THIRTY-THIRD
ANNUAL REPORT
OF THE
Mining Industry
of IDAHO
FOR THE YEAR
1931

STEWART CAMPBELL
INSPECTOR OF MINES
BOISE, IDAHO
THIRTY-THIRD
ANNUAL REPORT

OF THE

Mining Industry
of IDAHO
FOR THE YEAR
1931

STEWART CAMPBELL
INSPECTOR OF MINES

ANGELINE F. MAHAN
SECRETARY
LETTER OF TRANSMITTAL

To His Excellency,
   THE HONORABLE C. BEN ROSS,
       Governor of Idaho.

SIR:
   In compliance with the provisions of section 5480, Idaho Compiled Statutes, I have the honor to transmit herewith the annual report of the inspector of mines for the year ended December 31, 1931.

   Respectfully submitted,

   STEWART CAMPBELL,
       Inspector of Mines.
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Anaconda Copper Mining Co.: Inclined Top Slice Stoping Method: 31st, 1929, p. 28*
Artificial Sunshine for Mine Workers: 31st, 1929, p. 14*
Building Stone (Idaho): 26th, 1924, p. 17*
Bunker Hill Hoist: 26th, 1924, p. 32*
Bunker Hill & Sullivan M. & C. Co.: Valley County 32d, 1930, p. 32*
Burke Fire: 25th, 1923, p. 14*
Cadmium 32d, 1930, p. 40*
Electricity in Coeur d'Alene District: 30th, 1928, p. 31*

Foreword
Annual Reports: 23d, 1921, p. 3
Bunker Hill Solarium: 31st, 1929, p. 13
Delinquent Mining Companies: 25th, 1923, p. 5
Fake Promotions and Dishonorable Promoters: 27th, 1925, p. 5
Idaho Copper Corporation v. Stewart Campbell, Libel: 28th, 1926, p. 5
Idaho Laws Relative to Reports to Inspector of Mines: 30th, 1928, p. 7
Mining Promotions—Investments: 26th, 1924, p. 5
Platinum: 31st, 1929, p. 13
Public Lands: 32d, 1930, p. 12
Forest Reserves, Ownership of Timber on Unpatented Mining Claims in: 30th, 1928, p. 28
Hecla Mining Co., New Hoist: 31st, 1929, p. 19*
Idaho Portland Cement Co.: 31st, 1929, p. 30*

Milling Practice in Idaho
Callahan Zinc-Lead Co., Galena Mill: 28th, 1926, p. 20*
Constitution M. & M. Co., Mill: 27th, 1925, p. 34*
Federal M. & S. Co., Morning Mill: 27th, 1925, p. 32*
Federal M. & S. Co., Page Mill: 28th, 1926, p. 16*
Gold Hunter Mines, Inc., Mill: 27th, 1925, p. 29*
Hecla Mining Co., Mill: 27th, 1925, p. 21*
Hercules Custom Mill: 31st, 1929, p. 23*
Idawa Gold Mining Co., Belshazzar Mill: 29th, 1927, p. 38*
Milling in the Coeur d'Alene: 27th, 1925, p. 16*
Tamarack & Custer Cons., Mining Co., Mill: 27th, 1925, p. 25*
Mine Rescue and First Aid in the Coeur d'Alene: 25th, 1923, p. 18*
26th, 1924, p. 36*
27th, 1925, p. 37*
28th, 1926, p. 22*
29th, 1927, p. 40*
30th, 1928, p. 35*
31st, 1929, p. 51
Patent Surveys, Applicable as Annual Labor: 31st, 1929, p. 16
Phosphate: 25th, 1923, p. 25
Platinum, Predatory Assayers: 27th, 1925, p. 6
28th, 1926, p. 7
Sherman Howe Mining Co.: 32d, 1930, p. 47*
State Mineral Exhibit: 26th, 1924, p. 11*

Sullivan Mining Co.
Electrolytic Cadmium Plant: 32d, 1930, p. 43*
Electrolytic Zinc Plant: 29th, 1927, p. 33*
Sunshine Mining Co.: New Hoist: 32d, 1930, p. 45*
Talache Mines, Inc., Operations at Gold Hill Mine: 32d, 1930, p. 50*

*Illustrated
ABBREVIATIONS AND SYMBOLS

NAMES, ADDRESSES,
ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology .......................................................... American Geology†
Am. Inst. Min. Eng. Trans.......................................................... American Institute of Mining and Metallurgical Engineers Transactions
t 29 West 39th St., New York City.
Am. Jour. Sci.......................................................... American Journal of Science
Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.
Am. Mineralogist .................................................. American Mineralogist
Princeton, N. J.
California Jour. Tech.......................................................... California Journal of Technology
University of California, Berkeley, Calif.
Ottawa, Canada.
Canadian Min. Inst. Jour.......................... Canadian Mining Institute Journal
Drummond Bldg., Montreal, Quebec, Canada.
Columbia School of Mines Quart........... Columbia School of Mines Quarterly
Columbia University, New York City.
Compressed Air Mag................................. Compressed Air Magazine
Bowling Green Bldg., 11 Broadway, New York City.
Econ. Geology .................................................. Economic Geology
University of Illinois, Urbana, Ill.
Eng. and Min. Jour.......................................................... Engineering and Mining Journal
Tenth Ave. & 36th St., New York City.
Eng. and Min. Jour.-Press........................ Engineering and Mining Journal-Press†
Franklin Inst. Jour.................................................. Franklin Institute Journal
15 South 7th St., Philadelphia, Pa.
Geol. Soc. America .................................. Geological Society of America
Museum of Natural History, Columbus Ave. & 77th St., New York City.
Idaho Bureau of Mines and Geology, Moscow, Idaho.
Jour. Geology .......................................................... Journal of Geology
University of Chicago Press, Chicago, Ill.
Mines and Minerals .................................. Mines and Minerals†
Min. Con. Journal .................................................. Mining Congress Journal
American Mining Congress, 841 Munsey Bldg., Washington, D. C.
Min. and Eng. World.................................. Mining and Engineering World†
Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc.,
29 West 39th St., New York City.
Min. Mag.......................................................... Mining Magazine†
Min. Reporter.................................................. Mining Reporter†
Min. and Sci. Press.................................................. Mining and Scientific Press†
Min. World .......................................................... Mining World†
Nat. Geog. Mag.................................. National Geographic Magazine
National Geographic Magazine Society, Hubbard Memorial Hall,
Washington, D. C.
New York Academy of Science, New York City
No. ............................................................................. Number
Northwest Min. News................................. Northwest Mining News†
Northwest Science, Spokane, Wash.
Pacific Miner ................................................ Pacific Miner†
p., pp............................................................................. page, pages
Pan-Am. Geologist .................................. Pan-American Geologist, Des Moines, Iowa
pt. ............................................................................. part
MINING INDUSTRY OF IDAHO

International Mining Congress, Washington, D. C.
Salt Lake Min. Review Mining Review
Walker Bank Bldg., Salt Lake City, Utah.
Sci. Am. Suppl. Scientific American Supplement
New York City.
ser. series
sess. session
U. S. Geol. and Geog. Survey U. S. Geological and Geographical Survey
Univ. of Idaho University of Idaho, Moscow, Idaho
vol. volume
211 Church St., Easton, Pa.

SYMBOLS
*........Available in libraries only. Publication out of print.
**.......Can be procured from publisher.
§........Not available for general distribution; may possibly be
procured from publisher.
†........Can be purchased from Superintendent of Documents, Gov-
ernment Printing Office, Washington, D. C.
‡.........Publication suspended.
¶........Address: Washington, D. C.
RESOURCE MAP OF IDAHO
SHOWING DISTRIBUTION OF PRINCIPAL COMMERCIAL MINERALS.
BY STEWART CAMPBELL
INSPECTOR OF MINES.
INTRODUCTION

The report for the year ending December 31, 1931, presents detailed information concerning Idaho mining companies in the form of a directory. It is, in fact, a handbook rather than a formal report. Its plan is not new, but is the one adopted by the inspector when he first took office. His first report, that of 1921, was largely an experiment, but it received such favorable press comment, notably by the Engineering and Mining Journal, the foremost mining magazine of the United States, that the plan has been followed in all subsequent reports.

Idaho is the only state in the Union which is presenting the data relative to its mineral resources and mining industry in this form. The merit and popularity of the report are proved by the continually increasing demand for copies of it, as well as by the efforts which those interested in mining in other states have made toward having their state governments publish a similar report.

Unincorporated companies have been included on the same basis as incorporated companies whenever their officers have furnished data. Corporations that have forfeited their charters, and that have failed to file their reports as required by law, have been considered as legally dead; therefore no mention is made of them.

PROSPECT LISTS

The list of prospects published in the Twenty-third Annual Report was the first of its kind ever compiled in Idaho. It became a guide to those looking for mines, thus proving that its compilation was worth while. Subsequent lists have been extensively used, and in a number of cases examinations and sales of properties have resulted. The list of prospects contained in this report was corrected and brought down to date in the Thirtieth Annual Report, and few changes have been made since.

Many of the prospects listed are worthy of more prominent mention, but it is impossible to give more than the owner's name and address, name of mine and its general location, unless the owner should file a report with the inspector. The furnishing of detailed information by owners of prospects would not only assist in displaying the mining possibilities of Idaho, but might often prove an attractive advertisement of the property. Blank forms of these reports are always gladly furnished to all individuals requesting them.

BIBLIOGRAPHIES

Much information concerning the geology, mineralogy and mineral resources of Idaho has been collected and published by the U. S. Geological Survey, the U. S. Bureau of Mines, and the Idaho Bureau of Mines and Geology. Much is also contained in the various reports of the inspector of mines and in journals dealing with mining and geology. In order to make this information readily available to the public, in 1921 the inspector indexed this material according to counties and subjects and published it in his report. The indexing has been kept up to date, and so far as is known, each county bibliography contains references to all material of any importance that has ever been published concerning that county. Publications relating to specific minerals found in the State are listed also under the "General Bibliography" in the back of the report. The usefulness of the bibliographies has been further increased by including publishers' addresses and information as to whether each particular reference can be procured or not. Symbols have been added as a guide to facilitate explaining this information. Practically all of the publications listed are found in the inspector's library, and arrangements have been made so that copies of those not on file can be procured when requested. However, these publications may be consulted in all large libraries.

NEWSPAPERS

As pointed out in previous years, the visits which the inspector makes to the numerous mining counties are necessarily so short that they are inadequate to enable him to keep directly in touch with all mining activities, so that it is always necessary that he supplement his personal information
by that gleaned from the press. Most of the publishers located in mining communities have been very willing to furnish gratuitous subscriptions of their newspapers to the office of the inspector. This courtesy is greatly appreciated, and has been of much assistance in enabling the inspector to keep abreast of the mining news. Accordingly, the State of Idaho, through the inspector of mines, extends its thanks to the following:

- Arco Advertiser
- Idaho County Free Press
- Kellogg-Wardner News
- The Mackay Miner
- The Mining Journal
- Mining Truth
- Mullan News
- Pend d’Oreille Review
- Priest River Times
- Recorder Herald
- The Salt Lake Mining Review
- The Wallace Miner
- Wallace Press-Times
- The Weiser Signal
- Priest River Times
- Sandpoint
- Spokane
- Walla Walla
- Weiser

MINERAL MARKET INFORMATION

As there has continued to be a demand for possible markets for uncommon minerals and metals, the lists prepared in 1921, which include the names and addresses of the purchasers or users, have been revised and brought up to date as nearly as it was possible to do so, through the courtesy and cooperation of Mr. Frank J. Katz, Chief Engineer, Division of Mineral Statistics, U. S. Bureau of Mines.

- Aluminium
- Antimony
- Arsenic
- Asbestos
- Barites
- Bauxite
- Bismuth
- Cadmium
- Chromium
- Cobalt
- Diatomaceous Earth
- Feldspar
- Fluorspar
- Fullers Earth
- Graphite
- Gypsum
- Magnesium
- Magnesite
- Manganese
- Mica
- Molybdenum
- Monazite
- Nickel
- Platinum
- Pumice
- Radium
- Silica Sand
- Sodium
- Strontium
- Talc
- Tin
- Titanium
- Tripoli
- Tungsten
- Uranium
- Vanadium

The library, which was started by the present mine inspector during 1921, and which now consists of over 4,000 volumes, is believed to be the largest library of its kind in the State. It contains virtually every publication of the U. S. Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports, numerous volumes published by the geological surveys of other states, and many volumes of journals dealing with mining and geology.

Except a few articles published in old issues of the various journals, everything of importance dealing with the mining industry of Idaho, including geology, mineralogy and mineral resources, is contained in the library. Whenever requests are made for any of the missing articles, photographic copies are procured from the publishers or from some large research library.

The following magazines are regularly received: Engineering and Mining Journal; Mining Review; Mining Truth; The Mining Congress Journal; Mining and Metallurgy; The Mining Journal; Rock Products; Compressed Air Magazine; The Explosives Engineer; Economic Geology; The Journal of Geology; The Du Pont Magazine; Dutch Boy Quarterly; and Asbestos. Complete files of these magazines are being preserved for reference use. Although most of them have been received only since 1921, the file of the Engineering and Mining Journal is virtually complete for the past 20 years, the present mine inspector having donated to the State his personal files of this journal for the years 1911 to 1920, inclusive.
The library is equipped with the U. S. Geological Survey Finding List of States, Areas and Subjects, which makes it possible to locate quickly and completely all publications of the U. S. Geological Survey concerning the geology and mineral resources of any state of the United States or concerning any particular mineral.

Visitors are always welcome to consult the books of the library or to read the magazines. The office is open from 9 a.m. to noon and from 1 p.m. to 5 p.m. In the absence of the inspector, the secretary will be glad to assist visitors in finding desired information.

In order to accommodate readers who find it inconvenient to consult books in the library at the inspector's office, the practice of lending books for a period of not over two weeks has been established, and they are mailed out to all responsible persons within the State upon request. A few rare volumes, now out of print, and of which the library contains no duplicates, and books frequently called for at the office, cannot be mailed out. Individuals not personally acquainted with the inspector, when writing in for books, should accompany their requests by letters of introduction or recommendation from some reliable person in their community personally known to the office, or by a letter from the nearest public library.

MINING LAWS

In October, 1931, the inspector of mines caused to be published a new edition of the Idaho mining laws, for which a special appropriation was passed by the 1931 Legislature. This pamphlet contains all new laws and amendments relative to mining passed by that Legislature, up-to-date extracts from the U. S. mining laws, and an appendix.

The most frequent inquiries addressed to the inspector are questions on mining law relative to mining locations, both placer and lode, and what will and what will not count as annual labor. These questions involve the State and Federal statutes, decisions of the courts, and rulings of the U. S. Land Office. Their number and frequency have proved the need of publishing a few general interpretations of the law. These, including citations, constitute the appendix. The interpretations are generalized and the citations are not complete, because it is expected that competent legal advice will be sought on each specific question of interpretation. However, those included will be of much interest and assistance to the prospector and everyone interested in mining.

The pamphlet is distributed without charge upon request to the office of the inspector of mines, Boise, Idaho.

PLATINUM

The black, graphitic lime shale beds near Lucile, Idaho County, continued to be used as a basis for exploiting the public. According to the promoters this rock contains gold, platinum and other rare metals which can be recovered only by secret methods known to the promoters. Strange as it may seem, a large amount of stock and "units" were sold on this hypothesis, and the investors were gullible enough to invest without investigating either the stock salesmen, promoters, or their secret methods of recovering the rare metals.

These "mineral" deposits were visited by the inspector in 1929, and the samples taken by him were assayed by the United States Bureau of Mines, which was unsuccessful in detecting even the presence of any rare metals. The results were given to the press, together with a warning to the public. Apparently the warning was of no avail.

Another method for enticing the public into rare metal ventures which was in vogue during the year was the salting of so-called black sands with platinum filings and then having the material assayed by competent and reliable assayers. Invariably sufficient platinum had been added to give a high assay return, and these returns were then used as the lure.

No credence whatsoever should be placed in rare metal assays, in reported high values in these metals which any promoter or questionable assayer may proclaim, or in secret methods for the recovery of rare metals until a thorough investigation of the promoters, assayers, their methods of recovery, and the reliability of the samples has been made. State and Federal Bureaus will gladly assist in such an investigation.
GENERAL REVIEW AND 1931 ACTIVITIES

Lead, silver, zinc, and copper are four of the principal metals produced in Idaho, and the price of these metals governs the prosperity of the mining industry. During 1931 silver and copper reached the lowest prices in the history of the world; lead, the lowest since 1914; and zinc, the lowest since 1914. Heretofore, when lead was selling at a low price, silver was worth from 56 to 65 cents per ounce, as compared with 28.7 cents per ounce in 1931. As almost all the silver produced in Idaho is recovered as a by-product from lead-silver, zinc, and copper ores, the mining companies had the alternative of accepting low prices or closing their mines; consequently, at most of these mines production was curtailed; there was but a small amount of new plant construction; no new enterprises were started; and mine development work was greatly reduced; the totals being the smallest that the State has witnessed for many years.

In Shoshone County, the Bunker Hill & Sullivan M. & C. Co. and the Sunshine Mining Co. were the only two companies in the State which maintained capacity production throughout the year. The Federal Mining & Smelting Co., at the Morning and Page mines, the Hecla Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Sidney Leasing Co., all greatly curtailed their production. The mines of the Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Dayrock Mining Co., Sherman Lead Co., and Callahan Zinc-Lead Co. were closed early in the year; however, the Sullivan Mining Co. and the Callahan Zinc-Lead Co. maintained development work. The principal producing mines in which the ore reserves were increased by new development work were those of the Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Sullivan Mining Co., Sunshine Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Callahan Zinc-Lead Co. New ore disclosures of importance were made in the mines of the Washington-Idaho Mining Co. and Crystal Lead Mines Co. No new mills were constructed during the year, although those of the Mutual Mines Development Co. and the Jack Waite Mining Co., construction of which was started in 1930, were completed early in 1931. New mining equipment and machinery were installed by the Stratton Silver Summit, Inc., Kellogg Silver-Lead Mines Co., Washington-Idaho Mining Co., and the Independence Lead Mines Co. The principal development enterprises which maintained work without interruption were: Bunker Chance Mining Co., Granada Lead Mines, Inc., Independence Lead Mines Co., Liberal King Mining Co., Little Sunshine Mining Co., Metropolitan Mines Corporation, Ltd., Stratton Silver Summit, Inc., and Washington-Idaho Mining Co.

In other counties of the State, no lead-silver, zinc, or copper mining company maintained capacity production throughout the year; although the Whitedelf Mining & Development Co. and the Hope Mining Co., both in Bonner County, performed a large amount of mine development work, and each operated its mill and produced and marketed a substantial tonnage of high-grade lead-silver concentrate. The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate-Lost Pilgrim mine in Valley County, carried on normal operations and production until May, when the mine was closed, and a small crew for maintenance purposes only was kept at work. The Wilbert Mining Co., Ltd., in Butte County, kept up production during January and development work for the following three months, after which all operations were suspended.

The principal producing mines in other parts of the State which were closed throughout the year were: The Triumph mine of the Hailey Triumph Mines Co. and the Independence-North Star mines of the Federal Mining & Smelting Co., in Blaine County; Empire Copper mine of Mackay Metals and that of the Livingston Mines Corporation, both in Custer County. No company operations were conducted at the lead and the copper mines in Lemhi County; although lessees at the Allie, Latest Out, and P-I mines, in the Gilmore district, produced a substantial tonnage of high-grade lead-silver ore, which was stored. The Harmony and Pope-Shenon mines remained idle.
The low price of metals, coupled with the business uncertainty which prevailed throughout the United States, discouraged investments based on the exploitation of lead, silver, zinc, and copper enterprises. However, gold mining witnessed a decided impetus: most of the operating companies were continuously active; a large number of new enterprises were started; the interest shown by mining companies, promoters, brokers, and prospectors exceeded that of many years; and the only large expenditures for new construction were by those companies whose principal product is gold. Two new mills and a new dredge of importance and a large number of small mills were constructed; much new mining equipment was installed; and mine development work continued without interruption. Incorrect assays, which were accepted as correct by those interested, caused a large amount of new development work, the construction of a few small mills, and the promotion of some new enterprises. There was a decided return to placer mining, and many attempted to apply modern machinery, both pumping and excavating, toward recovering the gold.

The major part of the large expenditures and activities was in Valley, Elmore, Idaho, Boise, Lemhi, and Custer counties. The most important were the activities of the Yellow Pine Co., in Valley County, whose expenditure was the largest made in the State for new construction, mine plant installation, and mine development work. Construction of a new 150-ton mill was started in June and completed in December. The second largest expenditure during the year was that of the St. Joseph Lead Co., in Elmore County, which resumed operations in August at its Boise-Rochester mine, at Atlanta. The old mill was demolished, and a new one of 200 tons capacity was erected and placed in operation in December. Another important expenditure was that of the Idaho Gold Dredging Co., at Warren, in Idaho County. This company acquired the Warren Meadows placer ground, purchased a steam-driven dredge in Oregon, dismantled it, transported it by motor truck, reconstructed it, and commenced operations in September.

In Boise County, the Talache Mines, Inc., continued to be the largest gold producer in the State until its entire surface plant was destroyed in the disastrous forest fire, which visited this county in August. Subsequently a new hoist and mine plant were installed, and work was started on the 1,100-foot level of the mine. The Idawa Gold Mining Co. continued to be an important producer throughout a large part of the year; also the Idaho Gold Dredging Corporation, until fire destroyed its dredge in July. The Mayflower Gold Mines, Inc., Ideal Mining Co., Come Back Mining Co., and Mineral Mining Co., maintained work throughout the year. The last two produced and marketed a small tonnage of crude ore and concentrate.

Idaho County witnessed a decided improvement through a substantial increase in gold production, organization of new companies, new construction, and a greater amount of mine work. In the Marshall Lake district the Sherman-Howe Mining Co. maintained operations and production until October; the Golden Anchor Mining Co. further opened the ore bodies in the Holte mine; the Long Tom Mining Co. was active; and a large number of mine examinations were made. The success with which F. O. Miller is meeting at the Lone Pine mine, in the Golden or Ten Mile district, greatly stimulated prospecting, promoting, and new development work. The production from this mine was one of the largest in the county; two other companies, the Buffalo-Idaho Mining Co. and Central Idaho Gold Mines, Inc., produced a small amount of bullion; and six additional companies were intermittently active. A large mining organization started preliminary investigations, which may lead to the revival of the Buffalo Hump district. The Cal-Idaho Mining Co., at the Gold Hill placer, in the Elk City district, installed additional hydraulic equipment and constructed a lower tail race. The Central Idaho Mining & Milling Co., in the Dixie district, completed construction of a small mill and hydroelectric plant.

In Lemhi County, a number of new companies were organized and commenced work; and there was a substantial increase in prospecting and in the number of investigators seeking gold mines. The principal new activities were in the Shoup, Indian Creek, Eldorado, and Gibbonsville districts.
The nonmetallic resources, particularly exploration for oil and gas, received the largest amount of attention ever given to them. The Anaconda Copper Mining Co., in Caribou County, and the Solar Development Co., in Bear Lake County, both produced and shipped a large tonnage of phosphate rock. In Bannock County, the Idaho Portland Cement Co. was active throughout the year and manufactured and marketed a large tonnage of "Eagle Brand" cement. Two manganese mines were active, and one produced and marketed a substantial tonnage of high-grade ore. The Ohio Oil Co., operating in Payette County, under the name of its vice president, R. J. Berry, installed a 122-foot steel derrick and complete rotary drilling equipment and sunk a well, which had reached a depth of 4,000 feet at the close of the year. The Boise Petroleum Co. installed a complete well-drilling rig and sunk a well to a depth of 1,100 feet; and two others, whose forms of organization are unknown to the inspector, commenced sinking wells. The wide publicity given to the operations of the Ohio Oil Co. attracted a large amount of attention to Canyon, Payette, and Washington counties and resulted in the organization of more than twenty new companies.

The increase in ore reserves of producing mines, new ore disclosures of importance, new mill construction, new organizations, and the principal mining activities for the year are more extensively given in the county outlines which follow.

Ada County

Other than the work done by the Adelmann Bros. at the Blue Grouse group, the mines and prospects in this county witnessed but little increase in attention and development work over that of the previous year. The Boise Stone Co. was idle the greater part of the year and quarried but a small quantity of stone.

Although there was much publicity to further the sale of stock by those attempting to develop oil and gas, no work of any consequence was done.

Adams County

This county experienced but little mining activity during the year. The Idaho Copper Co., which ceased operations in November, 1927, continued idle. A few prospectors in the Council Mountain, Heath, and Indian Creek districts increased their work over that of 1930, and one marketed a small amount of ore. At the close of the year arrangements were being completed to revive one of the silver properties in the Indian Creek district.

The copper prospects near Homestead, Oregon, on the Idaho side of the river, received a little more attention than usual.

Bannock County

The Idaho Portland Cement Co., near Inkom, about 12 miles from Pocatello, whose product is marketed under the trade name of "Eagle Brand," was active throughout the year and manufactured and marketed a large tonnage. Two of the manganese mines near Cleveland were active during the greater part of the year. One of them, the Idaho Manganese Mining Co., produced a substantial tonnage of high-grade manganese ore.

The Chatterton Mining Co., which is developing a lead prospect in the Swan Lake section, did a small amount of development work.

Bear Lake County

The Solar Development Co., Ltd., a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which acquired and started work on a phosphate mine near Paris in 1930, was active throughout the entire year. This company maintained a large pay roll, produced a substantial tonnage of phosphate rock, and performed a large amount of development work, the principal part of which was sinking an inclined shaft 200 feet deep and running a large amount of lateral drifts. The phosphate rock is shipped for treatment to the acid phosphate plant of the Consolidated Mining & Smelting Co., at Trail, B. C. This plant was built in 1929 and 1930 at a cost of more than $7,000,000. The manufactured product, a triple superphosphate, is marketed under the trade name of "Elephant Brand." All the other companies holding phosphate mines in this county were idle throughout the year.
The Gold Star Mining Co. and the Utah-Idaho Mining & Milling Co., whose copper properties are located near Bloomington, both performed a considerable amount of development work, and the latter extended its vertical shaft to a depth of 200 feet.

The Sunset Mining Co. did a large amount of development work and produced a substantial tonnage of high-grade lead ore, which was stored.

**Benewah County**

The principal enterprise in this county is that of the Rainbow Mining & Milling Co., Ltd., which is driving a long crosscut. The company was active throughout the year and advanced the crosscut to a total length of 2,400 feet. The Butte Mining Co., whose property adjoins that of the Rainbow Mining & Milling Co., Ltd., did a small amount of development work and constructed approximately 2 miles of trail. The properties of these companies are located in the St. Joe district near Medimont.

Other than annual labor, all of the companies whose properties are located near Round Top Mountain were idle, and no new enterprises were started.

**Blaine County**

The two most active enterprises in this county were the Liberty Gem Mines, Inc., whose property is located 7 miles west of Hailey, and the Idaho Mineral Products Co., Ltd., which is operating the Vienna mine in the Sawtooth district. The former extended its vertical shaft an additional 100 feet, did a large amount of drifting and crosscutting on the 100 and 200 foot levels, readjusted its mill, and in December produced a small tonnage of concentrate, which was stored. The Idaho Mineral Products Co., Ltd., maintained active development work throughout the year; installed new milling equipment, and commenced milling operations in December. This company, in cooperation with the State highway department, opened Galena Summit to motor vehicle travel in December in order that the company might complete the storing of winter supplies.

The Triumph mine, of the Hailey Triumph Mines Co., was idle throughout the year. A few lessees maintained work at the mines owned by the Midvale Mining Co. and Ervine Mining Co., and at the Independence and North Star mines of the Federal Mining & Smelting Co. Development work was maintained without interruption at the properties of the Utah-Bellevue Mines Co., near Bellevue, and the Wood River Mining Co., and at the Parker mine, which is being operated under lease and option. The two last-mentioned properties are located in the Elkhorn section of the Warm Springs Creek mining district near Ketchum.

The Silver Star-Queens Mines, Inc., at the Queen of the Hills group, near Bellevue, reopened an additional part of the Lusk tunnel during the early part of the year. Other than annual labor, all of the companies operating in the Muldoon district were idle. The Treasure Vault Mining Co., whose property is located west of Hailey, and Peter L. Kent at the Lone Pine Tree group, near the Red Cloud mine, on Deer Creek, both performed a small amount of work during the summer.

**Boise County**

The gold resources of this county, both placer and lode, received much attention. A number of new mining companies were organized to develop the quartz properties, and during the summer scores of placer miners were active in almost every gulch in Boise Basin. The larger companies increased their production in the early part of the year, and the outlook was favorable for a considerable increase in gold production; but the burning of the dredge owned by the Idaho Gold Dredging Corporation in July and the disastrous forest fire which swept over the county in August, destroying the town of Quartzburg and the entire surface plant of the Gold Hill & Iowa mine of the Talache Mines, Inc., greatly curtailed the output. The surface plant at the Golden Age Junior mine and the plants of a number of small companies were also destroyed in the August fire.

Until its surface plant was burned, the Talache Mines, Inc., at the Gold Hill and Iowa mine, continued to be the largest gold-producing mine in the State. The shaft was extended from the 850-foot level to the 1,100-foot level,
and a large amount of new ore was opened on the 850, 700, and 600 foot levels. After the wreckage of the fire was cleared away, and the electric power line was rebuilt, a new electrically driven hoist, pump, and compressor were installed, the mine was unwatered, and work was started on crosscutting to the ore body on the 1,100-foot level.

The Idawa Gold Mining Co. continued to be an important gold producer and maintained milling and development work throughout the larger part of the year. However, late in the year the mine was closed, and all operations were suspended pending a readjustment of the company's corporate affairs.

The Mineral Mining Co. performed a large amount of mine development work, operated its mill intermittently, and marketed a substantial tonnage of high-grade gold-lead concentrate. Mayflower Gold Mines, Inc., a new organization, operating the Mayflower group, which is adjacent to the Gold Hill & Iowa mine at Quartzburg, maintained work throughout the year. The management reported the development of a sufficient tonnage of ore to justify the installation of a mill, plans for which were completed at the close of the year. The Ideal Mining Co., operating the Mountain Chief group under lease and option, conducted mine development work throughout the year and operated the mill for a short period. The Come Back Mining Co., whose property is located near Pioneerville, at Grimes Pass, was active throughout the year, performing a large amount of development work and producing and marketing a small tonnage of high-grade gold-silver ore. Press reports were to the effect that this company commenced installing a small milling plant.

The Idaho Gold Dredging Corporation, which was operating a dredge on Grimes Creek near Pioneerville, was active during the early part of the year and increased its production over that of the previous year. However, a fire destroyed the dredge in July, and the company then suspended all operations.

The Crooked River Mining Co. gave an option on its property and dredge at the Kempner Ranch placer to M. T. Rowland, who further altered the dredge and then operated it for a short period. Again the dredge proved to be improperly constructed, and all operations were suspended pending further refinancing and reconstruction.

New companies which entered this county during the year and which conducted a substantial amount of development work and installed a small amount of mining equipment were: Alandoc Mining Co., a placer mine enterprise at old Centerville; June Mining Corporation, at the Boulder mine; Clear Creek Development Co., near Pioneerville; and Golden Dream Mining Co., a placer enterprise, on the North Fork of the Boise River.

The "Continental Mining Co. and Inc." completed the installation of a small jig concentrating plant, performed a small amount of mine work, and marketed one small lot of concentrate. The property of the Boise Placer Co. was sold under foreclosure proceedings and was idle throughout the year. The Grandview mine, and the calcite plant at Banks, of the American Mines Development Co., Inc., and the mine of the Missouri Mining Co., Ltd., were idle. The Franklin Placer Co. rebuilt part of its ditch and flume lines and washed a small amount of gravel. Jarvis Bros., at the Hay Fork mine, did a small amount of mine work and constructed one-half mile of new road.

The increase in the gold content of the ore of the Gold Hill and Iowa mine as greater depth was obtained greatly stimulated prospecting, new development work, and investigations by those seeking gold mines. Much of the new work was intelligently directed, but some of it proved disappointing because it was based upon incorrect assays.

**Bonner County**

The Whitedelf Mining & Development Co. continued to be the largest operator in this county. In addition to producing and marketing a substantial tonnage of high-grade lead-silver concentrate, the company extended its shaft to the 400-foot level, on which it did a large amount of development work. The new ore encountered on the lower levels greatly added to the known resources of the mine. The Hope Mining Co. completed construction and installation of a new 100-ton flotation concentrator, installed an electrically driven compressor, performed a large amount of mine development
work, conducted milling operations, and produced and marketed a substantial tonnage of high-grade lead-silver concentrate throughout the greater part of the year.

The success with which the Whitedelf and Hope mines are meeting has greatly stimulated prospecting and development in the Clark Fork area, and most of the companies maintained a small crew during the greater part of the year. The Goat Mountain Leasing Co., a new organization, installed a gas-driven compressor and commenced driving a long crosscut. Gene-Lee Mines, Inc., was active in driving a new tunnel on the vein. Press reports were to the effect that a substantial showing of ore was encountered. Lucky Strike Mining Co. extended its principal tunnel approximately 100 feet. A small amount of development work was done by the Lawrence Consolidated Mining Co., and a car of hand-sorted ore was marketed. Explorers Prospecting Co., at the Boyer group, near Sandpoint, did a large amount of diamond drilling, constructed a new building, installed a compressor and complete mining equipment, and sunk a 100-foot inclined shaft. Minerva Silver, Inc., near Hope, installed a new compressor and maintained work throughout the greater part of the year. Amazon Mining Co., which was operating the Fall Creek mine under lease and option, employed two men during part of the year. The Silver Leaf Mines Corporation, a new organization, whose property is in the Lakeview district, constructed new camp buildings, installed a new compressor, and commenced an active development campaign. No work of any consequence was done in the Priest Lake district except annual labor, and this was greatly hampered and set back by the disastrous fire, which swept the district in September. The surface plants and buildings of practically all of the mining companies and prospectors were destroyed.

**Bonneville County**

Except a small amount of placer mining in the Caribou district, no mining operations were conducted during the year.

**Boundary County**

The year 1931 witnessed but little new activity and but a small improvement in development work by the old companies. The Silver Spoon Mining Co., Inc., and the Moyie Gold Copper Mining & Milling Co., Ltd., both maintained active development work throughout the year. Idamont Lead-Zinc Mines Co., Clancy Mining Co., Lucky Abe Mining Co., and Metals Mining Co. were active only a sufficient length of time to constitute annual labor. The International Molybdenum Co., in the Porthill district, was active during the summer months. Newspaper reports were to the effect that a discovery of placer gold was made near Naples, and that a new organization was being planned to acquire some of the properties in the Katka district.

**Butte County**

The Wilbert Mining Co., Ltd., whose property is located in the Dome district near Howe, maintained production during January and active work for the following three months, after which the low price of metals caused a suspension of all operations. The Dahle Bros., at the Horn Silver mine, in the Lava Creek district, maintained active development work throughout the year, and reports were to the effect that this work encountered a good showing of new ore. The other companies performed only the necessary annual labor, although the work done by the Metta Mining Co., Ltd., whose property is in the Hamilton district, exceeded the requirement.

**Camas County**

During 1931 the gold resources of this county, both placer and lode, in the Skeleton Creek district, on the South Fork of the Boise River, and in the Big Smoky section, received more attention than during the previous year. Much prospecting and development work were done by the old companies and by three new organizations, the principal one of which was the El Oro Mining Co., at the El Oro mine, where a small tonnage of ore was mined and milled, and work was started on a new crosscut, which is projected to open the vein at a greater depth. The Gold Mountain Mines Co. reported the installation of a 5-ton Gibson mill.
The Idaho Placer Mines Co. and the Glacier Gold Placer Mining Co., both placer operations, were active during the summer months in constructing new ditches and in trenching. The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek section, employed a few men during the early part of the year, after which all operations were suspended.

No new work was started in the Little Smoky district, and, other than the necessary expenditures for annual labor, all the properties were idle.

Canyon County

The only known mineral resources of this county are diatomaceous earth, various clays of excellent quality, and a few gold placer deposits along the Snake River. During 1930, three companies, based on the development of oil and gas in this county, were incorporated, and five such additional companies were incorporated during 1931. Some of these companies obtained a large acreage under lease, but none of them commenced drilling.

Caribou County

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, increased its mining equipment, constructed additional homes for its employees, installed a new domestic water system, and completed the extension of its principal tunnel to a total distance of 8,000 feet, at which point a large station was cut and lined with reinforced concrete, and work was started on driving a 1,000-foot vertical operating raise. Production was also maintained throughout the greater part of the year, at a rate of approximately 200 tons a day. The rock was shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda Triple Superphosphate."

Cassia County

The Silver Hills Mining Co., the only active company in this county during the year, continued work without interruption in driving a 1,700-foot crosscut.

One of the principal geological publications issued during the year was Alfred L. Anderson's "Geology and Mineral Resources of Eastern Cassia County, Idaho," which was published as Bulletin 14 of the Idaho Bureau of Mines and Geology. This bulletin completely describes the geology and mineral resources of the county, and is of great value in displaying the possibilities of the county, particularly the scenic beauties of Cassia's "City of Rocks," which is mentioned as being of sufficient importance to be designated a national monument. The bulletin is profusely illustrated.

Clark County

No new enterprises were started in the Birch Creek district, and only a small amount of development work was done.

Clearwater County

The principal mining activities in this county during the year were those of the Ruby Creek Mining Co. and the Goldendale Mining Co., both near Elk River. The former, which commenced building a small mill in 1929, constructed two ore bins, three additional houses, installed a water system and a small Diesel engine, and did a small amount of mine development work. The Goldendale Mining Co., which is operating the property of the Neva Copper Co., installed a gas-driven hoist, commenced sinking a shaft, and did a large amount of surface prospecting. The Sewell Lime Co., near Orofino, constructed a railway siding and placed its quarry in condition for production.

The gold resources, both placer and lode, in the Pierce City district, received considerable attention from people seeking new opportunities for gold mining, and at the close of the year arrangements were being completed to commence a large placer mining enterprise. The American Exploration Co., trustee for the Pierce City Gold Project, completed driving its crosscut in the early part of the year. Press reports were to the effect that the Washington Golden Eagle Mining Co., Inc., was active throughout the entire year. The Independence Placer Mining Co., Ltd., in the Moose Creek district, performed a small amount of construction work during the spring.
Custer County

Although none of the mining companies conducted mining operations at the large mines in this county, numerous lessees were active. Those at the Empire Copper mine, of the Mackay Metals, performed a large amount of development work and produced and stored a substantial tonnage of high-grade crude ore. Lessees at the Ramshorn produced and marketed a small tonnage of ore.

The property of Mackay Metals was sold to the county for taxes. At the close of the year, however, arrangements had been completed for its purchase from the county and its refinancing as soon as conditions warrant. The Livingston Mines Corporation was idle and remained in receivership throughout the year, and the property of the Ford Motor Co. was idle.

The lead mines, in the Clayton section, received considerable attention from people seeking lead-silver deposits, and R. W. Johnson, at the Mule Shoe group, was active throughout the greater part of the year in extending a crosscut.

The gold resources, particularly placer, along the Salmon River, in the Yankee Fork district, received some attention, and a few small pumping plants were installed in an attempt to hydraulic bench ground.

The Aztec Mining & Milling Co., in the Stanley district, did a small amount of work during the summer months.

The entire surface plant of the Lost Packer mine, in the Loon Creek district, and the old town of Casto were destroyed by a forest fire, which visited this district in August.

Elmore County

From a “ghost” city of less than a score of people to a thriving community of more than 300, with a picture show, school, and airplane mail service, is the experience of Atlanta in 1931, as a result of the resumption of operations in August by the St. Joseph Lead Co., at its Boise-Rochester mine.

The airplane service, which was started in December, is the first Star Route airplane mail service, to an isolated mining camp, to be established by the United States Post Office Department. It was made possible, in part, by the company constructing and maintaining a landing field at Atlanta. As there is seldom sufficient snow in Boise to permit ski-equipped planes to land, the use of wheels in landing at Atlanta is made possible by keeping the snow firmly packed with a heavy roller.

From September to the close of the year approximately 200 men were employed. The old mill was torn down, and the serviceable lumber and equipment used in the construction of a new mill of 200 tons capacity, which was erected near the portal of the lower or No. 9 tunnel. A 360-horsepower Diesel engine, driving an electric generator, synchronized with an old 125-horsepower hydroelectric plant, was installed for power purposes. All construction work was completed, and the mill was placed in operation the latter part of December. A new 1,000-cubic-foot electrically driven Ingersoll-Rand compressor, a Mancha storage-battery locomotive, and all necessary mining machinery and equipment were installed at No. 9 tunnel. This tunnel and No. 6 tunnel were rehabilitated, and the mine was placed in condition for production, part of this work being the driving of a 340-foot raise to connect these tunnels. The transportation of the machinery, equipment, and 100,000 gallons of fuel, which was handled by nine trucks, operating day and night; the razing of the old building; and the construction of the new mill and additional mine buildings represent the second largest expenditure made in the State during the year. The short time required to construct the mill and place the mine in operation established a record which has never been equalled in Idaho and for which much credit is due the manager, Mr. Frank H. Skeels.

The gold resources of the Rocky Bar section received more attention than during the previous year. One placer mining operation was active throughout the year, and two new organizations commenced work on quartz properties. Press reports were to the effect that the Feather River Gold Placer Co., whose property is on Feather River, installed a tractor shovel and hydraulic equipment and commenced mining. The Consolidated Mines Syndicate, at the Revenue group, in the Volcano district, near Hill City, reported that its long crosscut was advanced 150 feet during the year.
The Neal district received a large amount of attention from prospectors; many claims were located; and the construction of a 25-ton mill was commenced by a small organization.

Gem County

The only operation during 1931 was that of the American Mines Development Co., at the Old Liberty mine, near Sweet, which was active throughout the year in extending its tunnel.

Idaho County

The first quartz veins located in the northern part of Idaho County were those at Elk City, in 1884. Active mining operations were conducted in this district, and in the adjoining districts of Ten Mile, Buffalo Hump, Orogrande, and Dixie, in which gold was subsequently discovered, until about 1909. These operations were based on the mining of the free-milling, oxidized portions of the veins and were continued until the sulphide zone in many of the properties was encountered. As the gold could not be recovered from these ores by the metallurgical methods then in use, the mines ceased to be profitable, particularly because it became necessary to make a concentrate which required shipment to a smelter, and road conditions made the cost of transportation to railhead prohibitive.

The old road leading from Stites to Elk City, a distance of 53 miles, crossed two high divides, with such a great change in climatic conditions that it was never open to wheeled vehicles for more than four months of the year. Starting at Stites with an elevation of 1,200 feet, the road ascended in the first 25 miles to an elevation of 6,500 feet at the top of Mt. Baldy; then descended a distance of 8 miles to 3,800 feet at Newsome; from there it ascended to an elevation of 5,700 feet at the top of Elk Summit, a distance of 9 miles; and then descended 9 miles to an elevation of 3,950 feet at Elk City. Throughout almost the entire distance the road traversed a heavily forested area, and the character of the soil is such that the road was practically a dugway on which the sun seldom shone. Many of the level stretches were through swamps over which corduroys were necessary. The proper maintenance of this road would have been so expensive that the county always refused to expend any appreciable amount on it; hence, nearly all the maintenance provided was that covered by the small sums expended by the Forest Service and the mail contractors. Consequently the road never permitted other than light, slow-moving traffic, a condition which made the cost of transporting mine products and supplies prohibitive and made it impossible to enlist capital for development and operation of the quartz mines, and which resulted in the abandonment of most of them.

In 1923 work was started on a new road following the South Fork of the Clearwater River from Grangeville to Elk City. Construction of this road has progressed intermittently. In October, 1931, the contract for the completion of the last 7 miles to Elk City was let, and work was started. The terms of the contract require that the work shall be completed and the road be opened to travel early in 1932. The first 12 miles of this road, from the top of Clearwater Hill to Castle Creek, is not standard construction, but the roadbed is good, and no grades exceed 5 per cent. However, surveys have been completed for estimating the cost to standardize this distance. From Castle Creek to Elk City the road is a standard 14-foot highway, which is kept in excellent condition by the Forest Service. Following the water grade as it does, the highway is free from snow throughout the greater part, if not the whole, of the year; and heavy hauling is economical and practical.

The assurance that the new road would be completed and opened to travel early in 1932 greatly stimulated interest in the Elk City, Dixie, Orogrande, Buffalo Hump, and Ten Mile districts during 1931. This was particularly evident in the Buffalo Hump district, where one of the largest mining organizations in the United States acquired a large number of properties, under lease and option, packed in supplies, and commenced preliminary investigations. Many mining engineers and geologists representing responsible companies visited the other districts during the year, and those representing one large organization made an intensive examination of the Orogrande district.
In the Elk City district the Cal-Idaho Mining Co. was the largest operator. This company acquired the Gold Hill placer. It finished rehabilitation of the 8-mile ditch, installed complete hydraulic equipment, and constructed a new tail race at a lower elevation. The company contemplates a large hydraulic placer mining enterprise. The Day Development Co., which acquired the Center Star group in October, 1930, completed the sinking of a 100-foot shaft and conducted active exploratory work until May, when all operations were suspended. Lessees at the property of the French Creek Gold Mining & Milling Co. did a small amount of work during the early part of the year. Later the company cancelled the option and by the close of the year had completed arrangements for refinancing the property.

The Orogrande district witnessed a large amount of new activity. Lessees at the Homestake group of the Homestake Gold Mining Co. conducted a large amount of mine work. According to press reports a large tonnage of gold ore was developed, a contract was let for driving a 2,000-foot lower tunnel, and the contractors, by the close of the year, had installed a gas-driven compressor and complete mining equipment. The Gnome Gold Mining Co., a new organization, which is operating the property of the International Mining Co., under lease and option, constructed new camp buildings and commenced extending the principal tunnel, which is a drift on the vein. The Ohadi Mines Corporation, operating the Deadwood placers, under lease and option, conducted a small amount of work for 30 days, and at the end of the year was making plans for the installation of a power shovel and washing equipment. The property of the Orogrande Gold Mining Co. was placed in receivership, and legal proceedings were completed under which the receiver can sell the property.

The largest expenditure made in this county during the year was that of the Idaho Gold Dredging Co., in the Warren district. This company acquired the Warren Meadows under lease and option, purchased a large steam-driven dredge in Oregon, dismantled it, transported it to Warren by motor truck, reconstructed it, and put it into operation early in September. Press reports were to the effect that the gold recovered by the dredge proved that the ground had a high gold content. The Unity Gold Mines Co. was idle throughout the year. Two sales under attachment proceedings were held against its property.

The Golden or Ten Mile district was one of the most active sections of this county throughout 1931. F. O. Miller and son, at the Lone Pine group, maintained development work without interruption, operated the mill for a short period, and installed a new 160-cubic-foot gas-driven compressor. This mine was one of the largest gold producers in the county. The development work greatly increased the known ore resources, and at the close of the year the owners were completing plans for the construction of a new mill. The success with which this enterprise is meeting has greatly stimulated prospecting and promoting; and six companies holding near-by properties did a small amount of work and a large amount of solicitation in the sale of stock. The Buffalo-Idaho Mining Co. and the Central Idaho Gold Mines, Inc. were active throughout the larger part of the year. Each operated its mill for a short period and produced a small amount of bullion. The Moose Creek Placers Co. conducted work on its ditch and flume line and further repaired its hydraulic equipment.

In the Dixie district, the Central Idaho Mining & Milling Co. was active throughout the year. This company completed the construction of a mill building and the installation of a 25-ton flotation concentrator and a small hydroelectric plant. In addition to building many miles of trail and conducting an active mine development campaign, a small tonnage of high-grade gold-lead concentrate was produced and marketed. Press reports were to the effect that the Mammoth Mining & Development Co., which is operating the property of the Mammoth Mine Corporation, under lease and option, installed a small steam-driven compressor and commenced construction of a small mill. J. R. Painter, whose property is on the Salmon River, south of Dixie, produced a small tonnage of gold ore, which was of such high grade that it warranted transportation by pack train from the mine to Dixie. The placer deposits near
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the town of Dixie received considerable attention. Press reports were to the effect that a new company had been organized to exploit one of these properties.

The Marshall Lake district was one of the most active sections in the county throughout the year. A substantial production was recorded, a large amount of development work done, and a large number of mine examinations were made. The Golden Anchor Mining Co., at the Holte mine, in which there was one of the most important disclosures made in the State during 1930, conducted development work throughout the larger part of the year. This work further opened the ore bodies and proved them to be of major importance. The Sherman Howe Mining Co. completed construction of additional new camp buildings, enlarged its mine plant and maintained production and development work without interruption until October. This company's production was one of the largest in the county. The Long Tom Mining Co., at the Cuban and West Goodenough groups was active throughout the year at both groups. The new highway, which the Forest Service is constructing between Burgdorf and this district, was extended an additional 4 miles. This road is of great assistance to the companies now operating and is a great encouragement to the development of the district.

In the Burgdorf district a small amount of work was done by the Davis Mining Co., on Ruby Creek; the Golden Rule placer was operated for 30 days; and late in the year arrangements had been completed to prospect thoroughly a large tract of ground for its placer gold content.

The alleged presence of rare metals and gold in the black graphitic lime shales and "dike" rock in the Salmon River or Simpson district, near Lucile, continued to be used as a lure for the sale of stock. Those promoting these enterprises profess having secret methods by which the rare metals and gold are recovered. No work of any consequence was done by any of these companies.

The Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, commenced work on a new geologic survey of all that part of the county lying north of the Salmon River, including the Buffalo Hump, Dixie, Elk City, Ten Mile, and Orogrande districts. The bureau considers these districts to possess favorable possibilities for the discovery of new gold deposits.

Fourteen new companies were incorporated and acquired gold properties in Idaho County during the year, and 448 new locations were made. This is the largest number of new locations in any one year during the past 30 years.

Kootenai County

The Beauty Bay section witnessed a large amount of development work throughout the year. The work done by practically all of the companies holding property in this section greatly exceeded the annual labor requirements. The principal operators were: Blue Bird Mining Co., Caribou Mining Co., Ltd., Radio Mining Co., Royal Mining Co., Silver Tip Mining Association, and J. G. Sullivan, at the Shamrock mine. The Coeur d'Alene-Beauty Bay Mining & Milling Co., a custom-mill enterprise, based on milling the ores from all of the mines in this section, completed construction and adjustment of its mill.

In the Hayden Lake district, the Burnt Cabin Mining Co., the Commonwealth Metals Co., and the Connie Mining & Milling Co. were active throughout the year, and all did a substantial amount of development work. Press reports were to the effect that an enterprise known as the Ramsey Oil Project had installed drilling equipment and had sunk a well approximately 1,500 feet deep. As such a concern has never filed articles of incorporation nor the reports required by law, the inspector does not know whether the press statements are correct or not.

Lemhi County

The gold resources of this county received more than the usual amount of attention. There was a substantial increase in the number of prospectors and investigators seeking gold mines, a number of new companies were organized, and some of them were active throughout the year.
The placer and lode deposits in the Shoup district received more attention than for many years. The Gold Hill Mines, Inc., a new organization, at the Kentuck mine; the Golden Dawn Mining Co., a placer mining enterprise; and the Owl Mining Co., Inc., were all active. Press reports were to the effect that a flat-boat dredge was constructed and placed in operation to exploit a placer deposit on the Salmon River, and that the Kittie Burton mine, in the Indian Creek district, which is near Shoup, was rehabilitated and that a short tramway and a small mill were under construction.

The Eldorado Gold Mining Co., a new organization, at the Ranger mine, in the Eldorado district, northeast of Salmon, commenced work early in the year and produced and marketed a small tonnage of high-grade gold ore.

The Goldstone Mines Corporation, in the Pratt Creek district, conducted mining and milling operations for the first three months of the year and produced and marketed a small tonnage of high-grade concentrate, after which all operations were suspended, and the company reorganized as the Western Gold Mines, Inc.

In the Yellow Jacket district the United Mace Smelters, Inc. employed two men during the summer months in a placer mining enterprise, and Mrs. H. F. Steen, at the Continental group, further extended the principal tunnel.

All of the lode mines in the Leesburg district were idle. Three placer mining companies further enlarged their ditches, increased their hydraulic equipment, and conducted hydrauliccking operations during the spring.

There was a slight increase in prospecting and development work in the Gibbonsville district. Two new companies were organized, and each produced and marketed a small tonnage of high-grade gold ore.

Other than the necessary annual labor, all of the mining companies operating in the Nicholia, Spring Mountain and Leadore districts were idle throughout the year; however, lessees at two of the mines in the Nicholia district did a small amount of development work, and the owners of the Maryland mine, in the Leadore district, conducted development work without interruption.

The Hecla Mining Co., which, in 1930, commenced developing a discovery of high-grade copper-gold ore, on Allison Creek, 10 miles south of Salmon, on the divide between the Lemhi and Salmon rivers, continued this work during the early part of the year. Other than a small amount of work by lessees, the copper mines of the Harmony Mines Co. and Winder-Stillman Con, near Salmon, were idle throughout the year.

The Gilmore district, which for many years was one of the principal lead-silver producing sections in the State, witnessed but little activity, as all of the mining companies were idle. About 20 men were engaged in leasing operations at the Allie, Latest Out, and P-I mines. They produced a substantial tonnage of high-grade ore, all of which was stored, except one small shipment.

**Owyhee County**

One of the largest and most important new enterprises based on the development of lead-zinc-silver ores which was started in the State during 1929 was that of the Exploration Co. of California, at the Golconda group, in the South Mountain district. New buildings were constructed, complete mining equipment was installed, and development work was started. A large amount of crosscutting, drifting, and sinking was done. This work greatly increased the known resources of the property. These operations continued until late in 1931, when the low price of metals caused a suspension of all operations pending a return of normal metal prices.

The most important new enterprise to enter this county was that of the Golden Chariot-War Eagle Mines Co., which acquired the principal properties on War Eagle Mountain and commenced work in May. The power line was rebuilt; equipment was repaired; and Sinker tunnel and an upper tunnel were reopened. An extensive examination was then started, a small amount of development work was done, and all operations were suspended in August. The American Gold Dredging Corporation, on Meadow Creek, near Triangle, operated its dredge during the spring months; after which time, the shortage
of water made it impossible to operate. The B. B. & M. Oil & Gas Co., near Grandview, was active during the early part of the year and sunk a small well to a depth of 1,500 feet.

The silver resources of the Castle Creek section and the gold properties in the Reynolds Creek section, both received a small amount of attention, although no work of any importance was done.

Lessees at the properties of the Empire Mines Co. and the Never-Sweat Mining Co., at Silver City, were active throughout the year and produced and marketed a small tonnage of high-grade ore.

The Idaho Gold & Platinum Merger Mines Co., an enterprise based on the alleged presence of platinum in the volcanic glass sands which lie at a depth of about 200 feet in the artesian basin of Little Valley, near Bruneau, performed a small amount of work during the year and gave the project a large amount of publicity through the press and through circulars designed to finance further the project.

Payette County

In 1930 the Crystal Dome Oil & Gas Co., whose property lies in Payette and Washington counties, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and sunk a well to a depth of 1,865 feet, at which point a showing of natural gas was encountered. In November, 1930, this company entered into an operating agreement with the Mountain States Oil & Gas Co. After months of intensive study by the geologists of the Ohio Oil Co. and after additional months of negotiations with the Mountain States Oil & Gas Co., the former company, operating under the name of its vice president, R. J. Berry, took over all the properties of the latter company on a lease basis. In September, 1931, a standard 122-foot derrick was erected; a complete rotary drill, run by a 125-horsepower Clark gas engine, gas-driven pumps, control heads, and a water system were installed; and drilling operations were started on October 4. The drill was manned by 16 experienced men and was operated 24 hours a day. By December 31 the new well, which was located a few feet south of the original well sunk by the Crystal Dome Oil & Gas Co., had reached a depth of 4,000 feet. The entire enterprise represented an expenditure of more than $100,000.

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. and the operations of the Ohio Oil Co. attracted a large amount of attention to this county and resulted in the organization of many new companies and the sinking of other wells. The Boise Petroleum Corporation, whose property is located in the Willow Creek section, erected a large derrick, installed standard steam-driven well-drilling equipment and, during the early part of the year, sunk a well to a depth of 1,100 feet.

At a site a few miles east of Payette, a small wooden derrick was erected, drilling equipment was installed, and the sinking of a well was started by Mr. Louis Lilly. The size, type, and kind of equipment and the depth to which the well was drilled are unknown, as Mr. Lilly refused to file any information with the inspector other than that he was acting as "sole trustee."

Adjacent to Mr. Lilly’s operations, a small well-drilling rig was installed, and work was started in sinking a small well, known as the "Underhill well." Whether this operation was conducted by Mr. H. H. Underhill personally or by the Northwestern Co., which filed articles of incorporation on October 19, 1931, and of which Mr. Underhill was designated as president, is unknown, as Mr. Underhill refused to file with the inspector of mines the reports which are required by law.

The Idaho-Oregon Petroleum Corporation reported that its property was idle throughout the year and was "under lease to International Finance Corporation of Payette, Idaho, H. H. Underhill, president." Such a corporation has never qualified to do business in Idaho nor has it ever filed with the inspector of mines the reports which are required by law.

Shoshone County

The year 1931 was one of curtailment. Production was reduced; there was but a small amount of new plant construction; no new enterprises were started; and mine development work was greatly reduced, the totals being the smallest that the county has witnessed for many years. The Bunker Hill &
Sullivan M. & C. Co. and the Sunshine Mining Co. were the only two companies in the county which maintained capacity production throughout the year. The Federal Mining & Smelting Co., at the Morning and Page mines, the Hecla Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and the Sidney Leasing Co., all greatly curtailed their production. The mines of the Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Dayrock Mining Co., Sherman Lead Co., and Callahan Zinc-Lead Co. were closed early in the year; however, the Sullivan Mining Co. and the Callahan Zinc-Lead Co. maintained development work. The principal producing mines in which the ore reserves were increased by new work were those of the Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Sullivan Mining Co., Sunshine Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Callahan Zinc-Lead Co. New ore disclosures of importance were made in the mines of the Washington-Idaho Mining Co. and Crystal Lead Mines Co. No new mills were constructed during the year, although those of the Mutual Mines Development Co. and the Jack Waite Mining Co., construction of which was started in 1930, were completed early in 1931. New mining equipment and machinery were installed by the Stratton Silver Summit, Inc., Kellogg Silver-Lead Mines Co., Washington-Idaho Mining Co., and the Independence Lead Mines Co. The principal development enterprises which maintained work without interruption were: Bunker Chance Mining Co., Granada Lead Mines, Inc., Independence Lead Mines Co., Liberal King Mining Co., Little Sunshine Mining Co., Metropolitan Mines Corporation, Ltd., Stratton Silver Summit, Inc., and Washington-Idaho Mining Co. Other development enterprises which were active throughout a large part of the year and whose work exceeded the legal requirements for annual labor were: Atlas Mining Co., Ajax Mining Co., Pontiac Mining Co., Coeur d'Alene Mining & Smelting Co., General Mines Corporation, Louise Silver Lead Mining Co., Nine Mile Mining Co., Pearson Mining Co., and Samson Mining & Development Co., Ltd.

Under an agreement adopted on November 16, 1925, wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York City. The base rate of this scale is a wage of $3.75 per day for miners when lead is selling for less than 5½ cents per pound, being graduated from 25 cents per day, when the price of lead is 5 cents per pound to $2.75 per day when the price of lead is 10½ cents per pound. During 1931, the price of lead declined so far that if the bonus scale had been adhered to wages would have been cut to a point entirely out of proportion to existing living conditions; so the signatories to the bonus scale waived their agreement, and, on May 16, wages were reduced to a basis of lead selling at 7 cents per pound, or $1.00 per day bonus.

The attention which all of the large operators are giving to safety conditions and supervision was reflected in a very small number of fatal accidents and by the continued interest which the employees are displaying in the mine-rescue and first-aid training which is conducted by the Central Mine Rescue Station. Working conditions throughout the Coeur d'Alene district are exceptionally favorable. All of the mines are well ventilated, and the operators devote much time, thought, and money to making the mines safe and to keeping them in such a condition that the men can do a full day's work without expending the energy which is required in poorly ventilated mines. It can safely be said that the mines of this district are the best ventilated ones in the United States. The solarium, installed by the Bunker Hill & Sullivan M. & C. Co., in 1929, is a distinct contribution to welfare work. It continued to be used throughout the year by a large number of the company's employees, and that its results are very beneficial was definitely proved.

The gold resources, both placer and lode, of the North Side or Murray section received a large amount of attention. Many placer miners were active throughout the year; three of the old lode mines were reopened; and a large amount of development work was done at the Mother Lode mine.

The foregoing principal activities are more extensively reviewed in the outline by companies, which follows:

The Bunker Hill & Sullivan M. & C. Co. operated its mines, mills, and smelter at capacity production throughout the year. The new development
work, consisting of more than 8,000 feet, greatly increased the known re-
ources of the mine; and the ore bodies were further opened on the 2,000-foot
level, where the ore and geological conditions were found to be normal. This
ore, with that on No. 6 level, which was first disclosed in 1929, adds many
years to the life of the mine. Many plant betterments, which greatly increased
the efficiency of the enterprise, were made in the mills and smelter; the prin-
cipal one of which was the completion of the new lead refinery of the smelter.
A new 75-horsepower electric hoist, which was constructed in the company's
plant, was installed in the Cherry raise, which connects Kellogg tunnel with
No. 6 level. This company's expenditure for plant betterments, additions, and
improvements constitutes the largest expenditure made in the county during
the year. The Crescent mine, which is on Big Creek, near the Sunshine mine,
was operated without interruption, and a large tonnage was mined and milled.
The Bunker Hill company, because of the magnitude of the Bunker Hill mine,
has become more of a manufacturing than a mining organization and, with its
smelter, mills, experimental plants, and organization, is one of the largest
enterprises of its kind in the world. The management is conservative and
progressive; and, although it was necessary to cease payment of dividends on
common stock early in the year, the company's refusal to suspend or curtail
production greatly added to the prosperity of the county and of Kellogg in
particular. The Mining Congress Journal, in its issue of November, 1931, con-
tained a complete description of this company's management, history, proper-
ties, and operation of its mine, mills, and smelter.

The Hecla Mining Co. maintained normal production until August, when
the continued low price of metals caused a reduction to a four-days-a-week
basis. The mine and mill plants were further improved, and more than 4,000
feet of development work was done in the lower levels of the mine. The divi-
dend rate was cut to 40 cents in February and maintained at that figure
throughout the year. This company is recognized as one of the principal lead-
silver producers in the United States. The curtailed production greatly con-
served its resources.

The Federal Mining & Smelting Co., at the Morning and Page mines,
maintained capacity production until June, when the continued low price of
metals compelled curtailment. Both mines were then reduced to a 12-days-a-
month operation, the mines being worked every other week. At the Morning
mine, the mine and mill plants were improved, and mine development work
was conducted without interruption; the principal part of which was drifting
on the 3,450 and 3,650 foot levels, where the ore bodies were proved to be
larger and more extensive than those on the upper levels. This mine is one
of the oldest in the Coeur d'Alene district in point of continuous production,
as well as one of the largest lead-silver-zinc mines in the United States. As
the new development work has added greatly to the known resources of the
mine, the number of years that this record will continue is unknown. In addi-
tion to the ore mined under company operation, a small tonnage was extracted
from the upper levels of the Morning mine by lessees, although this was the
smallest for many years. At the Page mine, the mill was enlarged and im-
proved and the shaft extended from the 1,200 to the 1,500 foot level; and
crosscutting to the vein was started from the new level. Additional mine and
camp buildings were erected; some new milling equipment was installed; and
development work progressed without interruption. This mine is now recog-
nized as one of the large producing mines in the district. Lessees at the Frisco
mine produced a large tonnage of ore and those at the Mace a small tonnage,
part of which was milled by the Hercules Mining Co., at its custom mill at
Wallace.

Production at the Star mine of the Sullivan Mining Co., which was sus-
pended in April, 1930, was not resumed. However, mine development work
was conducted without interruption. The Star mine is operated through the
Hecla shaft, and its 4,000-foot level is the same as the 2,000-foot level of the
Hecla mine; the two being connected by the Star crosscut, which is 8,900 feet
long. This crosscut made a blind connection with the Star vein at a point
2,800 feet below the Star tunnel. A vertical operating raise and a vertical
shaft to connect these two tunnels was then projected, and, during the year, the vertical raise was completed to the Star tunnel. In addition to advancing the raise, a large amount of development work was done on the upper levels in the Star mine. This work opened one of the most important disclosures of new ore which has been made in the district for many years. The Star crosscut approximately corresponds with the 2,250-foot level of the Morning mine, in which the ore has been proved to the 3,650-foot level or 1,400 feet deeper. As the new ore in the Star tunnel is 2,850 feet above the Star crosscut, the magnitude of the Star mine is apparent.

The Sullivan Mining Co. suspended operation at its electrolytic cadmium plant early in the year, but operated its electrolytic zinc plant at approximately 50 per cent capacity throughout the entire year. The zinc and cadmium produced by this company are exceedingly high in grade and find a ready market; the zinc selling at an increase in price over that of any other zinc metal. These plants constitute one of the most important enterprises in the Pacific Northwest, and one which greatly insures the permanence of the mining industry in Shoshone County. The uninterrupted operation of the zinc plant greatly assisted business conditions in the county.

The Sunshine Mining Co., which is the largest silver producer in the State and the second largest in the United States, maintained capacity production throughout the year. Its mine and mill plants were greatly improved, and a large amount of development work was done in the mine; the principal part of which was drifting on the 1,700-foot level, where the ore bodies were proved to be of greater extent and richer in metal content than in any of the upper levels. In addition to this, a large amount of drifting was done on the upper levels; and a 400-foot raise, to connect with the 1,300-foot level, was started on the 1,700-foot level. The total amount of new work exceeded 4,000 feet. The low price of silver greatly reduced operating profits, and but one dividend was paid.

The new 500-ton mill of the Jack Waite Mining Co., construction of which was started in 1930, was completed and placed in operation in February; but on account of low metal prices it was operated only on a one-shift basis. The greater part of the ore milled was derived from development work, which consisted principally of sinking a new inclined shaft 250 feet deep and driving a 520-foot raise from the lower tunnel to connect with the Silver King tunnel on the Montana side. In addition, a large amount of drifting was done in the shaft and on intermediate levels above the main tunnel. A new electrically driven hoist and locomotive and a large amount of new mining equipment were added to the mine plant. The company constructed new camp buildings; the county built a new road to the mine; and the Post Office Department established a post office at the mine, named Duthie, in honor of the president of the company. The new ore exposed by the development work was one of the principal disclosures of the year. It greatly increased the known resources of the mine, which is fast becoming recognized as a producer of importance.

Another important disclosure of ore was that of the Golconda Lead Mines on the 1,400-foot level, where the ore was recovered on the east side of the fault and then opened for a length of more than 600 feet. This ore was opened further by a raise, which was projected from the 1,400-foot level to trace its continuation to the upper levels. The mill was operated on a one-shift basis on ore derived from development work, and lessees produced a substantial tonnage of high-grade, hand-sorted ore from the surface discovery on the Mayflower group, which was disclosed in 1930. By the close of the year, arrangements had been completed to extend one of the lower levels into the property of the Square Deal Mining & Milling Co., which is held under lease and option. Golconda Lead Mines is fast becoming recognized as one of the principal mines in Shoshone County, and mine profits during the year were sufficient to pay more than all costs.

The Callahan Zinc-Lead Co., at its Galena mine, produced no ore; however, development work, consisting of 2,200 feet of crosscutting and drilling, principally on the 1,200-foot level, and a large amount of diamond drilling on the 800, 1,000, 1,200, and 1,600 foot levels, was done. The diamond drill holes further proved the extension of the new south vein, first opened on the 600-
foot level, to additional depth and greatly increased the known resources of the mine. The favorable results of this company's work have greatly stimulated interest in prospecting throughout the section of the Coeur d'Alene district in which the Galena mine is located.

The Sidney Leasing Co. was idle throughout the first half of the year. During this period the tramway was rebuilt, and development work was conducted on the 800-foot level. On August 1, production was resumed, on a basis of 100 tons per day, and continued throughout the remainder of the year. The development work on the 800-foot level greatly increased the ore reserves of the mine, as well as being one of the principal new disclosures to be made in the Coeur d'Alene district during the year. The increase of the ore reserves of this mine, as additional depth is being gained, has been an important factor in stimulating interest in the Pine Creek section.

The Dayrock Mining Co. maintained development work and production until May, at which time all operations were suspended and the mine was closed. The development work, which was done on the four principal levels, consisted of more than 1,450 feet. This work greatly increased the known ore reserves of the mine, which is now recognized as one of the important producers of the county.

The Sherman Lead Co. continued production and development work until May, when the low price of metals caused a suspension of all operations. During the early part of the year, a large amount of development work was done, and the additional ore exposed greatly increased the known resources of the mine. This company's mine is connected with the No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Control of the company is held by the Tamarack & Custer Consolidated Mining Co.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive development campaign until May, when production and all work on company account were entirely suspended and various parts of the mine were turned over to lessees. It was reported that the new work which was done during the early part of the year greatly increased the known ore reserves of the mine. This company's ore is sold to the Hercules custom mill at Wallace.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, remained idle throughout the year.

Early in the year the Washington-Idaho Mining Co. installed new mining equipment and commenced sinking a shaft from the 125-foot level to the 300-foot level, after which a large amount of crosscutting and drifting was done on the 225-foot and 300-foot levels. This work resulted in one of the substantial new ore disclosures made in the Coeur d'Alene district during the year. As this company's property is located on Moon Creek, the new disclosures added greatly to the importance of this section of the county.

The Mutual Mines Development Co., which commenced construction and installation of a new 100-ton flotation concentrator in 1930, completed the mill and commenced milling operations in May; after which, the mill was operated intermittently, and a small tonnage of lead-silver concentrate was produced and marketed.

Stratton Silver Summit, Inc., which was one of the principal development enterprises in the Coeur d'Alene district to maintain development work throughout the year, installed a new compressor and additional mining equipment, and drove more than 3,000 feet of crosscuts and drifts. The new disclosures made by this work greatly enhanced the possibilities of this enterprise.

The Independence Lead Mines Co., which was active throughout the year, installed a new hoist and commenced extending the shaft from the 100 to the 200 foot level.

Kellogg Silver Lead Mines Co. constructed a new building and headframe, installed a new electrically driven hoist and pumps, and unwatered the shaft to the 400-foot level, after which work was started on opening this and the 200-foot level.
The Pine Creek Lead-Zinc Mining Co., which completed construction of a new mill and placed its mine in condition for production late in 1930, was idle throughout the year, although during 1931 the company completed all payments on the purchase price of the property.

The Atlas Mining Co. resumed operations in May and commenced work on driving a raise to connect its long lower tunnel with the lower workings of its Carbonate Hill group. In addition to the raise, a small amount of drifting was done and a small tonnage of ore mined. This ore was milled at the mill of the Gold Hunter Mines, Inc., and shipped to the Bunker Hill Smelter at Kellogg.

Granada Lead Mines, Inc., whose property adjoins that of the Golconda Lead Mines, was active throughout the larger part of the year and extended its crosscut approximately 500 feet.

Metropolitan Mines Corporation, Ltd., whose property is located on Big Creek, maintained work throughout the year in extending its principal tunnel. Press reports were to the effect that this work opened two veins of importance.

Bunker Chance Mining Co., whose property is in Milo Gulch, near Wardner, was active throughout the year in extending its principal tunnel.

Liberal King Mining Co., whose property is located on Pine Creek, was one of the few enterprises in this section which maintained work throughout the year. This company is driving a long crosscut, which was extended to a total distance of 1,800 feet.

The Little Sunshine Mining Co. performed a substantial amount of development work at its Palmer group on Big Creek and at the Elk group, near Mullan, during the larger part of the year. Late in the year this company and the Lookout Mountain Mining & Milling Co. were merged with the United Mines & Metals Corporation, a new corporation.

Pontiac Mining Co., at the Terrible Edith group, near Murray, reported employing four men during the larger part of the year and starting work on a new lower tunnel.

Coeur d'Alene Mining & Smelting Co., whose property is located on Nine Mile Creek and whose stock is controlled by residents of Wallace, extended its crosscut a distance of 600 feet.

Ajax Mining Co., which is one of the oldest development enterprises in the Coeur d'Alene district and one which has conducted work for many years, drove more than 1,000 feet of drifts and crosscuts on the Bixby tunnel level during the early part of the year.

The General Mines Corporation reported employing three men until October in extending its principal tunnel, in which there is approximately 3,800 feet of workings. Press reports were to the effect that gold is the principal metal contained in the minerals encountered by this work.

Nine Mile Mining Co. was active during a large part of the year in extending its principal tunnel to a total distance of more than 2,200 feet.

Pearson Mining Co., in the St. Joe district, near Falcon, was active throughout the year in extending its long crosscut.

Samson Mining & Development Co., Ltd., whose property is in Eagle district, near Prichard, rehabilitated its mine plant and commenced sinking a new shaft.

The Louise Silver Lead Mining Co., a new organization, whose property is in Eagle district, near Delta, installed equipment and was active for five months in driving a drift on the vein.

The Coeur d'Alene Mines Corporation was active for a short period during the early part of the year. The principal work consisted of approximately 500 feet of crosscutting and drifting. Lessees at the property of the North Star Mining & Development Co. drove a 500-foot tunnel.

Valley County

Early in the year the Yellow Pine Co. decided that sufficient ore had been developed to warrant the construction of a 150-ton pilot mill. In order that operations in advancing the Monday tunnel would not be interrupted, and as
there was a large tonnage available above the level of Meadow Creek tunnel, this camp was selected as the location for the mill. Plans were then made for the year, and a large sum was appropriated to carry them out. By the close of the year the expenditures in new mine work and construction had exceeded those of any other company in the State. The work was carried on by approximately 200 men, divided into 10 crews, under the supervision of Geo. W. Worthington, mine superintendent. Besides directing all of the work successfully and expeditiously, he established a new tunnel-driving record for the United States, by advancing the Monday tunnel 663.6 feet during the month of August. Construction of the mill started in June; the building was erected, equipment completely installed, and the mill was ready to start at the close of the year. In addition to the mill building, a new cook house, bunk house, and store building were constructed, and the company assisted the employees in building 13 residences. The mine work was divided into four separate operations: crosscutting and drifting on the 200 and 400 foot levels in the shaft in Meadow Creek tunnel; advancing Monday tunnel, Cinnabar tunnel, and Antimony tunnel. The other principal activities included: moving the South Meadow Creek power plant into the mill building, reconstructing the pipe line and constructing a 40-foot earth-filled dam at the intake; covering the 11,000-foot redwood pipe of Meadow Creek power plant to prevent freezing, 4,000 feet being buried and 7,000 feet being boxed, then filled with sawdust and covered; logging and sawing of more than 1,000,000 feet of lumber and delivering to the yards 80,000 feet of mine timber. The company assisted in constructing 4 miles of road down the river from Yellow Pine for the development of the proposed site of a large hydroelectric power plant and in establishing a public school, which is conducted in the original Meadow Creek camp building.

The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate-Lost Pilgrim mine, carried on normal operations and production until May, when the mine was closed and a small crew for maintenance purposes only was kept at work. Lead-silver and zinc concentrates were shipped to the company’s plant at Kellogg.

New camp buildings were erected and work started on building and installing a 5-stamp mill at the Wordenhoff mine of the Keystone Gold Mines, Inc., in the Edwardsburg district. This company was active throughout the year, and, in addition to the new construction, did a substantial amount of mine development work.

The Mary Jane Mining Co., a new organization, whose property is located near the Merry Blue mine, in the Deadwood district, reported active operations during the summer months and that the construction of a 10-ton mill had been commenced.

The Amalgamated Red Metals Mines Co. was active for three months. The Copper Camp Mining Co. reported the construction of a new camp building.

In the Thunder Mountain district, McRae and Davis maintained work at the Sunnyside mine throughout the summer and operated their mill intermittently. This district, as well as the Big Creek and Edwardsburg districts, received a large amount of attention and examination by those seeking gold-mining enterprises. In selecting districts deemed favorable for the discovery of new gold deposits, in which to conduct geological surveys, the Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, chose these districts and commenced work on a new geological survey.

Washington County

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. in 1930 and the operations of the Ohio Oil Co. at the Crystal Dome property during 1931 attracted a large amount of attention to this county and resulted in the organization of many new companies, although none of them commenced drilling operations.

The gold resources of the Cuddy Mountain district received a small amount of attention during the summer, but the Mineral district, the principal product of which is silver, was idle throughout the year.

A mine output of 2,500 tons per day, the construction of a 2,500-ton mill, and the erection of an 8,000-horsepower hydroelectric power plant are plans of the company, and their realization will make this enterprise one of the largest mining operations in the United States. Mercury, gold and silver bullion, and electrolytic metallic antimony—the latter for the first time in history on a large commercial scale—will be the products.

The development of a large low-grade mine calls for courage, initiative, and caution, three qualities which have made Mr. Bradley one of the outstanding figures in the mining world, by whom he is held in the highest regard. In recognition of his distinguished achievements in mining he was awarded the William Lawrence Saunders Gold Medal, in 1931, by the American Institute of Mining & Metallurgical Engineers.
His genius in the evolution of metallurgical methods has been directly responsible for a large addition to the gold, mercury, lead, zinc, and silver reserves of the United States. He now plans to add antimony* to this list. That he will be successful there is no doubt.

HISTORY

It is impossible within the limits of this article to trace the vicissitudes of the mining claims in this enterprise from their discovery, through ownership by prospectors and many small promotional companies, to their consolidation as the United Mercury Mines Co. and their final acquisition by the Yellow Pine Co.

Their discovery dates back to the discovery of gold in Thunder Mountain in 1899 or 1900 by the Caswell Bros., the subsequent boom from 1901 to 1903 and the overflow into the adjacent areas by prospectors, who discovered the principal cinnabar and antimony veins now under development. Many of the first locators soon abandoned their prospects; some, particularly Pringle Smith and Albert Hennessy, remained.

Other than annual assessment, little work of importance was done on any of the veins until 1918, when the World War caused an excessive demand for mercury and antimony, and their price rose greatly. Their mining became attractive; more than a dozen different companies were organized; and they acquired practically all of the properties which are now held by the Yellow Pine Co.

*Antimony is a brittle metal of silvery luster, easily powdered, of low melting point, and one-half as heavy as lead. Unalloyed it has few industrial uses. It alloys readily with most metals, the alloy being harder than the two pure metals and in most cases possessing the property of prompt expansion on solidifying. Type metal, bearing metals, Britannia metal, storage battery plates, and antimonial lead are the principal alloys. The compounds are used in medicine, safety matches, paints, vulcanizing rubber, enamel ware, and building trades. It is a very important war metal, being used especially in shrapnel for bullets, in primers, and to produce a white smoke for range finding. In 1930, no antimony ore was produced in the United States, but lead smelters produced 1,685 tons as a by-product in antimonial lead. Approximately 8,563 tons of metal and 1,403 tons of compounds were imported in 1930, China supplying over 80 per cent of the imports. The tariff on the metal and oxide is 2 cents per pound and 6 cents per pound on most of the chemicals.
Some of these companies produced and marketed a small tonnage of hand-sorted antimony ore and a few flasks of mercury; however, even with high war prices, road and transportation conditions made the operation of the mines impractical, and all of those promoting the various companies, except J. J. Oberbillig of Boise, became discouraged and quit.

In January, 1921, Mr. Oberbillig organized the United Mercury Mines Co., which, through deeds and exchange of stock absorbed twelve of the original companies, and mining operations were then financed through the sale of this stock. During the period from 1921 to 1927, Mr. Oberbillig directed all mining operations in addition to personally selling and supervising the sale of stock, which was sold at a cost of less than 5 per cent to the company. The

MEADOW CREEK CAMP, 1928: YELLOW PINE CO.

mine development work proved that the mines would require an expenditure of many million dollars before they could be placed on a profitably operating basis. As the company could not raise such a sum of money through the sale of stock, it was decided to sell the properties, if possible, to some large mining company.

In 1925 Mr. Oberbillig negotiated an option on the Meadow Creek group with the Homestake Mining Co. of Lead, South Dakota, at an agreed price of $1,000,000. This company held the option for about one year and then forfeited it, giving as the reason that the gold could not be successfully recovered. Undaunted, Mr. Oberbillig continued his efforts, and in May, 1927, succeeded in interesting Mr. Bradley, who then took the Meadow Creek and Cinnabar groups under lease and option, and, in 1930, the Antimony group.

BRADLEY ACHIEVEMENTS

1927 Activities

The achievements since 1927 are impressive. At that time there was no telephone, no mining equipment other than hand tools, and only one small duplex cabin on the Meadow Creek group. The properties could be reached by two trails: one leading from the Antimony group on Johnson Creek, over a high mountain, through No Mans Land, and thence down Meadow Creek, a distance of 12 miles; the other following the East Fork of the South Fork of Salmon River from the settlement of Yellow Pine to the mine, a distance of 14 miles. After the property was acquired by Mr. Bradley, a telephone line between Johnson Creek and Meadow Creek was erected; Meadow Creek camp was enlarged; new buildings were erected at North Camp, on Fiddle Creek;
supplies were laid in; and active development was started in Meadow Creek and North tunnels. This work progressed without interruption, and, by the spring of 1928, the results were sufficiently encouraging to warrant an expansion of operations.

1928 Activities

Geologic reports published from 1918 to 1927 describe the old road which the State constructed into Thunder Mountain during the boom as "abominable," "atrocious excuse," "terrific grades." Nevertheless, over this road in the summer of 1928 two large boilers, steam engines, a complete sawmill, a compressor and other mining equipment were transported to the head of South Meadow Creek and thence down the steep mountain side to the mine, a distance of 4 miles. Over much of the last 4 miles it was necessary to let the equipment down by means of snubbing blocks and tackle.

MEADOW CREEK CAMP, 1930: YELLOW PINE CO.

New buildings were erected at Meadow Creek camp and also at Monday camp—the new site selected for the two long tunnels, the Monday and Cinnabar; land was cleared for an air port; and road work was started. The company cooperated with the Forest Service in the construction of 4 miles of highway from Yellow Pine up the river, and built independently 10 miles down the East Fork of the South Fork of Salmon River, to connect with the Forest Service road. The entire distance involved the heaviest kind of mountain construction, as much of it passed through a precipitous box canyon. This work was maintained throughout the winter of 1928 and completed early in 1929, thus making it possible to replace pack strings and saddle horses with motor trucks and automobiles.

1929 Activities

During 1929 additional camp buildings were erected at Meadow Creek and Monday camps; complete mining equipment was installed at the latter; and Cinnabar tunnel was started. There were now three independent mining operations, namely, Meadow Creek, Monday, and Cinnabar tunnels. The driving of these was conducted without interruption, and by the spring of 1930 sufficient ore had been proved to warrant another expansion of operations.

1930 Activities

The expenditures during 1930 exceeded those of any other mining company in the State. A large hydroelectric power plant, fed through an 11,000-foot 28-inch redwood-stave pipe and a 1,620-foot 24-inch steel penstock, was
constructed. All machinery was converted to electric drive; additional buildings, compressors, mining machinery, and an electric hoist were installed; and work started on sinking a 400-foot vertical shaft in Meadow Creek tunnel.

In November, 1930, Geo. Stonebreaker, who holds the government mail contract, replaced dog-team mail delivery, requiring three days from Cascade, with airplane service, requiring less than one hour. Passengers and light supplies are transported, and a regular schedule is maintained from November until June. This airplane service proved valuable to the company during the
winter of 1930, when the source of power was lost through freezing of the large hydroelectric power plant. A gas-driven compressor was substituted; the gasoline was delivered by airplane; and Monday tunnel was advanced without interruption. So far as the writer knows, this was the first time in the United States that gasoline was so transported for power purposes in conducting mining operations.

1931 Activities

By the spring of 1931 sufficient ore had been proved in the Meadow Creek vein to indicate a future mine output and milling capacity of 2,500 tons per day. The metallurgical treatment of the ore had been solved by Mr. Bradley and his staff, and, as the milling methods involved some new procedure, Mr. Bradley displayed his usual caution by deciding to construct first a pilot or experimental mill of 150 tons capacity, in order that all tests should be proved in practice before building such a large mill. Meadow Creek camp was selected for the location of this mill, in order that operations in advancing the Monday tunnel would not be interrupted and because of the large tonnage of ore available above the level of the Meadow Creek tunnel. Plans were then made for the year, and $450,000 was appropriated to carry them out. These plans included crosscutting and drifting on the 200 and 400 foot levels in the shaft in Meadow Creek tunnel; advancing Cinnabar and Monday tunnels; rebuilding South Meadow Creek power plant and constructing a 40-foot dam; covering the 11,000-foot redwood pipe of Meadow Creek power plant to prevent freezing; logging and sawing of more than one million feet of lumber; starting a new 6,000-foot tunnel on the Antimony group at Yellow Pine, 16 miles from Meadow Creek camp; and constructing the pilot mill. A public school, conducted in the original Meadow Creek camp building, was established; a new cook house, bunk house, and store building were erected; and the company assisted in the construction of more than a dozen houses for its employees. The mill, construction of which was started on June 11, 1931, was ready to start operation by the 1st of January, 1932.

NEW TUNNEL RECORD FOR UNITED STATES

Mr. Geo. W. Worthington, mine superintendent, was in full charge of the execution and supervision of this work throughout 1931. Besides directing the company's orders rapidly, successfully, and expeditiously, he established a new tunnel-driving record for the United States by advancing the Monday
The tunnel has a projected length of 9,050 feet and is being extended through hard granite; its dimensions are 6 by 8 feet in the clear, where no timber is necessary, and 7 by 9 feet where timber is required. At the end of August, the face was 4,820 feet from the portal, having been advanced 1,964 feet during May, June, July, and August, an average of 491 feet a month. In establishing this record, three shifts of six men each were employed daily; two machines mounted on a crossbar were used; the muck was handled by hand and trammed by an electric storage battery locomotive.

Thus, since 1927, has a mountain wilderness been transformed from an isolated single-building mining camp, which could be reached only over a high mountain trail, into a hustling mining community with a modern highway, airplane service, and all modern facilities and conveniences; the whole totaling an expenditure of more than $1,300,000.

PRINCIPAL TUNNELS

The Monday and Cinnabar tunnels, at Monday camp, on each side of Meadow Creek, are at the same elevation; and the portals are connected with a long trestle, thus making all equipment and camp facilities accessible to both tunnels. (See Fig. 1.) The Cinnabar tunnel is projected to develop the gold and mercury deposits of the Cinnabar group. Its total length when completed will be about 10,000 feet, and it will intersect the ore zones approximately 1,700 feet below the upper levels. The Monday tunnel, which is practically a drift on the Meadow Creek vein, has a projected length of 9,050 feet and will connect with the vertical shaft in the Meadow Creek tunnel at the 410-foot level. (See Fig. 2.) In the Meadow Creek tunnel there is a 410-foot vertical shaft and approximately 5,500 feet of crosscuts, drifts, and raises that open ore bodies 800 feet below the surface.

PROPERTY HOLDINGS 10,540 ACRES

The property holdings have been expanded from 6 patented and 87 unpatented mining claims in 1925 to 9 patented and 518 unpatented claims, containing an area of 10,540 acres, in 1931. The various groups and the principal metals contained in them are as follows: Meadow Creek group, 160 claims, gold-silver-antimony; Hennessy group, 17 claims, gold-silver-antimony; Antimony group, 80 claims, antimony-gold-silver; Cinnabar group, 240 claims,
mercury; Yellow Pine Country Placer group, 30 claims, placer gold. The Antimony group is located on Johnson Creek, 2 miles south of Yellow Pine. The Yellow Pine Country group is located on the river below Yellow Pine. Besides being valuable for placer gold, the latter claims cover the site of the proposed 8,000-horsepower hydroelectric plant.

GEOLOGY*

The geology of that part of the Yellow Pine mining district which is occupied by the Meadow Creek and Cinnabar groups is not simple. The rocks vary from unaltered sedimentary to igneous and can be grouped into two main divisions. The sedimentary rocks consist of limestone, quartzite, schists, argillite, and hornfels, all interbedded. In places some of the schists are so highly altered that it is impossible to identify them as to sedimentary or igneous origin. The igneous or intrusive rocks are granite and various dikes. The principal dikes are dark greenish-gray diabase (lamprophyre) and light flesh-colored slightly porphyritic rhyolite. All of these rocks occur in the Cinnabar and Meadow Creek groups, and the ore deposits appear to be genetically connected with the diabase dikes. The granitic rocks occupy the larger area, and the Meadow Creek and Hennessy veins appear to be confined to them, while the cinnabar veins occur in altered and unaltered limestone.

The granite is light-gray in color and slightly porphyritic. In places it is of even grain and texture; in other places it is coarse-grained and contains many segregations resembling aplite and pegmatite dikes. Further study may prove that there are two or more separate and distinct intrusive granite masses widely separated in age.

Glacial debris and alluvium prevent tracing the contact between the granite and sedimentary rocks, but it appears to be in proximity to the Meadow Creek vein, with a general northerly course parallel to that of the river and the vein.

MEADOW CREEK VEIN

The Meadow Creek vein has been opened by three major entries—Meadow Creek, Monday, and North tunnels (note Fig. 1), between which it has a known length of more than 2½ miles. So far four ore bodies have been

determined, and the ore in Meadow Creek tunnel has been proved to a vertical depth of 800 feet by mine entries and to a greater depth by diamond drill holes. The vein is a wide shear zone in which the granite is altered and mineralized. Where opened in the Meadow Creek tunnel, a diabase dike, about 6 feet wide, occupies the center of the vein, and the mineralization graduates from solid ore adjacent to the dike, on each side, to a fine dissemination at a distance. The ore shoots vary from 20 to 60 feet in width; no walls are apparent; and assaying is necessary to determine ore from altered rock to ascertain the width of the ore shoots.

MEADOW CREEK ORE

The ore consists of stibnite (antimony sulphide), arsenopyrite (iron-arsenic sulphide), and pyrite (iron sulphide) in a matrix or gangue of quartz and un replayed country rock. The distribution of the sulphide minerals in the gangue varies from pure massive stibnite to finely disseminated particles. In places the stibnite is free from the pyrites, and again all three are so intimately mixed that they cannot be distinguished by the naked eye.

The stibnite contains a small silver content; the pyrite is barren; and the arsenopyrite carries the principal gold and silver values; also an unidentified silver mineral may be present.

PILOT MILL

The mill is in two units: one a flotation plant; the other, a cyanide plant. The flotation plant will make two products: an antimony concentrate; and an iron concentrate, which contains the gold and silver. Until the contemplated electrolytic antimony plant is constructed, the antimony concentrate will be stored during the winter and shipped for smelting during the summer. The iron concentrate goes to the cyanide plant where the gold and silver is removed and shipped as bullion. The design and flow sheet of both units are based on results obtained in the laboratory. As the laboratory research has not been completed, and as it is expected that the experience gained from operating the mill, together with further testing, will result in many changes in the present flow sheet, a complete and accurate description of the milling methods cannot be given at the present time.

REMARKS

Although the company's ultimate plans are far from being completed, the expenditures to date have had a marked influence on the prosperity and welfare of southern Idaho. A big market for the products of the farmer and home industries and for labor has been created; and the benefit the State has received and will receive cannot be estimated, as such a large enterprise has many ramifications. However, at the close of the year two things had been proved: First, the long number of years and the huge expenditures usually required before a prospect becomes a profitably operating mine; second, that the State is fortunate in having laws which encourage such an undertaking; otherwise, investors could not afford to take the risk.
MINE RESCUE AND FIRST AID IN THE COEUR D'ALENE DISTRICT

By H. B. McDermott, Director Central Mine Rescue Station
Coeur d'Alene Mine Operators Association

In 1923 the principal mine operators in the Coeur d'Alene district, realizing the necessity of mine-rescue equipment and training, established a central mine-rescue station. Since then it has been in operation, working smoothly and at small expense.

The central station is a mine-rescue car, which is maintained in Wallace on a spur track, accessible to both railroads of the district, in order that it may be quickly moved to any point where needed. This car is a large railroad coach rebuilt for mine-rescue purposes. It carries 14 sets of oxygen breathing apparatus, commonly called "helmets"; 12 large storage tanks of oxygen; 1,000 regenerating cans; one power-driven pump; also spare parts, necessary tools, and miscellaneous equipment, including resuscitating apparatus and various gas-testing devices, as well as a complete line of fire-hose fittings, revolving nozzles, spray nozzles, and quick connectors. The car is equipped with living quarters for a small crew and is ready to move at any time.

A FIRST-AID CLASS AT BUNKER HILL & SULLIVAN MINE

Rescue Stations Located at Mines

The Hecla Mining Co., Hercules Mining Co., and the Tamarack & Custer Consolidated Mining Co., at Burke; the Federal Mining & Smelting Co., at Mullan and Page; and the Bunker Hill & Sullivan Mining & Concentrating Co., at Kellogg, all have complete rescue stations located at their mines. Each of these stations has from 8 to 15 sets of breathing apparatus and an ample supply of spare parts, regenerating cans, and oxygen pumps. In the event of
a large mine fire in the district, the equipment from all the mine stations, together with the apparatus from the mine-rescue car, can be concentrated at one place in a very short time; thus making available about 100 sets of apparatus and a large quantity of spare parts.

**Type of Breathing Apparatus**

The Paul self-contained breathing apparatus is standardized for use in the Coeur d’Alene district, and all the mine stations and the mine-rescue car are equipped with this type. Standardization is an important factor when men from different mines are called upon to help fight a fire in a strange mine, as they gain confidence upon discovering that the apparatus in use is similar to that which they have been trained to use.

The Paul breathing apparatus weighs about 40 pounds. As the oxygen feed is controlled by automatic valves, which give the wearer the amount of oxygen he requires, it is practically “foolproof.” The valves are so set that the pressure inside the machine is slightly greater than that of the surrounding atmosphere, so that should a leak develop while the machine is in use, there is no danger of the wearer being gassed. This apparatus supplies the wearer with ample oxygen, under average working conditions, for a period of two and one-half hours.

**Mine Rescue Equipment**

During 1931 all the oxygen breathing apparatus, high-pressure oxygen pumps, oxygen inhalers, gas masks, gas-detecting and gas-sampling apparatus were thoroughly overhauled, and a few accessories, of more efficient type, were added.

New equipment added to each mine-rescue station consists of focussing, vapor-proof flashlights. As these lights are not as heavy as the battery hand lamps, their use makes a decrease in weight, which is always an item to be considered when climbing is necessary. A safety feature added to each rescue station is the “Hard Boiled” hat. This hat is equipped with straps, which will hold the mouthpiece of the apparatus, thus insuring head protection to wearers of apparatus.

**First Aid Work**

U. S. Bureau of Mines Car No. 9 visits the Coeur d’Alene district for a period of from five weeks to two months each year. During this period, classes are conducted at all the large mines in the district, not only for the miners, but for the general public as well. The course lasts two and one-half hours a night for five nights, and everyone who completes it is given a Government certificate of competency and a First Aid Manual.

First aid is merely the treatment given a person who has suffered an accident, bridging the time before a doctor can reach the case. The course given by the U. S. Bureau of Mines teaches the kinds of bleeding, signs of their recognition, and method of control; the care and bandaging of wounds; recognition and treatment of physical shock; artificial respiration, the method used to restore breathing after electric shock, gas poisoning, asphyxiation, and drowning; care and treatment of dislocations, fractures, burns, sprains,
and strains; and last, but not least important, transportation of the injured. Anyone who completes the course has a good working knowledge of first aid and will be competent to handle almost any accident that may happen.

During the winter months of 1930-1931, the personnel of the Central Mine Rescue Station, under authority granted by the U. S. Bureau of Mines, conducted first-aid and safety classes at each of the mining towns of the district, namely: Wallace, Mullan, Burke, Page, and Kellogg. Nearly six hundred men attended these first-aid classes, and 90 per cent of them qualified for Government certificates of competency.

The first-aid training has produced gratifying results, such as, a decrease of infection, better treatment of physical shock conditions, and thorough first-aid treatment of wounds and other injuries. Handling and transportation of the injured are complete. The policy of the station is to conduct first-aid and safety classes each season. In conjunction with "class" first-aid, the station conducts "team" first-aid training and hopes later to revive first-aid team exhibitions and contests.

The excellent cooperation of all the mine officials has made possible the success of the above activities.

MINE RESCUE CAR

Miners' Safety Hats and Shoes

"Hard Boiled" or "Protective" hats, light-weight, miners' hats, are fast finding their way into the mines. These hats are in stock at the mine warehouses and are sold to the miners at cost. The station has reports of the saving of severe head injuries and possible fatalities through the wearing of this latest head protection.

Safety shoes, both leather and rubber, are carried in stock in the mine warehouses. These are also sold to the miners at cost. Safety shoes are so constructed that they will withstand great pressure on the toes without injury to the wearer. One safety shoe manufacturer gives, with each pair of shoes, an indemnity bond guaranteeing to pay for injuries to the toes received by anyone while wearing his brand of shoes. The station has reports of the prevention of injuries through the wearing of safety shoes.
ACCIDENTS

The minor accidents listed in the accompanying table, pages 56 and 57, "Classification of Accidents," are taken from the records of the Industrial Accident Board and have been arranged to comply as nearly as possible with the classification made by the U. S. Bureau of Mines. Accidents that did not cause a loss of time of more than seven days are not included, because no compensation is paid. Many of the large companies do not report them, so a complete record is impossible to obtain. Although the U. S. Bureau of Mines and many State officials are listing these minor injuries of less than seven days in their reports, they have all been omitted from the accompanying table.

A comparison of the total accidents in 1931 with those in 1930 shows a decrease of 10 in the number of fatal accidents and a decrease of 110 in the number of minor accidents which involved a loss of time of more than 14 days. A comparison of the total number of men employed with the total number of accidents shows the very low accident rate of 0.45 accidents per 1,000 man-shifts. This low rate can be attributed to a great extent to the safety organizations, to the first-aid training given the men by all the larger mining companies, to the sustained effort and interest maintained in safety work by those in charge, further augmented by close supervision, and to the low payroll which was in effect throughout the year. The results of safety educational work are particularly apparent in the small number of accidents in the large mines of Shoshone County, which employ more than 80 per cent of the total number of men working in the mines of the State. A comparison of the number of accidents with the number of men employed shows that the accident rate is in direct proportion to the efforts given to maintaining safety provisions. That this effort is successful in establishing a low accident rate is shown by a continued decrease in accidents over that of previous years. The accident rate per 1,000 days per man during 1931 of three of the largest companies was as follows:

- Bunker Hill & Sullivan Mining & Concentrating Co. ..................... 0.21
- Hecla Mining Co. ......................................................... 0.54
- Federal Mining & Smelting Co. ......................................... 0.62

Out of a total of 468 accidents during the year, 8 were fatal. Of these fatalities, 3 could have been prevented had the victims been more careful; company responsibility could be placed for 1; and the other 4 were unavoidable. Out of the 442 minor accidents listed, 167 did not compel a loss of time to exceed 14 days, and 275 incapacitated the injured person for more than 14 days. The 18 additional accidents resulted in permanent injuries.

The loss of both legs or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating a workman from doing any work in a gainful occupation, is classified as "Permanent Total Disability." The loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed, or other injury known in surgery to be a permanent partial disability, is classified as "Permanent Partial Disability."

Notes on Fatal Accidents

May 7, Federal Mining & Smelting Co., Page mine; Shoshone County. Jens J. Fredberg, age 40, married, timberman. Deceased and his partner had built a "V"-shaped trough or slide to transfer waste rock across a two-compartment inclined raise. As the trough had a drop of about one foot in five, it was necessary to use water to assist in moving the rock. The rock had hung up in the chute from which it was being drawn and on being loosened by the aid of water it came down with a surge. Deceased was precipitated over the trough and fell about 100 feet down the raise to the level below.
ACCIDENTS

May 26, Hope Mining Co.; Bonner County. Charles Q. Rice, age 41, married, electrician. Deceased was on a ladder, about 10 feet above the ground, engaged in connecting the electric power line to that in the mill. One connection had been completed. He then turned on the power, to which his helper objected, and continued making the other connections. A short circuit occurred and he was instantly killed.

September 11, Bunker Hill & Sullivan Mining & Concentrating Co., Hall-Interstate mine; Valley County. Ben W. Storey, age 49, married, blacksmith. Curtailed operations had necessitated an exchange of work and on the day of the accident the deceased was acting as motorman. He delivered a three-car train of waste to a trestle on the dump and commenced dumping it. Two cars had been dumped; while the third, which was on the far end of the trestle, was being dumped, the rock hung up in the car, the car sprang back, and the force of the rebound jerked the motor and cars from the track. Evidently anticipating the result of the rebound, the deceased jumped to the dump, about 10 feet, where he was caught and crushed by the falling cars.

October 2, Sunshine Mining Co.; Shoshone County. L. W. Kennicott, age 31, married, miner. Deceased was descending a ladder in a raise, which was being driven between the 700 and 500 foot levels. When he reached a point about 30 feet above the 700-foot level he fell to the level, evidently having been asphyxiated by foul air in the raise.

November 2, Federal Mining & Smelting Co., Morning mine; Shoshone County. Emil Salmi, age 44, married, shift boss. Deceased loaded some lagging on the cage at the 3,050-foot level and then signaled for the cage to stop at the 1,250-foot level. On traveling between these two levels, deceased was thrown from the cage and fell to the 3,650 station. He had failed to close the doors of the cage; the loose lagging evidently fell, caught on a wall plate and precipitated him to his death.

November 14, Yellow Pine Co.; Valley County. Sam Hancock, age 60, married, miner. Deceased, G. W. Hope, and John Smalley were engaged in driving a tunnel, which had been extended about 200 feet. Smalley went to the surface; upon his return he discovered that the roof of the tunnel had caved in, crushed the timber, and killed Hancock and Hope.

November 14, Yellow Pine Co.; Valley County. G. W. Hope, age 48, married, mine foreman. Deceased, Sam Hancock, and John Smalley were engaged in driving a tunnel, which had been extended about 200 feet. Smalley went to the surface; upon his return he discovered that the roof of the tunnel had caved in, crushed the timber, and killed Hope and Hancock.

December 30, Bunker Hill & Sullivan Mining & Concentrating Co.; Shoshone County. Leroy A. Wheeler, age 51, married, mill roustabout. Deceased was on a runway in the flotation section of the mill engaged in scaling pipe preparatory to painting it. Evidently he had placed one foot on a launder and on reaching to the pipe, he slipped and fell about 15 feet. The fall resulted in his death.
<table>
<thead>
<tr>
<th>MINE</th>
<th>Killed</th>
<th>Seriously Injured</th>
<th>Slightly Injured</th>
<th>MILL</th>
<th>Killed</th>
<th>Seriously Injured</th>
<th>Slightly Injured</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Time Lost More Than 14 Days</td>
<td>Permanent total disability</td>
<td></td>
<td></td>
<td>Time Lost over 14 days</td>
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<td>UNDERGROUND</td>
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<td>1. Fall of rock or ore from roof or wall</td>
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<td>68</td>
<td>35</td>
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<tr>
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<td>9</td>
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<td>3. Timber</td>
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<td>4. Explosives</td>
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<td>5. Haulage, Cars or Motors</td>
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<td>11</td>
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<td>9. Machinery (other than motors or drills)</td>
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<td>10. Flying or falling objects</td>
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<td>11. Fall of persons</td>
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<td></td>
<td></td>
<td>12</td>
<td>4</td>
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<td>13. Nails and splinters</td>
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<td>14</td>
<td>8</td>
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MILLING ACCIDENTS

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<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Time Lost More Than 14 Days</td>
<td>Permanent total disability</td>
</tr>
<tr>
<td>1. Haulage (cars and locomotives)</td>
<td></td>
<td></td>
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<tr>
<td>2. Railway cars or motors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Crushers, rolls or stamps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Tables, jigs, etc.</td>
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<td></td>
</tr>
<tr>
<td>5. Other machinery</td>
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<td></td>
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<tr>
<td>6. Falls of persons</td>
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<td>7. Falls in ore bins</td>
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<td>8. Falling objects (rocks, timbers)</td>
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<tr>
<td>9. Scalding (steam, water or acid)</td>
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</tr>
<tr>
<td>10. Lifting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Hand tools, axes, bars, etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Nails, splinters, etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Electricity</td>
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<tr>
<td>14. Other causes</td>
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<tr>
<td>SHAFT ACCIDENTS</td>
<td>SHP</td>
<td>M</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----</td>
<td>---</td>
</tr>
<tr>
<td>15. Falling down shaft</td>
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<td>16. Objects falling down shaft</td>
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<td>23. Lifting</td>
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<tr>
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<tr>
<td>25. Nails and splinters</td>
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<tr>
<td>26. Hand tools, axes, bars, etc.</td>
<td>26</td>
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<tr>
<td>27. Falls or run of ore in or from bin</td>
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<tr>
<td>28. Machinery</td>
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<tr>
<td>25. Flying and falling objects</td>
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<td>4</td>
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</tr>
<tr>
<td>26. Nails and splinters</td>
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</tr>
<tr>
<td>27. Hand tools, axes, bars, etc.</td>
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<tr>
<td>28. Lifting</td>
<td>28</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>29. Machinery</td>
<td>29</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>30. Handling hot materials</td>
<td>30</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>31. Other causes</td>
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<tr>
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<td>15. Haulage (cars, motors, etc.)</td>
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<td>16. Machinery</td>
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<tr>
<td>17. Cranes</td>
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<td>18. Lead fumes</td>
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<td>19. Falls of persons</td>
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<td>20. Flying or falling objects (rocks, timbers, etc.)</td>
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<tr>
<td>21. Hand tools, axes, bars, etc.</td>
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<td>22. Burns from matte, slag or molten metal (pouring or spilling)</td>
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<td>26. Nails and splinters</td>
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<td>27. Hand tools, axes, bars, etc.</td>
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<td>28. Lifting</td>
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<td>29. Machinery</td>
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<td>2</td>
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<tr>
<td>30. Handling hot materials</td>
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<tr>
<td>31. Other causes</td>
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<thead>
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<td>Grand Total</td>
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MEN EMPLOYED AND WAGES

The year closed with very few of the producing mines in the State in operation. Those operating maintained a payroll equal to that of previous years, although none were on a seven-day producing basis. As a whole, 1931, from a labor standpoint, was one of the worst years ever experienced. There was a surplus of labor throughout the year, and the turnover was exceedingly small, so that the companies were assured a constant working force without the necessity of breaking in new men.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies which do not maintain continuous work and do not report to the inspector of mines; and the different reports filled by the companies vary as to the number of days. The average payroll reported was 3,500, and 1,000 has been added as an estimate to cover lessees, prospectors, and small companies which did not report; thus giving a total of 4,500 for the year, which is known to be a conservative estimate.

The table below gives the different wage scales that were in force in the State during 1931. Column No. 1 gives the average wage throughout the State for the year, and column No. 2 gives the wage scale in effect in the Coeur d'Alene district from May 16, 1931, to December 31, 1931.

Under an agreement adopted on November 16, 1925, the wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York. This scale was based on a wage of $3.75 per day for miners when lead is selling under $5.75 per pound; the bonus to be added was as follows:

When the price of lead is $5 and under $6 ........................................ 9c per day
When the price of lead is $6 and under $7 .................................. 7c per day
When the price of lead is $7 and under $8 ................................ 5c per day
When the price of lead is $8 and under $9 ................................ 2.25 per day
When the price of lead is $9 and under $10 ................................ 1.75 per day

During 1931 the price of lead declined so rapidly that if the bonus scale had been adhered to wages would have been cut to a point entirely out of proportion to wages in other parts of the State and too low under existing high-living costs, so the signatories to the bonus scale waived their agreement, and on May 16, 1931, wages were reduced to those set forth in column No. 2 below, which were on a basis of lead selling up to $7.5 cents per pound or $1.00 per day. The wage scale maintained during the remainder of the year throughout the State is set forth in column No. 1. A few companies operating in remote parts of the State maintained a wage scale 25 cents higher than the scale set forth in column No. 1.

<table>
<thead>
<tr>
<th>MEN</th>
<th>No. 1</th>
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<tbody>
<tr>
<td>Miners</td>
<td>$5.00</td>
<td>$5.00</td>
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<tr>
<td>Shovelers</td>
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<td>Timbermen</td>
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<tr>
<td>Timber helpers</td>
<td>4.75</td>
<td>4.75</td>
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<tr>
<td>Machinists</td>
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<tr>
<td>Machinists' helpers</td>
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<tr>
<td>Carmen</td>
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<tr>
<td>Motormen</td>
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<tr>
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<tr>
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<td>Nippermen</td>
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<td>Pump and compressormen</td>
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</tr>
<tr>
<td>Surface laborers</td>
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<td>4.25</td>
</tr>
<tr>
<td>Ore sorters</td>
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</tr>
<tr>
<td>Cagers</td>
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<td>Pipe and trackmen</td>
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<td>Hourly Rate 1</td>
<td>Hourly Rate 2</td>
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<tr>
<td>Shift bosses</td>
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<td>4.75</td>
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<td>Electricians</td>
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<tr>
<td>Millmen</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Mill repairmen</td>
<td>6.00</td>
<td>5.50</td>
</tr>
<tr>
<td>Mill swampers</td>
<td>4.50</td>
<td>4.00</td>
</tr>
<tr>
<td>Carpenters</td>
<td>6.00</td>
<td>6.00</td>
</tr>
</tbody>
</table>

The cost of board and room at company boarding houses, hotels, and at private homes averages from $1.25 to $1.50 per day. Many companies have built and are maintaining houses which are rented to their married employees, and some of the largest companies assist their employees in the construction of homes.

A Forest Service Highway, Little Smoky Mining District, Camas County
MINERAL RESOURCES

Idaho contains an area of 83,888 square miles; its maximum width at the southern end is approximately 312 miles, and its length from the southwest corner to the northwest corner is about 486 miles. The State is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the State (see map, page 9.) In addition to these a great variety of uncommon metals and minerals, many of which have been successfully exploited during the past few years, occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth, consisting of practically all the metals used in modern arts and many of the uncommon minerals for which a demand is continually being developed, establishes Idaho as one of the principal mining States in the Union. It also makes mining the second most important industry in the State.

The importance of Idaho's mineral wealth is well shown by statistical facts based on the production and exploitation of the five principal metals, lead, silver, gold, zinc, and copper:

Total metal production since 1860, over $1,100,000,000.
Average annual production for past 28 years, over $26,000,000.
Average annual mine payroll, over $8,000,000.
Average annual mine dividends from lead-silver mines, over $5,000,000.
Average annual expenditure on new mine development and prospecting, over $4,000,000.

METALS

Lead

Lead is the most important metal found in Idaho, and excepting in the years 1926 and 1927, this State has always ranked second in the United States in the production of lead, Missouri ranking first, and Utah third. During the two years aforementioned Utah held second place, although the production of the two States was almost on a parity. Idaho produces over one-fourth of the total amount of lead mined in the United States. Lead is widely distributed throughout the State, and occurs as galena (lead sulphide) and as the oxide and carbonate; silver is always associated with it, and occasionally zinc, gold, and copper.

The largest lead mine in the United States is in Idaho—the Bunker Hill & Sullivan M. & C. Co. at Kellogg. This is one of the few companies in the world that mine, mill, smelt, refine, manufacture, and market lead and lead products. Other important lead-producing mines in Idaho and their respective ranks in the United States are: Federal Mining and Smelting Co., third; Hecla Mining Co., fifth.

The principal lead mines in the State are those in Shoshone County, which produce 85 per cent of the State total. Blaine, Boundary, Bonner, Custer, Lemhi, Boise, Butte, Valley, and Camas counties are the other important lead-producing counties.

Silver

Idaho ranks third in the United States in the production of silver, the first three States in order of rank being Utah, Montana, Idaho. Idaho produces one-eighth of all the silver mined in the United States.

Silver is found associated with all of the lead, copper, zinc, and antimony ores of the State, and occasionally in associations in which it is the principal metal. It is one of the most widely distributed metals, and its occurrence is such that the mining of silver can hardly be separated from that of the other metals. Accordingly, the production of silver fluctuates with and parallels that of lead.
Shoshone County produces more silver than any other county in the State; the other important silver-producing counties are: Lemhi, Custer, Bonner, Boundary, Blaine, Butte, Owyhee, Boise, Camas, Valley, Washington, Idaho, Elmore, Adams, and Cassia.

Zinc

Zinc is found associated with lead in many of the lead mines of Idaho, although there are numerous deposits in Shoshone and Blaine counties in which it is the principal metal. In Shoshone County it occurs as sphalerite (zinc sulphide), and in Blaine County as sphalerite and smithsonite (zinc carbonate).

Selective flotation revolutionized the art of ore-dressing, and it is now possible to treat mixed lead-zinc ores which could not be separated by gravity concentration methods. As a consequence, the zinc content which was formerly lost is recovered and many mines which at one time could not be profitably operated are now being reopened in Blaine, Camas, and Shoshone counties. As a result of these modern ore-dressing methods, Idaho is one of the largest zinc-producing States in the Union.

The principal zinc-producing counties, in the order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary, and Butte.

Gold

Gold is found in practically all of the counties in the State, and is one of the most widely distributed metals. Prior to the World War Idaho was an important producer of this metal, but during the war period many of the mines of which the principal product was gold were closed down and have not been reopened, so at the present time the State ranks only tenth in the United States in gold production.

Gold occurs associated with almost all the lead, zinc, copper, and silver ores, and very commonly in a free-milling condition. A large amount of gold is obtained from placer deposits; at one time Idaho was among the principal placer-mining States in the Union. The greater part of the placer ground which could be hydraulicked has been exhausted, but many acres suitable for dredging still remain, and the gold lode-deposits offer greater opportunities than those of almost any other State.

The most important counties in which gold occurs are Boise, Idaho, Lemhi, Owyhee, Elmore, Shoshone, Custer, Blaine, Camas, Clearwater, Gem, and Valley.

Copper

Idaho is an important producer of copper and holds a high position among the ranking States of the Union. The many copper mines which are now under development and the numerous discovered but undeveloped veins indicate that the production of this metal will be greatly increased; the State will then be elevated to a rank higher than that of tenth, which it now holds.

Gold and silver are found associated with practically all the copper ores; and in some counties, notably in Custer and Bonner, the silver content is more valuable than the copper.

Custer, Lemhi, and Shoshone are the most important copper-producing counties; Adams and Washington counties may eventually become large producers. Bonner, Idaho, Blaine, Butte, Clearwater, Latah, and Lewis counties also contain copper mines of importance.

Antimony

Deposits of antimony, principally the sulphide (stibnite), are found in Shoshone, Valley, Boise, Blaine, Idaho, Owyhee, and Custer counties. Those in the Coeur d'Alene district of Shoshone County have been extensively developed; a number of mills for the concentration of the ore have been constructed; and in the past a large tonnage has been produced and marketed. The deposits in Blaine, Valley, and Owyhee counties contain a high-grade ore, most of which can be shipped without preliminary treatment. During the war, when antimony commanded a high price, a large tonnage was produced and shipped from the mines in Valley County.
Antimony occurs as an accessory mineral in many lead-zinc ore bodies, also in stibnite-bearing veins in which it is the dominating metallic mineral. All of the antimony ores carry more or less silver, and many of them, particularly those of Blaine County, are more valuable for this mineral than for the antimony.

In all the above-mentioned counties there are many deposits containing a large available tonnage of commercial ore, which can be readily marketed when freight and market conditions will permit it to be produced at a profit.

Arsenic

Deposits of arsenic, principally the sulphide (arsenopyrite), occur in Blaine, Gem, and Boise counties. These deposits, although not fully developed, show a large available tonnage containing sufficient arsenic to be valuable for this metal, which can be readily marketed when the demand for it will permit profitable production. Arsenic occurs also as arsenopyrite in Ada, Elmore, and Kootenai counties, but the deposits in these counties have not been sufficiently developed to ascertain the possible tonnage.

Bismuth

Bismuth, occurring as a sulphide, has been found in Blaine County unassociated with other metals, as well as in association with many of the lead ores. It also occurs in the gold ores of the Gold Hill, Belshazzar, and Buckskin mines, Boise County, in association with lead, probably galenobismuthite or similar lead-bismuth minerals.

Cobalt

Cobalt is found in Lemhi County. During the World War, when this metal commanded a high price, the deposits were actively developed; a small mill was constructed, and concentrate with a high cobalt content was produced. These deposits are described by Frank L. Hess under "Cobalt" in U.S. Geological Survey: Mineral Resources of the United States, part I, 1917. This metal is reported to have been found also in Kootenai and Latah counties.

Manganese

Manganese occurs in Bannock, Lemhi, Owyhee, Shoshone, Butte, and Washington counties. Some of the deposits are high in manganese content and others in manganese-iron. A substantial tonnage has been produced and marketed from the mines in Bannock County, and the deposits in Lemhi County constitute a large potential resource.

Describing the Bannock County deposits in "Manganese and Manganiferous Ores in 1926," U. S. Bureau of Mines: Mineral Resources of the United States, J. W. Furness said: "D. F. Hewett, of the United States Geological Survey, reports that the Idaho Manganese Co. has been exploiting since April, 1924, a manganese deposit on the McGregor ranch, 1 mile east of Cleveland, Bannock County, Idaho. The shipments in 1926 were 830 tons and during 1927 will probably be larger. The ore consists of nodules of the several oxides embedded in brown wad and forms a distinct bed in Pleistocene (Ice Age) sediments. In the explored area the bed will probably yield 3,000 tons per acre; the extent of the bed is assuredly several acres and may be more. Most of the shipments range from 42 to 48 per cent manganese. The ore is shipped by auto truck to Grace, 14 miles north, thence by rail to the Columbia Steel Co., Ironton, Utah."

Molybdenum

Molybdenum, occurring as the sulphide disseminated in intrusive rocks and as a molybdate of lead in fissure veins in limestone, is found in Elmore, Boundary, Custer, Idaho, and Lemhi counties.

Nickel

Nickel is found in Lemhi County. During the late war considerable development work was done on the veins in which it occurs. These deposits are described by Frank L. Hess under "Cobalt" in U.S. Geological Survey: Mineral Resources of the United States, Part I, 1917.
QuickSilver

Cinnabar, the sulphide of mercury, has been found in the placer deposits of Custer and Valley counties and in lode-deposits in Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley County are being extensively developed, and a little mercury has been produced from an experimental plant. The other deposits have never been opened.

Tin

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County. Its occurrence is described by Clyde P. Ross in Idaho Bureau of Mines and Geology Pamphlet No. 25, "Ore Deposits in Tertiary Lava in the Salmon River Mountains, Idaho." Mr. Ross includes in this a list of all published references relating to his subject.

Tungsten

Tungsten, in the form of scheelite and wolframite, occurs in commercial value in Shoshone, Idaho, Camas, Lemhi, Boundary, Bonner, Blaine, Valley, and Butte counties. The deposits in Shoshone County have been extensively exploited, and during the war period of high prices a large tonnage was produced and marketed; at the same time a small amount was obtained from Boundary and Camas counties. Sufficient work has been done on all these deposits to indicate that tungsten is one of the State's substantial mineral resources.

Non-Metallio Minerals

Asbestos

Commercial asbestos occurs in two forms: The chrysotile variety, which is adapted to spinning; and the amphibole variety, which is not adapted to spinning but is used extensively in shingles, insulation materials, paper stock, cements, and paints.

Amphibole asbestos occurs extensively in Idaho County, near Kamiah. There is a large demonstrated tonnage, but the demand is small, on account of markets and freight rates. Deposits containing chrysotile have been reported in Fremont, Teton, and Idaho counties.

Barytes

Barytes (barium sulphate) is used in the rubber, paper, linoleum, ink, and paint manufacturing industries. Its principal use is in the manufacture of lithopone, a white pigment consisting of about 70 per cent barium sulphate and 30 per cent zinc sulphide.

Some of the largest deposits of high-grade barytes found west of the Mississippi River occur in the Deer Creek and Muldoon sections of Blaine County. The deposits on Deer Creek vary in width from 50 to 100 feet, and one outcrop is over 1000 feet long; this was described by Arthur Lakes in the Mining Reporter for August 16, 1906, under the title, "A New and Large Deposit of Barite in Idaho," as follows:

"In visiting some mining prospects in the Wood River region of Idaho I came across an unusually large massive deposit of the mineral called barite.

"It forms a steep cliff on the crest of a hill and descends as a vein down the gulch. The thickness is apparently from 50 to over 100 feet. Its course passes very near some silver-lead prospects and not far from it on one side is a huge outcrop of iron oxide.

"The material is of a dull white color and resembles at a distance a vein of calcite or a vein of white feldspar and quartz. It has not been opened up but there must be thousands of tons in sight."

Bentonite

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has the capacity for absorbing three times its weight or about seven times its volume of water. It is used in beauty clays; for refining oil; as a filler in paper and soaps; as an adulterant in drugs and candies; and as a packing for horses' hoofs.
Bentonite occurs in commercial extent in Clark and Custer counties, and it has been reported to be found in Cassia, Owyhee, and Oneida counties. The deposits in Clark and Custer counties are described by V. R. D. Kirkham in Pamphlet No. 19 Idaho Bureau of Mines and Geology, “A Geologic Reconnaissance of Clark and Jefferson and Parts of Butte, Custer, Fremont, Lemhi, and Madison counties, Idaho”: “A commercial grade of bentonite, a peculiar type of clay with extraordinary absorptive qualities, was found at two localities in the area. One is near the railway in the vicinity of Mackay, the other is more remote and lies west of Dubois.”

Beryllium and Beryl

Beryllium, or glucinium, is often listed as a rare element, though it probably is more abundant in the earth’s crust than many of the minor metals that are ordinarily considered rather common. • • • Beryllium is very light and exceptionally hard and strong, and many believe that it is destined to share with magnesium and aluminum in the fast-growing demands for light metals to be used in the construction of air craft. It is very light, having about the same specific gravity as magnesium, and is almost as hard as quartz.

The mineral beryl, which seldom contains more than about 5 per cent of the element, is the only recognized ore of beryllium. It is a common accessory in pegmatite veins and is also found in clay slate and mica schist, but hitherto only the gem varieties, including emerald and aquamarine, have been actively sought. In several localities, however, ordinary beryl is produced as a by-product in mining mica and feldspar. • • • A. V. Petar, U. S. Bureau of Mines I. C. 6190.

The occurrence of beryl in the mica deposits of Latah County has been reported.

Building Stone

Sandstone exceptionally adapted to building purposes is found in Ada, Bear Lake, and Cassia counties. One of the principal enterprises in Ada County is that of the Boise Stone Company in quarrying and converting sandstone to building purposes. This enterprise is fully described, with illustrations, in the Twenty-sixth Annual Report of the Mining Industry of Idaho for the Year 1924. The most notable building in Idaho, the State Capitol, is constructed of this stone.

The sandstones in Bear Lake County are described in U. S. Geological Survey Professional Paper No. 152, “Geography, Geology, and Mineral Resources of Part of Southeastern Idaho,” by George Rogers Mansfield; pages 336-338.
Close-up View of Deer Creek Barytes Deposit

Clay

"The different kinds of clay have so many uses that it is probably impossible to list them all, but the following rough classification will serve to point out the great variety of products that contain clay: Structural products: Common brick, tile, etc. Refractories: Fire clay brick and special refractories. Pottery: Tableware, kitchenware, sanitary ware, etc." From U. S. Bureau of Mines Information Circular No. 6155, Clay, by Paul M. Tyler. This publication contains complete information on the occurrence, use, methods of testing, classification and preparation of various kinds of clays.

Clay suitable for structural purposes is found in almost every county in the State, the better grades occurring in Benewah, Cassia, Kootenai, Latah, Lewis, Idaho, Power, and Washington counties.

Clay suitable for refractories and pottery is found in Latah County. The refractory clay is high-grade. One deposit is being exploited, and the manufactured articles are in great demand throughout the Pacific Northwest states.

Coal

Bituminous coal of commercial importance occurs in Teton, Bonneville, Fremont, and Clark counties. No attempt has been made to exploit any of the deposits commercially except those of the Teton Coal Company in Horseshoe Basin, Teton County. In discussing the Horseshoe Basin coal in Pamphlet No. 10, Idaho Bureau of Mines and Geology, "The Horseshoe Basin Area of the Teton Coal Field in Southeastern Idaho," George Watkins Evans said:

"The chemical analysis of this coal indicates that the coal in this field is of as good quality as any mined in Utah or Wyoming. The principal question is whether or not this field can produce a sufficient percentage of lump coal to compete with the larger sizes from Utah and Wyoming.

"From the limited information at hand, it is impossible to make a reliable estimate of the minable tonnage in this field. In the first place, we do not know exactly the total area of the coal bearing strata, nor do we know the number of workable coal beds contained within this field. Any tonnage estimate made at this time must be based upon arbitrary figures and the quantity might be either much more or much less than the figures given.

"If we assume that the Horseshoe bed and the Brown Bear bed are two separate and distinct beds and that the Horseshoe bed will contain 9 feet of coal and that this bed can be mined for a distance of one-half mile on the
dip, and that the bed will continue of fairly uniform character for a distance of 2 miles along the strike, there would be within the Horseshoe bed approximately 5,000,000 tons of coal, provided it will average 6 feet of minable coal and if we allow 1300 tons per foot acre. The Brown Bear bed has an average thickness of about 4 feet and on the same basis would contain a little over 3,000,000 tons of coal. The Boise bed, allowing an average thickness of 3½ feet of minable coal, contains nearly 3,000,000 tons—in all approximately 11,000,000 tons of coal.

"It is not improbable that with future investigations it will be found that the total tonnage of coal in this field is very much greater than the amount of tons suggested. On the other hand, it might be found that the coal contained within these beds is very friable and will not produce any considerable quantity of the larger sizes, and furthermore, it is probable that the market tributary to this field will be so exacting that only the larger sizes can be successfully marketed."

The Teton Coal Company has recently completed a 3600-foot crosscut with a 600-foot connecting raise to the surface, and a tipple for grading the coal. The tunnel intersected three coal beds, two of which were not included in the above estimate; as yet the tunnel has not been completed to the Horseshoe and Boise beds, so it appears that the total tonnage, when this field is fully developed, may be in excess of the estimate.

Lignite is found in Cassia, Boise, Owyhee, Washington, Idaho, Lemhi, and Clearwater counties.

**Diatomaceous Earth**

Diatomaceous earth is more commonly known as infusorial earth, and is sometimes referred to by its German name of kieselguhr. It is composed of the siliceous remains of minute aquatic plants known as diatoms, which are of such proportions that they must be identified chiefly by the aid of the microscope.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; light-weight filler in concrete; in polishing powders; absorbent in dynamite, and in thermal insulator compounds.

Extensive beds of this mineral, in which it can be measured by the acre, are found in Owyhee, Elmore, Camas, Payette, Washington, and Idaho counties. A small tonnage has been obtained from Elmore County for use in Idaho sugar factories.

**Feldspar**

Common feldspars are crystalline compounds of silica, alumina, and one or more of the bases: potash, soda, and lime. There are two principal classes of feldspar—the one including the potash and potash-soda varieties; the other including the soda, soda-lime, and lime varieties. Pure potash feldspars are orthoclase and microcline. The principal use of feldspar is in the manufacture of pottery, chinaware, porcelain, enamel-ware, and enamel brick and tile.

Deposits of high-grade feldspar, occurring as orthoclase, are found in Latah and Adams counties.

**Garnet**

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline limestones. Deposits of garnet possessing the necessary qualifications for ornamental or industrial use and so situated with regard to transportation and markets that they can be exploited commercially are relatively small and occur in only a few areas throughout the United States.

The principal uses of garnet are: As settings in jewelry; jewel bearings in watches; and as an abrasive. Abrasive garnet is utilized either in the form of a manufactured paper similar to sand-paper, or as loose grain or powder for grinding and polishing.

Extensive deposits of garnet adapted to abrasive purposes occur in Adams, Lemhi, Custer, and Cassia counties.
Graphite

Graphite is a soft, black, greasy form of carbon, sometimes referred to in trade as "plumbago" and "black lead." It occurs in nature in two forms, crystalline and amorphous, each having its own peculiar uses.

The physical properties of graphite—infusibility, chemical inertness, high conductivity, extreme softness, and low specific gravity—fit it for a large number of uses: The manufacture of crucibles and other refractory products; lubricants; "lead" pencils; paints; stove polish; foundry facings; and various types of electrical appliances.

Graphite of commercial importance is found in Blaine County, but, owing to the fact that at the ordinary price of graphite it is possible to mine only the most favorably situated deposits, the known deposits in Idaho have never received much attention.

Gypsum

Gypsum is a natural hydrated sulphate of lime. It is a soft, white, chalk-like material, found widely distributed in single crystals and in thick beds. The natural product is generally very pure.

The principal uses of gypsum are as structural material—wall plaster, gypsum boards, blocks and tile—and as an ingredient in Portland cement and plaster of Paris.

Extensive deposits of high-grade gypsum are found in Lemhi, Bear Lake, and Washington counties. These deposits have never been developed, as the low price of the crude product limits production to those States located near the centers of population.

Limestone

Limestone is mined in Bannock, Butte, Boise, Clearwater, Teton, and Bonner counties; Blaine and Bear Lake counties also contain deposits of importance. The limestone mined in Bonner County is shipped to Spokane, Washington, where it is manufactured into Portland cement; the limestone mined in Butte and Teton counties is shipped to the sugar factories of Idaho and Utah, where it is used in the refining of sugar; the limestone mined in Bannock County is manufactured into cement, the plant being located adjacent to the quarry; the limestone mined in Boise and Clearwater counties is sold to the agricultural and poultry industries.

There are unlimited deposits which are suitable to the foregoing industries.

Marble

Marble is dense crystalline calcium carbonate, formed from limestone by the pressure of overlying sediments and the action of underground water. The value depends on the color, which may be white, gray, red, black, or veined, and the grain and structure. Its principal use is for building and monumental purposes.

Marble suitable to commercial purposes occurs in Nez Perce, Butte, and Cassia counties. The deposits in Nez Perce and Butte counties have been slightly exploited.

Mica

The principal physical properties which give value to mica are: Its cleavage, transparency, resistance to decomposition, and non-conduction of electricity and heat. The important uses of mica are: Short mica, in the electrical industries and as glazing for stoves, screens, goggles, and lantern projection; ground mica, in fancy paints, wallpaper, tiles, concrete, rubber goods, roofing materials, lubricants, and insulating compounds.

"Mica deposits of probable value have been found in about half the States of the United States. The principal producing States have been North Carolina, New Hampshire, South Dakota, Idaho, New Mexico, Colorado, Virginia, South Carolina, Alabama, and Georgia."—Schaller, W. T., Mica: U. S. Geological Survey Mineral Resources, pt. 2, p. 280; 1915. The production which gave Idaho this prominent rank was from the mica mines in Latah County.

Deposits of commercial importance occur in Adams and Idaho counties also, although they have never been prospected or developed in proportion to the possibilities which they offer.
Mineral Waters

Mineral springs of various types occur at a great many places throughout the State, the principal types being calcareous, chalybeate, sulphurated, and saline. The temperatures of the different types vary from "cold" to "hot," with some of the latter exceeding the boiling point. Hot springs are the more numerous, and at many of them sanitariums and bathing resorts have been erected.

The chalybeate springs of Caribou County are particularly efficacious from a therapeutic standpoint, although they have never been exploited.

Monazite

The mineral monazite consists chiefly of the phosphate of cerium and variable amounts of thorium, the value depending primarily upon the thorium content. It is a resinous golden-yellow mineral occurring as a placer sand in practically all of the gold placer mines in the State; the quantity varies, and in some of the deposits it is not sufficient to be of commercial importance. The placer deposits of Ada, Idaho, Lemhi, and Owyhee counties contain an appreciable amount of this mineral, and those of Boise and Clearwater counties contain sufficient to be of commercial importance.

The principal use of thorium is in the manufacture of incandescent mantles for gas lighting. Practically all of the monazite used in the United States is imported from Brazil and India.

Nitrates

The occurrence of nitrate in Camas, Elmore, and Owyhee counties has been reported.

Oil and Gas

The same formations which are oil-producing in Wyoming are present in structures highly favorable to the accumulation of oil and gas in Caribou, Bonneville, Teton, Bear Lake, and Bingham counties. A small amount of drilling has been done in Caribou and Teton counties, but the wells were never completed to a sufficient depth to determine the possibilities for the occurrence of oil.

Gas has been developed in Payette and Washington counties.

Phosphate Rock

The greatest potential mineral resource in Idaho is the immense phosphate rock deposits in Bear Lake, Caribou, Bannock, Bingham, and Bonneville counties. Conservative estimates by members of the U. S. Geological Survey accredit Idaho with over 85 per cent of the total phosphate resources of the United States in 288,299 acres out of a total of 386,612 acres which have been withdrawn from public entry. These deposits are fully described with maps, illustrations and analyses by G. R. Mansfield in U. S. Geological Survey Professional Paper No. 152, "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho," from which the following is quoted:

"In Utah, Idaho, Wyoming, and Montana the great bulk of the phosphate rock is on public land, though some has passed into private ownership. The public lands are withdrawn from entry pending their examination and classification. No estimates of the acreage of phosphate land in private ownership are available, but the acreage of the outstanding withdrawals of public land in the States named is shown in Table 38.

| TABLE 38—Outstanding phosphate withdrawals, July 31, 1927 |
|-----------------|-----------------|
|                | Acres           |
| Utah            | 301,945         |
| Idaho           | 396,612         |
| Wyoming         | 996,593         |
| Montana         | 278,944         |
| Total           | 1,966,390       |

"In addition to the land embraced in the outstanding phosphate withdrawals, 268,299 acres in Idaho, 25,293 acres in Wyoming, 3,833 acres in Montana, and 160 acres in Utah—297,585 acres in all—have been examined in detail and formally classified as phosphate land. * * *
"Under the act of July 17, 1914, agricultural entries may be made upon withdrawn phosphate lands, but the mineral rights are reserved to the United States."

TABLE 74a—Estimate of phosphate rock in the United States available December 31, 1925, in long tons

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<td>Eastern field:</td>
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<tr>
<td>Arkansas</td>
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<td>4,997,855,000</td>
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<td>Florida</td>
<td>291,000,000</td>
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<td>339,323,000</td>
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<td>Kentucky</td>
<td>878,000</td>
<td>Utah</td>
<td>326,745,000</td>
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<td>South Carolina</td>
<td>8,788,000</td>
<td>Wyoming</td>
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<td>Tennessee</td>
<td>83,500,000</td>
<td>Less approximate quantity mined since 1906</td>
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</table>

Pyrite

Pyrite of commercial importance is found in Washington County. The development work which has been done on these deposits indicates an immense available tonnage.

Rutile

The occurrence of rutile in Clearwater County has been reported. Rutile, the natural titanium oxide, is used in paints; arc-light electrodes; dyes; and in the manufacture of leather.

Salt

The pioneers evaporated the brine from the salt springs of Caribou County, and this salt was transported to all of the northwestern States before the building of the railroad. The salt obtained from these springs is above the average of the commercial salts of the United States in purity and compares favorably with some of the best salt produced. The salt springs and deposits are described by W. C. Phalen, who estimates 5,000,000 tons in sight, in U. S. Geological Survey Bulletin 669, "Salt Resources of the United States":

"Although the salt bodies or old alkali flats are thus meager in extent, especially in comparison with the other prominent salt-producing areas of the United States, the conservative estimate of 5,000,000 tons for the Crow Creek rock-salt body and the possibility of a larger salt body near the Tygee and Stump Creek forks indicate that the amount of salt apparently in sight in some of the present areas would be sufficient (if proper railroad connections existed) to yield returns on large workings for a long time. It also appears quite probable that all the areas, including the smaller brine springs, contain sufficient salt to return the sums that may be advisedly invested in their development."

Sulphur

Sulphur occurring in extensive deposits and as sulphur springs is found in Caribou County. During the World War a little attempt was made toward the commercial development of these deposits.

Talc

Talc suitable to the electrical and powdered-talc industries occurs in Idaho County in sufficient extent to be of commercial importance.
ADA COUNTY

Ada is one of the southwestern counties, adjoining and lying north and east of Owyhee and Canyon counties, and south of Boise County. It contains 1,154 square miles and was accredited with a population of 37,925 in the 1930 census. Boise, the largest city in the State, is the State capital and county seat. The county is noted for its excellent irrigated farms, and its livestock, farming, and fruit-raising industries.

The State highway, Oregon Trail, extending from the southeast corner of the county to Boise, thence west to Nampa, and the excellent county highways and roads, give this county some of the best roads in the State as well as easy access to the mineralized areas.

Ada is not recognized as a mining county, yet its small mountainous area was once the scene of many active mining operations; and Boise was established as the principal distributing point for miners' supplies when the rich placer diggings of Boise County and adjacent areas were worked in the early days.

The early day mining was based on free gold operations and, as the sulphide zone was encountered at a shallow depth, the mines were soon closed and have remained dormant for many years. The principal ores are lead and zinc, carrying high values in silver and gold, occurring in fissure veins and as replacement deposits in granite. The ore occurrences are well defined and offer good opportunities to prospectors and small operators in search for these metals.

The chief mineral resources are building stone, gold, lead, silver, zinc, and arsenic. Building stone and its accompanying enterprise were fully described in the Twenty-sixth Annual Report, for the year 1924.

1931 Activities

Other than the work done by the Adelmann Bros. at the Blue Grouse group, the mines and prospects in this county witnessed but little increase in attention and development work over that of the previous year. The Boise Stone Co. was idle the greater part of the year and quarried but a small quantity of stone.

Although there was much publicity to further the sale of stock by those attempting to develop oil and gas, no work of any consequence was done.

BERGDAHL OIL CO.

Office: 260-261 Sonna Bldg., Boise. Officers: A. F. Bergdahl, Pres.-Mgr.; C. M. Godfrey, Sec., both of Boise. Inc.: July 16, 1927. Capital: 1,000,000 shares; par value $1; 678,000 shares issued. Property: Leases on 2760 acres of patented land in Ada and Gem counties. Development: Unknown. Plant: Unknown. Mineral sought: Oil and gas. Men employed: Unknown. Remarks: This company was incorporated in 1927. Since then an active stock-selling campaign has been maintained, together with a large amount of publicity to further it. The company reported that it had sunk a well to a depth of 900 ft. The diameter of the well was not given.

BOISE MINING, MILLING & SMELTING CO.


GOLD KING-DELHI MINES CORPORATION

ADA COUNTY

PIONEER IDAHO OIL CO.

RED ROSE GOLD MINES CO.

RELIANCE GOLD MINES CO.

NAME OF MINE MINING DIST. OWNER P. O. ADDRESS
Big Foot Bar Unorganized Archie T. Winter Mt. Home
Blue Grouse Ext, Black Hornet Goodwin & Thacker Boise
Blue Grouse et al. Black Hornet A. G. Adelmann 622 Idaho St., Boise
Five Mile Gr. Shaw Mountain J. M. Roberts 110 E. Ban. St., Boise
Gold Eagle Gr. Black Hornet C. C. Anderson Boise
Hidden Treasure Black Hornet W. P. Richards Boise
Maynard Bros. Highland H. T. Maynard Boise
Monitor Placer Highland W. E. Johnston Boise
Sorrel Horse et al. Black Hornet N. R. C. Adelmann 221 Jeff. St., Boise
White Mineral Black Hornet H. J. Leppert 506 S. 3d St., Boise

BIBLIOGRAPHY
See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, 1921.†
Adams is one of the southwestern counties, adjoining and lying south of Idaho County, north of Washington County, and west of Valley County. The Snake River, which flows north, forms the entire western boundary. The county contains 1,366 square miles and was accredited with a population of 2,867 in the 1930 census, or 2.1 inhabitants to the square mile. The larger part of the population is located in Weiser River and Little Salmon River valleys. The headwaters of the Weiser River, which flows south, and those of the Little Salmon River, which flows north, are located in this county. It is primarily an agricultural county and is noted for its high-quality apples and livestock industry.

The North and South Panoramic Highway extends from the southern to the northern boundaries and is situated in about the geographical center. Branch roads leading to all of the outlying settlements are maintained by the county and U.S. Forest Service. These are kept in good repair and are open to travel during the larger part of the year. In 1925 the Legislatures of Oregon and Idaho each appropriated $25,000 for the construction of a joint State wagon bridge across the Snake River at Ballard's Landing, about three miles north of Homestead, Oregon. It has proved to be an important connecting link between the Oregon highway at Baker and the Idaho highway at Council, which is the county seat and largest settlement of Adams County.

The county is served by two railroads: the Pacific and Idaho Northern, which extends from Weiser to New Meadows, and the Oregon Short Line branch from Huntington to Robinette, Oregon.

Over 90 per cent of the county is mountainous. The mountains are rough and rugged and the bold relief that many of them show on the skyline presents scenic views that are unsurpassed in grandeur, the principal one of which is the Seven Devils, seven serrated peaks which reach high into the skyline, and from which the Seven Devils mining district is named.

During the eighties and early nineties this district was an active mining center. Many mines were in operation, a railroad was projected into it and partly constructed, a smelter was in operation, and three towns of fair sized populations were established. The boom died down in the panic of 1893 and since then no large operations or shipments of any consequence have taken place. The latent mineral resources are practically undeveloped and unexplored. The bold relief permits cheap development work by tunnels and drifts and, as the mineral resources are diverse and varied, the county offers many excellent opportunities to prospectors and development companies. The ores of the Seven Devils district are principally copper carrying silver and gold, with an occasional deposit of lead-zinc ore. The ores of the Indian Creek section are those of silver-copper and lead-zinc-silver. In addition to the five principal metals—copper, silver, gold, lead, zinc—deposits of mica, feldspar, and garnet, of commercial importance, occur in this county. The mica deposits of Council Mountain have received a little attention, although they have never been prospected or developed in proportion to the possibilities which they offer. When the mineral resources of Adams County are properly exploited and developed this county may be recognized as one of the principal mining counties in the State.

1931 Activities

This county experienced but little mining activity during the year. The Idaho Copper Co., which ceased operations in November, 1927, continued idle. A few prospectors in the Council Mountain, Heath, and Indian Creek districts increased their work over that of 1930, and one marketed a small amount of ore. At the close of the year arrangements were being completed to revive one of the silver properties in the Indian Creek district.

The copper prospects near Homestead, Oregon, on the Idaho side of the river, received a little more attention than usual.
AMERICAN MINING CO., LTD.

BLACK HORSE GROUP

IDAHO COPPER CO.
Office: 745 Rowan Bldg., Los Angeles, Calif. Officers: O. H. Griggs, Pres.; Cooley Butler, Mgr., both of 745 Rowan Bldg., Los Angeles, Calif.; Carey H. Nixon, Sec., Boise. Inc.: Jan. 10, 1920, as Idaho Copper Co., Ltd. Name changed May 24, 1926. Capital: On Feb. 9, 1925, the capital was increased from 50,000 shares, par value $10, to 10,000,000 shares, par value $1; 9,664,755 shares issued. Property: Red Ledge group; 31 patented, 22 unpatented claims, Seven Devils dist.; R. R. and P. Homestead, Ore., 18 miles. Development: 3 tunnels on Deep Creek: No. 1, 950 ft. long; No. 2, 2400 ft. long; No. 3, 100 ft. long; tunnel No. 4 at Eagle Bar, 700 ft. long. In addition to the tunnels, approximately 10,000 ft. of diamond drilling has been done on the property. Plant: 600-cu. ft. I. R. compressor, driven by 120 h. p. Diesel engine; complete mining equipment and camp at No. 4 tunnel. Ore: Copper. Men employed: One watchman. Remarks: Idle throughout the year. Property mortgaged to Cooley Butler.

IDAHO COPPER CORPORATION

IDAHO MINES CO., LTD.

NATIONAL COPPER MINES CO.

RUBY MINING CO.

NAME OF MINE        MINING DIST.        OWNER            P. O. ADDRESS
Alaska et al.       Seven Devils         Mrs. S. J. Stephens  Cuprum
Amadore et al.       Seven Devils         Mrs. Anna Dimick    San Antonio, Texas
American Flag et al. Mountain View Mary Z. Finney     Cleveland, Ohio
Andy O'Toole Gr.     Seven Devils         L. A. Aplington     Homestead, Ore.
Arkansaw             Seven Devils         E. C. Westervelt    11 Broadway, New York City

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<table>
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<th>NAME OF MINE</th>
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BANNOC COUNTY

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See pages 7-8 for publisher’s address, meaning of reference marks, and abbreviations.


The Seven Devils and the Snake River district, by G. D. Reid: Eng. and Min. Jour., vol. 84, p. 401, Aug. 31, 1907.§


BANNOC COUNTY

Bannock County is one of the largest and most important of the southeastern counties. It is bounded on the north by Bingham County, on the east by Caribou and Bear Lake counties, on the south by Franklin and Oneida counties, and on the west by Power County. It has an area of 1837 square miles and was accredited with a population of 31,266 in the 1930 census. Pocatello, the second largest city in the State, is the county seat and principal division point of the Oregon Short Line Railroad.

The county is served by two State highways, the Oregon Trail, and Yellowstone Park. The former is the main east and west trunk line, and the latter is the main north and south trunk line of the State system.

The principal mineral resources are phosphate rock, limestone, manganese, copper, silver, gold, and building stone. The limestone is suitable for Portland cement and, as the deposits are extensively distributed and adjacent to transportation, they will eventually add a new and important industry. The phosphate rock covers a large area and constitutes an important latent resource. Considerable prospecting has been done on the copper veins which are found in the Portneuf Mountains south of Pocatello. In 1909 a mill was constructed at one mine; but other than the necessary annual labor no work of importance has been conducted for a number of years. Reports on the manganese deposits near Cleveland and Lava Hot Springs, which were discovered during 1924, indicate that the ore is high grade and that there is a large tonnage available.
1931 Activities

The Idaho Portland Cement Co., near Inkom, about 12 miles from Pocatello, whose product is marketed under the trade name of "Eagle Brand," was active throughout the year and manufactured and marketed a large tonnage. Two of the manganese mines near Cleveland were active during the greater part of the year. One of them, the Idaho Manganese Mining Co., produced a substantial tonnage of high-grade manganese ore.

The Chatterton Mining Co., which is developing a lead prospect in the Swan Lake section, did a small amount of development work.

Rannock Manganese Mining Co., Ltd.

Chatterton Mining Co.

Cleveland Mining Corporation

Emerald Oil & Gas Co.

Fort Hall Mining & Milling Co., Ltd.

Idaho Manganese Mining Co.

Idaho Portland Cement Co.
See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, 1920.‡


Triassic and Jurassic formations in southeastern Idaho and neighboring regions, by G. R. Mansfield: Am. Jour. Sci., vol. 50, pp. 53-64, July, 1920.§

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, 1927.‡


BEAR LAKE COUNTY

Bear Lake is the extreme southeastern county of the State. It is bounded on the east by the State of Wyoming and on the south by the State of Utah. On the north and west it adjoins Caribou, Bannock, and Franklin counties. It has an area of 980 square miles and was accredited with a population of 7,872 in the 1930 census. Montpelier, situated in the center of a rich agricultural valley, is the largest town; and Paris, located near the north end of Bear Lake, is the county seat.

The State highway, Oregon Trail, and the main line of the Oregon Short Line Railroad traverse the county east and west, thus giving it good transportation facilities.

The principal mineral resources are phosphate rock, gypsum, manganese, copper, lead, and silver. There are also excellent possibilities for petroleum. Estimates made by geologists of the U. S. Geological Survey credit the State with more than five billion tons of minable phosphate rock, over 85 per cent of the total known phosphate resources of the world. The largest and most accessible areas containing this rock are in Bear Lake County. Phosphate is a necessary soil constituent and it is through the existence of the Idaho deposits that the future of American agriculture is assured. These deposits are practically untouched, as present freight, market, and price conditions are preventing profitable production. They are the greatest potential mineral resources within the State and when properly developed the mining enterprises will dwarf many of the now famous mining districts in the United States. These deposits are fully described, with analyses and tonnage estimates included, in the numerous publications referred to in the bibliography of this county. Four mines are properly equipped with the necessary surface and mining plants, all have a large available tonnage, and production can be started without delay whenever conditions will warrant it.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho." This appeared during 1927; it is profusely illustrated with pictures, maps, and
diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

Many structures favorable to the accumulation of gas and petroleum in commercial quantities are found in this county. As the formation is similar to the formations in Wyoming which are producing oil, it is reasonable to expect that the probabilities should be at least equal on the Idaho side of the State line.

1931 Activities

The Solar Development Co., Ltd., a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which acquired and started work on a phosphate mine near Paris in 1930, was active throughout the entire year. This company maintained a large pay roll, produced a substantial tonnage of phosphate rock, and performed a large amount of development work, the principal part of which was sinking an inclined shaft 200 feet deep and running a large amount of lateral drifts. The phosphate rock is shipped for treatment to the acid phosphate plant of the Consolidated Mining & Smelting Co., at Trail, B. C. This plant was built in 1929 and 1930 at a cost of more than $7,000,000. The manufactured product, a triple superphosphate, is marketed under the trade name of "Elephant Brand." All the other companies holding phosphate mines in this county were idle throughout the year.

The Gold Star Mining Co. and the Utah-Idaho Mining & Milling Co., whose copper properties are located near Bloomington, both performed a considerable amount of development work, and the latter extended its vertical shaft to a depth of 200 feet.

The Sunset Mining Co. did a large amount of development work and produced a substantial tonnage of high-grade lead ore, which was stored.

AGRICULTURAL POTASSIUM-PHOSPHATE CO. OF CALIFORNIA, LTD.

BLACKSTONE MINING & POWER CO.

COPPER RESERVE MINING & REDUCTION CO.

GOLD STAR MINING CO.

PARIS MINING & MILLING CO., INC.
SAN FRANCISCO CHEMICAL CO.

SOLAR DEVELOPMENT CO., LTD.
Office: Trail, B. C. Officers: J. J. Warren, Pres., Montreal, Quebec; G. A. Wallinger, Acting Sec., Trail, B. C. Inc.: Filed in Idaho: Sept. 14, 1923. Capital: 500 shares; no par value; 80 shares issued. Property: 3 patented claims held under lease and option from Francis A. Jeffs, Rockland, Mich. Development: Principally by an inclined shaft, 200 ft. deep, with two intermediate levels. Total development, more than 2300 ft. Plant: Gas-driven 310 cu. ft. air compressor; complete equipment. Ore: Phosphate rock. Men employed: Average, 25. Remarks: This company, a subsidiary of the Consolidated Mining & Smelting Co. of Trail, B. C., which acquired and started work on a phosphate mine near Paris in 1930, was active throughout the entire year. It maintained a large pay roll, produced a substantial tonnage of phosphate rock, and performed a large amount of development work, the principal part of which was sinking an inclined shaft 200 feet deep and running a large amount of lateral drifts. The phosphate rock is shipped for treatment to the acid phosphate plant of the Consolidated Mining & Smelting Co., at Trail, B. C. This plant was built in 1929 and 1930 at a cost of more than $7,000,000. The manufactured product, a triple superphosphate, is marketed under the trade name of "Elephant Brand." All the other companies holding phosphate mines in this county were idle throughout the year.

STOCKHOLDERS' SYNDICATE
Office: 1240 So. Main St., Los Angeles, Calif. Officers: F. W. Braun, Pres.; Roy V. Boswell, Sec., both of Los Angeles, Calif. Inc.: May 27, 1913. Capital: 500 shares, par value $100; all shares issued. Property: 16 patented claims; approximately 2400 acres; unorganized dist.; George-
town; R. R., Georgetown, 8 miles. **Development:** 9 tunnels, 2 shafts, approximately 800 ft. **Ore:** Phosphate rock. **Remarks:** Idle. This company owns the property formerly owned by the Utah Fertilizer & Chemical Mfg. Co.

**SUNSET MINING CO.**
**Office:** St. Charles. **Officers:** Emery Welling, Pres.; Wm. Clark, Sec.-Mgr., both of St. Charles. **Inc.:** A partnership. **Property:** Sunset group; 13 unpatented claims, unorganized district; St. Charles. **Development:** Principally by an inclined shaft 350 ft. long. Total development, approximately 1000 ft. **Plant:** Small gas-driven hoist. **Ore:** Lead. **Men employed:** Average, 5. **Remarks:** Active throughout the year. A substantial tonnage of ore was produced and stored.

**UTAH-IDAHO MINING & MILLING CO.**
**Office:** Paris, Idaho. **Officers:** H. R. Shepherd, Pres., Paris; H. H. Broomhead, Sec., Bloomington. **Inc.:** Aug. 23, 1926. **Capital:** 1,000,000 shares; par value 2c; 750,000 shares issued. **Property:** Old Boulder group, 18 unpatented claims held under lease and option; unorganized dist.; Paris. **Development:** By 3 tunnels: No. 1, 600 ft. long; No. 2, 150 ft. long; No. 3, 200 ft. long; and a vertical shaft 200 ft. deep. **Plant:** Small steam-driven compressor. **Ore:** Copper. **Men employed:** Average, 4. **Remarks:** The principal shaft was extended 100 ft. during the year. Stock assessments were levied as follows: Jan. 24, 1 mill; May 11, 1⅔ mills.

**WASATCH MINING & DEVELOPMENT CO.**
**Office:** Preston. **Officers:** G. A. Ransom, Pres.-Mgr., Paris; Chas. Ransom, Sec., both of Preston. **Inc.:** Feb. 6, 1928. **Capital:** 500,000 shares; par value 10c; 282,000 shares issued. **Property:** Midway group; 5 unpatented claims held under lease and option; unorganized dist.; Bloomington. **Development:** By 4 short tunnels. **Remarks:** Failed to file the reports required by law.

**BIBLIOGRAPHY**

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


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BENEWAH COUNTY


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BENEWAH COUNTY

Beneawah is one of the northern counties. It is bounded on the west by the State of Washington, on the north by Kootenai County, and on the east and south by Shoshone and Latah counties. It has an area of 786 square miles and was accredited with a population of 6,371 in the 1930 census. St. Maries, the county seat, is the largest town in the county. Except a small area along the St. Joe and St. Maries Rivers, and the section adjacent to the town of Plummer, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The county is noted for its timber and lumbering industries.

The county is served by lake-boat transportation from Coeur d'Alene to St. Maries, and by two railroads: The Tekoa, Wn.-Wallace, Idaho, branch of the O. W. R. & N. (Union Pacific System), and the main line of the Chicago, Milwaukee & St. Paul Railroad, with its branch line extending from St. Maries to Elk River (Clearwater County).

The principal mineral resources are gold, copper, silver, lead, zinc, iron, and clay. The deposits containing the principal metals have received a small amount of attention; and many of the clays are exceptionally adapted to the ceramic industry. The St. Joe district, which lies east of St. Maries, and the Hoodoo and Camas Cove districts, in the southeastern corner, are the principal mining districts.

1931 Activities

The principal enterprise in this county is that of the Rainbow Mining & Milling Co., Ltd., which is driving a long crosscut. The company was active throughout the year and advanced the crosscut to a total length of 2,400 feet. The Butte Mining Co., whose property adjoins that of the Rainbow Mining & Milling Co., Ltd., did a small amount of development work and constructed approximately 2 miles of trail. The properties of these companies are located in the St. Joe district near Medimont.

Other than annual labor, all of the companies whose properties are located near Round Top Mountain were idle, and no new enterprises were started.
BUTTE MINING CO.

OTHELLO MINING CO.

RAINBOW MINING & MILLING CO.
Office: 301 Mohawk Bldg., Spokane, Wash. Officers: Geo. Austin, Pres.-Mgr.; T. W. Schmidt, Sec., Coeur d'Alene. Inc.: June 20, 1907. Capital: 2,000,000 shares, par value 25c; increased Jan. 16, 1931, to 1,108,998 shares preferred, 991,002 shares assessable common, par value 25c; changed Feb. 21, 1931, to 1,618,771 shares assessable common, par value 25c, 381,229 shares preferred, par value $1; 891,002 shares common issued. Property: 16 unpatented claims, St. Joe dist.; Medimont. Development: Principally by one tunnel 2400 ft. long. Plant: Gas-driven compressor, steel sharpener, and complete mining equipment and camp. Ore: Lead-silver. Men employed: Average, 4. Remarks: The tunnel was advanced 800 ft. during the year. Funds for this work were derived principally from stock assessments.

ROUND TOP MINING CO.

SILVER STAR MINING & DEVELOPMENT CO.

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BINGHAM COUNTY

BIBLIOGRAPHY

See pages 7-8 for publisher’s address, meaning of reference marks, and abbreviations.


BINGHAM COUNTY

Bingham, a southeastern county, is primarily an agricultural community. It occupies a large part of the Snake River Valley and is bounded by Butte, Blaine, Power, Bannock, Caribou, Bonneville, and Jefferson counties. It has an area of 2184 square miles and was accredited with a population of 18,561 in the census of 1930.

The extensive phosphate beds of southeastern Idaho are exposed in the Blackfoot Mountains which cover the eastern part of the county. Coal also has been found in these mountains, notably along Willow Creek, a small stream which flows in a northerly direction through the east end of the county. The coal beds have received a little attention from prospectors but no coal of commercial importance has been discovered. Structures that appear likely for the presence of petroleum are present also. The fine gold in the placer deposits along Snake River is the only metal resource of the county. In the past these deposits have received the attention of placer miners, but nothing of importance was reported during the year.

MARY LEE GOLD MINING CO.


NAME OF MINE MINING DIST. OWNER P. O. ADDRESS

Eagle Bend Pl., Snake River Alma Clough Pingree
Eldorado Placer Snake River Robert Wheeler Sterling
Oborn & Coler Pl. Snake River John Oborn Blackfoot
Parsons Placer Snake River W. G. Parsons Aberdeen
Snake River Pl. Snake River G. E. Campbell Blackfoot
Woodruff Bend Pl. Snake River James G. Walsh Blackfoot

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BLAINE COUNTY

Blaine County is bounded on the west by Camas County, on the north by Custer County, and on the east and south, in its greater extent, by Butte and Lincoln counties. Its principal area comprises the drainage basin of Big and Little Wood rivers, which flow in a southerly direction. Its total area is 2797 square miles. The 1930 census accredited the county with a population of 3,768, or 1.3 persons to the square mile. In location it is one of the south-central counties and comprises part of the region known as "Central Idaho's Mineral Empire." The county is primarily recognized as a mining county, but it is also noted for its agricultural and stock raising industries; particularly sheep, as it is one of the largest sheep shipping points in the United States.

The county is served by the Wood River branch of the Oregon Short Line Railroad, which extends from Shoshone to Ketchum; by the Sawtooth Park State highway (U. S. No. 93), State highway No. 22, and a well-kept system of county roads which extend into all of the various mining districts and sections. All roads are kept in good repair and are open to travel during the larger part of the year. Hailey is the largest town and county seat.

The first discovery of lead-silver ore in the State was made in Blaine County, which was then called Alturas County. The first ore was marketed in 1880 and since then this county has been a consistent producer of these metals. Most of the ores are of such high grade that they can be shipped direct to the smelter without preliminary treatment, thus assuring immediate returns from all discoveries. This fact and the possibilities of discovering and opening new ore bodies will continue to hold Blaine County, particularly the Wood River district, in popular esteem as a favorite section of the State for prospectors, development companies, and those seeking a worthy field for mining enterprises.

The high-grade ores of lead and silver are widely distributed throughout the county, as well as those of gold, zinc, and copper. In addition to the five principal metals—lead, silver, zinc, gold, and copper—deposits of arsenic, antimony, bismuth, quicksilver, graphite, barytes and limestone are found in this county. These minerals occur in sufficient extent to be of commercial importance, and many of the deposits offer an excellent opportunity to development companies or to those in search of these minerals or metals. The barytes deposits are the largest that have ever been found west of the Mississippi River. One large deposit on Deer Creek has been purchased by the Bunker Hill & Sullivan Mining & Concentrating Co.
1931 Activities

The two most active enterprises in this county were the Liberty Gem Mines, Inc., whose property is located 7 miles west of Hailey, and the Idaho Mineral Products Co., Ltd., which is operating the Vienna mine in the Sawtooth district. The former extended its vertical shaft an additional 100 feet, did a large amount of drifting and crosscutting on the 100 and 200 foot levels, readjusted its mill, and in December produced a small tonnage of concentrate, which was stored. The Idaho Mineral Products Co., Ltd., maintained active development work throughout the year, installed new milling equipment, and commenced milling operations in December. This company, in cooperation with the State highway department, opened Galena Summit to motor vehicle travel in December in order that the company might complete the storing of winter supplies.

The Triumph mine, of the Hailey Triumph Mines Co., was idle throughout the year. A few lessees maintained work at the mines owned by the Midvale Mining Co. and Ervine Mining Co., and at the Independence and North Star mines of the Federal Mining & Smelting Co. Development work was maintained without interruption at the properties of the Utah-Bellevue Mines Co., near Bellevue, and the Wood River Mining Co., and at the Parker mine, which is being operated under lease and option. The two last-mentioned properties are located in the Elkhorn section of the Warm Springs Creek mining district near Ketchum.

The Silver Star-Queens Mines, Inc., at the Queen of the Hills group, near Bellevue, reopened an additional part of the Lusk tunnel during the early part of the year. Other than annual labor, all of the companies operating in the Muldoon district were idle. The Treasure Vault Mining Co., whose property is located west of Hailey, and Peter L. Kent at the Lone Pine Tree group, near the Red Cloud mine, on Deer Creek, both performed a small amount of work during the summer.

ARGO MINING CORPORATION

ARGOSY MINING & MILLING CO., LTD.

Baltimore & Victoria Mining Co.

Blackjack Mines Corporation
BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
(See Shoshone County)

DAISY MINING & MILLING CO., LTD.

ERVINE MINING CO.

EUREKA DEVELOPMENT CO., LTD.
Office: 319 Dooly Blk., Salt Lake City, Utah. Officers: W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah. Inc.: June 28, 1905. Capital: 200,000 shares; par value 50c; 120,794 shares issued. Property: Eureka group; 12 patented, 10 unpatented claims, Mineral Hill dist.; Hailey, 7 miles. Development: Total development approximately 12,900 ft., the length of the principal workings being: Bay State, 1000 ft.; Chicagoan, 300 ft.; Whale, 1400 ft.; Eureka, 3920 ft.; Idahoan, 5000 ft. One inclined shaft 700 ft. long; 1 inclined shaft 435 ft. long. Plant: MINE: 8x10 Lidgerwood hoist; 1 I-R 420 cu. ft. compressor; 1 C-P 7'65 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. Ore: Lead-silver. Remarks: Active mining operations were suspended on August 1, 1923, after which various parts of the Independence and North Star mines have been operated by lessees. A small tonnage was produced and marketed during the year.

FEDERAL MINING & SMELTING CO. (See Shoshone County)
Office: Wallace. Officers: F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; H. G. Washburn, Mgr., Wallace. Property: Independence, North Star, Koeninger and Malta groups; 45 patented, 4 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles. Development: Approximately 10 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. Plant: MINE: 1 English Iron Works 202 single drum 25 h. p. electric hoist; 1 Lidgerwood 8x10 air hoist; 1 I-R 420 cu. ft. compressor; 1 C-P 765 cu. ft. compressor. All electrically driven. Electric haulage through Plummer tunnel. One Waugh drill sharpener and complete mine equipment; 4400 ft. Riblet aerial tram from Plummer tunnel to mill, capacity 20 tons an hour. Shops, timber sheds and bunk houses. MILL: 350-ton concentrator; jaw and gyratory crushers; rolls; Marcy ball mills; Hancock jigs; drag classifiers; Wilfley tables; Dorr thickeners; Oliver filters; electric power. Ore: Lead-silver. Remarks: Active mining operations were suspended on August 1, 1923, after which various parts of the Independence and North Star mines have been operated by lessees. A small tonnage was produced and marketed during the year.

FIELDS MUTUAL DEVELOPMENT CO.
HAILEY BONANZA MINING CO.

HAILEY TRAMWAY CO.

HAILEY TRIUMPH MINES CO.

HOMESTAKE MINES CORPORATION
Office: Ketchum. Officers: H. L. Kaufman, Pres.-Mgr., Ketchum. Inc.: July 27, 1927. Capital: 1000 shares; par value $100; all shares issued. Property: Homestake group; 13 unpatented claims, Warm Springs Creek dist.; Ketchum. Development: Approximately 4000 ft. of workings, the principal being: No. 3 tunnel, 500 ft. long; No. 4 tunnel, 800 ft. long; No. 5 tunnel, 1500 ft. long; No. 6 tunnel, 1800 ft. long. Plant: Gas-driven C-P compressor; complete mining equipment. Ore: Lead-silver-zinc. Remarks: Annual labor only.

IDAHO MINERAL PRODUCTS CO.
Office: Hailey. Officers: G. P. Williams, Pres., Calgary, Canada; J. G. Hedrick, Sec., Hailey; J. L. Mercer, Mgr., Obsidian. Inc.: July 6, 1920. Capital: 100,000 shares, par value $1; increased Nov. 25, 1931, to 1,000,- 000 shares, par value $1; 300,000 shares issued. Property: Vienna group; 35 patented, 8 unpatented claims, held under lease and option, Sawtooth dist.; Ketchum. Plant: MINE: 75 h. p. Diesel engine driving compressor. MILL: gas-driven jig concentrator. Ore: Silver-lead. Men employed: Average, 10. Remarks: Active development work throughout the year. New milling equipment was installed, and milling operations were commenced in December.

IVANHOE MINING CO.

JENNIE R MINING CO.
LIBERTY GEM MINES, INC.
Office: 610 Eastman Bldg., Boise. Officers: Guy E. Mathews, Pres.; G. Arlon Mathews, Sec., both of Hailey. Inc.: Sept. 13, 1927. Capital: 250 shares; no par value; all shares issued. Property: Liberty group; 20 unpatented claims, Mineral Hill dist.; Hailey. Development: Numerous open cuts and 6 4x6-ft. vertical shafts, the deepest of which is 200 ft. Total development, 1000 ft. Plant: Mine: 2 electrically driven compressors; air-driven hoist; complete mining equipment and camp. Mill: Fine-grinding selective flotation, 100-ton capacity. Ore: Lead-silver-zinc. Men employed: Average, 10. Remarks: The principal shaft was extended an additional 100 ft.; a large amount of drifting and crosscutting was done on the 100 and 200 ft. levels; the mill was readjusted; and a small tonnage of concentrate was produced in December. The funds were derived from the sale of stock on a basis of $4,000 per share.

LIBERTY GEM MINES, INC.

MIDVALE MINING CO.

PAYMASTER MINING CO.

QUINOY JUNIOR MINING CO.
RED ELEPHANT CONSOLIDATED MINES CO.

SILVER SPAR MINING CO.

SILVER STAR-QUEENS MINES, INC.

TIP TOP GROUP MINING CO.

TORBANEHILL MINING CO.

TREASURE VAULT MINING CO.

UNITED MINES CO. OF IDAHO, INC.

UTAH-BELLEVUE MINES CO.
WOOD RIVER MINING CO.


NAME OF MINE       MINING DIST.          OWNER                  P. O. ADDRESS

Ajax                Mineral Hill          Leo Barrett            Hailey
Alabama             Little Wood R.         Joe Longono            Muldoon
Alexander           Warm Spgs. Cr.        Oscar Griffith         Ketchum
Alturas & Scotia    Sawtooth             Frank Becker          Halley
Amazon              Mineral Hill          Chas. R. Walters       Halley
Anablebe            Mineral Hill          Sibbie Tandy          Hailey
Anna                Mineral Hill          Mrs. P. McMonigle      Hailey
Anna et al.         Warm Spgs. Cr.        Frank Langell         Hailey
Bald Eagle          Mineral Hill          Cecelia J. Thomas     Hailey
Barbara             Mineral Hill          John Utsch            Halley
Battling Jack Gr.   Sawtooth             H. J. Vorberg          Hailey
Bavarian            Mineral Hill          Beck Bros.            Boise
Beaver Gr.          Sawtooth             Jos. Siker             Hailey
Big Mint            Mineral Hill          E. B. Williams         Boise
Black Barb          Mineral Hill          Magnolia Gutches       Hailey
Black Diamond       Warm Spgs. Cr.        Mrs. Cecilia Roark     Bellevue
Black Horse         Mineral Hill          Augustine Johnson     Hailey
Blue Bell           Warm Spgs. Cr.        Rodney Brown Est.      Bellevue
Bob Tail            Mineral Hill          J. L. Van Over         Boise
Bonanza             Mineral Hill          M. W. Wood             Ketchum
Boulder Gr.         Warm Spgs. Cr.        C. Fred Howe           Hailey
Boyle Mt. Gr.       Warm Spgs. Cr.        Fred Vancil            Hailey
Broadway            Warm Spgs. Cr.        G. G. Brown            Hailey
Bromide et al.      Mineral Hill          Ella Bresnahan         Hailey
Bull Whacker        Mineral Hill          W. J. Sowden Est.      Hailey
California          Mineral Hill          Mark Aukema            Hailey
Carboniferous       Mineral Hill          Frank H. Morris       San Francisco, Cal.
Chloride Point      Warm Spgs. Cr.        Raymond Guyer          Hailey
Climax              Mineral Hill          Geo. Choate            Boise
Climax Fac.         Mineral Hill          Davidson Groc.        Hailey
Comet Gr.           Mineral Hill          L. A. Ditmer Est.      Hailey
Compensation Gr.    Mineral Hill          Mark Aukema            Hailey
Con Virginia         Mineral Hill          Rodney Brown           Hailey
Cotton Wood et al.  Mineral Hill          Fred C. Robertson      405 Hyde Bldg.,
Croesus Gr.         Mineral Hill          E. A. Obenchain        Ketchum
Crown Point         Warm Spgs. Cr.        Clarence Bonning       Ketchum
Daisy               Warm Spgs. Cr.        W. J. Oliver           Halley
Daisy               Mineral Hill          W. H. Uhrig            Gannett
Delsie et al.       Unknown              Fred W. Smith Est.     Halley
Dewey Gr.           Mineral Hill          J. J. Connor           Heyburn
Easter              Resurrection          R. B. French et al.    Hailey
Edris               Mineral Hill          Mrs. Horace Lewis     Ketchum
Elkhorn             Warm Spgs. Cr.        W. A. Holland Est.     Hailey
Ellen Stilts        Mineral Hill          Beck Bros.             Rupert
Elmo                Mineral Hill          Geo. W. Hunter         Bellevue
E. Pluribus Unum    Mineral Hill          A. R. Griffith         Ketchum
Evelyn              Warm Spgs. Cr.        L. P. McPheters        Ketchum
Extension           Warm Spgs. Cr.       
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See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


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Boise County is one of the principal mining counties in the southwestern part of the State. It is bounded by Ada, Gem, Valley, Custer, Blaine and Elmore counties. Included within its area are a part of the drainage basin of the Payette River, practically all of the drainage basin of the South Fork of the Payette River, and all of the drainage basins of Grimes Creek and Moore Creek. The last two comprise the area generally known as the Boise Basin. The county has a total area of 1,840 square miles, and was accredited with a population of 1,847 in the 1930 census, or one person to the square mile. The principal industries are mining, stock raising, timber and lumbering.

Different sections of the county are served by Federal and State highways, which are supplemented by well-maintained county roads. These roads extend into all the various mining districts and are open to automobile travel during the larger part of the year. The western part of the county is traversed by the Nampa-McCall branch of the Oregon Short Line Railroad; the central part, or Boise Basin, is served by the Intermountain Railroad, which extends from Barber, near Boise, to Stierman and Idaho City. Idaho City, the county seat, and one of the oldest towns in the State, dates its existence from 1863, the time of the original gold rush to the Basin. It once boasted of a population as high as seven to ten thousand.

The history of Boise County dates back to the formation of the State in 1860, when placer gold was first discovered near Pierce City (Clearwater County). The overflow from this stampede resulted in the discoveries of Elk City, Florence, and Boise Basin, in quick succession; and by 1863 Boise Basin was one of the most thriving communities in the western part of the United States. In July, 1864, more than nine thousand 20-acre placer claims had been recorded in the three principal mining districts.

During the first few years after the discovery of gold all mining was confined to the placers which were susceptible to hand methods. After these became less profitable, numerous ditches 5 to 30 miles in length were constructed, and hydraulic mining of the higher bench gravels was started. These operations were conducted for many years, and a few have survived to the present day.

Shortly after the placer rush had subsided, attention was given to quartz mining; many discoveries soon were made, mills were constructed, and deep mining started. The principal discovery was the Gold Hill mine at Quartzburg. In 1863 the vein was exposed by placer mining, and by 1867 a mill had been built and was in operation. Except at brief periods when it was being repaired, the mill was operated continuously for 12 years. The mine has been in almost continuous operation since the day of discovery and is credited with a production of six to eight million dollars. This record gives it the distinction of being the oldest and largest producing gold mine in the State. The vein has been opened to a vertical depth of 850 feet only; at this point the ore is still persistent both in grade and extent, and there appears to be no reason why it should not continue deeper.

In addition to the Gold Hill, many other gold mines have a large production record. This production, combined with that derived from placer mining, both hydraulic and dredging, held Boise County in first place in gold production in the State until the year 1923, and it regained this position in 1928. The opening of the ore bodies on the 850-ft. level of the Gold Hill mine, the production from the Belshazzar mine, and the new ore disclosures made during 1930 were instrumental in attracting much attention to the county, as well as proving the permanence of the ore bodies.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by the methods then in use, he disregarded all veins containing the sulphide, or base, ores. Before these ores became valuable prospecting had practically ceased, so the result is that this county offers one of the best fields in the State to prospectors or small development companies in search of lead-zinc-silver ores. Deposits of these metals are widely distributed throughout the county; and a few have been
partially developed. When properly exploited and intelligently managed, they will become an important factor in the future prosperity of Boise County and the City of Boise, and will give the State an additional lead-zinc producing district. Although Boise County has always been known as a gold producing county, there are numerous widely distributed deposits of lead, silver, zinc, copper, bismuth, and antimony; in addition to these, monazite is found in the placer deposits in sufficient quantity to be of commercial importance.

1931 Activities

The gold resources of this county, both placer and lode, received much attention. A number of new mining companies were organized to develop the quartz properties, and during the summer scores of placer miners were active in almost every gulch in Boise Basin. The larger companies increased their production in the early part of the year, and the outlook was favorable for a considerable increase in gold production; but the burning of the dredge owned by the Idaho Gold Dredging Corporation in July and the disastrous forest fire which swept over the county in August, destroying the town of Quartzburg and the entire surface plant of the Gold Hill & Iowa mine of the Talache Mines, Inc., greatly curtailed the output. The surface plant at the Golden Age Junior mine and the plants of a number of small companies were also destroyed in the August fire.

Until its surface plant was burned, the Talache Mines, Inc., at the Gold Hill and Iowa mine, continued to be the largest gold-producing mine in the State. The shaft was extended from the 850-foot level to the 1,100-foot level, and a large amount of new ore was opened on the 850, 700, and 600 foot levels. After the wreckage of the fire was cleared away, and the electric power line was rebuilt, a new electrically driven hoist, pump, and compressor were installed, the mine was unwatered, and work was started on crosscutting to the ore body on the 1,100-foot level.

The Idawa Gold Mining Co. continued to be an important gold producer and maintained milling and development work throughout the larger part of the year. However, late in the year the mine was closed, and all operations were suspended pending a readjustment of the company's corporate affairs.

The Mineral Mining Co. performed a large amount of mine development work, operated its mill intermittently, and marketed a substantial tonnage of high-grade gold-lead concentrate. Mayflower Gold Mines, Inc., a new organization, operating the Mayflower group, which is adjacent to the Gold Hill & Iowa mine at Quartzburg, maintained work throughout the year. The management reported the development of a sufficient tonnage of ore to justify the installation of a mill, plans for which were completed at the close of the year. The Ideal Mining Co., operating the Mountain Chief group under lease and option, conducted mine development work throughout the year and operated the mill for a short period. The Come-Back Mining Co., whose property is located near Pioneerville, at Grimes Pass, was active throughout the year, performing a large amount of development work and producing and marketing a small tonnage of high-grade gold-silver ore. Press reports were to the effect that this company commenced installing a small milling plant.

The Idaho Gold Dredging Corporation, which was operating a dredge on Grimes Creek near Pioneerville, was active during the early part of the year and increased its production over that of the previous year. However, a fire destroyed the dredge in July, and the company then suspended all operations.

The Crooked River Mining Co. gave an option on its property and dredge at the Kempner Ranch placer to M. T. Rowland, who further altered the dredge and then operated it for a short period. Again the dredge proved to be improperly constructed, and all operations were suspended pending further refinancing and reconstruction.

New companies which entered this county during the year and which conducted a substantial amount of development work and installed a small amount of mining equipment were: Alandoc Mining Co., a placer mine enterprise at old Centerville; June Mining Corporation, at the Boulder mine; Clear Creek Development Co., near Pioneerville; and Golden Dream Mining Co., a placer enterprise, on the North Fork of the Boise River.
The "Continental Mining Co. and Inc." completed the installation of a small jig concentrating plant, performed a small amount of mine work, and marketed two small lots of concentrate. The property of the Boise Placer Co. was sold under foreclosure proceedings and was idle throughout the year. The Grandview mine and the calcite plant at Banks, of the American Mines Development Co., Inc., and the mine of the Missouri Mining Co., Ltd., were idle. The Franklin Placer Co. rebuilt part of its ditch and flume lines and washed a small amount of gravel. Jarvis Bros., at the Hay Fork mine, did a small amount of mine work and constructed one-half mile of new road.

The increase in the gold content of the ore of the Gold Hill and Iowa mine as greater depth was obtained greatly stimulated prospecting, new development work, and investigations by those seeking gold mines. Much of the new work was intelligently directed, but some of it proved disappointing because it was based upon incorrect assays.

**Alandoc Mining Co.**

**Office:** 304 Noble Bldg., Boise. **Officers:** A. L. Heine, Pres.; James H. Hawley, Jr., Sec., both of Boise; A. L. Ternan, Mgr., Quartzburg. **Inc.:** June 22, 1931. **Capital:** 400,000 shares; par value 25c; 204,000 shares issued. **Property:** Centerville placer; 1 patented placer claim, Centerville dist.; Centerville. **Plant:** 2 electrically operated pumps. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Pumps and placer mining equipment were installed, and a small amount of ground was mined during the early part of the year.

**American Mines Development Co.**

**Office:** 209 N. 10th St., Boise. **Officers:** B. C. Beetham, Pres., Boise; Vance Naylor, Sec., Hansen. **Inc.:** Mar. 15, 1928. **Capital:** 1,000,000 shares; par value $1; 428,334 shares issued.

**Grandview Group**

**Property:** 6 unpatented claims held under lease and option, Pioneerville dist.; Grimes Pass. **Development:** By 2 tunnels: No. 1, 210 ft. long; No. 2, 450 ft. long. **Plant:** Gas-driven G-D compressor; complete mining equipment and camp. **Ore:** Gold. **Remarks:** Annual labor only.

**Banks Mine**

**Property:** 144 acres patented farm land, unorganized dist.; Banks. **Plant:** 150-ton ore bin and 70-ton gas-driven dry-crushing equipment; aerial tramway connecting mine and grinding plant, which is located on the railroad siding. **Ore:** Agricultural limestone. **Remarks:** Idle.

**Banks Lime & Mineral Products Co.**

**Officers:** J. W. Raine, Hazelton. **Inc.:** Nov. 18, 1931. **Capital:** 500 shares; par value $100. **Remarks:** Failed to file the reports required by law.

**Boise Basin Mining & Milling Co.**

**Office:** Boise. **Officers:** Frank Williams, Pres.; C. F. Elford, Sec.; T. W. Gillson, Mgr., all of Boise. **Inc.:** Jan. 15, 1931. **Capital:** 100,000 shares; par value $1; 5000 shares issued. **Property:** 6 patented, 2 unpatented claims, held under lease and option, Centerville dist.; Centerville. **Development:** Principally by 5 tunnels and 2 shafts; approximate total development 2788 ft. **Plant:** Small stamp mill. **Ore:** Gold.

**Boise Placer Co.**

**Remarks:** Property was sold under mortgage foreclosure to Carl L. Master, Oil City, Pa.

**Clear Creek Development Co.**

**Office:** Pioneerville. **Officers:** Louis Palnich, Pioneerville. **Inc.:** Nov. 26, 1930. **Capital:** 1,000,000 shares; par value 25c; 300,200 shares issued. **Property:** 2 unpatented claims, Pioneerville dist.; Pioneerville. **Development:** By 1 tunnel, 100 ft. long. **Ore:** Gold. **Men employed:** Average, 2. **Remarks:** Two miles of trail was constructed, and a new tunnel, 75 ft. long, was driven.
COME-BACK MINING CO.

Office: Pioneerville. Officers: Jos. Gornick, Pres.; Louis Painich, Mgr., both of Pioneerville. Inc.: Apr. 30, 1928. Capital: 1,000,000 shares; par value 25c; 741,050 shares issued. Property: Come-Back group; 16 unpatented claims, Pioneerville dist.; Pioneerville. Development: Principally by 4 tunnels: No. 1, 340 ft. long; No. 2, 45 ft. long; No. 3, 385 ft. long; No. 4, 996 ft. long; approximate total development, 2763 ft. Ore: Lead-silver-gold. Men employed: Average, 8. Remarks: Active throughout the year. A large amount of development work was done, and a small tonnage of high-grade ore was produced and marketed.

CONSOLIDATED MINES SYNDICATE

Office: 623 First Nat. Bank Bldg., Boise. Officers: Frank E. Johnesse, Pres.; Paul L. Oakes, Sec., both of Boise. Inc.: May 6, 1924. Capital: 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares, par value $1; 2,959,850 shares issued. Property: Washington and Subrosa groups; 4 patented, 14 unpatented claims, Gambrinus dist.; Idaho City. Development: Total development, approximately 12,000 ft., the principal part of which is the main crosscut tunnel 3700 ft. long, which intersects the bottom of a vertical shaft 414 ft. deep, near the bottom of which is a winze 150 ft. deep. Plant: MINE: Diesel oil engine driving a 480-cu.-ft. compressor, and complete mining equipment. Saw mill, modern boarding and bunk houses, change house, and complete camp. Ore: Silver-gold. Remarks: Idle since 1926.

CONTINENTAL MINING CO. AND INC.


OROESUS GOLD MINING CO.


CROOKED RIVER MINING CO.

Office: Dayton, Ohio. Officers: Melvin T. Rowland, Pres.-Mgr., Nampa; N. S. Talbott, Sec., Dayton, Ohio. Inc.: Oct. 5, 1927. Capital: 2000 shares common, no par value; 2000 shares preferred, par value $100; no shares issued. Property: Kempner Ranch placer; 1 patented, 60 unpatented claims, 1960 acres, Banner dist.; Idaho City. Plant: Screen-type dredge, 3-cu. ft. buckets; this dredge is driven by two 60-h. p. Diesel engines. Ore: Placer gold. Men employed: Average, 9. Remarks: This company gave an option on its property and dredge at the Kempner Ranch placer to M. T. Rowland, who further altered the dredge and then operated it for a short period. Again the dredge proved to be improperly constructed, and all operations were suspended pending further refinancing and reconstruction.

CURRY DITCH GOLD PLACER MINES ASSOCIATION

MINING INDUSTRY OF IDAHO

DIAMOND L MINING CO., LTD., OF IDAHO

EDNA MINES CO.

FRANKLIN PLACER CO.
Office: Idaho City. Officers: W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Idaho City. Inc.: July 21, 1928. Capital: 300,000 shares; par value $1; 115,000 shares issued. Property: Leary and Brogan group, Placerville dist.; Placerville. Ore: Placer gold. Men employed: Average, 8. Remarks: An additional part of the ditch and flume lines was rebuilt, and hydraulicking was done for a short period.

FRYETT MINING CO., INC.

GOLDEN DREAM MINING CO.

GOLDEN SEAL MINING & MILLING CO.

GOLD HILL & IOWA MINES CO.

HALLEY PLACER CO.

IDAHO DEVELOPMENT CO.
IDAHO GOLD DREDGING CORPORATION
Office: 615 First Nat'l Bank Bldg., Boise. Officers: S. K. Atkinson, Pres.-Mgr.; W. A. Buik, Sec., both of Boise. Inc.: Apr. 9, 1928. Capital: 4,000,000 shares; par value 25c; 908,359 shares issued. Property: 142 patented, 8 unpatented claims, Placerville dist.; Centerville. Plant: Electrically driven Risdon dredge, 2½ cu. ft. buckets close connected, wood hull. Ore: Placer gold. Men employed: Average, 14. Remarks: This company, which was operating a dredge on Grimes Creek near Pioneerville, was active during the early part of the year and increased its production over that of the previous year. A fire destroyed the dredge in July, and the company then suspended all operations.

IDAWA GOLD MINING CO.
Office: 521 Idaho Bldg., Boise. Officers: W. N. Harris, Pres., Turtle Lake, N. D.; E. A. Nordquist, Sec.-Mgr., Boise. Inc.: Jan. 3, 1919. Capital: 2,000,000 shares; par value 25c; 798,926 shares issued. Property: Belshazzar group, 22 unpatented claims, Quartzburg dist.; Quartzburg. Development: By 5 tunnels, the principal of which are No. 4, 1200 ft. long, and No. 5, 3000 ft. long. Total development, approximately 11,000 ft. Plant: MINE: Electrically driven compressor; complete mining equipment and camp. MILL: 25-ton amalgamation and table-concentration. Ore: Gold. Men employed: Average, 32. Remarks: Continued to be an important gold producer and maintained milling and development work throughout the larger part of the year. Late in the year the mine was closed, and all operations were suspended pending a readjustment of the company's corporate affairs.

IDEAL MINING CO.
Office: Boise City Nat. Bank Bldg., Boise. Officers: H. P. Taylor, Pres.-Mgr.; Lois Taylor, Sec., both of Boise. Inc.: Sept. 17, 1927. Capital: 200,000 shares; par value $1; 180,000 shares issued. Property: Mountain Chief group; 11 unpatented claims, held under lease and option from National Mining & Development Co., Quartzburg dist.; Placerville. Development: By 5 tunnels, the principal one of which is more than 2000 ft. long. Plant: MILL: 50-ton amalgamation. Ore: Gold. Men employed: Average, 10. Remarks: This company acquired the property early in the year and rehabilitated two of the principal tunnels. A small amount of development work was done, and a small tonnage of ore was mined and milled, the work proceeding without interruption except during the interval the electric power was cut off as a result of the forest fire.

INDEPENDENT MINES SYNDICATE

IRON DYKE MINES CO.

JUNE MINING CORPORATION
MAYFLOWER GOLD MINES, INC.
Office: Boise. Officers: J. E. Eldridge, Pres.; G. R. Eldridge, Sec., both of Boise. Inc.: May 20, 1931. Capital: 300,000 shares; par value $1; 91,995 shares issued. Property: Mayflower group; 2 patented, 6 unpatented claims, Quartzburg dist.; Quartzburg. Development: By 4 tunnels: No. 1, 640 ft. long; No. 2, 700 ft. long; No. 3, 55' ft. long; No. 4, 120 ft. long; and an inclined shaft 240 ft. deep, in which are two intermediate levels. Plant: Electrically driven hoist; complete mining equipment and camp. Ore: Gold. Men employed: Average, 6. Remarks: In 1929 the president of this company erected camp and mine buildings, installed the mining equipment, and commenced sinking the shaft. The shaft was sunk to a depth of 240 ft. and a large amount of lateral development on the two intermediate levels was done during 1930. This work continued without interruption throughout 1931. Late in the year the company reported that a sufficient tonnage of ore to justify the installation of a mill had been developed, and that plans had been completed for the construction of the mill. This enterprise was incorporated in May, 1931.

MEADOW CREEK GOLD PLACER CO.

MINERAL MINING CO.
Office: Placerville. Officers: A. C. Gallupe, Pres.-Mgr., Placerville; C. C. Fairchild, Sec., Idaho City. Inc.: Feb. 6, 1920. Capital: 2,500,000 shares; par value 6c; Aug. 23, 1930, increased to 5,000,000 shares; 3,000,000 shares issued. Property: Enterprise and Smuggler groups; 12 patented, 21 unpatented claims; Enterprise group held under lease and bond from Exta Lightfoot, Pioneerville; Pioneerville dist.; Pioneerville. Development: Approximately 8000 ft. of underground workings. Plant: Mine: 25-h. p. steam-driven hoist on Smuggler group; complete mining equipment and camp. Mill: 100-ton concentrator. Power: Small hydro-electric power plant. Ore: Gold-silver-lead. Men employed: Average, 8. Remarks: A large amount of development work was done, the mill was operated intermittently, and a substantial tonnage of high-grade lead concentrate was marketed.

MISSOURI MINING CO., LTD.

NATIONAL MINING & DEVELOPMENT CO.

PENN MINING CO.
Office: Placerville. Officers: W. W. Miller, Pres.; Paul C. Moore, Sec., both of Franklin, Pa.; E. F. Blain, Mgr., Boise. Inc.: Jan. 8, 1929. Capital: 200,000 shares preferred, 750,000 shares common; par value $1; 72,500 shares preferred, all shares common issued. Property: Coin Bond group; 34 unpatented claims, Placerville dist.; Placerville. Development: Principally by 2 tunnels, one of which is 1555 ft. long, the other 1280 ft. long. Ore: Gold-lead-silver. Men employed: Average, 3. Remarks: During the year 1200 ft. of tunnel was entirely retubered.
PIONEER DEVELOPMENT CO.


SEMI-ANTHRACITE COAL MINING CO.


TALACOHE MINES, INC.

Office: Quartzburg. Officers: A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. Inc.: Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. Capital: 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. Property: Lease and option on property owned by Gold Hill & Iowa Mines Co., which see. Development: Principally by an 1100-ft. 3-compartment, vertical shaft with 7 intermediate levels. Total development, over 40,000 ft. in Gold Hill mine. Plant: MINE: 250-h. p. double-drum and 600 cu. ft. I-R compressor, both electrically driven. MILL: 150-ton, including crusher, rolls, Hardinge ball mill, amalgamating plates, concentrating tables, and regrinding. Ore: Gold. Men employed: Average, 80. Remarks: Until its surface plant was destroyed in the disastrous fire of August 20, this company continued to be the largest gold producer in the State. The shaft was extended from the 850-ft. level to the 1100-ft. level, and a large amount of new ore was opened on the 850, 700, and 600-ft. levels. After the wreckage of the fire was cleared away, and the electric power line was rebuilt, a new electrically driven hoist, pump, and compressor were installed, the mine was unwatered, and work was started on crosscutting to the ore body on the 1100-ft. level.
GOLD HILL MINE, AFTER THE FIRE: TALACHE MINES, INC.

WASHOE MINING CO.

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<td>Elk Horn</td>
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BOISE COUNTY

Boundary                           Dry Buck      Lee Davis      Horseshoe Bend
Buffalo Gr.                        Elk Creek      Frank Cooper   Boise
Bull Durham Pl.                   Boise River    I. I. Youngblood Boise
Bummer Hill                       Quartzburg    H. C. Granger  Centerville
Calumet                           West View     G. Fauli       Horseshoe Bend
Cash Register                     Placerville   Frank H. Cooper Centerville
Catherine                         Placerville   Pat H. Quirk   Boise
Claude Marsh                      Summit Flat    Edward Brisbin 616 S. 17th St., Boise
Clay Gulch                        Placerville   J. T. Blair    Centerville
Clear Cr. Pl.                     Pioneerville  J. A. Adams  Pioneerville
Cleopatra et al.                  Pioneerville

Climax                             Banner        Chris Smith    Pioneerville
Cold Springs                      Idaho City     O. F. Sibley   Idaho City
Coon Dog                           Pioneerville  C. C. Fairchild Idaho City
Deer Horn Pl.                     Gambrinus      Joe Elliott    Idaho City
Dew Drop                          Centerville   Warren J. Cooper Centerville
Dog Tooth                         Quartzburg    Allen B. Eaton Boise
Eldorado Gr. Pl.                  Banner        Harold Rowland Nampa
Elkhorn                           Gambrinus     Lippincott & Warner

Elkhorn                           Idaho City     R. Pappoff     Idaho City

Elkmeat                           Idaho City     Placerville    Centerville
Etta B. Gr.                       Placerville   Robt. S. Bunch Boise
Eureka Gr.                        Gambrinus      Mrs. P. J. Hall Centerville
Fall Creek                        Placerville   Albert Elster  Placerville
Florence                          Quartzburg    C. C. Fairchild Idaho City
Franklin                          Idaho City     H. A. Schlosser Idaho City
Gambrinus                         Gambrinus     V. A. Thorn    Idaho City
Gem of the Mts.                   Placerville   C. C. Fairchild Idaho City
Golconda                          Idaho City     B. F. Kloppenburg Idaho City
Gold Coln                         Gambrinus     M. L. Phelps   Idaho City
Gold Dollar                       Summit Flat    James H. Hawley Boise
Gold Lodge Pl.                    Idaho City     Henry Holsmeier Idaho City
Golden Seal                       Unorganized    Jas. Curtin    Idaho City
Gornick Pl.                       Pioneerville   Jas. King      905 Idaho St., Boise
Grant Gr.                         Idaho City     Joe Gornick    Idaho City
Great Western                     Gambrinus     John Jamieson  Idaho City
Grooms Pl.                        Payette River  J. W. Duquette Idaho City
Hamilton Pl.                     Pioneerville   James L. Tyson Banks
Hard Times                        Unorganized    Ezra E. Howard Twin Springs
Hay Fork                          Moore Creek    C. M. Hunt     Idaho City
Hidden Treasure                   Pioneerville   H. R. Jarvis   Pioneerville
Highland Valley                   Barber        J. D. Branson  Barber
Hilltop                           Quartzburg    Louis Klein    Grand Hotel, Boise
Hilltop                           West View     L. C. Hall     Horseshoe Bend
Homestake                         Summit Flat    Joe Labbee     Idaho City
Honey Bee                         Shaw Mountain  Elmer Gettys  Boise
Hooch Can Gr.                     Pioneerville   J. O. McDonald Pioneerville
Hoodoo Pl.                        Pioneerville   C. R. Poncia   Idaho City
Idaho Pl.                         Idaho City     James Farrell  Idaho City
Illinois                          Pioneerville  Abraham Duquette Pioneerville
I, X, L, Pl.                      Idaho City     P. J. Shaughnessy Garden Valley
J. S. Gr.                         Pioneerville  A. E. Anderson Pioneerville
K, C. Fraction                    Pioneerville  Damien Ador  Pioneerville
Kentuck                           Pioneerville  John Golden Centerville
King Lead Gr.                     Banner        A. E. Yoder    Idaho City
Kirkham                           Pioneerville  Ira R. Cromwell Idaho City
K, M. Gr.                         Cold Springs  M. Marchmonte Idaho City
Last Chance et al.                Quartzburg    Frank Daly     Pioneerville
Leary & Brogan                    Placerville   Michael Leary Placerville
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**BIBLIOGRAPHY**

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


BONNER COUNTY


Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, 1921.‡


Geology and gold resources of Boise Basin, Boise County, Idaho, by S. M. Ballard: Idaho Bureau of Mines and Geology Bull. 9, 1924.**


BONNER COUNTY

Bonner constitutes an important part of the Idaho Panhandle and is one of the extreme northern counties. It is bounded on the east by the State of Montana, and on the west by the State of Washington; Boundary County adjoins it on the north, and Kootenai and Shoshone counties on the south. It contains an area of 1748 square miles and was accredited with a population of 13,152 in the 1930 census. The principal industries are lumbering, mining, stock raising, and agriculture. Although the county is recognized as one of the important mining counties of the State, the proportion of the population that is interested in mining is very small.

The county is exceptionally fortunate with respect to transportation facilities, as it is served by two State highways, lake boats, and three transcontinental railroads. Boats that can reach any point on Lake Pend d'Oreille give connection with the railroads at Sandpoint and Bayview.

Practically all the mining has been devoted to the areas adjacent to Pend d'Oreille and Priest lakes and the Clark Fork River. However, mining locations are numerous and widely scattered throughout the county. The mining history of the county dates back to the discovery of silver ores near Lakeview in 1888, which resulted in a stampede from the Coeur d'Alene district. Since that time there has always been a small amount of mining, but the county did not attract attention in recent years until the Talache mine was a proved and successful operation. The Talache has been a big factor in drawing attention to the mineral possibilities and prospecting opportunities of the county, resulting in a large increase in mining activities during the past few years.
The principal minerals are those of silver, lead, copper, zinc, and gold. These metals, and the limestone quarried near Lakeview, constitute the chief mineral resources. Silver is the most widely distributed metal and constitutes the most important part of the ores.

1931 Activities

The Whitedelf Mining & Development Co. continued to be the largest operator in this county. In addition to producing and marketing a substantial tonnage of high-grade lead-silver concentrate, the company extended its shaft to the 400-foot level, on which it did a large amount of development work. The new ore encountered on the lower levels greatly added to the known resources of the mine. The Hope Mining Co. completed construction and installation of a new 100-ton flotation concentrator, installed an electrically driven compressor, performed a large amount of mine development work, conducted milling operations, and produced and marketed a substantial tonnage of high-grade lead-silver concentrate throughout the greater part of the year.

The success with which the Whitedelf and Hope mines are meeting has greatly stimulated prospecting and development in the Clark Fork area, and most of the companies maintained a small crew during the greater part of the year. The Goat Mountain Leasing Co., a new organization, installed a gas-driven compressor and commenced driving a long crosscut. Gene-Lee Mines, Inc., was active in driving a new tunnel on the vein. Press reports were to the effect that a substantial showing of ore was encountered. Lucky Strike Mining Co. extended its principal tunnel approximately 100 feet. A small amount of development work was done by the Lawrence Consolidated Mining Co., and a car of hand-sorted ore was marketed. Explorers Prospecting Co., at the Boyer group, near Sandpoint, did a large amount of diamond drilling, constructed a new building, installed a compressor and complete mining equipment, and sunk a 100-foot inclined shaft. Minerva Silver, Inc., near Hope, installed a new compressor and maintained work throughout the greater part of the year. Amazon Mining Co., which was operating the Fall Creek mine under lease and option, employed two men during part of the year. The Silver Leaf Mines Corporation, a new organization, whose property is in the Lakeview district, constructed new camp buildings, installed a new compressor, and commenced an active development campaign. No work of any consequence was done in the Priest Lake district except annual labor, and this was greatly hampered and set back by the disastrous fire, which swept the district in September. The surface plants and buildings of practically all of the mining companies and prospectors were destroyed.

AMALGAMATED GOLD MINING CO.
Office: 101 E. Nora St., Spokane, Wash. Officers: T. W. Roberts, Pres.-Mgr.; Dorothy A. Roberts, Sec., both of Spokane, Wash. Inc.: May 22, 1931. Capital: 10,000,000 shares; par value 10c; shares issued, unknown. Remarks: Failed to file the reports required by law, although notified three times to do so. Press reports, as a result of court proceedings, were to the effect that this company was incorporated to succeed the Silver Star Options, which the president had sold to finance the development of the Silver Star group, and that option holders who were not recognized in the corporate organization had their rights restored through the court action.

AMAZON MINING CO.
AMERICAN EAGLE MINING CO.

AUXER GOLD MINES CO.

BIG FIVE MINING CO.

BINARCH CREEK MINING CO.

BONNER MINING CO.
Office: Oakesdale, Wash. Officers: H. E. Kendall, Pres.; J. A. Henderson, Sec., both of Oakesdale, Wash. Inc.: Unknown. Capital: 1,500,000 shares; par value 5c; 1,244,150 shares issued. Property: 1 patented, 10 unpatented claims, Pend d'Oreille dist.; Hope. Development: By 2 tunnels; No. 1, 350 ft. long; No. 2, 600 ft. long; and a vertical shaft 43 ft. deep. Plant: Water-driven I-R compressor. Ore: Gold-silver-lead-copper-zinc. Men employed: Average, 3. Remarks: Annual labor only, the funds for which were derived from stock assessments.

BOYER MINES, INC.

CAMP BIRD MINING & DEVELOPMENT CO.

CARPIE MINING CO.
CLARINDA COPPER MINING CO.

EMPIRE TUNGSTEN MINING CO.

EXPLORERS PROSPECTING CO.

FALLS CREEK MINING CO.

GENE LEE MINES, INC.

GOAT MOUNTAIN LEASING CO.

HOPE MINING CO.
Office: Clark Fork. Officers: O. A. Holte, Pres., Coeur d'Alene; C. C. Jensen, Sec., Clark Fork. Inc.: Nov. 19, 1927. Capital: 1,500,000 shares; par value 10c; increased Aug. 13, 1930, to 2,000,000 shares; 1,957,394 shares issued. Property: Elsie K group; 14 unpatented claims, Pend d'Oreille dist.; Clark Fork. Development: By 4 tunnels, the principal one of which is No. 1, 1400 ft. long. Total development about 5500 ft. Plant: MINE: Electrically driven 700 cu. ft. compressor; complete mining equipment. MILL: 100-ton flotation concentrator. Ore: Lead-silver. Men employed: Average, 30. Remarks: The mill was constructed, a new compressor installed, a large amount of mine work done, and milling started. A substantial tonnage of high-grade lead-silver concentrate was produced and marketed.
IDAHO LAKEVIEW MINES CO.

Inc.: June 28, 1928. Capital: 2,100,000 shares; par value 20c. Increased Nov. 23, 1929, to 2,310,000 shares; increased Apr. 3, 1930, to 2,510,000 shares; par value 20c; all shares issued. Property: Hewer group; 4 patented, 11 unpatented claims, Lakeview dist.; Lakeview. Development: Total development approximately 13,500 ft.; principally by 1 tunnel 2,200 ft. long, in which is an inclined shaft 1372 ft. long. Plant: MINE: 500 cu. ft. T-R compressor; electrically driven hoist; 7·5-kw. generator, driven by 100 h. p. semi-Deisel engine; complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by semi-Deisel oil engine. Ore: Silver-lead-zinc. Men employed: Average, 1. Remarks: Annual labor only.

INTERNATIONAL PORTLAND CEMENT CO., LTD.


KANIKSU MINING CO.


KEEP COOL MINING CO.


KING SOLOMON'S MINES CO.


LAWRENCE CONSOLIDATED MINING CO.


LUCKY STRIKE MINING CO.

ft. long. **Plant:** Water-driven 10 x 10 I-R compressor. **Men employed:** Average, 2. **Ore:** Silver-lead. **Remarks:** Principal tunnel extended approximately 100 ft. during the year.

**MILWAUKEE MINES, INC.**
Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** Arthur L. Hooper, Pres.-Mgr.; W. W. Greenwood, Sec., both of Spokane, Wash. **Inc.:** Apr. 6, 1928. **Capital:** 2,000,000 shares; par value $25c; increased Jan. 22, 1930, to 5,000,000 preferred, par value $10, and 5,000,000 common, no par value; changed July 30, 1930, to 100 unpatented claims, Priest Lake dist.; Priest River. **Ore:** Gold-silver-zinc-lead-aluminum. **Remarks:** Principal tunnel extended approximately 100 ft. during the year.

**MINERVA SILVER, INC.**
Office: Granite Creek. **Officers:** E. R. Lindsey, Pres.-Mgr.; E. Mahoney, Sec., both of Spokane, Wash. **Inc.:** July 25, 1929. **Capital:** 1,500,000 shares; par value $25c; 709,058 shares issued. **Property:** Minerva group; 4 patented claims, Pend d'Oreille dist.; Sandpoint. **Development:** By 6 tunnels; approximate total development 2900 ft. **Plant:** 220-ft. compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** annual labor only.

**NAOMI MINING CO.**
Office: Glengary. **Officers:** Leslie Kipper, Pres., Tacoma, Wash.; Fred Kipper, Sec., R. 1, Eatonville, Wash.; Albert Buehlmann, Mgr., Lakeview. **Inc.:** Mar. 16, 1929. **Capital:** 32,000 shares; par value $1; 17,000 shares issued. **Property:** 11 unpatented claims, Pend d'Oreille dist.; Glengary. **Development:** By 1 tunnel 800 ft. long. **Ore:** Lead-silver. **Remarks:** Annual labor only.

**NEVADA MINES**
Office: 501 City Hall Bldg., Spokane, Wash. **Officers:** J. V. Campbell, Pres.; Arthur L. Hooper, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 20, 1928. **Capital:** 250,000 shares; par value $10c; all shares issued. **Property:** 29 unpatented claims, Priest Lake dist.; Priest River. **Development:** By 2 short tunnels. **Ore:** Silver-lead-zinc-gold. **Remarks:** Annual labor only.

**NORTH IDAHO MINING & DEVELOPMENT CO.**
Office: Sandpoint. **Officers:** I. J. Brant, Pres., Clark Fork; D. A. Alcorn, Sec., Sandpoint. **Inc.:** Mar. 14, 1929. **Capital:** 2,000,000 shares common, par value 20c; 100,000 shares preferred, par value $1; 1,217,534 shares common, 35,000 shares preferred issued. **Property:** I. J. Brant group; 11 unpatented claims, Clark Fork dist.; Clark Fork. **Development:** Principally by 1 tunnel 825 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Under lease to Goat Mountain Leasing Co.

**NORTHWESTERN GOLD MINES CO.**
Office: John M. Roberts, Laclede. **Inc.:** Aug. 31, 1931. **Capital:** 1000 shares; par value $1. **Remarks:** Failed to file the reports required by law.

**OPPORTUNITY MINING CO.**
Office: Sagle. **Officers:** Peter Johnson, Pres., Sandpoint; A. A. Heskestad, Sec.-Mgr., Sagle. **Inc.:** Aug. 18, 1919. **Capital:** 1,500,000 shares; par value 5c; 507,295 shares issued. **Property:** 11 unpatented claims, Pend d'Oreille dist.; Sagle. **Development:** Approximately 2440 ft. of underground workings, consisting of 6 tunnels and 5 shafts, the principal tunnel being 650 ft. long. **Plant:** Steam-driven compressor, complete mining equipment and camp. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** A small amount of development work during the early part of the year, the funds for which were derived from stock assessments. Entire surface plant destroyed by fire.
PONDERA MINING & POWER CO.

PONDOROSA MINING CO.

PRIEST RIVER MINING CO.
Office: Sandpoint. Officers: C. P. Stackhouse, Sandpoint. Inc.: Nov. 29, 1930. Capital: 1,500,000 shares; par value 10c; 750,000 shares issued. Property: Farmer Jones group; 5 patented claims, Priest Lake dist.; Priest River. Development: By 3 tunnels, the principal one being 500 ft. long. Ore: Gold-silver. Remarks: This company is a reorganization of Farmer Jones Gold Mining Co. Annual labor only.

REGAL MINING CORPORATION

R. J. PRICE MINING CO.

SILVER LEAF MINES CORPORATION
Office: Lakeview. Officers: W. H. Latta, Pres.-Mgr., Lakeview; E. I. Fisher, Sec., Spokane, Wash. Inc.: July 2, 1931. Capital: 2,000,000 shares; par value 5c; 600,000 shares issued. Property: Silver Leaf group; 10 unpatented claims, part of which are held under lease and option, Lakeview dist.; Lakeview. Development: By 5 tunnels, the longest of which is 820 ft. Plant: Gas-driven F-M compressor; complete mining equipment and camp. Ore: Lead-silver. Men employed: Average, 2. Remarks: Camp buildings constructed, compressor and complete mining equipment installed; after which underground work was started.

SILVER MOUNTAIN MINING CO.

SYRINGA MINING CO.
Office: Sandpoint. Officers: B. I. Hunt, Pres.; Frank E. Kempt, Sec., both of Sandpoint. Inc.: Dec. 17, 1928. Capital: 300 shares; par value $100. Increased Oct. 25, 1929, to 1,000,000 shares; par value $1; shares issued unknown. Remarks: Failed to file the reports required by law.
TALACHE MINES, INC.

Office: Talache. Officers: A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Quartzburg. Inc.: Apr. 21, 1917, as Armstead Mines, Inc.; name changed June 8, 1922. Capital: 1,000,000 shares common, 600,000 shares preferred; par value $1; 983,000 shares common, 579,233 shares preferred issued. Property: Armstead mine; 18 patented, 44 unpatented claims, Pend d'Oreille dist.; Talache. Development: Approximately 34,591 ft. of underground workings, the principal of which are a main haulage tunnel, 3900 ft. long, the main inclined raise 916 ft. long and an inclined shaft 200 ft. long. Plant: MINE: 9x10 Hendre-Bolthoff electrically-driven geared hoist; 1574 cu. ft., 2 stage I-R type Pre-2 compressor, electrically driven; haulage, G. E. 4-ton storage battery locomotive; buildings, 44 room hotel, 24 residences, compressor house, blacksmith shop, warehouse, cook house, store, dry room and office. MILL: 150-ton flotation, 2 stage crushing to ⅛ in. fine grinding to 80 mesh, electrically driven. Ore: Silver. Remarks: Operations were suspended in October, 1926. In March, 1927, the famous Gold Hill & Iowa mine at Quartzburg, Boise County, was acquired and operations were transferred to that mine.

WHITEDELUF MINING & DEVELOPMENT CO.

Officers: John P. Delaney, Pres., 50 Broad St., New York; Compton I. White, Mgr., Clark Fork. Inc.: March 17, 1926. Capital: 100,000 shares, par value $1; 65,000 shares issued. Company reported 1000 shares; par value $100; all shares issued. Change not filed in Idaho. Property: 160 acres of patented land, Pend d'Oreille dist.; Clark Fork. Development: Principally by 3 tunnels, with a total of over 2500 feet, and an inclined shaft 300 ft. long. Plant: MINE: Electrically driven compressor; complete mining equipment. MILL: 75-ton flotation concentrator. Ore: Lead-silver. Men employed: Average, 23. Remarks: In addition to the work performed by the company, part of the mine was under operation by lessees. A large tonnage of high-grade lead-silver crude ore and concentrate was produced and marketed. The development work consisted principally of sinking the shaft to the 400-ft. level and a large amount of lateral work on that level. The new ore encountered greatly added to the known resources of the mine. The success with which this enterprise is meeting has been instrumental in attracting a large amount of attention to the Clark Fork district.
<table>
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<td>Antlers et al.</td>
<td>Lakeview</td>
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<td>Lakeview</td>
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<td>Apex Lode Gr.</td>
<td>Priest Lake</td>
<td>E. D. Faust</td>
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<td>Bank Roll</td>
<td>Priest Lake</td>
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<td>N. Y. Mt. Chief Cons.</td>
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<td>Chas Wiberg</td>
<td>Lakeview</td>
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<td>Priest Lake</td>
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<td>Stewart Coolin et al.</td>
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<td>BiMetallic et al.</td>
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<td>Black Angel et al.</td>
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<td>Blanket Ledge Gr.</td>
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<td>John Hamberg</td>
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<td>Bluebird</td>
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<td>J. E. Peterkin et al.</td>
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<td>Copper King</td>
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<td>E &amp; C Gr.</td>
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<td>Imogene et al.</td>
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<td>Joker et al.</td>
<td>Priest Lake</td>
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<td>Jumbo Gr.</td>
<td>Pend d'Oreille</td>
<td>E. H. Becker</td>
<td>Clark Fork</td>
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</table>
NAME OF MINE | MINING DIST. | OWNER | P. O. ADDRESS
---|---|---|---
Keno et al. | Lakeview | Dr. H. C. Meyers | Lakeview
Last Chance | Priest Lake | Bert Fry et al. | Priest River
Lincoln | Pend d'Oreille | Harry Churchill et al. | Spokane, Wash.
Little Bench | Pend d'Oreille | C. A. Johnson | Clark Fork
Little Geraldine Fr. | Priest Lake | Alex Judge | Box 1734, Spokane, Wash.
Little Three | Priest Lake | L. G. Brown et al. | Priest River
Lookout | Pend d'Oreille | W. W. Derr et al. | Clark Fork
Morning Star | Pend d'Oreille | F. S. Hayes | Hope
Nest Egg | Pend d'Oreille | J. O. Derr | Clark Fork
North Star Pl. | Lakeview | S. R. Catlow | Clark Fork
Ontario et al. | Lakeview | Robt. Rennie | Lakeview
Rainbow et al. | Pend d'Oreille | Goat Mt. Mng. Co. | Clark Fork
Ready Cash | Lakeview | Bruyere & Hanchett | Bayview
Red Horse | Pend d'Oreille | Ed Hammon | Sandpoint
Scotchman | Pend d'Oreille | Dr. C. P. Stackhouse | Sandpoint
Silver Fox Gr. | Priest Lake | J. A. Adams | Sandpoint
Silver Star | Pend d'Oreille | C. O. Olsen | Lindelle Bldg.
Snowbird | Pend d'Oreille | Walter Blossom | Spokane, Wash.
Snow Slide | Pend d'Oreille | Foster & Bixel | Clark Fork
T. Bone | Lakeview | Frank Brown | Lakeview
Tiger | Priest Lake | Alex Judge | Spokane
Triangle | Lakeview | Ralph Henrichs et al. | Hope
True Fisher | Pend d'Oreille | Fred Vogel | Clark Fork
Twilight et al. | Pend d'Oreille | C. B. Stuart | Sandpoint
View Point | Pend d'Oreille | Ernest Becker | Clark Fork
West Point | Pend d'Oreille | Henry F. Phillips | Clark Fork

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BONNEVILLE COUNTY

Bonneville County is bounded on the south by Caribou and Bingham counties, on the west by Bingham County, on the north by Jefferson, Madison and Teton counties, and on the east by the State of Wyoming. It is one of the principal, as well as one of the largest, southeastern counties; and has an area of 1,904 square miles, and population of 19,664 at the time of the 1930 census. The larger part of the population is in the Snake River valley, which occupies all of the western part of the county. The southeastern part, which is occupied by the Caribou Range of the Snake River Mountains, is drained by the South Fork of the Snake River and its tributaries. It is primarily an agricultural county and is noted for its potato and sugar-beet industries, particularly potatoes, as it is one of the largest potato shipping points in the United States. Idaho Falls, the largest town, and civic center of the Upper Snake River valley, is the county seat.

Although recognized only as an agricultural community, this county was once the scene of many active mining operations. This was during the gold rush in the Mt. Pisgah, or Caribou, district at the time placer gold was discovered on McCoy and Gray's creeks. These placers produced a creditable amount of gold, and subsequently a few lode deposits were discovered and exploited. In late years a small dredge was constructed, but this and the deep mines are now idle and the only gold produced is from a few small placer operations.

The principal mineral resources of Bonneville County are gold, phosphate rock, copper, silver, and coal. Many structures favorable to the accumulation of petroleum in commercial quantity are found throughout the southern and eastern parts of the county.

The extensive phosphate beds of southeastern Idaho are exposed over a large area. These, and possibly petroleum, will eventually add to the county's prosperity and put it into the list of important mining counties.

1931 Activities

Except a small amount of placer mining in the Caribou district, no mining operations were conducted during the year.

BONNEVILLE MINING CO., INC.

THE CALIFORNIA CO.
Office: 225 Bush St., San Francisco, Calif. Officers: K. R. Kingsbury, Pres.; J. H. Tuttle, Sec., both of San Francisco; E. G. Lawson, Mgr., Walker Bank Bldg., Salt Lake City, Utah. Inc.: Filed in Idaho: Mar. 19, 1928. Capital: 5,000 shares; par value $100; 1,000 shares issued. Property: 820 acres held under oil and gas lease. Development: 14 to 10-in. well, 3780 ft. deep. Plant: 90-ft. steel derrick; complete drilling equipment, gas-driven; complete and modern camp. Mineral sought: Oil and gas. Men employed: One watchman. Remarks: This company is a subsidiary of the Standard Oil Co. of California. The rig was installed in May, 1928, and active well-drilling operations were commenced on June 10, 1928, and continued without interruption throughout 1929. Operations were suspended in January, 1930.
IDAHO GOLD MINING CO.

NAME OF MINE | MINING DIST. | OWNER | P. O. ADDRESS
--- | --- | --- | ---
American Placer | Mt. Pisgah | W. H. Stocks | Gray
Anderson Bar et al. | Mt. Pisgah | Helmer Ronback, Agt. | Gray
Oneida Gr. | Mt. Pisgah | Fred Brenzinger, Agt. | Gray
Oneida South | Mt. Pisgah | Miles Schneider, Agt. | Gray
Pisgah Gr. | Mt. Pisgah | Fred Brenzinger, Agt. | Gray
Silver Bell Gr. | Mt. Pisgah | Fred Brenzinger, Agt. | Gray
Timber Line | Mt. Pisgah | Leroy Layland | Gray
Toway | Mt. Pisgah | J. C. Beatty | Soda Springs
Wolfe Bar | Mt. Pisgah | Amos S. Clark | Unknown

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Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, 1921.‡
Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, 1924.**
Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., 1925.‡
Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, 1926.**
Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, 1927.‡
BOUNDARY COUNTY

Boundary County is bounded on the north by the Dominion of Canada, on the east by the State of Montana, on the west by the State of Washington, and on the south by Bonner County. Its principal area comprises the drainage basins of the Moyie River, which flows in a southerly direction, and the Kootenai River, which flows northerly from Bonners Ferry, the county seat and principal town. It has a total area of 1,276 square miles, and was accredited with a population of 4,555 in the 1930 census. The principal industries are lumbering, farming, and mining.

The county is served by two transcontinental railroads, the Great Northern, with its branch line from Bonners Ferry to Porthill, on the Canadian border, and the Spokane International; by the North and South Highway, with an easterly outlet from Bonners Ferry; and by a system of county roads which extend into the different sections along the main stream valleys.

The principal mineral resources are lead, silver, gold, copper, zinc, tungsten, and molybdenum. These metals are widely distributed, and a few of the deposits have been partially developed. Heavy overburden, dense overgrowth, and limited accessibility have retarded prospecting, discovery, and development. The many favorable areas and wide diversity of mineralization make this county an exceptionally favorable field for the prospector and the small development company.

1931 Activities

The year 1931 witnessed but little new activity and but a small improvement in development work by the old companies. The Silver Spoon Mining Co., Inc., and the Moyie Gold Copper Mining & Milling Co., Ltd., both maintained active development work throughout the year. Idamont Lead-Zinc Mines Co., Clancy Mining Co., Lucky Abe Mining Co., and Metals Mining Co. were active only a sufficient length of time to constitute annual labor. The International Molybdenum Co., in the Porthill district, was active during the summer months. Newspaper reports were to the effect that a discovery of placer gold was made near Naples, and that a new organization was being planned to acquire some of the properties in the Katka district.

Clancy Mining Co.

Copper Falls Mining Co.

Golden Sceptre Mining Co.

Idamont Lead-Zinc Mines Co.
Office: Leonia. Officers: J. S. Hutchinson, Pres., Portland, Ore; M. E. Carson, Sec., Leonia. Inc.: Sept. 10, 1928. Capital: 1,000,000 shares; par value $1; 505,000 shares issued. Property: 68 placer and lode claims, approximately 2400 acres, Moyie Yaak dist.; Leonia. Develop-
ment: 5-mile, 200 sec.-ft. capacity canal, giving a working head of approximately 430 ft.; in 2 sections, upper 3 miles long, lower 2 miles, with a difference in elevation of 210 ft. Water conducted from upper to lower through two 22-inch steel pipes; about 20 miles of road, 5 of which were very heavy construction. Lode claims developed by numerous cuts and tunnels. Plant: Approximately 3000 ft. steel pipe, one 8-inch giant, operating under a 430-ft. head and two 5-inch giants, operating under 130-ft. head; bed rock flume and spillway 300 ft. long on a grade of 10 inches in 12 ft.; in 3 sections, spillway 12 ft. wide by 8 ft. deep; one flume 6 ft. wide and one 12 ft wide, both 8 ft. deep. Concentrates from flume discharge into cement lined tank of approximately 15,000-ton capacity from which they are elevated into cleaning plant on top of flume. Cleaning plant consists of Ogden tables, classifiers and specially designed riffles. Complete machine shop, sawmill, planing mill, overhead cable system operated by steam; tractor haulage; complete company buildings and 35 individual homes for the men. Ore: Principally placer gold. Men employed: Average, 6. Remarks: A reorganization of the Leonia Gold Mining Co., in order that the stock might be made assessable. Annual labor only, the funds for which were derived from stock assessments.

INTERNATIONAL MOLYBDENUM Co.

LEAD CONSOLIDATED MINING CO.
Officers: H. I. Monks, Bonners Ferry. Inc.: April 11, 1929. Capital: 3,000,000 shares; par value $1. Remarks: This company has never filed the reports required by law.

LUCKY ABE MINING CO.

METALS MINING CO.

MOYIE GOLD COPPER MINING & MILLING CO., LTD.

NORTH IDAHO DEVELOPMENT CO.
SILVER SPOON MINING CO., INC.

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Geology and ore deposits of Boundary County, Idaho, by V. R. D. Kirkham and E. W. Ellis: Idaho Bureau of Mines and Geology Bull. 10, 1926.**

BUTTE COUNTY

Butte is one of the south-central counties, being bounded by Lemhi, Custer, Blaine, Bingham, Jefferson, and Clark counties. The Big and Little Lost rivers flow in a southerly direction across the county, and the lower valleys of these rivers constitute the larger part of its area of 2,048 square miles. Arco, situated near the lower end of Big Lost River valley, is the largest town and the county seat. It is primarily an agricultural and stock-raising community, although its mining industry is gaining recognition and importance. The publicity given and the travel attracted to the new national monument, the Craters of the Moon, which is located in this county, have widely advertised the resources and scenic attractions of the State.

Two State highways have been designated and completely constructed, the Lost River Highway, which extends from Blackfoot to Challis and passes through Arco and Big Lost River valley, and the Idaho Central Highway from Hailey to Dubois, which serves the Craters of the Moon. The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad.

The principal mineral resources are lead, silver, zinc, gold, tungsten, manganese, limestone, and marble, the high-grade lead-silver ores being the most important, as they are found in all the mining districts of the county. The other metals occur in sufficient extent to be of commercial importance. Butte is one of the principal lead-silver producing counties in southern Idaho.

1931 Activities
The Wilbert Mining Co., Ltd., whose property is located in the Dome district near Howe, maintained production during January and active work for the following three months, after which the low price of metals caused a suspension of all operations. The Dahle Bros., at the Horn Silver mine, in the Lava Creek district, maintained active development work throughout the year, and reports were to the effect that this work encountered a good showing of new ore. The other companies performed only the necessary annual labor, although the work done at the property of the Metta Mining Co., Ltd., whose property is in the Hamilton district, exceeded the requirement.
BADGER MINES CO.


BUTTE ANTELOPE MINING CO.

Office: Moore. Officers: H. E. Lisonbee, Sec., Moore. Inc.: Sept. 8, 1927. Capital: 1,000,000 shares; par value 5c. Remarks: Since 1928 this company has failed to file the reports required by law.

HORN SILVER CONSOLIDATED MINES CO.

Office: Arco. Officers: Edward Dahle, Pres.-Mgr.; M. M. Dahle, Sec., both of Arco. Inc.: Dec. 21, 1925. Capital: 100,000 shares; par value $1; all shares issued. Property: Horn Silver group; 6 unpatented claims, one of which is held under lease and option; Lava Creek dist.; Martin. Development: By 3 tunnels: No. 1, 680 ft.; No. 2, 530 ft.; No. 3, 1500 ft. Plant: Gas-driven compressor; complete mining equipment and camp. Ore: Lead-silver. Men employed: Average, 7. Remarks: Active development work throughout the year, which consisted principally of drifting on the vein in No. 3 tunnel. This work opened a substantial showing of ore. All the men employed are interested in the mine and work without wages. The Dahle brothers are to be complimented for hard work, intelligent manner of developing the property and economy of operation.

MAUDE ELLEN OIL CO.


METTA MINING CO., LTD.


RICHMOND DEVELOPING CO.


ST. LOUIS MINING CO.

Office: 876 First Ave., Salt Lake City, Utah. Officers: Earl Wright, Pres.; Mrs. Jessie B. Russell, Sec., both of Salt Lake City. Inc.: Filed in Idaho, July 3, 1929; charter forfeited Dec. 1, 1930. Capital: 750,000 shares; par value 1c; 397,899 shares issued. Property: St. Louis group; 5 unpatented claims, Lava Creek dist.; Arco. Development: By 4 tunnels: No. 1, 300 ft. long; No. 2, 500 ft. long; No. 3, 425 ft. long; No. 4, 800 ft. long; and an inclined shaft 400 ft. long. Plant: Gas-driven Gardner compressor; small air-driven hoist; complete mining equipment. Ore: Silver. Remarks: Annual labor only.
WILBERT MINING CO., LTD.
Office: 221 Kearns Bldg., Salt Lake City, Utah. Officers: J. A. Foley, Pres.-Mgr.; T. L. Mitchell, Sec., both of Salt Lake City, Utah. Inc.: Apr. 10, 1907. Capital: 2,000,000 shares; par value 50c; 1,566,128 shares issued. Property: Daisy Black group; 7 patented, 32 unpatented claims, Dome dist.; Howe. R. R. Arco, 42 miles. Development: Approximately 18,000 ft. of underground workings, the principal of which is No. 4 tunnel, in which there is an inclined shaft 550 ft. long with 4 intermediate levels. When this tunnel was completed to 2800 ft. in length, a raise was put through at its end and connection made with the old workings. Plant: MINE:

MINE CAMP AND MILL: WILBERT MINING CO., LTD.

Hoist and 2 compressors, one electrically driven, one oil-driven; complete mining equipment and camp. MILL: 75-ton concentrator, electrically driven. Ore: Lead-silver. Men employed: Average, 10. Remarks: Maintained production during January and active work for the following three months, after which the low price of metals caused a suspension of all operations. This property is one of the largest lead-producing mines of southern Idaho.

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Camas County

Camas County is one of the south-central counties, being bounded on the north and east by Blaine, on the south by Lincoln and Gooding, and on the west by Elmore County. It has an area of 1,070 square miles, and was accredited with a population of 1,411 in the 1930 census, or 1.3 persons to the square mile. The population is engaged in stock raising and dry farming, which pursuits are confined to the 300,000 fertile acres of the Camas Prairie.

The county is served by locally maintained roads, two Forest Service highways, and the Shoshone-Hill City branch of the O. S. L. Railroad. Fairfield is the largest town and county seat.

The principal mining districts are the Rosetta, Little Smoky, and Skeleton. The Skeleton district includes the drainage area forming the headwaters of the South Fork of the Boise River, and Little Smoky district comprises the drainage area of Little Smoky and Carrie Leonard Creeks. The ores found in the latter are those of lead-silver and zinc, and the mines in the former are principally gold, both placer and lode. In addition to the foregoing, the other mineral resources are copper, tungsten, and diatomaceous earth.

The mines in the Carrietown section of the Little Smoky district have a good production record to their credit, and their latent possibilities still offer excellent opportunities for profitable mines, either through the apparent possibility in some mines for finding the ore beyond the faults which caused a suspension of operations in the early nineties, or, in other mines, of adapting modern flotation methods to the large bodies of proven low-grade ore.

1931 Activities

During 1931 the gold resources of this county, both placer and lode, in the Skeleton Creek district, on the South Fork of the Boise River, and in the Big Smoky section, received more attention than during the previous year. Much prospecting and development work were done by the old companies and by three new organizations, the principal one of which was the El Oro Mining Co., at the El Oro mine, where a small tonnage of ore was mined and milled, and work was started on a new crosscut, which is projected to open the vein at a greater depth. The Gold Mountain Mines Co. reported the installation of a 5-ton Gibson mill.

The Idaho Placer Mines Co. and the Glacier Gold Placer Mining Co., both placer operations, were active during the summer in constructing new ditches and in trenching. The Consolidated Mines Syndicate, which is developing a prospect in the Willow Creek section, employed a few men during the early part of the year, after which all operations were suspended.

No new work was started in the Little Smoky district, and, other than the necessary expenditures for annual labor, all the properties were idle.

CARRIE LEONARD MINING CO.

CLIPPER GOLD MINING & MILLING CO.

CONSOLIDATED MINES SYNDICATE
Office: 623 First Nat'l Bank Bldg., Boise. Officers: Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. Inc.: May 6, 1924. Capital: 10,000 shares; no par value. On August 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, the capitalization was decreased to 10,000,000 shares; par value $1; 2,810,865 shares issued. Property: Princess-Blue Ribbon groups; 7 unpatented claims, unorganized dist.; Beaver Creek, Fairfield. Development: By 3 tunnels: No. 1, 125 ft. long; No. 2, 415 ft.; No. 3, 350 ft.; No. 6, 575 ft. Plant: Gas-driven compressor; air-driven hoist; complete mining equipment and camp. Ore: Gold-silver-lead-zinc. Men employed: Average, 1. Remarks: Four men were employed during the first part of the year, after which all operations were suspended.

EL ORO MINING CO.
Office: Fairfield. Officers: C. Wesley Smith, Pres.-Mgr., 60 State St., Boston, Mass.; E. Hadley, Sec., Tremont Bldg., Boston, Mass. Inc.: March 11, 1925. Capital: 300,000 shares; no par value; no shares issued. Property: El Oro group; 5 unpatented claims, Skeleton Creek dist.; Fairfield. Development: 3 tunnels: No. 1, 100 ft. long; No. 2, 200 ft. long; No. 3, 150 ft. long; approximate total development, 2000 ft. Plant: MINE: Steam-driven compressor. MILL: Steam-driven 5-stamp mill. Ore: Gold. Men employed: Average, 15. Remarks: Property is being operated by I. E. Haight, who holds it under lease and option. A small tonnage of ore was milled and work started on a crosscut, which is projected to open the vein at a greater depth.

GLACIER GOLD PLACER MINING CO.
Office: Mountain Home. Officers: J. R. Prentice, Pres., Mountain Home. Inc.: April 4, 1930. Capital: 100,000 shares; par value $1; 25,000 shares issued. Property: 5 unpatented placer claims, Skeleton Creek dist.; Fairfield. Remarks: 6500 ft. of ditch was completed and 1200 ft. of flume and 750 ft. of 6 by 8 in. pipe with nozzle installed.

GOLD BLOSSOM MINING & DEVELOPMENT CO., INC.

GOLD MOUNTAIN MINES CO.
Officers: T. S. Platt, Pres.; A. G. Karlsson, Sec., both of Coffee Creek, Mont. Inc.: June 6, 1931. Capital: 150,000 shares; par value $1; no shares issued. Property: One-half interest in 4 unpatented claims, held under lease and option, Skeleton Creek dist.; Fairfield. Development: By 1 tunnel 155 ft. long. Ore: Gold. Men employed: Average. 2. Remarks: Company reported the installation of a 5-ton Gibson mill.

HIDDEN TREASURE MINE & MILLING CO.

IDAHO PLACER MINES CO.
**MALAHAT MINING CO.**


**PERSEVERANCE MINES CO., INC.**


**RICHARD ALLEN MINES CO.**


**SILVER STAR-QUEENS MINES, INC.**


**TAFT MINE**


### NAME OF MINE | MINING DIST. | OWNER | P. O. ADDRESS
--- | --- | --- | ---
Axalorr | Skeleton Creek | R. M. Angel | Fairfield
Bear Creek | Skeleton Creek | R. S. Mockett | Lincoln, Neb.
Blue Bird | Little Smoky | Robt. Leaper | Fairfield
Carrrie Leonard | Little Smoky | Jas. Gilson, Agt. | Hailey
Climax | Little Smoky | Jas. Williams | Fairfield
Dollardrde | Little Smoky | R. D. Leach | Pocatello
Five Points | Little Smoky | Wm. Finney | Soldier
Fourth of July | Little Smoky | H. D. Jones | Hailey
Golden Star | Little Smoky | Chris Christofsen | Fairfield
Hercules | Big Smoky | W. W. Counterman | 209 So. 3d St., Boise
Horn Silver | Little Smoky | P. E. Fletcher | 774, Salt Lake City, U.
Idaho Chief | Little Smoky | Philip B. Becker | Fairfield
Isabella | Little Smoky | Edw. Somers Est. | Hailey
Gold Bar Placer | Skeleton Creek | Chris L. Giskey | Fairfield
King of the West | Little Smoky | Maylan C. Fox | P. O. Box 774, Salt Lake City, U.
Little Bob | Little Smoky | M. Ryan | Hailey
Lucky Strike | Little Smoky | Joe Vogner | Bridgeport, Conn.
Manchuria Placer | Rosetta | H. D. Jones | Fairfield
Ohio Placer | Little Smoky | Geo. E. Ball | Hailey
Princess | Willow Creek | Roy Jones | Bridgeport, Conn.
Silver King | Little Smoky | H. D. Jones, Agt. | Hailey
Smoky Bullion | Little Smoky | Ernest Worswick Est. | Reno, Nev.
Square Deal | Little Smoky | Robert Leaper | Fairfield
**NAME OF MINE** | **MINING DIST.** | **OWNER** | **P. O. ADDRESS**
--- | --- | --- | ---
**Little Smoky** | **Little Smoky** | **M. Ryan** | **Fairfield**
**Little Smoky** | **Little Smoky** | **Joe Vogner** | **Fairfield**
**Rosetta** | **Little Smoky** | **H. D. Jones** | **Hailey**
**Willow Creek** | **Little Smoky** | **Geo. E. Ball** | **Bridgeport, Conn.**
**Little Smoky** | **Little Smoky** | **Roy Jones** | **Fairfield**
**Little Smoky** | **Little Smoky** | **H. D. Jones, Agt.** | **Hailey**
**Little Smoky** | **Little Smoky** | **Ernest Worswick Est.** | **Reno, Nev.**
**Little Smoky** | **Little Smoky** | **Robert Leaper** | **Fairfield**
**Little Smoky** | **Little Smoky** | **Wm. Lewis** | **Fairfield**
MINING INDUSTRY OF IDAHO

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Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, 1926.**

Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky and Willow Creek districts, Custer and Camas counties, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 33, 1930.*

CANYON COUNTY

The only known mineral resources of this county are diatomaceous earth, various clays of excellent quality, and a few gold placer deposits along the Snake River. During 1930, three companies, based on the development of oil and gas in this county, were incorporated, and five such additional companies were incorporated during 1931. Some of these companies obtained a large acreage under lease, but none of them commenced drilling.

IDAHO NATURAL GAS CO.

Office: Caldwell. Officers: Geo. Thorson, Pres.-Mgr., Caldwell; T. A. Reisinger, Sec., Minneapolis, Minn. Inc.: Jan. 24, 1931. Capital: 750,000 shares; par value $1; 61,850 shares issued. Property: Approximately 23,000 acres in Canyon County, Idaho, and Malheur County, Oregon, held under oil and gas leases. Mineral sought: Oil and gas. Remarks: Company reported that the property was being developed by United Utilities Corporation. Press reports were to the effect that all this company's operations were being conducted in Oregon.

IDAHO STATE OIL & GAS CO.


INTERMOUNTAIN COOPERATIVE GAS & OIL CO.


OIL O MEDIA OIL & GAS CO., INC., OF IDAHO

Office: 114½ 12th Ave., Nampa. Officers: Dr. C. V. Belknap, Pres.; C. L. Tylee, Sec.-Mgr., both of Nampa. Inc.: Oct. 29, 1931. Capital: 500,000 shares; par value $1; 200,000 shares issued. Remarks: This company reported, "Oil Omedia Oil & Gas Co., Inc., of Idaho is the holding company of the Oretana Oil & Gas Co. of Oregon." An active stock-selling campaign was maintained throughout the latter part of the year.
Caribou is one of the large southeastern counties of the State, being bounded on the east by the State of Wyoming, on the south by Bear Lake, on the east by Bannock, and on the north by Bingham and Bonneville counties. It has an area of 1,263 square miles, and was accredited with a population of 2,121, or 1.7 persons to the square mile, in the 1930 census. Soda Springs, the county seat and the only settlement of importance, is situated in the southeastern corner. The county is principally a sheep raising and agricultural community, and Soda Springs is one of the largest sheep shipping points in the United States.

The southeastern corner of the county is served by the main line of the O. S. L. Railroad, with an 8-mile branch road to Conda, the scene of the Anaconda Copper Mining Co.'s operation, and by the main east and west State highway, the Old Oregon Trail.

The principal mineral resources are phosphate rock, salt, sulphur, and mineral springs, and there are excellent possibilities for the discovery of petroleum. These resources are different from those of most counties, and when properly exploited will be a material factor in the prosperity of the county and State.

A large part of the five billion tons of minable phosphate rock, estimated by geologists of the U. S. Geological Survey, is in this county. These deposits are practically untouched, and constitute one of the greatest poten-
tial mineral resources of the State. They are fully described, including analyses and tonnage estimates, in the numerous publications referred to in the bibliography. The Anaconda Copper Mining Co. is pioneering in the development of the rock phosphate industry and has expended over $2,000,000 in its mine, mine plant, mill, railroad, power lines, and townsite.

One of the most outstanding publications issued by the U. S. Geological Survey in recent years is Professional Paper 152, by G. R. Mansfield: "Geography, Geology, and Mineral Resources of Part of Southeastern Idaho". This appeared during 1927; it is profusely illustrated with pictures, maps, and diagrams, and describes in detail the subjects mentioned in its title, dealing especially with the immense areas of phosphate rock found in this county.

The only salt found in the State is in Garibou County. Geologists of the U. S. Geological Survey conservatively estimate five million tons in one deposit, with the possibility of a large tonnage in adjacent areas. The deposits are located on Stump and Tygee creeks, near the State line.

The mineral springs, which are located at Soda Springs, constitute an important resource which is lying dormant. The waters from these springs have exceptional medicinal qualities, are excellent for table use, and offer a great possibility if properly developed and exploited.

A number of structures favorable to the accumulation of petroleum are found in the eastern part of the county. The location and geology of these areas are fully described in the publications issued by the Idaho Bureau of Mines and Geology.

1931 Activities

The Anaconda Copper Mining Co., which is operating one of the largest phosphate mines in the United States, increased its mining equipment, constructed additional homes for its employees, installed a new domestic water system, and completed the extension of its principal tunnel to a total distance of 8,000 feet, at which point a large station was cut and lined with reinforced concrete, and work was started on driving a 1,000-foot vertical operating raise. Production was also maintained throughout the greater part of the year, at a rate of approximately 200 tons a day. The rock was shipped to Anaconda, Montana, where it is manufactured into high-grade fertilizer and sold under the trade name of "Anaconda Triple Superphosphate."

ANAConDA COPPER MINING Co.

Office: Anaconda, Mont. Officers: C. F. Kelley, Pres.; A. H. Melin, Sec., both of 25 Broadway, New York City; E. M. Norris, Local Mgr., Conda, Idaho. Inc.: Filed in Idaho: Apr. 10, 1916. Capital: 12,000,000 shares; par value $50; 8,866,380 shares issued. Property: 23 patented claims; 3403 acres, unorganized dist.; Conda. Development: 3 adits, 45 ft. above railroad-track level, 9x9 ft. inside of timbers: No. 1, 6050 ft. long; No. 2, 2660 ft. long; No. 3, 8200 ft. long. The main operating tunnels are equipped with 25-lb. rail, 36-in. gauge track, two 20-ton storage-battery locomotives capable of hauling a 100-ton net load at a speed of 4 to 7 miles per hour, 10-ton side dump ore cars, power loading machines operated by compressed air and No. 4 sirocco fan. Plant: MINE: 1000 cu. ft. compressor; drill sharpeners; machine, blacksmith and carpenter shops with latest type power-driven equipment; switch boards and motor generator charging set; laboratory; electric substation, sawmill, and preservative plant for treating mine timbers all housed in fireproof gunited and steel buildings. MILL: Crushing and drying plant. The mill feed and storage bins are connected with the main tunnels by large trestles. The storage bins, with a capacity of over 4000 tons, and houses over them are protected with several inches of gunite. The main storage bin is equipped with an Ottumwa boxcar loader and modern railroad scales. The rock drawn from the mill feed bin, which has a capacity of 450 tons, passes over shaking grizzlies, the oversize going to a 12-inch Traylor gyratory crusher, which reduces it to about 2\(\frac{1}{2}\) inches. The product from the crusher and the undersize is elevated and passed over a Mitchell vibrating screen. The rock passing through this screen goes to the dryer feed bin, and the
oversize to 22x54-inch Anaconda rolls that reduce it to three-fourths of an inch. The product from the rolls is elevated and again passes over the Mitchell vibrating screen. The crushed rock drawn from the dryer feed bins is conveyed into class A-12 Ruggles-Coles dryers by apron feeders. After leaving the dryer the rock goes over a shaking feeder to a chain bucket elevator. This elevator carries it to the top of the mill where it passes through a Vezin sampler, and it is then conveyed to the storage bins. The present capacity of the mill is 400 tons in 24 hours. This output can be increased to 1000 tons in the same time by adding another

CONDA, IDAHO

dryer. **Railroad**: 8-mile branch from Soda Springs to mine, with storage tracks that will accommodate 100 fifty-ton railroad cars, spurs to mill and coal bins, and wyes at each end of the yards. The gradient of the storage tracks is such that the cars are operated by gravity to and from the storage bins. **Town**: The company has erected a model mine town consisting of modern homes, which are rented to the employees at a nominal figure. Company offices, bunk and boarding houses, superintendent's home, recreation hall and a number of small homes have been erected. A fully equipped store is maintained by the company, a post-office has been established, and a modern school erected and maintained. A complete water system for the town and plant has been installed; the water is piped a distance of 2 miles to a 100,000-gallon storage tank from which it is distributed. **Ore**: Phosphate rock. **Men employed**: Average, 73. **Remarks**: During the greater part of the year active production was maintained at the rate of approximately 200 tons per day. Note pages 26 to 31 of Twenty-fifth Annual Report for complete description of this operation, and pages 28 and 29 of Thirty-first Annual Report for stoping methods used. No. 3 tunnel was extended without interruption. This tunnel encountered such heavy ground that it was necessary to support it for a length of 200 ft. with steel sets and reinforced concrete. It was completed to a distance of 8200 ft. and work started in cutting and lining a large station with reinforced concrete, preparatory to driving a 1,000-ft. vertical operating raise. Additional electric power equipment, soil-testing laboratory, and a new domestic water system were installed during the year.
GEBO CONSOLIDATED OIL CO.


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Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, 1924.**

Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, 1927.‡

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, pp. 19-20, January, 1928.§

Cassia is one of the principal southern counties, being bounded on the south by the States of Nevada and Utah, on the west by Twin Falls, and on the east by Oneida and Power counties. Snake River forms its northern boundary, which is also part of the southern boundary of Jerome, Minidoka, Blaine, and Power counties. It has an area of 2,595 square miles, and was accredited with a population of 13,116 in the 1930 census. The principal industries are stockraising and farming. Burley, which is on the Snake River, near the center of the Minidoka project of the U. S. Reclamation Service, is the largest town and county seat.

The northern part of the county is served by the Old Oregon Trail State Highway; the other parts by a well-maintained system of county roads. Its railroad is the Minidoka-Buhl branch of the O. S. L. Railroad, from which there are branch lines extending from Burley to Idaho, and from Burley to Oakley.

The minerals found in this county are silver, lead, copper, gold, limestone, building stone, marble, cinnabar, and lignite. In the past, a little drilling has been done for petroleum, but all the companies have been practically idle for the past four years. These varied mineral resources, particularly the high grade lead-silver and silver-copper ores of the Stokes and Dolomite districts, offer excellent opportunities and possibilities for prospectors and development companies.

1931 Activities

The Silver Hills Mining Co., the only active company in this county during the year, continued work without interruption in driving a 1,700-foot crosscut.

One of the principal geological publications issued during the year was Alfred L. Anderson's "Geology and Mineral Resources of Eastern Cassia County, Idaho," which was published as Bulletin 14 of the Idaho Bureau of Mines and Geology. This bulletin completely describes the geology and mineral resources of the county, and is of great value in displaying the possibilities of the county, particularly the scenic beauties of Cassia's "City of Rocks," which is mentioned as being of sufficient importance to be designated a national monument. The bulletin is profusely illustrated.

BIG BERTHA MINING CO.

Officers: T. E. Walton, P. O. Box 354, Shoshone. Inc.: Sept. 30, 1924. Capital: 25,000 shares; par value $1. Remarks: Failed to file the reports required by law.

GOOSE CREEK OIL & DEVELOPING CO.


MELCHER MINING & MILLING CO.


SILVER HILLS MINING CO.

NAME OF MINE | MINING DIST. | OWNER | P. O. ADDRESS
--- | --- | --- | ---
Alice | Stokes | W. E. Langford | 229 W. 2d St. N., Salt Lake City
Albion Gr. | Stokes | J. E. Comerford | Rupert
Bimetallic | Stokes | F. E. Trayme | Albion
Giant | Stokes | Samuel McIntyre | Salt Lake City
Golden Eagle | Stokes | O. H. Melcher | Albion
Hazel Pine | Black Pine | F. B. Platt | Salt Lake City
Ken-Sko | Dolomite | Robt. B. Kenner | Salt Lake City
Last Chance | Unorganized | Charles Ransom | Burley
Last Chance Gr. | Grape Creek | J. W. Durfee | Malta
Sample Placer | Snake River | Thomas C. Elgin | Neeley
Walton No. 2 | Stokes | T. C. Walton | Burley

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See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.

Geology and water resources of the Goose Creek Basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, 1923.*
Geology and mineral resources of eastern Cassia County, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Bull. 14, 1931.**

CLARK COUNTY

Clark is one of the southeastern counties, adjoining and lying east of Lemhi and Butte counties, and bounded on the north by the State of Montana, on the east by Fremont County, and on the south by Jefferson County. It contains an area of 1,778 square miles and was accredited with a population of 1,122 in the 1930 census. Dubois is the principal town and county seat.

The Pocatello-Butte division of the O. S. L. Railroad, and the Idaho-Montana State highway traverse the county north and south, thus giving it good transportation facilities.

The Lemhi Mountains, which extend into the northwest corner of the county, constitute the principal mining district. This district is named from Birch Creek, which flows in a southern direction and which divides the district. The western part is an extension of the Dome, or Hamilton, district of Butte County, and the eastern part is an extension of the Nicholia district of Lemhi County. The ores found throughout this area are lead-silver, copper-silver, and zinc. The deposits have been partially developed and a small tonnage has been marketed.

Deposits of coal and bentonite of sufficient extent to be of commercial importance and structures favorable to the accumulation of oil and gas in commercial quantities occur in the Beaverhead Mountains, the summit of which is the state line between Idaho and Montana.

The geography, geology, and ore deposits of the Birch Creek district are fully described, together with maps and illustrations, in a publication issued during 1928 by the Idaho Bureau of Mines and Geology as Pamphlet No. 27: "Geology and Ore Deposits of the Birch Creek District, Idaho," by P. J. Shenon.
1931 Activities

No new enterprises were started in the Birch Creek district, and only a small amount of development work was done.

BIRCH CREEK MINING CO., LTD.


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<tr>
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<td>Big Dyke</td>
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<td>Elephant</td>
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<td>E. M. Kaufman</td>
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<td>Birch Creek</td>
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<td>Tip Top</td>
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<td>Wm. Garretson et al.</td>
<td>Dubois</td>
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Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, 1928.**

CLEARWATER COUNTY

Clearwater is one of the large northern counties, being bounded on the north by Shoshone County, on the east by the State of Montana, on the south by Idaho County, and on the west by Lewis, Nez Perce, and Latah counties. It has an area of 2,508 square miles and was accredited with a population of 6,599 in the 1930 census. Orofino, which is on the Clearwater River, near the western border, is the largest town and county seat. Except a small area adjacent to Orofino, which is devoted to agriculture, the entire county is mountainous and heavily timbered. The largest body of virgin white pine timber in the United States is located in this county.

It is served by three State highways which are partly constructed, by good county-maintained roads, and by the Lewiston-Stites branch of the Northern Pacific Railroad, which follows the Clearwater River.

Pierce City, which is the principal mining district in the county, was the scene of the first gold discovery in Idaho. This discovery was made in 1860, and the ensuing stampede soon crowded the district and the overflow spread into other sections. The stampede and resulting overflow formed the nucleus of the State, and shortly thereafter the Territory of Idaho was formed. Practically all the placer gold that could be recovered by hand methods or hydraulicking was exhausted years ago, and all recent operations have been devoted to dredging and lode mining.
Gold—placer and lode—silver, monazite, and copper are the principal minerals found in the Pierce City district. Lead, zinc, and silver occur in the Neva Hill section, and placer gold is still found in some of the isolated sections.

1931 Activities

The principal mining activities in this county during the year were those of the Ruby Creek Mining Co. and the Goldendale Mining Co., both near Elk River. The former, which commenced building a small mill in 1929, constructed two ore bins, three additional houses, installed a water system and a small Diesel engine, and did a small amount of mine development work. The Goldendale Mining Co., which is operating the property of the Neva Copper Co., installed a gas-driven hoist, commenced sinking a shaft, and did a large amount of surface prospecting. The Sewell Lime Co., near Orofino, constructed a railway siding and placed its quarry in condition for production.

The gold resources, both placer and lode, in the Pierce City district, received considerable attention from people seeking new opportunities for gold mining, and at the close of the year arrangements were being completed to commence a large placer mining enterprise. The American Exploration Co., trustee for the Pierce City Gold Project, completed driving its crosscut in the early part of the year. Press reports were to the effect that the Washington Golden Eagle Mining Co., Inc., was active throughout the entire year. The Independence Placer Mining Co., Ltd., in the Moose Creek district, performed a small amount of construction work during the spring.

ALDER CREEK MINING CO.


AMERICAN EXPLORATION CO.

Office: 120 Wall St., Spokane, Wash. Officers: R. H. Pfeffer, Pres.; A. Walker, Sec., both of Spokane, Wash. Inc.: Apr. 21, 1931. Capital: Unknown. Property: Bond group; 2 unpatented claims, held under lease and option, Pierce City dist.; Pierce. Development: By 2 short tunnels: No. 1, 600 ft.; No. 2, 60 ft.; approximate total development, 2800 ft. Plant: Steam-driven F-M compressor. Ore: Gold. Men employed: Average, 6. Remarks: This company reported that it was "trustees" for the Pierce Gold Project, the finances of which were raised by the sale of $10 option certificates. The principal crosscut was extended a short distance during the early part of the year.

AMERICAN PLACER MINING CO., LTD.


COBRA MINING & MILLING CO.

Officers: W. C. Kirby, Sec., 1516 Eighth Ave., Lewiston. Inc.: May 7, 1925. Capital: 5,000,000 shares; par value 1c. Remarks: Failed to file the reports required by law.

GOLDENDALE MINING CO.

THE INDEPENDENCE PLACER MINING CO., LTD.

NEVA COPPER CO.
Office: Bovill. Officers: George Brady, Pres.-Mgr., Bovill; Vera Harris, Sec., Spokane, Wash. Inc.: Feb. 29, 1924. Charter forfeited Nov. 30, 1929. Capital: 1,000,000 shares; par value 25c; 515,000 shares issued. Property: 2 unpatented claims, Ruby Creek dist.; Bovill. Ore: Copper-silver. Remarks: Failed to file the reports required by law. Goldendale Mining Co. reported that it holds this company's property under lease and option.

OXFORD COPPER MINING CO., LTD.

PIERCE ENTERPRISE CONSOLIDATED MINING CO., INC.

RUBY CREEK MINING CO.
Office: Bovill, Idaho. Officers: P. A. Hughes, Pres., Bovill; T. W. Nevitt, Sec.-Mgr., Clarkston, Wash. Inc.: Sept. 14, 1925. Capital: 1,500,000 shares; par value 10c; 859,590 shares issued. Property: Ruby Creek group; 22 unpatented claims, Ruby Creek dist.; Bovill. Development: By 1 tunnel 665 ft. long, and a vertical shaft 170 ft. deep. Plant: Steam-driven compressor; complete mining equipment, and camp. Ore: Lead-zinc-silver. Men employed: Average, 8. Remarks: Two mill ore bins and three additional camp buildings were erected, a water system and a small Diesel engine were installed, and a small amount of mine development work was done during the year.

SEWELL LIME CO.

WASHINGTON GOLDEN EAGLE MINING CO.
Office: Yakima, Wash. Officers: Ed. F. Flanagan, Pres., Wapato, Wash.; P. J. Lieuven, Sec., Yakima, Wash. Inc.: July 3, 1930. Capital: 2,500,000 shares; par value 15c; 774,575 shares issued. Property: 5 patented, 2 unpatented claims, held under lease and option, Pierce dist.; Pierce. Development: 1 short tunnel. Ore: Gold. Remarks: Failed to file the reports required by law, although twice notified to do so. Press reports were to the effect that a small amount of work was done during the summer.
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**BIBLIOGRAPHY**

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


Geology and water resources of Nez Perce County, Idaho, by I. C. Russell: U. S. Geol. Survey Water-Supply Papers 53 and 54, 1901.§


Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 69, art. 3, pp. 1-33, 1921.‡


Geology and mineral resources of the region about Orofino, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 34, 1930.**
Custer County is bounded on the north by Lemhi County, on the east by Butte, on the south by Blaine, and on the west by Boise and Valley counties. Its principal area comprises the drainage basins of the headwaters of the Salmon River, Big Lost River, and Little Lost River. It has an area of 4921 square miles, and was accredited with a population of 3,162 in the 1930 census, or 0.6 persons to the square mile. A comparison of the area and density of population with the State of Connecticut, which contains 4845 square miles and a population of 286.4 persons to the square mile, conveys a good idea of the size of Custer County and its lack of population. It is one of the south-central counties, and the area within its borders comprises the greater part of the region known as "Central Idaho's Mineral Empire."

It is principally a mining county and always ranks as one of the principal mineral-producing counties of the State. It is also noted for its agricultural and stockraising industries, particularly sheep, as it is one of the largest sheep raising sections in the State.

The county is served by the Blackfoot-Mackay branch of the O. S. L. Railroad, by the Sawtooth Park and the Lost River State highways and by well-maintained county and Forest Service roads, which extend into all the various mining districts. The roads are kept in good repair and are open to travel during the larger part of the year. Mackay, the terminus of the railroad, is the largest town and the supply point for most of the mines. Challis, which is 60 miles northwest of Mackay, is the county seat and oldest settlement.

The principal mineral resources are lead, silver, copper, gold—placer and lode, zinc, antimony, molybdenum, tungsten, graphite, bentonite, and garnet. The deposits are widely distributed throughout the county, and many of them offer exceptionally favorable opportunities to prospectors and development companies. Excepting the flat land and river bottoms, which are suitable to dredging and which fully justify investigation, practically all the placer mines are exhausted. The diversity of mineralization and the favorable geological conditions are attracting some of the largest organizations in the United States to this county, and many resulting new discoveries fully prove the possibilities that are in store for those who possess a little courage.

1931 Activities

Although none of the mining companies conducted mining operations at the large mines in this county, numerous lessees were active. Those at the Empire Copper mine, of the Mackay Metals, performed a large amount of development work and produced and stored a substantial tonnage of high-grade crude ore. Lessees at the Ramshorn produced and marketed a small tonnage of ore.

The property of Mackay Metals was sold to the county for taxes. At the close of the year, however, arrangements had been completed for its purchase from the county and its refinancing as soon as conditions warrant. The Livingston Mines Corporation was idle and remained in receivership throughout the year, and the property of the Ford Motor Co. was idle.

The lead mines, in the Clayton section, received considerable attention from people seeking lead-silver deposits, and R. W. Johnson, at the Mule Shoe group, was active throughout the greater part of the year in extending a crosscut.

The gold resources, particularly placer, along the Salmon River, in the Yankee Fork district, received some attention, and a few small pumping plants were installed in an attempt to hydraulic bench ground.

The Aztec Mining & Milling Co., in the Stanley district, did a small amount of work during the summer.

The entire surface plant of the Lost Packer mine, in the Loon Creek district, and the old town of Casto were destroyed by a forest fire, which visited this district in August.
AETNA MINING & INVESTMENT CO., LTD.

AZTEO MINING & MILLING CO.

BURNS MINING & MILLING CO.

CRATER MINES, INC.
Office: Rigby. Officers: Harry S. Thayer, Pres.-Mgr., New York City; Geo. E. Hill, Sec., Rigby. Inc.: Aug. 30, 1927. Capital: 300 shares, no par value; increased Nov. 23, 1927, to 1,000,000 shares, par value $1; increased May 31, 1928, to 2,500,000 shares, par value $1; 875,000 shares issued. Property: Crater group; 39 unpatented claims at the head of Slate Creek, Boulder dist.; Mackay; held under lease and option. Development: Principally by 1 tunnel 700 ft. long, and an inclined shaft 150 ft. long. Plant: Small gas-driven compressor; complete mining equipment and camp. Ore: Lead-antimony-silver. Remarks: Annual labor only.

EAST STAR MINING CO.

FORD MOTOR CO.
Office: Highland Park, Mich. Officers: Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Highland Park, Mich. Inc.: Filed in Idaho, Jan. 6, 1925. Capital: 1,000,000 shares; par value $100. Property: Red Bird and Silver Rule groups; 44 patented claims and 6 millsites, Bay Horse dist.; Clayton; R. R. Mackay, 70 miles. Development: Principal development on Red Bird group consists of 4 tunnels: No. 1, 500 ft. long; No. 2, 1300 ft. long; No. 4, 510 ft. long; No. 9, 2127 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,000 ft. Plant: 2 I-R semi-Diesel engines, type POC-2, direct connected to compressors; complete mining equipment including 2 diamond drills; shops and mining camp consisting of 11 buildings. Ore: Lead-silver. Men employed: 1 watchman. Remarks: Idle.

GEM STATE MINING CO.
MINE CAMP: FORD MOTOR CO.

GREYHOUND MINING & MILLING CO., LTD.

HORSE SHOE COPPER CO., LTD.

IDAHO HERMIT MINES, INC.

IDAHO POWER & MINES CO.

IDAHO SILVER & LEAD MINES, INC.
IVANHOE MINING CO.

LIVINGSTON MINES CORPORATION
Office: 67 Wall St., New York. Officers: A. W. Walker, Pres.-Mgr., Mackay; L. M. Turner, Sec., New York. Inc.: July 23, 1923. Capital: 2,000,000 shares; par value $1. Capitalization increased on Sept. 31, 1926, to 3,000,000 shares; par value $1; 2,922,012 shares issued. Property: Livingston group; 7 patented, 16 unpatented claims, Boulder dist.; Mackay, 62 miles. Development: Principally by 7 tunnels, averaging from 200 to 2400 ft. in length; No. 2, or Livingston, tunnel is 2000 ft. long, in which are 3000 ft. of crosscuts and drifts. Total development on Livingston lode, approximately 24,000 ft. Plant: MINE: 3 electrically-driven compressors, a 12x14 Sullivan, a 10x10 I-R, and a 12x16 I-R; storage-battery locomotive haulage; complete mining equipment and mine camp; 3-mile aerial tramway connecting Livingston No. 2 tunnel with the mill. MILL: 300-ton concentrator, including flotation, Blake crusher, Symonds disc-crusher, Davis rolls, 2 6-ft. Hardinge ball mills, 6 Wilfley tables, Callow flotation, complete mill camp. POWER PLANT: 380-h. p. hydroelectric power plant, supplemented with a 250-h. p. I-R vertical Diesel engine; 8-mile electric transmission and telephone lines connecting power plant, mill and mine. Ore: Lead-silver. Remarks: Company in receivership; Frank H. Oster, Receiver, Mackay, Idaho.

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.
Office: 1388 Federal Way, Salt Lake City, Utah. Officers: J. Frank Judge, Pres.; John J. Harvey, Sec., both of Salt Lake City. Inc.: May 17, 1905. Capital: 300,000 shares; par value $1; all shares issued. Property: 4 unpatented placer claims, Loon Creek dist.; Stanley. Plant: 4000 ft. timber flume, 5 ft. wide and 3 ft. high; two-thirds of a mile of ditch; sawmill, and complete mine camp. Remarks: This company owns a large tract of placer ground suitable for hydraulic mining. Annual labor only.

MACKAY METALS
Office: Mackay. Officers: A. J. Anderson, Pres., Vancouver, B. C.; F. A. Stacey, Sec.; J. Ray Weber, Mgr., both of Mackay. Inc.: June 4, 1928. Capital: 1,500,000 shares, par value $1; increased April 13, 1929, to 2,000,000 shares, par value $1; 1,200,000 shares issued. Property: Empire Copper group; 19 patented, 20 unpatented claims, Alder Creek dist.; Mackay. Development: Over 21 miles of underground workings, the principal entries being the Cossack and Alberta tunnels; the Cossack is 1000 ft. below the Alberta tunnel; the principal shaft, which is in the Alberta tunnel, extends 350 ft. vertically to the 1000-ft. level. Plant: MINE: Air-driven hoist; 1500-cu.-ft. Laidlaw-Dunn-Gordon and 1200-cu.-ft. Nordberg compressor, both steam-driven; and an aerial tramway 16,300 ft. long connecting mine with railroad. MILL: 250-ton concentrator, consisting of fine grinding and flotation. Ore: Copper-silver-gold. Remarks: Five lessees were active throughout the year and produced a substantial tonnage of high-grade crude ore, which was stored. The property was sold to the county for taxes. At the close of the year, however, arrangements had been completed for its purchase from the county and its refinancing as soon as conditions warrant.

MONTE CRISTO GOLD MINES CO.
MULE SHOE MINING CO.

THE MSPACE MINES CO.

PIG TAIL PLACER, INC.

RAMSHORN MINES CO.

SAFOM RIVER MINING CO.

SEAFOAM MINES CORPORATION

STANLEY-FIVE BARS MINING CO.
Office: P. O. Box 1368, Boise. Officers: O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. Inc.: Sept. 8, 1925. Capital: 25,000 shares; par value $1; 20,000 shares issued. Property: Gold Dust group; 6 unpatented placer claims; Stanley. Ore: Gold. Remarks: Annual labor only.
TWIN APEX MINES CO.

WHITE KNOB MINING CO.

YANKEE FORK PLACER CO., LTD.

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BIBLIOGRAPHY
See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky and Willow Creek districts, Custer and Camas counties, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 33, 1930.

ELMORE COUNTY

Elmore is one of the southwestern counties, being bounded on the south by Owyhee, on the west by Ada, on the north by Boise, and on the east by Blaine, Camas, and Gooding counties. A large part of the drainage basin of the Boise River is included within its 2,808 square miles, which was accredited with a population of 4,491 in the 1930 census. The chief industries are stockraising—principally sheep—farming, and mining.

The southern part of the county is served by the main line of the O. S. L. Railroad and the principal east-west State highway, the Old Oregon Trail; a well built and maintained system of county roads extends into all the various mining districts and sections. Mountain Home is the largest town and county seat.

The principal mineral resources are gold, silver, copper, lead, zinc, arsenic, molybdenum, diatomaceous earth, and potassium nitrate.

In past years this county was a noted producer of high-grade gold-silver ores and placer gold, particularly when the mines in the Atlanta and Rocky Bar districts were being worked. The placer ground which could be hydraulicled has long been exhausted, and the quartz mines have been dormant for years, having been closed down either through litigation, lack of power, or finances. These districts offer many opportunities to development companies and, since power is within easy reach from Featherville, there appears to be no reason why the mines are not receiving more attention.

1931 Activities

From a “ghost” city of less than a score of people to a thriving community of more than 300, with a picture show, school, and airplane mail service, is the experience of Atlanta in 1931, as a result of the resumption of operations in August by the St. Joseph Lead Co., at its Boise-Rochester mine.

The airplane service, which was started in December, is the first Star Route airplane mail service, to an isolated mining camp, to be established by the United States Post Office Department. It was made possible, in part, by the company constructing and maintaining a landing field at Atlanta. As there is seldom sufficient snow in Boise to permit ski-equipped planes to land, the use of wheels in landing at Atlanta is made possible by keeping the snow firmly packed with a heavy roller.

From September to the close of the year approximately 200 men were employed. The old mill was torn down, and the serviceable lumber and equipment used in the construction of a new mill of 200 tons capacity, which was erected near the portal of the lower or No. 9 tunnel. A 360-horsepower Diesel engine, driving an electric generator, synchronized with an old 125-horsepower hydroelectric plant, was installed for power purposes. All construction work was completed, and the mill was placed in operation the latter part of December. A new 1,000-cubic-foot electrically driven Ingersoll-Rand compressor, a Mancha storage-battery locomotive, and all necessary mining machinery and equipment were installed at No. 9 tunnel. This tunnel and No. 6 tunnel were rehabilitated, and the mine was placed in condition for production, part of this work being the driving of a 340-foot raise to connect these tunnels. The transportation of the machinery, equipment, and 100,000 gallons of fuel, which was handled by nine trucks, operating day and night; the razing of the old
A 50-mile aerial view taken directly over Arrow Rock Dam, showing airplane route between Boise and Atlanta. The highest point in the background is Steel Mountain, elevation 9,752 feet. Atlanta lies 10 miles beyond, at an elevation of 5,384 feet.

—Photo by Intermountain Aerial Surveys, Inc.
building; and the construction of the new mill and additional mine buildings represent the second largest expenditure made in the State during the year. The short time required to construct the mill and place the mine in operation established a record which has never been equalled in Idaho and for which much credit is due the manager, Mr. Frank H. Skeels.

The gold resources of the Rocky Bar section received more attention than during the previous year. One placer mining operation was active throughout the year, and two new organizations commenced work on quartz properties. Press reports were to the effect that the Feather River Gold Placer Co., whose property is on Feather River, installed a tractor shovel and hydraulic equipment and commenced mining. The Consolidated Mines Syndicate, at the Revenue group, in the Volcano district, near Hill City, reported that its long crosscut was advanced 165 feet during the year.

The Neal district received a large amount of attention from prospectors; many claims were located; and the construction of a 25-ton mill was commenced by a small organization.

APEX GOLD MINING CO.

BLACKSTONE MINING CO., LTD.
Officers: Charles W. Mack, Sec., Boise. Inc.: Dec. 26, 1899. Capital: 1,000,000 shares; par value 10c; shares issued, unknown. Property: 5 patented claims, Blackstone dist.; Hill City.

BLACK WARRIOR MINES, INC.

CONSOLIDATED MINES SYNDICATE
Office: 623 First Nat'l Bank Bldg., Boise. Officers: Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. Inc.: May 6, 1924. Capital: 10,000 shares; no par value. On Aug. 15, 1924, the capitalization was changed to 10,000,000 shares, $2.50 par value; and on May 2, 1925, capitalization was decreased to 10,000,000 shares, par value $1; 2,959,850 shares issued. Property: Revenue group; 11 unpatented claims, Volcano dist.; Hill City. Development: By 1 tunnel 1400 ft. long. Plant: Gas-driven compressor; complete mining equipment and camp. Ore: Copper-silver. Remarks: Tunnel advanced 165 ft. during the year.

DALEY CONSOLIDATED MINES CO.

FEATHER RIVER GOLD PLACER CO.
Office: Featherville. Officers: Rupert Winters, Pres.-Mgr., Featherville. Inc.: June 5, 1929. Capital: 750,000 shares; par value 20c; shares issued, unknown. Property: 7 unpatented placer claims, Bear Creek dist.; Featherville. Ore: Placer gold. Remarks: Failed to file the reports required by law, although three times notified to do so. Press reports were to the effect that a tractor shovel and hydraulicking equipment were installed and placer mining operations commenced.
ELMORE COUNTY 139

FRANKLIN CONSOLIDATED GOLD MINES CO.

GEORGE F. ROTH CO.

IDAHO GOLD CHIEF MINING CO.

IDAHO MINES, INC.

IDAHO PACIFIC MINES, INC.
Office: Mountain Home. Officers: W. B. Stewart, Pres.-Mgr.; A. F. Anderson, Sec., both of Mountain Home. Inc.: May 9, 1931. Capital: 5,000,000 shares; par value 10c; 1,750,000 shares issued. Property: 3 unpatented placer claims, Middle Boise dist.; Atlanta. Ore: Placer gold.

MARSH CREEK MINING CO.
Officers: Roy Y. Bogard, Pres.-Mgr., Burns, Ore.; Curtis F. Pike, Sec., 1317 Idaho St., Boise. Inc.: July 9, 1921. Capital: 1,000,000 shares; par value $1; 39,985 shares issued. Property: 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville. Remarks: Annual labor only.

NORTHWESTERN DEVELOPMENT CO.

PHELPS BROS. MINING CO.

ST. JOSEPH LEAD CO.
Office: 250 Park Ave., New York City. Officers: Clinton H. Crane, Pres.; H. B. McGown, Sec., both of New York City; Frank H. Skeels, Mgr., Atlanta. Inc.:Filed in Idaho: Apr. 3, 1929. Capital: 2,000,000 shares; par value $10; increased June 8, 1931, to 2,500,000 shares; 1,950,569 shares issued. Property: Boise-Rochester group, 3 patented, 23 unpatented claims, 3 of which are held under lease and option, Middle Boise dist.; Atlanta. Development: By 9 tunnels, the principal ones being No. 6 and No. 9, total development more than 8000 ft. in these two tunnels. Plant: MINE: 1000 cu. ft. electrically driven 1-R compressor; Mancha.
storage-battery locomotive; complete mining equipment. MILL: 200-ton amalgamation and flotation. POWER: 150-h. p. hydroelectric plant; 360-h. p. Diesel engine. Ore: Gold-silver. Men employed: Average, 200. Remarks: From September to the close of the year approximately 200 men were employed. The old mill was torn down, and the serviceable lumber and equipment used in the construction of a new mill of 200 tons capacity, which was erected near the portal of the lower or No. 9 tunnel. A 360-horsepower Diesel engine, driving an electric generator, synchronized with an old 125-horsepower hydroelectric plant, was installed for power purposes. All construction work was completed, and the mill was placed in operation the latter part of December. A new 1000-cubic-foot electrically driven Ingersoll-Rand compressor, a Mancha storage-battery locomotive, and all necessary mining machinery and equipment were installed at No. 9 tunnel. This tunnel and No. 6 tunnel were rehabilitated, and the mine was placed in condition for production, part of this work being the driving of a 340-foot raise to connect these tunnels. The transportation of the machinery, equipment, and 100,000 gallons of fuel, which was handled by nine trucks, operating day and night; the razing of the old building; and the construction of the new mill and additional mine buildings represent the second largest expenditure made in the State during the year. The short time required to construct the mill and place the mine in operation established a record which has never been equalled in Idaho and for which much credit is due the manager.

NEW MILL: ST. JOSEPH LEAD CO.

SOUTH PARK DREDGING CO.

STANLEY-FIVE BARS MINING CO.
Office: P. O. Box 1368, Boise. Officers: O. O. Haga, Pres.; H. M. Jeffrey, Sec., both of Boise. Inc.: Sept. 8, 1925. Capital: 25,000 shares; par value $1; 20,000 shares issued. Property: Five Bars group; 4 unpatented placer claims, Middle Boise dist.; Atlanta. Remarks: Annual labor only.
WINNER GROUP

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**BIBLIOGRAPHY**

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


Atlanta gold district, by R. N. Bell: Eng. and Min. Jour., vol. 86, pp. 176-177, July 25, 1908.§


Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, 1921.‡


Ground water for irrigation on Camas Prairie, Camas and Elmore counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 15, 1926.**


FREMONT COUNTY

Coal, phosphate rock, oil shale, and asbestos occur in different sections of this county. The occurrence of coal in commercial quantities in the northeastern corner of the county has been reported, but these deposits are too far removed from transportation to be available. The other deposits have never been sufficiently developed to prove their extent.

BIBLIOGRAPHY

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GEM COUNTY

Gem is one of the smallest counties in area in the State, but one of the largest in population per square mile. Its area is 567 square miles, and the 1950 census credited it with a population of 7,419 or 13.1 persons per square mile. The chief industries are fruit growing, farming, and livestock. It is particularly noted for its fruit farming, which is confined to the valley of the Payette River, which flows westerly through the southern end of the county.

It is one of the southwestern counties, being bounded by Ada, Canyon, Payette, Washington, Adams, Valley, and Boise counties. The drainage basin of Squaw Creek and twenty-five miles of the Payette River valley make up the larger part of its area. Emmett, the county seat and only settlement of importance, is near the center of the southern part of the county.

The county is served by a good system of locally maintained roads and by the Nampa-McCall and Payette-Emmett branches of the O. S. L. Railroad.

The Pearl district, once a famous gold-producing camp, and a few undeveloped sections where a small amount of prospecting has been done, are the only mineralized areas in the county. The principal minerals occurring in these districts are gold, silver, lead, zinc, copper, and arsenic. Gold predominates, and occurs in a free-milling quartz and combined with the sulphides of lead, zinc, and iron. The deposits containing the complex sulphide ore are of commercial importance and have not been mined, as transportation and the metallurgical methods in use at the time the Pearl district was active prevented profitable operations. The sulphide ores are amenable to modern flotation methods, and, as there is a large tonnage in many of the old mines that are lying dormant, they will again become profitable operations when properly equipped, financed, and managed.

1931 Activities

The only operation during 1931 was that of the American Mines Development Co., at the Old Liberty mine, near Sweet, which was active throughout the year in extending its tunnel.

AMERICAN MINES DEVELOPMENT CO. (See Boise County)

COOPERATIVE OIL EXPLORATION FUND

FELIX MINING CO.

GRANITE STATE CONSOLIDATED MINES CO.

JOHNSON MINING CO., LTD.
OLD LIBERTY MINING CO.


YELLOW GOLD PLACER CO.

Office: Mountain Home. Officers: Ernest Tacha, Pres.; Hetta M. Tacha, Sec.; Edward N. Crawford, Mgr., all of Mountain Home. Inc.: May 16, 1927. Capital: 500,000 shares; par value $1; 281,000 shares issued. Property: Owns 320 acres and lease on 320 acres of farm land, West View dist.; Pearl. Remarks: Active stock-selling campaign throughout the year. This enterprise is based on high values in rare metals, the presence of which was determined by assayers whose methods have been questioned by the U. S. Bureau of Mines.

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<td>White Sapphire Gr.</td>
<td>West Mountain</td>
<td>Geo. H. Storm</td>
<td>Van Nuys, Calif,</td>
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<tr>
<td>Wolverine</td>
<td>West View</td>
<td>H. B. Williams</td>
<td>Portland, Ore.</td>
</tr>
</tbody>
</table>

BIBLIOGRAPHY

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


GOODING COUNTY

Placer gold, which is found in the gravel bars and sand along the Snake River, constitutes the only mineral resource of this county. These deposits are worked in a limited manner, and generally return the operator a fair profit on his labor.

<table>
<thead>
<tr>
<th>NAME OF MINE</th>
<th>MINING DIST.</th>
<th>OWNER</th>
<th>P. O. ADDRESS</th>
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<tr>
<td>Big Body Placer</td>
<td>Snake River</td>
<td>John Criswell</td>
<td>Clear Lake</td>
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<td>Snake River</td>
<td>A. S. Madalena</td>
<td>Clear Lake</td>
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<tr>
<td>Boulder Hill Placer</td>
<td>Snake River</td>
<td>Charles N. Ingersoll</td>
<td>Bliss</td>
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<td>Brown Placer</td>
<td>Snake River</td>
<td>C. E. Jenkins</td>
<td>Hagerman</td>
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<td>Zeolite Gr.</td>
<td>Unorganized</td>
<td>H. C. Bryant</td>
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<td>Geo. H. Chaffin</td>
<td>Gooding</td>
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BIBLIOGRAPHY

See Snake River Gold under General Bibliography.

IDAHO COUNTY

This county occupies a vast region about midway between the northern and southern boundaries of the State, extending from Montana, on the east, to Oregon, on the west. It is bounded on the north by Nez Perce, Lewis, and Clearwater counties, on the east by the State of Montana, on the south by Lemhi, Valley, and Adams counties, and on the west by the State of Oregon. It contains 8,539 square miles, or an area which is larger than the combined areas of the States of Rhode Island, Delaware, and Connecticut. The 1930 census accredited it with a population of 10,107, or 1.2 persons to the square mile. The larger part of the population is located on Camas Prairie, a table-land of about 400 square miles. The chief industries are farming, principally wheat, for which Camas Prairie is famous; stockraising, and mining.

The western part of the county is served by the North and South State Highway, which extends from the southern to the northern boundary, and by the Elk City and Lewis & Clark highways, which are partly constructed. Its railroads are the Lewiston-Stites branch of the Northern Pacific Railroad, and the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads. Both these railroads serve Camas Prairie, or the northwestern part of the county. Grangeville is the largest town and county seat.

Idaho County is the largest in the State in area, and one of the greatest in diversity of mineral resources and mining opportunities. The principal metals and minerals which occur in sufficient extent to be of commercial importance are gold—placer and lode—silver, copper, lead, zinc, antimony, tungsten, asbestos, molybdenum, talc, and mica.

During the early days of Idaho this county was one of the largest gold-producing districts in the United States, and at the present time it offers more possibilities for profitable gold mining than any other section. Many of the millions produced during those days were won from placer deposits which occur in practically all the 17 mining districts within the county. Excepting the flat land and river bottoms, which are suitable for dredging, and which fully justify investigation, practically all the placer mines are exhausted.

The greatest handicap which the county is compelled to undergo is the lack of transportation, and under present road conditions only the highest grade free-milling ores can be successfully handled. Railroads into the various mining districts are a far removed possibility; however, a good automobile or motor truck road would serve to open many of the districts which are now dormant.
Much of the ore is a free-milling gold, and if not, a high-grade concentrate can be made which will permit a long haul. The latter statement applies particularly to the ores of the Ten Mile, Orogrande, Elk City, Buffalo Hump, and Dixie districts.

1931 Activities

The first quartz veins located in the northern part of Idaho County were those at Elk City, in 1884. Active mining operations were conducted in this district, and in the adjoining districts of Ten Mile, Buffalo Hump, Orogrande, and Dixie, in which gold was subsequently discovered, until about 1909. These operations were based on the mining of the free-milling, oxidized portions of the veins and were continued until the sulphide zone in many of the properties was encountered. As the gold could not be recovered from these ores by the metallurgical methods then in use, the mines ceased to be profitable, particularly because it became necessary to make a concentrate which required shipment to a smelter, and road conditions made the cost of transportation to railhead prohibitive.

The old road leading from Stites to Elk City, a distance of 53 miles, crossed two high divides, with such a great change in climatic conditions that it was never open to wheeled vehicles for more than four months of the year. Starting at Stites with an elevation of 1,200 feet, the road ascended in the first 25 miles to an elevation of 6,500 feet at the top of Mt. Baldy; then descended a distance of 8 miles to 3,800 feet at Newsome; from there it ascended to an elevation of 5,700 feet at the top of Elk Summit, a distance of 9 miles; and then descended 9 miles to an elevation of 3,950 feet at Elk City. Throughout almost the entire distance the road traversed a heavily forested area, and the character of the soil is such that the road was practically a dugway on which the sun seldom shone. Many of the level stretches were through swamps over which corduroys were necessary. The proper maintenance of this road would have been so expensive that the county always refused to expend any appreciable amount on it; hence, nearly all the maintenance provided was that covered by the small sums expended by the Forest Service and the mail contractors. Consequently the road never permitted other than light, slow-moving traffic, a condition which made the cost of transporting mine products and supplies prohibitive and made it impossible to enlist capital for development and operation of the quartz mines, and which resulted in the abandonment of most of them.

In 1923 work was started on a new road following the South Fork of the Clearwater River from Grangeville to Elk City. Construction of this road has progressed intermittently. In October, 1931, the contract for the completion of the last 7 miles to Elk City was let, and work was started. The terms of the contract require that the work shall be completed and the road be opened to travel early in 1932. The first 12 miles of this road, from the top of Clearwater Hill to Castle Creek, is not standard construction, but the roadbed is good, and no grades exceed 5 per cent. However, surveys have been completed for estimating the cost to standardize this distance. From Castle Creek to Elk City the road is a standard 14-foot highway, which is kept in excellent condition by the Forest Service. Following the water grade as it does, the highway is free from snow throughout the greater part, if not the whole, of the year; and heavy hauling is economical and practical.

The assurance that the new road would be completed and opened to travel early in 1932 greatly stimulated interest in the Elk City, Dixie, Orogrande, Buffalo Hump, and Ten Mile districts during 1931. This was particularly evident in the Buffalo Hump district, where one of the largest mining organizations in the United States acquired a large number of properties, under lease and option, packed in supplies, and commenced preliminary investigations. Many mining engineers and geologists representing responsible companies visited the other districts during the year, and those representing one large organization made an intensive examination of the Orogrande district.

In the Elk City district the Cal-Idaho Mining Co. was the largest operator. This company acquired the Gold Hill placer. It finished rehabilitation of the 8-mile ditch, installed complete hydraulic equipment, and constructed a new tail race at a lower elevation. The company contemplates a large hy-
draulic placer mining enterprise. The Day Development Co., which acquired the Center Star group in October, 1930, completed the sinking of a 100-foot shaft and conducted active exploratory work until May, when all operations were suspended. Lessees at the property of the French Creek Gold Mining & Milling Co. did a small amount of work during the early part of the year. Later the company cancelled the option and by the close of the year had completed arrangements for refinancing the property.

The Orogrande district witnessed a large amount of new activity. Lessees at the Homestake group of the Homestake Gold Mining Co. conducted a large amount of mine work. According to press reports a large tonnage of gold ore was developed, a contract was let for driving a 2,000-foot lower tunnel, and the contractors, by the close of the year, had installed a gas-driven compressor and complete mining equipment. The Gnome Gold Mining Co., a new organization, which is operating the property of the International Mining Co., under lease and option, constructed new camp buildings and commenced extending the principal tunnel, which is a drift on the vein. The Oshadi Mines Corporation, operating the Deadwood placers, under lease and option, conducted a small amount of work for 30 days, and at the end of the year was making plans for the installation of a power shovel and washing equipment. The property of the Orogrande Gold Mining Co. was placed in receivership, and legal proceedings were completed under which the receiver can sell the property.

The largest expenditure made in this county during the year was that of the Idaho Gold Dredging Co., in the Warren district. This company acquired the Warren Meadows under lease and option, purchased a large steam-driven dredge in Oregon, dismantled it, transported it to Warren by motor truck, reconstructed it, and put it into operation early in September. Press reports were to the effect that the gold recovered by the dredge proved that the ground had a high gold content. The Unity Gold Mines Co. was idle throughout the year. Two sales under attachment proceedings were held against its property.

DREDGE OF IDAHO GOLD DREDGING CO.

The Golden or Ten Mile district was one of the most active sections of this county throughout 1931. F. O. Miller and son, at the Lone Pine group, maintained development work without interruption, operated the mill for a short period, and installed a new 160-cubic-foot gas-driven compressor. This mine was one of the largest gold producers in the county. The development
work greatly increased the known ore resources, and at the close of the year the owners were completing plans for the construction of a new mill. The success with which this enterprise is meeting has greatly stimulated prospecting and promoting; and six companies holding near-by properties did a small amount of work and a large amount of solicitation in the sale of stock. The Buffalo-Idaho Mining Co. and the Central Idaho Gold Mines, Inc. were active throughout the larger part of the year. Each operated its mill for a short period and produced a small amount of bullion. The Moose Creek Placers Co. conducted work on its ditch and flume line and further repaired its hydraulic equipment.

VIEW OF WARREN MEADOWS: PROPERTY OF IDAHO GOLD DREDGING CO.

In the Dixie district, the Central Idaho Mining & Milling Co. was active throughout the year. This company completed the construction of a mill building and the installation of a 25-ton flotation concentrator and a small hydroelectric plant. In addition to building many miles of trail and conducting an active mine development campaign, a small tonnage of high-grade gold-lead concentrate was produced and marketed. Press reports were to the effect that the Mammoth Mining & Development Co., which is operating the property of the Mammoth Mine Corporation, under lease and option, installed a small steam-driven compressor and commenced construction of a small mill. J. R. Painter, whose property is on the Salmon River, south of Dixie, produced a small tonnage of gold ore, which was of such high grade that it warranted transportation by pack train from the mine to Dixie. The placer deposits near the town of Dixie received considerable attention. Press reports were to the effect that a new company had been organized to exploit one of these properties.

The Marshall Lake district was one of the most active sections in the county throughout the year. A substantial production was recorded, a large amount of development work done, and a large number of mine examinations were made. The Golden Anchor Mining Co., at the Holte mine, in which there was one of the most important disclosures made in the State during 1930, conducted development work throughout the larger part of the year. This work further opened the ore bodies and proved them to be of major importance. The Sherman Howe Mining Co. completed construction of additional new camp buildings, enlarged its mine plant and maintained production and development work without interruption until October. This company's production
was one of the largest in the county. The Long Tom Mining Co., at the Cuban and West Goodenough groups was active throughout the year at both groups. The new highway, which the Forest Service is constructing between Burgdorf and this district, was extended an additional 4 miles. This road is of great assistance to the companies now operating and is a great encouragement to the development of the district.

In the Burgdorf district a small amount of work was done by the Davis Mining Co., on Ruby Creek; the Golden Rule placer was operated for 30 days; and late in the year arrangements had been completed to prospect thoroughly a large tract of ground for its placer gold content.

The alleged presence of rare metals and gold in the black graphitic lime shales and "dike" rock in the Salmon River or Simpson district, near Lucile, continued to be used as a lure for the sale of stock. Those promoting these enterprises profess having secret methods by which the rare metals and gold are recovered. No work of any consequence was done by any of these companies.

The Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, commenced work on a new geologic survey of all that part of the county lying north of the Salmon River, including the Buffalo Hump, Dixie, Elk City, Ten Mile, and Orogrande districts. The bureau considers these districts to possess favorable possibilities for the discovery of new gold deposits.

Fourteen new companies were incorporated and acquired gold properties in Idaho County during the year, and 448 new locations were made. This is the largest number of new locations in any one year during the past 30 years.

**ABBA CORPORATION**


**ALTA-IDAHO GOLD & COPPER MINING CO.**

Officers: M. C. Hetler, Pres., Berwick, Pa.; Mrs. Rachel E. Fine, Sec., Cassadaga, Fla.; Geo. M. Snyder, Mgr., Pardee. Inc.: Filed in Idaho June 17, 1903. Capital: 700,000 shares common, par value $1; 300,000 shares preferred, par value $1; 600,000 shares common, 241,704 shares preferred issued. Property: Empire group; 11 unpatented claims, on South Fork of Clearwater River, Lolo dist.; Pardee. Development: Approximately 450 ft. of underground workings, the principal of which is 1 tunnel 250 ft. long. Ore: Gold-silver-copper. Men employed: 1 watchman. Remarks: Annual labor only.

**BLACKTAIL MINING CO.**


**B. R. & R. MINING CO., INC.**


**BUFFALO-IDAHO MINING CO.**

ented claims, Ten Mile dist.; Golden. **Development**: By 3 tunnels and a 60-ft. vertical shaft. **Plant**: MINE: Small gas-driven compressor; complete mining equipment and camp. **MILL**: Steam-driven 4-stamp mill. **Ore**: Gold. **Men employed**: Average, 3. **Remarks**: Active throughout the year. The mill was operated for a short period, and a small amount of bullion produced.

**Cali-Idaho Mining Co.**

**Office**: Elk City. **Officers**: Edward H. Cookingham, Pres., Lindsay, Calif.; McClellan G. Jones, Sec., Huntington Beach, Calif.; Thomas Berry, Mgr., Elk City. **Inc.**: Not filed in Idaho. **Capital**: 250,000 shares; par value $1; 193,800 shares issued. **Property**: Gold Hill placer; 7 patented, 9 unpatented claims, held under lease and option, Elk City dist.; Elk City. **Plant**: 8-mile ditch, complete hydraulic equipment, and mine camp. **Ore**: Placer gold. **Men employed**: Average, 9. **Remarks**: Complete hydraulic equipment installed, a new tail race at a lower elevation constructed, and a small amount of hydraulic mining was done during the early part of the year.

**Central Idaho Gold Mines, Inc.**

**Office**: 601 Hutton Bldg., Spokane, Wash. **Officers**: Henry Merritt, Pres., Rosalia, Wash.; Chas. H. Ennis, Sec., Spokane, Wash. **Inc.**: July 20, 1928. **Capital**: 100,000 shares; par value $1; 68,908 shares issued. **Property**: New York and Anaconda groups; 29 unpatented claims held under lease and option, Ten Mile dist.; Golden. **Development**: By 10 tunnels, the principal one of which is 1200 ft. long. **Plant**: Water-driven 10-stamp mill, constructed in 1916; complete hand-mining equipment and camp. **Ore**: Gold. **Men employed**: Average, 2. **Remarks**: Annual labor. The mill was operated for a short period. It was reported late in the year that this company's property was transferred to the New York Consolidated Mines, Inc.

**Central Idaho Mining & Milling Co.**

**Office**: 1217 Alaska Bldg., Seattle, Wash. **Officers**: E. B. Ellis, Pres.; S. F. Chadwick, Sec., both of Seattle; J. R. Lee, Mgr., Dixie. **Inc.**: Nov. 12, 1929. **Capital**: 1,000,000 shares; par value $1; 782,217 shares issued. **Property**: War Eagle group; 48 unpatented claims, held under lease and option, Robbins dist.; Dixie. **Development**: By 3 tunnels, the principal one of which is 1200 ft. long. **Plant**: 25-ton flotation concentrator. **Ore**: Gold-silver-lead. **Men employed**: Average, 10. **Remarks**: Construction of the mill completed and a small tonnage of high-grade gold-lead concentrate produced and marketed.

**Clearwater Mining Co.**

**Office**: 201 N. Naches Ave., Yakima, Wash. **Officers**: L. L. Iles, Pres.; W. T. Carpenter, Sec., both of Yakima, Wash. **Inc.**: Oct. 23, 1929, as Three Star Mines Corporation; name changed Apr. 13, 1931. **Capital**: 3,000,000 shares; par value 1c; 886,457 shares issued. **Property**: 19 unpatented claims, Ten Mile dist.; Golden. **Development**: By 2 short tunnels. **Ore**: Gold. **Remarks**: Annual labor only.

**Commodore Gold Mining Co.**

**Office**: Lewiston. **Officers**: Wm. C. McNutt, Pres.-Mgr.; E. H. Springer, Asst. Sec., both of Lewiston. **Inc.**: Mar. 28, 1921. **Capital**: 1,000,000 shares; par value $1; 438,185 shares issued. **Property**: Commodore group; 39 unpatented claims, at junction of Crooked River and South Fork of Clearwater River, some of which are held under lease and option, Orogrande dist.; Elk City. **Development**: By 10 short tunnels, totaling approximately 500 ft. **Ore**: Gold. **Remarks**: Annual labor only.

**Commonwealth Mining Co.**

**Office**: 1531 Denver St., Boise. **Officers**: Seth T. Hawkins, Pres.-Mgr.; Jesse J. McQueen, Sec., both of Boise. **Inc.**: Jan. 8, 1931. **Capital**: 250,000 shares; par value $1; 10,459 shares issued. **Property**: 9 unpatented claims, Simpson dist.; Lucile. **Development**: By 1 short tunnel. **Plant**: Gas-driven C-P compressor. **Ore**: Gold-copper-silver-lead. **Men employed**: Average, 4. **Remarks**: A small amount of work during the early part of the year.
CONSOLIDATED MINES SYNDICATE (See Camas County)


COPPER QUEEN MINING CO., INC.

CROOKS CORRAL MINES, LTD.

DAVIS MINING CO.

DAY DEVELOPMENT CO.
Office: Wallace. Officers: Harry L. Day, Pres.; W. B. Heitfield, Sec., both of Wallace. Inc.: Nov. 27, 1928, as Hercules Exploration Co.; name changed Nov. 25, 1930. Capital: 10,000 shares; par value $1,000; 473 shares issued. Property: Center Star group, Elk City dist.; Elk City. Held under lease and option. Plant: Gas-driven compressor; complete mining equipment and camp. Ore: Gold. Men employed: Average, 10. Remarks: Property acquired in October, 1930, after which 4 miles of trail were constructed, a gas-driven compressor and mining equipment were installed, and active work was started in sinking a 150-ft. inclined shaft. The shaft was completed, a small amount of drifting done at the bottom, and all operations were suspended in May and the option relinquished.

DIATOM PRODUCTS CO.

DIXIE PLACER GOLD MINING CO.

DYKE GOLD MINING & MILLING CO.

EMPIRE METALS CO.
ESPERANZA GOLD DIKES MINING CORPORATION

FRENCH CREEK GOLD MINING & MILLING CO.
Office: Grangeville. Officers: N. B. Pettibone, Pres.; W. L. Lyon, Sec., both of Grangeville. Inc.: Mar. 26, 1923; charter forfeited Nov. 30, 1926. Capital: 300,000 shares; par value 26c; 104,659 shares issued. Property: French Creek group; 1 patented, 5 unpatented claims, Elk City dist.; Elk City. Development: By 2 tunnels: No. 1, 575 ft. long; No. 2, 240 ft. long. Ore: Gold. Remarks: Lessees at this company's property did a small amount of work during the early part of the year. Later, the lease and option was cancelled, and arrangements made for refinancing the property.

GARNER ELECTRIC RANGE CO.

Gnome Gold Mining Co.

Gold Bug Mining Co.

Golden Anchor Mining Co.
Office: Burgdorf. Officers: J. A. Czizek, Pres.-Mgr.; J. F. Koelsch, Sec., both of Boise. Inc.: Apr. 14, 1928. Capital: 1,000,000 shares; par value $1; 500,000 shares issued. Property: Holte group; 6 patented, 16 unpatented claims, Marshall Lake dist.; Burgdorf. Development: Approximately 5000 ft. of underground workings, the principal of which are 3 tunnels: No. 1, 100 ft. long; No. 2, 1800 ft. long; No. 3, 2300 ft. long; 150-ft. inclined shaft in No. 2 tunnel. Plant: MINE: Electrically driven compressor, complete mining equipment, sawmill, assay office and complete camp. MILL: 50-ton steam-driven Lane Chilean mill; cyanide plant. POWER: Small hydroelectric power plant; 3-mile transmission line. Ore: Gold. Men employed: Average, 6. Remarks: During the year a 150-ft. raise was driven on the vein to a connection with the shaft in No. 2 tunnel. This raise completed opening the vein between No. 3 and No. 2 tunnels a total distance of 350 ft. In addition to the foregoing 800 ft. of drifting on the vein was done in No. 3 tunnel. This work proved the ore bodies to be of major importance.

Golden Mines, Ltd., Inc.
GOODENOUGH UNITED MINING & MILLING CO., LTD.

GROUSE CREEK PLACER CO.

HOMESTAKE GOLD MINING CO.
Office: 345 Peyton Bldg., Spokane, Wash. Officers: Markus Lies, Pres., Cottonwood; W. H. Jones, Sec., Spokane, Wash.; A. W. Boyd, Mgr., Elk City. Inc.: Filed in Idaho Jan. 7, 1919. Capital: 250,000 shares; par value $1; all shares issued. Property: American Eagle and Fish Hawk groups; 26 patented, 10 unpatented claims, Elk City dist.; Elk City; Homestake group; Orogrande. Remarks: American Eagle, idle. Homestake group operated by lessees throughout the year. According to press reports a large tonnage of ore was developed and a contract let for driving a 2000-ft. crosscut at a lower elevation. These reports were to the effect that the crosscut was driven under contract, that the contractors had installed a gas-driven compressor and complete mining equipment, and that the enterprise had been incorporated as the Penman Mines Corporation.

HOMESTAKE PLACER MINE

IDAHO GOLD DREDGING CO.
Office: Warren. Officers: E. T. Fisher, Pres.; J. R. Davies, Sec.; A. F. Baumhoff, Mgr., all of Warren. Inc.: Filed in Idaho: Aug. 12, 1931. Capital: 100 shares; par value $600; 85 shares issued. Property: Warren Meadows; 15 patented claims, held under lease and option, Warren dist.; Warren. Plant: Steam-driven dredge; 4 cu. ft. buckets, close connected; wood hull. Ore: Placer gold. Men employed: Average, 15. Remarks: This company's expenditure was one of the largest made in the State during the year. The property was acquired, the dredge purchased in Oregon, dismantled, transported to Warren by truck, reconstructed, and put into operation early in September. Press reports were to the effect that the gold recovered by the dredge proved that the ground had a high gold content.

IDAHO GOLDFIELDS, INC.

IDAHO MOTHER LODE GOLD MINES CO.
Office: Lewiston. Officers: J. T. Wenstrom, Pres.-Mgr., Lewiston. Inc.: Filed in Idaho: July 16, 1931. Capital: 2,500,000 shares; no par value; 307,000 shares issued. Property: Franklin and Sacramento groups; 1 patented, 36 unpatented claims, Ten Mile dist.; Golden. Development: By 5 tunnels: No. 1, 82 ft. long; No. 2, 110 ft. long; No. 3, 512 ft. long; No. 4, 185 ft. long; No. 5, 120 ft. long. Ore: Gold,
IDAHO & NEVADA MINING CO.

JUMBO MINING & MILLING CO., LTD.

LONE PINE GROUP

LONG TOM MINING CO.

LUCKY FIVE MINING CO.

McKINLEY GOLD MINING CO.

MAC B MINING & MILLING CO.

MAMMOTH MINE CORPORATION
### MAMMOTH MINING & DEVELOPMENT CO.
- **Office:** Dixie. **Officers:** Harry L. Nelson, Pres., Seattle, Wash.; G. W. Sommer, Sec., Spokane, Wash.; H. R. Flaiz, Mgr., College Place, Wash. **Inc.:** Apr. 29, 1929. **Capital:** 600,000 shares; par value $1; 518,498 shares issued. **Property:** Lease and option on property of Mammoth Mine Corporation. **Plant:** 170 cu. ft. G-D steam-driven compressor. **Ore:** Gold. **Men employed:** Average, 4. **Remarks:** Active stock-selling campaign. Press reports were to the effect that work was started on installing a "rotary mill."

### MONTE CRISTO MINING CO.
- **Office:** Lewiston Bank Bldg., Lewiston. **Officers:** A. P. Hagglund, Vice Pres.; J. T. Wenstrom, Sec., both of Lewiston. **Inc.:** Oct. 22, 1927. **Capital:** 200,000 shares; par value $1. **Property:** Monte Cristo group; 2 unpatented claims, Robbins dist.; Waverly; 1 patented claim, Florence dist. **Remarks:** Failed to file the reports required by law.

### MOOSE CREEK PLACERS CO.
- **Office:** Kellogg. **Officers:** George H. Kennett, Pres.; W. W. Papesh, Sec., both of Kellogg; Max R. Crosby, Mgr., Golden. **Inc.:** Nov. 22, 1927. **Capital:** 2,500,000 shares; par value 10c; 1,250,000 shares issued. **Property:** Moose Creek placers; 7 unpatented claims, 405 acres, Newsome dist.; Golden. **Ore:** Placer gold. **Men employed:** Average, 2. **Remarks:** A small amount of construction work during the year.

### NEW YORK CONSOLIDATED MINES, INC.
- **Office:** 563 Empire Bldg., Seattle, Wash. **Officers:** H. A. May, Sec., Seattle, Wash. **Inc.:** Oct. 27, 1931. **Capital:** 300,000 shares; par value 50c; 185,800 shares issued. **Property:** Deadwood Gulch placer; 5 unpatented placer claims, held under lease and option, Elk City dist.; Elk City. **Ore:** Placer gold. **Remarks:** Annual labor only.

### OHADI MINES CORPORATION
- **Office:** 633 Central Bldg., Seattle, Wash. **Officers:** B. W. Dunn, Pres.; A. E. Barry, Sec., both of Seattle, Wash. **Inc.:** Sept. 21, 1931. **Capital:** 10,000 shares; par value $10; all shares issued. **Property:** Deadwood Gulch placer; 5 unpatented placer claims, held under lease and option, Elk City dist.; Elk City. **Ore:** Placer gold. **Remarks:** Small amount of prospecting for a period of 30 days.

### OROGRANDE GOLD MINING CO.
- **Office:** 1331 Nat'l Bank Bldg., Spokane, Wash. **Officers:** J. N. Pickrell, Pres., Colfax, Wash.; J. E. Pickrell, Sec., Spokane, Wash. **Inc.:** Mar. 14, 1919. **Capital:** 3,500,000 shares; par value $1; 1,805,722 shares issued. **Property:** Orogrande group; 5 patented, 29 unpatented claims, Orogrande dist.; Orogrande. **Development:** Approximately 6000 ft. of underground workings and 4000 ft. of surface cuts on all claims. **Plant:** Stamp mill with partly completed cyanide plant; water-driven. **Ore:** Gold. **Remarks:** Idle. In receivership. Receiver, F. J. Cunningham, Spokane, Wash.

### PACIFIC CONSOLIDATED MINES, INC.
- **Office:** 920 Joshua Green Bldg., Seattle, Wash. **Officers:** M. C. Johnson, Pres.; A. H. Anderson, Sec., both of Seattle, Wash. **Inc.:** Not filed in Idaho. **Capital:** 5,000,000 shares; par value 1 mill; 1,500,000 shares issued. **Property:** Bullion group; 7 unpatented claims, Orogrande dist.; Orogrande. **Ore:** Gold-silver.

### PENMAN MINES CORPORATION
- **Office:** 705 Yeon Bldg., Portland, Ore. **Officers:** Barry Cerf, Portland, Ore. **Remarks:** Name gleaned from press reports which were to the effect that this company controls the lease and option on the Homestake group of the Homestake Gold Mining Co.
PULLMAN MINING & MILLING CO.
Office: Pullman, Wash. Officers: A. C. Baker, Pres.; D. C. Dow, Sec., both of Pullman, Wash. Inc.: Dec. 26, 1911. Capital: 2,000,000 shares; par value $1. Remarks: This company has not filed the reports required by law since 1923. Newspaper reports are to the effect that it is active each year.

RAPID RIVER MINING & MILLING CO., LTD.

REVENUE MINING & MILLING CO.

SALMON RIVER MINERS, INC.

SALMON RIVER MINING & MILLING CO.
Office: 507 Empire State Bldg., Spokane, Wash. Officers: John Wm. Errington, Pres.-Mgr.; R. A. Daniels, Sec., both of Spokane, Wash. Inc.: June 8, 1931. Capital: 500,000 shares; par value 10c; no shares issued. Property: 29 unpatented claims, Simpson dist.; Riggins. Ore: Gold. Remarks: Newspaper reports quoted one of the directors of this company to the effect that the gold could not be determined by usual methods of assaying, but that it could be recovered by a special electrolysis method. The recovery of gold which cannot be detected by assaying is unknown to mining science, notwithstanding this company's assertions.

SECI~SH DREDGING SYNDICATE

SENTINEL MINES CORPORATION

SHERMAN HOWE MINING CO.
vein system. This was one of the principal new enterprises to start in the State during 1929, and continued without interruption throughout 1930 and until October, 1931. Additional camp buildings were completed, mine plant enlarged, and production and development work maintained. This company's production was one of the largest in the county.

SLATE CREEK GOLD MINING CO.

SOUTH FORK MINING & MILLING CO.

SPRING BARR PLACER CO.

SYLVANITE GOLD-COPPER CO.

TRI-METALLIC MINING CO., LTD.

UNA MINE CO.

UNITY GOLD MINES CO.
Office: 120 Broadway, New York City. Officers: Lorren M. Hart, Pres.; J. B. Neumuller, Sec., both of New York City; Granville T. Eyman, Mgr., Warren. Inc.: May 25, 1916. Capital: 500,000 shares; par value $5; all shares issued. Property: Little Giant and Rescue groups; 10 patented, 14 unpatented claims, Warren dist.; Warren. Development: Over 10,000 ft. of underground workings, the principal of which is the Unity or main crosscut tunnel, which is 5400 ft. in length. Plant: MINE: Storage-battery locomotive haulage; one 300-cu.-ft. and one 700-cu.-ft. electrically driven compressor; complete mining equipment. MILL: 10-stamp mill, 1000-lb. stamps, simple amalgamation. POWER PLANTS: A 50-h. p. hydroelectric plant on Warren Creek and a 600-h. p. hydroelectric plant on Elk Creek, the latter consisting of 2 units driven by Pelton impulse water wheel operating under a vertical head of 415 ft.; 9½-mile transmission line connecting power plant and mine. Ore: Gold. Remarks: Idle. Property sold under two attachment proceedings.
**YAKIMA-GOLDEN MINING CO.**

**Office:** 320 West Yakima Ave., Yakima, Wash. **Officers:** J. F. Brand, Pres.; W. W. Slorah, Sec., both of Yakima, Wash. **Inc.:** Filed in Idaho: Jan. 7, 1931. **Capital:** 1,000,000 shares; no par value; 603,480 shares issued. **Property:** 22 unpatented claims, Ten Mile dist.; Golden. **Development:** By 2 short tunnels. **Ore:** Gold-silver. **Men employed:** Average, 2.

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<tr>
<th>NAME OF MINE</th>
<th>MINING DIST.</th>
<th>OWNER</th>
<th>P. O. ADDRESS</th>
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<td>Thomas Malone Pl.</td>
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<td>Ten Mile</td>
<td>C. H. Whinery</td>
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<td>Robert Pulz Est.</td>
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<td>E. N. Oliver Est.</td>
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<td>P. Klinkhammer</td>
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KOOTENAI COUNTY

Kootenai is one of the northern counties and constitutes an important part of the Idaho Panhandle. It is bounded on the west by the State of Washington, on the north by Bonner County, on the east by Shoshone County, and on the south by Benewah County. It contains an area of 1,253 square miles and was accredited with a population of 19,469 in the 1930 census. The principal industries are lumbering, dairying, and farming. Its lumbering industry is the most important and the largest in the State.

The county is exceptionally fortunate with respect to transportation facilities. It is served by three State highways, one of which is completed, and the other two partly so; by six railroads, which include main lines or their branches; and by lake boats on Lakes Pend d'Oreille and Coeur d'Alene. Coeur d'Alene is the largest town and county seat.

The principal mining districts are the Little North Fork of the Coeur d'Alene River, Hayden Lake, and isolated sections bordering on Lake Coeur d'Alene, throughout which zinc, lead, silver, copper, gold, arsenic, and high-grade clays occur. A limited amount of development work has been done on some of the veins, with encouraging results, and many others are worthy of further attention.

1931 Activities

The Beauty Bay section witnessed a large amount of development work throughout the year. The work done by practically all of the companies holding property in this section greatly exceeded the annual labor requirements. The principal operators were: Blue Bird Mining Co., Caribou Mining Co., Ltd., Radio Mining Co., Royal Mining Co., Silvertip Mining Association, and J. G. Sullivan, at the Shamrock mine. The Coeur d'Alene-Beauty Bay Mining & Milling Co., a custom-mill enterprise, based on milling the ores from all of the mines in this section, completed construction and adjustment of its mill.

In the Hayden Lake district, the Burnt Cabin Mining Co., the Commonwealth Metals Co., and the Connie Mining & Milling Co. were active throughout the year, and all did a substantial amount of development work. Press reports were to the effect that an enterprise known as the Ramsey Oil Project had installed drilling equipment and had sunk a well approximately 1,500 feet deep. As such a concern has never filed articles of incorporation nor the reports required by law, the inspector does not know whether the press statements are correct or not.

BEAUTY BAY MINING CO.

BLUE BIRD MINING CO.
BURNT CABIN MINING CO.

CARIBOU MINING CO., LTD.

COEUR D'ALENE-BEAUTY BAY MINING & MILLING CO.
Office: Coeur d'Alene. Officers: J. C. White, Vice Pres.; C. O. Sowder, Sec., both of Coeur d'Alene. Inc.: July 31, 1929. Capital: 25,000 shares preferred, par value $10; 10,000 shares common, no par value; 1704 shares preferred, 471 shares common issued. Property: 50-ton gas-driven flotation concentrator. Remarks: This enterprise was organized to conduct a custom milling business based on treating the ores from all of the mining companies operating in the Beauty Bay section. Mill construction completed during the year.

COEUR D'ALENE CLAY CO., LTD.

COEUR D'ALENE MOUNTAIN MINING CO.

COEUR D'ALENE OIL & DEVELOPMENT CO.

COEUR D'ALENE-SPOKANE MINING CO.
Officers: C. A. Spaulding, Pres.; Bessie Bryte, Sec., both of Helena, Mont. Inc.: Sept. 6, 1918. Capital: 1,000,000 shares; par value $1; 500,000 shares issued. Property: Strobel group; 3 patented claims, unorganized dist.; Lane. Ore: Lead-silver. Remarks: Idle.

COMMONWEALTH METALS CO.
Office: Coeur d'Alene. Officers: Chas. Killian, Pres.; F. W. Reed, Sec., both of Coeur d'Alene. Inc.: Mar. 19, 1924. Capital: 2,375,000 shares common, par value $1; 125,000 shares preferred, par value $1; 99,068 shares common, 7,128 preferred issued. Property: Commonwealth group; 7 unpatented claims, Hayden Lake dist.; Coeur d'Alene. Development: By 2 tunnels: No. 1, 470 ft.; No. 2, 80 ft.; a vertical shaft 325 ft. deep;
KOOTENAI COUNTY

and 2 inclined shafts, 150 and 225 ft. deep. Plant: Steam-driven I-R compressor; gas-driven hoist; complete mining equipment and camp. Ore: Lead-silver-copper. Remarks: Annual labor only. A stock assessment of 1c was levied on April 6.

CONNIE MINING & MILLING CO.

GRAY WOLF MINING CO.

GREAT WESTERN COPPER CO., INC.
Office: Coeur d'Alene. Officers: Jackson C. Hill, Pres.-Mgr., Lane; George Lee, Sec., Richmond, Calif. Inc.: Filed in Idaho: Nov. 20, 1931. Capital: 200,000 shares; par value $1; 7,400 shares issued. Property: 4 unpatented claims, Hayden Lake dist.; Hayden Lake. Development: 1 short tunnel. Ore: Copper-gold-silver. Remarks: Failed to file the reports required by law. The president reported that this company owned a property near Lane, which was being developed by a lessee.

HAMBURG AMERICAN COPPER MINING & MILLING CO.
Office: Kellogg. Inc.: Nov. 30, 1908. Capital: 1,500,000 shares; par value $1. Remarks: Has failed to file the reports required by law since 1928.

HAYDEN LAKE MINING & MILLING CO.

LITTLE NORTH FORK COPPER MINING & MILLING CO., LTD.

PALSIDE MINING & MILLING CO.
Office: Coeur d'Alene. Officers: T. W. Schmidt, Pres.-Mgr., Coeur d'Alene; A. K. Rogers, Sec., E. 1301 Providence Ave., Spokane, Wash. Inc.: Jan. 31, 1912. Capital: 1,500,000 shares; par value $1; 1,156,874 shares issued. Property: Palisade group; 16 unpatented claims, unorganized dist.; Kellogg. Development: Approximately 1250 ft. of tunnels, the principal of which is No. 2, 1130 ft. long. Ore: Silver-lead. Remarks: Annual labor only, the funds for which were derived from stock assessments.

RADIO MINING CO.

RIVERSIDE COPPER MINING CO., LTD.
ROYAL MINING CO.

SHAMROCK MINE

SILVERTIP MINING ASSOCIATION

TWIN GULCH MINING CO.

NAME OF MINE    MINING DIST.    OWNER    P. O. ADDRESS
Commander et al. Medimont    Albert T. Allen    Medimont
Elizabeth Unorganized    H. C. Cullom et al    Coeur d'Alene
Fortune Medimont    Anna M. Blessing    Medimont
Island Quartz Killarney L.    Max R. Crosby    Kellogg
Joe et al. Wolf Lodge    Soren Simonson    Coeur d'Alene
Kaiser William et al. Unorganized    Frank Costin    Coeur d'Alene
Kelnwood Unorganized    R. L. Keinholz    Corbin
Pine et al. Medimont    W. D. Tuck    Lane
Porcupine et al. Hayden Lake    Arthur Jacobson    Enaville
Quebeck Medimont    Achille Fortier    Medimont
Ridge et al. Burnt Cabin    Adolf V. Johnson    Coeur d'Alene
Ruby Unorganized    A. Benjamin    Athol
Seven Stubbs et al. Medimont    R. W. Metler et al    Rose Lake
Sunset Gr. Unorganized    G. C. Staggs et al    Athol

BIBLIOGRAPHY
See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


LATAH COUNTY

Latah County is bounded on the north by Benewah, on the south by Nez Perce, on the west by the State of Washington, and on the east by Shoshone and Clearwater counties. It has an area of 1,071 square miles, and was accredited with a population of 17,798 in the 1930 census. Moscow is the largest town and county seat, as well as the location of the University of Idaho and the Idaho Bureau of Mines and Geology. The county is recognized primarily as an agricultural community, particularly for wheat raising.

The principal mineral resources are copper, gold, silver, opals, mica, feldspar, beryl, and high-grade fire clay. The clay occurs near the town of Troy and two companies are engaged in manufacturing it into brick and refractory products. The principal company is the Idaho Fire Brick Co. and its output is in great demand throughout the entire northwest. The copper, gold, silver, beryl, and mica occur in the northern part of the county, north of the towns of Harvard and Vassar, in the Gold Hill, or Blackfoot, Hoodoo, and Avon districts. These districts are served by the Washington, Idaho and Montana Railroad, which connects with the Northern Pacific and the Spokane and Eastern railroads at Palouse, Washington, and the St. Maries-Elk River branch of the Chicago, Milwaukee and St. Paul Railroad at Boville.

The mica mines have produced a large tonnage of high-grade mica. The resources of the old ones have not been exhausted, many of the prospects justify further development, and there are still many possibilities for the discovery of new veins. As there are many chances for the development of profitable enterprises, these deposits are worthy of more attention than they have been receiving in the past few years.

1931 Activities

Other than annual labor, all of the companies holding mining property in this county were idle throughout the year. The Idaho Fire Brick & Clay Co. maintained operations and produced and marketed a large tonnage of manufactured fire clay products.

ACE MINING CO.

CASSIDY GOLD MINING & MILLING CO., LTD.

COPPER CHIEF MINING & MILLING CO., LTD.

COPPER MOUNTAIN MINING CO.

GOLD CREEK METALS CO.

GOLD HILL MINING & MILLING CO.

IDAHO CERAMIC MATERIALS CO.

IDAHO FIRE BRICK & CLAY CO.
Office: Troy. Officers: J. F. McCarthy, Pres.; Ellis L. Hale, Sec., both of Wallace. Inc.: May 31, 1928. Capital: 1,000 shares; par value $100; all shares issued. Property: 19 acres of patented land, held under a 99-year lease. Plant: Electrically driven drag-line hoist. MILL: Steam-driven puddling and molding equipment furnaces. Mineral sought: Fire clay. Men employed: Average, 16. Remarks: This company is the largest manufacturer of fire clay and refractory products in the State. Its output is in great demand throughout the Northwest, smelters and railroads being the principal consumers. A large part of the fire clay is obtained on a royalty basis from property other than that which the company controls. Operations maintained throughout the year. Company produced and marketed a large tonnage of manufactured fire clay products.

MUSCOVITE MICA CO.

PRIMUS PLACER GOLD CO.

RAMSEY OIL PROJECT
Office: Unknown. Officers: Unknown. Inc.: Unknown. Remarks: Name gleaned from press reports, which were to the effect that drilling equipment had been sunk and a well drilled to approximate depth of 1500 ft. According to these reports the enterprise is located 14 miles north of Coeur d'Alene. The names A. F. Diehl and Albert Anderson appear in the newspaper reports.

SPOKANE-IDAHO COPPER CO.
LEMHI COUNTY

TROY GOLD & COPPER MINING CO., LTD.

NAME OF MINE    MINING DIST.  OWNER    P. O. ADDRESS
Anny Gr.        Hoodoo        P. Doffner  Harvard
Avon            Hoodoo        J. H. Nesbit  Deary
Bonanza Gold Pl. Gold Creek  Wm. J. Schmidt  Potlatch

Clara Lester Gr. Gold Creek  James C. Throop  Palouse
Eureka Gr.      Gold Creek    Edwin N. Carrico  Potlatch
Excelsior       Gold Creek    Arthur P. Gilliam  Potlatch
Gold Bug        Gold Creek    Arthur P. Gilliam  Potlatch
Idaho           Hoodoo        G. E. Arrasmith  Harvard
Knapp Bros.     Hoodoo        Harry Knapp    Harvard
Midas           Hoodoo        H. N. Gray    Potlatch
Monday          Hoodoo        V. P. Wiesenthal  Palouse, Wash.

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The copper deposits of the Seven Devils and adjacent districts, by D. C. Livingston and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 1, 1920.†
Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, 1927.‡

LEMHI COUNTY

Lemhi County is situated in central-eastern Idaho, bounded on the north and east by the State of Montana, on the west by Idaho and Valley counties, and on the south by Custer, Butte, and Clark counties. It has an area of 4,597 square miles, which is about equal to the State of Connecticut, and was accredited with a population of 4,643 in the 1930 census, or 1.0 person to the square mile. A provisional county government was organized in July, 1867, and in January, 1869, the Territorial Legislature permanently established the county with Salmon City as the county seat, an honor which it has always retained. The larger part of the population is located in the Lemhi River and Pahsimeroi River valleys, and is engaged in the pursuits of agriculture and stockraising.

It is one of the principal mining counties of the State, and always ranks as one of the largest producers. The extensive and varied mineral resources; the many veins that have been discovered, yet not developed; the many un-
MINING INDUSTRY OF IDAHO

discovered veins; the excellent mining conditions; the many producing mines and prospects; and its location, both geographically and geologically, place this county within the area known as Central Idaho's Mineral Empire.

The county is served by the Pittsburg & Gilmore Railroad, which plies between Armstead, Montana, and Salmon, with a branch line from Leadore to Gilmore; by the Sawtooth Park State highway from Challis to Salmon, which follows the Salmon River and which is fully completed; and by a system of county roads which lead into all the outlying settlements and mining districts.

The principal mineral resources are lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin, and lignite. The formations in which the various mineral deposits occur range from early sedimentary rocks to late igneous rocks and include all those which are favorable to the deposition of ore in commercial quantities. The deposits are widely distributed throughout the vast mountainous areas which comprise a large part of the county. The wide distribution of the deposits, the diversity of mineralization, the favorable geological conditions, and the many opportunities for the development of profitable enterprises, make this county an exceptionally favorable field for prospectors and development companies.

1931 Activities

The gold resources of this county received more than the usual amount of attention. There was a substantial increase in the number of prospectors and investigators seeking gold mines, a number of new companies were organized, and some of them were active throughout the year.

The placer and lode deposits in the Shoup district received more attention than for many years. The Gold Hill Mines, Inc., a new organization, at the Kentuck mine; the Golden Dawn Mining Co., a placer mining enterprise; and the Owl Mining Co., Inc., were all active. Press reports were to the effect that a flat-boat dredge was constructed and placed in operation to exploit a placer deposit on the Salmon River, and that the Kittie Burton mine, in the Indian Creek district, which is near Shoup, was rehabilitated and that a short tramway and a small mill were under construction.

The Eldorado Gold Mining Co., a new organization, at the Ranger mine, in the Eldorado district, northeast of Salmon, commenced work early in the year and produced and marketed a small tonnage of high-grade gold ore.

The Goldstone Mines Corporation, in the Pratt Creek district, conducted mining and milling operations for the first three months of the year and produced and marketed a small tonnage of high-grade concentrate, after which all operations were suspended, and the company reorganized as the Western Gold Mines, Inc.

In the Yellow Jacket district the United Mace Smelters, Inc., employed two men during the summer months in a placer mining enterprise, and Mrs. H. F. Steen, at the Continental group, further extended the principal tunnel. All of the lode mines in the Leesburg district were idle. Three placer mining companies further enlarged their ditches, increased their hydraulic equipment, and conducted hydraulic operations during the spring.

There was a slight increase in prospecting and development work in the Gibbonsville district. Two new companies were organized, and each produced and marketed a small tonnage of high-grade gold ore.

Other than the necessary annual labor, all of the mining companies operating in the Nicholia, Spring Mountain and Leadore districts were idle throughout the year; however, lessees at two of the mines in the Nicholia district did a small amount of development work, and the owners of the Maryland mine, in the Leadore district, conducted development work without interruption.

The Hecla Mining Co., which, in 1930, commenced developing a discovery of high-grade copper-gold ore, on Allison Creek, 10 miles south of Salmon, on the divide between the Lemhi and Salmon rivers, continued this work during the early part of the year. Other than a small amount of work by lessees, the copper mines of the Harmony Mines Co. and Winder-Stillman Con, near Salmon, were idle throughout the year.
The Gilmore district, which for many years was one of the principal lead-silver producing sections in the State, witnessed but little activity, as all of the mining companies were idle. About 20 men were engaged in leasing operations at the Allie, Latest Out, and P-1 mines. They produced a substantial tonnage of high-grade ore, all of which was stored, except one small shipment.

**ALLIE MINE**

**Office:** Gilmore. **Owners:** Gilmore Mercantile Co., Gilmore. **Property:** Allie group; 12 patented claims, Texas dist.; Gilmore. **Development:** Principally by 1 tunnel 6000 ft. long, in which are 2 inclined shafts with 6 intermediate levels, opening the vein 260 ft. below the tunnel. **Plant:** 40-kw. electric generator, driven by Fairbanks-Morse semi-Diesel engine; 2 electrically-driven hoists; 1200-ft. aerial tramway; mine buildings. **Ore:** Lead-silver. **Remarks:** A small amount of work by lessees during the year.

**BEAVERHEAD LEAD MINES CO.**

**Office:** Cheney Bldg., Reno, Nev. **Officers:** John Salsberry, Pres., 464 43d Ave., San Francisco; J. E. Sullivan, Sec., Cheney Bldg., Reno, Nev. **Inc.:** Filed in Idaho: May 12, 1927. **Capital:** 3,000,000 shares; par value 10c; no shares issued. **Property:** Viola group; 1 patented, 1 unpatented claim, Nicholla dist.; Gilmore. **Ore:** Lead-silver. **Remarks:** Idle.

**CHLORIDE EUREKA CO.**

**Office:** Salmon. **Officers:** S. E. Bowler, Pres.-Mgr.; Harriet Bowler, Sec., both of Salmon. **Inc.:** Oct. 9, 1928. **Capital:** 500,000 shares; par value $1; 5400 shares issued. **Property:** 5 unpatented claims, unorganized dist.; North Fork. **Development:** By 3 short tunnels. **Ore:** Gold-silver-lead-copper. **Remarks:** Annual labor only.

**CONTINENTAL GROUP**

**Owner:** Mrs. H. F. Steen, P. O. Box 1434, Stockton, Calif. **Property:** Continental group; 4 patented claims, Yellow Jacket dist.; Forney. **Development:** Principally by 1 tunnel 420 ft. long. **Plant:** Gas-driven Rix compressor; complete mining equipment and camp. **Ore:** Copper-gold-silver. **Men employed:** Average, 4. **Remarks:** Active during the summer.

**CONTINENTAL STANDARD MINING CO.**

**Office:** 655 Dexter Horton Bldg., Seattle, Wash. **Officers:** C. M. Sonoda, Pres., Seattle, Wash. **Inc.:** Jan. 2, 1926. **Capital:** 100,000 shares preferred, 1,000,000 shares common; Jan. 23, 1930, common stock increased to 3,000,000 shares; par value $1; 727,309 shares issued. **Property:** Grizzly Hill group; 25 unpatented claims, Junction dist.; Leadore. **Development:** By 5 tunnels, totaling approximately 1000 ft., and an inclined shaft 175 ft. long. **Plant:** 200-cu.-ft. C-F compressor, driven by semi-Diesel engine; air-driven hoist. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.

**EJJDORADO GOLD MINING CO.**

**Office:** Salmon. **Officers:** J. F. Johnson, Pres.-Mgr.; J. P. Jensen, Sec., both of Sandy, Utah. **Inc.:** Filed in Idaho: Mar. 12, 1931. **Capital:** 2,000,000 shares; par value 10c; 750,000 shares issued. **Property:** Ranger group; 2 patented, 14 unpatented claims, held under lease and option, Eldorado dist.; Salmon. **Development:** By 2 tunnels: No. 1, 800 ft. long; No. 2, 700 ft. long. **Ore:** Gold-silver-copper-lead. **Men employed:** Average, 3. **Remarks:** Company organized and work started during the early part of the year. A small tonnage of high-grade gold ore was produced and marketed.

**GOLDEN AGE MINING CO.**

**Office:** Sandy, Utah. **Officers:** J. R. Jensen, Pres.; J. P. Jensen, Sec., both of Sandy, Utah. **Inc.:** Nov. 29, 1930. **Capital:** 500,000 shares; par value 10c; 250,000 shares issued. **Property:** 6 unpatented claims, held under lease and option, Gibbonsville dist.; North Fork. **Development:** By 2 tunnels; No. 1, 700 ft. long; No. 2, 300 ft. long. **Ore:** Lead-silver. **Remarks:** Failed to file the reports required by law.
GOLDEN DAWN MINING CO.

GOLD HILL MINES, INC.
Office: Pocatello. Officers: H. D. Lauderback, Pres.; Grace L. Hall, Sec., both of Pocatello; L. W. Bick, Managing Director, Shoup. Inc.: Jan. 9, 1931. Capital: 5,000,000 shares; par value 10c; Dec. 24, 1931, changed to no par; 2,340,000 shares issued. Property: Old Kentuck group; 3 patented, 18 unpatented claims, held under lease and option, Mineral Hill dist.; Shoup. Development: By 6 tunnels: No. 1, 120 ft. long; No. 2, 310 ft. long; No. 4, 250 ft. long; No. 5, 600 ft. long; No. 6, 700 ft. long. Ore: Gold-silver. Men employed: Average, 3. Remarks: A small amount of work throughout the year.

HARMONY MINES CO.

IDAHO PREMIER MINES CORPORATION

IMA CONSOLIDATED MINING & MILLING CO.

IMA MINES CORPORATION
Office: May. Officers: E. R. Miller, Pres., May; Jess O. Eastman, Sec., Buhl; W. P. Barton, Mgr., May. Inc.: Mar. 12, 1930. Capital: 1,000,000 shares; par value $1; 517,792 shares issued. Remarks: Lease and option on the property owned by the Ima Consolidated Mining & Milling Co. This is the fourth company that Mr. Barton has organized on this property, the former ones being: Blue Wing Tungsten Mining & Milling Co., incorporated Mar. 23, 1921, charter forfeited Nov. 30, 1923; Republic Consolidated Mining & Refining Co., incorporated Aug. 9, 1922, charter forfeited Nov. 30, 1924; Patterson Mines Corporation, incorporated Apr. 3, 1927. Idle.
LATEST OUT MINING & SMELTING CO., LTD.


LEAD MOUNTAIN MINING CO.

Office: 218 Felt Bldg., Salt Lake City, Utah. Officers: George W. Snyder, Pres.-Mgr.; Guy M. Snyder, Sec., both of Salt Lake City. Inc.: Aug. 26, 1929. Capital: 1,000,000 shares; par value 25c; all shares issued. Property: Nicholla group: 36 unpatented claims, some of which are held under lease and option, Nicholla dist.; Reno. Development: By 2 tunnels: No. 1, 1000 ft. long; No. 2, 300 ft. long; and an inclined shaft 150 ft. long; vertical shaft 400 ft. deep, at the bottom of which is 1200 ft. of prospects and drifts. Plant: Hoist and 2-drill Sullivan compressor, both gas-driven; complete mining equipment and camp. Ore: Lead-zinc. Remarks: Annual labor only.

LEEDORE-LEMHI COPPER MINING CO.


LEESBURG BONANZA PLACER CO.

Office: 611 Isabel St., Los Angeles, Calif. Officers: Carl A. Poulsen, Pres.-Mgr.; Hans Therkelsen, Sec., both of Los Angeles, Calif. Inc.: Apr. 2, 1929. Capital: 2,500,000 shares; par value 10c; 1,902,385 shares issued. Property: Bonanza placers; 12 unpatented claims, Mackinaw dist.; Leesburg. Ore: Placer gold. Men employed: Average, 3. Remarks: Small amount of work on hydraulicking equipment was performed during the summer months. This company is a reorganization of the Bonanza Placer, Inc. Annual labor only.

LEESBURG LODE & PLACER MINING CO.


LEMHI GOLD DREDGING CO., LTD.


LEMHI MINING CO.

MONTANA MINING & LIVESTOCK CO.

NORTHWESTERN DEVELOPMENT CO., LTD.

OWL MINING CO., INC.

POCATELLO-LEMMI MINING & EXPLORATION CO.

PORTLAND MINING CO.

RESCUE GOLD MINES CO.

SCHIELDS MINING CO.

SOUTH GILMORE MINING CO.
Office: Idaho Falls. Officers: Richard Martin, Pres.; Albert Martin, Sec., both of Idaho Falls. Inc.: Nov. 12, 1929. Capital: 300,000 shares; par value 10c; Apr. 1, 1931, increased to 1,000,000 shares, par value $1; 50,000 shares issued. Property: 10 unpatented claims, held under lease and option, Spring Mountain dist.; Gilmore. Development: 8 short tunnels. Ore: Lead-silver. Men employed: Average, 5. Remarks: A small amount of work during the summer.

UNITED IDAHO MINING CO.
Office: No. 1, State St., c/o U. S. Smelting, Refining & Mining Co., Boston. Officers: C. A. Hight, Pres.; F. W. Batchelder, Sec., both of Boston; D. D. Muir, Jr., Mgr., Newhouse Bldg., Salt Lake City. Inc.: Oct. 18, 1924. Capital: 10,000 shares common, no par value; 10,000 shares preferred, par value $10; June 20, 1930, preferred shares decreased to 7504; 7053
shares common, 7267 shares preferred issued. **Property:** Pittsburgh-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** By 4 tunnels: No. 1, 600 ft. long; No. 2, 1000 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 1200 ft. long, which gives a vertical depth of 350 ft. on the vein. **Plant:** MINE: 1 200-kw. Allis-Chalmers Diesel engine with generator, 1 I-R electrically driven 9x8, and 1 C. P. gas-driven compressor; 100-h. p. electrically driven double-drum hoist; complete mining equipment, camp and buildings. MILL: 50-ton gas-driven concentrator. **Ore:** Lead-silver. **Men employed:** Average, 2. **Remarks:** Idle; maintenance only.

**UNITED MACE SMELTERS, INC.**

**Office:** 2763 Blake St., Denver, Colo. **Officers:** Robert G. Ainsworth, Pres.; M. G. Ainsworth, Sec.; C. H. Mace, Mgr., all of Denver, Colo.; Emil Neering, Agent, Forney. **Inc.:** Filed in Idaho: Dec. 15, 1930. **Capital:** 1,500,000 shares; par value $1; 626,368 shares issued. **Property:** Yellow Jacket group; 7 patented, 37 unpatented claims, held under lease and option, Yellow Jacket dist.; Forney. **Development:** By 2 tunnels: No. 1, 315 ft. long; No. 3, 1700 ft. long. **Men employed:** Average, 2. **Remarks:** Press reports were to the effect that a small amount of placer mining was attempted during the early part of the year.

**UTANA MINING CORPORATION**

**Office:** 156 East Second So. St., Salt Lake City, Utah. **Officers:** Web Greene, Sec., Salt Lake City, Utah. **Inc.:** Aug. 4, 1921. **Capital:** 1,000,000 shares common, par value 10c; 100,000 shares preferred, par value $1; 119,000 shares issued. **Property:** Big Dyke group; 22 unpatented claims, Freeman dist.; Salmon. **Development:** Approximately 1600 ft. of underground workings. **Plant:** Steam-driven compressor; complete mining equipment and camp; complete machinery and equipment for cyanide plant. **Ore:** Lead-silver-copper-zinc. **Remarks:** Annual labor only.

**VIRGINIA GOLD MINING & MILLING CO.**

**Office:** 702 Utah Savings & Trust Bldg., Salt Lake City, Utah. **Officers:** W. A. Shaw, Pres., Salt Lake City, Utah. **Inc.:** Aug. 21, 1925. **Capital:** 2,500,000 shares; par value 1c; 2,300,000 shares issued. **Property:** Virginia group; 9 patented, 13 unpatented claims, Eureka dist.; Baker. **Remarks:** Annual labor only.

**WESTERN GOLD MINES, INC.**

**Office:** 626 Liggett Bldg., Seattle, Wash. **Officers:** Arthur J. Theis, Pres.-Mgr.; William S. Akers, Sec., both of Seattle, Wash. **Inc.:** Aug. 15, 1931. **Capital:** 4,000,000 shares; par value 25c; 3,500,000 shares issued. **Property:** Goldstone group; 9 unpatented claims, held under lease and option, Pratt Creek dist.; Baker. **Development:** Principally by 1 tunnel 2150 ft. long. **Plant:** MINE: Electrically driven compressor; complete mining equipment and camp. MILL: 100-ton fine-grinding amalgamation and flotation. **POWER:** 195-kw. hydropower power plant driven by a Pelton wheel. **Ore:** Gold. **Men employed:** Average, 10. **Remarks:** This company is a reorganization of the Goldstone Mines Corporation. Mining and milling operations were conducted for the first three months of the year, and a small tonnage of high-grade concentrate was produced and marketed; after which all operations were suspended.

**WINDER-STILLMAN CON**

**Office:** Salmon. **Officers:** R. H. Winder, Pres., Salt Lake City; J. W. Jones, Sec.-Mgr., Salmon. **Inc.:** Form of organization unknown. **Capital:** 1,000,000 shares; par value 1c; 446,118 shares issued. **Property:** Pope- Shenon group; 12 patented claims, Eureka dist.; Salmon. **Development:** 6 tunnels: No. 1, 70 ft. long; No. 2, 80 ft. long; No. 3, 400 ft. long; No. 4, 450 ft. long; No. 5, 800 ft. long; No. 6, 1000 ft. long. Total development approximately 3000 ft. of underground workings. **Plant:** MINE: 2 12x10 I-R electrically-driven compressors; Sullivan steel sharpener; complete mining equipment and camp. MILL: 60-ton electrically-driven concentrator, including fine grinding and flotation. **Ore:** Copper. **Remarks:** Activities unknown. Failed to file the reports required by law.
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<td>J. M. Burkhart, Jr.</td>
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See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


A complicated fault system (Gibbonsville, Idaho,) by H. C. Bacon: Eng. and Min. Jour., vol. 79, p. 324, Feb. 16, 1905.§


LEWIS COUNTY

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The copper deposits near Salmon, Idaho, by C. P. Ross: U. S. Geol. Survey Bull. 774, 1925.†

LEWIS COUNTY

Lewis is one of the northern counties, being bounded on the north and west by Nez Perce, on the northeast by Clearwater, and on the east and south by Idaho County. Containing an area of but 470 square miles, and a population of 11.1 persons to the square mile, it is one of the smallest counties in the State in area and one of the largest in density of population. Excepting the small area occupied by Craig Mountains, practically all the county is tillable, and the principal industries are wheat raising and lumbering.

The county is served by the North and South State highway, by the Lewiston-Stites branch of the Northern Pacific Railroad, by the Lewiston-Grangeville branch, which is owned jointly by the Union Pacific and Northern Pacific railroads, by the Nez Perce & Idaho Railroad from Craigmont to Nez Perce, the county seat, and by the Craig Mountain Railroad from Reubens to Winchester.

The principal mineral resources are copper, gold, silver, marble, and limestone. Veins containing copper, gold, and silver have been discovered and developed in the Craig Mountains, principally along Deer Creek. At one time this section received considerable attention, and a small mill was constructed at one of the mines. The marble and limestone occur on Mission Creek near the Nez Perce County line. The marble occurs in all shades, colors, and diagrams familiar to the marble industry; it is exceptionally adaptable to commercial use.

CRAIG MOUNTAIN MINING & MILLING CO.

WINCHESTER COPPER MINING & SMELTING CO.

NEZ PERCE COUNTY

Nez Perce is one of the principal northern counties, bounded on the south and east by Idaho and Lewis counties, on the north and east by Clearwater and Latah counties, and on the west by the States of Washington and Oregon. It has an area of 851 square miles and was accredited with a population of 17,591 in the 1930 census. It is primarily an agricultural county, and Lewiston, the largest town and civic center of north-central Idaho, is the county seat. The county was originally organized under an act of the Legislature of Washington Territory before the Territory of Idaho was organized, and Lewiston was first settled in 1861, consequent to the discovery of, and as a supply point for, the placer mines in Clearwater and Idaho counties.

Lewiston is at the junction of the Snake and Clearwater rivers; steamboats can reach it from Portland, Oregon, although they are not used as a means of transportation from that point, and both rivers are navigable for boats of light draft. In addition to river boats, the county is served by the Union Pacific and Northern Pacific railroads, and by the North and South, and Lewis and Clark State highways.

The principal mineral resources are copper, silver, gold, marble, and limestone. The metals occur in isolated sections of the county and have never received much attention. The limestone, which is adaptable to Portland cement, occurs on the Snake River north of Lewiston, but the deposits have never been developed. The marble, which is of excellent grade and quality, occurs on the Clearwater River near Agatha. A little attempt has been made to exploit the marble deposits.

INDEPENDENT MARBLE & LIME CO.

TAMMANY OIL CO.
Office: Lewiston. Officers: B. F. Lorang, Pres., Lewiston. Inc.: Jan. 24, 1921. Capital: 100,000 shares; par value $1; July 13, 1921, increased to 1,000,000 shares. Remarks: Failed to file the reports required by law.

NAME OF MINE | MINING DIST. | OWNER | P. O. ADDRESS
--- | --- | --- | ---
Gold Standard | Cave Gulch | G. C. Ettershank | Lewiston
Homestead Entry | Clearwater | G. H. Gibbs | R. F. D. No. 2, Juliaetta
Iron Cap | Peck | W. H. Rugg | Peck
Montana | Unorganized | Frank Cole | Lewiston
OWYHEE COUNTY

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See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon: U. S. Nat. Mus. Proc., vol. 60, art. 3, pp. 1-33, 1921.*

ONEIDA COUNTY

The only known mineral resources of this county are: Bentonite; various clays of excellent quality; and the reported occurrence of copper-lead ores carrying gold and silver.

BLUE JAY MINING CO.

OWYHEE COUNTY

Owyhee is one of the historic counties of Idaho. It is situated in the southwestern portion of the State, and is bounded on the north by Canyon, Ada and Elmore counties, on the east by Twin Falls County, on the south by the State of Nevada, and on the west by the State of Oregon. Its area is 7,956 square miles, being larger than the State of New Jersey, and its population according to the 1930 census was only 4,103, or 0.5 persons to the square mile. The principal industries are farming, stockraising, and mining. Silver City, one of the oldest towns in the State, is the county seat.

The history of this county dates back to the discovery of placer gold and the rich veins of War Eagle Mountain in 1863. The first quartz mill was constructed in 1864, and for many years thereafter Owyhee was the principal mining county. The ores which occur in this county are the richest gold-silver ores ever discovered in the State, and many tons which were either milled or sent directly to smelter had a phenomenal value. Early statistics are not very reliable, but from the best sources available, an estimated production of over $40,000,000 is conservative.

The principal mineral resources of the county are silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese, and nitrates. The diversity of mineralization, the favorable geological conditions, and the wide distribution of the deposits throughout the county make it an exceptionally favorable field for prospectors and development companies, particularly because all the high-grade ore in the old mines has not been exhausted, nor have all the veins been discovered.
1931 Activities

One of the largest and most important new enterprises based on the development of lead-zinc-silver ores which was started in the State during 1929 was that of the Exploration Co. of California, at the Golconda group, in the South Mountain district. New buildings were constructed, complete mining equipment was installed, and development work was started. A large amount of crosscutting, drifting, and sinking was done. This work greatly increased the known resources of the property. These operations continued until late in 1931, when the low price of metals caused a suspension of all operations pending a return of normal metal prices.

The most important new enterprise to enter this county was that of the Golden Chariot-War Eagle Mines Co., which acquired the principal properties on War Eagle Mountain and commenced work in May. The power line was rebuilt; equipment was repaired; and Sinker tunnel and an upper tunnel were reopened. An extensive examination was then started, a small amount of development work was done, and all operations were suspended in August. The American Gold Dredging Corporation, on Meadow Creek, near Triangle, operated its dredge during the spring months; after which time, the shortage of water made it impossible to operate. The B. B. & M. Oil & Gas Co., near Grandview, was active during the early part of the year and sunk a small well to a depth of 1,500 feet.

The silver resources of the Castle Creek section and the gold properties in the Reynolds Creek section, both received a small amount of attention, although no work of any importance was done.

Lessees at the properties of the Empire Mines Co. and the Never-Sweat Mining Co., at Silver City, were active throughout the year and produced and marketed a small tonnage of high-grade ore.

The Idaho Gold & Platinum Merger Mines Co., an enterprise based on the alleged presence of platinum in the volcanic glass sands which lie at a depth of about 200 feet in the artesian basin of Little Valley, near Bruneau, performed a small amount of work during the year and gave the project a large amount of publicity through the press and through circulars designed to finance further the project.

AFTERTHOUGHT MINING CO.

Office: 434 First Nat'l Bank Bldg., Boise. Officers: E. V. Orford, Pres.; S. L. Tipton, Sec., both of Boise. Inc.: Feb. 15, 1927. Capital: 400,000 shares common, 100,000 shares preferred; par value $1; 165,010 shares common, 3800 shares preferred issued. Property: Afterthought group; 1 patented, 4 unpatented claims, French dist.; Silver City; held under lease and option from E. V. Orford, Boise. Development: Principally by a vertical shaft 470 ft. deep, in which there are 5 intermediate levels. Ore: Silver-gold. Remarks: Annual labor only.

AMERICAN GOLD DREDGING CORPORATION


BANNER MINING & MILLING CO.

AMERICAN GOLD DREDGING CORPORATION'S DREDGE

B. B. & M. OIL & GAS CO.
Office: Boise. Officers: R. K. McDougal, Pres.; C. L. Blodgett, Sec.; D. A. Bowe, Mgr., all of Boise. Inc.: Dec. 18, 1930. Capital: 50,000 shares; par value $1; 34,474 shares issued. Property: Oil and gas leases on patented farm lands near Grandview. Development: 1588-ft. well. Mineral sought: Oil and gas. Remarks: Well was sunk during the early part of the year, the equipment used being rented.

COSMOPOLITAN MINING CO., LTD.

E. B. MINING CO.

EMPIRE MINES CO.

EXPLORATION COMPANY OF CALIFORNIA
driven hoist; complete mining equipment and camp. Ore: Lead-zinc-silver. Men employed: Average, 30. Remarks: The company was organized and the property acquired late in 1929, after which camp buildings were erected, equipment and machinery installed, and development work started. Except for a period of four weeks during 1930, work has progressed without interruption, and a large amount of crosscutting, drifting, and sinking has been done. This work has greatly increased the known resources of the property. Operations were conducted until late in 1931, when the low price of metals caused a suspension of all operations.

GOLCONDA GROUP MINING CO.

GOLDEN CHARIOT-WAR EAGLE MINES CO.
Office: 120 Broadway, New York City. Officers: W. R. Wade, Pres.; Rex Townsend, Sec., both of New York City. Inc.: Jan. 10, 1931. Capital: 1,000,000 shares; par value $1; 703,000 shares issued. Property: South Mountain group; 15 patented claims, South Mountain dist.; Silver City. Development: By 4 tunnels: No. 1, 6200 ft.; approximate total development, 11,600 ft. Plant: Electrically driven compressor; complete mining equipment and camp. Ore: Gold-silver. Men employed: Average, 8. Remarks: This was the most important new enterprise to enter the county during the year. Work was commenced in May. The power line was rebuilt, equipment repaired, the Sinker tunnel reopened. An extensive examination was then started, a small amount of development work done and all operations suspended in August.

GOLD STANDARD MINING CORPORATION

GREAT WESTERN MINES CO.

HOOSIER LEASING CO.
Office: Silver City. Officers: Charles A. Hackney, Pres.; Peter Steele, Mgr., both of Silver City; John W. Shore, Sec., Boise. Inc.: Nov. 16, 1926. Capital: 100,000 shares; par value $1; 64,000 shares issued. Property: Lease on Alpine vein from Empire Mines Co.; Carson dist.; Silver City. Development: Operations conducted through Blaine tunnel. Ore: Gold-silver. Men employed: Average, 2. Remarks: A small amount of high-grade ore was produced and marketed during the early part of the year.

IDA BELL GOLD MINES, INC.
IDAHO GOLD & PLATINUM MERGER MINES CO.
Office: Box 150, Bruneau. Officers: Phil Thom, Pres.-Mgr.; E. A. Thom, Sec., both of Bruneau. Inc.: Filed in Idaho: Oct. 30, 1928. Capital: 5,000,000 shares; par value 10c; 3,887,390 shares issued. Property: 10 unpatented claims, 1380 acres, unorganized dist.; Little Valley; Bruneau. Plant: 30-h. p. gas-driven hoist; steam-driven compressor; complete mining equipment and camp. Ore: Platinum. Men employed: Average, 8. Remarks: This company's enterprise is based on the presence of platinum in a volcanic glass sand lying at a depth of about 250 ft. in an artesian basin. In 1929 work was started on sinking a vertical shaft lined with concrete. This work was continued throughout 1930 to a total depth of approximately 170 ft. A few churn drill holes were sunk during 1931, the funds for which were obtained from stock assessments and resale of delinquent stock.

IMPERIAL MINING & MILLING CO., LTD.

NEVER-SWEAT MINING CO.

OWYHEE DEVELOPMENT CO., INC.

OWYHEE GOLD MINING CO.

OWYHEE SILVER MINES CO.

PIXLEY BASIN MINING CO.
WAR EAGLE CONSOLIDATED MINING CO.

WAR EAGLE MINING & MILLING CO.

<table>
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Geology and water resources of the Bruneau River basin, Owyhee County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 11, 1924.*


Geology and metalliferous resources of the region about Silver City, Idaho, by A. M. Piper and F. B. Laney: Idaho Bureau of Mines and Geology Bull. 11, 1926.*

PAYETTE COUNTY

The only known mineral resources of this county are diatomaceous earth; various clays of excellent quality; and natural gas, which has been developed at Payette.

1931 Activities

In 1930 the Crystal Dome Oil & Gas Co., whose property lies in Payette and Washington counties, erected an 84-foot derrick, installed a standard steam-driven drilling rig, and sunk a well to a depth of 1,865 feet, at which point a showing of natural gas was encountered. In November, 1930, this company entered into an operating agreement with the Mountain States Oil & Gas Co. After months of intensive study by the geologists of the Ohio Oil Co. and after additional months of negotiations with the Mountain States Oil & Gas Co., the former company, operating under the name of its vice president, R. J. Berry, took over all the properties of the latter company on a lease basis. In September, 1931, a standard 122-foot derrick was erected; a complete rotary drill, run by a 125-horsepower Clark gas engine, gas-driven pumps, control heads, and a water system were installed; and drilling operations were started on October 4. The drill was manned by 16 experienced men and was operated 24 hours a day. By December 31 the new well, which was located a few feet south of the original well sunk by the Crystal Dome Oil & Gas Co., had reached a depth of 4,000 feet. The entire enterprise represented an expenditure of more than $100,000.

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. and the operations of the Ohio Oil Co. attracted a large amount of attention to this county and resulted in the organization of many new companies and the sinking of other wells. The Boise Petroleum Corporation, whose property is located in the Willow Creek section, erected a large derrick, installed standard steam-driven well-drilling equipment and, during the early part of the year, sunk a well to a depth of 1,100 feet.

At a site a few miles east of Payette, a small wooden derrick was erected, drilling equipment was installed, and the sinking of a well was started by a Mr. Louis Lilly. The size, type, and kind of equipment and the depth to which the well was drilled are unknown, as Mr. Lilly refused to file any information with the inspector other than that he was acting as "sole trustee."

Adjacent to Mr. Lilly's operations, a small well-drilling rig was installed, and work was started in sinking a small well, known as the "Underhill well." Whether this operation was conducted by Mr. H. H. Underhill personally or by the Northwestern Co., which filed articles of incorporation on October 19, 1931, and of which Mr. Underhill was designated as president, is unknown, as Mr. Underhill refused to file with the inspector of mines the reports which are required by law.

The Idaho-Oregon Petroleum Corporation reported that its property was idle throughout the year and was "under lease to International Finance Corporation of Payette, Idaho, H. H. Underhill, president." Such a corporation has never qualified to do business in Idaho nor has it ever filed with the inspector of mines the reports which are required by law.

ASSOCIATED OIL & GAS CO. OF CRYSTAL DOME STRUCTURE


BLUE MOUNTAIN MINING & DEVELOPMENT CO.


BOISE PETROLEUM CORPORATION

DERRICK OF BOISE PETROLEUM CORPORATION

CHERRY GULCH OIL & GAS CO.

IDAHO GAS & UTILITIES CORPORATION
Officers: J. S. Jacobs, Payette. Inc.: Nov. 13, 1931. Capital: 1,000,000 shares; no par value; shares issued, unknown. Remarks: Failed to file the reports required by law.

IDAHO-OREGON OIL & GAS CO.

IDAHO-OREGON PETROLEUM CORPORATION

INTERMOUNTAIN BASIN OIL & GAS CO.

NORTHWEST DRILLING CO.
NORTHWESTERN CO.
Officers: H. H. Underhill, Payette. Inc.: Oct. 19, 1931. Capital: 25,000 shares; par value $1; shares issued, unknown. Remarks: Refused to file the reports required by law, although notified three times to do so. Newspaper reports were to the effect that a small water well-drilling equipment was installed and a shallow well sunk.

OIL STATES DRILLING CO.
Office: Weiser. Officers: Willard Scowcroft, Pres., Ogden, Utah; John T. Shepard, Sec., Weiser. Inc.: Feb. 17, 1931. Capital: 100,000 shares; par value $1; 1000 shares issued. Remarks: Company states it has a drilling contract to drill on land which is leased to the Associated Oil & Gas Co. of Crystal Dome Structure.

PACIFIC GAS & OIL CO.

PAYETTE VALLEY OIL & GAS CORPORATION

BIBLIOGRAPHY
See pages 7-8 for publisher’s address, meaning of reference marks, and abbreviations.


POWER COUNTY
The most active development work done in this county during the year was that of the Independent Mining Co. at its lead-silver prospect near Rockland. The oil development companies were practically idle throughout the year.

A few placer mines along the Snake River produced and marketed a small amount of placer gold.

ARBOON VALLEY OIL CO.
Office: Pocatello. Officers: D. C. Ray, Pres.; L. B. Evans, Sec., both of Pocatello. Inc.: Feb. 20, 1923. Capital: 250,000 shares; par value $1; 222,500 shares issued. Property: Oil leases on patented farm land which have been assigned to Gem State Petroleum Co.

GEM STATE PETROLEUM CO.
IDAHO RESEARCH AND DEVELOPMENT CO.

INDEPENDENT MINING CO.

NAME OF MINE          MINING DIST.       OWNER                      P. O. ADDRESS
Bannock Peak          Unorganized        Frazier & McClandon       American Falls
Diamond et al Pl.    Snake River       Wm. M. Main               Aberdeen
Golden Clift Pl.      Snake River       Geo. J. Wheeler           American Falls
Pl.                   Snake River       M. Launsberry             Minidoka
Pl.                   Snake River       L. N. Rosencrans           American Falls
Pl.                   Snake River       J. O. Payne               American Falls
Pl.                   Snake River       Wm. & C. Wagstaff          American Falls

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Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, 1924.**

SHOSHONE COUNTY

Shoshone County lies in the northern part of the State, and is bounded on the east by the State of Montana, on the south by Clearwater County, on the west by Latah, Benewah, and Kootenai counties, and on the north by Bonner County. In area it is one of the largest counties in the State covering 2,597 square miles. Lying approximately in the geographical center of the county is the famous Coeur d'Alene mining district, which contains an area of approximately 400 square miles, and which is known throughout the world as one of the largest lead-silver producing regions of the United States.

The entire county is mountainous, containing but a very small area of agricultural land, and is entirely dependent upon the mining and timber industries, particularly mining. These industries are well established, and it is to them that credit must be given for making this county one of the wealthiest in the State, as well as the county having the smallest public debt, one of the lowest tax levies, and the greatest per capita wealth.

It is the largest and most important mining county in the State, and for many years has produced 90 per cent of the lead and 85 per cent of the silver that has been derived from Idaho mines. Its importance can be better judged from the fact that Idaho ranks second in the United States in the production of lead and third in the production of silver. In addition to its production of lead
and silver, Shoshone is the principal zinc producing county in the State, and one of the most important gold producers. The other metals which occur in commercial quantities are copper, antimony, and tungsten. At one time copper was one of the principal metal products and the largest copper mines ever developed in the State were those near Mullan.

The county is served by the O.-W. R. & N. and Northern Pacific railroads, by the Coeur d'Alene-Yellowstone State highway, which is paved between Mullan, Wallace, and Pine Creek, and by well-maintained county roads, which reach the principal mines. Wallace is the county seat and the civic and business center. Kellogg, the home of the Bunker Hill & Sullivan M. & C. Co., is the largest town. The 1930 census accredited the county with a population of 19,060.

1931 Activities

The year 1931 was one of curtailment. Production was reduced; there was but a small amount of new plant construction; no new enterprises were started; and mine development work was greatly reduced, the totals being the smallest that the county has witnessed for many years. The Bunker Hill & Sullivan M. & C. Co. and the Sunshine Mining Co. were the only two companies in the county which maintained capacity production throughout the year. The Federal Mining & Smelting Co., at the Morning and Page mines, the Hecla Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and the Sidney Leasing Co., all greatly curtailed their production. The mines of the Sullivan Mining Co., Tamarack & Custer Consolidated Mining Co., Dayrock Mining Co., Sherman Lead Co., and Callahan Zinc-Lead Co. were closed early in the year; however, the Sullivan Mining Co. and the Callahan Zinc-Lead Co. maintained development work. The principal producing mines in which the ore reserves were increased by new work were those of the Bunker Hill & Sullivan M. & C. Co., Sidney Leasing Co., Sullivan Mining Co., Sunshine Mining Co., Jack Waite Mining Co., Golconda Lead Mines, and Callahan Zinc-Lead Co. New ore disclosures of importance were made in the mines of the Washington-Idaho Mining Co. and Crystal Lead Mines Co. No new mills were constructed during the year, although those of the Mutual Mines Development Co. and the Jack Waite Mining Co., construction of which was started in 1930, were completed early in 1931. New mining equipment and machinery were installed by the Stratton Silver Summit, Inc., Kellogg Silver-Lead Mines Co., Washington-Idaho Mining Co., and the Independence Lead Mines Co. The principal development enterprises which maintained work without interruption were: Bunker Chance Mining Co., Granada Lead Mines, Inc., Independence Lead Mines Co., Liberal King Mining Co., Little Sunshine Mining Co., Metropolitan Mines Corporation, Ltd., Stratton Silver Summit, Inc., and Washington-Idaho Mining Co. Other development enterprises which were active throughout a large part of the year and whose work exceeded the legal requirements for annual labor were: Atlas Mining Co., Ajax Mining Co., Pontiac Mining Co., Coeur d'Alene Mining & Smelting Co., General Mines Corporation, Louise Silver Lead Mining Co., Nine Mile Mining Co., Pearson Mining Co., and Samson Mining & Development Co., Ltd.

Under an agreement adopted on November 16, 1925, wages in the Coeur d'Alene district were to be adjusted each month in accordance with a bonus rate based on the selling price of lead in New York City. The base rate of this scale is a wage of $3.75 per day for miners when lead is selling for less than 5½ cents per pound, being graduated from 25 cents per day, when the price of lead is 5 cents per pound, to $2.75 per day, when the price of lead is 10½ cents per pound. During 1931, the price of lead declined so far that if the bonus scale had been adhered to wages would have been cut to a point entirely out of proportion to existing living conditions; so the signatories to the bonus scale waived their agreement, and, on May 16, wages were reduced to a basis of lead selling at 7 cents per pound, or $1.00 per day bonus.

The attention which all of the large operators are giving to safety conditions and supervision was reflected in a very small number of fatal accidents and by the continued interest which the employees are displaying in the mine-rescue and first-aid training which is conducted by the Central Mine Rescue Station. Working conditions throughout the Coeur d'Alene district are excep-
tionally favorable. All of the mines are well ventilated, and the operators devote much time, thought, and money to making the mines safe and to keeping them in such a condition that the men can do a full day's work without expending the energy which is required in poorly ventilated mines. It can safely be said that the mines of this district are the best ventilated ones in the United States. The solarium, installed by the Bunker Hill & Sullivan M. & C. Co., in 1929, is a distinct contribution to welfare work. It continued to be used throughout the year by a large number of the company's employees, and that its results are very beneficial was definitely proved.

The gold resources, both placer and lode, of the North Side or Murray section received a large amount of attention. Many placer miners were active throughout the year; three of the old lode mines were reopened; and a large amount of development work was done at the Mother Lode mine.

The foregoing principal activities are more extensively reviewed in the outline by companies, which follows:

The Bunker Hill & Sullivan M. & C. Co. operated its mines, mills, and smelter at capacity production throughout the year. The new development work, consisting of more than 8,000 feet, greatly increased the known resources of the mine; and the ore bodies were further opened on the 2,000-foot level, where the ore and geological conditions were found to be normal. This ore, with that on No. 6 level, which was first disclosed in 1929, adds many years to the life of the mine. Many plant betterments, which greatly increased the efficiency of the enterprise, were made in the mills and smelter; the principal one of which was the completion of the new lead refinery of the smelter. A new 75-horsepower electric hoist, which was constructed in the company's plant, was installed in the Cherry raise, which connects Kellogg tunnel with No. 6 level. This company's expenditure for plant betterments, additions, and improvements constitutes the largest expenditure made in the county during the year. The Crescent mine, which is on Big Creek, near the Sunshine mine, was operated without interruption, and a large tonnage was mined and milled. The Bunker Hill company, because of the magnitude of the Bunker Hill mine, has become more of a manufacturing than a mining organization and, with its smelter, mills, experimental plants, and organization, is one of the largest enterprises of its kind in the world. The management is conservative and progressive; and, although it was necessary to cease payment of dividends on common stock early in the year, the company's refusal to suspend or curtail production greatly added to the prosperity of the county and of Kellogg in particular. The Mining Congress Journal, in its issue of November, 1931, contained a complete description of this company's management, history, properties, and operation of its mine, mills, and smelter.

The Hecla Mining Co. maintained normal production until August, when the continued low price of metals caused a reduction to a four-days-a-week basis. The mine and mill plants were further improved, and more than 4,000 feet of development work was done in the lower levels of the mine. The dividend rate was cut to 40 cents in February and maintained at that figure throughout the year. This company is recognized as one of the principal lead-silver producers in the United States. The curtailed production greatly conserved its resources.

The Federal Mining & Smelting Co., at the Morning and Page mines, maintained capacity production until June, when the continued low price of metals compelled curtailment. Both mines were then reduced to a 12-days-a-month operation, the mines being worked every other week. At the Morning mine, the mine and mill plants were improved, and mine development work was conducted without interruption; the principal part of which was drifting on the 3,450 and 3,650 foot levels, where the ore bodies were proved to be larger and more extensive than those on the upper levels. This mine is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States. As the new development work has added greatly to the known resources of the mine, the number of years that this record will continue is unknown. In addition to the ore mined under company operation, a small tonnage was extracted
from the upper levels of the Morning mine by lessees, although this was the smallest for many years. At the Page mine, the mill was enlarged and improved and the shaft extended from the 1,200 to the 1,500 foot level; and crosscutting to the vein was started from the new level. Additional mine and camp buildings were erected; some new milling equipment was installed; and development work progressed without interruption. This mine is now recognized as one of the large producing mines in the district. Lessees at the Frisco mine produced a large tonnage of ore and those at the Mace a small tonnage, part of which was milled by the Hercules Mining Co., at its custom mill at Wallace.

Production at the Star mine of the Sullivan Mining Co., which was suspended in April, 1930, was not resumed. However, mine development work was conducted without interruption. The Star mine is operated through the Hecla shaft, and its 4,000-foot level is the same as the 2,000-foot level of the Hecla mine; the two being connected by the Star crosscut, which is 8,900 feet long. This crosscut made a blind connection with the Star vein at a point 2,800 feet below the Star tunnel. A vertical operating raise and a vertical shaft to connect these two tunnels was then projected, and, during the year, the vertical raise was completed to the Star tunnel. In addition to advancing the raise, a large amount of development work was done on the upper levels in the Star mine. This work opened one of the most important disclosures of new ore which has been made in the district for many years. The Star crosscut approximately corresponds with the 2,250-foot level of the Morning mine, in which the ore has been proved to the 3,650-foot level or 1,400 feet deeper. As the new ore in the Star tunnel is 2,850 feet above the Star crosscut, the magnitude of the Star mine is apparent.

The Sullivan Mining Co. suspended operation at its electrolytic cadmium plant early in the year, but operated its electrolytic zinc plant at approximately 50 per cent capacity throughout the entire year. The zinc and cadmium produced by this company are exceedingly high in grade and find a ready market; the zinc selling at an increase in price over that of any other zinc metal. These plants constitute one of the most important enterprises in the Pacific Northwest, and one which greatly insures the permanence of the mining industry in Shoshone County. The uninterrupted operation of the zinc plant greatly assisted business conditions in the county.

The Sunshine Mining Co., which is the largest silver producer in the State and the second largest in the United States, maintained capacity production throughout the year. Its mine and mill plants were greatly improved, and a large amount of development work was done in the mine; the principal part of which was drifting on the 1,700-foot level, where the ore bodies were proved to be of greater extent and richer in metal content than in any of the upper levels. In addition to this, a large amount of drifting was done on the upper levels; and a 400-foot raise, to connect with the 1,300-foot level, was started on the 1,700-foot level. The total amount of new work exceeded 4,000 feet. The low price of silver greatly reduced operating profits, and but one dividend was paid.

The new 500-ton mill of the Jack Waite Mining Co., construction of which was started in 1930, was completed and placed in operation in February; but on account of low metal prices it was operated only on a one-shift basis. The greater part of the ore milled was derived from development work, which consisted principally of sinking a new inclined shaft 250 feet deep and driving a 520-foot raise from the lower tunnel to connect with the Silver King tunnel on the Montana side. In addition, a large amount of drifting was done in the shaft and on intermediate levels above the main tunnel. A new electrically driven hoist and locomotive and a large amount of new mining equipment were added to the mine plant. The company constructed new camp buildings; the county built a new road to the mine; and the Post Office Department established a post office at the mine, named Duthie, in honor of the president of the company. The new ore exposed by the development work was one of the principal disclosures of the year. It greatly increased the known resources of the mine, which is fast becoming recognized as a producer of importance.
Another important disclosure of ore was that of the Golconda Lead Mines on the 1,400-foot level, where the ore was recovered on the east side of the fault and then opened for a length of more than 600 feet. This ore was opened further by a raise, which was projected from the 1,400-foot level to trace its continuation to the upper levels. The mill was operated on a one-shift basis on ore derived from development work, and lessees produced a substantial tonnage of high-grade, hand-sorted ore from the surface discovery on the Mayflower group, which was disclosed in 1930. By the close of the year, arrangements had been completed to extend one of the lower levels into the property of the Square Deal Mining & Milling Co., which is held under lease and option. Golconda Lead Mines is fast becoming recognized as one of the principal mines in Shoshone County, and mine profits during the year were sufficient to pay more than all costs.

The Callahan Zinc-Lead Co., at its Galena mine, produced no ore; however, development work, consisting of 2,200 feet of crosscutting and drifting, principally on the 1,200-foot level, and a large amount of diamond drilling on the 800, 1,000, 1,200, and 1,600 foot levels, was done. The diamond drill holes further proved the extension of the new south vein, first opened on the 600-foot level, to additional depth and greatly increased the known resources of the mine. The favorable results of this company's work have greatly stimulated interest in prospecting throughout the section of the Coeur d'Alene district in which the Galena mine is located.

The Sidney Leasing Co. was idle throughout the first half of the year. During this period the tramway was rebuilt, and development work was conducted on the 800-foot level. On August 1, production was resumed, on a basis of 100 tons per day, and continued throughout the remainder of the year. The development work on the 800-foot level greatly increased the ore reserves of the mine, as well as being one of the principal new disclosures to be made in the Coeur d'Alene district during the year. The increase of the ore reserves of this mine, as additional depth is being gained, has been an important factor in stimulating interest in the Pine Creek section.

The Dayrock Mining Co. maintained development work and production until May, at which time all operations were suspended and the mine was closed. The development work, which was done on the four principal levels, consisted of more than 1,450 feet. This work greatly increased the known ore reserves of the mine, which is now recognized as one of the important producers of the county.

The Sherman Lead Co. continued production and development work until May, when the low price of metals caused a suspension of all operations. During the early part of the year, a large amount of development work was done, and the additional ore exposed greatly increased the known resources of the mine. This company's mine is connected with the No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Control of the company is held by the Tamarack & Custer Consolidated Mining Co.

The Tamarack & Custer Consolidated Mining Co., which operates one of the substantial producing mines of the Coeur d'Alene district, maintained a steady output and an extensive development campaign until May, when production and all work on company account were entirely suspended and various parts of the mine were turned over to lessees. It was reported that the new work which was done during the early part of the year greatly increased the known ore reserves of the mine. This company's ore is sold to the Hercules custom mill at Wallace.

The Gold Hunter Mines, Inc., at Mullan, one of the oldest mines in Shoshone County in point of continuous production, remained idle throughout the year.

Early in the year the Washington-Idaho Mining Co. installed new mining equipment and commenced sinking a shaft from the 125-foot level to the 300-foot level, after which a large amount of crosscutting and drifting was done on the 225-foot and 300-foot levels. This work resulted in one of the substantial new ore disclosures made in the Coeur d'Alene district during the
year. As this company's property is located on Moon Creek, the new disclosures added greatly to the importance of this section of the county.

The Mutual Mines Development Co., which commenced construction and installation of a new 100-ton flotation concentrator in 1930, completed the mill and commenced milling operations in May; after which, the mill was operated intermittently, and a small tonnage of lead-silver concentrate was produced and marketed.

Stratton Silver Summit, Inc., which was one of the principal development enterprises in the Coeur d'Alene district to maintain development work throughout the year, installed a new compressor and additional mining equipment, and drove more than 3,000 feet of crosscuts and drifts. The new disclosures made by this work greatly enhanced the possibilities of this enterprise.

The Independence Lead Mines Co., which was active throughout the year, installed a new hoist and commenced extending the shaft from the 100 to the 200 foot level.

Kellogg Silver Lead Mines Co. constructed a new building and headframe, installed a new electrically driven hoist and pumps, and unwatered the shaft to the 400-foot level, after which work was started on opening this and the 200-foot level.

The Pine Creek Lead-Zinc Mining Co., which completed construction of a new mill and placed its mine in condition for production late in 1930, was idle throughout the year, although during 1931 the company completed all payments on the purchase price of the property.

The Atlas Mining Co. resumed operations in May and commenced work on driving a raise to connect its long lower tunnel with the lower workings of its Carbonate Hill group. In addition to the raise, a small amount of drifting was done and a small tonnage of ore mined. This ore was milled at the mill of the Gold Hunter Mines, Inc., and shipped to the Bunker Hill Smelter at Kellogg.

Granada Lead Mines, Inc., whose property adjoins that of the Golconda Lead Mines, was active throughout the larger part of the year and extended its crosscut approximately 500 feet.

Metropolitan Mines Corporation, Ltd., whose property is located on Big Creek, maintained work throughout the year in extending its principal tunnel. Press reports were to the effect that this work opened two veins of importance.

Bunker Chance Mining Co., whose property is in Milo Gulch, near Wardner, was active throughout the year in extending its principal tunnel.

Liberal King Mining Co., whose property is located on Pine Creek, was one of the few enterprises in this section which maintained work throughout the year. This company is driving a long crosscut, which was extended to a total distance of 1,600 feet.

The Little Sunshine Mining Co. performed a substantial amount of development work at its Palmer group on Big Creek and at the Elk group, near Mullan, during the larger part of the year. Late in the year this company and the Lookout Mountain Mining & Milling Co. were merged with the United Mines & Metals Corporation, a new corporation.

Pontiac Mining Co., at the Terrible Edith group, near Murray, reported employing four men during the larger part of the year and starting work on a new lower tunnel.

Coeur d'Alene Mining & Smelting Co., whose property is located on Nine Mile Creek and whose stock is controlled by residents of Wallace, extended its crosscut a distance of 600 feet.

Ajax Mining Co., which is one of the oldest development enterprises in the Coeur d'Alene district and one which has conducted work for many years, drove more than 1,000 feet of drifts and crosscuts on the Bixby tunnel level during the early part of the year.

The General Mines Corporation reported employing three men until October in extending its principal tunnel, in which there is approximately 3,800 feet of workings. Press reports were to the effect that gold is the principal metal contained in the minerals encountered by this work.
Nine Mile Mining Co. was active during a large part of the year in extending its principal tunnel to a total distance of more than 2,200 feet.

Pearson Mining Co., in the St. Joe district, near Falcon, was active throughout the year in extending its long crosscut.

Samson Mining & Development Co., Ltd., whose property is in Eagle district, near Prichard, rehabilitated its mine plant and commenced sinking a new shaft.

The Louise Silver Lead Mining Co., a new organization, whose property is in Eagle district, near Delta, installed equipment and was active for five months in driving a drift on the vein.

The Coeur d'Alene Mines Corporation was active for a short period during the early part of the year. The principal work consisted of approximately 500 feet of crosscutting and drifting. Lessees at the property of the North Star Mining & Development Co. drove a 500-foot tunnel.
silver. **Plant:** MINE: 12x12 Laidlaw-Dunn Gordon electrically-driven compressor, complete mining equipment. **Remarks:** Property under lease to Bunker Hill & Sullivan M. & C. Co., which is operating it through the Hooper tunnel on Big Creek.

**ALICE MINING CO.**

**Office:** Wallace. **Officers:** James F. McCarthy, Pres.; Leo J. Hoban, Sec., both of Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 20 patented, 3 unpatented claims. **Hunter dist.;** 3 1/2 miles east of Wallace. **Development:** 10,000 ft. of underground workings. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver. **Remarks:** Idle.

**ALMA RAY MINING CO.**

**Office:** Kellogg. **Officers:** Elmer E. Brown, Pres.-Mgr.; C. B. Forbes, Sec., both of Kellogg. **Inc.:** April 21, 1917. **Capital:** 1,500,000 shares; par value 25c; 565,274 shares issued. **Property:** Alma Ray group; 5 unpatented claims. **Yreka dist.;** Kellogg. **Development:** Principally by 2 tunnels: No. 1, 300 ft. long; No. 2, 480 ft. long. **Ore:** Lead-silver, copper. **Remarks:** Annual labor only.

**ALPENA COPPER MINING CO., LTD.**

**Office:** Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec.; J. C. Purcell, Mgr., all of Wallace. **Inc.:** Aug. 9, 1900. **Capital:** 1,000,000 shares; par value 10c; all shares issued. **Property:** Alpena group; 6 unpatented claims. **St. Joe dist.;** Adair. **Ore:** Copper-gold. **Remarks:** Annual labor only.

**ALTURA MINING CO.**

**Office:** Kellogg. **Officers:** A. A. Crane, Pres., Smith Tower, Seattle, Wash.; Lester S. Harrison, Sec.; Fred D. Crane, Mgr., both of Kellogg. **Inc.:** Apr. 13, 1931. **Capital:** 2,000,000 shares; par value 25c; 1,500,300 shares issued. **Property:** 4 unpatented claims, Yreka dist.; Wardner. **Development:** By 2 tunnels: No. 1, 50 ft. long; No. 2, 1300 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 3. **Remarks:** This company appears to be a reorganization of the Slavonian Mining Co. Annual labor only.

**AMAZON MANHATTAN MINING CO.**

**Office:** Wallace. **Officers:** P. J. Maggy, Clerk, Wallace. **Inc.:** A partnership. **Property:** Amazon Manhattan group; 9 patented claims, Beaver dist.; Carbonite. **Development:** By 3 tunnels: No. 1, 510 ft.; No. 2, 1180 ft.; No. 3, 3856 ft. **Ore:** Lead-zinc-silver. **Remarks:** Idle.

**AMBERGRIS CONSOLIDATED MINING CO.**

**Office:** Wallace. **Officers:** Harry L. Day, Pres.; W. B. Heitfeld, Sec., both of Wallare. **Inc.:** Dec. 14, 1928. **Capital:** 3,500,000 shares; par value $1; 3,476,300 shares issued. **Property:** Ambergris, Guelph, and Honolulu groups; 13 patented, 10 unpatented claims, Beaver and Lelande dists.; Burke. **Development:** Mine opened and operated through No. 5 Hercules tunnel, in addition to which there are 8 intermediate tunnels and 3 shafts; total development, approximately 19,000 ft. **Plant:** Mine plant and equipment leased from Hercules Mining Co. **Ore:** Lead-silver. **Remarks:** This is a consolidation of the Ambergris Mines Co., the Guelph Mining & Milling Co., Ltd., and the Honolulu Mining Co., Ltd. Annual labor only and a small amount of work by lessees, who extracted and shipped a small tonnage of mill ore.

**AMERICAN LEAD MINES, LTD.**

**Office:** 323 Lindelle Block, Spokane. **Officers:** R. L. Brainard, Pres., Kellogg; Matt Baumgartner, Sec.-Mgr., Spokane. **Inc.:** Feb. 2, 1925. **Capital:** 1,000,000 shares; par value 10c; 527,500 shares issued. **Property:** Crescent group; 10 unpatented claims on the West Fork of Big Creek, Yreka dist.; Kellogg. **Development:** By 1 tunnel 650 ft. long. **Ore:** Lead-silver. **Men employed:** Average, 1. **Remarks:** Annual labor only.
AMERICAN MINING CO., LTD.

ANACONDA COPPER MINING CO.

ANCHOR MINING CO.

ARGENTIA MINING & MILLING CO., LTD.

ARGENTA MINING CO., LTD.

ASSOCIATED MINES CORPORATION, LTD.
Office: Lindelle Bldg., Spokane, Wash. Officers: Matt Baumgartner, Pres.-Mgr., Spokane, Wash.; Roy H. Kingsbury, Sec., Wallace. Inc.: Nov. 7, 1930. Capital: 3,000,000 shares; par value 10c; 1,275,616 shares issued. Property: Rex and Red Monarch groups; 6 patented, 64 unpatented claims, Placer Center and Beaver dists.; Wallace. Development: By 4 tunnels, the principal of which are No. 4 or Rex tunnel, approximately 4000 ft. long, in which is a vertical shaft 700 ft. deep; and Red Monarch tunnel, 5900 ft. long. Plant: 3 electrically driven compressors; complete mining equipment and 2 mine camps. Ore: Lead-zinc-silver. Men employed: Average, 1. Remarks: This company is a reorganization of the Delaware Mines Corporation in order to make the stock assessable. No activities for 1931 were reported. Stock assessments were levied as follows: Feb. 17, 2 mills; June 17, 3 mills; Aug. 12, 3 mills; Oct. 15, 3 mills; Dec. 12, 3 mills.

ATLANTIC MINING CO.

ATLAS MINING CO.
Office: Mullan. Officers: Thomas F. Keeley, Pres., 516 E. 28th St., Chicago; Charles K. Cartwright, Sec.; W. Earl Greenough, Mgr., both of Mullan. Inc.: Mar. 4, 1924. Capital: 2,000,000 shares; par value $1; all shares issued. Property: Atlas group; 19 patented, 19 unpatented claims,
Hunter dist.; Mullan. Development: 7 tunnels and 2 inclined shafts; the principal of which is the Atlas tunnel 7030 ft. long, at the end of which is the Carbonate Hill drift 3000 ft. long. Plant: Electrically driven compressor, and complete mining equipment. Ore: Lead-silver. Men employed: Average, 6.

Remarks: The property of the Atlas Mining Co. is a consolidation of four properties, the Carbonate Hill, Idaho Giant, Boulder Creek, and Atlas, on which there is approximately 22,852 ft. of tunneling, drifting, crosscutting, and sinking. The principal work during the year consisted of driving a raise from the Atlas tunnel to connect with the lower workings in the Carbonate Hill group. A small amount of drifting was done and a small tonnage of ore mined. This ore was concentrated in the mill of the Gold Hunter Mines, Inc. A stock assessment of 1c was levied on Feb. 5.

ATLAS X CO.
Office: Mullan. Officers: James A. Wayne, Pres.; M. M. Yeoman, Sec., both of Wallace; W. Earl Greenough, Mgr., Mullan. Inc.: Nov. 24, 1906, as Carney Copper Co., Ltd. Name changed Jan. 7, 1928. Capital: 1,500,000 shares; par value $1; all shares issued. Property: Carney group; 9 unpatented claims; Mullan. Development: By 3 tunnels: No. 1, 500 ft. long; No. 2, 1600 ft. long; No. 3, 1050 ft. long. Remarks: Control of stock in this company is held by the Atlas Mining Co. Annual labor only.

AULBACH GROUP
Owner: Adam Aulbach, Murray. Property: Aulbach group; 5 patented, 1 unpatented claim, Coeur d'Alene dist.; Murray. Development: By 3 tunnels, the longest of which is No. 2, 450 ft. long. Ore: Gold. Remarks: This property is one of the oldest locations in the Coeur d'Alene district and has been held almost continuously by the present owner.

BASIN MINING CO.

BEAR PLACER MINING CO.

BEAVER CREEK MINING CO.

BELL MINING CO.

BELL OF THE WEST MINING CO.
BELMONT MINING CO., LTD.


BELVEDERE GOLD MINING CO.

Officers: C. E. Biggs, Mgr., Wallace. Inc.: Apr. 13, 1929, as Humboldt Mining & Milling Co.; name changed Mar. 26, 1931. Capital: 3,000,000 shares, par value 50c; changed Mar. 26, 1931, to 6,000,000 shares, par value 25c. Remarks: Failed to file the reports required by law.

BENTON MINING CO., LTD.


BIG DIVIDE MINING CO., LTD.


BIG ELK MINING CO., LTD.


BIG IT MINING & MILLING CO.


BIG THREE MINING CO.


BISMARCK MINING CO.


BITTER ROOT MOUNTAIN MINING CO.

BLACK BEAR MINING CO.

BLACK HAWK MINING & DEVELOPING CO., LTD.

BLAINE & EMMETT MINING CO., LTD.

BLUE EAGLE MINING CO.

BLUE RIBBON MINING CO.

BLUE STAR MINING & MILLING CO., LTD.

BLUE WING MINING CO., LTD.

BOBBY ANDERSON GROUP MINING CO.
BRITISH AMERICAN MINES & SMELTER CORPORATION

BULLFROG SILVER LEAD MINING CO.

BULLION MINING CO., LTD.

BUNKER CHANCE MINING CO.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
Office: Kellogg. Officers: F. W. Bradley, Pres.; J. W. Crosby, Sec., both of 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg. Inc.: Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, April 16, 1924. Capital: 327,000 shares common; par value $10; 20,000 shares preferred; par value $100; 8555 shares preferred, and all common shares issued. Property: Bunker Hill; 362 patented, 17 unpatented claims, Yreka dist.; Kellogg. Development: The principal adit is the Kellogg tunnel, which is 24,000 ft. long, in which are the two principal inclined shafts, one of which is known as the White Raise, and the other the main shaft, which is approximately 2785 ft. long, giving a vertical depth of 2000 ft. below the Kellogg tunnel level. In the main shaft are 13 intermediate levels. Total development, approximately 62.1 miles. Plant: MINE: 2 electrically driven hoists, 2 electrically driven I-R compressors, 1 steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage-battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop and change house. MILL: 4 complete and modern concentrators, including flotation: Sweeny mill, capacity 500 tons, accommodates custom ores, particularly those from Pine Creek; West mill, capacity 1200 tons, treats output from the Bunker Hill mine; South mill, capacity 600 tons, treats output from Star mine of Sullivan Mining Co.; Crescent mill on Big Creek, capacity 100 tons, treats output from Crescent and Alhambra mines. Ore: Lead-silver. Men employed: In mine, mill and smelter, average 1133.

BUNKER HILL SMELTER
Officers: Frank M. Smith, Director, 1117 Paulsen Bldg., Spokane, Wash.; A. F. Beasley, Supt., Kellogg. Remarks: This smelter was erected during 1917, since which time it has been continually enlarged and improved and is now one of the most modern, complete and up-to-date plants in the United States. The smelting plant covers an area of about 30 acres and consists of complete buildings and equipment for sampling, roasting,
sintering, smelting and refining lead, silver, and gold ores. During 1929 its capacity was doubled, in anticipation of the termination on Feb. 1, 1930, of the company's smelting contract with the American Smelting & Refining Co., to whom the Bunker Hill was obliged to ship one-half of its production. In addition to refined lead, silver, and gold, antimonial lead and copper sulphate are also produced. The principal supply of ore is from the company's own mine and the mines of the Coeur d'Alene district. The company is doing a general custom business and is drawing ore from all of the northwestern states as well as from British Columbia and Alaska, and is becoming a strong competitor in the smelting business. This smelter and its operations are fully described and illustrated in many of the articles listed under the bibliography of Shoshone County. The enlargements and modernization, commenced in 1929, were fully completed in 1931. The smelter output for the year, as a result of lessened receipts of custom ore, was smaller than that of 1930.

REMARKS

This company is the largest dividend payer and maintains the largest pay roll of any mine in Idaho; it is also the largest producer of lead-silver ore in the State, if not in the world; and is one of the few companies in the United States that mine, mill, smelt, refine, manufacture, and sell lead ore and lead products. The enterprise, particularly the mine and mill, has been established for such a long period and all operations have become so well founded that it has practically expanded into a manufacturing operation. The mine is opened by over 62 miles of underground workings and has a sufficient tonnage of ore reserves to assure many years of continued operations.

During the past few years this organization has been actively engaged in prospecting and developing mining properties throughout the State, and during 1924 acquired the mines owned by the Hall-Interstate Mining Co. and the Lost Pilgrim Mining Co., situated near the head of the Deadwood River in Valley County. The interest shown in developing lead mines outside of the Coeur d'Alene district is having a tremendous influence in attracting attention to the State's undeveloped resources.

The management is progressive and intelligent and an unusual amount of initiative is shown in the conduct of the affairs of the company and civic activities. An excellent spirit of cooperation has been created and maintained in the employees, and everything possible is done to promote their welfare. The common stock was listed on the New York Curb Exchange during the latter part of 1926; in January, 1927, it sold at a low of $67.50 per share; in March, 1929, it had risen to a high of $165 per share, and in December, 1931, it had dropped to a low of $22 per share, these being the highest and lowest points.

This company owns a 50 per cent interest with the Hecla Mining Co. in the Sullivan Mining Co., the owner of the Star mine at Mullan and the electrolytic zinc plant at Kellogg; and a 50 per cent interest in the Alaska-Treadwell Gold Mining Co. and the Treadwell Yukon Co., Ltd., both of Alaska. Ore from the latter property was shipped to the smelter at Kellogg. In addition to the foregoing, the company is actively interested in developing properties in Nevada, and at Sudbury, Ontario, Canada.

The mines, mills, and smelter were operated at capacity production throughout the year, and the company's refusal to suspend or curtail production greatly added to the prosperity of the county and of Kellogg in particular. The new development work, consisting of more than 8000 ft., greatly increased the known resources of the mine. The ore bodies were further opened on the 2000-ft. level, where the ore and geological conditions were found to be normal, and the winze-shaft from the 1900-ft. level to the 2000-ft. level was extended to the 2100-ft. level and crosscutting started to the ore. The ore on the 2000-ft. level, with that on No. 6 level, which was first disclosed in 1929, adds many years to the life of the mine. Many plant betterments, which greatly increased the efficiency of the enterprise, were made in the mills and
smelter; the principal one of which was the completion of the new lead refinery of the smelter. A new 75-h. p. electric hoist, which was constructed in the company's plant, was installed in the Cherry raise, which connects Kellogg tunnel with No. 6 level. This company's expenditure for plant betterments, additions, and improvements constitutes the largest expenditure made in the county during the year. The Crescent mine, which is on Big Creek, near the Sunshine mine, was operated without interruption, and a large tonnage was mined and milled. The Mining Congress Journal, in its issue of November, 1931, contained a complete description of this company's management, history, properties, and operation of its mine, mills, and smelter.

BURKE MINING CO., LTD.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.

CALABRIA MINING CO.

CALEDONIA MINING CO.

CALEDONIA SILVER-LEAD MINING CO.

CALLAHAN ZINC-LEAD CO.
Office: Wallace. Officers: D. A. Callahan, Pres.; C. W. Newton, Sec.-Mgr., both of Wallace. Inc.: July 18, 1912, as Consolidated Interstate Mining Co.; name changed March 25, 1921. Capital: 1,000,000 shares; par value $10; 716,592 shares issued.

CALLAHAN MINE
Property: Interstate-Callahan group; 81 patented, 2 unpatented claims, Beaver dist.; Interstate. Development: Principal development is main transportation tunnel which is 5500 ft. long and a three-compartment vertical shaft 2000 ft. deep. Total development, approximately 10 miles.
Plant: MINE: Two single drum air-driven hoists and one 250-h. p. electrically-driven double drum hoist; three large I-R electrically-driven compressors; trolley locomotive haulage in main tunnel. Complete and modern blacksmith shop, machine shop, sawmill, mine equipment, camp and company buildings. MILL: 600-ton concentrator, including flotation. Ore: Zinc-lead-silver. Men employed: Average, 2. Remarks: At one time this property was one of the largest zinc mines in the United States. No ore has been mined since October, 1923.

GALENA MINE

Property: Chicago-Boston, Killbuck, Vulcan, Argentine, Wallace, and Silver Range groups; 31 patented, 67 unpatented claims, Lake Gulch, Placer Center dist.; Wallace. Development: By 33 tunnels, a 600-ft. vertical shaft, and an 800-ft. vertical winze in the 600-ft. level. Total development, approximately 34,000 ft. Plant: MINE: One 150-h. p. Lidgerwood, one 200-h. p. Coeur d'Alene Hdw. electrically-driven hoist; 3 I-R electrically-driven compressors, total capacity 1500 cu. ft.; complete equipment and mine camp. MILL: 150-ton flotation. Ore: Lead-silver. Men employed: Average, 15. Remarks: This company at its Galena mine produced no ore; however, development work, consisting of 2200 ft. of crosscutting and drifting, principally on the 1200-ft. level, and a large amount of diamond drilling on the 800, 1000, 1200 and 1600 ft. levels, was done. The diamond drill holes further proved the extension of the new south vein, first opened on the 600-ft. level, to additional depth and greatly increased the known resources of the mine. The favorable results of this company's work have greatly stimulated interest in prospecting throughout this section of the Coeur d'Alene district, in which the Galena mine is located.

GALENA MILL: CALLAHAN ZINC-LEAD CO.

CARBONATE MINING & MILLING CO.

CEDAR CREEK MINING & DEVELOPMENT CO., LTD.

CENTRAL MINING CO.

CHESTER MINING CO., LTD.
Office: Kellogg. Officers: P. F. Weber, Pres.; C. W. Simmons, Sec., both of Kellogg. Inc.: July 31, 1900. Capital: 1,000,000 shares; par value $1; 923,945 shares issued. Property: Chester group; 6 patented claims, Evolution dist.; Osburn. Development: By 1 tunnel 1,500 ft. long.

CINCINNATI MINING CO.

CLEAR GRIT MINING CO., LTD.

CLIMAX SILVER-LEAD MINING CO.
Inc.: Apr. 22, 1914. Capital: 1,500,000 shares; par value 25c. Remarks: Company has refused to file reports required by law since 1928.

COEUR D'ALENE BIG CREEK MINING CO.

COEUR D'ALENE CHAMPION MINING CO.

COEUR D'ALENE CRESCENT MINING CO.
COEUR D'ALENES LEAD CO.
Office: Wallace. Officers: Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. Inc.: Apr. 28, 1927. Capital: 4,000,000 shares; par value $1; 3,550,000 shares issued. Remarks: "The only assets of this company are 500,000 shares of the capital stock of the Atlas Mining Co."
Stock assessments were levied as follows: Feb. 4, 3 mills; May 1, 1 mill.

COEUR D'ALENE METALS CO.

COEUR D'ALENE MINES CORPORATION

COEUR D'ALENE MINING CO.

COEUR D'ALENE MINING & SMELTING CO.

COEUR D'ALENE SILVER-LEAD MINING CO.

COEUR D'ALENE SYNDICATE MINING CO.

COLUMBIA COPPER CO., LTD.
COMMERCIAL TRAVELER MINING CO.
Office: 203 Standard Stock Exchange Bldg., Spokane, Wash. Officers: H. N. Dias, Pres.; M. L. Lieb, Sec., both of Spokane; Otto Achord, Mgr., Masonia. Inc.: May 6, 1926. Capital: 2,000,000 shares; par value 5c; 1,666,665 shares issued. Property: 12 unpatented claims, Pine Creek, Yreka dist.; Kellogg; held under lease and option from Shrine Mining Co. Development: By 4 tunnels, the principal one of which is 1800 ft. long. Plant: Electrically-driven D-G compressor; complete mining equipment and camp. Ore: Lead-zinc-silver. Remarks: Failed to file the reports required by law, although three times notified to do so.

COMSTOCK COPPER MINING CO.
Office: Wallace. Officers: Therrett Towles, Pres.; Otto A. Olsson, Sec., both of Wallace. Inc.: Nov. 23, 1906. Capital: 1,000,000 shares; par value $1; all shares issued. Remarks: The officers of this company report that the property has been sold to the British American Mines & Smelter Corporation. The latter company has never filed articles of incorporation in Idaho, nor has it filed with the inspector of mines the reports required by law.

CONSOLIDATED INDEPENDENT CALUMET MINING CO.
Office: Wallace. Officers: John H. Nordquist, Pres.-Mgr.; A. G. Kennedy, Sec., both of Wallace. Inc.: Oct. 9, 1906, as Lucky Calumet Copper Mining Co., Ltd. Name changed Nov. 24, 1928. Capital: 1,500,000 shares; par value $1; 1,134,767 shares issued. Property: Lucky Calumet group; 13 patented, 2 unpatented claims, Hunter dist.; Mullan. Development: Principally by 2 tunnels: No. 1, 1400 ft. long; No. 2, 1950 ft. long. Total development, approximately 13,090 ft. Plant: Electrically driven 5-drill I-R two-stage compressor; complete mining equipment and camp. Ore: Lead-silver. Men employed: Average, 5. Remarks: Active development work for 3 months. This company is developing its property through the lower tunnel of the National Copper Mining Co., Ltd.

CONSOLIDATED MINING CO.
Officers: Donald A. Callahan, Sec., Wallace. Inc.: May 18, 1931. Capital: 5,000,000 shares; par value 10c. Remarks: Press reports were to the effect that this company was organized to acquire the properties of the Tuscumbia Mining Co., Ltd., and the Idora Mining Co., Ltd. Failed to file the reports required by law.

CONSTITUTION MINING & MILLING CO.

COPPER CHIEF MINING CO.
CONSTITUTION MINING & MILLING CO. MILL

COPPER KING MINING & SMELTING CO.

CORBY IODE MINING CO.

C. & R. MINING CO.

CRYSTAL LEAD MINES CO.
Office: Wallace. Officers: W. B. Heitfeld, Pres.; W. A. Devan, Sec., both of Wallace. Inc.: Jan. 13, 1931. Capital: 1,500,000 shares; par value 10c; 1,498,996 shares issued. Property: Lead Crystal group; 10 unpatented claims, Eagle dist.; Prichard. Development: By 3 tunnels: No. 1, 250 ft. long; No. 2, 1010 ft. long; No. 3, 710 ft. long. Ore: Lead-zinc-silver. Remarks: This company is a reorganization of the Lead Crystals Mining Co., Ltd. Press reports were to the effect that the development work done during the year opened an important showing of new ore.
CUBA MINING CO.

DAY DEVELOPMENT CO.

DAYROCK MINING CO.
Office: Wallace. Officers: F. M. Rothrock, Pres., Spokane; Jerome J. Day, Sec.; Henry L. Day, Mgr., both of Wallace. Inc.: Nov. 30, 1923, as Strattons Mines Co.; name changed Nov. 19, 1928. Capital: 2,000,000 shares; par value 10c; 1,711,055 shares issued. Property: Dayrock, Panhandle, and Monarch-Bonanza groups; 26 patented, 27 unpatented claims, Placer Center dist.; Wallace. Development: Dayrock group: Principally by 1 tunnel 1450 ft long, in which is an inclined shaft 460 ft. long, with 4 intermediate levels, which opens the vein to a vertical depth of 400 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 360 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, over 36,000 ft. Plant: Electrically driven hoist and 2 electrically driven compressors; complete mining equipment; storage-battery locomotive haulage. Ore: Lead-silver. Men employed: Average, 50. Remarks: Other than rehabilitation and annual labor all operations were confined to the Dayrock group. Over 1500 ft. of crosscuts, drifts, and raises were run on the four principal levels. Production was maintained without interruption until May, when all operations were suspended. The ore is sold to the Hercules custom mill at Wallace. The property is conservatively and intelligently managed, and the management is to be congratulated upon the attention which it gives to safety and avoidance of accidents. The development work of the past year greatly increased the known ore reserves. This mine is recognized as one of the important producers of the Coeur d'Alene district.

SURFACE PLANT: DAYROCK MINING CO.
DECKER DEVELOPMENT CO.

DEEP WONDER MINE

DEER CREEK MINING CO.
Office: Wallace. Officers: C. E. Biggs, Pres.; N. S. Jacobs, Sec., both of Spokane, Wash. Inc.: May 23, 1925. Capital: 2,000,000 shares, par value 1c; increased on Jan. 22, 1930, to 2,000,000 common, par value 20c, 10,000 preferred, par value $10; 1,526,800 common issued. Property: 30 unpatented claims, part of which are held under lease and option, Beaver dist.; Wallace. Development: Principally by an 800-ft. tunnel and a 100-ft. inclined shaft. Plant: Gas-driven 10x12 Sullivan compressor and hoist; complete mining equipment and camp. Ore: Lead-silver. Remarks: Annual labor only. Part of 2 claims under lease to Delta Leasing Co.

DICKENS CONSOLIDATED MINES CO.

DICKENS-EAST MINING CO.

DOUGLAS MINING CO., LTD.

DU BOIS MINING CO.

DULUTH MINING CO.
EAGLE CREEK GOLD MINING CO.

EAST ALAMEDA MINING CO., LTD.

EAST CALEDONIA MINES CO.

EASTERN STAR MINING CO., LTD.

EAST HECLA MINING CO., LTD.

EAST STANDARD MINING CO.
Office: Wallace. Officers: J. E. Gyde, Sec., Wallace. Inc.: Aug. 9, 1911. Capital: 1,000,000 shares; par value $1. Remarks: Has refused to file the reports required by law since 1926. The Big Three Mining Co. reports that it is operating the property owned by this company under a lease and option.

ELDORADO MINING & SMELTING CO., LTD.

ELGIN & OGDEN MINING CO.

ENCHANTED HILL MINING CO.

ENTERPRISE MINING CO.
EQUITABLE MINING & MILLING CO.

EVOLUTION MINING CO.

FANNIE GREMM MINING CO.

FEDERAL MINING & SMELTING CO.
Office: 120 Broadway, New York City. Officers: F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; H. G. Washburn, Mgr., Wallace. Inc.: Sept. 24, 1903. Capital: 200,000 shares preferred, 100,000 shares common; par value of each, $100; 29,836 shares preferred, 49,328 shares common issued.

MORNING GROUP
Property: 41 patented claims, Hunter dist.; Mullan. Development: The two principal tunnels are No. 5, 1800 ft. long, and No. 6, the main transportation tunnel, 2500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment shaft, 2550 ft. deep, with 14 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5220 ft. Total development, approximately 37 miles. Plant: MINE: 1 double-reel hoist, arranged for electric drive by means of direct-current hoist motor 600 h. p., 450 r. p. m., through single reduction herringbone gear, driven by synchronous motor generator (motor 700 h. p.; generator 500 KW-D. C.) 1200 r. p. m., 265 volts; one 600-h. p. electrically driven double-drum Nordberg hoist; one Nordberg single-drums geared hoist, driven by 300-h. p. electric motor; one water-driven 5200 cu. ft. Ricks compressor; one Laidlaw-Dunn-Gordon 3200 cu. ft. compressor, two Ingersoll-Rand 2500-cu.-ft. compressors, and one Prescott pump, 400 gal. capacity, on 2450 level, all electrically driven; complete mining equipment, machine shops, sawmill, company buildings and hotel. HAULAGE: 500-volt electric in main, or No. 6, tunnel; 250-volt electric and 10 storage-battery locomotives in intermediate levels. MILL: 1200-ton concentrator, including flotation. Two ore-sorting plants and complete modern change house. Ore: Lead-silver-zinc. Men employed: Average, 512, exclusive of lessees. Remarks: Capacity production was maintained until June, when the continued low price of metals compelled curtailment and operations were reduced to a 12-days-a-month basis, the mine being worked every other week. The mine and mill plants were improved, and mine development work was conducted without interruption; the principal part of which was drifting on the 3450 and 3650 ft. levels, where the ore bodies were proved to be larger and more extensive than those on the upper levels. This mine is one of the oldest in the Coeur d'Alene district in point of continuous production, as well as one of the largest lead-silver-zinc mines in the United States. As the
new development work has added greatly to the known resources of the mine, the number of years that this record will continue is unknown. In addition to the ore mined under company operation, a small tonnage was extracted from the upper levels of the Morning mine by lessees, although this was the smallest for many years.

**PAGE GROUP**

**Property:** 86 patented claims, Yreka dist.; Kellogg. **Development:** By 9 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 900 ft. long, giving a vertical depth of 700 ft. Total development, approximately 23,000 ft. **Plant:** MINE: A 100 h. p. hoist and a 75-h. p. double-drum hoist, both electrically driven; a 400-cu.-ft., an 800-cu.-ft., and a 2650-cu.-ft. electrically driven compressor; 1 trolley locomotive and 2 storage-battery locomotives; complete and modern mine camp, equipment and buildings. MILL: 300-ton flotation concentrator. **Ore:** Lead-zinc-silver. **Men employed:** Average, 118. **Remarks:** Capacity production was maintained until June, when the continued low price of metals compelled curtailment and operations were reduced to a 12-days-a-month-basis, the mine being worked every other week. The mill was enlarged and improved and the shaft extended from the 1200 to the 1500 ft. level; and crosscutting to the vein was started from the new level. Additional mine and camp buildings were erected; some new milling equipment was installed; and development work progressed without interruption. This mine is now recognized as one of the large producing mines in the district. The success of this operation can be accredited entirely to flotation, because with the old milling methods it was impossible to mine and mill the ore at a profit.

**PAGE MILL:** FEDERAL M. & S. CO.
SHOSHONE COUNTY

MACE GROUP
Property: 35 patented claims, Lelande dist.; Mace. Development: Principal development consists of No. 6 tunnel, 3600 ft. long; No. 2, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels. Total development: Approximately 4 miles. Plant: MILL: Two 500-ton concentrators, including flotation. Ore: Lead-silver. Remarks: Except for the operation of a few lessees, who produced a small tonnage of ore, this property was idle. No. 6 tunnel is now known as No. 7 of the Tamarack & Custer Consolidated Mining Co.

BURKE GROUP

FRISCO GROUP
Property: 15 patented claims, Lelande dist.; Gem. Development: Principally by 4 tunnels: No. 1, 1000 ft. long; No. 2, 1500 ft. long; No. 3, 550 ft. long; No. 4, 1000 ft. long; and a vertical 4-compartment shaft 1650 ft. deep. Total development, approximately 6 miles. Ore: Lead-zinc-silver. Remarks: A substantial tonnage of ore was produced by lessees during the year.

GLAMORGAN GROUP

GOVERNMENT GULCH GROUP
Property: Five-sixteenths interest in 1 patented claim, Yreka dist.; Kellogg. Development: Principally by 1 tunnel, which is 500 ft. long. Total development, approximately 1700 ft. Ore: Lead-silver.
CON. BIEDERMAN GROUP

Property: One-half interest in 2 patented claims and one-third interest in 2 patented claims, Yreka dist.; Kellogg. Development: By 2 tunnels: No. 1, 320 ft. long; No. 2, 125 ft. long. Ore: Lead-zinc-silver.

REMARKS

This company is one of the largest lead-zinc-silver producers in the United States, operating properties in Missouri and Idaho. The total production from its Idaho properties makes it rank second in production in Idaho.

FIDELITY COMPANY, LTD.

Office: Wallace. Officers: Oscar B. Bergstrom, Pres., 149 Broadway, New York City; Allan G. Kennedy, Sec.-Mgr., Wallace. Inc.: Nov. 5, 1915. Capital: 2,500,000 shares; par value 20c; 1,675,309 shares issued. Property: Monarch group; 7 patented, 29 un patented claims, Summit dist.; Murray. Development: By 3 tunnels, the principal of which is No. 3, or main crosscut tunnel, which is 3120 ft. long; and an inclined shaft 300 ft. deep; total development, approximately 13,500 ft. Plant: MINE: Ottumwa air-driven hoist, 10-drill water-driven compressor, complete mining equipment and camp. MILL: 150-ton concentrator, jigs and tables. Ore: Lead-zinc-silver. Men employed: 1 watchman. Remarks: Annual labor only.

FLAGSTAFF MINING CO.


FLORENCE MINING & MILLING CO., LTD.


FLYNN GROUP MINING CO.


FORMOSA LEAD MINING CO., LTD.


GALENA MINING CO.

Office: Wallace. Officers: A. H. Featherstone, Pres.; Herman Marquardt, Sec., both of Wallace. Inc.: Not filed in Idaho. Capital: 3,000,000 shares; par value $1; 2,000,000 shares issued. Property: Idaho Galena group; 10 unpatented claims, Placer Center dist.; Plymouth group, 2 unpatented claims, West Federal group, 10 unpatented claims, Hunter dist.; Wallace. Remarks: This company is a consolidation of and acquired the property, through an exchange of stock, of the following companies: Idaho Galena Mining Co., Plymouth Lead Mines Co., and West Federal Mining Co. Annual labor only.
GEM STATE MINING CO.

GENERAL MINES CORPORATION
Office: 402 Empire State Bldg., Spokane, Wash. Officers: H. G. Loop, Pres.-Mgr.; E. I. Fisher, Sec., both of Spokane, Wash. Inc.: Nov. 23, 1925. Capital: 2,000,000 shares; par value 5c; 1,348,330 shares issued. Property: Big Eight group; 14 unpatented claims and 106 acres patented land, Yreka dist.; Kellogg. Development: Principally by 1 tunnel 3786 ft. long. Plant: Electrically driven G. D. compressor; complete mining equipment. Ore: Gold-silver-copper-lead. Men employed: Average, 3. Remarks: Three men were employed in extending the principal tunnel until October, at which time all operations were suspended. Press reports were to the effect that gold is the principal metal contained in the minerals encountered by this work.

GERTIE MINING CO.

GIANT MINING & DEVELOPMENT CO.

GOLCONDA LEAD MINES
Office: Wallace. Officers: A. H. Featherstone, Pres., Wallace; Chas. P. Lund, Sec.; Wm. A. Beaudry, Mgr., both of Spokane, Wash. Inc.: Jan. 18, 1927. Capital: 2,000,000 shares; par value $1; all shares issued. Property: Hector group; 18 patented, 2 unpatented claims, Hunter dist.; Wallace: Mayflower group; 14 unpatented claims, Lelande and Hunter dists.; Wallace. Development: Mine opened by the Mayflower tunnel, 5000 ft. in length, an inclined raise 800 ft. long, and a vertical shaft 800 ft. deep, both from Mayflower tunnel (1000-ft. level). Plant: MINE:: Two electrically driven 750-cu.-ft. Sullivan compressors; 2 air-driven hoists and a large electrically driven hoist; storage-battery locomotive haulage; sawmill, yards, and timber-shed; complete mining equipment. MILL:: 200-ton concentrator, fine-grinding, flotation. Ore: Lead-zinc-silver. Men employed: Average, 30. Remarks: The mill was operated on a one-shift basis on ore derived from development work, and lessees produced a substantial tonnage of high-grade, hand-sorted ore from the surface discovery on the Mayflower group, which was disclosed in 1930. The development work consisted principally of drifting on the 1400-ft. level, where the ore was recovered on the east side of the fault and then opened for a length of more than 600 ft. This ore was opened further by a raise, which was projected from the 1400-ft. level to trace its continuation to the upper levels. By the close of the year, arrangements had been completed to extend one of the lower levels into the property of the Square Deal Mining & Milling Co., which is held under lease and option. The Golconda mine is fast becoming recognized as one of the principal mines in Shoshone County, and mine profits during the year were sufficient to pay more than all costs.
GOLCONDA LEAD MINES: MILL

GOLDEN CHEST CONSOLIDATED MINING CO.
Remarks: Name gleaned from the press. Supposed to have an option on the Aulbach group at Murray.

GOLD HUNTER MINES, INC.

GOODENOUGH MINING CO.

GOVERNMENT GULCH MINING CO.

GRANADA LEAD MINES, INC.
SHOSHONE COUNTY

GREAT DUNKER MINING & MILLING CO.

GREAT EASTERN MINING CO., LTD.

GREAT HELENA MINING & MILLING CO.

GREEN HILL CLEVELAND MINING CO.

HAPPY DAY MINING CO., LTD.

HECLA EXTENSION MINING CO.

HECLA MINING CO.

REMARKS
Normal production was maintained until August, when the continued low price of metals caused a reduction to a four-days-a-week basis. The mine and mill plants were further improved, and more than 4000 ft. of development work was done in the lower levels of the mine.
The dividend rate was cut to 40 cents in February and maintained at that figure throughout the year. This company is recognized as one of the principal lead-silver producers in the United States. The curtailed production greatly conserved its resources. The company was actively interested in two other properties in the Coeur d'Alene district, in one property in Lemhi County, and in the Union mine in British Columbia, the latter being placed on a profitably operating basis during the year.

HECULA MINING CO.'S MILL

HERCULES MINING CO.

HERCULES GROUP
Property: Hercules group, 36 patented claims; Columbia lode, 1 patented claim; Lelande and Placer Center dists.; Burke. Development: Principally by 5 tunnels: No. 1, 280 ft.; No. 2, 3350 ft.; No. 3, 3900 ft.; No. 4, 5900 ft.; No. 5, 8550 ft.; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels. Total development, approximately 18 miles. Plant: MINE: Special first motion, double-reel, Nordberg electric hoist, direct connected to 700-h. p. motor. One 22x16 I-R and 1 29x21 I-R compressor, both electrically driven. Electric trolley locomotive in main transportation tunnel and storage-battery locomotives in intermediate levels. Complete and modern mine equipment and shops. MILL: 900-ton concentrator, including flotation. See pages 23 to 27 of the 1929 report for complete description. Ore: Lead-silver. Men employed: Average, 19.

MAHER-HEARN GROUP
Property: 38 patented claims; Lelande dist.; Burke. Development: Through 4500-ft. tunnel of Gertie Mining Co., at the end of which is over 4000 ft. of tunnel and a 400-ft. vertical shaft. Plant: Electrically-driven 1000-cu.-ft. I-R compressor; air-driven hoist; trolley electric locomotive haulage; complete and modern equipment. Ore: Lead-silver.

ANDREWS GROUP
Property: 4 unpatented claims, Lelande dist.; Burke. Development: By 1 tunnel 300 ft. long.
HERCULES MINING CO.: MILL
REMARKS

During the year the Hercules mine surface plant and tunnels Nos. 4 and 5 were used in the operation of the Sherman Lead Co., the Humming Bird Mining Co., and the Ambergris Consolidated Mining Co. The mill was operated on a custom basis and treated the entire output of the Sherman Lead Co., Dayrock Mining Co., and Tamarack & Custer Mining Co., in addition to that of a large number of small producers and lessees. The principal mines and mining companies which this company owns or controls are: Hercules and Maher-Hearn mines, Ambergris Consolidated Mining Co.; Humming Bird Mining Co.; Roanoke Mining Co.; Western Union Mining Co.; and Marsh Mines, Consolidated.

HIDDEN TREASURE MINING CO.

HIGH CROPPING SILVER-LEAD MINING CO.

HIGHLAND-SURPRISE CONSOLIDATED MINING CO.

HILARITY LEAD-SILVER MINING CO.

HILL MINING & MILLING CO.

HORNSILVER MINING & MILLING CO.

HORSESHOE MINING CO.
**HULL SILVER LEAD CO.**

**HUMBOLDT GROUP**

**HUMMING BIRD MINING CO.**

**HYPOTHEEEK MINING & MILLING CO.**

**IDAHO COPPER MINING CO., LTD.**

**IDAHO & EASTERN MINING & MILLING CO.**

**IDAHO-LEADVILLE MINES CO.**

**IDAHO & LOS ANGELES MINING & MILLING CO.**

**IDAHO MONTANA MINING & OIL CO.**
Office: Peyton Blk., Spokane, Wash. Officers: E. W. Conrad, Pres.-Mgr.; J. M. Henneck, Sec., both of Spokane, Wash. Inc.: Sept. 22, 1924, as Fort Wayne Mining Co.; name changed July 8, 1930. Capital: 1,500,000 shares, par value 33 1-3c; increased July 8, 1930, to 2,000,000 shares, par value
50c; 1,174,622 shares issued. **Property:** Eclipse group; 19 unpatented claims, Evolution dist.; Osburn. **Development:** Principally by 1 tunnel, which is 2300 ft. long. **Plant:** Gas-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only. A stock assessment of 2 mills was levied on May 4.

**IDAHO-MONTANA AND ORLANDO CONSOLIDATED MINING CO.**
Office: Wallace. **Officers:** John A. Swan, Pres.-Mgr.; Carl Johnson, Sec., both of Burke. **Inc.:** July 14, 1925. **Capital:** 1,500,000 shares; par value 10c; 1,059,002 shares issued. **Property:** 7 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 80 ft. long; No. 2, 500 ft. long; No. 3, 600 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

**IDAHO STAR MINING CO.**
Office: E. 1302 Newark Ave., Spokane, Wash. **Officers:** Hans Peterson, Pres.; R. T. Lawrence, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Oct. 8, 1924. **Capital:** 1,500,000 shares; par value 10c; 1,298,310 shares issued. **Property:** 32 unpatented claims, St. Joe dist.; Adair. **Development:** By 1 tunnel 915 ft. long. **Plant:** Water-driven compressor. **Ore:** Lead-silver. **Remarks:** Annual labor only.

**IDORA MINING CO., LTD.**
Office: Jamieson Blk., Spokane, Wash. **Officers:** James C. Broad, Pres.; C. E. Mallette, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Apr. 23, 1915. **Capital:** 1,500,000 shares; par value 10c; 447,780 shares issued. **Property:** Idora group: 1 patented, 8 unpatented claims, Beaver dist.; Carbonite. **Plant:** MINE: 1 electrically-driven compressor. MILL: 100-ton concentrator. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only. This company reports that its property has been consolidated with that of the Consolidated Mining Corporation.

**IMPERIAL MINING CO.**
Office: Wallace. **Officers:** William Becker, Pres.; Homer G. Brown, Sec.-Mgr., both of Wallace. **Inc.:** Nov. 21, 1906. **Capital:** 1,500,000 shares; par value $1; 1,178,981 shares issued. **Property:** Imperial group: 8 patented claims, Lelande dist.; Burke. **Development:** Principally by 2 tunnels: No. 2, 1000 ft. long; No. 3, 4000 ft. long. Total development, approximately 10,000 ft. **Plant:** Electrically-driven 4-drill I-R compressor; complete mining equipment and camp. **Ore:** Lead-silver. **Remarks:** Idle throughout the year.

**INDEPENDENCE LEAD MINES CO.**
Office: Wallace. **Officers:** W. D. Greenough, Pres., Spokane, Wash.; Herman Marquardt, Sec.; Henry B. Kingsbury, Mgr., both of Wallace. **Inc.:** Filed in Idaho: Nov. 12, 1929. **Capital:** 4,000,000 shares; par value $1; 2,400,000 shares issued. **Property:** Independence group, 10 patented claims; American Commander group, 2 patented claims; Hunter dist.; Mullan. **Development:** American Commander group: By 4 tunnels: No. 1, 190 ft. long; No. 2, 1160 ft. long; No. 3, 1300 ft. long; No. 4, 2500 ft. long; Independence group: Principally by 4 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 6000 ft. long, a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels; and a 100-ft. vertical shaft in No. 4 tunnel. **Plant:** Electrically driven 8x12 Sullivan compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Average, 5. **Men employed:** A new hoist was installed and the vertical shaft extended from the 100 to the 200 ft. level and drifting started on the latter level. Stock assessments were levied as follows: Jan. 2, 1c; July 20, 1c.

**INDEPENDENCE MINING CO., LTD.**
Office: Kellogg. **Officers:** W. A. Taylor, Pres.-Mgr., Kellogg. **Inc.:** June 5, 1928. **Capital:** 1,500,000 shares; par value 10c; 774,000 shares issued. **Property:** 9 unpatented claims, Eagle dist.; Murray. **Ore:** Lead-silver. **Remarks:** Annual labor only.
INLAND EMPIRE MINING & MILLING CO.

INSPIRATION LEAD CO., INC.

INTERNATIONAL MINES, LTD.

IRON KING MINING CO., LTD.

ISAIAH MINING & MILLING CO.

IVANHOE MINING CO., LTD.

JACK WAITE MINING CO.
reorganized, name changed, and filed in Idaho, Sept. 4, 1930. **Capital:** 3,500,000 shares; par value $1; 3,000,000 shares issued. **Property:** Jack Waite group; 4 patented, 78 unpatented claims in Idaho; Silver King group; 36 unpatented claims in Montana; Eagle dist.; Duthie. **Development:** Jack Waite group: principally by 2 tunnels: No. 1, 2100 ft. long; No. 2, 4600 ft. long, in which is an inclined shaft 250 ft. deep. Silver King group: principally by 1 tunnel 1820 ft. long. **Plant:** MINE: 1 air-driven and 1 electrically driven hoist; 3 electrically driven compressors; electric trolley haulage; complete mining equipment and camp. MILL: 500-ton, fine-grinding, flotation concentrator. **Men employed:** Average, 48. **Ore:** Lead-silver-zinc. **Remarks:** Construction of the 500-ton mill, which was started in 1930, was completed and the mill placed in operation in February; but on account of low metal prices it was operated only on a one-shift basis. The greater part of the ore milled was derived from development work, which consisted principally of sinking a new inclined shaft 250 ft. deep and driving a 520-ft. raise from No. 2 tunnel to connect with the Silver King tunnel on the Montana side. In addition, a large amount of drifting was done in the shaft and on intermediate levels above the main tunnel. A new electrically driven hoist and locomotive and a large amount of new mining equipment were added to the mine plant. The company constructed new camp buildings; the county built a new road to the mine; and the Post Office Department established a post office at the mine, named Duthie, in honor of the president of the company. The new ore exposed by the development work was one of the principal disclosures of the year. It greatly increased the known resources of the mine, which is fast becoming recognized as a producer of importance.

**MILL:** JACK WAITE MINING CO.

**JIM BLAINE SILVER SYNDICATE, LTD.**

**Office:** 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; Matt Baumgartner, Sec.-Mgr., Spokane, Wash. **Inc.:** Apr. 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,399,000 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1500 ft. long; No. 2, 1000 ft. long; No. 3, 1320 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Annual labor only.
JUPITER MINING CO.

KELLOGG SILVER-LEAD MINES CO.
Office: 808 Sherwood Bldg., Spokane, Wash. Officers: F. William Voigtländer, Vice Pres., Kellogg; Geo. W. Sommer, Sec., Spokane, Wash. Inc.: Feb. 24, 1930; charter forfeited Nov. 30, 1931. Capital: 2,000,000 shares; par value 10c; 200,000 shares preferred, par value $1; all shares issued. Property: 13 claims and 80 acres, all patented, Yreka dist.; Kellogg. Development: Total development approximately 3500 ft. Plant: Electrically driven hoist and compressor. Ore: Lead-silver-zinc. Remarks: This company is a reorganization of the Idaho American Mining & Milling Co. New mine buildings and headframe constructed, electrically driven hoist and pump installed, and shaft unwatered to the 400-ft. level, after which work was started on opening this and the 200-ft. level.

KENNAN MINING CO.

KEYSTONE MINING CO.

KING OF PINE CREEK MINING CO.

LACLEDE MINING CO., LTD.

LANSING SILVER-LEAD MINING CO.
LEAD BLOSSOM MINING & MILLING CO.

Office: Wallace. Officers: Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. Inc.: June 5, 1922, as Iron Blossom Mining & Milling Co.; name changed Nov. 2, 1922. Capital: 1,500,000 shares; par value 25c; all shares issued. Property: Iron Blossom group; 3 patented, 10 unpatented claims, Yreka dist.; Wardner. Development: By 2 tunnels: No. 1, 300 ft. long; No. 2, 600 ft. long; and an inclined shaft 360 ft. long. Ore: Lead-silver. Remarks: Annual labor only. A stock assessment of 3 mills was levied on Oct. 3.

LEAD CRYSTALS MINING CO., LTD.

Remarks: Reorganized as Crystal Lead Mines Co.

LEROY GOLD & COPPER CO., LTD.


LEWIS & CLARK MINING CO.


LEXINGTON MINING CO.


LIBERAL KING MINING CO.


LINCOLN MINING CO.

Office: Wallace. Officers: Theodore Wellman, Pres.; Franklin Pfirman, Sec., both of Wallace. Inc.: July 9, 1923. Capital: 1,500,000 shares; par value 10c. Increased May 7, 1928, to 2,000,000 shares common, par value 10c; 30,000 shares preferred, par value $10; 1,313,391 shares common, 3039 shares preferred issued. Property: Silverado group; 44 unpatented claims, Evolution dist.; Osburn. Development: Principally by 1 tunnel 6600 ft. long, and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. Plant: MINE: 500 cu. ft. electrically driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. Ore: Lead-silver. Remarks: Annual labor only. A stock assessment of 1c was levied on June 5.

LINFOR COPPER CO.


LITTLE BUTTE MINING CO.

LITTLE SUNSHINE MINING CO.
Office: 902 Second Ave., Seattle, Wash. Officers: John R. Moore, Pres.; H. S. Brown, Sec., both of Seattle, Wash.; C. A. Fay, Mgr., Wallace. Inc.: Nov. 3, 1906, as Elk Mining Co.; name changed Oct. 5, 1927. Capital: 1,000,000 shares; par value $1; increased on Oct. 5, 1927, to 1,750,000 shares; increased on Oct. 31, 1928, to 2,750,000 shares; shares issued, unknown. Property: Owns Elk group; 3 patented claims, Hunter dist.; Mullan. Lease and option on Palmer group; 14 unpatented claims, Big Creek, Yreka dist.; Kellogg. Development: On Palmer group: 4500-ft. crosscut, in which is a 300-ft. vertical shaft with two levels. Plant: On both groups, electrically driven compressors and complete mining equipment. Ore: Lead-silver. Men employed: Average, 8. Remarks: Active development on Elk group throughout the year. A stock assessment of 1c was levied on Mar. 20. Late in the year this company and the Lookout Mountain Mining & Milling Co. were merged with the United Mines & Metals Corporation.

LOG CABIN MINING & MILLING CO., LTD.

LOMBARDY MINING & MILLING CO.

LON CHANEY MINING & MILLING CO.

LOOKOUT MOUNTAIN MINING & MILLING CO.
Office: Kellogg. Officers: C. W. Simmons, Pres.; S. A. Germo, Sec., both of Kellogg; C. A. Fay, Mgr., Wallace. Inc.: June 2, 1916. Capital: 2,000,000 shares; par value 25c. Increased Sept. 25, 1928, to 3,000,000 shares; par value 25c; 2,520,000 shares issued. Property: Lookout Mountain group; 40 unpatented claims, Yreka dist.; Kellogg; part of which are held under lease and option. Development: Principally by 3 tunnels: No. 1, 100 ft. long; No. 2, 2500 ft. long; No. 3, 5000 ft. long; a vertical shaft in No. 3 tunnel 200 ft. deep; and a 500-ft. raise connecting No. 2 and No. 3 tunnels. Plant: 2 electrically-driven Gardner compressors; complete mining equipment and camp. Ore: Lead-silver. Remarks: Failed to file the reports required by law. The report of the United Mines & Metals Corporation stated that it was a merger of the Little Sunshine Mining Co. and the Lookout Mountain Mining & Milling Co. A stock assessment of 5 mills was levied on Mar. 28.

LOUISE SILVER LEAD MINING CO.
Officers: M. L. Savage, Kellogg. Inc.: Apr. 3, 1931. Capital: 1,000,000 shares; par value 5c; shares issued, unknown. Remarks: Company organized to develop a property in the Eagle district, near Delta. Failed to file the reports required by law.

LUCKY BOY MINES CORPORATION
LUCKY BOY MINING & CONCENTRATING CO., LTD.

MCGREGOR MINING CO.

MACEDONIA MINING CO.
Office: Wallace. Officers: A. M. Mundell, Pres.-Mgr., Wallace; W. S. Leeland, Sec., Prichard. Inc.: Oct. 8, 1921. Capital: 1,500,000 shares; par value 10c; 11,000 shares issued. Property: Macedonia group; 11 unpatented claims, at the head of West Fork of Slate Creek; St. Joe dist.; Wallace. Remarks: Active development work throughout the summer months by the president.

MAINE-STANDARD MINING CO., LTD.

MAJESTIC MINING CO., LTD.

MARSH MINES CONSOLIDATED

MERGER MINES CORPORATION
Office: Wallace. Officers: Walter H. Hanson, Wallace. Inc.: Filed in Idaho: Mar. 3, 1931. Capital: 3,000,000 shares; par value $1; shares issued, unknown. Remarks: Has never filed the reports required by law, although many times requested to do so. A stock assessment of 5 mills, which was levied on Jan. 19, 1931, gave the name of L. A. White, Wallace, as secretary. A letter from the president of the Aetna Mines Corporation, addressed to the inspector of mines, stated that this company was a consolidation with the Aetna Mines Corporation and the Bear Top Lead Mines, and that the Aetna Mines Corporation was bringing suit to withdraw from the contract agreement. The records in the secretary of state's office show that a Bear Top Lead Mines was incorporated Aug. 28, 1928, and that its charter was forfeited on Dec. 1, 1930. Bear Top Lead Mines has never filed reports with the inspector of mines as required by law, consequently it is unknown to the inspector. The reason why the Merger Mines Corporation has consistently refused to file the reports required by law, yet has actively engaged in the sale of stock and the levying of stock assessments is unknown to the inspector, and it is not known whether any of the stockholders have questioned the legality of the assessments or not.
MERRY WIDOW MINING CO.

METROPOLITAN MINES CORPORATION, LTD.
Office: Wallace. Officers: R. L. Brainard, Pres., Wardner; Roy H. Kingsbury, Sec., Wallace; Matt Baumgartner, Mgr., Spokane, Wash. Inc.: Nov. 21, 1929. Capital: 1,000,000 nonassessable common shares, par value 10c; 2,000,000 assessable common shares, par value 10c; all nonassessable shares and 1,318,335 assessable issued. Property: Sterling Silver group; 29 unpatented claims, Big Creek, Evolution dist.; Kellogg. Development: Principally by 1 tunnel 1450 ft. long. Plant: 12x12 G-D electrically driven compressor; complete mining equipment and camp. Ore: Lead-silver. Men employed: Average, 5. Remarks: Principal tunnel extended without interruption throughout the year. Stock assessments were levied as follows: Jan. 5, 3 mills; Apr. 4, 3 mills; June 3, 3 mills; Aug. 3, 3 mills; Oct. 3, 3 mills; Dec. 5, 3 mills.

MILITARY MINING & MILLING CO., LTD.

MINERAL FARM MINING CO., LTD.

MINERAL POINT MINING CO.

MISSOULA COPPER MINING CO.

MOE MINING CO., LTD.

MOHAWK MINING CO.
MOONLIGHT MINING CO.

MOUNTAIN CON MINING CO., INC.

MOUNTAIN QUEEN MINING CO.

MULLAN MINING CO.

MURRAY HILL MINING CO.

MUTUAL MINES DEVELOPMENT CO.
Office: 312 Old Nat'l Bank Bldg., Spokane, Wash. Officers: Harley Little, Pres.-Mgr.; Ben L. Collins, Sec., both of Spokane, Wash. Inc.: May 20, 1895. Capital: 2,000,000 shares; par value 10c; 1,893,799 shares issued. Property: 24 patented, 30 unpatented claims, of which 20 are owned, the remainder are held under lease and option from the Formosa Lead Mining Co., Ltd., Deep Wonder Mining Co., Western Pacific Mining Co., United Metals Co., and Messrs. Gus Kallman and Ed. Johnson; Hunter and Lelande dists.; Wallace. Development: Principally by 1 tunnel 3000 ft. long, in which is a vertical shaft 100 ft. deep. Plant: MINE: 2 electrically driven compressors and complete mining equipment. MILL: 100-ton flotation concentrator. Ore: Lead-silver. Remarks: Construction of a new 100-ton flotation concentrator, which was started in 1930, was completed, and milling operations were commenced in May. The mill was operated intermittently, and a small tonnage of lead-silver concentrate was produced and marketed. Stock assessments were levied as follows: June 3, 1c; Sept. 17, 1c.

NABOB SILVER LEAD CO.

NATIONAL LEAD MINING CO.
NEVADA STEWART MINING CO.

NEW HOPE MINING CO., LTD.

NEW JERSEY CONSOLIDATED MINES CO.
Office: Wallace. Officers: L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. Inc.: June 20, 1928. Capital: 5,000,000 shares; par value 10c; 1,476,473 shares issued. Stock assessments were levied as follows: Jan. 6, 5 mills; Nov. 24, 5 mills.

KING OF PINE CREEK GROUP
Property: King of Pine Creek group; 9 unpatented claims and 160 acres patented land, held under lease and option from King of Pine Creek Mining Co., Yreka dist.; Kellogg. Development: By 2 tunnels: No. 1, 380 ft. long; No. 2, 350 ft. long; and a vertical shaft 300 ft. deep. Plant: Hoist and 2 I-R compressors, all electrically driven; complete mining equipment. Ore: Lead-zinc-silver. Remarks: Idle other than pumping to keep the mine unwatered.

NEW JERSEY GROUP
Property: New Jersey group; 6 patented claims held under lease and option from Dubois Mining Co., Big Creek, Yreka dist.; Kellogg. Development: Principally by 1 tunnel 1500 ft. long. Remarks: Idle.

NEW ROAD MINING CO.

NIAGARA PLACER MINING CO.

NINE MILE MINING CO.

NONPAREIL COPPER MINING CO.
NORTH AMERICAN MINING & MILLING CO., LTD.

NORTH BUNKER HILL MINING CO., LTD.

NORTH FORK DEVELOPMENT CO.

NORTH IDAHO MINING CO.

NORTH STAR MINING CO.

NORTH STAR MINING & DEVELOPMENT CO.

NORTHERN LIGHT MINING & MILLING CO.

NORTHWEST MINING & MILLING CO.

OASIS MINING CO.

OOM PAUL CONSOLIDATED MINING CO.
PACIFIC MINING AND MILLING CO.

PAPUREL & GRAHAM MOUNTAIN MINING CO.

PARADISE MINES ASSOCIATION

PARAGON MINING CO.

PARAMOUNT MINES CORPORATION
Office: 808 Sherwood Bldg., Spokane, Wash. Officers: Geo. W. Sommer, Sec., Spokane, Wash. Inc.: Sept. 24, 1928. Capital: 5,000,000 shares; par value 10c; all shares issued. Property: High Grade group; 5 patented, 5 unpatented claims, Yreka dist.; Kellogg. Development: Principally by 1 tunnel 1200 ft. long. Ore: Lead-silver. Remarks: Annual labor only. This company is either a reorganization of or absorbed the properties of the High Grade Mining Co. and the Kellogg Galena Mining Co.

PARK COPPER & GOLD MINING CO., LTD.

PASCO MINING CO., LTD., INC.

PATUXENT MINING CO.

PEARSON MINING CO.
PINE CREEK CONSOLIDATED MINING CO.

PINE CREEK LEAD-ZINC MINING CO.

PIONEER GOLD MINING & DEVELOPMENT CO.

PIONEER MINING CO., LTD.

PLAINVIEW MINING CO., INC.

POLARIS DEVELOPMENT & MINING CO.
Office: Wallace. Officers: James F. McCarthy, Pres.-Mgr.; Leo J. Hoban, Sec., both of Wallace. Inc.: Dec. 10, 1915. Capital: 1,000,000 shares, par value 5c; increased Nov. 22, 1917, to 1,500,000 shares, par value 5c; increased May 4, 1925, to 1,500,000 shares, par value $1; increased July 28, 1930, to 2,000,000, par value $1; decreased Aug. 30, 1930, to 2,000,000, par value 25c; 1,068,499 shares issued. Property: Polaris group; 3 patented claims, Big Creek, Yreka dist.; Kellogg. Development: Principally by 1 tunnel 2500 ft. long. Plant: Electrically driven compressor and complete mining equipment. Ore: Lead-silver. Remarks: Idle.

PONTIAC MINING CO.
PROGRESS GOLD MINING CO.

PURITAN MINING CO., LTD.

RAINBOW MINING & MILLING CO., LTD.

RAMONA MINING CO.

RAVEN MINING CO., LTD.

RAY JEFFERSON MINING CO.

RED CLOUD MINING CO.

REINDEER-QUEEN MINING CO.
REVETT MINING CO.

RHODE ISLAND MINING CO., LTD.

RICHMOND CONSOLIDATED MINING CO.
Office: 824 Old National Bank Bldg., Spokane. Officers: John B. White, Pres.; E. E. Alverson, Sec., both of Spokane. Inc.: June 29, 1923. Capital: 2,500,000 shares; par value 10c; all shares issued. Property: Richmond group; 7 patented claims, St. Joe dist.; Adair. Development: Approximately 8000 ft. of underground workings. Ore: Copper-gold. Remarks: During 1926, mine plant was dismantled and all operations were suspended.

ROANOKE MINING CO., LTD.

ROB ROY MINING CO.

ROCKFORD MINING CO., LTD.
Officers: W. H. Hanson, Wallace. Inc.: Sept. 9, 1907. Capital: 1,500,000 shares; par value 25c. Remarks: Has failed to file the reports required by law since 1922.

RUTH CONSOLIDATED MINING & MILLING CO.

SABINA MINES CO.

ST. JOE LEAD & SILVER MINES CO.
SAINT LOUIS & IDAHO MINING & MILLING CO.

SAMSON MINING & DEVELOPMENT CO., LTD.

SAVAGE MINING CO.

SHERMAN LEAD CO.
Office: Wallace. Officers: Jerome J. Day, Pres.; P. J. Maggy, Sec.; Henry L. Day, Mgr., all of Wallace. Inc.: Nov. 4, 1918. Capital: 3,500,000 shares; par value 25c. Increased Aug. 27, 1928, to 3,675,000 shares; par value 25c; all shares issued. Property: Sherman and Oreano groups; 9 patented claims, Lelande dist.; Burke. Development: Total development, over 31,000 ft., consisting principally of Sherman No. 5 tunnel, 5943 ft. long; Sherman No. 6 tunnel, 2000 ft. long; Oreano No. 2 tunnel, 7400 ft. long; and two 1070-ft. inclined raises connecting Sherman No. 6 tunnel and Oreano No. 2 tunnel, in which are 8 intermediate levels. Plant: 2 electrically driven hoists; trolley locomotive haulage and all mining equipment, furnished by Hercules Mining Co. Ore: Lead-silver. Men employed: Average, 100. Remarks: One of the principal mines in the Coeur d'Alene district to be placed on a profitably operating basis in 1929 and the only addition to the list of dividend paying mines in the State during 1930. Production and development continued until May, when the low price of metals caused a suspension of all operations. During the early part of the year, a large amount of development work was done, and the additional ore exposed greatly increased the known resources of the mine. This company's mine is connected with the No. 5 tunnel of the Hercules Mining Co., through which it is operated, and the ore is sold to the Hercules custom mill at Wallace. Control of the company is held by the Tamarack & Custer Consolidated Mining Co.

SHRINE MINING CO.

SIDNEY LEASING CO.
the year. During this period the tramway was rebuilt, and development work was conducted on the 800-ft. level. On August 1, production was resumed, on a basis of 100 tons per day, and continued throughout the remainder of the year. The development work on the 800-ft. level greatly increased the ore reserves of the mine, as well as being one of the principal new disclosures to be made in the Coeur d'Alene district during the year. The increase of the ore reserves of this mine, as additional depth is being gained, has been an important factor in stimulating interest in the Pine Creek section.

SIDNEY MINING CO.

SIERRA NEVADA CONSOLIDATED MINING CO.
Office: Kellogg. Officers: Stanly A. Easton, Pres.-Mgr.; C. W. Simmons, Sec., both of Kellogg. Inc.: May 21, 1887. Capital: 1,000,000 shares; par value $1; all shares issued. Property: Sierra Nevada group; 6 patented claims, Yreka dist.; Kellogg. Development: Principally by 4 tunnels: No. 1, 4550 ft. long; No. 2, 275 ft. long; No. 3, 700 ft. long; No. 4, 625 ft. long. Total development, approximately 10,000 ft. Ore: Lead-silver. Remarks: Property under operation throughout the year by lessees, who produced and marketed a small tonnage of ore.

SILVER BASIN CONSOLIDATED MINING CO.

SILVER CLIFF GOLD & COPPER MINING CO., LTD.

SILVER CRESCENT MINING CO.

SILVER DALE & BIG HILL MINING CO.
SILVER EAGLE MINING CO., LTD.

SILVER MOON MINING CO., LTD.

SILVER REEF MINING CO.

SILVER STANDARD MINING CO.

SILVER SUMMIT MINING CO.

SISTER MINING & MILLING CO., LTD.

SLAVONIAN MINING CO.
Remarks: Property sold to Altura Mining Co.

SMUGGLER CONSOLIDATED MINING CO.

SNOWSHOE MINING CO.
Office: Wallace. Officers: Walter H. Hanson, Pres.; Herman Marquardt, Sec., both of Wallace. Inc.: Sept. 30, 1903. Capital: 2,000,000 shares; par value $1; 260,000 shares issued. Property: Snowshoe; 8 patented claims, Hunter dist.; Mullan. Development: Approximately 4,000 ft. of workings, the principal of which are No. 2 tunnel, 3,000 ft. long, and No. 1 tunnel, 900 ft. long. Plant: Electrically-driven 3-drill compressor. Ore: Copper-silver. Remarks: Idle.
SNOWSTORM SILVER LEAD CO.

SONORA MINING & MILLING CO.

SPOKANE TUNNEL MINING CO.

SQUARE DEAL MINING & MILLING CO., LTD.

STANLEY MINING CO.

STERLING MINING CO., LTD.

STRAITON SILVER SUMMIT, INC.
Office: Wallace. Officers: L. K. Stratton, Pres.; Wm. J. Stratton, Sec., both of Wallace. Inc.: Feb. 6, 1929. Capital: 10,000,000 shares; par value 10c; 8,481,936 shares issued. Property: Jumbo group, Silver Summit Mining Co.; held under lease and option. Development: Principally by 1 tunnel 4716 ft. long. Plant: 530 cu. ft. I-R electrically driven compressor; steel sharpener; complete mining equipment. Ore: Lead-silver. Men employed: Average, 7. Remarks: One of the principal development enterprises in the Coeur d'Alene district to maintain development work throughout the year. A new compressor, steel sharpener, and additional mining equipment were installed, and more than 3000 ft. of crosscuts and drifts were driven during the year. The disclosures made by this work greatly enhanced the possibilities of this enterprise. Stock assessments were levied as follows: Mar. 17, 5 mills; Sept. 8, 5 mills.

SUOCESS MINING CO., LTD.
1, 1320 ft. long; No. 2, 4585 ft. long; No. 3, 3360 ft. long; and a vertical shaft 1070 ft. deep, with 8 intermediate levels; total development, approximately 25,700 ft. **Plant**: MINE: Electrically-driven double-drum hoist; 2 electrically-driven compressors; complete mining equipment. MILL: 300-ton concentrator, including flotation and magnetic separation. Ore: Lead-zinc-silver. **Remarks**: In July, 1926, all operations were suspended, underground equipment was removed, and part of the mining and milling equipment was disposed of. A small tonnage was produced and marketed during 1931 by lessees.

**SULLIVAN MINING CO.**

**Office**: Kellogg. **Officers**: Stanly A. Easton, Pres., Kellogg; C. W. Simmons, Sec., Kellogg. **Inc.**: May 22, 1917. **Capital**: 500,000 shares; par value $3; 37,448 shares issued. **Property**: Star group; 23 patented claims, Hunter and Lelande dists.; Burke. **Development**: By a crosscut, known as the "Star crosscut," which is on the 2000-ft. level of the Hecla mine and is 8900 ft. long; and by one 2300-ft. vertical raise and one 2850-ft. vertical raise. **Plant**: MINE: All mine equipment furnished by Hecla Mining Co. MILL: All ore is milled by Bunker Hill & Sullivan M. & C. Co. in its South mill at Kellogg. **ELECTROLYTIC PLANTS**: See Twenty-ninth Ann. Rept. of Mining Industry of Idaho, Engineering & Mining Journal of Dec. 1, 1928, and Mining Congress Journal of January, 1929, and November, 1931, for complete illustrated descriptions of zinc plant, and page 43 of Thirty-second Ann. Rept. of Mining Industry of Idaho for a complete description of cadmium plant. Ore: Lead-zinc-silver. **Men employed**: Average, 16 at mine and 84 at zinc plant.

**ZINC PLANT**: SULLIVAN MINING CO.

**REMARKS**

In 1916 the Bunker Hill & Sullivan M. & C. Co. secured an option on the Star mine from the Star Mining Co.; as the most feasible method of opening this mine was through the Hecla mine, the Hecla Mining Co. was offered and accepted a 50 per cent interest in the option.
The Sullivan Mining Co. was then formed to take over the Star option and to operate the mine. After litigation to perfect title to the Star vein system was settled in favor of the Star Mining Co., the Star crosscut was started and continued without interruption, excepting the time lost from July 13, 1923, to March 1, 1924, as a result of the Burke fire.

On November 13, 1925, the Star ore body was encountered at a point 1650 ft. west of the east end-line, and at a depth of 4000 ft. below the apex of the vein. After encountering the ore body development work continued, and during 1925 it was opened the entire distance of 1650 ft. and a connection was made with the 2250 level of the Morning mine of the Federal Mining & Smelting Co. On account of the great depth of the Star crosscut, a large amount of development work was necessary to open the mine for the extraction of ore. Two operating raises were projected and work started on them. This work continued without interruption. By 1930 both had been extended a distance of 2300 ft., and during 1931 one was continued to the Star tunnel (2850-ft. level), a distance of 2850 ft. In addition to advancing this raise a large amount of development work was done on the 2850-ft. level. This work opened one of the most important disclosures of new ore which has been made in the district for many years. The Morning and Star veins are conceded to be the same. The ore in the Morning has been opened to the 3650-ft. level, or 1400 ft. deeper than the Star crosscut. As the new ore in the Star tunnel is 2850 ft. above the Star crosscut, it is evident that the Star mine contains an ore body of tremendous size and that it is a mine of magnitude. Output at the electrolytic cadmium plant was suspended early in the year, but the electrolytic zinc plant was operated at approximately 50 per cent capacity throughout the entire year. The zinc and cadmium produced by this company are exceedingly high in grade and find a ready market; the zinc selling at an increase in price over that of any other zinc metal. These plants constitute one of the most important enterprises in the Pacific Northwest, one which greatly insures the permanence of the mining industry in Shoshone County. The uninterrupted operation of the zinc plant greatly assisted business conditions in the county.
SUNRISE MINES CO.

SUNSET MINING CO.

SUNSHINE EXTENSION MINES CO.
Officers: Walter H. Hanson, Pres.; J. R. Bean, Sec., both of Wallace. Inc.: Nov. 23, 1931. Capital: 1,000,000 shares; par value $1. Remarks: Failed to file the reports required by law.

SUNSHINE MINING CO.
Office: Yakima, Wash. Officers: A. E. Larson, Pres.; R. B. Kenyon, Sec., both of Yakima, Wash.; C. C. Samuels, Mgr., Kellogg. Inc.: Jan. 2, 1921. Capital: 1,500,000 shares; par value 10c; 1,488,822 shares issued. Property: Yankee group; 15 patented claims, Big Creek, Yreka dist.; Kellogg. Development: Principal development by 5 tunnels: No. 1, 100 ft. long; No. 2, 170 ft. long; No. 3, 800 ft. long; No. 4, 1000 ft. long; No. 5, 3000 ft. long, in which is a vertical shaft 500 ft deep, and an inclined shaft connecting No. 5 tunnel level and the 1700-ft. level. Plant: MINE: 2 I-R compressors, 1 Worthington compressor, 2 hoists, all electrically driven; complete mining equipment, buildings, and camp. MILL: 500-ton concentrator, including fine grinding and flotation. Ore: Lead-silver. Men employed: Average, 246.

REMARKS
This company is the largest silver producer in the State and the second largest in the United States, and was one of the two companies which maintained capacity production throughout the year. Its mine and mill plants were greatly improved, and a large amount of development work was done in the mine; the principal part of which was drifting on the 1700-ft. level, where the ore bodies were proved to be of greater extent and richer in metal content than in any of the upper levels. In addition to this, a large amount of drifting was done on the upper levels; and a 400-ft. raise, to connect with the 1300-ft. level, was started on the 1700-ft. level. The total amount of new work exceeded 4000 ft. The low price of silver greatly reduced operating profits, and but one dividend was paid.

SUNSHINE MINING CO., LTD.

SYNDICATE MINING & EXPLORATION CO., LTD.
TAMARACK & CUSTER CONSOLIDATED MINING CO.
Office: Wallace. Officers: Jerome J. Day, Pres.-Mgr.; Harry L. Day, Sec., both of Wallace. Inc.: Aug. 6, 1912. Capital: 5,000,000 shares; par value $1; all shares issued. Property: Tamarack & Custer; 60 patented, 2 unpatented claims, Lelande and Placer Center dists.; Gem. Development: The three principal tunnels are: No. 5, 12,300 ft. long; No. 6 (400-ft. level), 8900 ft. long; and No. 7 (1200-ft. level), 11,300 ft. long. The principal shaft is a 3-compartment, vertical shaft, 600 ft. deep; a 3-compartment raise 800 ft. long connecting No. 6 and No. 7 tunnels; and a 150-ft. vertical winze (1350-ft. level) from No. 7 tunnel. Total development, approximately 14 miles. Plant: MINE.: 100-h. p. electrically driven hoist; three 1300 cu. ft. electrically driven compressors; storage-battery haulage on intermediate levels and trolley locomotive haulage on main levels; complete mining equipment; modern and complete machine shop; modern hotel, change houses, and camp. Ore: Lead-silver-zinc. Men employed: Average, 5. Remarks: Output and an extensive development campaign until May, when production and all work on company account were entirely suspended and various parts of the mine were turned over to lessees. It was reported that the new work which was done during the early part of year greatly increased the known ore reserves of the mine. This company's ore is sold to the Hercules custom mill at Wallace.

TEDDY MINING & MILLING CO., LTD.

TIBERIUS MINING CO.

TRADE DOLLAR MINING CO., LTD.

TRAPPER MINING & SMELTING CO., LTD.

TREASURE VAULT MINING CO., LTD.

TUCKER MINING & MILLING CO.

TUSCUMBIA MINING CO., LTD.
UNITED AMERICAN MINES CO., LTD.

UNITED METALS CO.

UNITED MINES & METALS CORPORATION

UNITED STATES SILVER LEAD MINES CO.
Office: W. 2011 Sinto Ave., Spokane, Wash. Officers: N. J. Jacobs, Pres., Ellensburg, Wash.; R. J. Toner, Sec., Spokane, Wash. Inc.: Sept. 24, 1917. Capital: 1,000,000 shares; par value 10c; shares issued, unknown. Property: 21 unpatented claims, held under lease and option, Eagle dist.; Prichard. Remarks: Failed to file the reports required by law since 1929. Press reports were to the effect that development work was maintained throughout the greater part of the year under the direction of Thomas Nicholson of Wallace.

VENDETTA CHIEF MINING CO.

VICTOR MINING CO.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.

VINDICATOR MINING CO.
WALLACE IDAHO LEAD MINES, INC.

WALLACE SILVER-LEAD MINES CO.
Office: Wallace. Officers: Walter H. Hanson, Pres.; Chas. Horning, Sec., both of Wallace. Inc.: Aug. 17, 1927. Capital: 5,000,000 shares; par value 10c. Remarks: Has never filed the reports required by law, although many times requested to do so.

WALL STREET MINING CO.

WASHINGTON-IDAHO MINING CO.
Office: 707 Hutton Bldg., Spokane, Wash. Officers: Dr. James Murray, Pres., Hayden Lake; Dennis P. Woods, Sec., Spokane, Wash.; Thos. Murray, Mgr., Kellogg. Inc.: Oct. 21, 1927. Capital: 2,500,000 shares; par value 10c; 1,700,000 shares issued. Property: Crescent group; 23 unpatented claims, Moon Creek, Yreka dist.; Kellogg. Development: By 3 tunnels, the principal one of which is 1200 ft. long, and a vertical shaft 340 ft. deep, in which are 3 levels. Plant: Electrically driven I-R compressor and complete mining equipment. Ore: Lead-zinc-silver. Men employed: Average, 14. Remarks: Early in the year additional mining equipment was installed and work started on sinking the shaft from the 125-ft. level to the 300-ft. level, after which a large amount of crosscutting and drifting was done on the 225-ft. and 300-ft. levels. This work resulted in one of the substantial new ore disclosures made in the Coeur d'Alene district during the year. As this company's property is located on Moon Creek, the new disclosures added greatly to the importance of this section of the county.

WASHINGTON MINING CO.

WEIGLE MINING & MILLING CO.

WEST BELL MINING CO., LTD.
WESTERN PACIFIC MINING CO.

WESTERN UNION MINING CO.

WEST GEM MINING CO.

WEST HECLA MINING CO.

WEST HUNTER MINING CO., LTD.

WEST MAMMOTH MINING CO.

WILLOW CREEK MINING CO.

WISCONSIN MINING CO.
WOLVERINE MINING CO., LTD.
Office: 304 Lindelle Bldg., Spokane, Wash. Officers: C. C. Harrington, Pres.; Harold M. Gleeson, Sec., both of Spokane, Wash. Inc.: Aug. 4, 1909. Capital: 1,250,000 shares; par value $1; increased on July 11, 1928, to 2,000,000 shares; 1,598,143 shares issued. Property: Wolverine group; 7 unpatented claims, Big Creek, Yreka dist.; Kellogg. Development: By 3 tunnels: No. 1, 450 ft. long; No. 2, 315 ft. long; No. 3, 87 ft. long; and an inclined shaft 400 ft. long. Plant: Hoist, 1 Sullivan and 1 I-R compressor, all electrically driven; complete mining equipment. Ore: Lead-silver. Remarks: Annual labor only.

WONDERFUL MINING CO., LTD.

WYOMING MINING & MILLING CO., LTD.

YAKIMA-SHOSHONE MINING CO.

NAME OF MINE

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See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


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Teton County

Teton is one of the southeastern counties, being bounded on the east by the State of Wyoming, on the south by Bonneville County, on the west by Madison County, and on the north by Fremont County. Containing an area of but 463 square miles, it is the second smallest county in the State. The 1930 census accredited it with a population of 3,573 or 7.7 persons to the square mile, the larger part of which is located in the Teton River valley. Practically all the county is farming land, and the principal industries are wheat, potato and stockraising.

The county is served by the Teton State highway, good county roads, and the Ashton-Victor branch of the O. S. L. Railroad. Driggs is the largest town and county seat.

The principal mineral resources of Teton County are coal, phosphate rock, natural gas, limestone, and asbestos; and there are excellent possibilities for the discovery of petroleum. This county is one of the few in the State in which coal occurs in commercial quantity. Compared with the coal...
produced at Rock Springs, Wyoming, it is equal in quality and similar in appearance. As well as being of excellent quality for domestic and industrial purposes, it is especially adaptable for powdered coal.

The principal coal-bearing area is the Horseshoe district, seven miles west of Driggs. This district has never been sufficiently developed to prove the number or extent of the coal beds. Those which have been proved vary from one to eleven feet in thickness and repose at an angle of approximately 45 degrees. The Horseshoe district has been examined by the U. S. Geological Survey and by the U. S. Bureau of Mines in cooperation with the Idaho Bureau of Mines and Geology. The reports issued by these organizations are listed in the bibliographies, to which the reader is referred for complete descriptions, analyses, and tonnage estimates.

1931 Activities

The Grand Teton Oil Co., which is one of the principal companies in the State engaged in developing the oil and gas resources, was active throughout a large part of the year. Its Blevins No. 1 well was extended approximately 750 feet; the well was then underreamed and casing set to a depth of 3,100 feet; its Bevan No. 1 well was extended 350 feet. In addition to the foregoing, a well was drilled for water and pumping equipment installed. This company's drilling machinery is steam-driven, the power being derived from coal obtained from a near-by mine.

The Gem State Coal Mining Co., a new organization which obtained the property formerly owned by the Teton Coal Co., late in the year commenced rehabilitating the main operating tunnel. Press reports were to the effect that the mine was to be operated on a community basis.

Lessees at the property of the Idaho Coal Mining Co. produced and sold a small tonnage of coal, which was delivered from a surface bin directly to the trucks and wagons of the purchaser. The Superior Coal Mining Co. employed a few men on development work during the summer.

**GEM STATE COAL MINING CO.**

**Office:** Idaho Falls. **Officers:** H. Anderson, Pres.; A. H. Wilkie, Sec., both of Idaho Falls. **Inc.:** Oct. 6, 1931. **Capital:** 1,000,000 shares; par value $1; 475,000 shares issued. **Property:** Brown Bear group; 1240 acres of patented land, Horseshoe dist.; Sam. **Development:** By an inclined shaft 650 ft. long and a 5400-ft. crosscut. **Plant:** Steam-driven hoist; 2 steam-driven compressors; tipple capable of handling 1000 tons in 24 hours. **Mineral sought:** Coal. **Remarks:** A new organization on the property formerly owned by the Teton Coal Co. Late in the year work was started in rehabilitating the main operating tunnel. Press reports were to the effect that the mine was being operated on a community basis.

**GRAND TETON OIL CO.**

**Office:** Earl Bldg., Idaho Falls. **Officers:** Geo. W. Edgington, Pres., Idaho Falls; Leo F. Smith, Sec., Seattle, Wash. **Inc.:** Aug. 9, 1928. **Capital:** 250,000 shares; par value $1; April 12, 1930, increased to 1,000,000 shares; 786,000 shares issued. **Property:** Oil and gas lease on 13,000 acres patented and government land lying 11 miles west of Driggs. **Development:** Blevins No. 1 well, 3100 ft. deep; Bevan No. 1 well, 1815 ft. deep. **Plant:** 2 complete well-drilling rigs and equipment. **Mineral sought:** Oil and gas. **Men employed:** Average, 11. **Remarks:** This organization, in 1929, acquired the holdings of the Teton Land & Leasing Co. and its equipment and a large additional acreage, installed additional well-drilling equipment, and started sinking two wells known as Blevins No. 1 and Bevan No. 1. During 1931 Blevins No. 1 was extended 750 ft. and Bevan No. 1, 350 ft. In addition to the foregoing, a well was drilled for water and pumping equipment was installed. The company's drilling machinery is steam-driven, the power being derived from coal obtained from a near-by mine.
IDaho COAL MINING CO.
Office: Driggs. Officers: Peter Mickelsen, Pres., Rexburg; J. F. Miller, Sec., Rigby. Inc.: Aug. 13, 1926. Capital: 100,000 shares; par value $1. Remarks: Failed to file the reports required by law, although three times requested to do so. Lessees produced and sold a small tonnage of coal, which was delivered from a surface bin directly to the trucks and wagons of the purchaser.

SUPERIOR COAL MINING CO.

TIETON VALLEY LAND & LEASING CO.

BIBLIOGRAPHY
See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


VALLEY COUNTY

Valley County occupies the geographical center of the State. It is bounded on the north by Idaho, on the east by Lemhi and Custer, on the south by Boise, and on the west by Gem and Adams counties. It contains an area of 3,779 square miles, and was accredited with a population of 3,488 in the 1930 census, or 0.9 persons to the square mile. The principal industries are farming, stockraising, lumbering and mining. Cascade is the county seat.

The State highway, Payette, extending from Boise to Cascade, McCall, and New Meadows, is the principal highway; the Forest Service highways from Cascade to Landmark and Yellow Pine, and from Landmark into Deadwood Basin and Bear Valley, connecting with the Sawtooth Park and Payette highways, are practically completed and opened to travel. The Nampa-McCall branch of the O. S. L. Railroad is the only railroad in the county.
Isolation and lack of transportation have prevented mineral development and compelled many valuable properties to lie idle, but the system of forest roads which has been designated and partly constructed, is making many of the various sections accessible to travel, and is stimulating mining. When these roads are completed the largest undeveloped mineralized area in the State will become available to profitable development and exploitation. The fact that this county had the largest increase (38.2 per cent) in population of any county in the State during the interim from the 1920 to the 1930 census verifies this prediction.

The principal mineral resources of Valley County are gold (placer and lode), lead, silver, zinc, antimony, mercury, copper, tungsten, molybdenum, and monazite. Many mines containing these minerals are undeveloped but justify the finances to prove their possibilities, and many others warrant investigation. These properties and the possibilities in undiscovered veins present many opportunities to the investor, prospector, and development company.

1931 Activities

Early in the year the Yellow Pine Co. decided that sufficient ore had been developed to warrant the construction of a 150-ton pilot mill. In order that operations in advancing the Monday tunnel would not be interrupted, and as there was a large tonnage available above the level of Meadow Creek tunnel, this camp was selected as the location for the mill. Plans were then made for the year, and a large sum was appropriated to carry them out. By the close of the year the expenditures in new mine work and construction had exceeded those of any other company in the State. The work was carried on by approximately 200 men, divided into 10 crews, under the supervision of Geo. W. Worthington, mine superintendent. Besides directing all of the work successfully and expeditiously, he established a new tunnel-driving record for the United States, by advancing the Monday tunnel 663.6 feet during the month of August. Construction of the mill was started in June; the building was erected, equipment completely installed, and the mill was ready to start at the close of the year. In addition to the mill building, a new cook house, bunk house, and store building were constructed, and the company assisted the employees in building 13 residences. The mine work was divided into four separate operations: crosscutting and drifting on the 200 and 400 foot levels in the shaft in Meadow Creek tunnel; advancing Monday tunnel, Cinnabar tunnel, and Antimony tunnel. The other principal activities included: moving the South Meadow Creek power plant into the mill building, reconstructing the pipe line and constructing a 40-foot earth-filled dam at the intake; covering the 11,000-foot redwood pipe of Meadow Creek power plant to prevent freezing, 4,000 feet being buried and 7,000 feet being boxed, then filled with sawdust and covered; logging and sawing of more than 1,000,000 feet of lumber and cutting and delivering to the yards 80,000 feet of mine timber. The company assisted in constructing 4 miles of road down the river from Yellow Pine for the development of the proposed site of a large hydroelectric power plant and in establishing a public school, which is conducted in the original Meadow Creek camp building.

The Bunker Hill & Sullivan M. & C. Co., at the Hall Interstate-Lost Pilgrim mine, carried on normal operations and production until May, when the mine was closed and a small crew for maintenance purposes only was kept at work. Lead-silver and zinc concentrates were shipped to the company’s plant at Kellogg.

New camp buildings were erected and work started on building and installing a 5-stamp mill at the Wordenhoff mine of the Keystone Gold Mines, Inc., in the Edwardsburg district. This company was active throughout the year, and, in addition to the new construction, did a substantial amount of mine development work.

The Mary Jane Mining Co., a new organization, whose property is located near the Merry Blue mine, in the Deadwood district, reported active operations during the summer months and that the construction of a 10-ton mill had been commenced.
The Amalgamated Red Metals Mines Co. was active for three months. The Copper Camp Mining Co. reported the construction of a new camp building.

In the Thunder Mountain district, McKae and Davis maintained work at the Sunnyside mine throughout the summer and operated their mill intermittently. This district, as well as the Big Creek and Edwardsburg districts, received a large amount of attention and examination by those seeking gold-mining enterprises. In selecting districts deemed favorable for the discovery of new gold deposits, in which to conduct geological surveys, the Idaho Bureau of Mines and Geology, in cooperation with the United States Geological Survey, chose these districts and commenced work on a new geological survey.

**AMALGAMATED RED METALS MINES CO.**

**BIG CREEK GOLD MINES, INC.**

**BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.**
(See Shoshone County.)
Officers: F. W. Bradley, Pres., 1022 Crocker Bldg., San Francisco, Calif.; Stanly A. Easton, Mgr., Kellogg; C. Y. Garber, Local Mgr., Bernard, Via Cascade. Property: Lease and option on mines owned by Hall Interstate Mining Co. and Lost Pilgrim Mining Co., Deadwood dist.; Cascade, 52 miles; Bernard. Development: Principally by the Independence tunnel 7000 ft. long, in which is a 700-ft., 3-compartment raise with 4 intermediate levels; total development, over 13,000 ft. on both groups. Plant: MINE: 160-kw. hydroelectric power plant operating under a 520-ft.
head; 375-kw. hydroelectric power plant operating under a 180-ft. head; 385 cu. ft. I-R compressor; storage-battery locomotive haulage; saw­mills; complete mining equipment and camp. MILL: 100-ton flotation concentrator. Ore: Lead-silver-zinc. Men employed: Average, 45. Remarks: Normal operations and production were carried on until May, when the mine was closed and a small crew for maintenance purposes only was kept at work. The lead-silver and zinc concentrates were shipped to the company's plant at Kellogg. This enterprise is fully described, with illustrations, in the Thirty-second Ann. Rept. of the Mining Industry of Idaho, for the Year 1930, pages 32 to 40.

CASCADE VALLEY CORPORATION

COPPER CAMP MINING CO.

COPPER CLIFFS MINING CO.

DEADWOOD MINING CO., LTD.

GOLD FORK MINING CO.

GREAT NORTHERN MINES CO.

HALL INTERSTATE MINING CO.

HOLCOMB CO., LTD.
VALLEY COUNTY

HURLEY CREEK MINING & MILLING CO.  

IDAHO CENTRAL MINES CO.  

INDEPENDENCE MINES & POWER CO.  

KEYSTONE GOLD MINES, INC.  
Office: 415 Mutual Life Bldg., Seattle, Wash. Officers: J. B. Mason, Pres.-Mgr.; George Delius, Sec., both of Seattle, Wash. Inc.: Feb. 25, 1929. Capital: 2,000,000 shares; par value $1; 1,303,193 shares issued. Property: Wordenhoff group; 21 unpatented claims, Edwardsburg dist.; Warren; held under lease and option. Development: By 7 tunnels, the principal one of which is over 900 ft. long. Ore: Gold. Men employed: Average, 10. Remarks: New camp buildings were erected and work was started on building and installing a 5-stamp mill. A substantial amount of mine development work was also done.

MILL AND CAMP OF KEYSTONE GOLD MINES, INC.

LOST PILGRIM MINING CO.  
Office: Boise. Officers: Chas. W. Mack, Sec., Boise. Inc.: Nov. 22, 1921. Capital: 600,000 shares; par value $1; 355,144 shares issued. Property: Lost Pilgrim group; 8 unpatented claims, Deadwood dist.; Knox. Development: By 2 tunnels: No. 1, 400 ft. long; No. 2, 300 ft. long; and 1 ver-
tical shaft 40 ft. deep, at the bottom of which is a 70-ft. drift; also by
Independence tunnel. Total development, approximately 2500 ft. Ore:
Silver-lead-zinc. Remarks: Under lease and option to Bunker Hill & Sul-
 livan M. & C. Co.

MARY JANE MINING CO., LTD.
Sec.; George A. Relyea, Mgr., both of New Plymouth. Inc.: Not filed in
Idaho. Capital: Unknown. Property: Mary Jane group; 5 unpatented
claims, Deadwood dist.; Cascade. Development: By 1 tunnel 385 ft. long.
Ore: Gold-silver. Men employed: Average, 5. Remarks: Company re-
ported active operations during the summer and that construction of a
10-ton mill had been commenced.

MERRY BLUE MINES CORPORATION
Office: 411 State Tower Bldg., Syracuse, N. Y. Officers: Cornelius Dorr,
Jr., Pres.; Daniel Denison, Sec., both of Syracuse, N. Y.; Lee Bunch,
Mgr., Boise. Inc.: Nov. 14, 1930. Capital: 250,000 shares; par value $1;
all shares issued. Remarks: Failed to file the reports required by law.

PROFILE-TAMARACK MINES CO.
both of 1214 Porter Bldg., Portland, Ore.; H. T. Abstein, Mgr., Yellow
Pine. Inc.: June 18, 1926. Capital: 20,000 shares, no par value; increased
Apr. 23, 1930, to 5,000,000 shares, par value 25c; 888,932 shares issued.
Property: 36 unpatented claims, Missouri and Profile creeks, Yellow Pine
dist.; Yellow Pine. Development: By 7 tunnels, the longest of which is
450 ft. Ore: Lead-silver, copper-gold. Men employed: Average, 3. Re-
marks: Annual labor only.

PROSPECTORS MINING & DEVELOPING CO., LTD.
Office: 710 Main St., Boise. Officers: John R. Clark, Pres., Escalon, Calif.;
Oliver G. Clark, Sec-Treas.; Asaph D. Clark, Mgr., both of Boise. Inc.: Apr.
12, 1906. Capital: 1,000,000 shares; par value 10c; 500,000 shares issued.
Property: Rapid Creek group; 34 unpatented claims; McCall. Development: By 2 short tunnels. Ore: Gold-silver. Men employed:
Average, 7. Remarks: Active during the summer.

SMITH CREEK HYDRAULIC MINING CO., INC.
Office: P. O. Box 421, Boise. Officers: C. W. Arbogast, Pres.; H. M. Nel-
son, Sec., both of Boise. Inc.: Sept. 11, 1928. A reorganization of the
Smith Creek Hydraulic Mining Co. Capital: 750,000 shares; no par value;
413,867 shares issued. Property: Smith Creek group; 18 unpatented
placer claims, held under lease and option, Edwardsburg dist.; Warren.
Ore: Placer gold. Men employed: Average, 2. Remarks: A small amount
of work during the summer.

SOUTH SALMON PLACER MINING CO.
J. F. Koelsch, Sec., both of Boise. Inc.: Jan. 20, 1921. Capital: 5,000,000
shares; par value 10c; 4,500,000 shares issued. Property: 11 patented,
426 unpatented claims, consisting of 3 groups: Hermes, principal ore,
cinnabar; Meadow Creek, principal ore, gold; Babbitt Metal, principal
ore, antimony; Yellow Pine dist.; Yellow Pine. Remarks: All properties
under option to Yellow Pine Co., which see.
WARM SPRINGS LODE MINING CORPORATION


YELLOW PINE CO.

Office: 1022 Crocker Bldg., San Francisco, Calif. Officers: Fred W. Bradley, Pres.; E. A. Griffen, Sec., both of San Francisco; Geo. W. Worthington, Supt., Stibnite. Inc.: Filed in Idaho: May 25, 1928. Capital: 200,000 shares; par value $1; 62,605 shares issued. Property: Antimony group, 80 claims; Meadow Creek group, 160 claims; Cinnabar group, 240 claims; Yellow Pine Country placer group, 30 claims; 9 of which are patented; held under lease and option from United Mercury Mines Co.; Yellow Pine dist.; Stibnite and Yellow Pine. Development: Meadow Creek group: Meadow Creek tunnel, more than 3000 ft. long, 2 inclined raises in which are 3 intermediate levels, and a vertical shaft 400 ft. deep, total development, more than 6000 ft.; Monday tunnel, 6000 ft. long. Cinnabar group: Cinnabar tunnel 2000 ft. long; Antimony tunnel 300 ft. long. Plants: MINE: Meadow Creek Camp: 12x10 I-R compressor and Ottumwa hoist, both electrically driven; steel sharpener; oil furnaces; sawmill; complete mining equipment and camp. Monday Camp: One 300 cu. ft. 12x10 I-R compressor; one 620 cu. ft. Imperial type I-R compressor, Roots positive blower, all electrically driven; steel sharpeners; oil furnaces; storage-battery locomotive haulage; complete mining equipment and machine shop; complete and modern mine and camp buildings. MILL: 150-ton fine-grinding flotation followed by cyanidation. POWER: South Meadow Creek hydroelectric plant, 75-kw., driven by Pelton water wheel under a 422-ft. head; Meadow Creek hydroelectric plant, 525-kw., driven by Pelton water wheel under a 520-ft. head, water delivered through an 11,000-ft. 28-inch redwood pipe and a 1620-ft. 2'4-inch steel penstock; 5 miles of transmission lines. Ore: Mercury, gold-silver-antimony. Men employed: Average, 200. Remarks: This company's expenditures in new mine work and construction exceeded those of any other company in the State. The work was carried on by approximately 200 men, divided into 10 crews, under the supervision of Geo. W. Worthington, mine superintendent. Besides directing all of the work successfully and expeditiously, he established a new tunnel-driving record for the United States, by advancing the Monday tunnel 663.6 ft. during the month of August. Construction of the mill was started in June; the building was erected, equipment completely installed, and the mill was ready to start at the close of the year. In addition to the mill building, a new cook house, bunk house, and store building were constructed, and the company assisted the employees in building 13 residences. The mine work was divided into four separate operations: crosscutting and drifting on the 200 and 400-ft. levels in the shaft in Meadow Creek tunnel; advancing Monday tunnel, Cinnabar tunnel, and Antimony tunnel. The other principal activities included: moving the South Meadow Creek power plant into the mill building, reconstructing the pipe line and constructing a 40-ft. earth-filled dam at the intake; covering the 11,000-ft. redwood pipe of Meadow Creek power plant to prevent freezing, 4000 ft. being buried and 7000 ft. being boxed, then filled with sawdust and covered; logging and sawing of more than 1,000,000 ft. of lumber and cutting and delivering to the yards of 80,000 ft. of mine timber. The company assisted in constructing 4 miles of road down the river from Yellow Pine for the development of the proposed site of a large hydroelectric power plant and in establishing a public school, which is conducted in the original Meadow Creek camp building. For a complete description of this enterprise see pages 32 to 40.
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**BIBLIOGRAPHY**

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


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Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, 1912. §


WASHINGTON COUNTY

Washington is one of the southwestern counties, adjoining and lying north of Payette and Gem counties, east of Gem, and east and south of Adams County. The Snake River, which flows north, forms the entire western boundary. The county contains an area of 1,479 square miles, and was accredited with a population of 7,962 in the 1930 census. It is primarily an agricultural and stockraising community; that part which occupies the Snake River Valley is intensively cultivated, and is the location of the larger part of the population. Weiser is the county seat.

The North and South highway extends from the southern to the northern boundary and is situated about in the geographical center. Branch roads leading to all the settlements are maintained by the county; these are kept in good repair and open to travel the larger part of the year. The county is served by three railroads, the Pacific and Idaho Northern, which extends from Weiser to New Meadows; the main line of the O. S. L. Railroad, and the Huntington-Robinette, Oregon, branch of the same road.

The principal mineral resources are silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, and garnet, practically all of which occur in the three mining districts—Washington, Cuddy Mountain, and Heath—the principal of which is the Washington, or Mineral, district; and natural gas near Weiser. At one time the Mineral district was a large producer of silver; two blast furnaces were in operation, and the camp of Mineral was a goodsized town; but it has been deserted for many years, the smelters have been dismantled, and the district has almost reverted to its primitive condition. Nearly all the deposits are high-grade silver-copper ores, rather complex, and in some mines partly oxidized, but amenable to modern flotation methods. Many of the deposits in this district are extensive, a large tonnage of ore is available, and there appears to be no reason why the district should not be receiving more attention than it has during the past few years, as there are many properties that are worthy of investigation and development. Large deposits of pyrites and disseminated copper ore also occur in this district.
1931 Activities

The wide publicity given to the encountering of natural gas by the Crystal Dome Oil & Gas Co. in 1930 and the operations of the Ohio Oil Co. at the Crystal Dome property during 1931 attracted a large amount of attention to this county and resulted in the organization of many new companies, although none of them commenced drilling operations.

The gold resources of the Cuddy Mountain district received a small amount of attention during the summer, but the Mineral district, the principal product of which is silver, was idle throughout the year.

CRYSTAL DOME OIL & GAS CO.

CUDDY MOUNTAIN GOLD MINING CO.

GOLD BOND DEVELOPMENT CO.

IDAHO MINERAL MINING CO.

IDAHO-OREGON COAL MINING CO.

INDIAN HEAD CALCITE CO.

MIDVALE OIL & GAS CO.
WASHING'TON COUNTY 273

MOUNTAIN STATES OIL & GAS CO.

SILVER STILL MINING CO.

WEISER GAS & PETROLEUM CO.

NAME OF MINE MINING DIST. OWNER P. O. ADDRESS
Alcorn Gr. Cuddy Mt. J. I. Burden Council
Copper Bell Gr. Washington J. R. Weaver Home, Ore.
Copper King Ext. Heath H. H. Mack Baker, Ore.
Cuddy Mt. Gr. Cuddy Mt. W. E. Frechafer Council
Edna May Heath Roy Howland Home, Ore.
Fernwood Heath WM. Ulrich Home, Ore.
Jonsall Washington John Seigwein Weiser
Keystone Cuddy Mt. E. C. Jones Huntington, Ore.
Last Chance Gr. Cuddy Mt. G. T. Hamill Fruitvale
L. T. Claim Cuddy Mt. L. J. Thibault Council
Magdalene Gr. Washington J. R. Weaver Council
No Business Heath Howland & Home, Ore.
Canon Cuddy Mt. Levander Fruitvale
Pin Money Gr. Mineral F. J. Kennedy Council
Porcupine Gr. Cuddy Mt. J. T. Morris Council
Raymond Heath Paul Raymond, Sr. Heath
Rinehart Gr. Cuddy Mt. Rinehart & Bloomfield Council
River Bank Gr. Cuddy Mt. Earl Kerr Council
S. & R. Gr. Cuddy Mt. Summertime & Riley Payette
Sunshine Idaho Gr. Cuddy Mt. H. A. Arnold Council
View of the Valley Heath J. H. Schlehuber Cambridge

BIBLIOGRAPHY
See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


**UNKNOWN MINING AND OIL COMPANIES**

Companies whose corporate charters are in good standing, for which information is entirely lacking, and which are not mentioned elsewhere in this report, because they failed to file with the inspector of mines the reports required by law:

<table>
<thead>
<tr>
<th>COMPANY NAME</th>
<th>OFFICER</th>
<th>P. O. ADDRESS</th>
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</thead>
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<tr>
<td>Black Hawk Mining Co., Inc.</td>
<td>O. A. Giles</td>
<td>Freewater, Ore.</td>
</tr>
<tr>
<td>Golden Separation Mining Co., Inc.</td>
<td>Geo. R. Colvin</td>
<td>1203 N. 13th St., Boise</td>
</tr>
<tr>
<td>Key Placers Corporation</td>
<td>D. W. Henderson</td>
<td>502 Columbia Bldg., Boise</td>
</tr>
<tr>
<td>Mineral Products Corporation</td>
<td>Geo. R. Parks</td>
<td>Boise</td>
</tr>
</tbody>
</table>

**GENERAL BIBLIOGRAPHY**

See pages 7-8 for publisher's address, meaning of reference marks, and abbreviations.


**GENERAL REFERENCES**


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An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, 1912.§


(Participant in the peneplain discussion, p. 210.)
(The Idaho peneplain discussion, p. 257.)
CINNABAR

Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, 1918.*

COAL

A geological reconnaissance across the Bitterroot Range and Clearwater Mountains, in Montana and Idaho, by Waldemar Lindgren: U. S. Geol. Survey Prof. Paper 27, pp. 111-113, 1904. (Clearwater County.)*
The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, pp. 379-388, 1912. (Teton County.)*
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MONAZITE


OIL AND GAS

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Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 728, 1923.†


Possibilities of petroleum in Power and Oneida Counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, 1924.**

Geology and oil possibilities of Bingham, Bonneville, and Caribou counties, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Bull. 8, 1924.**

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., 1925.§

PHOSPHATE

(Principal references only)


Geography, geology, and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, 1920.‡


Geography, geology, and mineral resources of part of southeastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Prof. Paper 152, 1927.**

The Idaho phosphate field, by G. R. Mansfield: Mining and Metallurgy, vol. 9, No. 253, Jan., 1928.§
SNAKE RIVER GOLD


The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, 1902.


Annual reports of the Idaho Inspector of Mines, 1899 to 1919.
The total value of the gold, silver, lead, zinc, and copper produced in Idaho in 1931 was $12,938,621.27, a decrease of $9,319,862.07 as compared with that of 1930, which was $22,258,483.14. The production of gold decreased more than 2,000 ounces and that of the other metals has never been less in 30 years. The low production and the low value of lead, silver, zinc, and copper were caused by the world-wide depression, which greatly decreased metal prices, and which caused many companies to curtail production and others to suspend entirely; while the decline in gold production was caused by the closing of two large producers on account of disastrous fires. Excepting Bonner, Camas, Clearwater, and Elmore counties, every metal-producing county witnessed the lowest production in many years. The increase in these counties, excepting Bonner, was from new gold-mining enterprises. The number of producers increased by 77, all of which, with one exception, were small gold-mining operations. These increases are indicative of an expansion in gold mining and of the attention directed to the gold resources of the State.

Shoshone County continued to maintain its position as the principal mining county in the State. As all other counties suffered a greater decline in proportion to the output, its rank in percentage as compared with the rest of the State was higher than in 1930, being 95.03 per cent in 1931 and 91.82 per cent in 1930. Its total production in 1931 was valued at $12,295,656.42 and $20,438,084.32 in 1930. This county was first in the production of lead, silver, zinc, and copper. Boise County was first in the production of gold. All the copper produced in Shoshone County was derived as a by-product from lead, silver, and zinc ores; while Lemhi was the only county to market any copper ore. The respective rank of the principal mining counties in point of total production was: Shoshone, Boise, Valley, Bonner, Idaho, Lemhi, Owyhee, and Blaine.

Gold

The 1931 output of gold was 19,055.74 ounces, valued at $393,882.15, a decrease of 2,018.78 ounces and $43,030.39, as compared with that of 1930, which was 21,137.52 ounces, valued at $436,912.54. This decrease was not as significant as the figures indicate, as there was a large loss in gold recovered as a by-product from lead, silver, zinc, and copper ores, and a loss caused by the closing of the Belshazzar mine of the Idawa Gold Mining Co., the Gold Hill and Iowa mine of the Talache Mines, Inc., and the suspension of the operations of the Idaho Gold Dredging Corporation, the latter two as the result of fires. This decrease was almost overcome by a substantial increase in production from prospectors, small enterprises, and the new dredge of the Idaho Gold Dredging Co., at Warren, in Idaho County.

The respective rank of the leading mining counties in point of gold production was: Boise, Idaho, Lemhi, Valley, Owyhee, Shoshone, Elmore.

The principal gold-producing companies and their respective ranks were: Talache Mines, Inc., Boise County; Idaho Gold Dredging Co., Idaho County; Idawa Gold Mining Co., Idaho Gold Dredging Corporation, Boise County; Bunker Hill & Sullivan M. & C. Co., Valley County; Goldstone Mines Corporation, Lemhi County; Sherman Howe Mining Co., Idaho County; American Gold Dredging Corporation, Owyhee County; F. O. Miller, Lone Pine mine, Idaho County; Eldorado Gold Mining Co., Lemhi County.

Silver

The output of silver decreased from 9,032,888.57 ounces, with a value of $3,446,408.32, in 1930, to 7,245,719.07 ounces, with a value of $2,079,521.38, in 1931, a decrease of 1,787,169.50 ounces and a decrease of $1,366,886.94 in value. The large decrease in production was caused by the closing of a large number of mines and curtailment in production by most of the largest producers, although the Sunshine Mining Co. in Shoshone County maintained capacity production and continued to be the largest silver-producing company in the State and the second largest in the United States. The great decrease in value was due to the decrease in the price of silver from 38.154 cents per
ounce in 1930 to 28.70 cents per ounce in 1931. The decrease in production is significant also, as it indicates a decrease in the output of lead, zinc, and copper ores from which approximately 70 per cent of the total production of the State is derived. Excepting Bonner County, which recorded a slight increase, all the other counties had a large decrease.

The 1931 silver production in Shoshone County was 7,029,130.19 ounces, valued at $2,017,360.36, as compared with 8,438,208.56 ounces, valued at $3,219,514.11, in 1930. That of Bonner County for the respective years was 86,563.00 ounces, valued at $24,843.58, in 1931, and 84,357.14 ounces, valued at $32,185.62, in 1930. The production of Shoshone County, which was 97.01 per cent of the total for the State, indicates the importance of mining in the Coeur d'Alene district, particularly as Idaho produces approximately one-third of all the silver of the United States.

The order of prominence of the principal silver-producing counties was: Shoshone, Bonner, Valley, Blaine, Lemhi, Idaho, Custer.

The largest producers in Shoshone County were: Sunshine Mining Co., Bunker Hill & Sullivan M. & C. Co., Hecla Mining Co., Federal Mining & Smelting Co., Golconda Lead Mines, Dayrock Mining Co., Sherman Lead Co., and Sidney Leasing Co. In the other counties, the most important producers were: Bunker Hill & Sullivan M. & C. Co., Valley County; Whitedelf Mining & Development Co. and Hope Mining Co., Bonner County; lessees at the Independence mine of the Federal Mining & Smelting Co., Blaine County.

Lead

The production of lead decreased from 263,599,300 pounds, valued at $14,542,773.34, in 1930, to 206,443,898 pounds, valued at $8,759,414.58, in 1931, being the lowest production, with the exception of one year, and the lowest in value for more than 30 years. The average price of lead in 1931 was 4.243 cents per pound, while in 1930 it was 5.517 cents per pound, thus accounting in part for the large decrease in value.

Shoshone County furnished 98.40 per cent of the State total with a production of 203,137,254.00 pounds, which was 51,041,391 pounds less than the previous year. The mines in all the other counties, excepting Bonner, reported a large decrease.

The importance of Idaho as a lead-producing State, and particularly Shoshone County, is apparent from the fact that Idaho ranks second in the United States and produces approximately one-fourth of the entire output of the Nation.

The order of prominence of the principal lead-producing counties was: Shoshone, Bonner, Valley, Lemhi, Blaine, Boise, Custer.

The Bunker Hill & Sullivan M. & C. Co. maintained its record as the largest lead-producing company in the State, if not in the United States; the Federal Mining & Smelting Co. was second; and the Hecla Mining Co. was third. The other large lead-producing companies in Shoshone County, in their order of prominence, were: Jack Waite Mining Co., Golconda Lead Mines, Sherman Lead Co., Dayrock Mining Co., Sidney Leasing Co., Sunshine Mining Co., Tamarack & Custer Consolidated Mining Co.

The important lead producers in other counties were: Whitedelf Mining & Development Co., Hope Mining Co., Bonner County; lessees at the P-I, Allie, and Latest Out mines at Gilmore, Lemhi County; Bunker Hill & Sullivan M. & C. Co., Valley County.

Zinc

The 1931 production of recoverable zinc decreased almost one-half from that of 1930 and was approximately one-third of the 1929 production. The total for the year was 43,347,237 pounds, valued at $1,577,839.42, as compared with 75,136,539 pounds, valued at $3,425,220.72, in 1930, a decrease of 31,789,302 pounds and $845,381.30. This large decrease was caused by the low price of the metal, which compelled many producers to suspend and others greatly to curtail production. In 1930 the price of zinc averaged 4.556 cents per pound, as compared with the price of 3.64 cents per pound in 1931.
1931 METAL PRODUCTION

The electrolytic zinc plant at Kellogg, of the Sullivan Mining Co., was operated on approximately one-third capacity throughout the year, and this curtailment was reflected in the total production of the State. The Anaconda Copper Mining Co., of Anaconda, Montana, and the Sullivan Mining Co. purchased the entire State output of zinc concentrate. The metal produced by the Sullivan Mining Co. is the highest grade zinc ever obtained and is sold at a premium in price over any other zinc metal. This fact was further established by the company obtaining a substantial increase in new sales.

Shoshone and Valley were the only counties that produced a marketable zinc product. The production of Valley County was obtained from the Hall Interstate-Lost Pilgrim mine of the Bunker Hill & Sullivan M. & C. Co.


Copper

The output of copper in 1931 was one-half that of 1930 and the lowest of any year since 1903. In addition to the marked decrease in production there was a great decrease in value, due to the decrease in the price of copper, which was 12.982 cents per pound in 1930, as compared with 8.116 cents per pound in 1931. The 1930 production of copper was 3,151,814 pounds, valued at $409,168.49, as compared with 1,576,685 pounds, valued at $127,963.74, in 1931, a decrease of 1,575,129 pounds and $281,204.75 in value. The decrease in production was due to the idleness of all the copper mines and to a decrease in the output of lead, zinc, and silver ores. The only copper produced was associated with these and gold ores and was recovered by the smelters as a by-product.

The order of prominence of the principal copper-producing counties was: Shoshone, Valley, Lemhi, Custer, Boise, Bonner.

Statistics

The production statistics for 1931 are based upon the net recovered metal content of all ores or bullion produced and sold from Idaho mines. The tabulation constitutes the production as reported to the inspector's office; reports have been verified in every possible manner; and no estimates have been used in the compilation. If any error exists in the totals, it is due to unreported production, and as production statements were furnished by all the large producers, the margin of error is very small. Any unreported production would cause these figures to be larger than the amounts set forth, so this compilation represents, as nearly as possible, the correct minimum production.

The values have been figured from the average price of metals for the year, based on New York and St. Louis quotations, as published in the Engineering & Mining Journal.
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<th>County</th>
<th>Number of Producers</th>
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<th>Silver</th>
<th>Lead</th>
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### 1931 METAL PRODUCTION

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<td>35 Gold</td>
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<td>7,029,130.19 oz</td>
<td>$2,017,360.36</td>
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<tr>
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<td>8,619,113.69</td>
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<tr>
<td>Lead</td>
<td>203,137,254.00 lbs</td>
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<tr>
<td>Zinc</td>
<td>41,902,483.00 lbs</td>
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<td>Copper</td>
<td>1,478,892.00 lbs</td>
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<td><strong>Twin Falls County</strong></td>
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<tr>
<td>10 Gold</td>
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<td>Silver</td>
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<td></td>
<td>48.78</td>
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<tr>
<td><strong>Valley County</strong></td>
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<td>8 Gold</td>
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<td>675,425.00 lbs</td>
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<td><strong>Miscellaneous Counties</strong></td>
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<td>16 Gold</td>
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<td><strong>Total Value</strong></td>
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The table above presents the 1931 metal production data for various counties in the United States, including the number of producers, the quantities of gold and silver produced, and the associated values in dollars.
Number of Producers

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<tr>
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<td>Gold</td>
<td>19,055.74 oz.</td>
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<td>Silver</td>
<td>7,245,719.07 oz.</td>
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<td>Lead</td>
<td>206,443,898.00 lbs.</td>
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<td>Copper</td>
<td>1,576,685.00 lbs.</td>
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TOTAL ........................................ $12,938,621.27

MISCELLANEOUS MINERALS

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<td>Manganese</td>
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<tr>
<td>Phosphate</td>
<td>68,451.00 tons</td>
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<td>Limestone</td>
<td>32,438.00 tons</td>
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<tr>
<td>Coal</td>
<td>1,900.00 tons</td>
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TOTAL ........................................ $264,895.50

GRAND TOTAL ................................... $13,203,516.77

ANNUAL METAL OUTPUT FOR IDAHO SINCE 1903

(Statistics for 1903 to 1920, inclusive, from U. S. Geol. Survey Mineral Resources. Statistics for subsequent years from Annual Reports, Mining Industry of Idaho.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gold</th>
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<th>Lead</th>
<th>Zinc</th>
<th>Copper</th>
<th>Value</th>
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<tbody>
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<tr>
<td>1904</td>
<td>82,739 oz</td>
<td>7,666,382 oz</td>
<td>233,096,375 lbs</td>
<td>5,265,597 lbs</td>
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</tr>
<tr>
<td>1905</td>
<td>52,033 oz</td>
<td>8,679,093 oz</td>
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</tr>
<tr>
<td>1906</td>
<td>55,588 oz</td>
<td>9,018,815 oz</td>
<td>255,014,446 lbs</td>
<td>2,065,597 lbs</td>
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Total value ................................ $14,526,833

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<th>Copper</th>
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Total value ................................ $16,933,405

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Total value ................................ $19,743,620

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Total value ................................ $23,698,400
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<th>Lead (lbs)</th>
<th>Zinc (lbs)</th>
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<td>7,369,742</td>
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<td>66,389</td>
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<td>Zinc</td>
<td>Copper</td>
<td>Total Value</td>
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### ANNUAL METAL PRODUCTION SINCE 1903

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<th>Lead</th>
<th>Zinc</th>
<th>Copper</th>
<th>Total Value</th>
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<td>1921</td>
<td>26,750.76 oz.</td>
<td>6,184,989.73 oz.</td>
<td>210,100,194.00 lbs.</td>
<td>1,818,313.00 lbs.</td>
<td>1,380,168.00 lbs.</td>
<td>$16,564,014</td>
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<tr>
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<td>22,178.39 oz.</td>
<td>6,149,336.15 oz.</td>
<td>255,266,476.00 lbs.</td>
<td>34,690,620.00 lbs.</td>
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<tr>
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<td>36,506.23 oz.</td>
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<tr>
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<td>26,237.21 oz.</td>
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<tr>
<td></td>
<td>20,108.41 oz.</td>
<td>7,708,938.55 oz.</td>
<td>265,302,880.00 lbs.</td>
<td>37,110,647.00 lbs.</td>
<td>3,370,016.00 lbs.</td>
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<tr>
<td></td>
<td>14,754.64 oz.</td>
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<td>53,922,120.00 lbs.</td>
<td>1,381,334.00 lbs.</td>
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<tr>
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<td>15,592.01 oz.</td>
<td>8,896,293.05 oz.</td>
<td>312,770,885.00 lbs.</td>
<td>64,479,833.00 lbs.</td>
<td>2,362,863.00 lbs.</td>
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</tbody>
</table>

*Gold, Silver, Lead, Zinc, Copper production in ounces (oz.) and pounds (lbs.). Total value in dollars ($)*
## Mining Industry of Idaho

### 1928

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>20,739.95 oz.</td>
<td>$ 428,694.77</td>
</tr>
<tr>
<td>Silver</td>
<td>8,987,484.00 oz.</td>
<td>5,228,558.70</td>
</tr>
<tr>
<td>Lead</td>
<td>302,590,871.00 lbs.</td>
<td>19,078,354.41</td>
</tr>
<tr>
<td>Zinc</td>
<td>74,334,543.00 lbs.</td>
<td>4,480,142.90</td>
</tr>
<tr>
<td>Copper</td>
<td>2,644,301.00 lbs.</td>
<td>385,274.66</td>
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</table>

Total value: $29,601,025.44

### 1929

<table>
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<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Gold</td>
<td>20,741.62 oz.</td>
<td>$ 428,729.29</td>
</tr>
<tr>
<td>Silver</td>
<td>9,446,654.44 oz.</td>
<td>5,006,065.59</td>
</tr>
<tr>
<td>Lead</td>
<td>312,151,644.00 lbs.</td>
<td>21,329,321.83</td>
</tr>
<tr>
<td>Zinc</td>
<td>110,767,523.00 lbs.</td>
<td>7,212,181.10</td>
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<tr>
<td>Copper</td>
<td>5,736,497.00 lbs.</td>
<td>1,038,707.51</td>
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</table>

Total value: $35,016,005.32

### 1930

<table>
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<tr>
<th>Material</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Gold</td>
<td>21,137.52 oz.</td>
<td>$ 436,912.54</td>
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<tr>
<td>Silver</td>
<td>9,032,888.57 oz.</td>
<td>3,446,408.32</td>
</tr>
<tr>
<td>Lead</td>
<td>263,599,300.00 lbs.</td>
<td>14,542,773.34</td>
</tr>
<tr>
<td>Zinc</td>
<td>75,136,539.00 lbs.</td>
<td>3,423,229.72</td>
</tr>
<tr>
<td>Copper</td>
<td>3,151,814.00 lbs.</td>
<td>409,168.49</td>
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</table>

Total value: $22,258,483.41

### 1931

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
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<tbody>
<tr>
<td>Gold</td>
<td>19,055.74 oz.</td>
<td>$ 393,882.15</td>
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<tr>
<td>Silver</td>
<td>7,245,719.07 oz.</td>
<td>2,073,521.38</td>
</tr>
<tr>
<td>Lead</td>
<td>206,443,898.00 lbs.</td>
<td>8,758,414.58</td>
</tr>
<tr>
<td>Zinc</td>
<td>43,347,287.00 lbs.</td>
<td>1,577,839.42</td>
</tr>
<tr>
<td>Copper</td>
<td>1,576,685.00 lbs.</td>
<td>127,953.74</td>
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Total value: $12,938,621.27
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