a highly satisfactory answer in this machine. State your case and let us consult with your engineers.

Send for
Bulletin 32-C

★ We also manufacture: **AKINS Classifiers; SKINNER Multiple Hearth Roasters; Ball, Rod and Tube Mills; Smelting Equipment; Diaphragm Pumps.**

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.



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.



Consolidated Mines Company, Johannesburg, California. The milling plant is at present working on a three-shift basis. Both mine and mill are in charge of G. Basil Blonsky, Randsburg, California, and Harold G. Hunt, Randsburg, is secretary and manager. E. A. Weller, 1214 Sierra Avenue, San Jose, California, is president of the company.

G. W. De La Mar, Randsburg, California, and associates who are operating under lease a portion of the **Black Hawk** mine, plan the installation of a double drum dragline hoist and are also contemplating enlargement of their mill in the near future.

The **Tungsten Corporation of California**, R. J. Johnson, president, 811 West Seventh Street, Los Angeles, California, is planning to increase the capacity of the milling plant at the **Black Rock** mine located in the Chicago district north of Bishop, California. Operations at the mine are directed by C. S. McCausland, general superintendent, Bishop.

The **Little Lake Pumice Company**, W. H. Faust, superintendent and purchasing agent, Little Lake, Inyo County, California, contemplates the installation of new primary crushers and screens in the present grinding plant.

Natomas Company, Thomas McCormack, president, Box 1197, Sacramento, California, and subsidiaries show a consolidated net profit of \$243,483 after depreciation, depletion, and normal federal income taxes, equal to 25 cents a share on 980,250 shares of capital stock outstanding for the quarter ended March 31, 1939. This compares with a net profit of \$306,664, equal to 31 cents a share, on the same number outstanding in the like 1938 period. The decrease in net earnings during the quarter just ended is attributed to the fact that two of the seven dredges operated by the company were passing through tailings en route to new ground. While gross revenue increased slightly over last year's first quarter, operating expenses increased in greater proportion. Revenue for the 1939 quarter was \$777,725 compared with \$737,306 in the 1938 quarter. Operating expenses totaled \$303,720 as compared with \$237,939 a year ago.

The new 75-ton flotation mill of the **Pride of Mojave Mining Corporation**, Mojave, California, is being operated on a three-shift basis and is running at capacity. The ore is coming from the third and fourth levels and is said to be of good commercial grade. Additional pumping equipment, capable of handling 50,000 gallons a day, has been installed in the mine and a new 15-ton scale has also been added to the mine equipment. Additions to the milling plant may be made in the near future and custom ore will be taken shortly, as capacity is available. At the recent election of officers, George H. Barnes was named president; John J. Dewar, vice-president and general manager; Richard J. Smith, vice-president; James J. Murray, vice-president and chief engineer; Floyd Yancey, secretary; and Louis H. Bloom, treasurer. Offices of the company are located in the Van Nuys Building, Los Angeles, Califor-

nia. Work at the mine is directed by James J. Murray.

Gordon Bettles of Winnemucca, Nevada, has leased the **McDonell** property south of Bodie, California, owned by Frank McDonell of Bodie, and he plans to begin work at once. Considerable ore has been taken out during the past few years by McDonell and Robert Conway. This ore, which is sorted, is still on the dump as it is not rich enough to warrant shipment to a mill. Bettles has also leased the **Hanks** property in the old Ranchere Gulch district in Mono Basin and he is employing three men at that mine. Last year he installed and operated a small reduction plant on Deer Creek in Lundy Canyon near Mono Lake, California, and he will continue operations at that property also.

The contract for installation of plant and equipment at the property of the **Pacific Molybdenum Corporation** in the Cherokee-Oregon City district of Butte County, California, has been awarded to the **Downie-Wright Manufacturing Company**, W. F. Downie, president, 509 Main Street, Chico, California. The tailings were found to produce an excellent silica brick, and equipment is also being installed for their manufacture. H. K. Fast, of Vancouver, Washington, vice-president and general manager, is directing work at the mine.

New equipment installed at the mill of the **New York mine, Greenville, California**, will increase the daily capacity of the plant from 60 tons to 100 tons. The mill treats ore from the New York and the **Droege** mines, both of which are operated by the **North Canyon Mines, Inc.**, Walter H. Parsons, president and general manager, Greenville. A contract was let recently for running 400 feet of drift from the main tunnel with a view to opening additional ore shoots. A crew of 54 men is employed at the property.

Hydraulic mining is being considered as a possibility for the property of the **Reliance Placer and Quartz Mining Company** when the Upper Narrows debris dam at Smartville is completed. The property has been closed down for the winter but is to be reopened about the middle of May. The annual meeting of the company was held May 2 at Nevada City, California. Mrs. Kitty B. Kimball, Nevada City, is president.

At the annual meeting of the **Central Eureka Mining Company**, held April 27 at the main office, 111 Sutter Street, San Francisco, California, C. C. Prior, president, reported that operations at the company's property are entirely satisfactory. During the first quarter of the year 12,091 tons of ore were produced, and gross revenue was \$266,291. Expenses for the period were \$133,916, leaving a profit of \$132,375 before depletion, depreciation, and taxes. Average recovery per ton for the quarter was \$22.02. Dividends paid since January 1 have totaled \$72,000. Profit from the new 150-ton flotation and cyanide plant for the treatment of tailings and concentrates amounted to \$29,205 in the last seven months of 1938 and the plant is expected to pay for itself in about eleven months. The mill was constructed at a cost of \$43,078. According to James

FLUOROLIGHT Will Save You Money

Do you mine scheelite? mercury? or gold and silver which is associated with zinc? If so the **FLUOROLIGHT** is absolutely essential to you. It is saving many mines thousands of dollars annually.

Lamps sold on Money Back Guarantee basis.

Write for complete information and list of fluorescent minerals at once.

ULTRA-VIOLET PRODUCTS, Inc.
Dept. MJ-4
6158 Santa Monica Boulevard
Los Angeles, California

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

DRILL RODS AND DRILL ROD RECONDITIONING

ROCK BITS and ROCK BIT GRINDING

Shanks - Threads - Conventional Bits. All work scientifically heat-treated with electric pyrometer control. We pay freight charges both ways on used detachable bits sent to us for reconditioning.

A. COURCHESNE, INC.

El Paso

Texas

Spiers, Sutter Creek, California, superintendent at the mine, for every ton of ore mined during virtually the past two years, another ton of ore has been developed and placed in reserve. Good progress is being maintained in sinking a new winze from the 3,000-foot level. When the 3,500-foot level is reached, a drift of considerable length will be run to contact the downward extensions of the ore bodies from which current production is being made. Directors re-elected for the new term were C. C. Prior, F. L. Wolfe, Sidney L. Plant, J. A. Snook, and James Spiers.

The Pacific Coast Manganese Corporation, 214 Bank of America Building, Beverly Hills, California, has recently completed the installation of a small test mill, equipped with tables and flotation cells, for treatment of manganese ore from a large deposit near Midway Well about 30 miles north of Ogilby, California. Upon completion of the present test work, the company plans the erection of a 200-ton plant. V. B. Whedon is president and general manager of the company and Clyde Haws is vice-president and superintendent.

Upon completion of the development program, it is understood that the present 175-ton flotation plant of the American Girl mine, Ogilby, California, will be enlarged to 250 tons. The mine employs a crew of about 100 men under the direction of W. D. McMillan, resident manager. The property is operated by O'Brien Mines, Inc.

The Rare Metals Corporation, Donald C. Hare, general manager, Box 7, Newberry, California, has completed the installation of a 10-ton plant at the Silver Bell mine located about 10 miles south of Hector, a station on the Santa Fe railroad, and approximately 20 miles east of Daggett, California. The new plant is equipped with electric furnaces and employs a chemical process for the extraction of rare metals.

A 60-ton cyanide mill is under construction at the property of America Mines, Inc., located about 11 miles south of Amboy, California, and it is understood that the company contemplates enlargement of the plant to a capacity of 120 tons as soon as the metallurgy has been checked by actual operation. The property is equipped with a 50-ton amalgamation-gravity concentration plant. Operations at the mine are directed by Paul E. Fuller, superintendent, Amboy. F. H. Merrill, 908 Richfield Building, Los Angeles, is president and general manager of the company.

The old Atlas mine in the Sneffels district of Ouray County near Ouray, Colorado, is stated to have been acquired by

COLORADO

George and Victor Lovinggood of Silverton, Colorado, and Hugh Coburn and A. A. Andrik of Lake City. The

property will be reopened and returned to production as soon as possible. The old mine dump will be treated along with the newly mined ore. The property was discovered in 1879 and after many years of

production was closed by litigation. Title to the claims was cleared several years ago by H. E. Williamson of Los Angeles.

Frank Spaeth and the Booker brothers of Hesperus, Colorado, are operating a lease on the Gold King mine near Hesperus in La Plata County, Colorado. Work is being pointed toward the reopening of the Gold King mill and its continuous operation. Several adjoining properties have been consolidated with the original Gold King mine. Development was carried on during the winter months and a recent smelter shipment was made.

The May Day mine and 50-ton flotation mill are being operated under lease by Harry Rowe and J. F. Farmer of Hesperus. Mining and milling have been continuous

under the present operators who expect to continue the schedule.

Oil flotation cells will probably be installed by the Lady Eleanora Consolidated Gold Mines Company in its 35-ton mill at Hesperus, Colorado. The plant has been idle during the winter months, but can be started at any time. The company, E. M. Myers of Hesperus, president and general manager, is driving a crosscut from the main tunnel to open the gold ore discovered last fall at a depth of 150 feet. L. E. Becker, Hesperus, is assistant general manager and mill superintendent.

Work will be resumed at the old Comstock mine in La Plata County near Hesperus, Colorado. Gus Nelson is leasing the property from Rensselaer Toll, 1917 North

BRIGHTER LIGHT

For Bigger Mine Output

WHEAT Electric Cap Lamps



His WHEAT Cap Lamp gives this miner steady, never-fading bright light to the end of the shift.

Because brighter, steadier light is a factor in increasing tonnage per man-day, more and more mines are installing WHEAT Electric Cap Lamps. For scientific tests show that WHEAT gives MORE LIGHT than other cap lamps.

The brighter light of the WHEAT Lamp does not grow dimmer with use. It stays bright to the end of the shift. Occasional replacement of the battery plates—a feature exclusive with the WHEAT Cap Lamp—keeps the WHEAT battery always powerful, always at maximum efficiency.

So miners equipped with WHEAT Cap Lamps are not slowed up by fading light.

Working by constantly bright light they can do more work—produce bigger output.

If you are interested in bigger output and economical mine lighting, send for further information on WHEAT Electric Cap Lamps.

Fill Out and Mail the Coupon

Distributors for Western U. S. A. and British Columbia: E. D. BULLARD CO., San Francisco, California

KOEHLER MANUFACTURING COMPANY MJ 5-30-89
 Marlboro, Mass., U. S. A.
 Send full information on WHEAT Electric Cap Lamps, with no obligation on my part.

Name..... Title.....
 Company.....
 Address.....



We Deliver the Goods in POWER PACKAGES!

WE can make it mighty simple—put GM Diesel Power to work for you in almost any available space—have it all hooked up and in operation somewhat like you'd install a Frigidaire.

It's no trick at all with GM Diesel Packaged Power. There's no need for costly, time-taking installations.

Did you know, for instance, that our GM Diesel Packaged Power units come fully equipped, all set to go to work? That they begin in the low horsepower field?

Get all the facts. Just write or phone for a personal check-up today.



Beeson Engineering Company

333 West Washington Blvd.
Phone: Richmond 5441
Los Angeles, California

Send for pamphlet on

New Low Bed Piston Diaphragm Jig

Especially adapted for Placer Mining
Constructed to fit into a sluice box

BALL MILLS, CLASSIFIERS, ROASTERS,
MERCURY FURNACES, MULLERS, VI-
BRATING SCREENS, ETC.

Cottrell Engineering Company

207 Mesnager Street
LOS ANGELES, CALIFORNIA

AGE AND HEALTH RESTRICTIONS ARE SET BY SUNSHINE COMPANY

A NEW employment policy has been adopted by the Sunshine Mining Company, a silver producer at Kellogg, Idaho. The company will no longer employ men whose silicosis rating exceeds two-plus. (X-ray ratings are used to determine the amount of dust in a man's lungs and his susceptibility to silicosis.) Neither will it employ men over 60 years of age of "impaired physical condition."

The following notice, signed by R. D. Leisk, general manager, was posted on the company bulletin board:

"In view of the occupational disease law and the necessity for clarification and interpretation of its provisions, Sunshine Mining Company will discontinue the employment in certain underground occupations of men whose X-ray ratings exceed two plus.

"On account of the added risks incurred under the workmen's compensation act and the general inefficiency of attempting to continue employment of elderly men of impaired physical condition, Sunshine Mining company will discontinue furnishing underground employment to men over 60 years of age or in unskilled work upon the surface.

"The management expresses regret at the necessity for the above announcements.

"This notice is being posted in general explanation of the fact that the several men comprising each of the above classifications will be laid off. These men so laid off will be allowed two weeks' wages at their regular rate beyond the date of severance from employment."

TIN DISCOVERY ANNOUNCED IN BAKER COUNTY, OREGON

TIN HAS been discovered in Oregon, according to the State Department of Geology and Mineral Industries. The tin, in the form of cassiterite or stream tin, was found by Ned Thomas of Baker while placering on Pine Creek in Baker County. So far as the state department can ascertain this is the first authenticated discovery of tin in the state of Oregon. However, Earl K. Nixon, director of the state department, stressed the point that at the present stage of the investigation to determine the quantity of the deposit, the discovery should be considered to be only of academic interest. Whether this Baker tin exists in large enough quantities for commercial usage has not been definitely determined.

In spite of numerous efforts to encourage the production of tin in North America, only a few tons are produced annually. Small amounts of stream tin are recovered in Alaska and in this country some tin is produced in the Black Hills of South Dakota and Wyoming and in South Carolina and New Mexico.

Thomas had noted that a heavy material remained in the pan while he was panning gold on Pine Creek and made some tests. The results showed that this heavy metal was tin. In order to check his own tests, which were of a simple variety,

Thomas took a sample to L. L. Motz of the State Assay Office at Baker. Tests there immediately identified the ore as cassiterite. Nixon visited the property and pronounced the discovery genuine.

OREGON STATE AGAIN TRIES TO RECONCILE MINERS AND ANGLERS

THE Rogue River Coordination Board, which was created by the 1939 Oregon legislature, has started its work of trying to settle the differences existing between the mining and fishing interests on the Rogue River and its tributaries. This area runs through Josephine and Curry counties.

According to law the chairman of the board is the state engineer, Charles E. Stricklin; the director of the State Department of Geology and Mineral Industries, Earl K. Nixon, is secretary; and the chairman of the state game commission, E. E. Wilson, completes the board. This group will meet with representatives from both sides and assemble all facts and opinions in the matter in an attempt to determine a schedule which will be satisfactory to both sides. One of the basic questions to be decided is whether to set arbitrary dates for the suspension of mining in favor of the fishing interests, or to use the turbidity of the stream during the fishing season as a measure. A standard of turbidity beyond which fishing conditions are not satisfactory has tentatively been set. The law states that the decision of two of the three members of the board shall be the decision of the board.

AMERICAN ZINC LEAD MAY CLOSE SLAB ZINC PLANT

A SHUT down of American Zinc, Lead and Smelting Company's slab zinc plant at East St. Louis, Illinois, will take place before June 30, according to present company plans. This will be the first time the slab zinc division has closed since work was started there in 1914.

Approximately 325 men will be laid off by the action, most of whom have been in the employ of the company for many years. All other East St. Louis units of the company will be operated at present schedules.

In making the announcement it was explained that increased operating costs brought about in the last three years through greater cost of labor, fuel, and supplies, and higher taxes make it absolutely impossible to compete with the low price of metal coming into this country under our new tariff rates, from Belgium and Mexico.

The statement said the new duty which became effective January 1, 1939, reduces the protection for domestic producers of slab zinc by \$7 per ton. In addition to the reduction in duty, the ocean freight rate on metal has been cut more than \$3 per ton, making the total decrease in protection to the domestic producers of slab zinc above \$10 per ton.

"The labor rates now being paid became effective when zinc was selling above 7 cents per pound," the statement continued. "Present rates represent an in-

JAMES E. SELLERS* asks

Who Sold Manganese "Down the River"?

ALL THIS propaganda about the lack of manganese in the United States is just so much "horsefeathers," and it is about time that some one-debunked these crazy and idiotic claims. If those who make such statements were sincere, we could perhaps forgive them their ignorance, but not when they continue their claims without respect to veracity.

Just prior to the World War I was sent to the Pacific Coast to investigate the possibilities and practicability of securing potash from kelp. So-called experts ridiculed the project, but the result of that investigation led to the construction of a \$2,500,000 powder plant at National City, California, which was operated day and night during the war period. (These are facts. You will find them in the Congressional Record.) Naturally, then, I am well acquainted with the old bromide, "It can't be done." Still, someone goes out and does that very thing and the swivel-chair experts of Washington step in to grab the glory. Here is one time they may not be accorded that honor.

Just what is wrong with the manganese set-up in America? To begin with, about everything is wrong with it that could be wrong with any mining activity. Those who own, or operate, or otherwise are interested in the industry are having a sad awakening as to just how they were "sold down the river."

Space does not permit an expose of the many treacherous pitfalls into which our Washington nincompoops have led the American people during the past five years, but to anyone interested my advice is—read the Congressional Records. Here will be found news that has never reached the public, and never will. Here will be found the answer to that question, "Who sold the American manganese industry down the river?" The responsibility for the dire distress and misery of those thousands dependent upon the production of manganese and other minerals throughout the United States rests squarely upon the shoulders of these same Washington nincompoops and those scheming scoundrels who connivingly exploit the women and children of America and foreign countries to accomplish their inhuman objectives.

Not all of our Washington representatives are traitors. We are thankful for the small minority who can be trusted. Without them we would have become engulfed in the clutches of those traitors who make up the vicious foreign-operated but American-owned and controlled octopus of destruction.

Why should we import 99 per cent of the manganese ore averaging 15 per cent or more used throughout the United States?

*Director, Mining Research Bureau,
Pomona, California.

The present plight of the manganese producers has led the author to make a forceful plea for the development of the mineral resources in the United States, both as a means of employment for American citizens and as a vital part of any national defense program. He proposes the formation of an association whose objective is the collecting, compiling, and publishing of information on our natural resources.

Have we sufficient manganese deposits in the United States suitable for this use? Is this American ore better than the foreign ore? Is the cost of producing the American ore less than the imported product?

The answer to all questions is: We can supply the total demand for all grades of manganese ore from United States deposits and the ore will grade better and cost less money to produce. If some of the smart boys want to "stick their necks out," let's hear from them on this statement.

We have more than 600 known deposits of manganese ore throughout the United States ranging from 15 per cent to 60 per cent (Yes, 60 per cent) and these deposits will furnish 10 billion tons of suitable manganese for steel-alloy operations. The average cost of production on 85 per cent of this ore would not exceed \$10 per ton. More than 500 million tons of suitable manganese ore ranging from 15 to 40 per cent could be laid down at San Pedro, California, for less than \$8 per ton. But these are only a few of the facts apparently unknown to the Washington experts.

We have an estimated 5,000 people directly or indirectly dependent upon mining operations relating to manganese ore, all of whom are now unemployed. Several thousand are on relief and the balance are on the verge of being forced upon relief rolls. The employment of these persons would result in an annual payroll turnover of more than a million dollars. Last, but not least, we would immediately reduce the relief rolls of 5,000 persons who are now costing the taxpayers 3½ million dollars annually. Here is a clear-cut example of the damnable practice of importing manganese ore for a few select users while we spend \$3,331,000 every year to maintain the families of miners who should be producing manganese ore from our own American deposits.

There is available, right now, more than six million dollars for the development

and production of manganese ore in seven western states. Why hasn't it been invested in manganese properties? Because of the actions of these scoundrels and foreign-controlled Americans who prefer to import an inferior grade of manganese because it is "cheaper." The potency of invisible but deadly poison lurking in this statement that America should import all manganese ore is manifest when the statements of our Washington nincompoops are fully analyzed.

DURING THE past three years I have personally investigated or reported upon nearly 300 deposits of manganese ore in the western states. When some 600 manganese miners, operators, or persons interested in manganese ore write to you about these deposits; when you battle 130 degrees in Death Valley to select average samples from Owl's Hole; or suffer the heat and privations in the wilds of the Philippines to figure out the tonnage available; when you travel by plane over the precarious country of East Guinea to sample 60 per cent manganese; when you sample 48 deposits of manganese in Arizona, 62 in California, and more than 50 locations in New Mexico—you should know something about the mineral under discussion. As a result of this study, and regardless of the misstatements pouring out of Washington, I am convinced that we have an abundance of American manganese ore suitable for 80 per cent of all American requirements.

I have on file hundreds of letters from persons reporting on manganese ore deposits located in several western states from which could be produced annually more than five million tons of 35 per cent manganese ore. I personally have inspected deposits of manganese ore within 300 miles of Pasadena, California, from which were shipped during the World War, more than 30,000 tons of manganese. All of it was consumed under government supervision.

California, today, could supply all of the required manganese ore in case of war. California and Arizona combined could supply the present industrial and war demand for manganese alloy-steel.

Just why some of our swivel-chair officials haven't thought of looking through the records on file in Washington is a mystery—unless some one has misplaced Senator Henry Ashurst's speech of 1929. While there is little to be gained by a recital of dry figures, these are the facts.

From 1922 to 1931 we produced, in the United States, 504,000 tons of manganese, or 50,000 tons annually. About 51 per cent of this was used for the manufacture of ferro-manganese. From 1931 to the end of 1937 we have decreased domestic production tremendously until now, according to a recent government report, we

PAGE
LOOSE

import nearly one million tons every year and produce but 40,000 tons of manganese ore ourselves. In other words, our tax-supported, alien-minded Washington diplomats have deliberately "sold us down the river" by importing more than 96 per cent of all manganese ore consumed in the United States. To add insult to injury, the same experts issue a statement that we have not a sufficient supply of "suitable" manganese ore to supply our own needs and, therefore, it necessitates execution of trade agreements for the importation of this and other ores to the United States to insure continuous employment in our industries.

Since the World War we have imported millions of tons of manganese ore for consumption in the United States. The tonnage has steadily increased until the present rate is in excess of one million tons annually. In 1937 Communistic Russia furnished 384,000 tons; the Gold Coast, 254,000 tons; Cuba, 123,000 tons; Brazil, 78,000 tons; and British India, 70,000. Nearly 63,000 tons of 10 per cent or better manganese ore were received from Egypt, Philippines, and Africa. During this same period our own United States mines produced 40,000 tons, all of which was classified as 35 per cent or better. About 1½ million tons of low-grade manganese were recovered from other mining operations throughout the United States, but this production did not help those 5,000 men, women, and children who were on relief or are being forced on relief.

The total production of manganese and manganiferous ores in the United States in 1937 amounted to 1,381,213 long tons, most of which was produced in conjunction with other mining operations. The cost, on an average, was \$8 per ton, compared with about 25 cents per ton for the imported ore. Who gets the "gravy"? Ask your smart Washington experts.

PORTIONS of this article may sound sarcastic, but there is no such intent. I have personally given this subject of the United States mineral deposits careful study for the past 10 years and have visited all the principal camps in the western states. I have tried to eliminate a lot of detail figures in presenting these conclusions. In so doing I may sound rather tough in spots, but I have the guts to stand by my statements and I challenge any of these so-called (self-appointed) experts of Washington and their alien-minded cohorts who maintain luxuriously furnished suites in the Willard Hotel to an open debate on this important topic of "Who Sold Us Down the River?"

To anyone doubting these statements, my advice is, look up the record. Read the Congressional Records during 1929 and during 1935. Talk to some of these 5,000 persons with tightened belts—they know what it is all about because it has left them hungry and sick. When one reads of our own government allowing Russia to receive over four million dollars in 1937 for shipments of ore that our own hungry people could have furnished—and then reads of the two million dollar spy fund spent in California during the same year by these communists in an effort to create

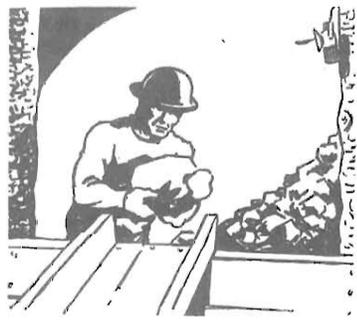
a revolution, is it unreasonable to talk of having a few "necktie" parties?

I spent nearly two years in France during the World War. I don't have to be told what war is like. I know. I also know that unless the present deplorable conditions existing in most mining camps where manganese and other minerals could be mined by Americans are corrected, something is likely to break loose, and it may be worse than anticipated. Since I was born and reared in Massachusetts, I was required to study the details of the Boston Tea Party. I don't have to be told why our Yankee forefathers dumped that tea in the bay. I know exactly what caused the whole affair. Times and people have changed but little since that historic event.

We read of the contemplated rearmament program and of these experts who say: "Let's build up enormous stock-piles of raw materials." But they do not say whether 96 per cent of those stock-piles will contain foreign ore. Why don't these geniuses say: "Let's build up enormous stock-piles of American-produced raw materials." The whole thing as now advertised is so idiotic that it has the ear marks of a WPA project which will spend three billions to make a report that is read by 60 persons while millions stand in line for relief. It just doesn't make sense.

What are we going to do about it? Frankly, I do not know, but I will say what I would like to see done about this whole matter. I will gladly accept an allotment of work that is assigned to me by any group sufficiently interested in our national resources to organize an association for the purpose of collecting, compiling, and publishing information on all of our American natural resources. The membership of such a group would consist of owners, operators, miners, and all others interested in the future of mineral resources which can be developed and used in the United States. This work would be done on our own initiative with the express understanding that all importations of minerals now being made to the United States—provided we have sufficient deposits of these same minerals in our own country—shall be forbidden.

I trust that my suggestion that a national organization be started to develop our many mineral deposits now lying idle throughout the western states will not be misunderstood. Allow me to say: I have no interest, financial or otherwise, in any mining property or in any business directly or indirectly dependent upon the mining industry. My only desire is the complete development of our natural resources.



It should not be assumed that my interest is entirely concentrated upon manganese ores. All minerals within our national borders should be included in this proposed investigation and publicity campaign. We need not delude ourselves—we are headed straight for another war, and it might come sooner than we expect. We know of the difficulties we encountered (and the mess we made) during the World War in respect to utilization of our natural resources. We can avoid this unpardonable mistake if we, the common herd, make plans now to be prepared for the inevitable announcement.

In closing, may I suggest that you who read this presentation of a national cause take the time to study the proposition, then write me of your reaction, giving your suggestions and especially your criticisms. Let's work for quick action and a national publicity program at an early date!

FIVE CALIFORNIA GOLD MINES ARE CONSOLIDATED

FIVE operating gold properties have been consolidated under one management with a new organization known as Allied Mines, Inc., as the parent company, according to an announcement by Sidney B. Wood, Jr., 7983 Norton Avenue, Los Angeles, California, president and general manager of the new company. Other officers are John J. O'Brien, 434 Grosse Pointe Boulevard, Grosse Pointe Farms, Michigan, treasurer; and Edward H. Burns, secretary.

The properties included in the merger are the American Girl at Ogilby, California, and the Plumbago at Alleghany, California, both formerly under the management of O'Brien Mines, Inc.; the Heslop mine at Jamestown, California, operated by the Quartz Hill Mining Company; the Dutch-App mine at Jamestown, operated by the Gold Diggers Syndicate; and the Camp Far West placer mine at Wheatland, California, operated by the Far West Dredging Company.

The American Girl is working 95 men and producing 180 tons of ore daily under the direction of W. D. McMillan, superintendent. At the Plumbago, 30 men are employed and 40 tons are milled daily. Jig and flotation equipment is being installed to increase the mill efficiency of the Plumbago. Ralph Youtz is superintendent.

The Heslop mine and the Dutch-App have been operated jointly by the Quartz Hill Mining Company and the Gold Diggers Syndicate and are reported to have produced approximately \$250,000 in the past two years. The Dutch shaft is being unwatered to the 1,500-foot level, and mining is proceeding on the 300 and 600-foot levels. Equipment sufficient for a 150-ton mill in circuit with the Heslop mill was recently purchased. Roy K. Brown is superintendent at these properties.

A dredging outfit is handling 2,200 yards of material daily at the Camp Far West mine. Theodore Walthour is directing work at the Far West.

graduated from the Massachusetts Institute of Technology in 1935 and received his master's degree from that college in 1936. Since his graduation he worked for the Anaconda company, except for a short while spent with the Climax Molybdenum Company in Colorado.

Maurice Denn, 84 years old, director and founder of the Shattuck Denn Mining Corporation, Bisbee, Arizona, died May 27 at his home in Redondo Beach, California, as a result of a stroke which he suffered six weeks previously. Denn went to Bisbee in 1880 as a prospector and at the time of his retirement from business prior to the World War he had risen to major stock ownership in one of Arizona's largest mining companies, and also held extensive mining interests throughout southern Arizona.

Con Laster, 73, veteran mining man, died May 22 at Superior, Arizona, of a heart attack. He had engaged in mining in all of the western states and had also spent several years in South America, Australia, and Alaska. For the past 12 years he had operated in the Superior district, and in recent operations had as his co-partner the late T. D. Herron who passed away last October. They had operated as Herron and Laster, Inc., and following Herron's death, Laster had carried on the business.

Milo L. Webb, 46, died May 25 at El Paso, Texas. He was formerly superintendent of the Amparo Mining Company

at Guanajuato, Guanajuato, Mexico, but had resigned recently due to ill health. His death is said to have been hastened by treatment he received at the hands of kidnapers in Mexico last January. Webb was a graduate of the University of Arizona and went to Mexico in 1920. He had been a resident of Mexico almost continuously since that time and for the past five years was superintendent of the Amparo company.

William Edward Smith, veteran prospector who pioneered development of the northern Ontario nickel fields and the Minnesota iron ranges, died May 25 at Sudbury, Ontario, Canada. He was 57 years old. In 1916 Smith restaked properties near Falconbridge, Ontario, which had been given up by Thomas A. Edison after diggings had failed to fulfill the indications of nickel ore shown by Edison's magnetometer. Twelve years later Smith sold the properties for \$2,500,000. He had been active in Canadian gold development since that time. Smith had recently made his home in Tucson, Arizona.

Waldo Wade Waggoner, consulting engineer, died May 18 at Nevada City, California. He had practiced his profession in various parts of the world, including Guiana, Persia, and Asia, before establishing his home in Nevada City. He served for 10 years as a member of the California Debris Commission, during which he accomplished much for the hydraulic mining industry. For many years he served as U. S. deputy mineral surveyor, and he was

employed for 30 years by the Eureka Lake and Yuba Canal Company. He was a member of the American Society of Civil Engineers and other organizations.

GEORGE WESLEY WORTHINGTON

GEORGE WESLEY WORTHINGTON, a member of the staff of the R. Potter Campbell interests, died April 26 at Grass Valley, California. He was 60 years of age. Worthington had returned recently from Sumpter, Oregon, where he had been manager of the Campbell-Oregon Gold Mining Corporation.



G. W. Worthington

He was formerly manager of the Campbell Grass Valley Mining Company, operating the Norambagua mine at Grass Valley. The Norambagua property was abandoned by the company last fall. Worthington joined the R. Potter Campbell organization in November, 1935, as manager of the Campbell California Mining Company.

He was born in Texas in 1880 and at 17 went to work in the mines at Mogollon, New Mexico, leaving there in 1900 to go to Colorado. In 1913 he became mine superintendent of the Primos Mining and Milling Company at Primos, Pennsylvania, holding that position for 15 years.

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

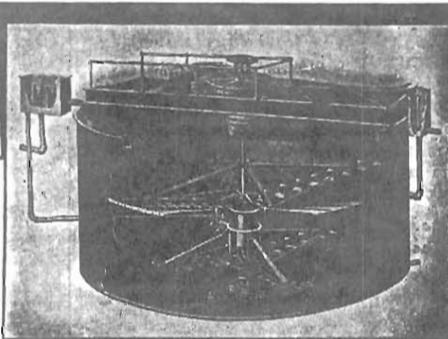
A multi-compartment tray thickener with full tray efficiency.

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

of an 80-foot steel headframe, three ore bins, and a 1,200-foot aerial tram. The property is producing approximately 550 tons of ore daily, carrying values in gold, silver, lead, molybdenum, and vanadium. The ore is treated in the company's flotation-cyanide plant and the concentrates are treated in the smelter located on the property. A crew of 317 men is employed under the direction of Thomas L. Chapman, general superintendent. The company's mailing address has recently been changed from Mammoth to Tiger, Arizona. Those in charge of operations under Chapman are Sam Fields, mine superintendent; John Wood, assistant mine superintendent; Warren Howes, mill and smelter superintendent; George Peters, assistant mill superintendent; E. J. Nickolos, assistant smelter superintendent; F. B. Daggett, chief mine engineer; C. A. Bilson, master mechanic; A. H. Heuser, chief chemist; and P. J. Tierney, chief electrician.



development work and in blocking out ore. It is understood that there are available 25,000 tons having an average gross value of \$7.13 per ton. Probable ore is estimated at 80,000 tons and possible ore at 300,000. John Slak, Cordes, is president and general manager of the company.

A new gasoline-driven, Ingersoll-Rand compressor has been installed at the property of the **Pierce Asbestos Company**, Young, Arizona. Development is proceeding under the direction of Earl Pierce, general manager, Young.

Shaft sinking and drifting are planned for the Colorado mine near Clifton, Arizona, which is being developed under lease by H. D. Walker and Jim Lines, Clifton. The mine carries values in gold, silver, and copper, and some ore is being taken out in development work. Ed Fitzgerald, Clifton, is the owner of the property.

An additional pump is to be installed immediately at the Vision Point mine, Pearce, Arizona. The mine is being developed under the direction of H. N. Carleton, Pearce, and a crew of eight men is employed. Present work consists of running

a 300-foot crosscut from the bottom of the 300-foot shaft with a view to opening up ore located in diamond drilling. The mine is operated by H. F. Potts of Shawnee, Oklahoma.

Two five-foot K. and K. flotation units are being installed at the **Storrs mill** in the Goldstone district 30 miles north of



Barstow, California. Laboratory tests have shown recoveries of from 95 to 98 per cent with similar units and it is expected that recovery in actual mill practice will be as good or better.

An automatic sampler will be installed soon, and an assay office will be equipped. The mill will operate 24 hours a day and will handle custom ore when ore from the **Uncle Sam** mine is not available. A compressor and other equipment have been installed at the mine, where two men are employed at present. Two more will be put on soon. An undetermined amount of ore, running \$60 to \$80 per ton, was uncovered recently. Prior to purchase of the mill from the Reward Mining Company, the Uncle Sam mine shipped ore to Burton Brothers at Rosamond, returns averaging \$45 per ton. The shaft is down 110 feet, but all ore to date has been taken from above the 50-foot level. The mine and mill are owned and operated by L. V. Storrs, Box 592, Barstow, California, and Los Angeles associates. The group also owns the **Buster** mine in the same district, a large low-grade property. It carries three veins from 65 to 200 feet in thickness, running about \$5 per ton. Extensive drilling has been done on the Buster and a well rig was purchased recently for use in testing the ground for development of water. A mill with a possible capacity of 500 tons per day is proposed, provided sufficient water can be developed.

The old **San Carlos** quicksilver property, adjoining the **New Idria Quicksilver Mining Company** property on the south, is nearing the production stage, according to C. Hyde Lewis, Idria, California, mine superintendent of New Idria. A power shovel has been installed to strip the old workings and a compressor has been set up at the shaft, which is to be cleared to the 300-foot level. Roads to the old workings, last operated during the World War, have been reopened, and prospecting crews are busy. At the New Idria itself, production is proceeding steadily with mining on a two-shift basis and the furnace on a 24-hour basis. Treating an average of 180 tons of ore daily, the property produces 400 to 450 flasks of quicksilver monthly. A crew of 150 men is employed.

Plant equipment at the **Oriental** mine, Alleghany, California, is being enlarged to provide a milling capacity of 50 tons daily. The mine was taken over recently under sublease by Mrs. Florence V. V. Diekey, Twin Peaks Ranch, Ojai, California. The original lease is held by F. F. Cassidy of Grass Valley, California. Charles B. Foster is manager at the mine.

AVERAGE PRICES OF METALS
(Figures by American Metal Market)

	Copper Per Lb. Conn. Valley	Lead Per Lb. New York	Zinc Per Lb. St. Louis	Silver Per Oz. New York
1924	13.024	8.097	6.344	66.781
1925	14.042	9.020	7.622	69.065
1926	13.795	8.417	7.337	62.107
1927	12.920	6.755	6.242	56.370
1928	14.570	6.305	6.027	58.174
1929	18.107	6.838	6.512	52.993
1930	12.982	5.517	4.566	38.154
1931	8.369	4.244	3.838	28.701
1932	5.792	3.181	2.881	27.892
1933	7.276	3.870	4.031	34.728
1934	8.652	3.8695	4.162	47.973
1935	8.389	4.0448	4.331	64.273
1936	9.719	4.7091	4.903	45.088
1937	12.391	6.0085	6.517	44.805
1938	10.225	4.7388	4.613	43.222
1937				
Jan.	12.660	6.00	5.86	44.912
Feb.	13.60	6.2386	6.485	44.75
Mar.	15.990	7.1889	7.377	45.180
Apr.	15.346	6.175	6.989	45.460
May	14.00	6.00	6.75	45.025
June	14.00	6.00	6.75	44.818
July	14.00	6.00	6.929	44.750
Aug.	14.00	4.619	7.205	44.75
Sept.	13.730	5.400	7.179	44.75
Oct.	12.090	5.740	6.087	44.75
Nov.	11.022	5.0826	5.682	44.75
Dec.	10.235	4.875	5.011	43.810
Ave. 1937	13.391	6.0085	6.517	44.805
1938				
Jan.	13.425	4.870	5.00	44.714
Feb.	15.00	4.6318	4.816	44.75
Mar.	10.00	4.50	4.418	44.446
Apr.	10.00	4.50	4.165	42.75
May	9.60	4.49	4.048	42.75
June	9.00	4.1481	4.143	42.75
July	9.810	4.852	4.75	42.75
Aug.	10.125	4.90	4.75	42.75
Sept.	10.255	5.00	4.855	42.75
Oct.	10.981	5.10	5.015	42.75
Nov.	11.25	5.0913	4.913	42.75
Dec.	11.25	4.8423	4.50	42.75
Ave. 1938	10.225	4.7388	4.613	43.222
1939				
Jan.	11.25	4.826	4.676	42.75
Feb.	11.25	4.8045	4.50	42.75
Mar.	11.25	4.8241	4.50	42.75
Apr.	10.439	4.782	4.50	42.75
May	10.968	4.75	4.50	42.75

A new power house, roads, and a new tunnel to the 1,400-foot level in the shaft have been completed at the **Rincon** gold mine near Congress Junction, Arizona, under the direction of L. W. Hunter, manager. A new cyanide mill is planned for the property upon completion of development work, and it is understood that equipment for the plant has been contracted for.

The mine crew at the **Tombstone Extension** property, Tombstone, Arizona, has been increased to eight men, and a new compressor unit has been installed at the property. A drift which is being run on the 500-foot level of the mine is reported to have struck a satisfactory body of ore. The Tombstone Extension is under option to Henry J. Mallen, Santa Rita Hotel, Tucson, Arizona.

It is understood that preparations are being made to operate the **Gallagher** mill located in the Charleston area near Tombstone, Arizona. Jules B. Gallagher of Tombstone and associates are checking the mill preparatory to its reopening. Ore from a gold-silver property about a half-mile south of the mill will be treated.

Additional machinery is being installed at the property of the **Tom Reed Gold Mines Company**, Oatman, Arizona. A 12-foot Dorr bowl classifier is being put in for use in handling the tailings dumps at the old Ben Harrison property. The tailings will be trommel-screened, puddled, and raised to the mill by means of sand pumps. Heretofore the tailings have been handled by trucks. A number of men have been laid off temporarily at the mine and mill, pending completion of the new installations. It is reported that the company is moving its Pasadena offices to the plant at Oatman and that D. N. Perry, purchasing agent, will have the active management of the affairs of the company.

The board of directors of the **Magma Copper Company**, William Koerner, general manager, Superior, Arizona, declared a dividend of 25 cents, payable June 15 to stock of record May 29.

Work is under way on the financing of a 50-ton mill at the property of the **St. John Gold and Copper Company**, Cordes, Arizona. The company is engaged in de-

Natomas Company, Thomas McCormack, president, Box 1197, Sacramento, California, gold dredging firm, declared a dividend of 20 cents on common stock, payable July 1 to stock of record June 5.

Cyanide tanks are being installed at the property of **Santa Fe Gold Mines, Inc.**, located in Black Hawk Canyon 35 miles southeast of Victorville, California, as a preliminary to erection of a 600-ton sand-leaching cyanide plant. Two 20-man bunk houses, cook house, office, and machine shop have been completed and laboratory equipment is being installed. A power line is being run to the property by the Nevada-California Electric Company. A crew of 120 men is employed at the mine now, under the direction of R. K. Voorhies, resident manager, Box 668, Victorville. Eastern offices of the company are located at 55 Liberty Street, New York City, and western offices are at 234 East Colorado Street, Pasadena, California.

The **Golden Feather Dredging Company**, E. A. Wiltsee, manager, Hotel California, Sacramento, California, will dredge the north banks of the Feather River opposite the city of Oroville, California. A new dredge is being built for the purpose at an estimated cost of \$80,000. A sand pump and a special stacker are to be used to restore the land following removal of the gold values.

The **Belmont** mine in the Goldstone region north of Barstow, California, which has been closed down for several years, has been reopened under a lease arrangement by Art Beale. He is also working



the **Merrick** property on lease and is making regular shipments to the Tropic mill at Rosamond, California. Several men are employed. Mike Merrick, veteran prospector, is also working his property in the Goldstone district.

W. F. Lavasseur and J. Moore, Winterhaven, California, are operating under lease the **Alpine** mine located four miles northeast of Ogilby, California, owned by C. F. Allebrand of Ogilby. Four men are employed at present. The mine is equipped with a ball mill, and 20 tons of ore a day are treated by means of amalgamation.

Old workings at the **Blossom** mine located two miles east of Ogilby, California, are being opened up under the direction of L. C. Stubbins, superintendent. Four men are employed. The mine is owned by the Vitrefrax Corporation of Los Angeles and is being operated by Stubbins and T. L. Woodruff, Ogilby. Equipment includes a gasoline-operated hoist, compressor, and drills.

The mill at the **Cotton Creek** mine in Hunter's Valley near Hornitos, California, is operating steadily and a crew of 12 men is employed at the property. The mine

has been under development for the past several years by the **Cotton Creek Mining Company**. W. H. Hauser, 707 MacDonald Avenue, Richmond, California, is president.

The **Briganti Brothers** of Santa Barbara, California, have leased the **Jumper** and **Golden Rule** mines near Jamestown, California, and have announced plans to glory-hole the **Jumper** property. The brothers, long in the silver mining business in Nevada, also plan to erect a 500-ton mill as the first unit to handle material mined by steam shovel. The **Jumper** is being dewatered to the 600-foot level by means of the air lift method. Work is directed by C. R. Brown of Tuolumne, California.

High-grade ore is reported to have been opened up in recent work at the **Yankee John** mine in the Centerville district west of Redding, California. The mine is owned by W. L. Hill and is being worked under lease by J. H. Scott, 465 California Street, San Francisco. Scott also operates the **Washington** mine and the **Milkmaid** mine at French Gulch, California.

The capacity of the milling plant at the **Mountain King** mine, Copperopolis, California, is being increased an additional 75 tons. The present plant is a 300-ton flotation mill. Only jig product is amalgamated, and concentrates are sent to Selby. About 200 men are employed. The mine is operated by the **Jumbo Consolidated Mining Company**, W. J. Shaw, president, 506 Bay Cities Building, Santa Monica, California. However, the Shaw Investment Company and W. J. Shaw and Company are in the

NEW PACIFIC CRUSHING AND SCREENING UNIT

Announcing a Shaker Screen Attachment providing increased crusher capacity. Efficient, compact, economical!

A Combination Hard to Beat!

Direct-driven from the crusher — No drives required

ALLOY STEEL & METALS CO.

1862 E. 55th Street, Los Angeles, Calif.

Manufacturers of
PACIFIC Crushing and Screening Units
PACIFIC Bit Grinders • Hand Winches
Crawler Pads, Mill Liners, Crusher Jaws
and other Machinery Wearing Parts

With this new Shaker Screen operators of Pacific crushers are assured of greater crusher efficiency and economies. Driven direct from the crusher, it sorts out the mill sizes of ore, feeding only the larger pieces. Prevents choking by fine material, reduces wear on crusher jaws and increases production. Sold in combination or separately. Write for particulars.

Screens Out Mill Sizes

Feeds the Larger Pieces

bankruptcy court, and Judge McNabb, receiver in bankruptcy for the Shaw estate, recently appointed W. Bemis Phelps, 1494 Brae Burn Road, Altadena, California, as consulting engineer for the mine.

Idaho Maryland Mines Corporation, Grass Valley, California, reports an operating profit of \$293,160 for the first quarter of 1939, before deductions for depletion, depreciation, and federal income taxes. According to the letter to stockholders, extensive development work and the incidental handling of a considerably increased tonnage of development rock have reduced current profits somewhat, but the work has disclosed additional ore bodies and extended known deposits, thus adding materially to ore reserves. The regular monthly dividend of 5 cents on capital stock will be paid June 21 to stock of record May 10. E. L. Oliver, 351 California Street, San Francisco, is president of the corporation.

W. Gillen, Sr., and associates have secured an option on the Salmon mine in the Cherokee district near Nevada City, California, and are preparing the property for operation. The shaft will be cleaned out and retimbered, buildings will be repaired, and machinery installed.

It is understood that operators of the Ruby mine, L. L. Hue'sdonk, resident manager, Goodyears Bar, California, contemplate unwatering of the old Mott shaft located a mile from the present Ruby headquarters camp. A new line will be installed by the Pacific Gas and Electric

Company to furnish power for operation of the pumps and other equipment.

The **General Dredging Corporation** is now operating a second unit on Mississippi Bar near Folsom, California, in addition to the two-yard dragline which has been in operation for some time. The new unit is of one-yard capacity and is handling approximately 2,000 cubic yards daily. The two-yard unit is handling approximately 4,000 yards daily, and the corporation is also operating a unit at San Andreas which is moving about 2,000 yards daily. Field operations are directed by Ace Giddings. General offices of the company are located at 505 Bank of America Building, Sacramento, California, W. H. Haines, president. James O. Greenan, Beowawe, Nevada, is vice-president.

A tentative option has been granted the **San Rosario Mining Company** for purchase of approximately 10,000 acres of the Fremont Grant, owned by the **Mariposa Commercial and Mining Company**, Mariposa, California, according to an announcement by Judge Charles W. Slack of San Francisco, president of the Mariposa company. Engineers will make a preliminary examination of the property. The tract includes the Princeton, Mother's, Mt. Ophir, Elizabeth, Long Mary, and other mines. A. R. Gordon, 1710 Hoban Road Northwest, Washington, D. C., is president of the San Rosario company.

Imperial Mines will make a thorough examination of the old **California Mother Lode** mine near Dobbins, California, pre-

liminary to extensive development. The mine is owned by W. C. Wilkins and the **Imperial Mines Company** of Denver.

Retimbering of the **Briarcliffe** mine located in the Nashville district of El Dorado County near Plymouth, California, has been completed and sinking operations have been resumed. The mine is operated by Mrs. R. O. Morrow.

Central Eureka Mining Company, C. C. Prior, president, 111 Sutter Street, San Francisco, California, has declared a dividend of 8 cents a share, payable June 26 to stock of record May 29. Payment of the 8-cent dividend will bring total disbursements for the first six months of 1939 to 20 cents a share. The same amount was paid in the first half of 1938. The company's property is located at Sutter Creek, California.

Twelve men are employed at the **Burcham** mine in the Calico district near Daggett, California, which was recently acquired under lease and option by **Burcham Mines, Inc.**, H. S. Kimball, president, 1825 North Ivar Avenue, Hollywood, California. **Granville Moore**, 1539 Courtney Avenue, Hollywood, is manager of the company.

W. E. Wilson, Foresthill, California, has made application for permits to divert water from several creeks tributary to the North Fork of the American River. He seeks to divert a total of 32,000 acre feet per annum for mining purposes. Wilson

The only bucket on this job that would do the work and keep going at a minimum cost of upkeep



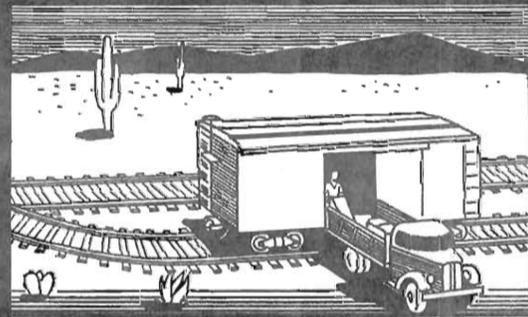
ESCO

MANGANESE
STEEL
MINING
BUCKETS

May a member of our field engineering staff call upon you to submit recommendations as to the best type of Mining Bucket to meet your own special requirements? No obligation. Please write.

ELECTRIC STEEL FOUNDRY CO.
699 SECOND STREET, SAN FRANCISCO

SEATTLE - PORTLAND - LOS ANGELES - HONOLULU



LOWER FREIGHT COST

Cyanamid maintains stocks of cyanidation and flotation reagents at Azusa, California and El Paso, Texas. You get prompt delivery at lowest transportation cost by taking advantage of the lower freight rates on combination shipments covering your complete needs for metallurgical chemicals.

Write for descriptive stock list and quotations



AMERICAN CYANAMID & CHEMICAL CORP.

AZUSA, CALIFORNIA • EL PASO, TEXAS

and associates hold under option the old **Paragon** mine two miles east of Foresthill, which they plan to mine by hydraulic methods.

W. W. Gibson, 1801 Webster Street, Alameda, California, has applied for a permit to divert three cubic feet of water per second from the Middle Fork of the Mokelumne River. The water will be used by the **Woodhouse Mines, Inc.**, which is leasing the property from Gibson. Estimated cost of the diversion is set at \$8,000.

Roy C. Troeger, 972 Fourth Avenue, Los Angeles, California, applied for 21,600 gallons of water per day from Green, Burro, Willow and Burns Springs, tributary to Emigrant Canyon in Inyo County. The estimated cost is \$2,500. Troeger plans to use this water in operations at the **Del Norte** mine in the Skidoo district near Death Valley.

The **Mariposa-Washington Mining Company**, E. Bradford Newcomb, manager, Hornitos, California, has made application for permission to divert one cubic foot of water per second from the South Fork of Burns Creek at an estimated cost of \$3,000. The company is operating the Washington mine.

St. John Bosco Mines at French Hill near Crescent City, California, is operating a dredge fed by a P&H dragline. The dragline, powered by a Caterpillar Diesel engine, works 20 hours a day, averaging 100 cubic yards of material an hour. A Caterpillar tractor equipped with a LeTourneau



bulldozer is used to strip top soil down to the pay dirt.

Additional equipment will be installed at the **Poverty Hill** hydraulic mine near La Porte, California, with a view to increasing production. Operations were resumed recently at the mine by A. J. Oyster, Russ Building, San Francisco, California. A crew of 30 men is employed under the direction of Army Adams, superintendent. Tailings from Poverty Hill operations are stored on the property. The mine was idle for many years but during the past five years has been sampled thoroughly. Jack Ehrhorn is consulting engineer.

The **Vanadium and Silver Reef** properties in the Lava Beds mining district of San Bernardino County, California, have been sold to E. A. Tracey of Daggett, California, and Mattie K. Adams of Hanford, California, for a reported price of \$50,000. The properties were purchased from August Vogt, Daggett; Frank Thomas, Visalia, California; and Mr. and Mrs. Krehbiel of Reedley, California.

A carload of ore carrying values in silver and gold has been shipped to the

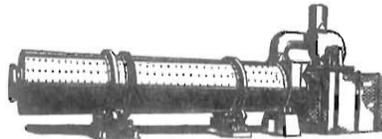
Salt Lake smelter by the **New Trail Mining Company**, Cima, California. The company operates mines at Johnson Camp 10 miles north of Cima. J. F. Kent is president, Joseph Johnson is vice-president, and J. D. Loop is secretary-treasurer.

At the **Rattlesnake** mine northwest of Downieville, California, the tunnel begun by James E. Deal several years ago has been driven over 600 feet during the past winter, and the fault was recently struck at approximately 1,100 feet from the portal. After driving through the broken slate bedrock near the fault, a raise will be put up to prospect for the section of channel which is supposed to lie north of the fault. Seven men are employed. The Rattlesnake is owned by Deal and is being developed under option by Roy H. Elliott, 918 Hobart Building, San Francisco, California.

The new No. 20 dredge of the **Yuba Consolidated Gold Fields, Ltd.**, Hammon-ton, California, has been placed in operation and is now engaged in extracting the gold content from approximately 600 acres of land, including the townsite of Ham-monton. The steel hull is 250 feet long, 80 feet wide, and 11 feet deep, and the new boat is equipped to dig to a depth of 125 feet. F. C. Van Deirse, 351 California Street, San Francisco, is vice-president in charge of operations for Yuba Consolidated.

The **Keystone Mine Syndicate**, located at Amador City, California, has purchased the **Original Amador** mine group at Amador

No. 5: RUGGLES-COLES DRYERS

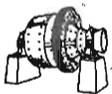


There are nine distinct types of Ruggles-Coles Double and Single Shell Rotary Dryers, designed for direct, indirect and steam heat. Also rotary and vertical kilns; air and water spray type coolers.

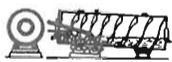
HARDINGE

COMPANY, INCORPORATED - YORK, PENNSYLVANIA

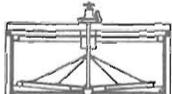
New York, 122 East 42nd Street Chicago, 205 West Wacker Drive San Francisco, 501 Howard Street Denver, 817 Seventeenth Street



CONICAL MILLS



COUNTER CURRENT CLASSIFIERS



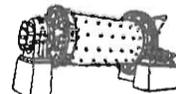
THICKENERS CLARIFIERS



RUGGLES-COLES DRYERS

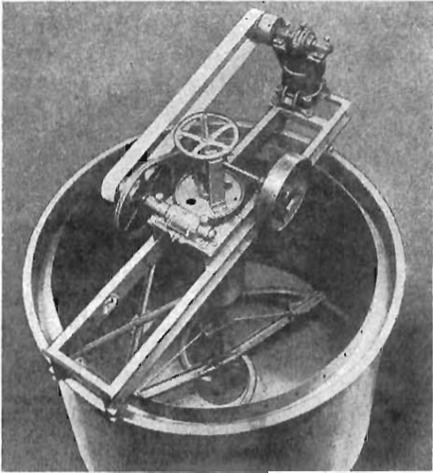


CONSTANT WEIGHT FEEDERS



TUBE ROD AND BATCH MILLS

DENVER THICKENERS AND DIAPHRAGM PUMPS



Write for Bulletin 3628 on Denver Spiral Rake Thickeners and Bulletin 3703-A which describes Denver Lowhead Diaphragm Pumps

Denver Equipment Co.

DENVER: 1400 Seventeenth St.
SALT LAKE CITY: McIntyre Bldg.
MEXICO, D. F.: Edificio de Baker



City. The property has milling equipment capable of handling 350 tons daily and ore from the Keystone property will be treated in the plant. T. S. O'Brien, Amador City, is superintendent of the Keystone. Charles H. Segerstrom, Sonora, California, is agent for the syndicate.

Preparations are being made by the Grizzly Mining Company, Phillip L. Small, manager, to reopen its three famous old mines, the Dead Horse, New Albany, and Eureka, located near Tuolumne, California. The mines will be worked under lease by J. E. King of Sonora, California.

The Morning Star group of claims north of Cima, California, recently taken over by Erle P. Halliburton, Inc., 907 National City Bank Building, Los Angeles, California, is being prepared for extensive development. Housing facilities are well under way, water lines are being laid, and a 2,000-gallon water tank is ready for installation. Boarding house facilities have also been established. The property will be operated on a three-shift basis and a crew of approximately 20 men will be employed. H. V. Hughes is manager at the property. The group is owned by John B. Mighton of Cima, and Howard T. Brown of Los Angeles.

Directors of St. Joseph Lead Company, 250 Park Avenue, New York City, have declared a dividend of 25 cents, payable June 20 to stock of record June 9. A dividend of 25 cents has also been declared on common stock, payable September 20 to stock of record September 8. St. Joseph Lead, with its subsidiaries, is understood to be the largest producer of lead ores in the United States and is one of the principal sellers of pig lead produced from domestic ores.

The No. 15 winze of the North Star Mine, Grass Valley, California, has reached the 10,000-foot mark but the company is preparing for further development in the winze from the 10,000-foot level. At present a station is being cut at the 10,000-foot level, and hoisting machinery capable of carrying the winze for an additional depth of 400 or 500 feet will be installed. Resumption of shaft development will follow the installation of drums, cable, and power units. John R. C. (Jack) Mann, is manager of the Empire Star Mines Company, Grass Valley, California.

Rapid progress is being made in remodeling and rebuilding the surface plant at the Grass Valley Boundary mine, Grass Valley, California, preparatory to clearing away the caved-in section of the mine shaft. It is believed that the shaft is caved for approximately 100 feet. A crew of seven men, under the direction of Arthur Hellings, superintendent, is engaged in tearing down the old hoist and headframe, which were located in the same superstructure, and preparations are being made for a new hoist house and headframe. According to John N. Becker, who recently purchased the property, the old tramway to the mill will be torn down and a new tramway and new ore bins will be constructed. The mill will be used as far as possible although much of the machinery is obsolete, broken, or unfit for further use. When the work of shaft clearing is started, three

full shifts will be put on in order to complete the project as rapidly as possible. O. S. Tuttle, engineer and mine architect, is designing the Boundary surface plant.

The Zenith Mines Company, a Nevada corporation, has acquired the Bonanza mine located on the Mother Lode at Drytown, Amador County, California. Unwatered and reopened for the first time in 50 years, the old workings are said to have shown ore of mill grade to a depth of 450 feet, with values estimated at \$15 per ton in gold. The ore ranged in width up to 15 feet. Fred Mudgett is secretary and treasurer of the Zenith company.

Shaft sinking has been started on the Cottonwood claim of the Federal Tungsten Development Syndicate of California near Weldon, California. The syndicate is composed of George Smith and Hal B. Griffiths of Weldon; J. Dean Newell of Los Angeles; and Charles P. Martin of Bakersfield. The group controls 14 claims located near Weldon which carry principal values in tungsten and molybdenum.

The Rambler mine of the Cowdery tungsten mines in the Nederland district of Boulder County, Colorado, has been subleased to Sam Altman and Melvin Craft by Tom M. Walsh, 2126 Walnut Street, Boulder.

Walsh and his son operated the property for almost three years. They are now leasing the Tungsten mine south of Nederland, which they started unwatering about March 1. Within the month they had the 400-foot shaft and other workings in order. Production was started in April and ore is now coming from the 180-foot level. The mine is being operated on shifts and the mill is running two shifts, treating about 16 tons of ore daily. Production is to be stepped up to 25 or 30 tons of tungsten ore daily. Five men are employed in the mine and three in the mill.

A 14 to 18-inch streak of lead ore is stated to have been opened in the Clara H. claim of the New York mine in Summit County near Montezuma, Colorado. Walter N. Head of Montezuma is the operator of the property, which also yields values in gold, silver, and zinc.

Charles W. Light of Idaho Springs, Colorado, is reopening the 350-foot level of the Colorado-Carr mine on Bobtail Hill in the Russell Gulch area of Gilpin County. The first two levels have been cleaned out during the past year. The property is an old producer, but had not been operated for 15 years. Old workings are 1,200 feet deep, but will be reopened only to the 700 or 800 level.

The Alice Mining Corporation is churning drilling the southern portion of the Alice property in an effort to open commercial ore. The north ore body was worked out last fall by the American Smelting and Refining Company which operated the property under lease. C. S. Thayer of Niagara Falls, New York, is president of the company. Charles Dahlberg, who recently returned to Colorado from Utah, is manager



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.

The General Engineering Company
CONSULTING METALLURGICAL ENGINEERS

159 Pierpont St.
SALT LAKE CITY
NEW YORK CITY

TORONTO

LONDON

The Merrick Conveyor Weightometer

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

MERRICK SCALE MFG. CO.

176 Autumn St.,

Passaic, N. J.

1939. Due to the closing of this plant, the total production in 1938 from the two Monterrey plants showed a decline of 0.84 per cent in gold, 5.7 per cent in silver, and 8.8 per cent in lead as compared with the quantity produced in 1937.

Cia. Minera de Penoles accounted for 57.7 per cent of the total gold output in 1938 (49.2 per cent in 1937), 39.6 per cent of the silver output (34.6 per cent in 1937), and 29.9 per cent of the lead output (28.5 per cent in 1937). A. S. and R. accounted for the balance. All of the silver was exported to the United States. Most of the lead was exported to Europe.

GROUP OF MEN OPERATING IN OREGON AND IDAHO

THREE MAJOR DREDGING companies, with one or more of the same persons interested in the three concerns, are operating near Sumpter, Oregon. The Nutting Dredging Company, headed by K. R. Nutting, Box 750, Salinas, California, started its 1½-yard Link-Belt dragline and dredge on April 6, 1939. The company is now handling about 2,500 cubic yards of material daily. Harry F. Wolfinger is general superintendent and Paul Grim is assistant superintendent. J. E. Little, Sumpter, is in general charge of this and the other operations.

Little, Harris, and Wolfinger are operating a 1½-cubic yard Link-Belt dragline and Bodinson boat. This concern started last October about two miles east of Sumpter

and has been operating continuously since that time. Harry F. Wolfinger is general superintendent, assisted by Paul Grim.

The third operation is the Northwest Development Company, J. E. Little, president. K. R. Nutting is vice-president and James Donald is secretary of the company. This outfit is sampling a number of placer gravel deposits in Oregon and Idaho, using two Keystone drill rigs and three caisson crews.

J. E. Little and associates are also operating the Gold Hill hydraulic mine in Boise County at Idaho City, Idaho. Work is being done with three giants. They have water rights to 5,000 inches of water in Moore and Elk creeks and hold some 25 miles of ditches. However, operations here have been curtailed this season by lack of water and work will soon be suspended.

DECLINE EXPERIENCED BY U. S. ASBESTOS INDUSTRY IN 1938

ALTHOUGH it is the largest asbestos consuming country in the world, the United States produces but a small fraction of its requirements of the raw materials. According to the United States Bureau of Mines, domestic sales in 1938 amounted to only 5.5 per cent in quantity and 4 per cent in value of domestic requirements.

The Bureau of Mines further states that although many occurrences of chrysotile asbestos have been found in the United States, few of them seem to have commercial possibilities. Arizona deposits furnish excellent crude fiber, but mining costs are high, transportation is difficult, and

freight rates to eastern markets are excessive. The Vermont deposits are extensive and could produce large quantities of mill fibers of moderate to short lengths, but they furnish little fiber of spinning grade. Chrysotile deposits are known in California and some other states, but they do not appear to be capable of development into consistent producers of a large tonnage of spinning fiber.

The possibility of making synthetic asbestos to take the place of the natural fiber has been suggested, but due to certain special qualities for high-grade asbestos that man cannot duplicate in a laboratory, the manufacture of synthetic asbestos is claimed to be farther from attainment than the manufacture of synthetic diamonds.

Production of asbestos in the United States in 1938 amounted to 12,901 short tons compared with 13,896 tons in 1937, a decrease of 7 per cent. The quantity sold or used by producers in 1938 (10,440 tons valued at \$247,264) decreased 14 per cent in quantity and 28 per cent in value. The decrease in value is probably due chiefly to increased sales of Arizona short fibers. Stocks in the hands of producers as of December 31, 1938, were higher than in 1937.

During 1938 chrysotile was produced in Arizona and Vermont and amphibole (termolite) in Maryland. Plans are being made to resume operations at the Morgan asbestos mine in California, and for development of a property in Converse County, Wyoming.

Sulphuric Acid

(60° Baume)

Maximum efficiency proven
by years of experience in
Arizona plants.

Prompt shipment is made
from our Douglas
Reduction Works.

ADDRESS

**PHELPS DODGE
CORPORATION**
DOUGLAS, ARIZONA

American Smelting and Refining Company

Buyers of

Gold, Silver, Lead, Copper,
Zinc Ores and Concentrates

Southwestern Smelters

El Paso Plant—El Paso, Texas
Hayden Plant—Hayden, Arizona
Amarillo Plant—Amarillo, Texas

For Purchase Terms, Freight Rates and
Shipping Instructions, Address

Ore Purchasing Dept.

P. O. Box 1111

El Paso, Texas

PAGE
LOUSE

High-Grade From Philippine Islands

THE discovery of a new oreshoot on the 600-foot level of the IXL mine, Balete, Masbate, Philippine Islands, has been reported by J. H. Sampson, consulting engineer and director of the company, who is visiting in San Francisco. The new shoot is said to be about 17 feet wide and has averaged \$9.98 a ton for a distance of 200 feet, which is the length of the drift at the present time.

The assay values of the ore body average approximately \$2 per ton less than the run of the entire mine, but the width of the shoot gives favorable indication of an extensive zone of medium-grade ore, according to Sampson, and he believes that it may be mined profitably on a quantity production basis.

The IXL company is reported to have treated 136,224 tons of ore during 1938 compared with 90,405 tons in 1937. The average recovery value was indicated at \$11.37 a ton for the year as compared with \$12.28 a ton for 1937. At the end of 1938 ore reserves were estimated at 245,412 tons of positive or probable ore, with an aggregate value of \$3,042,686, or an average of \$12.40 a ton. A 1939 development program has been scheduled which will include work on 21 claims, called the XYZ group, about four miles from the present properties in Balete. An option has also been taken on a group of claims adjoining the XYZ group.

AN OPERATING contract was signed between J. O. Enberg, a director and chairman of the board of construction engineers of Marsman and Company, Inc., Box 297, Manila, and A. H. Warren for the Nayak Mining Corporation. The contract stipulates that Enberg will receive 50 per cent of the profit for supplying capital to the Nayak company for mining and milling facilities. The contract also provides for a six-month option period during which Enberg's representatives will make a thorough examination of the property. If he decides to exercise his option, Enberg must provide milling facilities for handling a minimum of 50 tons of ore a day within a year from the time the operating contract takes effect.

The Nayak Mining Corporation's holdings consist of 22 claims located in Suyoc, Mankayan, about one kilometer northwest of the property of the Suyoc Consolidated Mining Company in Baguio, Mountain Province. The reserves of probable ore developed at present are said to amount to about 19,000 tons with an average value of \$22.60 per ton. The issued capital stock amounts to \$118,964. In addition to this \$72,060.20 are held in escrow.

The Demonstration Gold Mines, Ltd., and Crown Mines, Inc., both located in the Baguio district of Mountain Province, have entered into an operating contract whereby the Demonstration Gold Mines will operate the properties of Crown Mines on a 60-40 profit-sharing basis, the former receiving 60 and the latter, 40 per cent. No time

limit for the duration of the contract is specified, but it is understood that as long as there is enough ore that can be mined profitably in the properties, the Demonstration Mines will operate them. Jose Arnaiz is the manager of Crown Mines, Inc.

Associated Mines, Inc., has abandoned its copper mines in Catanduanes and its asbestos property in Zambales, as exploration work has shown disappointing results. It is now turning its attention to the marble business and has invested in the Philippine Marble Company which is operating a marble property in Romblon. Manuel Arroyo, Third Floor State Building Annex, Manila, is president of Associated Mines.

A tentative agreement is being considered by the Mambulao Gold Mining Company and the Consolidated Mines, Inc., Box 1147, Manila, whereby 12 of the mining claims of the Mambulao company in Nakalaya, Mambulao, Camarines Norte, would be turned over to Consolidated Mines for operation. The contract would provide that a royalty of 5 per cent on extracted ore having an average value of \$20 per ton and 10 per cent on extracted ore above \$20 be paid to Mambulao. Juan G. Quijano, secretary of the company, is handling negotiations with a representative of the other company.

NIELSON SECURES LISTING ON SAN FRANCISCO EXCHANGE

THE San Francisco Mining Exchange has approved the application of Nielson and Company, Inc., Box 717, Manila, Philippine Islands, to list its securities on the exchange, and trading will be inaugurated as soon as the company's registration statement, which has been filed with the SEC, becomes effective. Nielson securities are already registered on the Manila and on the International stock exchange in Manila. It is expected that the company's listing on the San Francisco mining exchange will become effective in June.

This is the third company identified with the Philippine mining industry to seek an open market for the convenience of stockholders in this country. The first was Lepanto Consolidated Mining Company and recently the IXL Mining Company, one of Andres Soriano's projects, entered the trading list of the San Francisco stock exchange.

Nielson and Company, Inc., holds contracts with several mining companies providing for the management of their mines on a monthly fee basis, plus a percentage of the profits. Current holdings of this nature include contracts with Tinago Consolidated Mines, Inc., Masbate; Paracale-Gumaus Consolidated Mining Company, Inc., near Suyoc, Mountain Province; Hongkong Mines, Ltd., in China; and Selinsing Consolidated Mines, Ltd., Nieco Mining Company, Inc., and Hixbar Gold Mining Company, Inc. Other assets con-

sist of engineering and assay equipment, liquid working capital, and approximately \$550,000 in mining securities investments.

In his annual report, L. R. Nielson, president of the company, stated that in a little more than two years of operation, Nielson and Company has constructed four milling plants and the fifth is now nearing completion. These plants range in size from 50 to 400 tons a day. Aside from this, several properties have been developed and one is being operated from which it is possible to ship the ore direct to the smelter.

The production of all Nielson properties during the latter part of 1938 averaged around \$250,000 a month, and Nielson declared that this figure should be easily doubled and probably tripled during the present year. The combined output in February 1939 was \$313,431.11, up approximately \$70,000 from the preceding month.

Nielson and Company has not restricted its operations to the mining of gold in the Philippine Islands and other Oriental countries, but has made important strides in the development and production of various other mineral deposits, having been the first in modern Philippine history to enter the copper mining industry and prove that this type of metal could be mined and sold at a profit.

The company receives monthly management fees of \$2,500 from the Paracale-Gumaus, Lepanto Consolidated, Hongkong Mines, Selinsing Consolidated, and Tinago Consolidated Companies, besides a share in net profits, amounting to 10 per cent. Its contracts call for a 60 per cent share in the net profits of the Nieco Mining Company and 30 per cent in the net profits of the Hixbar Gold Mining Company, Inc.

Officials of Nielson and Company, Inc., are L. R. Nielson, president; L. J. Coote, vice-president; Juan Nabong, secretary; and G. T. Scholey, manager.

MAP OF MEDFORD QUADRANGLE NOW READY FOR DISTRIBUTION

THE NEW geologic map of the Medford quadrangle, showing the various geological formations and the location of 44 mining properties in the Medford-Ashland district, is ready for distribution and may be obtained from the State Department of Geology and Mineral Industries, 329 South West Oak Street, Portland, Oregon, or from the State Assay Laboratories at Baker and Grants Pass. A price of 40 cents is charged to cover printing and mailing.

On the back of the map is a description of the geology and notes on the occurrence of manganese, chromium, gold, quicksilver, clay, coal, etc. It represents the work completed last November by field parties of the U. S. Geological Survey under direction of Francis G. Wells, geologist. Preparation of the map by the geological survey so soon after the completion of field work is a concession requested by the state department of minerals, which is carrying the cost of the color lithostating and is issuing these maps.

Drive, Beverly Hills, California, is president of the company.

A crew of six men is employed at the property of the **Emsco Asbestos Company**, Globe, Arizona, under the direction of W. A. Emery, mine foreman. The mine is located in the Chrysotile district northeast of Globe. A partly finished asbestos product is shipped to the company's mill at Downey, California. Earl W. Draper, Box 288, Globe, is mine superintendent. D. W. Fether, Downey, is president and general manager of the company.

J. E. Kelly, Hereford, Arizona, is preparing to run a 300-foot tunnel at the Kelly mine in Lutz Canyon in the Huachuca Mountains. High-grade copper-gold-silver ore has been encountered at the tunnel site, carrying values running as high as \$30 per ton. Kelly recently purchased a 10-ton Gibson mill, but has not set it up due to a shortage of water.

Shaft sinking has been started at the **Rubal** group near Klondyke, Arizona, under the direction of Jose Rubal, Klondyke. Four men are employed. Values are in lead and silver, and ore will be shipped. Rubal also owns five claims in Pinal County about 14 miles southeast of Winkelman, Arizona, four of which carry asbestos and one of which carries manganese averaging 36½ per cent.

The **Volcano** mine, E. V. Bunker, owner, Cherry, Arizona, is producing from 12 to 15 tons of gold ore monthly. The property is opened by an inclined shaft. Two men are employed.

The flotation plant of the **Nevada Consolidated Copper Corporation**, Hayden, Arizona, is treating 100,000 tons of copper ore monthly from the mines at Ray, Arizona. A crew of 625 men is employed. Operating officials located at Ray are: R. W. Thomas, general manager; Dean LaGrange, assistant mine superintendent; P. T. Whitehead, geologist; A. L. Dickerson, master mechanic; C. E. Mitchell, chief electrician; R. C. Lewis, chief clerk, and J. G. O'Toole, employment agent. Plant officials located at Hayden include: W. I. Garms, mill superintendent; F. J. Tuck, assistant mill superintendent; J. D. Sullivan, electrical engineer; V. T. Root, master mechanic; C. W. Dutton, chief electrician; J. L. Stevens, metallurgical engineer; N. E. Guyer, assistant purchasing agent; C. A. Hurst, chief accountant.

A crew of 120 men is employed by **Producers' Mines, Inc.**, H. W. Thorne, president; A. M. Davis, vice-president, Chloride, Arizona. The milling plant is treating approximately 250 tons of gold ore daily. Operating officials include M. C. Richardson, mine superintendent; L. C. Blackett, mill superintendent; B. E. Charles, chief engineer and geologist; Bert Gaylord, master mechanic.

A two-ton production of gold ore daily is reported from the **Sacramento** mine, Groom Creek, Arizona. The property is operated by Louis Milner, Groom Creek, who is employing two men.

Future work planned for the **Skyline** mine in Rucker Canyon includes the running of two 300-foot tunnels. The property carries values in gold and silver and is operated by Thea Williamson, Elfrida, Arizona.

A 200-foot shaft is being sunk under contract at the **Briardcliffe** mine in the Nashville district near Plymouth, California, by N. P. Nelson, Jackson, California. J. G. Thompson, London, Ontario, Canada, is president of the operating company. The mine is being reopened after a shutdown of two years. A small crew of men was maintained during the shutdown and the mine has been kept in good condition. Mrs. R. O. Morrow is in charge at the property.

The **Placeritas Mining Company** is operating a dredge on Indian Creek near Plymouth, California. The company has recently optioned ground in Nevada, for which a diamond drilling program is planned. H. D. Ramsay is engineer and J. G. O'Brien is geologist for the Placeritas company.

Alaska Juneau Gold Mining Company, P. R. Bradley, president, 1022 Crocker Building, San Francisco, California, reported an estimated net profit of approximately \$102,500 for May, before depreciation, depletion, and income taxes. This compares with \$63,300 in April and \$206,300 in May, 1938. Operating revenue in May was \$380,000, against \$322,500 in

April, and \$480,000 in May, 1938. Production increased to 409,450 tons, from 389,530 tons in April and 389,970 in May of last year. Gold recovery per ton was 93 cents, an increase of 10 cents a ton over April.

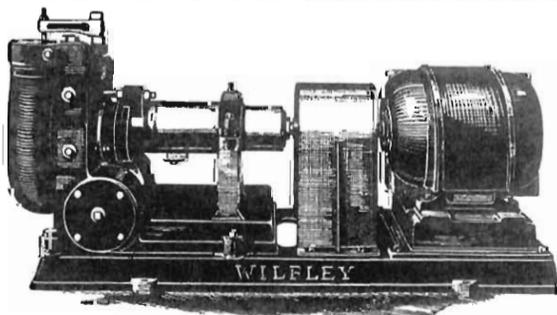
A ditch is being constructed from the Pine Tree mine, Bear Valley, California, across Queen Specimen Gulch to Shepherd's Point, for tailings disposal. It is estimated that there is sufficient storage space available for about four years. Work of sinking a three-compartment shaft from the 1,100 to the 1,250-foot level is to be started soon at the mine. The property is operated by the **Pacific Mining Company**, Philip R. Bradley, Jr., manager.

The **German Ridge** mine located on the L. E. Johnson Ranch near Altaville, California, is being reopened by the Western State Gold Mines Consolidated, a Nevada corporation. Clifford McClelland, a Hollywood mining attorney, is president of the company, and J. A. Weber of Glendale, California, is supervising work at the mine. There is said to be a quantity of ore assaying \$27.

Charles Lawrence has a contract to clean out the **Blaine** tunnel on quartz mining property southeast of Greenville, California, owned by Harry Wardlow. A known body of ore exists 150 feet from the portal, according to Lawrence, and that point will be reached shortly. The tunnel is 200 feet long.

A crew of 97 men is employed on a three-shift basis at the Pine Creek tungsten mine of the **United States Vanadium Corporation**, Clarence H. Hall, superintendent, Bishop, California. The company has done extensive development work in the past 15 months and is now shipping a quantity of concentrates each week. It is estimated that there is sufficient tungsten and molybdenum ore blocked out to operate the mill at capacity for many years.

The **Reed Mining Company**, Martin B. Reed, superintendent, Sierra City, California, discontinued operations at its Pride mine above Sierra City on March 15, due to lack of water, and the mine crew has been engaged in cleaning up. According to Reed, if the clean up is satisfactory, it is planned to begin work immediately on installation of a large water reservoir to provide water for approximately 60 days.



Write for Complete Details

A. R. WILFLEY & SONS, Inc.

DENVER, COLORADO

New York Office: 775 Broadway, New York, N. Y.

Save Pumping Costs

Stuffing box, stuffing, gland water, shaft wear—ALL these UNCERTAIN elements are ELIMINATED in the WILFLEY pump. That is why the Wilfley handles the HARDEST jobs as if they were EASY—running continuously for long periods without attention. Use WILFLEY pumps in YOUR plant if you want to save pumping costs.

WILFLEY
centrifugal SAND PUMPS

additional work. It is also planned to equip the property with modern hydraulic machinery to enable continuous operation without interruption, except for excessive snow conditions. There are said to be in excess of four million yards of gravel available which have been sampled and which show an average recovery of 35 cents a yard.

R. V. Sheldon, Placerville, California, contractor, is constructing a gravel washing plant on Chile Bar on the South Fork of the American River. A crew of men has been engaged in construction work for several weeks and the plant is nearing completion.

The Hayes Company of Oroville, California, has leased the Hossekuls and J. L. Ranches in the Genesee Valley for gold dredging purposes. At present the company is drilling test holes on Grizzly Creek.

The Willow Creek Mines, Inc. has let a contract to the Western-Knapp Engineering Company, 760 Folsom Street, San Francisco, California, for construction of a 250-ton sand slime cyanide plant at the Greenhorn mine, Redding, California.

The Jumper mine, Jamestown, California, is being unwatered under the direction of J. H. Brighanti of Santa Barbara. A crew of seven men is employed and the water level is expected to be lowered sufficiently to permit sampling and inspection of underground workings by July 1. The mine has been shut down since 1914, and shortly after the suspension of operations, the mine buildings were destroyed by fire. The property is under lease to the Brighanti Brothers.

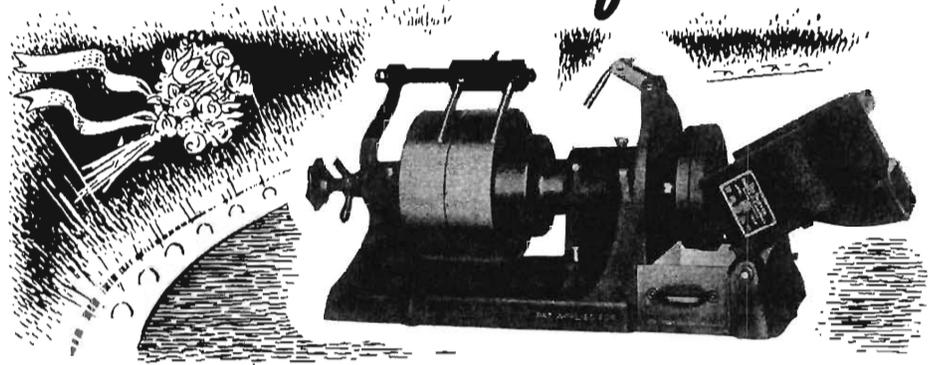
Stripping operations continue at the Erin-go-Bragh mine near Jamestown, California, with power shovels handling the material. The ball mill and seven flotation cells, with a capacity of 165 tons daily, are running from 85 to 90 tons of ore on two shifts, with one shift daily working on the crusher. The milling and stripping operations require a crew of 14 men. John Kellogg is superintendent. The property is operated by the Delgold Corporation.

It is understood that a diamond drilling program is to be inaugurated at the Willow Valley group of properties near Nevada City, California, held under option by the Valley Gold Mines, Inc. Operations are directed by H. P. Davis, and Oliver Chatfield is mine foreman. The buildings and equipment at the property are being repaired and overhauled.

The Bear State Gold Mines, Inc., is preparing for hydraulic mining operations behind the Ruck-a-Chucky debris dam when that structure is completed, presumably in the winter of 1940-41. More than \$100,000 have already been spent in preliminary work. The company holds approximately 1,200 acres of ground five miles northwest of Georgetown, California, known as the Prosperity mine. Joseph P. Donavon, Georgetown, is general manager of the company.

California interests are completing preparations for resumption of work at the old Plumas-Eureka mine near Johnsville, California. Extensive development activities

A NEW STAR Performer!



DFC PULVERIZER



Write
FOR BULLETIN
NO. 202

... DESCRIBING
THIS and SEVEN
OTHER MAJOR
OPERATING IMPROVEMENTS!

Making full use of proved principles, DFC engineers were determined to provide industry with the most efficient and practical pulverizers so far developed . . . to increase grinding speed, reduce maintenance and operating costs, and cut down the amount of attention required of the operator. They succeeded! Actual operation proves the DFC Pulverizer is years ahead in design and construction.

The
DENVER FIRE CLAY
Company

EL PASO, TEXAS  SALT LAKE CITY, UTAH
NEW YORK, N. Y.

DENVER, COLO., U. S. A.




PLACER MINING DREDGES
GOLD—PLATINUM—TIN

Yuba Manufacturing Co.
351 CALIFORNIA ST., SAN FRANCISCO
Cables — Yubaman, San Francisco

WESTERN STEEL CASTING CO.

Manufacturers of

● CARBON . . . ALLOY . . . STAINLESS AND MANGANESE STEEL CASTINGS ●

SEATTLE TACOMA PORTLAND

were carried on last year and substantial reserves of commercial gold ore are said to be exposed. The long main tunnel will be reopened, the old mill rehabilitated, and considerable new equipment provided. Colonel Dick Cunningham, lessee, is directing the work. The mine is owned by Colonel C. A. Lundy of Blairsden, California.

The Murchie mine of the Empire Star Mines Company, Grass Valley, California, is reported being virtually abandoned. Twenty-three men are reported to have been laid off, and the remaining 100 employes are engaged in salvage work below the 800-foot level for the present. It is reported that the mine above the 800-foot level may later be turned over to lessees. Driving of a 6,000-foot crosscut from the 400-foot level of the Murchie to the Banner Mountain section will continue, although legislation unfavorable to mining may curtail that activity also.

The vertical shaft at the Zeibright mine, Emigrant Gap, California, is being extended to the 1,150-foot level. Twelve to 15 men have been added to the crew and the work is being done on a bonus basis. Shaft sinking is not interfering with production, however, which is being maintained at 25,000 tons of ore monthly. At the Pennsylvania mine in Browns Valley, shaft sinking is also in progress, which will be continued to a depth of 2,300 feet. About 70 men are employed at the Pennsylvania, with production averaging 70 tons of ore daily. Robert Hendricks is manager of the Zeibright, Pennsylvania, and Murchie mines.

Both drift mining and dredging are in progress on the holdings of Dr. Carl P. Jones, Grass Valley, California, who controls extensive gold bearing ground, including the Champion, Providence, and Mountaineer groups. The Dakins Company, Robert D. MacAfee, Jr., superintendent, Nevada City, California, is treating Champion tailings and will operate on a wide area of the Champion channel on Deer Creek through an arrangement made with Dr. Jones. The tailings were extensively prospected and sampled by the Dakins Company before work was started. At the Black Prince tunnel, which opens into Deer Creek Canyon and is closely linked with the Champion and Providence holdings, drift explorations and prospecting are continuing with a small crew working in

two shifts. The original tunnel, which entered the mountainside for about 500 feet, has been cleaned out, and an additional 200 feet of drifting completed to a point about 700 feet from the portal.

About 300 yards of material are being washed daily in the gravel plant on Rocky Bar on the Middle Fork of the Cosumnes River six miles northeast of Fairplay. The property was taken over the first of the year by Clarence Young, Del Loma, California, who heads the Young Brothers Mining Company, and a 1¼-yard gasoline shovel is used to handle the material. It is estimated that two years will be required to mine the bar. At present 20 men are employed in one shift.

The Bradley Mining Company, Worthen Bradley, president, 922 Crocker Building, San Francisco, California, is reopening the Reed quicksilver mine located about 25 miles north of Monticello, California, and a crew of men is engaged in preliminary work at the mine. A new road is to be built to the property from the Knoxville mine, a distance of about six miles. Ray Butterfield is in charge of work at the mine.

First cement will be poured about September 15 for the foundations of the Upper Narrows debris dam on the Yuba River 20 miles east of Marysville, California, according to estimates of contractors and engineers. Approximately 160 men are working at the dam. The L. E. Dixon Company, 609 South Grand Avenue, Los Angeles, California, and the Arundel Corporation of Baltimore, Maryland, are joint contractors on the project.

Walter Horr, Jacumba, California, and associates, operating the Eagles' Nest group of claims in Long Valley, recently received their first returns from ore sent to the Selby smelter. It is said to have averaged \$80 a ton in gold. Another lot of selected

ore sent to the Burton Brothers' mill at Rosamond, California, is reported to have averaged more than \$150 in gold. Eight men are employed at the group, mining an average of eight tons daily from surface cuts. Production is to be stepped up shortly to two carloads weekly. The placer ground has been leased to J. S. Mahood and associates of Randsburg and Red Mountain, California, who have moved machinery to the site and are preparing for immediate operations.

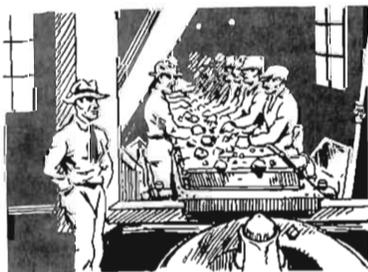
A group of San Diego and Los Angeles mining men, headed by Will Crosby, Julian, California, is making preparations for construction of a custom mill to serve San Diego County. The mill is expected to be built at Descanso, California. Crosby is director of the Julian Bureau of Mines.

Milling equipment being installed at the Oriental mine, Alleghany, California, includes a ball mill, classifier, jaw crusher, conditioner, and flotation cells. Twelve 30-cubic foot ore cars have also been ordered for the property. Upon completion of the present mill construction, arrangements will be made for doubling the plant's capacity. The mine is being worked by the Dickey Exploration Company, Mrs. Florence V. V. Dickey, Twin Peaks Ranch, Ojai, California. Operations are directed by Charles B. Foster, manager, Alleghany.

Work is nearing completion on installation of the new 50-ton milling plant at the Red Cross mine, Dobbins, California, and it will soon be ready to place in operation. Included in the equipment are a 50-ton rod mill; four agitators, tanks, and drives; a 14-inch diaphragm jig; 60-foot belt conveyor; zinc box; clarifier; and solution pumps. Repairs have also been made to other equipment and the entire surface plant will soon be in first-class condition. Work at the mine is directed by E. S. Van Dyck, general manager.

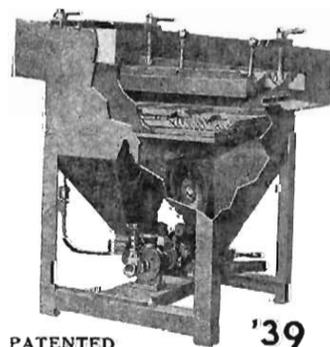
Luke W. Williams, Thomas Building, Grass Valley, California, has completed the work of cleaning out 3,200 feet of ditch, preparatory to operating the Manila and Niagara properties. A dam has been built and penstock equipment is being placed. A 25-ton flotation mill will also be installed at the property.

The Newmont Mining Corporation, 14 Wall Street, New York City, has declared a dividend of 50 cents, payable July 15.

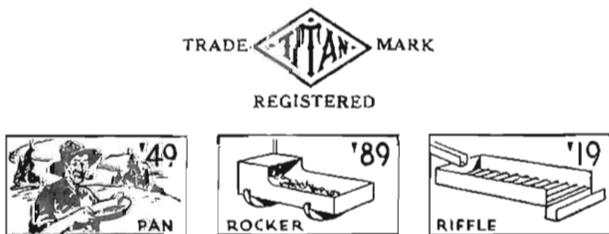


GET HIGHEST RESULTS WITH YOUR RECOVERY SYSTEM

TITAN CONTINUOUS ROTARY AMALGAMATOR



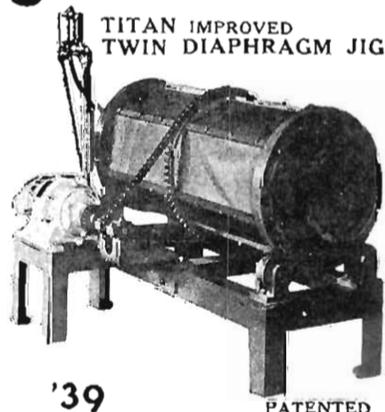
PATENTED '39



MILL & MINE SUPPLY, INC.

Manufacturers

2700 4th Ave. So., Seattle, U.S.A. Cable Address "Millmine"



'39

PATENTED

The property is being reopened with the financial assistance of W. B. Brinker of New York. J. H. Lashbaugh is in charge of operations at the mine.

Operators of the **Hidden Treasure** mine near Bangor, Butte County, California, expect to encounter the main channel soon by means of the tunnel which is being driven at the property. The mine, which is located on the old Blue Lead channel, is being reopened by Mrs. Villa M. Willard of Los Angeles, California. E. C. Montgomery is engineer in charge of operations at the mine.

The **Lost Cabin** mine near Alturas, California, sometimes called the Hess mine, is being reopened by Superior Judge A. K. Wylie, owner. The old inclined shaft is being cleaned out with a view to developing an ore body for milling and shipping. Water was encountered at 200 feet and an electric pump has been installed to dewater the shaft to the 250-foot level. Ore assaying \$17.80 per ton in gold and silver has been encountered at 190 feet.

The **Providence Tuolumne Gold Mines, Inc.**, A. Vannini, president and general manager, 633 Twenty-seventh Avenue, San Francisco, California, has secured a lease on the historic **Providence** mine, consisting of three patented claims and mill site on the east belt of the Mother Lode near Tuolumne, California. The company has been authorized by the California State Department of Investment to sell up to 400,000 shares of stock at 25 cents a share. Harold Boe is vice-president and Rae Freeborn is secretary-treasurer.

The city of Stockton, California, will receive a royalty of approximately \$6,500 from dredging operations which are being conducted at Hogan Dam. Two dredges are being operated above the dam by the **McSorley Brothers Dredging Company**, Mokelumne Hill, California, in gravel which averages slightly less than 25 cents a cubic yard in gold content. A large area remains to be worked and the dredges will be operated for several months to come.

The Hatton-Peterson lease on the **Wade** claims near Randsburg, California, recently completed another milling of ore from the property. With more than 100 feet of lateral work on the 50-foot level, a large tonnage of ore is now available for stoping between that point and the surface.

High-grade ore continues in both drift faces with increasing values in the south face. Average returns from the custom mills show \$35 to \$40 per ton recovery. With stoping ground available, sinking of the working shaft will be resumed and additional drifts opened at greater depth.

Six men are employed at the **Denver** mine in Wild Rose Canyon 50 miles north of Trona, California, owned and operated by E. B. and Margaret L. Spitzer, Box 10, Trona. A small tonnage of ore is treated at the mill in Wild Rose Canyon, only antimony being recovered at the present time. The mine also contains fluorspar.

A 20-ton Nichols-Herreshoff furnace and 12-pipe retort, condenser, etc., are in operation at the **Coso** quicksilver mine located 1½ miles west of Coso Hot Springs, near Little Lake, California. A crew of 10 men is employed under the direction of L. Cantan, superintendent, and W. O. Jamison, assistant superintendent. The mine is owned and operated by A. W. Leege, 2238 Anacapa Street, Santa Barbara, California.

The property of the **Stockwell Gold Mining Company**, E. E. Teagle, president, Trona, California, is being operated under lease by Charles A. Lockwood, Trona. Six men are employed and it is hoped to have the property on a production basis soon. The property is equipped with a flotation and gravity concentration plant.

The **L. and H. Properties Corporation**, W. S. Gause, secretary and manager, 417 South Hill Street, Los Angeles, California, contemplates reopening the **Astor** gold mine located in Tuber Canyon 41 miles north of Trona, California. The mine is owned by Chris W. Tyler of Trona and has been developed by several thousand feet of workings on four levels.

From 20 to 25 tons of gold ore are produced daily from the **Del Norte** mine located one mile north of the old town of Skidoo in Inyo County. The mine is op-

erated under lease by **Morris Albertoli** and **John Rogers**, Mojave, California, and 10 to 12 men are employed. The ore is hauled to the Keeler mill at Keeler, California, for treatment. The property is owned by the **Panamint Milling Company**, 972 Fourth Avenue, Los Angeles, California.

Woodhouse Mines, Inc., Westpoint, California, has recently completed installation of a 50-ton Gibson combination elliptic roll and ball mill at its property near Westpoint. The mine is operated under lease from W. W. Gibson, 1801 Webster Avenue, Alameda, California. Application has been made for a permit to divert three cubic feet of water per second from the Middle Fork of the Mokelumne River at an estimated cost of \$8,000. L. W. Bick is in charge of operations at Westpoint.

The **Jose Oro Mining Corporation**, which recently leased the **Gaylord** mine three miles south of Auburn, California, is completing the installation of a new plant with a capacity of about 100 tons daily. An underground crew has been engaged in developing new ground and in making necessary improvements to speed production. Twelve men have been employed at the property under the direction of W. A. Henderson, superintendent, and both mine and mill have gone on a two-shift basis during June. The original Swinburn lease covered 2,000 feet of channel, but the new company has secured an additional 3,000 feet.

Equipment is being installed at the **Big Sandy** mine, Kelsey, California, under the direction of Earl Cooper, former superintendent of the Black Oak mine at Garden Valley, California.

Ore is being mined on the sixth, seventh, and eighth levels of the **Oro Fino Consolidated Mines**, Auburn, California, and the mill is operating one 10-hour shift, treating approximately 65 tons of ore daily. A crew of 37 men is employed. George Beck, Box V, Auburn, is mine superintendent. J. C. KempvanEe, 381 Bush Street, San Francisco, is general manager.

Hall Livingston, Auburn, California, who recently took over the **TWA** mine west of Auburn, reports that the property is now on a production basis, with ore being mined on the 400-foot level. Livingston purchased the equipment of R. E. Arsneau, who formerly operated the **TWA**.



PERFECT FOR PLACER!

Say Experienced Mining Men

Separates gold from black sands; catches the finer gold; solves all placer extraction problems.

THE RUSSELL-RITTER AMALGAMATOR

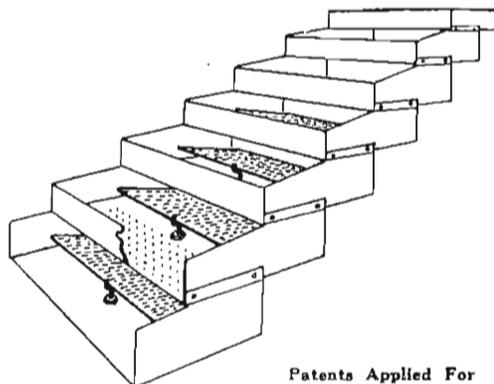
is equally valuable to the small or large operator.

Write for complete details to the

Russell-Ritter Amalgamator Company

Box 94, University Station

Seattle, Wash.



Patents Applied For

The Ophir Nevada Mining and Milling Company, Dan J. Frost, superintendent, has completed installation of its 35-ton milling plant at the Eclipse mine, Auburn, California, and is now milling ore from the 500-foot level. Ten men are employed. The vein on the 500-foot level is said to average from 1 1/2 to 2 1/2 feet in width.

A. C. Denison and Charles Fuller, Jenny Lind, California, are operating dry placer equipment on the Robie property two miles west of Jenny Lind. The gravel is concentrated by means of a trommel and then dehydrated in another trommel heated by a Ray burner. After dehydration, the material is hot air treated, the air being pulsed from below wire screens, the lighter material being blown away. Further concentration is accomplished in boxes similar to sluices.

The lower workings at the Densmore mine north of Columbia, California, are being rehabilitated under the direction of O. E. Keen, general manager. A new recovery plant, including cyanidation and flotation equipment, is being installed at the property. The mine was taken over recently by a group composed of Keen, George H. Rey, an Alaska operator, and Homer Wilson of Hornitos, California.

L. E. and Marvin Williams and John Hoagland have subleased the Pay Day property near Randsburg, California, from the Anglo-American Mining Corporation, and are installing a hoist and compressor preparatory to sinking the 45-foot shaft to greater depth. The Pay Day was formerly known as the Paymaster.

Work is being resumed after a winter shut-down by the Ridgeway Gold Mining Co., A. J. Johnston, 301 Burns Building, Colorado Springs, Colorado, vice-president and general manager. The property is a gold silver producer and is

located in Maggie Gulch near Silverton in San Juan County. Last fall a 5,200-foot tram was completed to facilitate movement of the terminal dump to the Shenandoah-Dives mill for treatment. About 1,500 tons of dump ore were shipped, with gross returns stated to average \$13.50 a ton. A compressor will be installed soon, after which the company will start milling newly mined ore.

A small production is being made from a sublease on the Wanaka mine at Ouray, Colorado, by Laurence Tessiatori of Ouray, who holds the ground from William McCullough, Ouray. The mill is held by Franklin Shafer and son who are reworking the old tailings and expect to ship a carload soon. Values are in gold, silver, and copper.

Operations have been started by the United States Molybdenum Corporation, C. W. Savery, 1560 Downing Street, Denver, Colorado, president. The company, organized a few months ago, holds 14 unpatented claims in the Daly district of Clear Creek County. It was located by D. A. Knight who is in charge of the work at Empire. Plenty of timber and

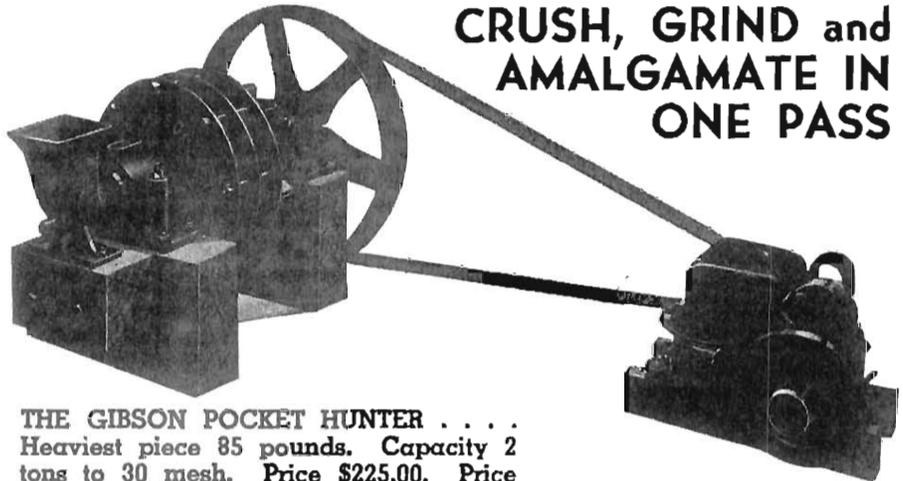
SAVES GOLD OTHERWISE LOST



Built in sizes from 25 tons to 2000 tons capacity

Repeat orders coming in from all parts of the world are positive proof of the efficiency of the Gibson Impact Amalgamator in saving the fine gold, amalgam and mercury that escape from the other amalgamating devices.

The Gibson Impact Amalgamator



CRUSH, GRIND and AMALGAMATE IN ONE PASS

THE GIBSON POCKET HUNTER
Heaviest piece 85 pounds. Capacity 2 tons to 30 mesh. Price \$225.00. Price with belting and 1 1/2 h.p. engine \$290.00.

The Pocket Hunter will crush two-inch material, grind and amalgamate in one pass. The wearing parts of the mill are built of manganese steel and the balance of heat-treated chrome-nickel steel. The mill is built for mule-back transportation and is guaranteed unbreakable. Will be taken back in exchange for 10-ton mill any time inside of one year. Never before has such value been offered to the mining public. Also built in 5, 10, 12, 25, 50, and 100-ton capacities, which will handle FOUR, SIX, and EIGHT INCH material without a rock breaker.

Write for catalogue describing Gibson Counter Balanced Rod and Ball Mills, Prospectors' Friend Mills, Flotation Cells, Amalgamators, Concentrators, Rock Breakers, Ore Feeders, Mercury Feeders, Oil Feeders, Retorts, etc.

W. W. GIBSON

1801 Webster Street

Alameda, California

See ONE Exhibit at the Mines, Metals and Machinery Building Golden Gate International Exposition

BAGS ORE - SAMPLE PRECIPITATION CLARIFIER

Plummer Bag Mfg. Co. 748 S. San Pedro St. Los Angeles, Calif.