Forty-second
Annual Report
of the
Mining Industry
of Idaho
For the Year
1940

Fifty Years of Statehood
1890-1940

ARTHUR CAMPBELL
Inspector of Mines
Boise, Idaho
FORTY-SECOND
ANNUAL REPORT

OF THE

Mining Industry
of Idaho

FOR THE YEAR
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ARTHUR CAMPBELL
Inspector of Mines

MARIE CARROLL SAVAGE
Secretary
HONORABLE C. A. BOTTOLEFSEN
Governor, State of Idaho
Chairman
Board of Control
Idaho Bureau of Mines and Geology
LETTER OF TRANSMITTAL

To His Excellency,

THE HONORABLE C. A. BOTTOLFSEN,
Governor of Idaho.

SIR:

In compliance with the provisions of Section 46-111, Idaho Code Annotated, I have the honor to transmit herewith the annual report of the Inspector of Mines for the year ended December 31, 1940.

Respectfully submitted,

ARThUR CAMPBELL,
INSPECTOR OF MINES.
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KNOW YOUR IDAHO

From time to time throughout this book will be found brief sketches of important events in the history of Idaho. Taken together they form the historical foundation of the glorious state in which we live. You will find them both interesting and informative.

1805

The heroic Lewis & Clarke expedition, guided by that intrepid Indian woman, Sacajawea, entered Idaho enroute to the Pacific ocean. Difficulty was encountered in finding a passage through the rugged mountains. An attempt to travel through the wild Salmon river canyon had to be abandoned, and the crossing was finally made over the Bitter Root range and down the valley of the Clearwater, where 55 years later the gold that turned the eyes of the world toward Idaho was discovered.

1809

David Thompson, representative of the Northwest Fur Company, built Idaho’s first trading post on the northeast shore of Lake Pend Oreille, near the location of the present town of Hope. The post was known as Kullyspell House. It was destroyed by forest fire in 1835 and its exact location lost until rediscovered in 1923 by an old Indian who was blind but had a clear memory. This marked the beginning of the fur trade.

1834

Idaho’s wealth of beaver was attracting trappers and fur traders to the territory. Fort Hall was established by Nathaniel Wyeth on the banks of the Snake in the eastern part of the state. Fort Boise was built 250 tortuous miles farther west. Both places were to serve as welcome rest stops for future immigrant trains Oregon-bound.
MINING INDUSTRY OF IDAHO

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, 29 West 39th St., New York City
Am. Mineralogist .......................................................................................... American Mineralogist, Princeton, N. J.
Canada Geol. Survey Ann. Rept., Canada Geological Survey Annual Report, 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
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
Mines and Minerals .......................................................................................... Mines and Minerals†
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†
 KNOW YOUR IDAHO 

1836

The first white women arrived in Idaho. They were the wives of Marcus Whitman and Henry H. Spalding, who came to the territory to do missionary work among the Indians. This work came to a tragic end in 1847, when the Whitmans were massacred by Cayuse Indians and the Spaldings withdrew from the territory.
INTRODUCTION

The purpose of this issue of the "Mining Industry of Idaho" is to give a fairly accurate report of mining activities for the year 1940, including information and statistics relative to mines and mining, the mineral resources of the state and the capital structure of companies doing business in Idaho, with a review of the production of gold, silver, copper, lead and zinc for the year 1940. 4000 copies of this book are printed each year. Excepting a pamphlet containing the mining laws it is the only publication issued for free distribution by the department and copies are furnished on request until the supply is exhausted.

It should be understood that not all the material contained herein is original. The "Mining Industry of Idaho" is more of an informal report or handbook that embodies the combined effort and cooperation of individuals, federal and state bureaus, newspapers, mining magazines and other agencies contributing in an unselfish manner to make this publication both interesting to the general public and of permanent record.

The entire history and development of the state of Idaho has a background of mining. At present mining is the second largest industry in the state and the source of livelihood for more than 50,000 persons. It is the principal industrial support of many thriving communities. Its expenditures for labor, materials and supplies, power and transportation run into millions of dollars annually. It uses millions of feet of timber each year, forms a near and ready market for food commodities produced in the state's agricultural sections and furnishes one of Idaho's important sources of employment. Wages and salaries paid by the industry each year amount to approximately $9,000,000. It expends more than $5,000,000 for materials and supplies. Another $6,000,000 is spent for ore transportation and smelting. The industry pays approximately $2,000,000 each year in taxes.

Idaho is a well mineralized state. Since gold was first discovered at Pierce City in 1860, the total metal production amounts to over $1,300,000,000. The great diversity of mineral wealth establishes Idaho as one of the principal mining states of the union.

Most of the production for the past eighty years has been confined to gold, silver, lead, zinc and copper. However, many of the so-called "strategic minerals" which have been described by the Army and Navy Munitions Board as being of first importance in event of war, occur in Idaho. Among these are aluminum, found in the form of kaolinite clays in Latah and Payette counties; antimony, found near Stibnite and Yellow Pine in Valley county; manganese, in Lemhi, Bannock and Benewah counties; mica deposits in Latah, Adams and Cassia counties; quicksilver, in Valley and Washington counties; and tungsten, in Lemhi county.

One of the most extensive deposits of phosphate rock in the entire world occurs in the southeastern portion of the state. Estimates of the available tonnage of phosphate rock in Idaho credit the state with a tonnage exceeding that of the entire United States and indicate that this rock constitutes the greatest potential mineral wealth of Idaho.

The mining industry is acknowledged as an important economic asset and the mineral potentialities of Idaho are well established. This department and the mining fraternity are looking forward with confidence and enthusiasm to an ever greater expansion of the mining industry in Idaho. The future depends upon the success with which the problems of low-grade ores are solved and upon the encouragement given to mining development. Big mines are no longer found: they are made.
IN MEMORIAM

Among the outstanding builders of a greater Idaho for more than forty years was the late James F. McCarthy of Wallace, President and General Manager of the Hecla Mining Company, who died March 6, 1940.

It was the writer's privilege and pleasure to know him intimately and to have enjoyed his friendship through a period of years, so he esteems it as not only a duty but a pleasure to pay tribute to his memory. It was in 1896 that Mr. McCarthy became identified with the mining industry of the Coeur d'Alene district, after an extensive mining experience in South America. It was in 1903 that he became identified with the Hecla Mine as its manager and in 1910 he was elected to the presidency of the company. So efficient was his service that his name and the phenomenal success of the mine became synonymous. Throughout the Pacific Northwest he was recognized as a guiding spirit of the mining industry.

Nor was his service confined to the industry which he served so well. In all civic efforts he was ever active. In Catholic circles he was awarded the De Smet medal presented each year by the Gonzaga University to the most deserving Catholic layman.

Mr. McCarthy was a native of St. Claire, Pa., having been born there January 30, 1867. He was educated in the public schools of his native city and the Cooper Institute of New York where he completed his education. Survivors are one daughter, Mrs. Leo J. Hoban of Wallace and two sons, Joseph L. of Orofino and James F. of Wallace.

Truly he is missed not only in Idaho, but by the entire Pacific Northwest.
Golden Jubilee! Fifty years of statehood! Fifty years of steady progress and development! Fifty years of self-reliant history! That's Idaho today. Mines, mills and farms . . . rich, grazing slopes . . . gorgeous scenery, breathtaking mountain lakes . . . land rich and fresh . . . natural resources hardly touched . . . that's our Idaho after 50 years.

Idaho was admitted to the Union as a sovereign state on July 3, 1890, thus attaining a long cherished recognition. On the following day, July 4, the forty-third star was added to the Stars and Stripes and our grand state, long important for its production of gold and precious metals, had attained her rightful place in the sun.

This was a most important event in the history of our state and I call upon all of our citizens to give due thought to it during this year of its fiftieth anniversary and to observe it in a befitting manner.

One hundred and thirty-five years ago two bold resourceful young men ventured into a wilderness at the request of their president. Politicians of the day said, "A worthless country with nothing but savages. Why send the pick of our young men to explore such a desert?"

However, the astute President Jefferson held his counsel. Further inquiry strengthened his convictions and with characteristic promptness he sent Captains Meriwether Lewis and William Clark as leaders of an expedition to ascertain the real value of the vast unknown country—an undertaking that culminated in what is said to have been the largest real estate transaction the world has ever known.

It was in 1805 that these men found themselves within the confines of what was some day to be Idaho, on the western slopes of the Rocky mountains. Across the rugged Lolo trail, Lewis and Clark pushed on to reach their goal, guided by Sacajawea, an Indian maiden whose home had been the hills and trails the white travelers climbed.

A great wilderness it truly was and even then had been the contested territory of three great nations—England, Spain and Russia. Little did that brave party realize that the courage and fortitude of its members would "open the doors" of an empire.

Soon afterwards came the trappers of the fur companies, breaking trails along the rivers and streams where fortunes were to be had in beaver pelts. Crude "forts" were built at strategic points where the barter took place and gradually settlements grew up around the forts. The lives of the early trappers, the most picturesque group in any age of America, read like romance of the highest order.

When the news reached the Atlantic seaboard that there was more than a wilderness beyond the Rockies, exploring parties were soon on their way to blaze more trails to supplement those of the wild animals and Indians. And soon over these trails, plodded the missionaries, braving the unknown to convert the Indians from their religion, which to the white man seemed to be abject barbarism.

Onward the missionaries pushed the frontier and soon attempts at cultivation demonstrated that this was a veritable garden spot. The word spread rapidly and soon, over the long, torturous route that was to become famous as the Old Oregon Trail, the advance guard of settlers came with their covered wagons. Severe hardships were overcome and the caravans wound onward.

Realization that the land was to be taken from the Indians brought depredations, which in turn called for troops to protect the settlers. Government had begun.
Discovery of gold in 1860 on what is now Orofino creek, a tributary of the Clearwater river, opened another chapter in the book of Idaho progress. Hordes of prospectors poured into the area, wealth appeared unlimited, the territory was the center of interest and with this growing importance came political problems.

The area became a political football, first as part of the Old Oregon territory, then as a portion of Washington territory and finally in 1863 the Idaho territory was created. Boundary disputes were frequent and sometimes bitter, and during the 20 years before the present shape was very largely agreed upon in 1888, the borders were pushed and pulled about no less than five times.

Growth of settlements brought demands for law and the security of the residents and finally Idaho's Organic Act was written as a basic law for the territory. It was approved by President Lincoln March 3, 1863, and with it was created a territorial legislature, consisting of a council and a house of representatives.

William H. Wallace, appointed the first territorial governor of Idaho, served but a short time. The first legislative assembly lasted from Dec. 7, 1863, until Feb. 4, 1864, during which time laws were made to govern the new territory. From 1863 until 1889, 12 men were appointed territorial governors of Idaho, the last being George L. Shoup.

May 11, 1889, Governor Shoup issued a proclamation to consider statehood. A constitutional convention was called, and on Aug. 6, 1889, the constitution was framed and signed by the delegates. It was ratified on Nov. 5, 1889, and the statehood bill passed the national house of representatives April 3, 1890, and the senate the following July 1. The afternoon of July 3, the engrossed bill was presented to President Harrison who signed it. On that same day, according to a provision in the admission act, Territorial Governor Shoup became chief executive of the newly admitted commonwealth which became the forty-third state in the Union.

In addition to her mining industry, Idaho became also an agricultural state. Large herds of cattle, as well as bands of sheep were brought in and soon irrigation was launched to develop some of the large arid land areas.

In the development of the state we must not forget the early transportation. The covered wagon was followed by the stage coach and the pony express. Soon after, began the construction of the railroads, building of which forms an interesting and thrilling episode in the days of long ago. With the completion of the railroads, settlers came by the hundreds to take advantage of land thrown open to the public.

True the old west has gone to be replaced by a newer and better one. No more the buffalo range in vast areas; the Indians have lost their hunting grounds, but the natural resources with large areas of virgin forests, and great rivers and lakes are still unexcelled.

Unusual phenomena make interesting speculation for the scientist. There are more scenic wonders in Idaho than in most other states, which is gradually being recognized by the nations at large.

That we thrill with pride in our state is but natural. That in so short a time great progress has been made, speaks for itself of the fine traditions of those who were in the vanguard of the building; through whose courage and perserverance we today are able to enjoy the fruits of their labors.

To the youth of Idaho belongs the great privilege of following in the footsteps of the noble men and women who have made it possible for us to celebrate the golden birthday of a glorious Idaho. May they emulate the example of those two youthful Americans of a century ago, Captains Lewis and Clark, who blazed the trails and kept the faith, that others might build a great commonwealth on the slopes of the Rocky Mountains.

*Note: At the beginning of the fiftieth year of statehood (1940), Governor C. A. Bottolfsen touches off the golden jubilee year with a short summary of Idaho history asking Idahoans to celebrate and observe the state's fiftieth anniversary.
NEW DEVELOPMENTS AND EQUIPMENT IN METAL MINING*

By ROBERT S. LEWIS
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To a great extent it may be said that revolutionary changes in mining methods and equipment have been superseded by continued improvements, refinements and adaptations of methods and of equipment to the specific problems at hand. In many instances the changes over the past two years may be collectively described as trends. Caught between the pinching jaws of decreasing grade of ore and more difficult conditions of operation on the one hand, and higher costs of labor, materials and taxes on the other hand, any change that will increase unit output or reduce unit cost, even though slightly, is not passed by with the thought that only radical improvements should be given consideration.

Ground Support Problems

A very serious problem is that of ground support. As mining is carried to greater depths the effect of either not supporting or of improperly supporting the upper workings becomes cumulative and has serious consequences later in the form of rock bursts or crushes or the need for intensified artificial support. Fayol's theory of doming is now an important principle to apply in studying subsidence. Two stopes with a pillar between may be roughly likened to two consecutive arches. If the intervening abutment or pillar is too small it eventually gives way and one large arch is formed by the merging of the two smaller stopes through progressive sloughing of their backs until the new large arch is sufficiently high to be self-supporting. Increased weight is consequently brought on the abutments of this new arch.

Also a new opening, as a deep drift, is thought to be surrounded by rings of stress, much as though metal hoops were imbedded in the walls and were contracting to force the wall rock into the drift. Support of this theory is found in the fact that sloughing of the walls in deep drifts or levels has been lessened or stopped where cooled air was used in ventilating that part of the mine. The cooling and subsequent contraction of the wall rock drives the rings of stress farther back into the virgin rock and relieves the stress close to the surface. Projecting corners are a potential source of danger as they may be thrown out with violence. Where other methods of support have proved inadequate to withstand very heavy pressure levels and drifts have been kept open by using steel rails put together in two sections to form an ellipse or circle. Round pole lagging is placed all around the outside of the sets. A layer of 1 to 3 feet of sand or finely broken rock filling should surround the lagging, as any contact of the sets with the solid rock wall is practically certain to cause failure at that point because intensified local pressure distorts the ellipse or circle and collapse follows.

Where stopes with pillars between are used the trend is to use narrower stopes rather than to see how large a span can be kept open. In open stoping with pillars, the pressure on pillars is being studied by the U. S. Bureau of Mines and some mining companies. The velocity of sound in pillars was correlated with pressure on pillars, i.e., the velocity of sound in a pillar would vary if the pressure on the pillar changed. In certain pillars very little pressure was indicated. Thus it would seem that the roof acted as an arch in compression, and the function of these pillars was largely to support the arch and keep it in line to take the compression.

Hydraulic filling of stopes offers excellent support, but disposing of the water drained from the filling may present quite a problem. By keeping about a foot of water above the top of the sand filling one company has found
that the sand filling distributes itself with surprising uniformity over the entire stope, maintaining a level that is practically horizontal. Where the use of wet filling would be objectionable, as from the standpoint of pumping out the water or because the air in a hot mine would become saturated, there would seem to be a field for pneumating stowing, as is used abroad in coal mines. One metal mining company made a few trials of the method. In one experiment, 4-inch material was blown in at an effective range of 20 feet, by a stream of compressed air under from 65 to 80 pounds, per square inch pressure. Some 2,600 cubic feet of air was consumed per cubic yard of filling.

**Air Conditioning Mines**

Several deep mines abroad either have installed or are installing air conditioning plants. Through their aid it will be possible to extend mining operations to a depth of 10,000 feet, or even more, a depth not attainable without cooling of the ventilating air. In this country artificial cooling of mine air is used at two mines with markedly beneficial results. In one instance, a drift 5 by 7½ feet in section and 1,800 feet long was driven in rock having a temperature of 112.5° F. Cooled air, at a velocity of 320 feet per minute was sent through the drift for a year and conditions were then as follows: Air entering the drift, 68.5° F. wet bulb and 91° F. dry bulb; air leaving the drift, 71° F. wet bulb and 95° F. dry bulb. At this same mine it is now possible to begin stoping soon after completing a level. Formerly, without cooling the air, stoping was not started until connections to the level above had been driven and the block of ore had been allowed to cool for four years. Refrigerating machines are now more efficient though using only two-stage compression than when formerly using three-stage compression, and they operate at slightly higher speeds.

In mine ventilation, the axial flow or modified type of propeller fan is finding favor. Closer control is being paid to the quantity and quality of air being circulated in various parts of a mine. Unless the shafts were considered in planning the system of ventilation for a mine the shafts may later prove to be the bottleneck in the circulation of air. Mine resistance may be reduced by increasing the area of the outlet shafts where this is feasible.

**Mining Methods**

In regard to mining methods, where conditions are favorable, shrinkage stoping is followed by strong walls and firm ore are becoming less common. Weaker walls and the presence of waste in the ore are bringing cut-and-fill stoping more to the front. Inclined cut-and-fill stoping as formerly practiced in some mines is being modified to cut-and-fill stoping with a flatter inclination of floors, say about 35°, and scraping or even to horizontal cut-and-fill stoping and scraping because the ore is less hard and firm. It is more difficult to support a steeply dipping back, even with stulls at infrequent intervals, than if the back is more nearly horizontal or is flat.

In a combination of square setting and shrinkage stoping, square sets, two or three sets wide to reach from wall to wall of the vein, are carried up from one level to the level above leaving most of the broken ore in the scope. On completing the stope the broken ore is drawn off and fill for the entire stope is run in from the top.

In a modified form of shrinkage stoping, referred to as "powder blasting," in fairly large ore bodies the back is broken in a series of horizontal slices, the maximum thickness of which is limited to about two-thirds the width of the vein at that point. A series of drifts and powder pockets are driven over the top of the slice which is then blasted in its entirety at one shot.

An interesting variation of shrinkage stoping uses untimbered chutes in the footwall with no gates at the bottom. The chutes discharge into the end of short crosscuts from the main haulage level. The ore is handled by mechanical loaders. The flow of ore into the crosscut stops when the ore reaches its angle of repose on the floor of the crosscut. Eimco Finley machines have loaded as many as 36 15-cubic feet cars in one hour.

An unusual method of support was followed at one mine where a capping of clay, quicksand and surface material some 50 feet thick was excavated by
a Diesel-electric dragline. Shrinkage stopes were driven up from the level below. The intervening pillars were shot and the exposed top of the broken ore was then leveled. Two layers of heavy wire fencing were laid on the ore and long round timbers were then placed on the fencing parallel to the stroke of the vein. As the ore was drawn on the level below the timber mat was built up until it was from 20 to 40 feet thick depending on the width of the vein. Gravel was then dumped on the timbers for backfill as the ore was drawn down.

**Conveyor Trends**

Shaking conveyors are being tried in block caving to transport ore from finger raises to main raises from the haulage level. Methods of feeding ore from the fingers is being worked out, but the question of timbering to keep the conveyor drifts open under the heavy pressure brought on them is a serious problem. The use of an inner reinforcing set or part of a set is necessary. Possibly, steel sets or concrete might be used. It is reported that steel timbering is used in top slicing at a foreign mine. Concreting of slusher drifts is successfully followed at one mine. Three sets of conveyors in series have been considered for block caving. One set serves finger raises, and two of these conveyors, in the same straight line, discharge from opposite sides onto a cross conveyor running between them. Several cross conveyors serve one main conveyor which, in turn, discharges into one haulage raise for the entire block.

In block caving there is a trend toward “grizzly control” with only two fingers and a somewhat wider spacing of draw points instead of having “chute set control,” with four fingers from each set and a grizzly in the raise below the chute set. Grizzly control simplifies development work as well as operation, but it does not give quite the sensitive regulation of drawing broken ore that chute sets do. It was interesting to see block caving in a limestone mine, where no timbering is used. The flat slope at the bottom of the two fingers serving one grizzly and the small opening from the fingers onto the grizzly, together with the coarse breaking of the limestone, made it unnecessary to use any artificial means of controlling the flow of ore. In one mine where scraping is practiced only single fingers are used along the slusher drifts. Steel I-beams are used as long caps over turnouts in several mines, where block caving is followed. For such spans and loads very large wooden caps would be required.

**Open Pit Mining**

In open pit mining, large drills, as the Bucyrus Erie electric churn drill, with 9-inch bit, make holes 9½ to 10 inches in diameter. At some mines these holes are large enough to hold sufficient powder without springing the holes. Where holes are sprung, they usually fill up 3 feet or so and should be drilled far enough below grade to allow for this and still break to the bottom of the benches.

Full-revolving electric shovels with Ward-Leonard control and caterpillar treads are ordinarily used. Dipper sizes of 2½ to 3 cubic yards are more common on the iron ranges, and the 5 cubic yard size is most common at the porphyry copper mines. In fast-digging ground such shovels may make as many as three complete cycles per minute for short periods. Where transport is by trucks the efficiency of operations is increased by having bulldozers scrape a smooth track for the trucks and gather scattered material for the shovel.

For blasting, black powder is giving way to some form of dynamite in order to secure finer fragmentation of the material and to prevent the forming of ridges or “camel backs” between holes. In dry holes 40 percent and 60 percent bag powder is used. Low freezing 40 percent gelatin dynamites, in sticks up to 8x18 inches, weighing 50 pounds, give good results in hard or wet ground. Loading holes with this large stick powder is facilitated by having a windlass and a small rope. As much as 10,000 pounds of dynamite a shift can be loaded in this way in holes up to 100 feet deep by three men. Primacord fuse is used for firing the blasts.
NEW DEVELOPMENTS AND EQUIPMENT

In blasting where churn drill holes must be protected from caving by casing for several feet down from the surface, one company has found that for shooting a large number of holes at a time it is more economical to use a prepared paper casing than heavy iron casing.

**Haulage and Power**

Haulage in open pit mines is divided between trucks and locomotives. On the iron ranges 15-ton trucks will negotiate upgrades of 10 percent and return on down grades as steep as 20 percent. For stripping at copper mines, trucks as large as 22½ cubic yards (40 tons) have found favor. In the differential or motorized-car system of haulage axleless cars have been introduced, the trucks opposite each other are entirely independent in operation. Diesel-electric locomotives, in 125-ton, 1,000-h.p. units, have been tested under hot climatic conditions and have proved satisfactory. Tests show no reduction in draw bar pull up to an elevation of 8,000 feet. No tests have been made above this elevation. Mine track is given careful attention. At one mine the main line is laid on 130-pound rails. Ties on the more permanent tracks are treated with a preservative to increase their life. At another mine steel H-beams, set in concrete, are used for posts and I-beams across the posts carry messenger wires from which the trolley wires for double track haulage is suspended.

At one mine, power for General Electric d. c. locomotives is supplied by two Westinghouse three-phase mercury arc rectifiers, which give a satisfactorily smooth wave-like current. Such rectifiers have the advantage that for about 600 volts or over they are more flexible, have a slightly higher efficiency, and have no rotating parts compared to rotary converters or motor generator sets. The open pit is divided into sections so failure of power in one section does not affect the other sections. Many repairs on ore or waste cars are comparatively minor ones, yet require that the cars be cut out of trains and taken to the car shop. By arranging tracks so trains from the pit can be switched to pass directly through the car shop lost time for making light repairs will be minimized.

Underground, more attention is being given to keeping track in good condition. A concrete-lined drainage ditch has been found to keep the roadbed dry in one mine and prevented the sinking of ties into softened sections. Water from the usual ditch along the track tends to seep into the roadbed. The use of a couple of inches of concrete under extra wide wooden ties increased the capacity of main-line haulage nearly 40 percent by doing away with derailments and other track troubles at one mine. In general heavier rails and also welded joints are more in evidence than before. Ventilation doors, as commonly placed, require an air cylinder of long stroke to open the doors 90 degrees. In one case, the stroke of cylinders has been greatly shortened by having the steel door in two halves that meet to form an angle of some 30 degrees with the usual closed door. A strip of rubber along the vertical edges that meet at the center of the track and a triangular sheet of metal at the top serve to keep the door air tight. At another mine, the usual wooden door stops against a frame that has the outer 8 inches hinged and held in place by a rope passing over a pulley and weighted with an old car wheel or two. If the locomotive hits the closed door the hinged frame lets the door swing though with little resultant damage.

**Drilling and Blasting**

Drilling and blasting still remain the common method of breaking rock. Detachable bits are being increasingly used, as is reconditioning bits by hot milling. By using smaller starters and only 1/16-inch change in gauge holes can be drilled more quickly and with less consumption of air than with larger bits, and yet can be bottomed sufficiently large to take standard sizes of dynamite cartridges. However, a stronger grade of powder may be required to insure breaking the ground. For electric blasting in drifts, tunnels and shafts the trend is toward the use of parallel circuits where ample power is available. The burn-cut is growing in favor. One mine where the ground
is hard uses this type of round in driving all drifts and raises, and 45 percent semi-gelatin in $1\frac{3}{4}$x12-inch sticks saves time in loading holes. The burn-cut is the easiest to teach to green men, and is simple in theory. Practically, it is not so easy to make the holes parallel, and a varying burden on the holes gives rise to trouble from bootlegs and increased powder consumption. The burn-cut leads to the thought of using longer holes, made by diamond drills or jointed steel, in drifts and raises. Fewer rounds would be required for driving a given distance. However, this would intensify the problems of keeping holes parallel and of mucking the greater volume of rock broken so this new cycle would be effective. Several mines are at work on the problem of drilling rounds with diamond drills.

The use of diamond drill holes for blasting in stopes is increasing. At one mine using shrinkage stoping where stopes were about 140 feet long, flat holes were drilled from vertical slots 15 feet wide in the back at each end of the stope. The holes were drilled half the length of the stope. In this way ore was broken over the full length of the stope without the men being exposed to the danger of having to go out into the middle of the stope under a rather weak back. As a variation of drilling rings of long holes from several sub-level drifts to break a vertical slice the full height and width of the stope, a single horizontal cut may be taken over the top of the stope and vertical down holes may be drilled the full lift between levels in a single row across the width of the stope.

High speed diamond drills revolving up to 7,200 r. p. m. have in experiments drilled much faster than the conventional type of drill running at 500 to 1,200 r. p. m., but skin friction and vibration of rods become troublesome at the high speeds. A quick-coupling rubberized joint has been devised to absorb the vibration of rods. A diamond drill with hydraulic feed and "fluid clutch" makes it possible to reduce the speed of the bit to almost any desired figure without changing the r. p. m. of the main drive. No gears are used, and the drill can be mounted on a crossbar or tripod.

Bits for high speed drills have up to two or three hundred small diamonds or bortz, ranging from 60 to 80 per carat. The stones may be set by hand or may have the metal of the bit cast around them. The Koebellite bit has many small bortz stones sintered in a metal powder. Strips of the material are brazed onto the blank bit. Also crushed bortz are used in an impregnated bit for high speed drilling. A cone (reentrant) shaped bit for grinding out the entire hole has been successfully used where no core was desired. This bit drilled somewhat slower than the regular core bit, but its over all drilling rate per shift was faster because more time was spent in actual drilling.

Improvements in rock drills make for easier handling during drilling. Vibration and power feeds relieve the driller from cranking the drill by hand. The power feed is somewhat more definite in its action, especially where two drills are mounted on the same column. In some cases repairing worn cylinders by chromium plating and grinding has obviated the need for oversize pistons. Each type of drill is made in several weights, making it relatively easy to select the most suitable drill for a particular type of work. The chuck parts of stopers are kept free from sludge by exhaust air coming out around the tappet. Jackhammer drills, instead of being held by hand for flat holes can have most of the weight supported on an air-cylinder type of leg thus making the work of drilling far easier.

Use of Scrapers and Loaders

Shovelling by hand is being eliminated wherever it is feasible by using scrapers and mechanical loading machines. Loaders are used in driving drifts in ground where they must be protected against a weak back by heavy booms, which restrict headroom. The loader must pass its bucket between the booms when filling cars. The basic designs of loaders have changed but little. Such an improvement as replacing the four-cylinder air motors with five-cylinder motors gives greater horsepower, greater torque at low speeds, and the ability
NEW DEVELOPMENTS AND EQUIPMENT

to operate successfully on air pressures as low as 50 pounds, per square inch. Heat treating of gear trains, gear shafts and axles make for longer life and less cost for repairs. Small scrapers are being used in stopes only three or four sets long. Light air-driven hoists and scrapers can be used in place of wheelbarrows. Scrapers are now so designed that an open hoe type can be converted into a quarter, half, or full box type by adding the proper side plates and braces. The cutting edge is made of several manganese steel plates bolted to the frame so the plates at each end can be inter-changed with inside plates when the end plates become worn. These scrapers can be used with either two or three drum hoists.

Shaft Sinking

In regard to shafts, in foreign countries the trend is to sink shafts 6,000 feet deep rather than have two-stage hoisting for such a depth. The underground hoist has several disadvantages. An unusual arrangement of shifts for shaft sinking has been followed at one of the Rand mines. In the six compartment shaft, measuring 13½x37½ feet, four crews are used on a continuous cycle of 8-hour shifts. The sinking crew has an interval of 24 hours between shifts. Sinking a new shaft by driving pilot raises from several levels is done where such procedure can be followed. In one case, by drilling a diamond drill hole down into the top of the raise from the level above and blowing in compressed air immediately after blasting the time of waiting for the smoke to clear was reduced from two hours to only 30 minutes.

At the Silver King Coalition mine the new three-compartment Thaynes shaft was sunk to a depth of 1,745 feet by using a pan in the center compartment and a cage and car in the outer compartment. The pan, when filled, was raised by an air hoist and dumped into a car on the cage. Since this shaft is to be used as a base for driving several levels the surface plant was designed to handle a large amount of waste. Skip dumps into a reinforced concrete bin. A roll type feeder delivers the rock to a main conveyor inclined at 18° above the horizontal. This conveyor delivers rock to a shuttle conveyor which, in turn, delivers the rock to a stacker belt. The stacker belt builds up the dump on a 10 percent slope to allow for the eventual settling of the rock. The shuttle and stacker conveyors can be advanced as necessary to ultimately take up the full extension of the shuttle conveyor.

Radio Communication from Hoists

Several mining companies are installing large hoists which have two bicylindroconical drums arranged in tandem. Such an arrangement, instead of the side by side arrangement, permits placing the hoist close enough to the drum to avoid the need for intermediate idler towers. Wear on the ropes is reduced because the rope winds on the drum in a single layer only. One company is installing a special man elevator in the headframe to avoid the time and effort required to climb the stairs of the high headframe to inspect the rope and grease the sheave wheel bearings. Radio signaling makes it possible to send horn calls or even verbal directions from a moving cage to the hoist engineer.

Light alloy cages in which an alloy-steel frame is covered with aluminum alloy sheets are now commonly found at mines. An oval skip of nickel alloy steel has proved satisfactory.

Wood Preserving

Where timber is to remain some years underground it is in many cases given a preservative treatment to prolong its life. The "Osmose" process of treatment for green timber is being used at both coal and metal mines. By covering the timber with a paste of preservatives and allowing the treated timbers to remain in covered piles for some time as deep penetration of the preservative is obtained as with the pressure processes.

Wire Rope

The type of wire rope to use for a certain kind of work is being more carefully considered. Where sheaves or drums of small radius are used as in
scraping or on power shovels preformed rope seems to be favored. The rope is easier to put in place and broken wires do not project sharply from the rope. Tall ropes on scrapers are subjected to hard usage. In some instances, the use of a wire core for the rope and sheaves of larger radius resulted in markedly lengthening the life of the rope. Rubber-sheave treads give promise of being developed into workable form.

Lighting

Electric lights are now in use at many metal mines, and are standard equipment at coal mines. The lamps may have an alkaline or a lead acid battery. One objection that has been raised against electric lamps is that the headpiece has been so heavy that it became uncomfortable to carry on a hat for a full shift. In the new lamps headpieces have been made much lighter and lamps give as much as 20 percent more light than the older models.

Advances in Pumping Mine Water

In regard to pumping, conditions arise where it is desirable to place a pump in a drill hole. Drill holes cost less and can be sunk more quickly compared to shafts or winzes. Deep-well pumps with submerged motors are now obtainable in capacities up to 10,000 g. p. m. and for heads up to 800 feet. At one mine, shaft sinking was slowed down by the inflow of water. A borehole was drilled to take a casing of 19¾-inch inner diameter, and a submersible pump of 5,000 g. p. m. capacity against a 500-feet head was put in. The pump consisted of two four-stage units, each with a 400-h. p., 2,200-volt motor. One unit was placed at the bottom of the well and the others 250 feet above, so the two worked in series. The pump drained the water zone so sinking was expedited.

For high lifts, both plunger and centrifugal pumps now have efficiencies of 80 percent and above. To handle 600 g. p. m. against a lift of 3,150 feet, two reciprocating pumps were placed in one mine. The pumps operated alternately. The temperature of the water was around 100° F., so an elevated sump was built to deliver water to the pump under a positive pressure. Pressure in the discharge line is 3,350 pounds per square inch. At another mine to handle 2,000 g. p. m. against a lift of 2,900 feet, a six-stage centrifugal pump is being installed. This pump will run at 3,550 r. p. m. At this mine water for drinking purposes is cooled in “day and night” type water coolers mounted on a stand, and supplied with a 1/3-h. p. condensing unit.

Gold Dredging

Since we are still on the gold standard, a brief reference will be made to gold dredging. Variable speed drives make it possible to use a high speed for digging loose overburden, which is commonly valueless and hence overloading of gold saving equipment is of no moment. The slower speed is used for digging the gold-bearing gravel. Other improvements include electrical welding of steel parts, mechanical rocklifters in dumphoppers, high-grade alloy steel for shafting, rubber for riffles and a ridged stacker belt to keep material from rolling back. In Alaska banks of gravel around dredges are artificially frozen so they will not slide in on the dredges.

Some idea of the capacity of modern dredges will be had from the following table, which is based on an operating schedule of 22½ hours per day.

<table>
<thead>
<tr>
<th>Size of Dredge Buckets</th>
<th>Cubic Yards Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1,800 to 3,000</td>
</tr>
<tr>
<td>4</td>
<td>2,400 to 3,600</td>
</tr>
<tr>
<td>6</td>
<td>4,000 to 6,000</td>
</tr>
<tr>
<td>7½</td>
<td>5,000 to 7,500</td>
</tr>
<tr>
<td>9</td>
<td>6,000 to 9,000</td>
</tr>
<tr>
<td>12</td>
<td>8,000 to 11,000</td>
</tr>
<tr>
<td>15</td>
<td>10,000 to 13,000</td>
</tr>
<tr>
<td>18</td>
<td>12,000 to 15,000</td>
</tr>
</tbody>
</table>
The lower yardage applies to hard ground and the larger yardage to ground easy to dredge.

**Tunnel Driving**

In driving a long drift or tunnel that is not wide enough to use a portable switch to supply empty cars to the loading machine, a “cherry picker” with a vertical lift can be used to raise the empty cars above the loaded cars, as is done at the Carlton tunnel, in which a record rate of driving has been achieved, or a portable belt conveyor can be used. This extends over the top of the cars and is long enough to load all cars required for cleaning out the round. In the Carlton tunnel, the jumbo carries five drillers on the front end. A similar drifter at the rear serves to drill holes in the roof to provide supports for the cherry picker. This type of jumbo is adaptable to the work of driving long drifts. Mounted on swivel trucks, it will pass over curves of 25 feet radius.

**Coordination of Industrial Dust Research**

In conclusion, research on industrial dusts is being coordinated. In mining, silica is considered the most dangerous dust, but the effect of the dust of other minerals is not fully known. A complete investigation of dust would include a qualitative and quantitative examination of rocks that are a source of the dust in question, a physical examination of the size and number of particles in the dust, experiments as to its solubility, analysis by microchemical methods and the usual methods as well, and biological experiments to learn its effects on the lungs of animals.

*Note: Presented at Annual Metal Mining Convention, Western Division, The American Mining Congress, Colorado Springs, Colo., September 16-19, 1940.*

**KNOW YOUR IDAHO**

1837

The first white child was born in what is now Idaho. She was Eliza Spalding and was born at Lapwai, where her father, the Reverend Henry Spalding, had established a mission among the Nez Perce Indians.

1855

The first irrigation development in Idaho was made by Mormon pioneers who came up from Utah and established themselves in the Lemhi valley. Three years later, after an attack by the Indians, during which two of the pioneers were killed, the colony was abandoned and the whites returned to Utah.

1860

Gold, the lure that brings civilization to the world’s wildernesses, was discovered on Orofino creek by Captain E. D. Pierce and the foundation of Idaho's first important industry was established. The news spread rapidly and the rush that was to bring thousands of people to Idaho began.

1861

Idaho's first city was established at the junction of the Clearwater and Snake rivers, which was the focal point for the gold-hungry hordes converging on the territory from the West. They called the town Lewiston. In quick succession new discoveries were found at Florence and Elk City, each adding their bit to the frenzy of the rush.
ROLE OF MINERALS IN THE PRESENT WAR*

By C. K. LEITH
Consultant on Minerals
The Advisory Commission to the Council of National Defense

The United States, as you all know, is well supplied with minerals—the best supplied of any country on the globe; but it still lacks several minerals, in part or in whole. In fact, the list is rather a long one.

Minerals Classification

The official classification of minerals in Washington includes (1) “strategic”—the minerals that we are really short of in substantial quantities; (2) “critical”—the ones on the border; and (3) “essential”—the ones essential to war, and for which there are no particular problems of supply.

These three classifications are not particularly well-named. If one goes to a dictionary and looks up the meaning of the terms “strategic,” “critical,” and “essential,” he is likely to be confused. As a matter of fact, a triple classification of that sort is highly artificial because, from time to time, minerals which are classed as critical may become strategic; or those classed as essential may become critical or strategic. During the progress of the last war, there were many such shifts between the classes, and we have already gone far enough in the present emergency to know that these classifications will not hold.

On the official strategic list are only nine: antimony, chromium, manganese, mercury, mica, nickel, quartz crystal, tin and tungsten.

On the critical list, there are several minerals, including aluminum, asbestos, graphite, platinum and vanadium.

Special Problems May Appear

The essential list includes minerals like oil, coal, iron ore, lead, zinc and copper. In this list there are no outstanding bottlenecks which appear yet, but during the last war in practically all of them there were special problems. We had plenty of iron ore, for instance, and still have. There is sufficient production of iron ore to meet almost any contingency, but at almost any time a demand might arise for a special grade, which makes trouble. I remember, in the last war, certain ordnance specifications called for iron of a lower phosphorus content than any produced in any of our ranges. We made a careful canvass of the amounts available by selective mining, and found that the burning of pyrite imported from Spain produced a sinter that was very low in phosphorus. That sinter became immediately a very important element in the program. It was needed so badly that, when it was discovered that a lot of the sinter had been dumped on the banks and used for road building, we had to dig up a few banks and old roads to get the material.

So, as the situation develops, we shall probably see these bottlenecks develop from time to time through the list of essential minerals, although every effort is being expended to foresee as many as possible and take steps to prevent them.

I might go on and give you many instances. There are plenty of clays in the country, in immense variety; yet we do not have all the varieties, and for some special types of manufacture foreign clay is imported. During the last war, we were importing foreign clay to the extent of about two or three hundred thousand tons per year. When this was cut off to save that much shipping space (we thought that would be easy) we immediately met with a protest from a number of industries that domestic clays would not meet the situation.

Another illustration that might interest you: There is plenty of salt in this country, particularly in the salt beds of Michigan and New York. We found
we were importing two or three hundred thousand tons of salt from the Mediterranean. Needing shipping space, this was cut off, thinking there was plenty at home. Then things began to happen. The Gloucester fishermen sent a complaint and explained that the fish along the coast had been salted from time immemorial with imported salt, and that without imported salt the fish could not be processed, and without salt fish we could not win the war. The next delegation came from the Chicago packers and called attention to the fact that particular varieties of salt were necessary to pack their meats, and that their contracts with the Allies specified Liverpool and other types of foreign salt. We had scarcely recovered from that when a third delegation arrived from the dairy producers of Wisconsin, complaining that domestic salt could not be used in packing properly the dairy butter, and, of course, we could not win the war without butter.

Some of these things are just beginning to appear. We do not know where they will develop, so the entire list must be carefully watched.

**Government Purchases for Stockpiles**

At the outset, of course, primary attention is being given to the strategic minerals, and our problem there is to keep industry supplied, to keep industry stocks up, and at the same time to build up a stock for use in emergency through government purchase.

The government purchases were started only a short time ago, and, since normal shipments are already being interfered with, the double task of keeping industry supplied and building up the stocks is being necessarily retarded.

As to the method of computing stockpile requirements, nobody knows what stock of any particular mineral is necessary to provide against an emergency. For the time being, we are figuring the emergency on a two-year basis—but this, of course, is subject to continuous change as special situations develop.

Then the question comes up, what kind of production or capacity should be counted on? Should it be based on past records of consumption, or on the assumption that there will be capacity consumption over the period? We are in favor of basing it on capacity consumption during an emergency.

Also, in building up the stock, allowance is made for production from domestic mines—in other words, what can be developed and recovered from domestic sources during the emergency. I need not explain to this group that this is a highly difficult question. Estimates vary widely as to the amount that can be secured of any particular material, the time for its development, the costs, and so forth. But after a very careful study, with the aid of all the talent that could be brought into the job, liberal estimates have been made of what we think the country might be able to produce in an emergency, and these subtracted from the total of stock to be bought.

Further, in the emergency there will be substitutions, and there again, it has been necessary to make an estimate of the amount of substitution possible. Various specialists have made estimates and we have come to a fair agreement as to what substitution may amount to. Allowance is being made for this in building up the stockpile.

Further, there are a great many technological advances in the use and consumption of minerals. These developments are occurring day by day, and we know already there are certain savings possible in the use of these materials. For example, we have had a report on manganese indicating what the steel industry could do in a pinch in using less manganese, and this is being taken into consideration.

Still further, account must be taken of the new provision that exports of these strategic minerals can be made only through license. These minerals are cut off unless given special permits for export, and that is adding to our potential supply.

In figuring the stockpile, also, we are in favor of ignoring, for the time being, the stocks in the hands of industry. Some people say that plenty of
these minerals are stocked up by industry—for a six months' or eight months' or years' supply, or a year and a quarter—and that the stockpile requirements should be reduced to take at least some of these into account. If we knew we were going to war tomorrow, we would immediately start to figure industry stocks into our calculations; but such stocks can go up or down. History has shown that one time they are high and the next they are low. No one knows when the critical day may come, and the stocks that are high now might be depleted a few months hence.

**Domestic Producers Not Being Discriminated Against**

The public has heard so much of the stockpile program that there is a great deal of repercussion in Washington from domestic producers who have gotten the notion that the buying of foreign ores is cutting out domestic production, and that domestic producers are being discriminated against. That simply is not the fact.

Every possible allowance is being made for production from any property in the United States from which an output of usable grade is possible within a reasonable time and at anything like a reasonable cost. The following steps are being taken to insure that result.

In the first place, standard grades of minerals in the strategic list are being purchased at terms satisfactory to the government as they are offered. Also, certain contracts are being made for the purchase of materials which will allow the opening up of new deposits and give the producer a chance to write off the new investment.

**Specifications Being Revised**

Secondly, we are revising specifications. The original specifications were drawn up at times before the emergency was imminent—drawn up for a long-time program, with the idea of getting the very best, high-grade material which would always be good, to be used as a reserve with which could be mixed a certain amount of lower grade material in an emergency. That was a sound idea when it was formulated; but to follow it now would seriously hamper the stockpiling program. Industry itself is already relaxing these standards in a variety of ways in order to get the necessary supplies. We are now recommending the revision of government standards to approach the extent being followed by industry.

We are not in favor of going so far as to relax standards and enforce practices which would be inefficient and costly. It is to be remembered that our industries have to be kept up as nearly as possible to a peak of efficiency, and while there are certain low grade ores that can be used in an emergency, it always means high cost and loss of efficiency. So we are not going as far in that direction as some people would like. But we are doing what seems reasonable, to an extent that will interfere in the least possible way with industry cost, and yet substantially enlarge the amount of the domestic and foreign ore to be made available under present conditions.

**Studying New Recovery Processes**

In the third place, we are studying new processes for recovery of minerals from low grade domestic deposits. As you know, there are many low-grade manganese and chrome deposits, and people have been active in developing processes to extract material from these low-grade deposits. Some of these processes are sound and are pretty well proved; others are still in the doubtful stage; and still others are away out on the fringe with only remote possibility of success. But all these processes are being studied. For instance, for the recovery of manganese and the recovery of tin from scrap, technologic committees have been appointed by the National Academy of Sciences, composed of the best experts that could be found in the country, to review all the processes and set them out in the order of their cost and practicability, and to report to us. Our actions are based largely on their recommendations. In this program we have also had the very effective assistance of the Bureau of Mines, and have called in specialists from the industries on a great many of these questions.
Stockpiling Proceeding Slowly

The net result of all the efforts so far has been that industry stocks are being pretty well maintained; but the building up of an extra stock required by government for an emergency is going ahead rather slowly for various reasons. Conditions abroad were disturbed before the program was started, and shipments are now being cut off here, there and everywhere. We have had some very interesting episodes in getting chrome out of Turkey, for instance, after the Mediterranean was closed off, and recently it has been virtually impossible to get manganese out of Russia for the same reason. When Germany took over France it was necessary to move fast to get Chinese tungsten and antimony through Indo-China, a French colony.

Practically all of the world has had to get away from the easy, normal commercial method of simply saying so much is wanted at a certain time. Each purchase is a special case, involving ships and political affairs. There are all kinds of complications.

Quite a number of contracts have been made for materials abroad, but many of these contracts call for deliveries this year, next year, and the year after. Some of the contracts run as far as 1944. The amount now ordered for government stockpile is far from estimated requirements and the amount actually here is a great deal less. Full delivery depends to a considerable extent upon the events which may occur during the next two or three years.

So we think the only course now is to drive ahead just as quickly as possible to secure both domestic and foreign ores while the going is good, with the possibility that the emergency may come at any time. There is no likelihood we will over-shoot the mark that is being set up.

Main Concern with National Emergency

In the general field of domestic development, I would like to call attention to another question that has come up repeatedly—the question of projects looking toward the future development of the country. Some of these look pretty good; others are nothing more than explorations. Some of them are pretty visionary. But they are all in Washington. They are there by hundreds. It is necessary to review the entire series to separate the good ones from the bad.

We are operating under this principle: That our concern is primarily with the emergency of national defense and not primarily with the future development of the country, however desirable that may be. We are all in favor of development, but if the National Defense Council to spread itself over the field to develop all the mineral possibilities in the country by supporting this, that, and the other enterprise, many of which will not come through at all, in effect will be building on sand. You cannot build defense on possibilities of the future. You must build on certainties and practicable prospects.

To draw the line between the proposals which will bring sure results and those that may bring doubtful results in the future, presents a great deal of difficulty; there are a great many marginal cases. In spite of our emphasis on the immediate things, the sure things, I think that out of this program will come developments which will inure to the future benefit of the United States and the mining industry. Certain of the deposits which are opening up and certain new processes which are being supported should, somewhere along the line, bring results which will be permanent, or which will last us after the emergency has passed.

There is another element in this problem that has been very much to the front—the effort of people who are developing minerals other than strategic minerals to get endorsement from the national defense program. There is a great deal of pressure being put on Washington to transfer certain minerals out of the essential class into the strategic class. The moment a commodity is classified that way, the man who is looking for financial support finds it easier to get it from the government or industry. I do not say that all these efforts are being made only for the purpose of getting money. Most of them are honest. Some people who are opening up deposits have not had the
chance to look over the whole field, and they feel that they are actually contributing something to the country.

**Status of Foreign Countries**

I would like to spend just a few moments now on the broader aspects of the problem of minerals in the war, what is going on on the other side of the waters, and what the general set-up is.

Germany started this war in a position of very great inferiority in regard to mineral supplies. That was very well known, and as a matter of fact, Germany's desire or purpose of improving her mineral position was one of the announced principal reasons for Germany going into the war.

Modern wars are mechanized. Mechanization means minerals, and minerals are moving into war on a scale that has no precedent in history. Whatever the ambitions are, military or otherwise, the limit is set by the amount of minerals that can be turned into war materials—guns, airplanes and the mechanical appliances of war, and the power to drive them.

**Germany's Mineral Problem**

Germany has expanded and very greatly improved her mineral position. She has taken over the iron ores of Sweden, northern France and Luxembourg; certain zinc deposits in Belgium and Poland; and she has obtained part of her oil supply from Rumania. She has an immensely increased amount of smelting capacity, and has picked up large additional coal fields. But she has not solved her mineral problem by any means. She still needs nickel, copper, tin, adequate quantities of oil, tungsten, vanadium, mica, quartz crystals, industrial diamonds, antimony, zinc. She needs the ferro alloy minerals in general.

**Position of England**

England, with its control of the sea, still is in a markedly superior position, because England can get not only the essential minerals, but the minerals which are strategic and critical to her. If Germany is to win, the fight must go on until control of the sea makes it possible for Hitler to supplement his present supplies.

At the beginning of the war, the balance of power, so far as the basic raw materials for fighting the war were concerned, was so overwhelmingly on the side of the Allies that many of us fell into the error of assuming that of course the Allies would win. I say "error"—I mean what might be error—we can not be sure. I took part in this discussion, like many others. We felt pretty sure of our ground, but our conclusion was based on a fallacious assumption. It is one thing to have mineral reserves, and another to use them. It was assumed that the Allies would use their reserves on somewhat the same relative scale as Germany. Reliance was placed on the Maginot line to hold the situation long enough to bring the reserves into action. On that element of the prediction we were wrong. They did not get started. Their potential weight of metal was not brought into the situation at the right time.

If England can hold control of the seas, she can still have hope for the ultimate outcome, because control of the seas means control of materials necessary to build the implements to fight modern war.

**U. S. Position Similar to England's**

Turning to the United States—it is very much in the same position as England. It starts out with an overwhelming superiority in mineral supplies, but is not completely supplied as indicated by our earlier discussion. There are a number of minerals needed from outside. It is sometimes said by people not familiar with minerals that the entire import of minerals is only a small item, running only into a few tens of millions of dollars, so why worry? But when we think of the kinds of materials needed—tin, manganese, chrome, tungsten, and others—we see that they are very essential to modern industry. They include a large part of the ferro alloys, so essential to steel. In other words, without these minerals, the machine will not run. It is like taking a wheel out of a watch, or essential parts out of an automobile.
ROLE OF MINERALS IN PRESENT WAR

With control of the sea, the United States is in position to dominate the situation. With control of the sea, it is able to go the full limit in industrial development for modern war. But to hold control of the sea its minerals must be used, and in huge amounts. We must realize the fact that control of the sea takes on a new significance. The United States is the largest producer and largest consumer of minerals in the world. It depends on foreign countries for supplies and markets. Our mineral domain is literally worldwide. There is no redistribution of raw materials among the nations that we can keep out of. In short, it is our field that is being invaded.

Let us face the realities of the situation. Hitler's announced purpose is to secure control of raw materials in order to be able to carry out his other ambitions. He is out for a showdown. One side or the other will come through with the control of the sea, and that side will be the one which brings to bear the greatest weight of its mineral supplies. Unless we put into motion our present potential weight of metals, we might just as well make up our minds the ultimate result will be a change in our way of life.

Mining Industry Cooperating in National Defense

In closing, a few words on a more optimistic note. The problem of national defense is one which is being shaped more and more by minerals. The mining industry will be more and more involved. The mining industry is showing the very best cooperation in the effort which is being made. I speak from personal knowledge. It is coming forward with the maximum of help, and with the minimum of self interest. As far as anyone can make a safe prediction in these troubled times, it is that the mining industry can be counted upon to do its share of the job before us.

*Note: Address presented to Annual Metal Mining Convention of the American Mining Congress, Western Division, Colorado Springs, Colo., September 16-19, 1940.

KNOW YOUR IDAHO

1862

Gold was discovered in the Boise Basin, which during the succeeding decade was to produce uncounted millions in yellow dust and today, 78 years later, is still yielding its golden harvest. George Grimes, one of the leaders of the original party, was killed by Indian bullets. But neither death nor danger could halt the rush to the new diggings.

1863

President Abraham Lincoln approved the Act organizing the Idaho territory. It was much larger than the present state, having an area of some 325,000 square miles and included much of what is now Montana and Wyoming. Lewiston was named the capital. William H. Wallace was appointed governor. The new territory contained ten gold camps and twenty thousand people.

1863

Silver-bearing ore was discovered in the Silver City district. Silver City, in what is now Owyhee county, was destined to rank as one of the West's richest metal finds, although due to lack of transportation facilities it was nearly twenty years later before the full production possibilities of the district were realized. More than one major U. S. fortune was founded in Silver City.
REPORT OF IDAHO BUREAU OF MINES AND GEOLOGY

SCHOOL OF MINES
UNIVERSITY OF IDAHO

and

STATE BUREAU OF MINES AND GEOLOGY

MOSCOW, IDAHO

April 15, 1940.

To
The Board of Control
Idaho Bureau of Mines and Geology

Gentlemen:

There is submitted herewith report of the activities of the bureau for the first half of the biennium 1939-40; financial statement as of March 31, 1940, and list of projects recommended for approval for the balance of the biennium.

An assembled meeting of the board was not held on the first Monday of April, 1939, in accordance with the legislative act creating the bureau. A report, dated March 27, 1939, however, was made and submitted to members of the board. The meeting was passed at the suggestion of the director, who, in the light of the small appropriation, wished to conserve funds. In my letter of March 27, 1939, transmitting the report, approval of the report was requested by letter. Since approval in this manner was received only from one member of the board (Mr. Campbell), I wish to bring it up at this time for board action.

As is well known, the bureau appropriation is made under two divisions, viz.,

1. U. S. Geological Survey Cooperative Fund
2. State Mineral Resources Investigation Fund

The subject matter of this report, therefore, is presented under these headings.

U. S. GEOLOGICAL SURVEY COOPERATION

I. Reports in process of preparation.

1. Boise Basin survey, Boise County (Geologist, Dr. Alfred L. Anderson, assisted by Warren Wagner). Quoting from a telegram from the director of the U. S. G. S., dated April 12, 1940—"Boise Basin report has been critically read in metals section and transmitted to chief geologist. Will be submitted for director's approval soon."

2. Mineral survey of Kootenai County. (Geologist, Dr. Alfred L. Anderson, assisted by John Miller). Report is now in process of publication and will be issued as Pamphlet No. 53 entitled "Geology and Metallic Deposits of Kootenai County, Idaho."

3. Rocky Bar project, Elmore County. (Geologist, Dr. Alfred L. Anderson). Report is expected to be completed early in June.

4. Geologic study on the Snake River in the Seven Devils country, Adams County. (Geologist, Dr. Ralph S. Cannon). Dr. Cannon already has devoted two (summer) field seasons to this project and the program is to carry on through the current (1940) season. The topography is intensely rugged, and geologizing is extremely difficult. The district, however, warrants the time and cost involved.

5. Placer studies in the New Meadows district. (Geologist, Dr. S. R. Capps). Dr. Capps devoted the 1939 summer season to placer studies in this district. His report should be forthcoming in the near future.
6. Ima Mines at May, Idaho, and Mercury Mines at Weiser, Idaho. (Geologist, Dr. Alfred L. Anderson). The Ima Mines Company is a tungsten property reported possibly to be one of the largest in the country. The Idaho Almaden Company mine near Weiser is a mercury property now in production. This is the first and only mercury producer in Idaho. Both tungsten and mercury are classified by the War Department as strategic minerals. Dr. Anderson spent about one week at each of these properties and his reports are nearing completion. As a matter of fact, the mercury (cinnabar) report has been completed and has been submitted to Washington.

II. Cooperative reports published in 1939.

Pamphlet No. 46—“Geology and ore deposits of the Florence mining district, Idaho County, Idaho”—by John C. Reed.

Pamphlet No. 47—“Geology and ore deposits near Murray, Idaho”—by P. J. Shenon.

Pamphlet No. 48—“Dixie placer district, with notes on the lode mines”—by S. J. Capps and Ralph J. Roberts.

Pamphlet No. 49—“Geology and ore deposits of the Atlanta district, Elmore County, Idaho”—by Alfred L. Anderson.

Pamphlet No. 50—“Silver belt of the Coeur d'Alene district, Idaho”—by P. J. Shenon and R. H. McConnell.

III. Appropriation and budget.

<table>
<thead>
<tr>
<th>Appropriation</th>
<th>Unexpended Bal. as of March 31, 1940</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$600.00</td>
</tr>
<tr>
<td></td>
<td>$00.00</td>
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<td>Irregular help</td>
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<td></td>
<td>41.97</td>
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<tr>
<td>Cooperative personal services</td>
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<td>6,374.18</td>
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<td>Services other than personal</td>
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<td></td>
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<td>80.00</td>
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<tr>
<td>Debts, refunds and indemnities</td>
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<tr>
<td></td>
<td>239.26</td>
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<tr>
<td></td>
<td>$12,485.00</td>
</tr>
<tr>
<td></td>
<td>$6,735.41</td>
</tr>
</tbody>
</table>

The above unexpended balance can not be budgeted at this time since the field parties are made up by the director of the U.S.G.S., which has not been done at this time.

IV. Projects recommended for the current season.

1. Continuation of I-4 of this report.

2. One or more to be selected from the following list, selection to be made by conference with and approval of the U.S.G.S.:


b. Ore prospects of Avery and upper St. Joe region.

c. Gold study of Pierce district, Clearwater County.

d. Detailed study of the lead-zinc deposits of the Coeur d'Alene district. This is a large project and would require several years by a competent party in residence in the district.

e. Study of the molybdenum, tungsten, cinnabar, manganese, nickel, and cobalt deposits of the state. These are classified by the War Department and the U.S. Bureau of Mines as strategic minerals. A preliminary type survey is well justified.

f. Study of the lead ore deposits in the Leadore-Gilmore area, Lemhi County.

g. Gold deposits of the Shoup district, Lemhi County.

h. Study of the prospects in Elmore and Camas counties in the mountains north of Fairfield.
STATE MINERAL RESOURCES INVESTIGATION

I. Mineral resources surveys.

The status of this work is as outlined in the report of March 27, 1939.

II. See A, B, C and D of the March 27, 1939 report.

Microscopic and other studies show that Idaho phosphate rocks are not amenable to dressing processes due to the uniform microscopic texture. Solubility studies of the phosphate rock admixed with pyrite and as related to fineness of grind are in progress.

III. See report of March 27, 1939.

IV. See report of March 27, 1939.

Consideration of the matter brought up in the second paragraph is requested.

V. Appropriation and unexpended balance.

<table>
<thead>
<tr>
<th></th>
<th>Appropriation</th>
<th>Unexp'd Bal. as of March 31, 1940</th>
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<tr>
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<td>Services other than personal</td>
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<td>Supplies</td>
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<tr>
<td>Equipment</td>
<td>600.00</td>
<td>585.80</td>
</tr>
<tr>
<td>Rents, contributions and fixed charges</td>
<td>150.00</td>
<td>120.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$8,000.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

VI. Publications.

Pamphlet No. 51—"A metallurgical study of Idaho placer sand"—by A. W. Fahrenwald, Joseph Newton, W. W. Staley, and Robt. E. Shaffer.

Respectfully submitted,
A. W. Fahrenwald,
Secretary, Board of Control.

KNOW YOUR IDAHO

1870

Idaho's first official census showed a population of 14,999 people. By this time many of the placer gold camps had been worked out and the miners were departing in search of new discoveries.

1874

Steel of the first railroad to enter Idaho was laid across the southeastern border of the state. It was a narrow gauge line, known as the Utah Northern, and its first terminal was the town of Franklin.

1877

Young braves of the Nez Perce tribe went on the warpath. The result was the Nez Perce Indian War in which Chief Joseph, although of peaceful nature himself, proved to be a remarkable military strategist and won the admiration of his white opponents. Only by a narrow margin was Joseph prevented from making good his escape to Canada with the squaws and children of the tribe.
*BULLETIN NO. 1—"The copper deposits of the Seven Devils and adjacent districts," by D. C. Livingston and F. B. Laney. 1920.


*BULLETIN NO. 5—"Geology and ore deposits of Alturas quadrangle, Blaine County, Idaho," by Samuel M. Ballard. 1922.

*BULLETIN NO. 6—"Geology and water resources of Goose Creek Basin, Cassia County, Idaho," by Arthur M. Piper. 1923. (Prepared in cooperation with the U.S. Geological Survey.)

*BULLETIN NO. 7—"Geology and gold resources of north central Idaho," by Francis A. Thomson and Samuel M. Ballard. 1924.


*BULLETIN NO. 11—"Geology and metalliferous resources of the region about Silver City, Idaho," by Arthur M. Piper and Francis B. Laney. Price 50 cents. 1926.


*PAMPHLET NO. 1—"Interfacial tension measurements and some applications to flotation," by Robert B. Elder. 1921. (Prepared in cooperation with the U.S. Bureau of Mines.)

*PAMPHLET NO. 2—"Size of mineral particles in relation to flotation concentration," by A. W. Fahrenwald. 1921. (Prepared in cooperation with the U.S. Bureau of Mines.)

*PAMPHLET NO. 3—"Testing ores for flotation," by A. W. Fahrenwald. 1921. (Prepared in cooperation with the U.S. Bureau of Mines.)

*PAMPHLET NO. 4—"Differential flotation," by A. W. Fahrenwald. 1921. (Prepared in cooperation with the U.S. Bureau of Mines.)


MINING INDUSTRY OF IDAHO

*PAMPHLET NO. 7—"Notes on the geology of eastern Bear Lake County, Idaho, with references to oil possibilities," by Virgil R. D. Kirkham. 1923.

*PAMPHLET NO. 8—"Ground water supply at Moscow, Idaho," by F. B. La­ney, V. R. D. Kirkham, and A. M. Piper. 1923.

*PAMPHLET NO. 9—"Ground water in Pahsimeroi Valley, Idaho," by Oscar E. Meinzer. 1924.


*PAMPHLET NO. 11—"Geology and water resources of the Bruneau River Basin, Owyhee County, Idaho," by Arthur M. Piper. (Prepared in co­operation with the U. S. Geological Survey.)

PAMPHLET NO. 12—"Possibilities of petroleum in Power and Oneida Counties, Idaho," by Arthur M. Piper. 1924.


PAMPHLET NO. 16—"Ground water for municipal supply at Idaho Falls, Idaho," by Arthur M. Piper and Virgil R. D. Kirkham. 1924.

*PAMPHLET NO. 17—"Ground water for municipal supply at St. Maries, Idaho," by Virgil R. D. Kirkham. 1926.

*PAMPHLET NO. 18—"Some Miocene and Pleistocene drainage changes in northern Idaho," by Alfred L. Anderson. 1927.


*PAMPHLET NO. 20—"A disseminated lead prospect in northern Boise County, Idaho," by Clyde P. Ross. 1926. (Prepared in cooperation with the U. S. Geological Survey.)

*PAMPHLET NO. 21—"The Vienna district, Blaine County, Idaho," by Clyde P. Ross. 1927. (Prepared in cooperation with the U. S. Geological Survey.)

*PAMPHLET NO. 22—"The geology and ore deposits of the South Mountain mining district, Owyhee County, Idaho," by Robert E. Sorenson. 1927.

PAMPHLET NO. 23—"Ground water for municipal supply at Potlatch, Idaho," by Virgil R. D. Kirkham. 1927.


*PAMPHLET NO. 31—"Geology and silver ore deposits of the Pend Oreille district, Idaho," by Edward Sampson. 1928. (Prepared in cooperation with the U. S. Geological Survey.)
PAMPHLET NO. 32—“Geology and ore deposits of the Lava Creek district, Idaho,” by Alfred L. Anderson. 1929.

PAMPHLET NO. 33—“Geology and ore deposits of the Seafoam, Alder Creek, Little Smoky, and Willow Creek mining districts, Custer and Camas Counties, Idaho,” by Clyde P. Ross. 1930. (Prepared in cooperation with the U.S. Geological Survey.)

PAMPHLET NO. 34—“The geology and mineral resources of the region about Orofino, Idaho,” by Alfred L. Anderson. 1930.


PAMPHLET NO. 37—“Recovery of gold from its ores,” by A. W. Fahrenwald. 1932.

PAMPHLET NO. 38—Biennial report on the activities of the Bureau, by John W. Finch. 1932.

PAMPHLET NO. 39—“The geology and mineral resources of the region about Orofino, Idaho,” by Clyde P. Ross. 1933. (Prepared in cooperation with the U.S. Geological Survey.)


PAMPHLET NO. 43—“A preliminary report on the geology and ore deposits of the eastern part of the Yellow Pine district, Idaho,” by L. W. Currier. 1935. (Prepared in cooperation with the U.S. Geological Survey.)


PAMPHLET NO. 45—“Geology and ore deposits of the Warren mining district, Idaho County, Idaho,” by John C. Reed. 1938. (Prepared in cooperation with the U.S. Geological Survey.) Price 50c.

PAMPHLET NO. 46—“Geology and ore deposits of the Florence mining district, Idaho County, Idaho,” by John C. Reed. (Prepared in cooperation with the U.S. Geological Survey.) Price 50c.


PAMPHLET NO. 49—“Geology and ore deposits of the Atlanta district, Elmore County, Idaho,” by Alfred L. Anderson. 1939. (Prepared in cooperation with the U.S. Geological Survey.) Price 50c.


MINING INDUSTRY OF IDAHO


PAMPHLET NO. 54—"Mining activity in the North Fork of the Clearwater River area," by W. W. Staley. 1940.


PRESS BULLETIN NO. 19—"An abridged bibliography of the mineral industry of the State of Idaho," by W. W. Staley. 1940.

*NOTE: All publications marked * (out of print) may be consulted in public libraries and libraries of instructional institutions.

ISSUED BY THE U. S. GEOLOGICAL SURVEY
In cooperation with the Idaho Bureau of Mines and Geology
(Not for distribution from the office of the Idaho Bureau of Mines and Geology.)


BULLETIN NO. 854—"Geology and ore deposits of the Casto quadrangle, Idaho," by C. P. Ross. 1934. (Obtainable from the Superintendent of Documents, Washington, D. C., for 60 cents.)

BULLETIN NO. 877—"Geology and ore deposits of the Bayhorse region, Custer County, Idaho," by Clyde P. Ross. 1937. (Obtainable from Supt. of Documents, Washington, D. C., for $1.00.)

WATER SUPPLY PAPER NO. 774—"Geology and ground-water resources of the Snake River Plain in southeastern Idaho," by Harold T. Stearns, Lynn Crandall and Willard G. Steward. 1938. (Obtainable from Superintendent of Documents, Washington, D. C., for $1.25.)


TECHNICAL PUBLICATIONS

ISSUED BY THE U. S. BUREAU OF MINES

In cooperation with the Idaho Bureau of Mines and Geology

(Not for distribution from the office of the Idaho Bureau of Mines and Geology.)


*TECHNICAL PAPER NO. 403—"Hydraulic classification, theory, mechanical development and application in ore dressing," by A. W. Fahrenwald. 1927.


(Reports of Investigation and Information Circulars obtainable from Publications Section, U. S. Bureau of Mines, Washington, D. C., no charge.)

PUBLICATIONS IN TECHNICAL MAGAZINES

(Not for distribution from the office of the Idaho Bureau of Mines and Geology.)


"Effects of reagents on aqueous suspensions of pulverized materials and relation of this effect to flotation concentration," by A. W. Fahrenwald. American Chemical Society, 1932.


"Thunder Mountain mining district," by Clyde P. Ross. Vol. 28, No. 6, Econ. Geol., 1933.

"Flotation of gold from river sand and black sand," by A. W. Fahrenwald. The Mining Journal, Phoenix, Arizona, April 30, 1933.


"Aikinite and silver enrichment at the St. Louis mine, Butte County, Idaho," by Alfred L. Anderson, Vol. XXXV, No. 4, Economic Geol., 1940.
MEN EMPLOYED AND WAGES

Employment has been fairly steady during the past year. There was an ample supply of labor, and the turnover was comparatively small, so that operating companies were assured a constant working force of experienced men, without the necessity of breaking up the personnel with new and inexperienced crews. In fact the best figures obtainable at this date compare favorably with the statistics for the preceding year, 1939. A conservative estimate covering all mining in Idaho for the year 1940 would total approximately 6,800 to 7,000 men with more than 50,000 people directly or indirectly connected with and dependent on the mining industry for a livelihood. These figures include men getting out timber for use in mines.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines. Many men are employed by prospectors and small companies which do not maintain continuous work and do not file a report with the Inspector of Mines. The reports sent in vary greatly as to the number of working days, and this is especially true of the data received from seasonal operations. The same situation applies to the nationality of employees. However, after taking into consideration that many of the men working in the mines are foreign born, many have taken steps or have already become citizens and with the registration of aliens by governmental agencies, it is safe to conclude that for the most part miners in this state are AMERICAN.

During the year 1940, Idaho has been surpassingly free from labor disturbances. 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 5½c per pound; the bonus to graduate upward for each additional half cent added to the purchase price. On August 3, a strike vote was called by representatives of the International Union of Mine, Mill and Smelter Workers (C.I.O. affiliate) under the collective bargaining provisions of the National Labor Relation Act, effecting approximately 1,000 employees at the Morning and Page mines of the Federal Mining & Smelting Company. As far as we can determine no mention concerning wages was included in the demands. The controversy was settled by arbitration and a new agreement entered into granting the miners an extra 15 minutes time on each shift. No provisions are made in the agreement for a closed shop or the check-off system, but it does provide that the union shall be the representative of all employees for collective bargaining. The agreement became effective September 3, and will continue until June 9, 1941.

Operating companies maintained payrolls which showed a decided increase in number of men employed, and maintained a scale of wages equal to, and in many instances better than were paid in mining districts of other states. New construction and development work was noted at many properties throughout the state, with plans in many instances to increase and even double production at many of the properties visited. This stimulation in the mining industry was probably due to several important factors, namely:

1. The present price of gold at $35.00 an ounce.
2. The U. S. government's program to purchase newly mined silver, at 71.11 an ounce, with the assurance that this price is stable.
3. Increased demand and price advances for the base metals.
4. Search for the so-called "strategic minerals," which have been described by the Army and Navy Munitions Board as being of first importance in case of war. Many of these minerals occur in Idaho.
5. General world conditions and our national defense program. These five factors and the suspension of the moratorium on annual assessment work as to all unpatented mining claims in the United States,
including Alaska, resulted in more employment, better wages, new machinery and equipment, larger orders for supplies, greater consumption of foodstuff and increased tonnage on incoming and outgoing freight. All outward signs point to a very prosperous year for the mining industry during 1941.

Wages in the state are not uniform. Placer and hydraulic miners are classed as surface workers and receive less remuneration than the employees of the deep seated lead-silver-zinc mines of the Coeur d'Alene district. The several gold mines and other operators in the mining districts of Idaho have their own individual scale that will fit their particular problem and condition. The following list is the wage scale maintained by mines in the Coeur d'Alene district from September 15, 1939, and throughout the year 1940. Work and production was maintained according to schedule and covering this period on a five-day weekly basis as provided for by the federal wages and hour law.

<table>
<thead>
<tr>
<th>Job Description</th>
<th>Wage</th>
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</thead>
<tbody>
<tr>
<td>Miners</td>
<td>$6.25</td>
</tr>
<tr>
<td>Shovelers</td>
<td>5.75</td>
</tr>
<tr>
<td>Timbermen</td>
<td>6.75</td>
</tr>
<tr>
<td>Timber helper</td>
<td>6.00</td>
</tr>
<tr>
<td>Machinists</td>
<td>7.00</td>
</tr>
<tr>
<td>Machinist helper</td>
<td>6.50</td>
</tr>
<tr>
<td>Motormen</td>
<td>6.50</td>
</tr>
<tr>
<td>Motormen helper</td>
<td>6.00</td>
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<tr>
<td>Main hoistman</td>
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<tr>
<td>Small hoistmen</td>
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<tr>
<td>Nippers</td>
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<tr>
<td>Shaftmen</td>
<td>7.25</td>
</tr>
<tr>
<td>Pump and Compressormen</td>
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<tr>
<td>Surface laborers</td>
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<tr>
<td>Ore sorters</td>
<td>5.50</td>
</tr>
<tr>
<td>Cagers</td>
<td>6.50</td>
</tr>
<tr>
<td>Pipe and Trackmen</td>
<td>6.50</td>
</tr>
<tr>
<td>Shift bosses</td>
<td>7.75</td>
</tr>
<tr>
<td>Blacksmiths</td>
<td>7.00</td>
</tr>
<tr>
<td>Blacksmith helper</td>
<td>6.00</td>
</tr>
<tr>
<td>Electricians</td>
<td>7.00</td>
</tr>
<tr>
<td>Flotation operator</td>
<td>6.50</td>
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<tr>
<td>Mill repairmen</td>
<td>6.50</td>
</tr>
<tr>
<td>Mill repairman helper</td>
<td>6.00</td>
</tr>
<tr>
<td>Carpenters and Painters</td>
<td>7.00</td>
</tr>
</tbody>
</table>

Other employees including master mechanics, superintendents, foremen, engineers and office help are generally on monthly salary.

The Sunshine Mining Company, the largest producer of silver in the United States and considered the largest single silver producing mine in the world, pay 50 cents a day above the Coeur d'Alene scale. This company announced late in December that because of uncertain conditions created by federal laws relating to the status of mining concerns the company finds it inexpedient to pay the usual Christmas bonus this year, but it will pay its employees 5 per cent of their 1940 wages in full settlement of all claims (except under the workmen's compensation law of Idaho) which the employee has or may have against the company.

The same 5 per cent wage payment plan was carried out last year by the company and accepted by a large number of the workers. It is estimated that the extra expenditure made available to some 600 employees will amount to a total of about $45,000. Checks will be available at the company's Big Creek mine office between December 21 and 31 and must be cleared through the bank on which they are drawn by January 1, 1941, unless otherwise provided for by special arrangement with the company. The company posted notices at the mine regarding the payment which read as follows:

On December 29, 1939, the company posted a notice containing the following statements:

"On account of the questions and uncertainties caused by recent federal laws and the inability of the company to determine the extent of the rights and liabilities created by them, and their effect in increasing the cost of doing business, the company finds it is unable to pay a bonus this year.

"The same situation still exists. The company has been and now is trying to settle and dispose of these questions and uncertainties to such an extent as may be possible. The company has, therefore, decided that it will pay to any employee who was working December 15, 1940, and who desires it, an amount equal to 5 per cent of his Sunshine wages earned during the period between December 15, 1939, and December 15, 1940, in full settlement of all claims (except the workman's compensation laws of Idaho) which such
employee has or may have against the company on account of acts or occur­rences prior to December 15, 1940."

In an effort to bring the whole labor relations matter to a head the Sunshine company has started suit in the United States district court at Coeur d'Alene asking for relief under the fair labor standards act and a court decision relative to the company's standing as a concern doing interstate business.

The case is still pending before a three-judge court on constitutional questions.

The company also asks to be relieved of the 5-day week labor arrangement now in effect, contending that it is a detriment both to the miner and mine management and asks that the 6-day week plan be allowed for the benefit of all concerned.

The cost of board and room at company boarding houses, hotels, and at private homes average 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 financing the con­struction of homes.

Some small operators and promoters have continued to take advantage of laxity in the laws governing the protection of labor and materialmen in Idaho and failed to make provision for proper reimbursement for services rendered. This condition must be remedied and probably the appointment of a labor commissioner as provided by the Constitution of the State of Idaho would be the answer to this situation.

LOGGING FOR MINES

To the logger, timbers cut for mining are all "stulls," regardless of the work to which they are actually put underground. He doesn't bother with technical terms covering the elements of timbering. The word "stulls" covers logs cut for mining so far as the logger is concerned. He takes the attitude that what the miner does with them and what he calls them is the miner's own business.

Logging "stulls" for mines is a big branch of the western timber business, particularly in western Montana and northern Idaho.

Logs cut for "stulls" will range from 7 to 16 or even 18 inches in diameter at the small end. Special sizes beyond these dimensions may be cut on order. Most "stulls" go out of the woods in 16 foot lengths, the same lengths as the sawlogs in those regions, although a few are cut shorter.

Normal practice calls for the logging of "stulls" separately from the sawlogs. Many of the "stulls" logged are cut from areas where the saw timber was removed during the depression, when there was little demand for mining timbers. During past years, however, the loggers have gone back into the timber and removed "stulls" left behind in the earlier operations.

The demand for "stulls" and other timber for use in mines makes good business for the loggers, inasmuch as it affords a market for the fir, larch and hemlock, which in certain regions is not greatly desired for lumber, and which otherwise would be left behind to create a fire hazard and to retard natural reforestation.

The metal mining industry of the Northwest consumes approximately 100,000,000 f. b. m. of wood per year, divided about equally between sawn and round or hewn products. Official figures indicates that the timber consumption of the Montana copper mines is about 14.10 f. b. m. of sawn lumber and 4.15 f. b. m. of round material per ton of ore produced. In Idaho the requirements are somewhat less, being approximately 10 f. b. m.
Idaho contains an area of 83,888 square miles. The state is divided into 44 counties, 36 of which can be classed as having minerals of commercial importance. In most 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. In addition to these a great variety of uncommon metals and minerals occur in sufficient extent to be of commercial importance.

This great diversity of mineral wealth establishes Idaho as one of the principal mining states of 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, more than $1,300,000,000.
Average annual production for past 30 years, more than $26,000,000.
Average annual mine payroll, more than $9,000,000.

See pages 6-7 for publisher’s address, meaning of reference marks, and abbreviations.


GENERAL REFERENCES

MINING INDUSTRY OF IDAHO


Some pseudo-eutectic ore textures, by Alfred L. Anderson: Econ. Geol., vol. XXIX, No. 6, 1934.


ANTIMONY

Deposits of antimony, principally the sulphide (stibnite) are found in Shoshone County, 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.


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 market 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.


**BENTONITE**

Bentonite, a plastic clay, is valuable for its high absorbent qualities; it has a capacity of 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 quantities in Clark and Custer counties, and it has been reported to be found in Cassia, Owyhee, and Oneida counties.


**BERYLLIUM AND BERYL**

Beryllium, or glucinum, 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 hertofore only the gem varieties, including emerald and aquamarine, have been actively sought.


**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.

**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 Co. in quarrying and converting sandstone to building purposes.


**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.

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.

Composition and origin of certain commercial clays of northern Idaho, by Edward L. Tullis and F. B. Laney, vol. 28, No. 5, Econ. Geol. 1933.

**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 in Horseshoe Basin, Teton County.

In Owyhee and Boise counties several beds of low-grade lignite occur. The largest and best developed of these is that on Reynolds Creek, Owyhee County, which has shipped considerable fuel for local domestic use in years past.


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.)*


Coal in eastern Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 716, 1920. (Fremont, Teton, Madison, and Bonneville counties.)*


**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. This metal is reported to have been found also in Kootenai and Latah counties.


Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, 1913.*


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 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.


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.

The principal uses of diatomaceous earth are: Sawed brick for refractory and insulation purposes; filter material at sugar factories; lightweight 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 microline. The principal use of feldspar is in the manu-
facture 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 limestone. 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 sandpaper, 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.

**GOLD**

Gold is found in most counties of 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 about seventh 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.


An Idaho silver-gold camp (Florida Mountain district), by F. G. Corning; Eng. and Min. Jour., vol. 60, p. 244, Sept. 14, 1895.


IDAHO'S MINERAL RESOURCES


Big Creek gold district, Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 94, pp. 891-892, Nov. 9, 1912.§


Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, 1913.*


Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, 1917.‡


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 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.


Thunder Mountain mining district, by Clyde P. Ross: vol. 28, No. 6, Economic Geol., 1933.


**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.§

The origin of the fine gold in the Snake River, by J. H. Shockley: Eng. and Min. Jour., vol. 73, pp. 280-281, 1902.§


Annual reports of the Idaho Inspector of mines, 1899 to 1919.*

Flotation of gold from river sand and black sand, by A. W. Fahrenwald: the Mining Journal, Phoenix, Arizona, April 30, 1933.


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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 is an ingredient of 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.

LEAD

Lead is the most important metal found in Idaho, and this State ranks second in the United States in the production of lead, Missouri ranking first, and Utah third. 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.

The principal lead mines in the State are those in Shoshone County, which produces 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.

A bibliography of mining, milling and metallurgical methods will be found under the county in which the plant or mine is located.

Ore deposits of Yreka district, Idaho, by E. McCormick: Eng. and Min. Jour., vol. 69, p. 404, April 7, 1900.§


The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, 1906.§


The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, 1909.§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April, 1909.§


The Coeur d'Alene mining district, by F. R. Ingalsbe: Eng. and Min. Jour., vol. 96, pp. 156-158, July 26, 1913.§

Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, September, 1913.†


Lawrence mine and mill in Kootenai County (Bonner), Idaho, by A. L. Flagg: U. S. Geol. Survey Bull. 539, 1913.: 1:


Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press. 32 pp., 1916.**

Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, 1917.‡


A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, 1919.‡

Linarite and leadhillite from Idaho, by E. V. Shannon: Am. Mineralogist, vol. 4, No. 8, pp. 93-94, August, 1919.§


Deformation in ores, Coeur d'Alene district, Idaho, by W. A. Waldschmidt: Econ. Geology, vol. 20, pp. 573-586, September-October, 1925.§

Big silver-lead producer in Idaho (Hecla mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, September, 1925.§
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.**


The Livingston mine, Custer County, Idaho, by J. B. Stewart: Mining and Metallurgy, vol. 7, No. 233, pp. 223-224, May, 1926.§


Some Coeur d'Alene geology, by J. E. Berg: Mining and Metallurgy, vol. 8, July, 1927.§

The Vienna district, Blaine County, Idaho, by C. P. Ross: Idaho Bureau of Mines and Geology Pamphlet 21, 1927.**


A lead ore consisting of native lead, leadhillite and lethargite, by E. V. Shannon: Econ. Geology, vol. 22, pp. 826-829, December, 1927.**

A geologic error regarding the Wood River district, by Stewart Campbell: Eng. and Min. Jour., vol. 126, pp. 287-289, Aug. 25, 1928.§

Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, 1928.**


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.*

Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, 1930.**

Geology and ore deposits of the Clark Fork district, by A. L. Anderson: Idaho Bureau of Mines and Geology Bull. 12, 1930.**


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 and burnt to form plaster lime. A cement plant is located at Orofino in Clearwater County.

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

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 of Bannock County, and the deposits of Lemhi County constitute a large potential resource.


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 on the grain of the 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 nonconduction 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.

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


Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, 1927.**

The development of Idaho's nonmetallic mineral resources, by E. L. Tullis: Pit and Quarry, vol. 23, pp. 22-27, Mar. 23, 1932.**


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 more numerous, and at many of them sanatoriums 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.
IDAHO'S MINERAL RESOURCES

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.


MONAZITE

The mineral monazite consists chiefly of the phosphate of cerium and variable amount of thoria, the value depending primarily upon the thoria content. It is a resinous golden-yellow mineral occurring as a placer in practically all of the gold placer mines of 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.


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, pt. I, 1917.

NITRATES

The occurrence of nitrate in Bannock, Bingham, Bonneville, Camas, Caribou, Clark, Custer, Elmore, Fremont, and Owyhee counties has been reported. Nitrate deposits in southern Idaho and eastern Oregon by G. R. Mansfield: U. S. Geol. Survey Bull. 620, pp. 19-44, 1915.*


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 of the occurrence of oil.

Gas has been developed in Payette and Washington counties.


Oil and gas possibilities of eastern Oregon, by J. P. Buwalda: Oregon Bureau of Mines and Geology, vol. 3, No. 2, 1921. (Southwestern Idaho.)*


Oil shale of the Rocky Mountain region, by D. E. Winchester: U. S. Geol. Survey Bull. 729, 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 in southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, vol. 6, No. 218, Feb., 1925.§

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 268,299 acres out of a total of 396,612 acres.


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, January, 1928.§

**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.

**QUICKSILVER**

Cinnabar, the sulphide of mercury, has been found in placer deposits of Custer and Valley counties and in lode-deposits of Washington, Valley, Blaine, and Cassia counties. The quicksilver lode-deposits of Valley and Washington counties are being extensively developed, and considerable mercury is being produced in Washington County. The other deposits have never been opened.


Quicksilver and antimony discoveries in Central Idaho, by R. N. Bell: Idaho Mining Department Bull. 1, 1918.*


**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.


**SILVER**

Idaho was again the largest producer of silver in the United States. The output of silver in Idaho in 1940 was about 8,100,000 fine ounces.

The largest single producer of silver in the United States is the Sunshine Mine in Shoshone County.

Silver is found associated with all 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. 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.

The bibliography for those ores in which silver is a secondary metal, will be found classified under the principal ore. Mining, milling and smelting methods will be found under the county in which the plant is located.


The Coeur d'Alene in 1905, by S. A. Easton: Eng. and Min. Jour., vol. 81, p. 11, Jan. 6, 1906.§


The geology and ore deposits of the Coeur d'Alene district, by F. L. Ransome and F. C. Calkins, reviewed by E. R. Buckley: Econ. Geology, vol. 4, pp. 178-186, 1909.§

Geology and ore deposits of the Coeur d'Alene, by F. C. Calkins, discussion of review by E. R. Buckley: Econ. Geology, vol. 4, pp. 258-261, April 1909.§


Geology and ore deposits of Lemhi County, by J. B. Uempley: U. S. Geol. Survey Bull. 528, 1913.*


Secondary enrichment in the Caledonia mine, Coeur d'Alene district, Idaho, by E. V. Shannon: Econ. Geology, vol. 8, pp. 565-570, September, 1913.§


Geology and ore deposits of the Mackay region, Idaho, by J. B. Uempley: U. S. Geol. Survey Prof. Paper 97, 1917.§


A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, 1919.‡
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Big silver-lead producer in Idaho (Hecla Mine), by W. E. Carr: Compressed Air Mag., vol. 30, pp. 1375-1379, September, 1925.


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.


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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.*


SULPHUR

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


TALC

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

TIN

Tin has been found in the placer mines in the Gravel Range mining district of Lemhi County.


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 of these deposits to indicate that tungsten is one of the State's substantial mineral resources.


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 order of prominence, are Shoshone, Blaine, Camas, Custer, Lemhi, Bonner, Boise, Boundary and Butte.

The bibliography for those ores in which zinc is a secondary metal, will be found classified under the principal ore. Mining, milling and smelting methods will be found under the county in which the plant is located.


Origin and distribution of ore in the Coeur d'Alene, by O. H. Hershey, published for the author as a pamphlet by the Min. and Sci. Press, 32 pp. 1916.**


Geology and ore deposits of the Mackay region, Idaho, by J. B. Umpleby: U. S. Geol. Survey Prof. Paper 97, 1917.‡

A reconnaissance of the Pine Creek district, Idaho, by E. L. Jones, Jr.: U. S. Geol. Survey Bull. 710, pp. 1-36, 1919.‡


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.**


Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, 1930.**


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.*


The safety and health of the men employed in the mines, mills, reduction works and other refineries of the mining industry in Idaho, is of paramount importance to this department. In line of duty, the Inspector of Mines visited in person each mining county of the state. During these examinations many suggestions and recommendations were made to men and their employers with a sincere hope that working conditions could be improved, the safety and health of employees safeguarded, and the avoidable accidents cut to a minimum. The Inspector was greatly assisted in this program by the cooperation of various agencies and individuals. Any success we may have attained in reducing the number of accidents is due to the cooperative efforts of all of us. Each and every man is entitled to credit for his share in this effort. There is much to be done along safety lines so let us renew our enthusiasm to perfect a mutual understanding and good feeling that is so necessary in safety work. Only then may we arrive at our goal of perfection in making a more safe and happy living for all of us.

Most of the larger companies have, for many years, maintained their own safety organizations. These organizations, in cooperation with the U. S. Bureau of Mines and the Central Mine Rescue Station, give first-aid training with instruction in mine rescue to the men and watch the workings for dangerous conditions, which are remedied as soon as possible. However, there is much to be done and many improvements made before our program can possibly meet with success. The Inspector suggests that each individual be a safety-first-man and assist in bringing about better working conditions as they pertain to health and safety. Safety suggestions and constructive criticism are always welcomed and essential in the furtherance and success of most any program to keep it from becoming stagnated.

It is impossible for any one man to carry out a successful safety campaign all over the state and at the same time give the proper attention to other duties of the office. To carry on this work in an intensive manner, the personnel of the department should be enlarged so that closer supervision and continual check could be made, instead of a brief visit once a year, which is all that is possible under present arrangements. This is provided for by Section 46-108, Idaho Code Annotated, but an appropriation has never been made adequate for this purpose.

The minor accidents, listed in the accompanying table, “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, yet, we believe the record is as complete as it is possible to obtain. Although the U. S. Bureau of Mines and agencies of state government are listing these minor injuries of less than seven days in their reports, they have all been omitted in the accompanying table.

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.”

Out of a total of 838 accidents reported during the year, 24 were fatal. The number of fatal accidents occurring in connection with underground mining was 22 as compared with 8 during a like period in the year 1939 and 13 in the year 1938. In the total of fatal accidents for the year 1940 are included two milling accidents, caused by falls of persons and machinery. In some of these cases death did not occur until a considerable length of time had elapsed with death resulting from further complications of the injuries.
A comparison of the total number of accidents during the year 1940 with those of a like period in the year 1939 show an increase in compensable accidents of 102. The increase was due, perhaps to speeding up production and to a larger number of men employed in the mining industry.

In 1940 there were 24 fatal accidents compared with 13 that were fatal during the preceding year of 1939, a total of 15 fatal accidents were recorded for the year 1938, a total of 22 fatal accidents for the year 1937 and a total of 30 fatal accidents were recorded for the year 1936. Although the fatal and other compensable accidents increased during 1940 over the number for the preceding year it is encouraging to note that many, and in fact most of the compensable accidents recorded for the year 1940 were of a minor nature.

DESCRIPTION OF FATAL ACCIDENTS


Donahue fell while working and severely bumped or bruised right arm, shoulder, back of neck and head, causing cerebral hemorrhage which resulted in death on January 20, 1940. The deceased is survived by his wife Lucretia and three minor children; James Lyle, 10, Paul Vernon, 9, and Joan Lucretia, 5. No report was submitted to this department so this information was taken from the files of the Industrial Accident Board.

January 7, 1940; Idaho Mining & Milling Syndicate (Black Lady Mine); Elk City, Idaho County, Idaho. George E. Stowell, married, mill superintendent, age 52.

The deceased was turning over a steam engine with a piece of pipe (which was employed as a bar for that purpose) in order to run belt on line shaft pulley above. The engine kicked backward causing the pipe to strike Stowell on the head, fracturing skull. It is the opinion of those present that a piece of scale or other obstruction was under valve on steam line permitting a slight leakage into steam chest sufficient to kick engine backward when turned past center. Stowell was taken to the Cottonwood hospital where he died January 10, 1940.

January 30, 1940; American Smelting & Refining Company (Jack Waite Mine); Duthie, Shoshone County, Idaho. Dewey Nicholas Swanson, single, timberman, age 41.

The round had been mucked out, and the back barred down. Swanson and his partners, Earl Mutch and Louis Kassa were putting in a lead set of timbers. The back was only 8 feet high. The sill was laid and the footwall post was in place. Swanson was cleaning out sill dap preparatory to standing the hanging wall post when rock sloughed from the back injuring head, chest and leg. Doctor Herbert C. Mowery, coroner, conducted an autopsy and reported that death resulted from a fractured skull, broken neck, crushed chest and fractured left leg. If the men had taken time to boom ahead poles or stringers and cribbed to the back this accident could have been avoided.

AFFIDAVIT

I, the undersigned, Earl Mutch, was working with Dewey Swanson on the 4th Floor in the 107-Idaho Stope on the night of January 30, 1940. Swanson had sent me back to get a post to be used for stope set, which we were preparing to put in. As I turned to go for the post, I left Swanson cleaning muck off sill for post to set on. I had walked about 5 feet when I heard ground starting to fall. I immediately turned to see Swanson in a bent over condition with rock on his back and legs. I called Louis Kassa, who was drilling four sets down from us, to help get Swanson out. Together, we removed rock from his back and pulled him out into the clear. At the time we removed Swanson, he was unconscious. We tried to make him as comfortable as possible. Kassa said he would stay with Dewey while I went out for aid. I left the mine by way of the 400 portal. When I reached surface, I
noticed train crew at framing shed and I called to them to take basket into the mine, that a man was seriously hurt up in Idaho. I, then, proceeded back into the mine and went up to the place where Swanson had been hurt and helped take him down to 1000-level. The train crew, Robert Austin, foreman, and C. H. Blackwell, shift boss took Swanson out to the dry.

EARN MUTC.

Witness:
ROBERT B. AUSTIN.

Subscribed and sworn to before me this 30th day of January, 1940.
H. L. KINDRED,
Notary Public,
Residing at Duthie, Idaho.
Commission expires November 3, 1941.

AFFIDAVIT

I, the undersigned, Louis Kassa, was working in the 107-Idaho Stope on 4th Floor, the night of January 30, 1940.

I was working four sets down from Swanson and Mutch. I had drilled one hole when I noticed Swanson and Mutch talking. I shut off machine and called down to Swanson asking if he wanted me to stop drilling until he had caught up the ground. He called back and said, “No, go ahead, we will make it alright.” I started to drill the second hole. Had drilled a few minutes then stopped to change steel in the machine. I was just swinging machine around when I heard rock fall and I looked over to where Swanson was working. At about the same time, Earl Mutch, Swanson’s partner, called to me for help. I went over and helped Mutch remove rocks off Swanson’s body and pulled him up in the clear. I stayed with him while Mutch went out for aid. While alone with Swanson, he regained consciousness and asked me what had happened and if they had sent for the basket. I told him Mutch had gone out to get the basket and help. I tried to make him as comfortable as possible until the crew came with the basket, which I would judge was about a half hour.

LOUIS G. KASSA.

Witness:
FRANK M. MCKINLEY.

Subscribed and sworn to before me this 30th day of January, 1940.
H. L. KINDRED,
Notary Public,
Residing at Duthie, Idaho.
Commission expires November 3, 1941.

AFFIDAVIT

I, Charles Blackwell, the shift boss of Dewey Swanson do testify as follows:

I was notified by Joseph Ruskey skip tender at 196-Montana shaft that someone was hurt at the 107-Idaho Stope. I ran down the 1500 level to the Idaho raise. Russell Anspaugh, motorman, was there with the basket. He had sent his helper up the raise to the 1000 level. I immediately took the basket and went up to the 1000 level. Henry Ringstmeyer, motor helper, was there and hoisted the basket and myself up 107 raise to the 800 level. I carried the basket from there to the 4th floor of the 107 stope. Dewey Swanson was lying on the floor with Louis Kassa watching him. Swanson asked me when I was going to get him out. I said, right away. I saw that I needed more help so ran to the 107 raise and called down for help. Earl Mutch and Robert Austin came up. We put Swanson in the basket and took him out of the stope and lowered him to the 1500 level. We then loaded him on the motor and took him to the dry house. He was there about 10
minutes before he stiffened up and then relaxed. John Carlson felt over his heart and his pulse and said he was dead. Frank McKinley and I also felt his pulse and got no reaction. We then put a mirror over his mouth and nostrils and then saw for sure that he was dead.

I had cruised through 107 stope about one and one-half hours before the accident happened. I looked at the ground with Swanson and it looked very safe. I then left to cruise through the rest of the mine.

C. H. BLACKWELL.

Witness:
ROBERT B. AUSTIN,

Subscribed to and sworn before me this 30th day of January, 1940.
H. L. KINDRED,
Notary Public,
Residing at Duthie, Idaho.
Commission expires November 3, 1491.

February 2, 1940; Whitedelf Mining & Development Company; Clark Fork, Bonner County, Idaho. Duncan M. Moulton, married, laborer.

Moulton and a fellow workman by the name of Harold Shields started to ride up the shaft in a bucket. The bell cord broke and came down the slide to meet the bucket. In the excitement the men decided to abandon the bucket and jumped out into the manway compartment. Shields landed safely on the ladder but Moulton who jumped a moment later lost his balance and fell 130 feet down the shaft. Death resulted from crushed head, bruises and lacerations. The deceased is survived by his widow and three minor children. This accident could have been avoided. The men had absolutely no protection from falling obstacles and the bucket on which they attempted to ride was used for lowering material and hoisting muck and never intended for the transportation of men. In the last analysis this was a direct infringement upon the safety laws of the state of Idaho. By their actions these men were courting a serious or fatal accident.

March 11, 1940; Mackay Exploration Co., (Empire Group); Mackay, Custer County, Idaho. Mike Jurkovich, single, miner-lessee, age 64.

In what is known as 957 stope, 900 level, Empire Mine, Jurkovich was removing old timber and lagging from abandoned workings for use on his lease block, known as 958 stope. In salvaging some of the lagging a slab of rock was dislodged striking the deceased. Death resulted from a badly crushed chest and his right arm was also broken. This man was warned not to go into the old workings and take any chances. Ignoring this advice in order to salvage some old timber that could be used in his own working place, he took unnecessary chances which resulted in his death. This accident could have been avoided.

AFFIDAVIT IN REGARD TO THE DEATH OF MIKE JURKOVICH

State of Idaho,
County of Custer.

Mike Marinac, being first duly sworn deposes and says that he is a citizen of the United States, over the age of twenty-one years and a resident of Mackay, Custer, County, Idaho.

Affiant states further that he and Mike Jurkovich are partners in a lease which they procured from the Mackay Exploration Company, an Idaho Corporation, operating the Mackay Metals Mining Property near White Knob, Custer County, Idaho, going to work Friday, March 8, 1940; that affiant and the said Mike Jurkovich worked said lease on Friday and Saturday and Monday, March 8, 9, and 11, 1940, until about two o'clock P. M. of March 11,
1940; that they had a block of ground known as No. 958 on the nine hundred level of said mining property; that while they were working on March 11, 1940, the said Mike Jurkovich went into a block of ground known as No. 957 and into a stope therein and pulled down some old lagging from said stope; that affinant told the said Mike Jurkovich, while the latter was pulling down said lagging, to be careful and not to pull down all the lagging as it was dangerous, but Mike Jurkovich went ahead anyway and said he was going to pull one more lagging, then a big slab of rock fell from the wall of the stope, his miner's lamp went out, and Mike fell down two sets; then, affiant ran over to where he lay and found him badly injured and unconscious and after two or three minutes pulled his body to a safe place to one side, and then Mike said in English: "Please lift me up," but he said nothing more; then affiant ran for help, and got Joe Vidas and Pat Espinosa to help, and in a few minutes Donald, Burdett and Burkett Savaria, Harold Morris came and all of said persons with affiant carried Mike's body out of the mine. Mike Jurkovich did not speak again after the above words, and breathed apparently until he was brought to the main 900 level when he did not seem to breathe any more.

Affiant further states that the accident above stated happened on the block of ground known as No. 957 and not on or within the confines of the Lease Block of Ground known as 958, which affiant and the said Mike Jurkovich held under their said lease, and that neither affiant nor the said Mike Jurkovich had any authority from the Mackay Exploration Company to go upon or into said Block No. 957 to get timbers or for any purpose, and they went into said Block No. 957 entirely on their own authority.

Affiant further states that he warned the said Mike Jurkovich not to go into the place or stope where he went as he told Mike it was dangerous and affiant would not go into said place where the accident occurred for this reason; that when affiant told Mike not to go into said place, Mike replied that it was alright.

Affiant further states that in his opinion the said slab of rock fell and crushed Mike Jurkovich and he died from the results of said injury, as said rock was lying on Mike's left arm when affiant got to Mike; that affiant was about 20 feet distant from Mike when the accident occurred.

That affiant came down to Mackay from said mine, in company with Pat Espinosa, Donald Savaria, Burkett Savaria, and Harold Morris, and they brought the body of Mike Jurkovich to Dr. Richards' Office at Mackay, for examination and after such examination, Dr. Richards pronounced the said Mike Jurkovich dead.

Subscribed and sworn to before me this 11th day of March, 1940, at Mackay, Custer County, Idaho.

MIKE MARINAC.

GEORGE L. AMBROSE,
Notary Public,
Mackay, Idaho.


This fatality is a carry over from the year 1939. On December 1, 1939, Nick Burdega was working underground at the Bunker Hill mine when a falling lagging struck his head resulting in serious injury and death. The deceased is survived by his wife Margaret and two children, Mary, age 14; and Helen, age 9. This information was taken from the files of the Industrial Accident Board.

March 17, 1940; Coeur d'Alene Mines Corporation; Osburn, Shoshone County, Idaho. Hans Block, married, hoistman, age 57.

Block was starting one of a battery of three compressors. By remaining visible evidence the deceased neglected to open valve on discharge line. Too
great a pressure was built up and caused high pressure cylinder to shatter. A flying fragment hit Block on head and he was thrown across the room causing a skull fracture which resulted in death on March 1, 1940. No one witnessed the accident, but it is my opinion this accident could have been avoided if the man had checked up on the machine and air lines before starting the compressor. Mark this accident up due to an error of omission. Although the man was an experienced employee and had worked around compressors for many years his mind did not seem to be concentrated on the particular business at hand.


In a cement withdrawing tunnel beneath cement storage bins, a covered screw conveyor at floor level convey cement to packing machine elevator at south end of tunnel. The conveyor trough was covered at the time of the accident with lattice covering (2” opening) fitting down into trough and fastened in place with 30-inch walkways on each side of conveyor trough. A 6-inch pipe conducting cement from bin above choked up. Deceased opened closing gate wide and cleared plug-up with poke rod. Cement flushed, overflowing conveyor and tunnel floor to depth of approximately 24 inches. It is believed that conveyor cover was not fastened down at point of accident or was misapplied, and that overflow of cement lifted cover out of position which permitted tipping when deceased stepped on cover. The trough cover was not damaged in any way at time of accident. The deceased man’s left leg became entangled with the conveyor screw and was severed at the knee. Death resulted 50 minutes after the accident while Corbett was on the operating table.

The scene of the accident has been repaired and remodeled so a recurrence of this particular accident will be avoided.

STATEMENT

Statement of Herman Bloom, eye-witness to fatal accident occurring to Dave Corbett in the cement stockhouse tunnel of the Washington-Idaho Lime Products Company, Orofino, Idaho, on Tuesday morning, March 26, 1940:

“T was engaged in drawing cement from the bins above the stockhouse tunnel to the screw conveyor in the tunnel floor that carries the cement to the packing machine. At approximately 8:30 A.M. the cement pipes leading from the bin above became choked up and deceased was clearing the pipe with a light weight poke rod. Closing gate at end of pipe was wide open, and when cement came through the pipe, considerable flushing occurred overflowing the conveyor and floor. Deceased withdrew clearing rod, threw clearing rod to opposite side of tunnel, and started to leave for packhouse floor at south end and above tunnel to load cement car. During these movements I felt conveyor guard grill hit against my foot on opposite side of tunnel from deceased, at which time the left leg of deceased became entangled with conveyor.

“I ran immediately to the shut-off switch, shouting announcement of the accident to the stockhouse foreman, who returned to the scene before me. Due to the height at which cement covered the conveyor and floor (approximately 24 inches) we started to shovel the cement away from deceased preparatory to releasing him. In view of the other two men present to shovel, I left to notify the office, after which I returned to the scene of accident with several other men, superintendent and manager. Digital pressure was applied to thigh artery while deceased was entangled in conveyor and tourniquet was applied to thigh prior to his release. The screw conveyor and cross-member braces were cut with oxy-acetylene torch on both sides of deceased to release the injured leg after the overflowed cement was cleared to permit this work. Deceased was taken to the hospital after inspection by the doctor that was called to scene of accident while deceased was still entangled.
in conveyor. Deceased arrived at hospital in ambulance approximately 20 minutes after accident occurred and was conscious during the above period.”

HERMAN BLOOM,
Eye-witness.

Subscribed and sworn to before me this 28th day of March, A. D., 1940.

R. T. RICHARD,
Notary Public in and for the State of Idaho; Residing at Orofino, therein. My commission expires May 15, 1941.

April 1, 1940; Federal Mining & Smelting Company, Morning Mine; Mullan, Shoshone County, Idaho. Charles E. Johnson, married, shaftman, age 46.

The crew was mucking in the bottom of the 3850 offset shaft below the 4250 level. It was Johnson’s first shift as a shaftman and he was employed as pusher or jigger boss. In hoisting a bucket of muck the bell cord broke and there was a delay while the hoistman repaired the bell cord. In investigating the delay and to determine what was wrong the deceased climbed up the shaft and probably met the bucket as it was being lowered to the hang-up mark which is approximately 35 feet above the rough bottom. The deceased fell about 40 feet to bottom of shaft receiving a fractured skull and neck which resulted in instant death. This job of sinking had just been started and ladders were not placed in the pipe compartment making it necessary to climb up through the hoisting compartment. In an effort to make good on a new job, the deceased became unduly nervous over the delay and took a very long and unnecessary chance in climbing up the hoisting compartment when the bucket was above. There is an old saying that “Rome was not built in a day.” This accident could have been avoided. The deceased is survived by his widow, Mrs. Tillie N. Johnson, Soap Lake, Wash., and a daughter, Laura Johnson, a Fairfax, Wash., school teacher.

AFFIDAVIT

I, Joseph Labersweiler, do hereby testify that I was working at the bottom of the new offset shaft in the Morning mine on Monday night, April 1, 1940, when Charles E. Johnson was fatally injured.

The bell cord had jerked a couple of times and Johnson had climbed up the shaft to find out what was wrong. Approximately five minutes had elapsed from the time he left the place where I was working when he suddenly fell that distance to the bottom. I helped bring him out at once but he was dead. He died almost instantly.

EILEEN K. RYAN,
Witness.

L. I. MARTEL,
Witness.

Sworn to and subscribed before me this 3rd day of April, 1940.

PHILIP J. CONLEY,
Notary Public.

AFFIDAVIT

I, Jesse Jenkins, testify hereby that on Monday night, April 1, 1940, I was working at the bottom of the new offset shaft in the Morning mine when Charles E. Johnson fell in the shaft and was killed instantly.

Something seemed wrong with the bell cord. Johnson climbed up the shaft to find out what was wrong. About five minutes after he left where we
were working I heard him fall to the bottom. I helped Labersweiler bring him out right away. I judge he fell about 40 feet.

EILEEN K. RYAN,
Witness.

L. I. MARKEL,
Witness.

Sworn to and subscribed before me this 3rd day of April, 1940.

PHILIP J. CONLEY,
Notary Public.

AFFIDAVIT

I, Arthur Olkonen, testify hereby that on Monday night, April 1, 1940, I was working at the bottom of the new offset shaft in the Morning mine when Charles E. Johnson was fatally injured.

Mr. Johnson thought something was wrong with the bell cord and said, "I'll go up and see what's wrong." About five minutes after he left the place where we were working, he fell to the bottom. I helped Labersweiler and Jenkins get him to the top but did not come on out.

AILEEN K. RYAN,
Witness.

L. I. MARKEL,
Witness.

Sworn to and subscribed before me this 3rd day of April, 1940.

PHILIP J. CONLEY,
Notary Public.

VANCE L. DEWEY.

Sworn to and subscribed before me this 3rd day of April, 1940.

PHILIP J. CONLEY,
Notary Public.

April 24, 1940; Coeur d'Alene Mines Corporation; Osburn, Shoshone County, Idaho. Robert C. Ross, married, timberman, age 36.

Ross was working in a chute, preparing to start a new floor above the 1400 foot level. The ground had been spragged and a bulkhead built for the protection of men working below. A large slab of ore broke away from a slip, carrying stulls, bulkhead and other debris, including muck down on top of Ross. The deceased was not given sufficient warning in order to jump clear as everything happened so quickly and was killed instantly. The place was
ACCIDENTS

being mined safely and intelligently. Safety precautions were taken and usual mining practice was followed. In my judgment this accident could be classed as unavoidable.


Miles was bringing up part of mucking machine for repairs. The winze was 20 degree pitch. Miles was riding the skip bail, lost his balance, fell in front of skip and was rolled for about 6 feet. Death resulted the day after the accident from fractured ribs and injuries to back and spinal cord which developed into hypostatic pneumonia. This accident could have been avoided by riding the skip in a more secure position.

May 9, 1940; Warren Dredging Company, (Fisher & Baumhoff); Warren, Idaho County, Idaho. Charles Green, single, dredge laborer, age 64.

Charles Green was helping to dismantle a dredge. He started to walk a plank above the screen from which some of the plates were removed. The plank broke letting Green fall to the screen, a short distance below. The deceased died May 22, 1940, from injuries to his back and left elbow. This information was obtained from the records of the Industrial Accident Board.

May 30, 1940; Polaris Mine; Osburn, Shoshone County, Idaho. E. G. Ingham, married, shoveler—timber helper, age 47.

Ingham and his partner, Kenneth Fontaine had mucked out the round on the 2100 intermediate level off No. 33 raise. The previous round had boot-legged badly. The men had reloaded about 12 of the 19 holes and were in the act of "spitting" when the accident occurred. In some way the men miscalculated the time they had to "spit" the round of 12 holes and waited too long in the working place. The face was comparatively dry and unless the knife Ingham was using to split the fuse was dull I can't figure any reason why it should take so much time to spit a round of 12 holes. Body and head injuries from the exploding of the round caused Ingham's death. The body was found 50 feet back from the face of the drift and about 15 feet from the manway in No. 33 raise. Fontaine received injuries to his eyes and face.

The following table of fuse burning time is the result of trials with Sequoia fuse at the Polaris Mine, May 30, 1940.

<table>
<thead>
<tr>
<th>5' Lengths</th>
<th>1—3 Min. 35 Sec.</th>
<th>2—3 &quot; 33 &quot;</th>
<th>3—3 &quot; 38 &quot;</th>
<th>4—3 &quot; 40 &quot;</th>
<th>5—3 &quot; 38 &quot;</th>
<th>6—3 &quot; 35 &quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average 3 Min. 36.5 Sec.</td>
<td>Greatest Spread, 7 Sec.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6' Lengths</td>
<td>1—4 Min. 18 Sec.</td>
<td>2—4 &quot; 22 &quot;</td>
<td>3—4 &quot; 20 &quot;</td>
<td>4—4 &quot; 18 &quot;</td>
<td>5—4 &quot; 18 &quot;</td>
<td>6—4 &quot; 18 &quot;</td>
</tr>
<tr>
<td></td>
<td>Average, 4 Min. 19 Sec.</td>
<td>Greatest Spread, 4 Sec.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7' Lengths</td>
<td>1—5 Min. 5 Sec.</td>
<td>2—5 &quot; 0 &quot;</td>
<td>3—4 &quot; 48 &quot;</td>
<td>4—5 &quot; 0 &quot;</td>
<td>5—4 &quot; 45 &quot;</td>
<td>6—4 &quot; 30 &quot;</td>
</tr>
<tr>
<td></td>
<td>Average, 4 Min. 51 1/3 Sec.</td>
<td>Greatest Spread, 35 Sec.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 8' Lengths

<table>
<thead>
<tr>
<th>Length</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 Min.</td>
<td>40 Sec.</td>
</tr>
<tr>
<td>2-5 “</td>
<td>44 “</td>
</tr>
<tr>
<td>3-5 “</td>
<td>42 “</td>
</tr>
<tr>
<td>4-5 “</td>
<td>45 “</td>
</tr>
<tr>
<td>5-5 “</td>
<td>42 “</td>
</tr>
<tr>
<td>6-5 “</td>
<td>41 “</td>
</tr>
</tbody>
</table>

Average, 5 Min. 42 1/3 Sec.  
Greatest Spread, 5 Sec.

The following 6' lengths were cut from the same reel of fuse as used by Ingham.

<table>
<thead>
<tr>
<th>Length</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 Min.</td>
<td>20 Sec.</td>
</tr>
<tr>
<td>2-4 “</td>
<td>10 “</td>
</tr>
<tr>
<td>3-4 “</td>
<td>15 “</td>
</tr>
<tr>
<td>4-4 “</td>
<td>20 “</td>
</tr>
<tr>
<td>5-4 “</td>
<td>17 “</td>
</tr>
<tr>
<td>6-4 “</td>
<td>16 “</td>
</tr>
</tbody>
</table>

Average, 4 Min. 27 Sec. or 1.4045' Per Min.  
Greatest Spread, 10 Sec.

---

**STATEMENT**

When I visited Ingham and Fontaine during the shift (about 12:30 midnight) I noticed that holes blasted by the previous shift did not break and had left some "bootleg" holes from 12" to 40" deep. I told Ingham and Fontaine to muck out the drift and then to reload the "cuts," "half cuts," "lifters" and "digger" holes, amounting to about 12 holes in all out of a round of 19 holes. I left the shooting of the holes entirely to Ingham and went on my way to visit other working faces.

I was on the 1000 station, checking over my daily reports when the call from 2300 regarding Ingham and Fontaine came to me.

I immediately went down to the 2300 level, taking a "basket" and some first aid supplies. Henry Ruffier and Donald Thornton took the basket and first aid material to the foot of 33 raise to attend to Fontaine and I arranged by Mine phone for a crew to go down through 1900-33 raise to the 2100 level as a crew from this location could reach 2100 faster than one from 2300. I also arranged for one man to operate the hoist at 33 raise from the 2300 for the crew from 1900 level.

According to Fontaine, his partner—E. G. Ingham was dead. I decided to be sure that Fontaine was properly taken care of and delivered to the Hospital with all possible speed. When this was assured I returned to 1900 level, climbing down to 2100 drift with James F. McCarthy, Jr., Mine Supt. We examined all of the drift to determine what could have caused the blast. Everything was in good condition and there were no missed holes.

**H. R. WELLMAN,**  
Witness.

---

**STATEMENT**

I was on the 1000 station, Ben Bird (shifter) called me and gave instructions for proceeding to 2100 intermediate level drift, where there had been an accident and he thought, one man killed. Guy McKenzie, Ambrose Daiker, Walter Kelso and myself then proceeded to the 1900 level, 33 raise and climbed down to the 2100 level where we found the body of Ingham about 15 feet back in the drift from the manway.

**W. G. BELL.**

**STATEMENT**

Ben Bird (shifter) sent word to W. G. Bell, Ambrose Daiker, Walter Kelso and myself to proceed to 1900 level and to climb down 33 raise to the 2100 intermediate level where there had been an accident and he thought one man killed. We were the first men to arrive at the scene of the accident. We found Ingham, dead, about 15 feet back in the drift from the manway. I went
up to the face of the drift and could find no missed holes or other unusual circumstances and then we proceeded to remove the body.

GUY McKENZIE.

H. R. WELLMAN,
Witness.

STATEMENT

I was helping the Cager (W. G. Bell) on the 1000 station when a call came in from 2300 level saying that some men had been caught in a blast on the 2100 level and probably one man killed. I prepared the basket and some first aid supplies and went to 2300 level. Ben Bird (Shifter) phoned to some men on 1000 station and gave them instructions to proceed to 1900 level, and then to climb down 33 raise to 2100 level drift, and I returned to 1000 station with the cage.

Guy McKenzie, W. G. Bell, Ambrose Daiker and myself went to 1900 level and climbed down 33 raise to the 2100 drift, where we found the body of E. G. Ingham, about 15 feet back in the drift from the manway.

WALTER KELSO.

H. R. WELLMAN,
Witness.

STATEMENT

My partner (A. B. Furnish) and myself drilled out 19 holes and blasted them when going off shift (day—May 29th). We had one wet hole and had no reason to believe that all the holes would not break, we used double primers in the lifters, single primers in all others. When cleaning out and preparing the ground on the day shift (the day after the accident) I found 2 positive missed holes and a third probable missed hole, I also found several small pieces of fuse, as though the person shooting the last holes (night shift) might have had trouble in cutting fuse. I also found a small pocket knife of very poor construction and very dull and it is not likely that a successful cut on fuse could have been made with this knife, thereby "mashing" and bruising the fuse enough to make it difficult to "spit."

WILLIAM H. HIGHTOWER.

A. B. FURNISH,
Witness.

STATEMENT

I was operating the hoist at 32 raise on the 2300 level. The miners in the back of this raise were not supposed to blast their round until Fontaine and Ingham came out of 2100 drift (through 33 raise). I had received no word from them and I walked back toward the foot of 33 raise to find out why they were late and found Fontaine at the foot of the raise, he had been injured and he told me that he and his partner (Ingham) had been caught in a blast. I took care of Fontaine and called Donald Thornton and Henry Ruffier (my partners at 32 raise) and as Fontaine was so severely injured we took him to the 2300 station and I called Ben Bird (Shifter) on the 1000 station, who immediately came down to 2300 level. My partners and myself brought Fontaine to the 1000 station and out to the surface. We did not go up to 2100 level, as Bird had directed some men to come to that level from the 1900 level. I asked Fontaine what had happened and he said that he told Ingham that the fuses were cut too short and that they had better get out of there and almost immediately the blast occurred.

RAY BOYD.

H. R. WELLMAN,
Witness.

June 6, 1940; Clark Fork, Bonner County, Idaho. Fred Carlson, single, prospector, age 46.

Fred Carlson, 46, a prospector, lost his life when trapped in a tunnel on a claim east of Clark Fork.
## Classification of Accidents

<table>
<thead>
<tr>
<th>MINE</th>
<th>Fatal</th>
<th>Seriously Injured</th>
<th>Permanently Partial Disability</th>
<th>Slightly Injured</th>
<th>Time Lost over 14 Days</th>
<th>Time Lost 7 to 14 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDERGROUND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Fall of rock or ore from roof or wall</td>
<td>7</td>
<td>6</td>
<td>70</td>
<td>45</td>
<td></td>
<td></td>
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<tr>
<td>2. Rock or ore while loading at working face or chute</td>
<td>1</td>
<td>9</td>
<td>38</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Timber</td>
<td>2</td>
<td>1</td>
<td>33</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Explosives</td>
<td>2</td>
<td></td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Haulage, cars or motors</td>
<td>2</td>
<td>2</td>
<td>27</td>
<td>16</td>
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<td></td>
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<tr>
<td>6. Persons falling down chute, winze, raise or stope</td>
<td></td>
<td></td>
<td>8</td>
<td>2</td>
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<tr>
<td>7. Drilling (by machine or hand drills)</td>
<td></td>
<td>2</td>
<td>24</td>
<td>15</td>
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<tr>
<td>8. Hand tools</td>
<td></td>
<td>4</td>
<td>20</td>
<td>16</td>
<td></td>
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<tr>
<td>9. Machinery (other than motors or drills)</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>5</td>
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<td></td>
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<tr>
<td>10. Flying or falling objects</td>
<td>1</td>
<td>3</td>
<td>36</td>
<td>24</td>
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<tr>
<td>11. Fall of persons</td>
<td>1</td>
<td>1</td>
<td>27</td>
<td>21</td>
<td></td>
<td></td>
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<tr>
<td>12. Lifting</td>
<td></td>
<td></td>
<td>31</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Nails and splinters</td>
<td></td>
<td></td>
<td>7</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15. Other causes</td>
<td></td>
<td>2</td>
<td>12</td>
<td>9</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>18</td>
<td>31</td>
<td>345</td>
<td>229</td>
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<table>
<thead>
<tr>
<th>MILL</th>
<th>Fatal</th>
<th>Seriously Injured</th>
<th>Permanently Partial Disability</th>
<th>Slightly Injured</th>
<th>Time Lost over 14 Days</th>
<th>Time Lost 7 to 14 Days</th>
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</thead>
<tbody>
<tr>
<td>MILLING ACCIDENTS</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Haulage (cars and locomotives)</td>
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<tr>
<td>2. Railway cars or motors</td>
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<tr>
<td>3. Crushers, rolls or stamps</td>
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<tr>
<td>4. Tables, jigs, etc</td>
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<td></td>
<td>1</td>
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<tr>
<td>5. Other machinery</td>
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<td>1</td>
<td>5</td>
<td>5</td>
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<td></td>
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<tr>
<td>6. Falls of persons</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
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<tr>
<td>7. Falls in ore bins</td>
<td></td>
<td></td>
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<tr>
<td>8. Falling objects, (rocks, timbers)</td>
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<tr>
<td>9. Scalding (steam, water or acid)</td>
<td></td>
<td></td>
<td>3</td>
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<tr>
<td>10. Lifting</td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Hand tools, axes, bars, etc</td>
<td></td>
<td></td>
<td>2</td>
<td>4</td>
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<td></td>
</tr>
<tr>
<td>12. Nails, splinters, etc</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
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<td></td>
</tr>
<tr>
<td>13. Electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14. Other causes</td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Drowning</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>2</td>
<td>3</td>
<td>26</td>
<td>24</td>
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<tr>
<td>SHAFT ACCIDENTS</td>
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<td></td>
<td>SMELTER ACCIDENTS</td>
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<tr>
<td>16. Falling down shaft</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td>16. Haulage (cars, motors, etc.)</td>
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<tr>
<td>17. Objects falling down shaft</td>
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<td>17. Machinery</td>
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<tr>
<td>20. Cage, skip or bucket</td>
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<td>3</td>
<td>2</td>
<td>20. Lead fumes</td>
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<tr>
<td>21. Falling ground, nails, splinters, explosives, pumps and other causes</td>
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<td>10</td>
<td>4</td>
<td>21. Flying or falling objects (rocks, timbers, etc.)</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>4</td>
<td>10</td>
<td>8</td>
<td></td>
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</tr>
</tbody>
</table>

| SURFACE ACCIDENTS | | | | | AUXILIARY WORKS | | | | | |
|-----------------|---|---|---|---|------------------|---|---|---|---|
| Yards, shops and construction | | | | | 25. Falls of persons | | | | 9 | 6 |
| 22. Mine cars or mine locomotives, gravity or aerial trams | | | | | 26. Flying and falling objects | | | | 3 | 1 |
| 23. Flying and falling objects | | | | | 27. Nails and splinters | | | | 2 |
| 24. Lifting | | | | | 28. Hand tools, axes, bars, etc. | | | | 3 | 4 |
| 25. Falls of persons | | | | | 29. Lifting | | | | 8 | 2 |
| 26. Nails and splinters | | | | | 30. Machinery | | | | 10 | 4 |
| 27. Hand tools, bars, axes, etc. | | | | | 31. Handling hot materials | | | | 1 | 1 |
| 28. Falls or run of ore in or from bin | | | | | 32. Electricity and other causes | | | | 7 | 2 |
| 29. Machinery | | | | | TOTAL | | | | 41 | 22 |
| 30. Timber, open pits, snow slides and other causes | 1 | 1 | 3 | 5 | | | | | |
| TOTAL | 2 | 5 | 19 | | | | | | |
| GRAND TOTAL | 22 | 33 | 393 | 256 | | | | | |

| TOTAL | | | | | GRAND TOTAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 4 | | | | 2 | 3 | 79 | 50 |
The body was found by searchers who dug through about 100 feet of fallen material. The search was started when Carlson failed to appear in Clark Fork for supplies.

He is survived by a brother, John, at Bancroft, and a sister in Great Falls. He formerly resided at Arimo, Idaho.


Harry Martin, pumpman, was struck by ore train on 21 level of the Bunker Hill mine and instantly killed. Martin had just started up an auxiliary pump which had been temporarily placed on that level. There was plenty of clearance between the pump and the track for the pumpman or others who might happen to be working there. Due apparently to the noise made by the pump Martin did not hear the train which was being pushed by the motor and stepped directly in its path being knocked down and rolled for some 25 feet causing the end car to leave the track. The motorman on the rear of the train did not see Martin and found him when he investigated to learn the reason for the car leaving the track. All apparatus were in proper working condition. Martin had over twenty years underground working experience, was unmarried and had no dependents.

The train was visible for a distance of approximately 200 feet in the direction in which it was approaching. If Martin had looked both ways before stepping onto the right-of-way he might have been alive today, unless for some unknown reason the man was lying on the track in an unconscious condition at the time of the impact. If this condition did not exist I believe this accident could have been avoided.

AFFIDAVIT

G. H. Norgaard, on oath deposes and says:

At about ten minutes to twelve, midnight, last night, Erik Ferm, the motorman on No. 21 level, came into my hoistroom where John Hallas and I were, and told us something was wrong with his train and asked us to come and help him, one of his cars was off the track. Upon investigation we found Harry Martin, the pumpman, lying beside the derailed car so badly injured that he died in a few minutes.

G. H. NORGAAARD.

Subscribed and sworn to before me this 28th day of June, 1940, at Kellogg, Idaho.

IRA A. ROBSON,

Kellogg, Idaho.

AFFIDAVIT

John A. Hallis, on oath deposes and says:

I am the night electrician in the Bunker Hill mine. About 11:30 p. m., Thursday evening, June 27th, I was at the winze hoistroom on the No. 21 level with G. H. Norgaard, the hoistman on that level. Erik Ferm, the motorman on 21 level, passed the hoistroom with his train on the way to the Emery; the motor was on the No. 1 shaft end of the train, that is the motor was pushing the train. All at once Ferm came back to the hoistroom and asked us to come and help him, something had happened to his train. He backed the train up a ways, we crawled over the train, I was first, Norgaard was second and Ferm was third in crawling over the train. I found a miner's cap and
ACCIDENTS

light lying at the entrance to the new sump and then about 28 to 30 feet farther found the body of Harry Martin, pumpman, lying alongside the track.

JOHN A. HALLAS.

Subscribed and sworn to before me this 29th day of June, 1940, at Kellogg, Idaho.

IRA A. ROBSON,

Kellogg, Idaho.

AFFIDAVIT

Erik B. Ferm, on oath deposes and says:

I am a motorman for the Bunker Hill & Sullivan M. & C. Co. Thursday night, June 27th, 1940, I was hauling ore on the No. 21 level of the Bunker Hill mine. A little before midnight, about 11:30, I guess, I had hauled a loaded train loaded with ore to No. 21 station of the main shaft where I dumped it. After dumping it I started back with my empty train pushing it ahead of the motor. When I came to the winze station of the 21 level the first car of my train left the track. I called the hoistman, G. H. Norgaard, and the night electrician, John A. Hallas, who were nearby in the hoistroom, to come and help me get the car back on the track. I moved the train back a little ways and we crawled over it to find out what had caused the car to leave the track; we found the body of Harry Martin, the pumpman on 21 level, lying beside the track about 25 or 30 feet past the entrance to the new sump on that level.

ERIK B. FERM.

Subscribed and sworn to before me this 29th day of June, 1940, at Kellogg, Idaho.

IRA A. ROBSON,

July 12, 1940; Federal Mining & Smelting Co., Page mine; Page, Shoshone County, Idaho. Cecil Kindsvater, married, eager, age 35.

While loading muck at the 1800 station skip pocket Kindsvater was struck on the head by some undetermined object. There were no witnesses to the accident but it is assumed that the deceased was struck on the head by the gate lever of the loading chute, fracturing his skull which resulted in death about nine hours after the accident. Due to the surrounding circumstances it is impossible to determine whether this particular accident should be classed as avoidable or unavoidable.

AFFIDAVIT

I, Ray T. Lawrence, was the Master Mechanic in charge of the cagers at the time Cecil Kindsvater was fatally injured early in the morning of July 12, 1940.

I was called on the phone about 1:30 A. M., by the hoistman, Bert H. Lewis, who informed me that Cecil Kindsvater had been injured in the mine. I immediately went to the mine, and just as I arrived there he was brought to the surface by Rex Pollock and Tom Swink. He was placed in the basket stretcher and sent to the Wardner Hospital. He appeared to have a bad cut on the head, but was not bleeding, and he was unconscious.

(Signed)

RAY T. LAWRENCE

Sworn to and subscribed before me this 12th day of July, 1940.

M. G. McCANDLESS,
Notary Public.
AFFIDAVIT

I, H. B. Lewis, was the hoistman on duty early on the morning of July 12th, at the time Cecil Kindsvater was fatally injured.

We were hoisting ore from the 1800 level, Cecil Kindsvater as eager and I as hoistman. I hoisted the skip of ore after receiving the usual signal, and returned the skip to the ore pocket as usual. After a few minutes, when Cecil did not give the signal to hoist, I looked at my watch and it was ten minutes before one o’clock. I thought he had perhaps gone up to the station, and I waited for a time. About one twenty I called Elmer Timken who was working on the 1800 station, and asked him to look for Cecil, as he had not given the bell to hoist for some time. In about ten minutes Elmer called me on the phone and said that Cecil had been hurt. I immediately called Ray T. Lawrence at his home and reported the accident, and he (Lawrence) came in a few minutes. Cecil was brought to the top by Rex Pollock and Tom Swink, and after being placed in the basket stretcher was sent to the Wardner Hospital. He was not bleeding at the time, but was unconscious.

(Signed)

H. B. LEWIS.

Sworn to and subscribed before me this 12th day of July, 1940.

M. G. McCANDLESS,
Notary Public.

AFFIDAVIT

I, Elmer Timken, was working as sinker hoistman on the 1800 level station early on the morning of July 12th, at the time Cecil Kindsvater was fatally injured.

About 1:20 A. M., H. B. Lewis, the hoistman, called me on the phone and asked me to see what had happened to Cecil Kindsvater as he had quit giving hoist signals. I went to the shaft and called down to Cecil, and he made some sound which I thought was an answer to me. I went on about my work, and in about ten minutes he had not started hoisting, so I went over and called down, and again a sound, but I was not satisfied so I went down to where he was loading skips. He was moaning and saying “Oh God help me,” but apparently he was unconscious. He was sitting upright on a box in the back of the “cubby hole” with his skullgard hat on his head. I went back up to the 1800 station and signalled the men in the bottom of the shaft to come up, which they did in a few moments. We then went back to the “cubby hole,” and Cecil was sent to the top with Rex Pollock and Tom Swink. There was some blood on the floor and near the shaft, but he was not bleeding at the time.

(Signed)

ELMER TIMKEN.

Sworn and subscribed before me this 12th day of July, 1940.

M. G. McCANDLESS,
Notary Public.
July 31, 1940; Polaris Mine; Osburn, Shoshone County, Idaho. Michael B. O'Brien, married, sampler and motorman, age 53.

O'Brien was operating an electric locomotive on the 1500 haulage level of the Polaris mine. In order to look back over train O'Brien leaned out from motor and was caught between chute lip support and the motor, knocking him from the motor. The deceased was rolled between the train and drift wall approximately 25 feet, before his partner, Everett Burns, who was riding on back of last car, could climb over the train and stop motor. Death resulted from multiple abrasions of body, laceration of scalp and right leg, fracture of left radius and ulna, fracture of right femur at neck, multiple fractures of pelvis (left side), deep laceration of perineum, probable abdominal injuries and internal hemorrhage. Survivors include his widow, Jessie, Osburn; stepdaughter, Mrs. Vivian Young, Idaho Falls; a sister in Iowa, another in California; two brothers in Iowa and one in Oklahoma. This accident could have been avoided.

STATEMENT

During the last part of each shift and after O'Brien had finished his sampling job he would help me to operate the 1500 and 1900 level trains.

On this day we had just loaded five cars from 1500 level 31 stope raise and O'Brien climbed onto the motor and I climbed onto the last car, and started for the station. George Grismer, the mine foreman had talked with us and as the train started, Grismer began climbing up into 31 stope raise, I was looking toward the motor end of the train and seen O'Brien's hat and light fall and about the same time heard a scream, I realized that something was wrong and began climbing over the cars to reach the motor; when I reached the motor, O'Brien was not there and after stopping the motor I went back along the cars where I found O'Brien doubled up between the drift wall and the 3rd and 4th cars. I separated the cars and went to call Grismer at 31 raise. Grismer and U. C. Huff the shift boss came down from the raise and we took O'Brien out of the ditch and put him into a basket stretcher and sent him outside. The distance from the place of the accident to where we took O'Brien from the ditch is approximately 25 or 30 feet.

H. R. WELLMAN,
Witness.

STATEMENT

Burns and O'Brien had loaded a train of muck at 1500-31 raise and as they started away with the train I began climbing up into 31 raise, probably five minutes later Burns called me from the raise and told me that O'Brien was injured. I called some men from 31 raise to assist in caring for O'Brien. He was in the ditch between the cars and the drift wall.

O'Brien was able to talk and as I wanted all the details of the accident I asked him what had happened, he said that he did not know. I asked him if he hit the chute and he again said that he did not know. I turned to Burns and remarked that O'Brien must have hit the chute and then O'Brien spoke up and said that he hit a post and not the chute and that he had no business doing it and should have known better.

From this conversation and what I could see, it seems that O'Brien leaned over to watch the cars and his head struck against the post supporting the chute set at 30 raise, knocking him from the motor and into the space between the train and the drift wall.

H. R. WELLMAN,
Witness.

August 2, 1940; Hecla Mining Company; Burke, Shoshone County, Idaho. Lester B. White, married, shift boss, age 42.

Lester B. White, a veteran miner and shift boss at the Hecla mine, remained on the job after the day shift had been hoisted, to investigate and
supervise a particular piece of work that was under his direct supervision. Having completed his duties for the day he called for the cage on the 2800 level. The cager answered the call immediately. Picking up White, the cager belled to the Star skip pocket on the 2000 level where the cager got off the cage and gave the signal to the hoistman that a man was on the cage, going to the top station. It is believed that White fainted while riding the cage from the 2000 level skip pocket to the surface, rolled off the cage and fell over 1000 feet down the main shaft to the bulkhead at the bottom. Surviving are his widow, Catherine, and four small children, Shirley, Lester, Jr., Janet and Myrna White, all at Gem, Idaho.

STATEMENT  
August 2, 1940.

I was on 2000 station putting water in Star Skip Pocket when I got a cager's flash from 2800, and went down and picked up Les White. We came up to the 2000 Star Pocket and I got off. Les stayed on the skip and I rang the hoistman that there was a man on the skip going to the top. The skip went up and almost immediately a lamp and hat came down the shaft. Then I saw a man go by. I gave the hoistman a stop bell, and then rang 9 bells as a danger signal, followed by the 2000 station flash. I then yelled up to the pumpman on 2000 and told him to phone the hoistman and have the chippy cage come down and get me. After getting the chippy cage I came to the top. McDonald, Bunnell, and I then went down to the bulkhead, where we found White laying. We placed him on the cage and brought him to the 2800 station, where we put him in the basket and brought him to the top.

CLARENCE ROBERTS.  
Cager on Duty.

STATEMENT  
August 2, 1940.

While the cager was on the 2000 station he received a call to go to 2800 to pick up a man; he then belled me from 2000 to 2800; then he belled me from 2800 to the upper Star Skip pocket; he then belled me that there was a man on the cage going to the top. While pulling the skip to the top I received a stop bell at about the 1600 level; I then immediately stopped the skip. The cager gave me 9 bells, which is the danger signal, so the oiler sent the chippy cage down to see what was the matter. In the meantime the 2000 pumpman called on the phone and said a man had fallen down the shaft. (Main shaft).

MORT KEENE.  
Hoistman on Duty.

August 20, 1940; Triumph Mining Company, Triumph mine; Hailey, Blaine County, Idaho. Julian Aranguena, married, cager, age 52.

While unloading timber off the cage at the Triumph mine a piece of timber bounced back and fractured Aranguena's right ankle. Complications known as acute coronary thrombosis resulted in the man's death September 20, 1940. The deceased is survived by his widow, Mrs. Bessie Aranguena. This information was taken from the files of the Industrial Accident Board.

August 28, 1940; Golden Arrow Mine (E. J. Peterson, lessee); Hailey, Blaine County, Idaho. Carl J. Heimrich, married, miner, age 28.

Heimrich was working in a 55 degree incline shaft, 35 feet in depth. A round of 9 holes had been drilled in the bottom with a "Jack Hammer" to a depth of about 3 feet. The formation in the shaft was mostly gouge material and the round was loaded with approximately two and one-half sticks of 40 per cent powder and fuse 4 feet in length. Heimrich and his partner, John Buguslawski "spit" the round of 9 holes, and had them all lit, but Heimrich came back to the first hole which he apparently thought had not "spit", and attempted to relight it, but the round started to fire before he could get out
of the shaft. Death followed in less than two hours from a skull fracture and chest injuries. This accident could have been avoided. The fuse used was at least two feet too short to insure a comfortable margin of safety. Any time men take chances of this kind the results are liable to be fatal.

September 20, 1940; Ima Mines Corporation; Patterson, Lemhi County, Idaho. George R. Smith, married, miner, age 43.

At the time of the accident, three men were working in the stope, Arnold Carter, Chester Sater and George Smith. Carter and Sater were breaking rock through a grizzly on the fourth floor of the stope, one set from the manway. Smith was laying a floor to enable him to set up and drill at the face on the third floor in the fourth set of timbers from the manway. Almost instantly, without warning the stope began to slough and cave from the back. Carter stepped from the grizzly into the manway set. The concussion from the cave-in knocked his hat off and blew his light out. Finding his hat he relighted his lamp and could hear Sater on the floor below the grizzly where they had been working. Evidently Sater had been forced through the grizzly to the third floor. Carter could not see anything of George Smith and as the stope was still caving he continued down the manway to the tunnel level to run for help. The body of the deceased was found one and one-half sets below and one set to the right of where he had been working on timber and muck in front of a large slab of ore which had sloughed from the back of the stope. The inspector of mines is of the opinion that this accident could have been avoided. Too much ground was opened up on the fourth floor of this stope without running stringers ahead to steady the back until the muck was removed and timber placed. While on a previous inspection trip to the property I cautioned George Smith to work safely for his own protection and the protection of his fellow workers as he (being a miner), apparently was the lead man in his particular working place. Suggestions were to the effect that where it was wide from hanging to footwall it would be much safer to take the ground out in sections and recommended that stringers be used when it was thought necessary and also that the timber be blocked down by alternating cribbing from hanging wall to footwall as the work progressed. If these suggestions and recommendations had been followed there would have been one less fatal accident recorded for the year 1940.

STATEMENT

"At the time the accident happened there were three of us working in the stope, Chester Sater, George Smith, and myself. Chester Sater and I were working breaking rock into a grizzly on the fourth floor of the stope, which was two sets wide, one set being a manway. George Smith was laying a floor to set up and drill at the face on the third floor in the fourth set of timbers from the manway.

"Almost instantly, without warning, the stope began to cave from the back. I stepped from the grizzly to the manway set of timbers and the concussion from the cave knocked my hat off and blew my light out. I found my hat and lit my light again and could hear Chester Sater in the set below me. He had evidently fell through the grizzly and onto the next floor. I could see nothing of George Smith.

"As the stope was still caving, I went down the ladder four sets to the main tunnel and ran for help."

ARNOLD CARTER.

FLOYD HARPER,
Witness.

STATEMENT

At the time the accident happened, I was building a fire in the boiler at the dressing room to heat the water for the shower and Mr. Carter came out of the mine and notified me that the stope had caved.
I told Mr. Carter to inform Mr. Harper, who was to blow the whistle and sound the alarm. I went back in the mine and notified the men, that were on shift, that the stope had caved.

When I arrived at the stope, the men who had been notified had got Chester Sater out into the manway set of timbers. I instructed Jack Sayler and Edgar Sater to take him out of the mine and get him to a doctor. The rest of the men and myself then proceeded to look for Mr. Smith.

We cleaned the chutes down and I looked up in the stope from the chute and saw Mr. Smith's foot, it was the only part of the body I could see at the time.

After we saw Mr. Smith's foot, we knew there was no chance of his being alive, from the position he was in.

CHARLES B. FULLMER.
Night Mine Foreman.

FLOYD HARPER,
Witness.

October 17, 1940; Grouse Lease, Morning Mine, (Mike Kinsella, lessee); Thomas Krostalis, single, timberman, age 46.

Thomas Krostalis and his helper had just finished standing a set of timber on the 24th floor, in the footwall stope of the Grouse Lease and was blocking the set down and lagging it over when a rock fell from the back. The rock first struck the cap timber, then Krostalis, forcing him to the floor. Death resulted from broken right ribs and punctured lung. This accident can be placed in the category of one of the many things that may happen while men are engaged in hazardous occupations regardless how careful and experienced the workmen may be. I feel that this particular accident should be classed as unavoidable.


A rock fell from the back and struck Rhude on the shoulder knocking him against a mucking machine. Some part of the machine punctured the man's trachea resulting in death November 26, 1940. The deceased is survived by his widow and three children. This information was taken from the files of the Industrial Accident Board.

KNOW YOUR IDAHO

1880

New life was given to the declining Idaho mining industry by the location of rich lead and silver ores in the Wood River district, near the present town of Hailey. Prior to this practically all of the mining had been placering for free gold, with the exception of quartz activity in the Silver City district.

1881

A new gold field was discovered in Idaho, this time in the Coeur d'Alene region. The find was made by Andrew J. Prichard. Prichard tried to keep his discovery a secret but the news leaked out and a rush started. In itself Prichard's find was not so important, but it attracted attention to the Coeur d'Alene district which subsequently proved to be one of the richest silver and lead regions in the world.
ON GUARD!

Man has always been on guard. Since the earliest times he has had to face great risks. His struggle for existence has been filled with dangers, waiting to trap the unwary.

Primitive man had to cope with wild beasts and nature in her angry moods. Modern man has overcome many of the natural hazards, but in doing so he has created new dangers.

During this age-long struggle, he has built up an elaborate system of defense against accidents. We see evidence of it every day—a guiding beacon in the darkness, the warning sign at the road intersection, the wailing siren of the fire truck. But we fail to realize that our protective system goes far beyond these familiar things—that behind the scenes thousands of alert men and women are on guard for us.

They sit with binoculars on lonely mountain tops... they peer into test tubes in countless laboratories... they pore over weather maps in isolated observation posts... they sit at switchboards, ready to flash a warning or a call for help.

Man's first safety efforts took the form of a stone axe for protection, a cliff house easy to defend, a tribe for mutual security. But for centuries man looked upon accidental death as an unlucky and unavoidable circumstance, a necessary evil, even an act of God.

Not until a few decades ago did men really begin to ask themselves why accidents occur. They found that accidents don't just happen without rhyme or reason. They learned that every accident has a cause. Today the National Safety Council and other organizations devoted to conserving human life are seeking the cause and cure of accidents.

As a result of organized safety, certain types of accidents have been sharply reduced. Yet much remains to be done. Accidents still cause about 90,000 deaths a year in the United States. More than eight million persons are injured, and the annual economic waste exceeds three billion dollars.

Accidents are seldom spectacular. They lack the dramatic impact of war, pestilence, fire or flood. Yet every day a factory worker daydreams at his job, and a machine snuffs out his life. A motorist gambles by passing on a hill, and death strikes at the crest. A housewife stumbles on a cluttered stair, and tragedy blights another home.

Day after day the tremendous sacrifice to carelessness, ignorance and neglect goes on. Every five minutes a life is claimed by accidents. Every three seconds someone is injured, perhaps permanently crippled.

All accidents are needless waste. Families know privation when the bread-winner is hurt. Industrial production suffers when a worker is injured. Property is destroyed, and human assets are lost forever.

But aside from their economic effects, accidents leave an indelible mark on the personal lives of everyone they touch.

Happiness is probably the most precious thing in life. Happiness is difficult to define because individuals interpret it differently. To some it means success and financial security. To others it is measured in health, or peace of mind, or freedom to pursue the good things of life.

Accidents destroy happiness. They consume our savings. They ruin health. They drive away peace of mind with debt and worry and grief. They chain many of their victims to a life of existing, rather than living, with freedom forever lost.

Engineers can safeguard an industrial machine or build a super-highway. Police officials can enforce rules laid down for common welfare. Educators can point the way to safer habits. In many ways, such as are shown on the pages of this calendar, men are on guard for our safety.

But accident prevention is everyone's responsibility. The ultimate goal in accident prevention can be reached only through the personal efforts of every man, woman and child in the United States.

We, too, must stay on guard!
Toss a man into a cage with a hungry lion and his attitude about the whole thing won't make a bit of difference. His jungle playmate will beat him up brutally, and do it in a hurry.

Here is a situation where the way a person thinks or feels has absolutely nothing to do with what actually happens.

Similarly, a man's attitude about safety and danger plays very little, if any, part in what happens if he is caught in an earthquake.

But in almost every normal situation, our honest attitudes concerning a job or a problem have a great deal to do with the way the thing is done.

Your attitude is just about the most powerful influencing factor in your life.

It will make you a safe worker or a careless worker.

For instance, you don't like to fish. You think it is a silly pastime. All right. That's your attitude. So you don't go fishing.

Your attitude toward safety—avoiding accidents yourself and helping others to prevent them—controls your conduct in exactly the same way.

If a man thinks he is strong, healthy, alert and intelligent and can take care of himself—and if he thinks that safety goggles, steel-toe shoes, hard hats and machine guards are a lot of poppycock that simply cramp his style—well, he won't wear them or use them. At least he'll complain about it and do things his own way every time the foreman's back is turned.

That's one kind of an attitude toward safety, and it will make a careless worker of any man who thinks that way.

A 100 per cent attitude for safety goes much deeper than mere acceptance of protective clothing, machine guards and safety devices as "a good thing." It covers all your thoughts while actually doing the job. It keeps you from mental failures which lead to accidents.

Here are a few mental failures to guard against:

**Preoccupation:** Letting-your-mind-wander and daydreaming are a couple of everyday names for mental failure. A man may be using the proper tool, have every guard in place and, to look at him, you'd think he was proceeding in perfect safety. But his mind is a thousand miles away. Presently something goes wrong with the routine of his job. The work jams in the machine, or he forgets to slip his goggles over his eyes. And an accident occurs.

**Worry:** This is perhaps the most common mental failure of everyone. It is a lot like daydreaming. But whereas daydreaming usually is about some pleasant subject, worry is unpleasant and doubles the hazards of any job. Worry makes a man lose sleep, ruins his appetite. A person can worry himself into actual illness. Some people, wiser than most, can shut their troubles out of their minds. We all should try to do this. Worry never solved a problem.

**Anger:** Anger will upset anyone and tangle up the orderly working of his mind. For safety's sake alone, nothing is worth getting angry about. But if you can't resist a surge of anger, stop working for a few minutes. Get mad, pop off, and then forget about it. By all means don't bottle up your fury and let it grow until it completely occupies your mind. Control your temper. Talk things over.

**Haste:** Haste always makes a person impatient with the usual and safe way of doing a job. A man in a hurry wants to cut corners, take chances, and thus flirt with accidents.

**The Show-Off:** The cocky fellow, the plant strong man, the daredevil chance-taker—any kind of a show-off has a peculiar twist in his thinking that makes his attitude for safety fall way short of one hundred per cent. He is a menace to his own safety, and a threat to those working around him. The practical joker has no place in a safe plant.

These are a few of the more important mental quirks which prevent a man from developing a satisfactory attitude for safety.
IN AN EMERGENCY

CALL A DOCTOR!

That is the first rule in all cases of serious injury. However, a knowledge of first aid can often prevent death. At least one member of every family should have completed a course in first aid.

Here are some suggestions:

Burns

Unless the burn is minor, see a doctor.
Keep air away from burns caused by hot liquids, fire or friction. Apply water-soluble tannic acid jelly, or a paste of baking soda and water, moistening it from time to time. Oily or greasy ointments, except for very minor burns, may interfere with the doctor’s treatment. Guard against shock.

For chemical burns (acids or caustics) wash freely with running water immediately.

Poisons

Call a doctor at once, telling him it is a poison case, and if possible, what kind of poison was swallowed. The most important thing is to empty the stomach of poison as quickly as possible.

Do not give a purgative or laxative.

Induce vomiting by having the patient drink several glasses of lukewarm water an then tickling his throat with a feather or the finger. Some emetics to cause vomiting are: a tablespoonful of salt to a glass of warm water, followed by plenty of warm water; a teaspoonful of mustard in half a glass of warm water; a glassful of soap suds; 30 grains of powdered ipecac, or two tablespoonsful of syrup of ipecac in half a glass of water. Keep the patient vomiting until you are sure the stomach is empty.

Caution: If the poison is an acid (such as carbolic, sulphuric, nitric or concentrated hydrochloric) or a caustic (such as lye, caustic soda or chloride of lime) do not cause vomiting.

Remember that the advice above is only emergency treatment. Summon a doctor quickly to neutralize remaining poison and counteract its depressing effect.

Bleeding

Wounds should not be bandaged until bleeding stops. Blood flows steadily from veins, spurts from arteries. A pad of gauze held firmly on the wound usually will stop vein bleeding.

To stop artery bleeding, apply pressure at points shown in the diagram. Feel the pulse to determine whether you are pressing the artery. Pressure should be applied just hard enough to stop pulsation. A tourniquet may be used at points four and five, but they must be released momentarily every 15 minutes to prevent gangrene.

Fainting

Lay patient on back with head low. Keep warm. Sprinkle cool water on face. Pass aromatic spirits of ammonia near the nose, just close enough to be smelled. When revived, give a stimulant.
Wounds
Call a doctor for a serious wound. To give first aid:
1. Stop the bleeding; 2. Apply an antiseptic such as 2 per cent iodine; 3. Cover with a sterile bandage or pad.
Use adhesive tape only to keep the bandage in place, never in direct contact with the wound. If pain or swelling develops, consult a doctor.

Shock
Any injured person suffers from physical or nervous shock. It may be more serious than the injury itself, and sometimes causes death.
The shock victim's skin is cold, his face pale and beaded with perspiration, his pulse weak and rapid.
While awaiting doctor, lay patient on back, loosen clothing, wrap in blankets and keep warm. Keep his head low. Rub arms and legs toward body. Don't move him unless absolutely necessary. When he is conscious, give warm coffee, tea or water, but not alcoholic stimulants.

Miscellaneous
Broken bones: Do not move patient. Call a doctor.
Sprains: Apply ice packs. Later, hot applications help recovery.
Eye irritation: Let only doctor or nurse probe for object in the eye. Soothe eye with boric acid solution until you get to a doctor.

KNOW YOUR IDAHO

1882
Murray, the town shortly to become mining capital of the territory, was founded on Prichard creek. Placer and quartz gold mining kept the young community prosperous. For some ten years Murray reigned as queen of the Coeur d'Alenes, but as the country developed the fickle public became attracted to the more favorable locations of Kellogg and Wallace. Murray is a ghost city today.

1884
The famous old Tiger mine was found on Canyon creek, now known as Burke canyon. This was the first important lead-silver discovery in the region. It was the beginning of mining in the Coeur d'Alenes, which now ranks as one of the important mining districts in the nation. In rapid succession after the Tiger discovery came names well known today, the Poorman, the Frisco, the Morning, the Hercules and the Hecla.

1885
The Bunker Hill mine was found in Milo gulch, just above the town of Wardner. Legend has it that the Bunker Hill was discovered by a prospector's donkey. It was perhaps the most important single discovery of the district. Interest in quartz mining zoomed, bringing the capital necessary for exploration and development. The Sullivan claims were located in the same gulch and these two properties were soon united into one great corporation that during the succeeding half century has been a powerful factor in maintaining Idaho's standing as a metal producing state. Other well known producers of the area are the Hercules, the Jack Waite, the Standard-Mammoth, the Tamarack & Custer and the famous Sunshine, which of recent years has been the nation's largest silver producer.
SILICOSIS IN THE COEUR D'ALENE MINING DISTRICT

By MAX T. SMITH, M. D., F. A. C. S.

Silicosis, commonly called miners' consumption, is a disease of the lungs in which there is a replacement of the normal lung tissue by fibrous tissue or scarring due to the breathing of dust-laden air containing free silica, or certain silicates. Among the dusts which contain harmful silica capable of producing silicosis, are those derived from granite, quartz, sand and various kinds of limestone. These all contain free silica in various amounts.

Silicosis is not confined to miners, but is found in many other occupations where silica dust is present, notably in the abrasive industries, granite cutters, potters, brick workers, sand blasters, asbestos workers, and to some degree in cement workers, moulders, tunnel drillers and many others. These general statements follow the able work of Sappington.

There are five main points concerned in the production of silicosis:
1. Concentration of the dust in the air.
2. Percentage of silica in the dust.
3. Size of the dust particles.
4. Length of exposure.
5. Individual susceptibility.

As a general statement it may be said that when air contains twenty million particles of dust per cubic foot and these particles contain 50 per cent of silica, there is danger that silicosis will be produced. Equally important is the size of the dust particle. It has been demonstrated in the ash of silicotic lungs that most of the particles were less than one micron in diameter and very few were over 8 microns. A micron is one 25,000 of an inch. For comparison, it may be recalled that a red blood corpuscle is about 7 microns in diameter and in a normal individual there are 5,000,000 red corpuscles in a cubic millimeter which is about the size of the head of a pin. The larger particles of dust are caught in the upper respiratory passage by the hairs in the nose and cilia in the bronchial tubes, but the microscopic particles are inhaled and lodge in the alveoli, or terminal air sacs. Here they are picked up by white blood cells and carried to the lymph spaces in the walls of the air sacs. The particles are partially dissolved and a toxic, or irritating substance, is liberated which causes an area of scarring or fibrosis to form. If inhalation continues, this scarring goes on and finally the lymph spaces are blocked. In as much as the resistance to tuberculosis and other pulmonary diseases is largely dependent on the functioning of the lymphatic system, any of these diseases are likely to be superimposed. As these areas of scarring multiply and coalesce, they form islands of tissues denser than that of normal lung tissues and can be demonstrated on an x-ray film as mottling or nodulation. With this development of scarring, a normally elastic lung is transformed into a more rigid structure, and this rigidity interferes with respiration and heart action and gives rise to various symptoms.

Length of exposure in a high dust concentration needs no comment. Obviously, one would not expect a man who has worked only one or two years in dust to have as much fibrosis in his lungs as one who has worked ten to fifteen years. We have, however, had the experience of finding men with similar underground experience, and similar duration, with markedly different x-ray readings. This can only be explained on the basis of individual susceptibility. Any degree of pre-existing tuberculosis hastens the silicotic process. This seems to interfere with the normal dust disposal mechanism of the affected lung and augments the scar forming tendency of the fine silica accumulating in that area. Age is another significant factor. As age advances, the tolerance for dangerous dust becomes reduced due to a lowering of the
general vitality and tissue changes inherent with age. Part of the latter
disadvantage is compensated for by the steadier pace and lowered level of
activity adopted by older men. Finally, individual susceptibility may in some
degree be influenced by the effectiveness of the nasal hairs, mucous mem-
branes, ciliated bronchial epithelium, etc.

Silicosis is ordinarily classified into grades 1, 2, and 3, according to the
x-ray readings. In our work we have followed this classification, with the
exception that as there is a gradual merging from one classification to
another, we have found it more convenient to add sub classes as 1+ and 2+.
In grade one, there is seen on the x-ray film a thickening of the shadows about
the root of the lung, and in the lower part of the lung, an area of fine motting
extending toward the periphery. In grade two, the individual nodule, is larger,
and is seen in more of the lung field, while in grade three, the motting is
found in all parts of the lung.

We have found the symptoms to be variable. The most usual are a tend-
ency to attacks of respiratory infections, such as colds, bronchitis, and
pneumonia, and a gradually increasing shortness of breath on exertion.
Strangely enough, these symptoms even in the higher grades may be very
mild or almost absent. As an example, I would cite the case of a shaft man
in the Morning Mine who each summer attends the Finnish picnics, and
always enters the hundred yard dash. This man has worked underground
for many years and has a well marked silicosis grade two. By far the most
important part of the silicosis problem is the tendency to complications, with
tuberculosis as the chief offender. There unquestionably is a lowered resis-
tance to tuberculosis which may be started either by the lighting up of a
quiescent focus in the patient's own body, or from an outside source, such as
inhaling dried infected sputum from a careless fellow worker. Furthermore,
tuberculosis once started in a silicotic lung is not as amenable to treatment,
either by medical or surgical means, as in one who does not have silicosis.

The incidence of silicosis in the Coeur d'Alene mining district is com-
parable, I think, to that found in other mining sections of the western part
of the U. S. Physical examinations and stereo-chest x-rays of all employees
and pre-employees are now universal in the district. These are paid for by
the mining companies, and are carried out in Wallace and Kellogg. My
associates and I have examined approximately 6,000 men, and some of these
several times. The percentage of silicosis in this group is not available, but
from 1935 to July 1, 1939, we examined 3,698 men with the percentage of
silicosis found as follows:

In 2,356 men there was no silicosis, or too slight a degree to be classified.
This represents 64% with an average underground employment of 2.45 years.
Grade 1 silicosis, 719 cases, or 19%, average 8.06 years.
Grade 1+ silicosis, 285, or 8%, average 16.1 years.
Grade 2 silicosis, 200, or 5%, average 17.9 years.
Grade 3 silicosis, 44, or 1%, average 20 years.
Silico-tuberculosis, 94, or 3%, average 15.4 years.

In as much as many of these men have worked in other districts, these
figures cannot be construed as representing silicosis acquired exclusively in
the Coeur d'Alene district.

On the result of their physical examination, the men are graded A, B, C,
or D. Grade A represents those with no physical defects. Grade B, those
having minor defects which would not interfere with work, and includes those
with silicosis grades 1 and 1+. Grade C, those with more marked physical
impairment and includes silicosis grade two; while grade D takes in silicosis
grade 3, and all grades of tuberculosis. It is the practice to employ those
falling in grades A and B for any work, either underground or otherwise.

Grade C, surface work only, and grade D is not employed. This is the
usual procedure followed by the self-insurers, but those carrying their com-
pensation insurance with the Idaho State Insurance Fund do not employ
grade 2 silicosis in any capacity.
In our last 100 consecutive pre-employment examinations, the men were graded as follows:

- Grade A ................................................ 15 men
- Grade B ................................................ 79 men
- Grade C ................................................ 2 men
- Grade D ................................................ 4 men

Included in grade B were 11 cases of silicosis grade 1, and three cases of grade 1+. Grade C included one case of silicosis grade 2. In grade D, which are not recommended for employment, were two cases of hernia, or rupture, one of secondary syphilis, and one of active pulmonary tuberculosis.

The above is the general rule in hiring new men. However, it was not the practice of the mining companies to discharge old employees for any degree of silicosis provided they desired to continue working. The cases of tuberculosis among old employees were in many instances sent to tuberculosis sanitariums.

Prevention, of course, is the ideal answer to the silicosis problem, and much has been done to control the dust hazard. Water drills are universally employed, and dust counts are taken to determine the particular underground operation which causes dust beyond a safe condition, and measures as far as possible instituted for its control. The medical committee of the National Silicosis Conference held in Washington, D. C., in 1937, composed a formula as a guide to permissible dustiness. Multiply the percentage of silica by the total particle dust count, and if the result is under 5,000,000, the exposure is controlled. For example, 10% of free silica with an average count of 30,000,000 particles per cubic foot would give .10 by 30,000,000, which equals 3,000,000 (good practice); 30% with an average total of dust concentrations of 50,000,000 would equal .30 \times 50,000,000 or 15,000,000 (unsatisfactory). These tentative standards are based on counts made by the Greenburg-Smith impinger, and observations and experiences in various districts having a dust hazard have determined that these averages work out in a practical way.

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**KNOW YOUR IDAHO**

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**1889**

The constitutional convention, with 68 members, met at Boise on July Fourth to formulate a constitution, this being a preliminary move to recognition as a state. The document was completed and adopted by the convention on August 6. It was ratified by the people at the subsequent election on November 5, 12,398 voting for it and 1,773 against it.

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**1890**

Statehood! Idaho became the forty-third state to be admitted to the Union. The admission bill passed the house of representatives on April 3. It passed the senate on July 1. President Harrison signed it on the afternoon of July 3 with a pen handed him by Fred T. Dubois, Idaho territorial delegate to congress. At the first state election held on October 1 of the same year, George L. Shoup, who had been the territorial governor, was elected to the distinction of being the first governor of Idaho.

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**1891**

The Great Seal of the State of Idaho was adopted from a design drawn by Miss Emma Edwards. It contains the Latin motto, Esto Perpetua, meaning "to be perpetuated."
ADA COUNTY

County Seat: Boise. Area: 1,154 square miles. Population: 50,401. Principal Industries: Irrigated farming, stock raising, fruit raising and mining. Highways: Main highway, Oregon Trail; county roads excellent. Railroads: Main line of the Union Pacific. Mineral Resources: Boise was the principal distributing point for miners' supplies when the rich placer diggings of Boise County were worked in the early days. At that time mining was based on free gold operations and Ada County's small mountainous area was the scene of many active operations.

Base ore was encountered at a shallow depth causing a shutdown of the various properties. This field offers good opportunities to prospector and operator.

The chief mineral resources are: building stone, gold, lead, silver, zinc and arsenic.

Review of Year's Operations

Mining activity in Ada County for the year 1940 was confined to assessment and development work on unpatented mining claims in the Black Hornet, Shaw Mountain and Highland mining districts, small placer operations along the Boise and Snake rivers and prospecting for oil and gas near the city of Boise.

BOISE OIL COMPANY

CRESCENT GOLD CO., (Commonlaw trust).

IDAHO-NEVADA COPPER CORPORATION, LTD.
(See Boise County for capital structure).
Property: 1 unpatented claim, Neal mining dist., Boise, held under an option from R. I. Beeson and Fremont Wood, both of Boise. Development: By 2 tunnels, No. 1, 175 ft. long; No. 2, 120 ft. long.

RELECES GOLD MINING COMPANY

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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 COUNTY

County Seat: Council. Area: 1,366 square miles. Population: 3,407. Principal Industries: Agriculture, fruit raising, livestock raising, and mining. Highways: North and South Highway. Branch roads to outlying communities kept in good condition. Railroads: Pacific and Idaho Northern, Weiser to New Meadows, and Union Pacific branch on Snake River. Rivers: Snake River forms western boundary; Weiser River flowing south and Little Salmon flowing north. Relief: 90% of the county is mountainous. Chief range is the Seven Devils, noted for ruggedness and grandeur. Mineral Resources: In the eighties and early nineties many mines were in operation; a railroad projected into the district; a smelter in operation and three towns established. The boom died in the panic of 1893 and the district has been practically dormant since.

The ores of the Seven Devils District are principally copper-gold-silver ores. The ores of Indian Creek section are: Silver-copper and lead-zinc-silver. In addition to these, deposits of mica, feldspar and garnets of commercial importance occur in this county.

This is a favorable district for the prospector and operator and when the mineral resources are properly exploited, the county will be recognized as one of the principal mining counties of the State.

Review of Year's Operations

Prospecting, testing and annual assessment work was noted on many claims throughout the county. Shipments of ore were made from Cuddy Mountain, Placer Basin, Indian Creek and properties along the Snake River.

Adams County presents a favorable area for the development and exploitation of Idaho's mineral resources. Large deposits of copper ores, with fairly good gold content are known to exist and have been diamond drilled to some extent. The mining districts are worthy of investigation by scouts and engineering parties.

The Hamill brothers were again active on mining property in the Placer Basin area.

John and T. A. Darland purchased the South Peacock mine from the county for taxes. Shipments were made of copper ore sorted from dump material. The mine has been idle for 15 years.
The Smith Mountain Mill was operated by G. S. Hindsdale, Portland, Oregon, and associates for milling custom ores.

The following information on annual assessment work performed on mining claims in Adams County was taken from records in the County Clerk's office: Clarence Warner, Buckhorn mine, Seven Devils district, $100.00; Red Ledge (Idaho Copper), $4,100 by Frank X. Lanzon at the expense of Cooley Butler; H. G. Hamill, Ray H. Hamill and W. H. Hinsaker, $600 worth of work on Little Giant Nos. 1, 2, 3 and 4; Carl H. Swanstrom, Placer Basin Group, $600; Roy Wiles, Golden Dream, $100; George McCarthy, $800 assessment work on Copper Belt, Mohawk, Sunnyside, Lone Pine, Hi Ore, Copper Butte, Cord No. 1 and 2, in the Seven Devils mining district; L. A. and J. A. Darland, $400 on President Wilson, Nos. 1, 2, 3 and 4, and $200 on Rio 1 and 2; 700 tons of custom ore was milled at the Placer Basin Mill; E. Plummer worked the Last Stand Placer and Clarence Warner did assessment work at the Black Hawk and Mayflower; William E. and Pearl J. Smith reported $200 worth of work on the Barbara and Reliance No. 1 and 2; Frank McCann developed the Yellow Jacket to the extent of $100; Jesse Smith recorded $200 worth of work on the Sun Dance; Max A. Rice recorded $400 worth of work on the Copper Reef Claims, Nos. 2, 3, 4 and 5; A. H. Woody recorded $400 was expended on the Boulder Creek Quartz Mining claims; H. C. Babbitt expended $300 at the Boulder Creek Mining Company; William E. Smith recorded assessment work totaling $100 on the Aetna; S. D. Taylor worked the Eagle No. 1, 2 and 3 and the Rocky Bar Placer No. 1; and 2; W. E. Freehafer further developed the Black Jack No. 1 and 2, King, Queen, Johnnie, Willie, Black Bird and White Bird claims; A. H. Huntington and L. A. Albie worked the Grub Stake and North Star; Charles L. Benham worked the Sundance No. 1 and 2; Miles Rice reported assessment work at the Nickle claim on Boulder Creek and William J. Hunsicker reported assessment work completed on the Little Giant Nos. 1, 2, 3, 4 and a fraction claim.

CRACKERJACK GOLD MINING COMPANY

IDAHO COPPER COMPANY
Office: Idaho Bldg., Boise. Officers: Wm. Devlin, Pres.; W. O. Taylor, Asst. Sec., both of Boise. Mayor Hoppenyan, Mgr., New York, N.Y. Inc.: Jan. 10, 1920 as Idaho Copper Company Limited; Limited dropped from the name May 24, 1926. Capital: 50,000 shares; par value $10; Feb. 9, 1925, increased capital stock to 10,000,000 shares; par value $1; shares issued, "nearly all." Property: Red Ledge group; 40 claims, Seven Devils dist.; Homestead, Oregon. Remarks: "The 40 claims known as the Idaho Copper Company's Red Ledge property located in the Seven Devils Mining District, Adams County, Idaho have been involved in litigation for many years. In October, 1937, Cooley Butler, by virtue of a court decree obtained in a settlement became record owner of these claims. However, a contest to set aside this decree may soon by started by stockholders of the Idaho Copper Company."

PLACER BASIN COMPANY
ADAMS COUNTY

RED LEDGE INC.

Office: Idaho Bldg., Boise. Officers: Wm. H. Simons, Pres.; Elmer Fox, Sec., both of Boise; Mayor Hoppenyan, Mgr., New York, N. Y. Inc.: Dec. 22, 1892. Capital: 5,000,000 shares; par value $1; 1,500,000 shares issued. Property: 80 unpatented claims, Seven Devils dist.; Homestead, Oregon. Development: Exploration work. Ore: Copper, gold and silver. Men Employed: Average, 7. Remarks: "Red Ledge Inc., consists of a cooperating group of stockholders who formerly were stockholders of Idaho Copper Company. They have acquired the 80 claims adjoining the Idaho Copper Company's original Red Ledge property and are doing exploration and assessment work."

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


BANNOCK COUNTY

Lava Hot Springs were discovered in 1924 and reports indicate that there is a large tonnage of high grade ore available.

CLEVELAND MINING CORPORATION

IDAHO MANGANESE MINING CO.

IDAHO PORTLAND CEMENT CO.
Office: Inkom. Officers: Eugene Enloe, Pres.; Raymond Enloe, Sec., both of Spokane, Wash. Inc.: July 20, 1928. Capital: 6000 shares common, no par value; 5000 shares preferred, par value $100; 5,277 shares common, 4,564 shares preferred issued. Property: 175 acres patented land, unorganized dist.; near Inkom. Plant: For a complete description of plant see Idaho Thirty-first Ann. Rept. Min. Industry, 1929. Ore.: Limestone. Remarks: "This company owns certain grazing land in Bannock County on which is located a deposit of limerock and shale suitable for the manufacture of Portland cement. The rock, in various grades, is so common in the vicinity that it can be classed as native. This particular formation lies in a bank or hill about 500 feet high; it is fairly loose and there is no overburden. In a simple quarrying operation, completely superficial, it is loaded in cars and hauled to the manufacturing plant. The process of making Portland cement is purely a manufacturing operation. It is made by burning proper proportions of argillaceous and calcareous materials; no mineral is extracted and there is no mineral bearing rock used (with the exception of limerock) from which an extraction can be made. All stock issued and sold was for the purpose of acquiring the necessary land and the construction of the plant. The only items used exclusively for the earth removal operation are two power shovels, both exceedingly minor items as compared to the cost of the plant."

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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 COUNTY

County Seat: Paris. Area: 980 square miles. Population: 7,911. Principal Industries: Agriculture. Highways: Oregon Trail and excellent branch roads. Railroads: Main line of Union Pacific. Mineral resources: Phosphate rock, gypsum, manganese, copper, lead, silver and possibilities of petroleum. Idaho is credited with 85% of the known phosphate resources of the world and the largest and most accessible areas are in Bear Lake County. These deposits are practically untouched and represent one of the greatest potential resources of the State. (See U. S. G. S. Professional Paper No. 152 by G. R. Mansfield.) Many structures similar to the Wyoming producing oil fields are found in the county and it is reasonable to expect future production on the Idaho side of the State line.

Review of Year's Operations

Mining in Bear Lake County during the year 1940 was practically dormant with the exception of some annual assessment work, restaking of claims and interest shown in the development and exploitation of the vast phosphate deposits in this section of the state.

McIlwée Idaho Phosphate Company


San Francisco Chemical Co.


Stockholders' Syndicate


Sunset Mining Co.


Utah-Idaho Mining and Milling Co.

1940. **Capital:** 1,000,000 shares; par value 2c; 600,000 shares issued. **Property:** 18 unpatented claims, unorganized dist.; Paris. **Development:** By 3 tunnels, the principal one being 400 ft. long. **Plant:** Complete mining equipment. **Ore:** Lead, copper, silver and gold. **Men Employed:** Average, 4. **Remarks:** All buildings repaired and renovated; 85 ft. of shaft re­timbered.

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


BENEAHW COUNTY

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

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

BENEAHW COUNTY

County Seat: St. Maries. Area: 786 square miles. Population: 7,332. Principal Industries: Timbering, agriculture and mining. Transportation: Boats on Coeur d'Alene Lake and St. Joe River; a good state highway system; Spokane-Wallace branch of the Union Pacific and main line of Chicago, Milwaukee and St. Paul Railroad. Rivers and Lakes: St. Maries River which runs north west through the eastern part of the county empties into the St. Joe River which flows west through the northern parts of the county and empties into Lake Coeur d'Alene, whose southern end touches the north boundary of the county. Relief: The county is rugged and heavily timbered except a small area along the rivers and in the northwest corner of the county. Mineral Resources: The principal mineral resources are gold, copper, silver, lead, zinc, iron and clay. These deposits have been given very little attention in the past. The St. Joe district which lies east of St. Maries, and the Hoodoo and Camas Cove Districts in the southeastern corner of the county have received the greatest attention.

GARNET MINES INCORPORATED


OTHELLO MINING CO.

Office: Coeur d'Alene. Officers: Orland A. Scott, Pres., Coeur d'Alene. Inc.: Feb. 7, 1930. Capital: 1,500,000 shares; par value 5c; increased June 26, 1930, to 2,000,000 shares, par value 25c, divided into 992,000 shares non-assessable common and 1,008,000 shares assessable common; 792,000 shares non-assessable common issued; all assessable common issued. Property: 6 unpatented claims, held under lease from the state, St. Joe dist.; St. Maries. Development: Approximate total development, 700 ft. Ore: Silver, lead and gold. Remarks: Assessment work only. Assessment levied June, 22, 1938; amount not stated.

RAINBOW MINING & MILLING CO., LTD. (See Shoshone and Kootenai Counties.)


ROUND TOP MINING CO.

Office: St. Maries. Officers: Fulton Cook, Pres.; W. F. Sargent, Sec., both of St. Maries. Inc.: Jan. 21, 1926. Capital: 1,000,000 shares; par value 10c;
SILVER STAR MINING & DEVELOPMENT CO.

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Composition and origin of certain commercial clays of northern Idaho, by Edward L. Tullis and F. B. Laney, vol. 28, No. 5. Econ. Geol., 1933.

BINGHAM COUNTY

County Seat: Blackfoot. Area: 2184 square miles. Population: 21,044. Principal Industries: Agriculture. Transportation: An excellent system of state highways; Aberdeen, Mackay and Pocatello-Butte branches of the Union Pacific. Rivers: The Snake River flows from the northeast to the southwest diagonally through the county. Relief: Lies mostly within the Snake River Valley. Mineral Resources: Phosphate and coal beds crop out in the eastern part of the county, but have received little attention. Fine gold is known to exist in the sands of Snake River.

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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.†


BLAINE COUNTY

County Seat: Hailey. Area: 2797 square miles. Population: 5295. Principal Industries: Mining, animal raising and agriculture. Transportation: Union Pacific Wood River branch; Sawtooth Park state highway, state highway No. 22 and a fair system of county roads into all mining districts. Main roads kept open all year. Rivers: Big and Little Wood rivers flow southerly through the county. Relief: The county is, in the main, rugged with a few level areas along the rivers and creeks. Mineral Resources: Silver, lead, gold, zinc, copper, arsenic, antimony, bismuth, quicksilver, graphite, barytes and limestone. The first ore was shipped from this district in 1880 and since then the county has been a persistent and prolific producer. The ores are high grade, making an ideal operation for the small operator. The possibilities for future discoveries are excellent and the district is a favorable one for prospectors, development companies and leasors.

Review of Year's Operations

In 1940 approximately 88,000 tons of ore were produced in the Warm Springs district and yielded 9,375 ounces of gold, 855,000 ounces of silver, 200,000 pounds of copper, 10,100,000 pounds of lead, and 13,450,000 pounds of zinc. Following the Coeur d'Alene region, this was the most important producing area in Idaho.

The Triumph Mining Co. (formerly Snyder Mines, Inc.), with a crew of 250 men was the largest operator outside the Coeur d'Alene mining district and the largest producer of mineral south of the Salmon River. Its output from the Hailey Triumph, Independence and Star mines was shipped to Bauer and Tooele, Utah, for reduction.

Considerable development work was performed by the Minnie Moore Development Company in an attempt to solve the faulting problem at the Minnie Moore mine. Irvin E. Rockwell of Bellevue, is principal owner of the mine and manager of the operating company. An average crew of 15 men was employed the first part of the year.

The A. L. Heine Mines, Inc., report that a compressor house and assay shop were added to the mine plant and 300 feet of drift, 50 feet of crosscut and 120 feet of raise completed during the year with a crew of 4 men.

With a crew of 5 men the Amicus Mining Company developed the property during 1940 to the extent of 500 feet.

C. & W. Mining Company report 61 feet of development work on 3 unpatented claims in the Mineral Hill district.

A small amount of development work was done by the Eureka Development Company, Ltd., on 8 unpatented claims in the Mineral Hill district.

Gold Bottom Mining Company, with a crew of 3 men, extended the development of their property, consisting of 14 unpatented claims in the Mineral Hill district, a distance of 350 feet.
Gold Recovery Company treated approximately 6,600 tons of tailings in their cyanide plant during the summer season of about five months.

The Golden Arrow Mines, Inc., (Natches Mining Co.), was leased by E. J. Peterson and associates of Seattle, Wash. The property was developed to some extent and ore milled with a crew of 8 men.

Idaho Sun Valley Mines, Inc., with a crew of 8 men, engaged in rehabilitating and dewatering the 18x6 foot shaft which was caved between the adit tunnel (152' depth) and the top. This property was formerly known as the Croesus.

L. B. Murphy, Dee Jepson and Glen Jones worked the Lucky Coin Group as a partnership.

Silver Spar Mining Company with 20 patented and 6 unpatented claims in the Little Wood district, cleaned out and retimbered one tunnel.

The Challenger Mines Company developed the Pete Snider claims which adjoin the Hailey Triumph and North Star mines to the extent of 1,000 feet. Arthur G. Ryman, First National Bank Building, Boise, Idaho, looks after the company books.

E. F. Mobley, Twin Falls, leased property from Sam Carpenter of Bellevue and organized a new company known as the Bellevue Giant Mines, Inc. Development work during the year was confined to shallow work near the surface and has been done by hand.

The recently organized Crown Consolidated Mines, Inc., operated the Silver King mine and flotation plant during the year. The property is located in the Sawtooth district. George B. Guillotte, 66 South Thirteenth East, Salt Lake City, Utah, is manager and Albert Griffith of Ketchum was named in the incorporation papers as agent.

A. L. HEINIE MINES, INC., THE

AMICUS MINING COMPANY

BALTIMORE & VICTORIA MINING CO.

C. AND W. MINING COMPANY
EUREKA DEVELOPMENT CO., LTD.


FIELDS MUTUAL DEVELOPMENT CO.


GOLD BOTTOM MINING COMPANY


GOLDEN ARROW MINES, INC.


IDAHO MINERAL PRODUCTS CO.


IDAHO SUN VALLEY MINES, INC.

Office: 564 Colman Bldg., Seattle, Wash. Officers: J. D. Heffernan, Pres.; Edward M. Hay, Sec., both of Seattle, Wash.; Joseph G. Hedrick, Agent,
Hailey. **Inc.: April 5, 1939. Capital: 2,000,000 shares; par value 1c; 900,000 shares issued. Property: 5 patented claims, held under lease and bond from Mrs. Mary Olive Talbott, 1204 Loew’s State Bldg., Los Angeles, Calif. Development: Approximate total development, 160 ft. Plant: I-R Tugger hoist, 310 ft. compressor; residence, assay office and bunk house. Ore: Gold. Men Employed: Average, 8. Remarks: “The shaft 18’x6’ has caved between the adit level (152’ depth) and the top. Also the shaft is filled with muck to a depth which cannot be determined at this time. The company is engaged in rehabilitating this shaft and to unwater the mine.”

**IVANHO MINING CO.** (See Custer County.)

**LIBERTY GEM MINES, INC.**


**LUCKY COIN GROUP (Partnership)**

Partners: L. B. Murphy, 2312 Heron St., Boise; Dee Jepson, Glen Jones, both of Hailey. Property: 7 unpatented claims held under lease and bond, Warm Springs dist.; Ketchum. Development: Principally by 1 tunnel, 605 ft. long. **Plant:** Compressor and necessary equipment for tunnel work.

**PARKER MINES, INC.**


**SILVER SPAR MINING CO.**

Office: Idaho Falls. Officers: B. M. Rogers, pres.; Dr. Dwight Lenzi, Sec., both of Idaho Falls. **Inc.:** Apr. 14, 1916, as Falls Mining Co.; name changed Apr. 28, 1917. **Capital:** 100,000 shares non-assessable; 100,000 shares assessable; par value $1; 94,440 shares issued. Property: Silver Spar group; 20 patented, 6 unpatented claims, Little Wood River dist.; Muldoon. Development: By 6 tunnels totaling approximately 1520 ft. in length, and an inclined shaft 200 ft. long. **Plant:** Steam-driven hoist and compressor; mining camp. Ore: Silver. Men Employed: 2. Remarks: Cleaned out and retimbered one tunnel.

**SNYDER MINES INCORPORATED, THE**

Office: 218 Felt Bldg., Salt Lake City, Utah. Officers: E. H. Snyder, Pres.; Guy Snyder, Sec., both of Salt Lake City, Utah; Neal Snyder, Mgr., Hailey. **Inc.:** Sept. 23, 1936. **Capital:** 500,000 shares, par value $1, all shares issued; 1,000 shares, no par value, 805 shares issued. Property: 56 patented and 13 unpatented claims, Wood River dist., some of which are held under lease from Ivanhoe Mining Co., and Federal M. & S. Co. Development: Approximate length of principal tunnels, 14,150 ft.; approximate length of intermediate levels, 20,700 ft. **Plant:** Complete mining equipment. Ore: Gold, silver, lead and zinc. Remarks: See “Triumph Mining Company”.

**TIP TOP GROUP MINING COMPANY**

Office: 40 North Main St., Salt Lake City, Utah. Officers: LeGrand Richards, Pres.; Charles S. Hyde, Sec., both of Salt Lake City, Utah; W. L. Adamson, Statutory Agent, Carey. **Inc.:** July 17, 1930. **Capital:** 100,000 shares; par value 10c; all share issued. Property: 3 patented claims, Warm Springs Creek dist.; Ketchum. Development: Approximate total development, 2,575 ft. Ore: Lead, silver and gold.
TREASUREMONT MINING COMPANY

TRIUMPH MINING COMPANY
Office: Triumph. Officers: J. W. Swent, Pres.; C. B. Greeley, Sec., both of 485 California St., San Francisco, Calif.; Herbert Shear, Asst. Sec., Triumph. Inc.: Feb. 23, 1940. Capital: 400,000 shares, par value $1, divided as follows: 200,000 shares common, 76,000 Class A Preferred and 124,000 shares Class B Preferred; all Class A and Class B Preferred shares issued; common issued, none. Property: 59 patented and 49 unpatented claims, Warm Springs Creek dist.; Triumph. Development: By 5 tunnels: No. 1, 6000 ft. long; No. 2, 1750 ft. long; No. 3, 800 ft. long; No. 4, 350 ft. long and No. 5, 1800 ft. long; approximate total development, 50,450 ft. Plant: Complete mining equipment. Ore: Gold, silver, lead and zinc. Men Employed: Average, 250. Remarks: Development work during the year by the Snyder Mines Inc. as Lessee: “Sinking, 220 ft.; Drifting, 5560 ft.; Crosscutting, 750 ft.” Additions made during year: New hoist house, head-frame, change house, general office and timekeeper’s office. “By transfers which became effective March 16, 1940, Triumph Mining Company (which was incorporated in Idaho, February 23, 1940) is the owner of Triumph Mine, formerly owned by Ivanhoe Mining Company, the North Star and Independence Mines, formerly owned by Federal Mining and Smelting Company, and certain claims and property formerly owned by The Snyder Mines, Incorporated. All these properties were prior to March 16, 1940, operated by The Snyder Mines, Incorporated. Fire destroyed boarding house which housed general and engineering offices and bunk quarters in September, 1939.”

UTHAH-BELLEVUE MINES CO.

WOOD RIVER MINING CO.

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** BOISE COUNTY **

County Seat: Idaho City. Area: 1840 sq. miles. Population: 2,333. Principal Industries: Mining, stock raising and lumbering. Transportation: Well served by Federal and State highways and a good system of county roads. The Nampa-McCall branch of the Union Pacific serves the western part. Rivers: Included within its area is part of the drainage basin of the Payette River, most of the south fork of the Payette River and all of the drainage basins of Grimes and More's creek which comprise the area known as the Boise Basin. Relief: The district is one of general ruggedness, high wooded mountains and deep canyons. Mineral Resources: Gold, silver, lead, zinc, copper, bismuth, antimony, monazite, lime and coal are known to occur.

History and Future

The history and future 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
at 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 was 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. The 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 1090 feet below the creek level; at this point the ore is still persistent and has greatly increased both in grade and extent. The mine was developed on a lower horizon. July, 1938, operations ceased.

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 1090-foot level of the Gold Hill mine, the past production from the Belshazzar mine, and the new ore disclosures made during 1932 were instrumental in attracting much attention to the county.

As the early-day miner was interested only in the precious metals, gold and silver, which could be recovered by methods then in use, he disregarded all veins containing the sulphide or base ores. Before these ores became valuable, prospecting had practically ceased, with the result 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, which contain also high values in gold, are widely distributed throughout the county, and a few have been partly 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.

**Review of Year's Operations**

The Curtis Brothers operated their lease on the King property which belong to George, Pete and John Smith of Idaho City. A 25-ton mill was installed; also a new air compressor, mine pump and additional buildings. Considerable ore was milled which proved very satisfactory. Values are in gold. Four men are employed.

Leonard Sloper and partners operated their property on Burns Ridge. The shaft was sunk to the 70 foot level where good values were encountered. The 25-ton mill operated intermittently throughout the year.

George Smith and Fred Day of Idaho City leased the Gold Hill Placer at Idaho City. 20 men were employed for the season. Operations were said to have been very satisfactory.

Vern Clayton and Joe Duquette operated the Gambrinus Mine near Idaho City.

R. J. Mellor moved his assay office in Idaho City to Montgomery Street from near Elk Creek.
Clarence Warrington and John Zenz of Grimes Pass have leased the Black Bird claims from Extra Lightfoot on Charlotte Gulch near Grimes Pass. Several shipments of ore were made to the smelter. Also considerable ore was milled under the direction of Robert L. Kidd, Assistant Professor of Metallurgy at the University of Utah. Work is continuing throughout the winter.

Over 300 tons of high grade silver-gold ore were shipped to the smelter from the Come-Back by lessees this year. A large vein of gold-silver ore has been struck in the upper level which is very promising.

Delbert McFarland and Fred Proffer of Centerville have leased the Mountain Chief Mine near Placerville from the National Mining and Milling Company. A small pilot mill with amalgamation and flotation has been installed. A larger mill will be installed in the spring.

Fisher and Baumhoff have operated their dredges at Centerville and at Placerville. The old townsite of old Centerville was trucked to Grimes Creek where it will be dredged in the spring. The Idaho Canadian Dredging Company has operated throughout the year. They have dredged part of the townsite of Idaho City.

Orville S. Peet and John Pigg ran a gold washing plant at the head of California gulch during the summer.

W. C. Talbot, mining engineer of the University of Kansas, expects to install a dragline and gold washing plant on the Anttonson placer in the spring.

Palmer Howes and Fred Green opened up some high grade ore on the extension of the Gold Eagle vein on Hayfork Creek.

Ralph Emerson prospected his property below Idaho City using a bulldozer showing the presence of a large body of low grade gold and molybdenum.

Red Lode Mine at More's Creek Summit had a crew of 4 men all summer. Caving ground held back development of the vein.

Don Evans and Floyd Rubow recovered considerable placer gold on the South African just north of Idaho City.

Harry Penrod successfully operated the Best Chance placer during the season.

Ed Mason is developing a quartz claim adjoining the Washington Mine. Some good ore has been developed.

The Evans Brothers' worked several months on their property on Hoodoo Creek near Idaho City. Good values in gold and antimony were exposed.

Some development work was carried out on the Texida claims by S. G. Baker.

Harry Brubaker operating the old "Hambrinus" mine shipped several thousand dollars worth of gold recovered by stamp mill located upon the Illinois mine.

Hal Jarvis employed a number of men during the summer upon his "Gold Eagle" mine on Hayfork Creek.

W. B. McDaniel during the summer months placered the old dump on the Sub Rosa claims part of the Washington mining property.

The Birthday Mines shipped high grade gold ore by truck to Salt Lake during the past summer.


Charles F. Rowe did considerable development work upon his claims at Silver Mountain.

Harley Stevens recovered considerable placer gold from his claims on Ophir Creek near Placerville.

The Banner Mine was reopened during the summer by Dave Greenhaljh & Sons of Salt Lake City; ore was shipped to the smelter at Salt Lake. The Banner is a noted early day silver producer. This property is leased from Vivian Thorn of Idaho City.

The Tolo Mines, Inc., has been recently organized to operate the 13 unpatented claims in the Summit Flat district which are owned by the Red Lode Mining Company, Inc.
The Texas-Owyhee Mining & Development Company operated the Mayflower mine near Quartzburg with a crew of 45 men until May 1, 1940, when operations were discontinued and the lease was turned back to the original owners October 15, 1940.

Charles Stoll developed the Lucky Star claims on the Payette drainage side of Grimes Pass to some extent.

Parley Hudson worked the Gornick placers until he was forced to quit by a shortage of water.

The Grimes Company discontinued operation of their floating dredge near Pioneerville during the year. The boat was equipped with 72 four-foot buckets and employed 14 men.

Several men were employed at the Mann Placer, a hydraulic operation near Placerville.

A. L. Tiernan developed the Last Chance and Silver Star groups at Quartzburg and leasers were active on California gulch during the year.

John Jedlick and Charles Brant developed property at the head of Daggert Creek during the year.

Golden Age Mining Properties, Inc., report 100 feet of development work.

Golden Seal Mining & Milling Co., report assessment work was done on 12 unpatented claims on Dry Creek.

**BIRTHDAY CONSOLIDATED GOLD MINES INCORPORATED**


**BLUE ROCK MINES CORPORATION**


**COME-BACK MINING CO.**


**CONSOLIDATED MINES SYNDICATE**

(See Camas, Elmore and Idaho Counties.)

GOLDEN AGE MINING PROPERTIES, INC.


GOLDEN SEAL MINING & MILLING CO.


THE GRIMES COMPANY


IDAHO-CANADIAN DREDGING COMPANY


IDAHO MINING, SMELTING & REFINERS, INC.

Office: Boise. Officers: Dr. W. H. Innis, Pres.; Fred White, Sec., both of Boise. Inc.: July 14, 1936. Capital: 50,000 shares; par value $1; Dec. 15, 1936, increased to 300,000 shares; 1,250 shares issued. Remarks: “The Trustee that had the Banks Calcite property in his charge was unable to furnish a clear title so the stock of the company that was traded for this property was cancelled by letter to all interested stockholders. At this time the company has no property of its own or under lease.”

IDAHO MODOC PLACER MINING COMPANY


IDAHO-NEVADA COPPER CORPORATION, LTD.


IRON DYKE MINES CO.

BOISE COUNTY

MAYFLOWER GOLD MINES, INC.

MEADOW CREEK GOLD PLACER COMPANY

PACKER JOHN MINES CORPORATION

PITTSBURGH-IDAHO HYDRAULIC MINING CO.

RED LODE MINING CO., INC.

SHEEP CREEK MINING CORPORATION

SUN GOLD MINES, INC.
Office: Pioneerville. Officers: Tokuo Honma, Pres.-Mgr., Pioneerville; Jerry J. Katayama, Sec., 523 S. 3rd E., Salt Lake City, Utah. Inc.: March 22, 1940. Capital: 200,000 shares, par value 25c; 126,000 shares issued. Property: 4 unpatented claims, Boise Basin; Pioneerville, held under lease and bond from Mr. and Mrs. A. E. Anderson and Mitchel Jeannot, all of Grimes Pass. Development: Approximate total development, 1130 ft. Ore: Gold and silver. Remarks: "60 ft. of development work during the year. All work at the present time is being done by the paid officers of the corporation and no outside persons are employed."

TEXAS-OWYHEE MINING & DEVELOPMENT CO.
MINING INDUSTRY OF IDAHO

WESTERN GOLD CORPORATION


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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

County Seat: Sandpoint. Area: 1748 sq. miles. Population: 15,667. Principal Industries: Lumbering, mining, agriculture and stock raising. Transportation: Boats ply Lake Pend d'Oreille, one of the largest bodies of water in the State. Two State highways and a system of excellent county roads reach almost every district. Three transcontinental railroads traverse the county. Mineral Resources: Silver, lead, zinc, copper and limestone.

History and Future

Mining history started with the discovery of silver ores near Lakeview in 1888. Since that time there has been a small amount of mining but the county did not attract a great deal of attention until the Talache mine on the west shore of the lake proved to be a successful operation.

This was followed by the discoveries in the vicinity of Clark Fork which have added another profitable lead and silver producing district to the State's resources.

This county, particularly the districts around Clark Fork and on the east side of Lake Pend d'Oreille are very favorable for the prospectors, operators and investors.

Review of Year's Operations

The Whitedelf Mining and Development Company was leased by James E. White, Route 5, Spokane, Wash. High-grade was hand sorted and shipped direct to the smelter and the flotation plant was operated for a time on a three-shift schedule. The property is located at Clark Fork. M. F. Daugherty is foreman of underground work and Carl D. George in charge of milling operations. A crew of 16 men was employed.

The Hope Silver-Lead Mines, Inc., with a crew of 18 men, developed the property by sinking 545 feet and extending tunnels a distance of 480 feet. The work was in direct charge of Albert M. Nash, president-manager of the company.

Lawrence Consolidated Mining Company report 153 feet of development work during the year, under the direct supervision of Joseph Reed, president-manager.

Auxer Gold Mines, near Hope, completed assessment work. According to James Campbell, president, the company expects to build new cabins and a bunkhouse at the property.

Binarch Creek Mining Company, performed annual assessment work, built a shop, did some road work and arranged to purchase ore car and rails.

Assessment work was done on 2 claims of the Del Monte Claims, Inc., by the Milwaukee Mines, Inc.

Kaniksu Mining Company report that assessment work for the year 1940 was completed on the Wood Rat group of 11 unpatented claims in the Priest Lake district.

Keep Cool Mining Company, with an average crew of 4 men, developed the property to the extent of 306 feet. During the last half of the year 1940 the property was placed on a production basis.

Silver Leaf Mines Corporation, W. M. Cady, Sandpoint, president-manager, report the location of 11 claims and work completed during the year.
Opportunity Mining Company, near Sagle, completed 68 feet of development work on 8 unpatented claims in the Pend d'Oreille district. A. A. Hestead, Sagle, is secretary-manager.

Many other properties in the county were worked by lessees including parts of the Talache and adjoining properties. The ore was trucked to the Bunker Hill Smelter at Kellogg.

Idaho Lakeview Mines Company, headed by Dan M. Drumheller, Jr., of Cut Bank, Montana, which controls the Hewer group of 4 patented and 7 unpatented claims in the Lakeview district, is reported to have operated the 100-ton flotation mill during the last half of 1940 on custom ores. A contract was let to Earl McDaniel for 250 feet of tunnel work.

Annual assessment work and new locations were made during the year by companies, partnerships and individuals who do not make a report to the inspector of mines.

AMALGAMATED GOLD MINING CO.


AUXER GOLD MINES


BIG FIVE MINING CO.


BINARCH CREEK MINING CO.


CAMP BIRD MINING & DEVELOPMENT COMPANY


CAROLINA CLAIMS, INC.


CENTENNIAL CLAIMS INC.

Office: 501 City Hall Bldg., Spokane, Wash. Officers: W. W. Greenwood, Pres.; Florence Hine, Sec., both of Spokane, Wash.; Chas. A. Kerr, Statu-
BONNER COUNTY


DEL MONTE CLAIMS, INC.

EMPIRE TUNGSTEN MINING CO.

HOPE SILVER-LEAD MINES, INC.

IDAHO LAKEVIEW MINES CO.
Office: 502 Columbia Bldg., Spokane, Wash. Officers: D. M. Drumheller, Jr., Pres.; Cut Bank, Mont.; Harl J. Searl, Sec., Spokane, Wash. Inc.: June 28, 1928. Capital: 2,100,000 shares; par value 20c; increased Nov. 23, 1929, to 2,310,000 shares; increased April 3, 1930, to 2,510,000 shares; par value 20c; June 5, 1940 decreased capital stock to $25,000 divided into 2,510,000 shares, par value 1c; 2,254,415 shares issued. Property: Hewer group; 11 claims, Lakeview dist.; Lakeview. Development: Principally by 1 tunnel 2970 ft. long in which is an inclined shaft 1372 ft. long; total development approximately 14,571 ft. Plant: MINE: 10,500 cu. ft. I-R compressor; electrically driven hoist; 75-kw. generator driven by 100-h. p. semi-diesel engine; complete mining equipment. MILL: 100-ton concentrator, fine grinding and flotation; driven by semi-diesel oil engine. Ore: Silver, lead and zinc. Men Employed: Watchman. Remarks: Idle. Assessment of 1¼ mills per share levied March 16, 1940.

KANIKSU MINING CO.

KEEP COOL MINING CO.
MINING INDUSTRY OF IDAHO


KING SOLOMON'S MINES CO.

LAWRENCE CONSOLIDATED MINING CO.

MILWAUKEE MINES, INC.
Office: 501 City Hall Bldg., Spokane, Wash. Officers: Arthur L. Hooper, Pres.-Mgr.; John Barclay, Sec., both of Spokane, Wash. Inc.: April 6, 1928. Capital: 2,000,000 shares, par value 25c; increased Jan. 22, 1930, to 5,000,000 preferred, par value 10c, and 5000 common, no par value; changed July 30, 1930, to 250,000 preferred, par value $1, and 500,000 common, no par value, changed Feb. 4, 1932, to 3,500,000 shares, par value $1; Dec. 12, 1933, reduced capital stock to 1500 shares, no par value; 690 shares issued. Property: Milwaukee group; 12 claims; Priest river. Development: By 2 short tunnels. Ore: Silver, lead, zinc and gold. Remarks: Report not filed for 1940.

NEVADA MINES

OPPORTUNITY MINING CO.

PONDERA MINING & POWER CO.

PRIEST RIVER MINING CO.
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 and silver. **Remarks**: This company is a reorganization of Farmer Jones Gold Mining Company. Idle.

**SILVER LEAF MINES CORPORATION**

**Office**: 407 Empire State Bldg., Spokane, Wash. **Officers**: W. M. Cady, Pres.-Mgr.; Lester Valiquette, Sec., Spokane, Wash. **Inc.**: July 2, 1931. **Capital**: 2,000,000 shares; par value 5c; 1,153,326 shares issued. Feb. 14, 1939, amendment filed changing principal place of business from Lakeview to Sandpoint and making capital stock non-assessable. **Property**: Owns 16 claims; ½ interest in 5 others and holds option on ½ interest in 5 claims. **Development**: Approximate total development, 2345 ft. **Plant**: Machinery and equipment being used at Keep Cool. **Ore**: Lead, silver, gold and zinc. **Men Employed**: Average, 2. **Remarks**: “Eleven claims adjoining the Silver Lead property and connecting it with the Keep Cool property have been located and work completed during the year.”

**SILVER MOUNTAIN MINING CO.**

**Office**: Sandpoint. **Officers**: John T. Elsasser, Pres.-Mgr.; Arthur K. Bowden, Sec., both of Sandpoint. **Inc.**: July 24, 1909. **Capital**: 1,500,000 shares; par value $1; 1,284,931 shares issued. **Property**: Silver Mountain group; 9 unpatented claims, Priest Lake dist.; Priest River. **Development**: 2 tunnels; No. 1, 624 ft. long; No. 2, 408 ft. long. **Ore**: Lead-silver. **Remarks**: Report not filed for 1940.

**WHITEDELF MINING & DEVELOPMENT CO.**

**Office**: Clark Fork. **Officers**: Compton I. White, Pres.; Josephine E. White, Sec., both of Clark Fork. **Inc.**: March 17, 1926. **Capital**: 1000 shares; par value $100; Aug. 26, 1936, increased to 2,000,000 shares and decreased par value to 10c; shares issued, 1,191,050. **Property**: 300 acres of patented land, (80 acres held under lease) Pend Oreille dist.; Clark Fork. **Development**: Principally by 5 tunnels; approximate total development, 4800 ft. **Plant**: MINE: Electrically driven compressor; complete mining equipment. MILL: 50-ton flotation concentrator. **Ore**: Lead, silver. **Men Employed**: Average, 16.

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Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, pp. 160-175, March-April, 1930.**

Geology and ore deposits of the Clark Fork district, by A. L. Anderson: Idaho Bureau of Mines and Geology Bull. 12, 1930.**

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BONNEVILLE COUNTY

**County Seat:** Idaho Falls. **Area:** 1904 sq. miles. **Population:** 25,697. **Principal Industries:** Agriculture, stock raising and mining. **Transportation:** An excellent system of federal, state and county highways. Pocatello-Butte branch of the Union Pacific serves the county. **Relief:** The county lies almost entirely in the Snake River Valley with the exception of the Caribou Range in the southeastern part. **Mineral Resources:** Gold, phosphate rock, copper, silver and coal.

**History and Future**

The county was the scene of many active mining operations during the early day gold rush when placer gold was discovered on McCoy and Gray creeks in the Mt. Pisgah or Caribou districts. This activity had long since died down until the search for gold in the last few years led placer miners to again explore the creeks.

**IDAHO GOLD MINING CO.**

**Office:** 319 Dooly Block, Salt Lake City, Utah. **Officers:** W. A. Wilson, Pres.; J. C. Lynch, Sec., both of Salt Lake City, Utah. **Inc.:** April 19, 1917. **Capital:** 150,000 shares; par value 10c; 130,026 shares issued. **Property:** Robinson group; 2 patented and 4 unpatented claims, Mt. Pisgah dist.; Gray. **Ore:** Gold.

**PALISADE PETROLEUM COMPANY**

**Office:** Idaho Falls. **Officers:** Dr. H. Ray Hatch, Pres.; H. C. Harris, Sec., both of Idaho Falls. **Inc.:** Aug. 19, 1936. **Capital:** 250,000 shares; par value $1; 233,083 shares issued. **Remarks:** Report not filed for 1940.

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BOUNDARY COUNTY

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

BOUNDARY COUNTY


History and Future

In the past a number of properties have been operated profitably and the many favorable areas make this county a favorable one for the prospector although heavy overburden and dense vegetation makes prospecting expensive.

Review of Year's Operations

Diamond drilling equipment was purchased for further exploration of the Idaho Continental lead-silver mine 26 miles from Porthill. Trueman Higgenbotham is operating the property under lease, employing about 25 men. Capacity of the mill has been enlarged to handle 90 tons of ore daily. Leonard Knoles is the mill foreman.

The Silver Crescent Mining Company sunk the two-compartment inclined shaft 175 feet since April, 1939, and drove a tunnel to undercut the shaft on its Regal mine group, consisting of 26 claims. Plans are underway for the construction of a mill at the property. Guy E. Riegel, 1301 West First Street, Spokane, Wash., is president.

The Idaho Antimony Syndicate is stated to have been formed by Sven A. Anderson of Bonners Ferry and Charles F. Dean of Spokane, Washington. The property held under lease consist of two patented claims and a millsite,
on the west side of Pine Creek. The shaft is being unwatered and workings cleaned out in order to pick up some ore that was left by former operators.

The Idaho Lead-Silver Mining Company has installed additional mining machinery and is planning to extend the tunnel at the Two Tails mine, near Bonners Ferry. The company holds 6 claims with values in lead, silver and gold. J. A. Tormey, 917 East Twentieth Avenue, Spokane, Wash., is president and J. C. Vernon, Bonners Ferry, is supervising the work.

Many companies in this county ignored Sections 25-1616, 25-1619-20, Idaho Code Annotated and failed to file reports with the inspector of mines as required by law. The following information was taken from the books of the county recorder:

Assessment work was performed for the year 1940 by L. A. Larson on the Kate-Frye in the Moyie-Yaak district; $1,400 was expended on the Mill Creek Placer No. 1 and Deer Creek Placers Nos. 1, 2, 3, and 4, by Frank McNees; work at Cyanide Gold Mining Co., at expense of J. W. Reid by Frank McNees; John Fenn recorded work on the Harry mining claim in the Moyie-Yaak district; Golden Scepter Mining Company, Ltd., sunk 65 feet of shaft, 18 feet of tunnel, installed 5-ton mill and engine, reported by M. M. Hetherington; at the Iron Ridge Nos. 1, 2 and 3, work was performed by J. H. McNally; J. J. Whitcomb and Alexander S. Rosander completed $800 worth of work on the Argentine Group in the Moyie-Yaak district; Valley View in Moyie-Yaak district, by R. B. Hoglan; the Bethlehem (Mrs. Edith H. Wheelan, owner), expense of Z. T. Parker by Lester A. Beck; the Climax in the Moyie-Yaak district, by C. A. Menschreck and H. E. Burton; Gold Reserve Nos. 3, 4 and 5, in Moyie-Yaak district by William Tilley; Joker, Thor, Ideal, Midas, Gem and Mammoth by Adolph Miller; J. R. Rollinson recorded $11,000 in improvements and development at the Idaho Lead-Silver mines; $40,000 was expended at the Silver Crescent, Inc., according to Guy E. Riegel; assessment work on the Snowshoe and Crystal claims in the Porthill district by Wm. E. Rath; American Girl, $3,200, recorded by John F. Anderson; Azurite and Silver Crown on Boulder Creek, unorganized district, by John T. Krohnblad; Yellow Gopher and Porcupine No. 2, Moyie-Yaak district by A. E. Knittel; and M. E. Carson, secretary of the company recorded in excess of $1,400 at the Idamont Lead-Zinc Mines Company.

GOLDEN SCAPTE MINING CO.


IDAHO LEAD-SILVER MINES CO.


IDAMONT LEAD-ZINC MINES CO.


INTERNATIONAL MOLYBDENUM CO.

METALS PRODUCTION COMPANY

MONTGOMERY MINES, INC.

SYLVANITE MINING COMPANY

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Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, 1919.**


Idaho is one of the most highly mineralized states. Mining was Idaho's first industry, created by the gold discovery in 1860. For 80 years it has maintained substantial annual production, and it is today one of the state's most important economic assets. Mines provide annual payrolls totaling about $9,000,000.
BUTTE COUNTY


Review of Year's Operations

The New Liberty Mining Company shipped high-grade ore to the American Smelting and Refining Company at Salt Lake City, Utah. The company is leasing property on Antelope Creek near Arco, from Mark Cherry and William Jones. Five men are employed under the management of M. J. Mullins of Arco.

Horn Silver Consolidated Mines Co., completed 80 feet of development work during the year. Several leased claims worked for the past few years, were released from the group.

The Era Mining and Development Company, Inc., is reported to be planning the construction of a 100-ton flotation mill. The company holds the original Horn Silver mine near Martin about 20 miles southwest of Arco. William E. Clark is president and manager. The property comprises the Horn Silver, Bucking Pinto, East Side and Last Chance group; the Rattlesnake claim; the Whale and three unpatented claims, the Moran, Arco and Valley. These claims are held under lease and option to purchase from Mrs. Agnes Williams of Salt Lake City, Utah. Equipment on the ground is adequate for development purposes. Values are in gold, silver, lead, zinc and copper.

Shipments of ore were made during the year from the Great Western mine in the Lava Creek district. N. E. Arrave and associates operated the mine under lease from Daniel Romney of Arco. Ore was sent to the Murray plant in Utah for treatment.

The Utah-Idaho Sugar Company mined limerock at the quarry near Arco under the management of R. F. Braithwaite. New machinery was installed including a compressor, drills, steel and pipe to facilitate a larger production of high-grade limerock.

BADGER MINES CO.


ERA MINING AND DEVELOPMENT COMPANY, INC.


HORN SILVER CONSOLIDATED MINES CO.

Office: Arco. Officers: L. M. Capps, Pres., Blackfoot; M. M. Dahle, Sec.-Mgr., Arco. Inc.: Dec. 21, 1925. Capital: 100,000 shares; par value $1; Nov. 8, 1934, increased to 1,000,000 shares; par value $1; 137,731 shares
BUTTE COUNTY

issued. Property: 6 unpatented claims, Lava Creek dist.; Martin. Development: By 3 tunnels, the principal one being 550 ft. long. Ore: Gold, silver and copper. Men Employed: Average, 3. Remarks: 80 ft. of development work during the year. “During the last few years the company has prospected several leased claims extensively and as no appreciable quantity of ore was developed these claims were recently released from the group. When the leases expired no effort was made to renew the lease on the part of the company.”

WILBERT MINING CO., LTD.

Office: 220 Kearns Bldg., Salt Lake City, Utah. Officers: J. A. Foley, Pres.-Mgr.; T. L. Mitchell, Sec., both of Salt Lake City, Utah. Inc.: April 10, 1907. Capital: 2,000,000 shares; par value 50c; 1,177,180 shares issued. Property: Daisy Black group; 7 patented, 33 unpatented claims, Dome dist.; Howe. R. R. Arco, 42 miles. Development: Approximately 18,000 feet of underground workings, the principal of which is No. 4 tunnel, in which 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: Hoist and 2 compressors, one electrically driven, one oil-driven; complete mining equipment and camp. MILL: 75-ton concentrator, electrically driven. Ore: Silver-lead. Remarks: Idle.

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Geology and ore deposits of the Lava Creek district, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 32, 1929.**


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 is more than $1,300,000,000.

Average annual production for the past 30 years is around $28,000,000.
CAMAS COUNTY


History and Future

The mines of this county have a good production record. With present activity in both lode and placer and with the intelligent application of modern geologic and metallurgical principles, this area presents excellent opportunities for mining in the future.

Review of Year's Operations

Gold Mountain Mines Co. installed a 25-ton crusher and a 10 h. p. gasoline engine and report 46 feet of development work was completed during the year.

The Grant Mining Company completed 180 ft. of development work with a crew of 3 men. During the fiscal year the directors were reelected and include: E. F. Mobley, 104 Fourteenth Street, Idaho Falls, who is secretary-treasurer; F. H. Higbee, Judge Taylor, and Norland Beamer. It is reported that Reed F. Welch has subleased the Carrietown property from the Grant Mining Company, which in turn hold a sublease from Fred Higbee, who holds a lease from the owner, Henry Weise of Kansas.

The Royal Mining Corporation, Ltd., leasing the Princess Blue Ribbon groups from the Consolidated Mines Syndicate, report that the property was taken over during the year, old workings cleaned out and new buildings and other necessities added. An average crew of 20 men was employed. Shipments were made from underground workings and from surface outcrops and shipped to Salt Lake City, Utah, for smelting. James O. Galloway is president-manager and Mike A. Routh is secretary; office, Capitol Securities Bldg., Boise, Idaho.

H. D. Jones of Hailey had an option on the Taft mine in the Little Smoky district. The property was developed to some extent and some production was reported.

Ira Adams, of Fairfield, shipped ore from his Jane Lee mine, near Carrie-town to Salt Lake smelters for treatment. Values were in silver and lead. A crew of 5 men was employed.

Other activity in Camas County was confined mostly to annual assessment work. Prospecting and testing was carried on in the Skeleton, Big Smoky, Little Smoky and Willow Creek districts.

An important disclosure of molybdenum was developed east of Corral in the foothills of the Soldier Mountains.

CONSOLIDATED MINES SYNDICATE

(See Boise, Elmore and Idaho counties.)


DIXIE QUEEN MINING COMPANY, INC.

Office: Box 23, Richmond Highlands, Wash. Officers: Eugene H. Kendall, Pres., Box 23, Richmond Highlands, Wash.; L. J. Balbach, Sec., Public
CAMAS COUNTY


GOLD MOUNTAIN MINES CO.

GRANT MINING COMPANY, THE

IDAHO-NEVADA COPPER CORPORATION, LTD.
(See Boise County for capital structure.) Property: 6 unpatented claims, Mineral Hill dist.; Fairfield, held under lease and option. Development: 1 tunnel, 55 ft. long and 1 — 80 ft. open cut.

LITTLE SMOKY MINING COMPANY, INC.

PARADISE GOLD DREDGING COMPANY, INCORPORATED, THE

RED HILL MINING & MILLING CO.

ROSETTA MILLING & MINING COMPANY

THE ROYAL MINING CORPORATION, LTD.
2,000,000 shares; par value 5c; all shares issued. Property: 7 unpatented claims, Mineral Hill dist.; Fairfield, held under lease and bond. Development: 52,000 ft. of development work during the year. Plant: 2 G-D compressors, 2 ore bins, 1 loading ramp, 2 drifters, 2 jackhammers, etc.; black-smith shop, bunkhouse, cook house, office and 3 dwellings. Ore: Gold and silver. Men Employed: Average, 20. Remarks: "Property taken over and old workings cleaned out and new buildings and other necessities put in."

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CANYON COUNTY

County Seat: Caldwell. Area: 592 sq. miles. Population: 40,987. Principal Industries: Farming, dairy products, stock raising. Transportation: The county is served by the Union Pacific Railroad, United States Highway No. 30 and an excellent system of state, county and farm-to-market roads. The only known mineral resources of this county are gold in the Snake river sands, diatomaceous earth, and clays of excellent quality. A number of companies have been formed to drill for oil and gas, but to date no results have been obtained.

UNITED DEVELOPMENT CORPORATION

Officers: Fred Hartenbower, Pres.; Hugh N. Caldwell, Sec., both of Caldwell. Inc.: July 17, 1931. Capital: 1,000,000 shares; no par value; 343,382½ shares issued. Property: 23,000 acres under lease in Canyon and Idaho counties, Idaho, and Malheur County, Oregon.

BIBLIOGRAPHY

See pages 6-7 for publisher's address, meaning of reference marks, and abbreviations.


CARIBOU COUNTY


History and Future

The tremendous resources of this county have only been scratched. A large part of five billion tons of marble phosphate rock estimated to be in Idaho, lies in this county. The Anaconda Mining Co. at Conda has the only development making use of this deposit. They have a modern plant for the production of ground phosphate rock which is shipped to Anaconda, Mont., for treatment. This company has expended more than $6,000,000 in its mine, mill, railroad, power lines and town site.

The salt deposits and mineral springs are other potential resources that are not being utilized.

A number of structures favorable for the accumulation of petroleum are found in the eastern part of the county.

ANACONDA COPPER MINING CO.

Office: Anaconda, Mont. Officers: James R. Hobbins, Pres.; James Dickson, Sec., both of 25 Broadway, New York City; E. M. Norris, Local Mgr., Conda, Idaho. Inc.: Filed in Idaho, April 10, 1916. Capital: 12,000,000 shares; par value $50; 8,919,086 shares issued. Property: 23 patented claims, 3403 acres, unorganized dist.; Conda, and in addition leases 1340 acres phosphate rock bearing land from the estate of Charles J. Kelly, Butte, Montana. Development: 3 adits, 45 ft. above railroad track level, 9x9 ft. inside of timbers; No. 1, 6650 ft. long; No. 2, 2660 ft. long; No. 3, 5987 ft. long. Approximate total development 60,539 ft. 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; 100 h. p. electrically driven hoist. 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-in.
Traylor gyratory crusher, which reduces it to about 2½ in. 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-in. 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 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 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 postoffice has been established, and a modern schoolhouse erected, and a school 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, 94. **Remarks:** Development work during the year: Raising, 1901 ft.; drifting, 1212.5 ft., and crosscutting 15.5 ft. Additions made: 1 Raymond 8 ft. Whizzer type air separator, 1 concrete lined 400 ton underground ore bin and 230 ft. concrete lined Waste Transfer Compartment added to shaft.

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CASSIA COUNTY


SILVER HILLS MINING CO.


WHITE MICA MINING AND MILLING COMPANY


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CLARK COUNTY


BIRCH CREEK MINING CO., LTD.


HIGHLAND PETROLEUM, INC.


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Idaho’s systems of communication and transportation are modern and convenient. Idaho’s road mileage is 33,655 miles, 2,638 miles hard-surfaced and paved, and 12,085 miles graveled.
CLEARWATER COUNTY


History and Future

The Pierce City district was the scene of the first discovery of gold in Idaho in 1860. The placer diggings were rich and the overflow from the resulting stampede caused the settlement of the State. In common with all of the early gold mining districts, the more easily handled ore was mined and the district became dormant. The present search for gold has caused much new activity in the district.

Dense vegetation and heavy overburden has made prospecting extremely difficult and has prevented a thorough examination of the county in the past. This is one of the most favorable districts in the state for the prospector and small operator.

One of the finest lime deposits in the State is located just outside of Orofino on the railroad. This deposit has received some development and is being exploited to some extent at the present time.

Review of Year's Operations

The Orogrande Creek Placer Mining Company was organized under a partnership agreement by Boyd H. Olson and Avery Brewer to lease 60 acres of ground on Orogrande Creek to be worked by dryland dredging. Olson is manager.

Crystal Lime Company report 100 tons of lime rock was quarried for the fiscal year ending June 30, 1940.

M. & I. Mining Co., is held under lease by T. P. Jones of Elk River, who agrees to develop the property and mine for ore.

Quartz Creek Dredging Company, dredged approximately 850,000 cubic yards of gravel with a 2½ cubic foot close connected bucket line dredge during the year. Chas. L. Ross is in direct charge of operation with a crew of 15 men.

Washington-Idaho Lime Products Co. was engaged in quarrying lime rock and the manufacture of "Orofino Brand Cement" with an average crew of 60 men.

Annual labor was performed on many mining claims and some new locations were recorded on property in Clearwater County.

AMERICAN PLACER MINING CO., LTD.


CRYSTAL LIME COMPANY

INDEPENDENCE PLACER MINING CO., LTD.

M. & I. MINING CO.
Office: 2947 Oliver Ave., N. Minneapolis, Minn. Officers: William J. Dwyer, Pres.; John J. Dwyer, Sec.-Treas., both of Minneapolis, Minn. Inc.: Filed in Idaho, March 13, 1916. Capital: 100,000 shares; par value $1; 60,500 shares issued. Property: 8 patented claims, Elk River. Ore: Gold-silver. Remarks: "Under date of Feb. 28, 1932, M. & I. Mining Company made a lease to one T. P. Jones, Elk River, Idaho, under the terms of which said Jones is to develop and operate mining on the above described claims. The M. & I. Mining Company has not mined or attempted to mine the said claims at any time. Under the terms of the lease, Mr. Jones was to begin at once to do development work and mine for ore."

MUSSELSHELL MINING COMPANY

OXFORD COPPER MINING CO., LTD.

QUARTZ CREEK DREDGING COMPANY

WASHINGTON-IDAHO LIME PRODUCTS CO.

WESTERN METAL PRODUCTS CO.

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CUSTER COUNTY

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CUSTER COUNTY

County Seat: Challis. Area: 4921 sq. miles. Population: 3549. Principal Industries: Mining, stock raising, particularly sheep and agriculture. Relief: High and mountainous, few level spots except at head waters of Salmon River. The county contains the headwaters of the Salmon River, Big and Little Lost Rivers. Transportation: A system of well kept state and federal highways serves all of the valleys. The only railroad transportation is the Mackay branch of the Union Pacific which terminates at Mackay. Mineral Resources: Silver, copper, gold, zinc, antimony, molybdenum, tungsten, graphite, bentonite and garnet.

History and Future

This county was the scene of much early day activity in both precious and base metal mining. At one time there were several smelters running in the county and the production of high-grade silver-lead and silver-copper ores made the county one of the principal mining districts of the State.

Review of Year’s Operations

Mackay Exploration Company, located at Mackay, had about 20 sets of lessees, which in turn employed a total of around 45 men. Ted Cherry is president and J. Ray Weber, manager, both of Mackay.

The Grand Prize mine, idle for the past 50 years and owned by Joe L. Ausich of Mackay, has been acquired by William Roller, Bert Keller, Arch Fleming and Ralph Erickson, all of Tooele, Utah. The property is located in the Alder Creek district near Mackay. It is planned to extend the No. 4 tunnel a distance of 500 feet to cut the ore at greater depth.

New development work is in progress at the Twin Apex Mines Company in the Bay Horse district. John Zrno and son are doing the work under contract from A. G. Guthel, Dooly Bldg., Salt Lake City, Utah.
White Knob Mining Company report the property was developed during the year by 175 feet of tunnels, 125 feet of sinking, 185 feet of drifting and 55 feet of raising. The Home Stake mining claim was worked by lessees.

Strunk and Sherry developed a molybdenum property at the head of Lost River on Little Fall Creek.

W. B. Swigert of Challis is reported to have leased the entire property of the Ramshorn Mines Company, comprising the Ramshorn and Beardsley groups of 10 patented claims in the Bay Horse district. For some time Swigert has been leasing a portion of the property and other lessees have operated on other parts. Present arrangements, however, include the whole mine. Values are in silver-copper and equipment includes a small mill. Some sub-leases will be let by Swigert who is now employing about 15 men on his own account. The company completed 400 feet of development work during the year. O. J. Salisbury, 321 Felt Building, Salt Lake City, Utah, is president and manager of the company. A watchman and caretaker are employed by the Ramshorn Company on the premises.

Clayton Silver Mines Co., employed an average crew of 34 men during the year. A shaft pump, four inch water column and two pneumatic drills were added to the equipment. The shaft was sunk 100 feet, sump excavated, skip pocket constructed and the crosscut on the 300 ft. level was extended to undercut the ore at lower depth during the year. Plans are under way for the installation of a new 700-cubic foot diesel-driven air compressor to supplement the water power compressor now in use, which is inadequate during the low water season. Herman Marquardt of Wallace, is president and C. F. Fay of Clayton is superintendent.

Ford Motor Company employed a watchman at its property in the Bay Horse district and report maintenance and repair work during the year.

L. S. Campbell and George Williams of Clayton developed their holdings on Kinnikinick Creek to some extent and are trying to finance a development program with large scale operations in view.

Snake River Mining Company operates the largest floating dredge in the state on the Yankee Fork of the Salmon River near Sunbeam. The boat was floated on 25 steel pontoons and its 72 buckets will dig gravel to a depth of 30 feet. Power is furnished by a diesel electric plant. The dredge operating on four six-hour shift basis has a digging capacity of 185,000 yards daily. The company is controlled by the Silas Mason Company, a contracting firm of 500 Fifth Avenue, New York. Arnold Hanger of Richmond, Kentucky, is president.

Western Gold Exploration Company report that an entire plant was installed and 180 feet of development work completed during the year.

Custer Consolidated Mines, Inc., A. H. Burroughs, Jr., Box 2088, Boise, president and general manager, moved equipment to the Lucky Boy-General Custer group of 15 claims on Custer mountain. The property was taken over from Dunn and Malin who held a lease on the ground from the McCornick estate. About 30 men are employed under the direct supervision of Phillip T. Peterson. Values are in gold and some silver.

Casino Mining & Milling Company report 475 feet of development work on 6 unpatented claims in the Stanley district. A. R. Woodward of Stanley is president. Values are in gold.

Elk Creek Mine, Inc., report 320 feet of development work was completed during the fiscal year.

Gem State Mining Co., a partnership, report annual labor on 2 unpatented claims in the Stanley Basin district.

Massacre Mining Company, Incorporated, report 35 feet of development work on 1 unpatented mining claim in an unorganized district near Challis.

Twin Apex Mines Co. added new equipment including a stoper machine, truck, repaired road and 5 bridges, rehabilitated old workings and raised 65 feet from No. 3 tunnel to connect with the ore developed in No. 2 tunnel, 300 feet above.
Washington Basin Mining & Milling Co. report their claims located in Washington Basin were leased to W. E. Cook and Dee Boothe of Delta, Utah, in the spring of 1939. A limited amount of work was performed by these men during the year.

Western States Mining, Milling & Exploration Co., Ltd., report the Ibex Group and Silver Bug Group were under lease during part of 1939. Lessees did considerable work before terminating lease. Company performed assessment work only.

Red Dog Mining Company, Incorporated, developed their holdings in an unorganized district, near Challis to some extent.

AETNA MINING & INVESTMENT CO., LTD.

AMERICAN DOLLAR MINING & MILLING COMPANY

CASINO MINING & MILLING COMPANY

CATHERINE MINING CO., NO. 1

CLAYTON SILVER MINES CO.
Office: Wallace. Officers: Henry B. Kingsbury, Pres.; Herman Marquardt, Sec, both of Wallace; C. A. Fay, Mgr., Clayton. Inc.: Jan. 20, 1934; name changed from Clayton Mining Company May 31, 1935. Capital: 3,000,000 shares; par value $1; all shares issued. Property: Camp Bird group; 32 patented and 4 unpatented claims, Bay Horse dist.; Clayton. Development: Principal tunnel, 2786 ft.; approximate total development, 14,320.5 ft. Plant: MINE: Coeur d'Alene Electric Hoist; Ingersoll Rand Compressor; blacksmith shop, power houses, boiler house and assay office. MILL: 110-ton flotation. Ore: Lead-silver. Men Employed: Average. 34. Remarks: Additions made during the year: 2 stage I-R shaft pump, 4-in. water column in shaft; 2 additional pneu. drills. Sunk shaft 100 ft. during 1939; excavated for sump, constructed skip pocket. Crosscut on 300 ft. level to undercut ore at lower depth.

ELK CREEK MINE, INC.
184 MINING INDUSTRY OF IDAHO


FORD MOTOR CO.
Office: Dearborn, Mich. Officers: Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Dearborn, Mich.; F. E. Lundstrom, Branch Mgr., Salt Lake City, Utah. Inc.: Filed in Idaho, Jan. 6, 1925. Capital: 1,000,000 shares; par value $100. Property: Red Bird and Silver Rule groups; 30 patented claims, including 5 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, 1680 ft. long, giving a total depth of 900 ft. on the vein; total development approximately 23,817 ft. Plant: Hand tramming and storage battery motor; shops and mining camp consisting of 11 buildings. Ore: Lead-silver. Men Employed: 1 watchman. Remarks: Maintenance and repair work during the year.

GEM STATE MINING CO. (Partnership)

IVANHOE MINING CO.
Office: 485 California St., San Francisco, Calif. Officers: Edward H. Clark, Pres.; C. B. Greeley, Sec., both of San Francisco, Calif.; Earl J. Michael, Statutory Agent, Challis. Inc.: Filed in Idaho July 28, 1909. Capital: 2500 shares; par value $1; all shares issued. Property: 25 patented claims, Yankee Fork and Warm Springs dists. (Custer and Blaine counties.) Ore: Silver and lead. Remarks: “The owners of these claims formed the company to consolidate their scattered holdings, and conveyed same for the capital stock of the company. No operations were conducted by the company.”

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.

MACKAY EXPLORATION COMPANY

MASSACRE MINING COMPANY, INCORPORATED
NEW LIBERTY MINING COMPANY  (See Elmore County)


RAMSHORN MINES CO.


SALMON RIVER MINING CO.


STANLEY-FIVE BARS MINING COMPANY  (See Elmore County)


TWIN APEX MINES CO.

Office: 993 So. 11 East, Salt Lake City, Utah.  Officers: A. G. Gutheil, Pres.-Mgr.; F. H. Gutheil, Asst. Sec., both of Salt Lake City, Utah.  Inc.: Sept. 19, 1925.  Capital: 1,000,000 shares; par value 5c; 558,370 shares issued.  Property: Twin Apex group; 4 patented, 11 unpatented claims, on Squaw Creek, Bay Horse dist.; Clayton.  Development: Principally by 3 tunnels: No. 1, 180 ft.; No. 2, 550 ft. long; No. 3, or crosscut, 1800 ft. long.  Plant: Some mining equipment and camp.  Ore: Lead-silver.  Remarks: "Repaired road, 5 bridges, buildings, air and ventilating pipes, cleaned and repaired tunnels numbers 2 and 3, cleaned ditch and repaired equipment for the purpose of resuming work.  Resumed work by installing a chute and raising approximately 65 ft. from number 3 tunnel to connect with the ore developed 300 ft. above in number 2 tunnel.  During the year additional equipment has been purchased, including a stoper, truck, etc."

WASHINGTON BASIN MINING & MILLING CO.

Office: 915 W. Second South, Salt Lake City, Utah.  Officers: John D. Harper, Pres., American Fork, Utah; R. E. Kimbellin, Sec., Salt Lake City, Utah.  Inc.: Nov. 12, 1932.  Capital: 1,000,000 shares; par value 2½¢; 918,796 shares issued.  Property: 10 unpatented claims; East Fork dist.; Ketchum.  Development: 140 ft. of tunnel work and 10 ft. vertical shaft.  Plant: Complete mill equipment, 3 log cabins and mill buildings.  Ore: Gold.  Remarks: "Our mining claims located in Washington Basin, Custer County, were leased to W. E. Cook and Dee Boothe of Delta, Utah, during the Spring of 1939.  A limited amount of work was performed by these men during the summer of 1939."

WESTERN GOLD EXPLORATION COMPANY

shares; par value 50c; 33,840 shares issued. **Property:** 4 patented and 5 unpatented claims, Yankee Fork dist.; Stanley. **Development:** By 7 tunnels, the principal one being 1000 ft. long. **Plant:** Complete mining equipment. **Ore:** Gold, silver, lead, zinc, and copper. **Men Employed:** Average, 2. **Remarks:** "Entire plant put in during the year." 180 ft. of development work during the year.

**WESTERN STATES MINING, MILLING & EXPLORATION CO., LTD.**

*Office:* 506 McIntyre Bldg., Salt Lake City, Utah. **Officers:** G. H. Schmidt, Pres.-Mgr.; Walter F. Schmidt, Sec., both of Salt Lake City, Utah. **Inc.:** Oct. 25, 1937. **Capital:** 150,000 shares; par value $1; 80,500 shares issued. **Property:** 31 unpatented claims, Boulder and Yankee Fork dists.; Clayton. **Ore:** Gold, silver, lead. **Remarks:** "Ibex Group and Silver Bug Group were under lease during part of 1939—lessees did considerable work and terminated lease, Company did assessment work only."

**WHITE KNOB MINING CO.**

*Office:* U. S. Smelting & Refining Co., Newhouse Bldg., Salt Lake City, Utah. **Officers:** F. S. Mulock, Pres.; W. W. Rager, Sec., both of Salt Lake City, Utah. **Inc.:** Aug. 23, 1919. **Capital:** 500,000 shares; par value $1; 127,500 shares issued. **Property:** White Knob group; 3 unpatented claims, Alder Creek dist.; Mackay. **Development:** Principally by 2 tunnels and 1 vertical shaft 250 ft. deep. **Ore:** Lead, silver. **Remarks:** "Development during the year: Tunnels, 175 ft.; Sinking, 125 ft.; Drifting, 185 ft.; Raising, 55 ft. Home Steak Mining claim worked by lessees under block lease arrangements."

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ELMORE COUNTY


History and Future

The county was a noted early day producer of gold and silver, both placer and lode. In common with most of the gold producing districts, interest in gold mining lagged with the extraction of the free gold and the district became dormant. The recent search for gold has given the mining districts new life and a profitable production.
Improved metallurgical methods and more efficient application of geology opens up an excellent future for this district. It is a favorable one for the prospector, operator and investor.

Review of Year’s Operations

It is rumored that a company will be formed to reopen the old Franklin property near Pine during the year 1941.

Annual labor was performed on mining claims along the Feather River and in the Red Warrior mining district.

Charlie Ford, Joe Babington and John May developed the Mountain View tungsten property to some extent during the year. The mine is located about 3 miles from the town of Corral.

The Black Warrior district is a well mineralized area and worthy of more investigation by scouts and engineers who are seeking gold and silver properties. Assessment work was performed on many claims in this district during the year 1940 with activity noted at the placer property of Harold E. Cullen, at the Overlook mine, and on Wilson Creek, Grouse Creek, Eagle Creek and on the West Warrior.

By a ruling of years standing by the reclamation department all land above Arrowrock Dam on the Middle Fork of the Boise River to a point above Alexander Flats has been withdrawn from entry. However, this ruling does not affect locations made prior to the Arrowrock Reclamation Project.

The Neil district was rather quiet with the exception of annual assessment work at the Sunset and Rescue groups, the Cordova Mining Company and other claim holders.

Daley Consolidated Mines Co. maintained and repaired the property and completed 180 feet of new development work during the year. The property is located in the Pine district and consists of 50 unpatented claims.

Flag Staff Mining Company employed an average crew of 6 men and report 381 feet of development work completed.

Kalso Mines Corporation report assessment work only.

Last Chance Mining Company only operated for four months of the fiscal year. The holdings of this company including the Monarch mine were acquired by Talache Mines, Inc. on October 31, 1939. While active the company employed an average crew of 50 men.

The Independence mine at Rocky Bar, owned by William A. Nixon, was worked under lease by Oscar Pearson, Roy Peterson and R. N. Anderson. A large body of free milling gold ore is stated to be exposed that will average $15.00 a ton. Development is going forward on the Independence and Empire No. 1 and No. 2 groups of claims in an effort to pick up an extension of the Mountain Goat vein, a former producer of high grade gold ore.

Idaho Gold Chief Mining Co., W. M. Caldwell, president, Mountain Home, reports maintenance and repair work on 7 unpatented claims in the Bear Creek district, near Rocky Bar.

Assessment work was performed by R. A. Peck at the Sky Line No. 1, No. 2 and the Ophir Bill mining claims.

Annual assessment work was performed on mining claims situated on the Yuba River and the Minerva developed their holdings and milled ore from mine dumps and mill tailings.

Other properties near Atlanta that are being developed include the Petit, Big Lode, Minerva, Pal Group, Tahoma, Jessie Benton and Grey Eagle. These properties are all grouped along Quartz Creek, Atlanta Ridge and on the Yuba drainage of the ridge.

The Good Luck Group, owned by Dollie M. Money, completed 60 ft. of development work during the year. The property consists of 4 unpatented claims in the middle Boise district, Atlanta.

Talache Mines, Inc., A. H. Burroughs, Jr., president-manager, Boise, has enlarged its holdings in the Atlanta district until it is now the second largest
employer of mine labor in Idaho south of the Salmon River. The Boise Rochester mine was obtained from the St. Joseph Lead Company and the Monarch mine has been lately acquired by the company. Consolidation of these two properties under one management brings together two of the famous old properties that made history in the early days of mining in Idaho. During the past year an average crew of 200 men was employed under the direct supervision of Joe H. Skidmore. The company increased the milling capacity of the plant to 200 tons daily, purchased 10 new mine cars, several new rock drills, installed new 1545 Gardner-Denver compressor, added new addition to diesel room, revamped and improved method of handling and framing timber and did not forget to use this timber where it was most needed underground. This fact and the cooperation of the Talache company in mining safely is highly appreciated by the Idaho Mining Department.

Boise King Placers are constructing a floating dredge on the Middle Fork of the Boise River that will have a digging capacity of 150,000 yards a month. Pontoons and hull are being constructed by the Olson Manufacturing Company of Boise. Frank B. Thornburg is in charge.

APEX GOLD MINING CO.

CANADA GOLD MINES, INC.
Officers: Fred J. Babcock, Pres.; Earl W. Murphy, Sec., both of Boise. Inc.: May 2, 1934. Capital: 3,000,000 shares; no par value; July 2, 1935 established par value at $1 per share; 1,269,183 shares issued. Remarks: Idle.

CONSOLIDATED MINES SYNDICATE

DALEY CONSOLIDATED MINES CO.

FLAG STAFF MINING COMPANY
GOOD LUCK GROUP

IDAHO GOLD CHIEF MINING CO.

IDAHO PACIFIC MINES, INC.

KASLO MINES CORPORATION
Office: 402 Empire State Bldg., Spokane, Wash. Officers: H. G. Loop, Pres.-Mgr.; E. I. Fisher, Sec., both of Spokane, Wash.; E. W. Fulton, Statutory Agent, Coeur d'Alene. Inc.: Jan. 19, 1926 as Omo Mines Corporation; name changed Nov. 19, 1936. Capital: 2,000,000 shares; par value 5c; Nov. 19, 1936, reclassified capital stock to 1,000,000 shares non-assessable, par value 3c and 1,000,000 shares assessable, par value 7c; 961,802 non-assessable and 127,500 assessable shares issued. Property: “The Kaslo Mines Corporation holds deed to millsite at Pine, Idaho. All other property owned by the company is located in British Columbia, Canada.” Remarks: March 2, 1940 levied a 3 mill assessment. Assessment work only.

LAST CHANCE MINING COMPANY

MARSH CREEK MINING CO.

NEW LIBERTY MINING COMPANY
(See Custer County)

OLD CHANNEL MINING COMPANY, INC.

GEORGE F. ROTH CO.
ELMORE COUNTY

2500 shares; par value $100; 2102 shares issued. **Property**: Homestead group; 9 patented, 3 unpatented claims, Neal dist. **Ore**: Gold. **Remarks**: Report not filed for 1940.

**STANLEY-FIVE BARS MINING COMPANY**

(See Custer County)

**Property**: Five Bars Group, consisting of 4 claims; Barber.

**TALACHE MINES, INC.**

**Officers**: A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of 715 Grove St., Boise. **Inc.**: Apr. 21, 1917, as Armstead Mines; name changed June 8, 1922. **Capital**: 1,600,000 shares; par value $1; shares issued, 1,580,233. **Property**: 10 patented and 22 unpatented claims, Middle Boise dist., Atlanta. **Development**: Approximate total development, 16,000 ft. **Plant**: MINE: 770 cu. ft. G-D compressor, 1 automatic 2½ ton locomotive, 14 20-cu. ft. haulage mine cars—complete mining equipment. MILL: 200-ton. **Men Employed**: Average, 200. **Remarks**: During the year: Purchased 6 card 23 cu. ft. mine cars; 4 Sawtooth 20 cu. mine cars; several new rock drills; installed new 1545 G.D. compressor; added new addition to diesel room for new 1545 compressor. Tonnage increased to 200 tons the last few days of May.

**WINNER GROUP**

Earl F. Money, owner. **Property**: 4 unpatented claims; Middle Boise dist; Atlanta. **Development**: Approximate total development, 865 ft. **Remarks**: 60 ft. of development work during the year.

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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

See pages 6-7 for publisher's address, meaning of reference marks, and abbreviations.


GEM COUNTY


History and Future

The Pearl district was once a famous gold producer; this and a few outlying sections have seen considerable activity in the past. Much base ore amenable to modern methods of concentration is reported in the old properties. This section should be given more attention by the present day operators.

Review of Year's Operations

Huron Mines, Inc., was the largest operation in Gem County during the year 1940. Improvements were made at the property to insure the safety of the men employed. The property known as the old "Lincoln" mine was placed
on a production basis under the supervision of James L. Fozard but during the past year operations of the company are under direct charge of George Chattenger. The property consists of 5 patented and 4 unpatented claims in litigation the past few years. Property is now in possession of Manufacturers Trust Company, 55 Broad Street, New York City.

Annual assessment work was performed on several mining properties in the Pearl district during the year, including the Gold Digger Group owned by K. H. Swanholm of Boise, the King Tut Group owned and operated by Fred Babcock and Earl Murphy of Boise, and the La Trinidad owned by J. C. Johnson and Walter White.

Merton Smith and associates extended the working tunnel at the Checkmate. This mine was a producer when the Pearl district was one of the leading mining camps in the state and may again be listed among the producing mines in the near future.

Some activity was reported to have taken place at the Old Liberty Mining Company near Sweet and placer operations at the Gatfield Ranch on ground remaining from the former operations of Ralph Davis, Inc.

Pearl Mining Company report that a 25-ton ball mill was installed and 275 feet of development work was completed by lessees.

Other activity was done by lessees on several properties and the rehabilitation of these workings. Some shipments of ore were made to smelters.

FELIX MINING CO.

GOLD DIGGER GROUP

GRANITE STATE CONSOLIDATED MINES CO.
Office: 242 Water St., Augusta, Maine. Officers: G. R. Chadbourne, Pres., Augusta, Maine. Inc.: June 23, 1914. Capital: 3,000,000 shares; par value $1; 2,113,664 shares issued. Property: Granite State group; 16 patented, 7 unpatented claims, West View dist.; Pearl. Development: Principally by 1 tunnel 2300 ft. long. Remarks: “This property has been inactive for a number of years and returns have simply noted its inactivity. The only change made since the last return is that one claim of the group has been leased by W. S. Kehrer of Boise, Idaho on a royalty basis.”

HECLA CHECKMATE MINING & MILLING CO., LTD.

HURON MINES, INC.

LINCOLN MINE OPERATING CO.
value 25c. **Remarks:** "This company is still in litigation, and the mining property is in the possession of the owners, Manufacturers Trust Company, New York City."

**OLD LIBERTY MINING COMPANY**

**Office:** P. O. Box 1368, Boise. **Officers:** Harry Sweet, Pres., Montour; McKeen F. Morrow, Sec., Boise. **Inc.:** Sept. 6, 1911. **Capital:** 250,000 shares common, 300 shares preferred stock; 167,948 common shares issued; preferred shares issued, none. **Property:** "Old Liberty"; 4 patented claims. **Development:** 1400 ft. of tunnels, crosscuts and drifts. **Ore:** Silver, gold and copper. **Remarks:** Report not filed for 1940.

**OJUS MINING COMPANY**

**Office:** Boise. **Officers:** William I. Phillips, Pres.; Elmer W. Fox, Sec., both of Boise. **Inc.:** June 14, 1932. **Capital:** 250 shares; par value $100; shares issued, not given. **Property:** Lincoln group. **Remarks:** "Company still in litigation, and has been inactive since 1933. Property is now in possession of the owners, Manufacturers Trust Company, 55 Broad Street, New York City."

**PEARL MINING COMPANY**

**Office:** Boise. **Officers:** R. V. Onslow, Pres., St. Paul, Minn.; W. S. Kehrer, Sec., Boise. **Inc.:** Oct. 25, 1938. **Capital:** 100,000 shares; par value 25c; all shares issued. **Property:** 21 claims, Westview dist.; 20 of which are held under lease and bond. **Development:** Principally by 1 tunnel, 265 ft. long. **Ore:** Gold, silver and lead. **Plant:** 25-ton ball mill. **Remarks:** 275 ft. of development work by leasers. Mill was purchased and installed in the summer and fall of 1939.

**RALPH DAVIS, INC.**

**Office:** Marysville, Montana. **Officers:** Ralph Davis, Pres.-Mgr.; Elva Lowry, Sec., both of Marysville, Montana; W. H. Langroise, Statutory Agent, Boise. **Inc.:** July 28, 1937. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** Gatfield & Cruikshank farms held under lease. **Ore:** Placer gold. **Plant:** Floating washing plant with trommel and riffles. Monighan Shovel to supply gravel to plant, 4 yd. capacity. **Remarks:** Report not filed for 1940.

**BIBLIOGRAPHY**

See pages 6-7 for publisher’s address, meaning of reference marks, and abbreviations.


IDAHO COUNTY

County Seat: Grangeville. Area: 8539 sq. miles. Population: 12,691. Principal Industries: Agriculture, stock raising and mining. Relief: With the exception of the high table land known as Camas Prairie, the county is of rugged mountains extending from the Snake River on the west to the Continental divide on the east. Rivers: South fork of the Clearwater, Salmon and Snake. Transportation: The western part of the county is served by a system of well maintained state and county roads. A highway up the south fork of the Clearwater River serves the Elk City district. That portion south of the Salmon River is served by the McCall-Edwardsburg forest highway. The balance of the county has very little transportation facilities but is being developed fast.

The Stites and Grangeville branches owned jointly by the Northern Pacific and Union Pacific railroads are the only railroads. These serve the northern and Camas Prairie portion of the county. Mineral Resources: Gold, silver, copper, lead, zinc, antimony, tungsten, asbestos, talc, mica and molybdenum.

History and Future

During the early days of gold mining this county was one of the most productive in the State. Due to the inability of the early operators to handle base ore and the terrific handicap of lack of transportation facilities, mining became dormant throughout the county. Modern metallurgical process, new highways and truck transportation has given new life to these mining communities.

This county contains one of the largest and most favorable undeveloped mining districts in the United States. One of the greatest opportunities presented today to the prospector, operator and investor is in the tremendous development which is due to take place in this region.

Approximately 800 men were actively engaged in mining within the confines of Idaho County during the past year.

Review of Year's Operations

Ten Mile District

The Lone Pine Group (a partnership) was held under lease by Andrew McGregor and O. C. Thompson who turned the property back to the original owners. An average crew of 30 men was employed. It is rumored that P. O. Miller & Son of Clarkston, Washington, the owners, will treat custom ores in the 35-ton mill.

North Hill Mining Co. report 182 feet of development work during the year with a crew of 4 men.

The Newsome Creek Mining Company moved its plant to Unity, Oregon in July.

The Gold Hill Placers Company operated a 2½ yard dragline and washing plant on ground above the workings of the Newsome Creek Company. The outfit is owned by Melvin L. Howell and Raymond K. Calhoun of Stockton, California.

Eight men were employed at the Golden Fleece near Golden. A. M. Malcolm, Golden, is in charge of operations and expects to put the mine on a production basis.

A crew of 14 men was employed in mill construction and surface work at the Center Star Mine, which the Eli-Nevada is operating. The Property is being leased from the owner, Herman Brown of Elk City, and has been opened to a depth of 300 feet by former operators. During the year 1940 the crew was enlarged and the property placed on a production basis. The company failed to file a report with this office.
The McAdoo Gold Mining Company installed two small stamp mills and produced about five tons of gold ore daily. The mine consists of six claims which are owned by the McAdoo concern and five leased claims. The five are being purchased under contract from the Williams Brothers of Grangeville. The property is located near Golden. The tunnel has been driven through four of the company's claims opening a vein, and will be continued into the leased portion of the property. Ore was sent to the Clearwater Concentrating Company's custom mill on Crooked River, a distance of three miles. G. H. Moen, 2105 Summit View Avenue, Yakima, Washington, is president.

A small amount of dump ore was milled by the Mountain Gold Producers, which acquired the New York, also known as the Shamrock Mine, under bond and lease from H. W. White of Tekoa, Washington. The property is on the north side of Fall Creek, 4½ miles from the Fall Creek settlement. A small mill is on the ground and a crew of six men was employed.

The Elk City Gold Mining Company, Frank H. Mangis of Creston, Washington, president, shipped ore to the custom mill on Crooked River. The Elk City Company, which holds the Jack Montgomery Group of 20 claims in the Ten Mile district, has a flotation and amalgamation plant of its own.

Florence District

Junobob Mining Co., Inc. made mill run tests with present pilot plant. W. R. Crawford of Riggins is president and manager. A crew of 4 men was employed.

Included among properties operating in the Florence district which have made good returns during the summer months when water was available are: the Old Waverly holdings being operated under lease and bond by Fred Johnson as the Monte Cristo; The Idaho Quartz claims operated by Otto Egloff; the William Paul claims; Jack Hardin's property; the old Banner property which is being operated as the Gold Bug by C. B. Drinnon; the Archie Adley quartz property; the continued placer mining of the old townsite of Florence by James Ward, Theodore Holt and Mackey Williams; the Orvie Heilman placers and the Walt Jones placers on the upper end of the east fork of Sand Creek where a small dragline and bulldozer have been utilized.

Mrs. Eva Canfield holds mining property in this district and makes her home at Florence.

Orogrande District

Gold Master Consolidated Mining Co., Inc., report cleanup and surface work only. In a December issue of the Mining Journal it is stated that construction has been started for a 50-ton G. B. and S. mill at the property for lessees by Spokane, Washington interests. Claude Huffman, 201 Radio Central Building, Spokane, Washington, is in direct charge of operations.

The Pasadena Mines, Inc., operated its Moon group of claims one mile east of Orogrande. J. M. White, Orogrande, is manager.

Penman Mines Corporation employed a crew of 37 men on production during the year and report the property was further developed to the extent of 1350 feet of tunnels, 385 feet of raises and 870 feet of crosscuts.

The H. & H. Mining Company operated a floating dredge on Crooked River employing a crew of about 12 men.

The Sunset was operated by J. Mulcahey. It is stated that better than $100 ore was shipped from the Puelz claims.

The Diamond Hitch gold mine was developed to some extent.

Una Mine Co., completed 280 feet of development work during the year. It is planned to cut the ore on a lower level and use the Sun Gold plant for milling purposes. J. S. McLean, Grangeville, is president and general manager.

Dixie District

Bonanza Mining & Milling Company employed an average crew of 6 men who are stockholders of the company and under an agreement will share the
net proceeds. The mill is located on the American Mines Group of 3 claims one mile north of Dixie, held by lease and option.

Salmon River Placer Company's property is held under lease and option on a ten per cent gross royalty basis by the Pacific Placers and Exploration Company of which E. H. Seavers, Huntington, Oregon, is vice-president.

Because of activity on the placer bars of the Salmon River and the development on the Painter property in the same district, roads have been constructed through the breaks to the river which are now being used by most any type of good car. The U.S. Forest Service also made roads through the breaks to the Salmon farther west so that a trip to the Salmon River may be made by car in more than one place in this hitherto inaccessible area.

Gordon Prentice has control of the Painter Bar property and is having some of the quartz claims patented.

Elk City District

Elk City Gold Mining Co., with a crew of 4 men completed $1500 worth of development work during the year. The property is composed of the Jack Montgomery group of 20 unpatented claims near Elk City.

The Blue Ribbon mine was operated by the Boyd Brothers who used the American Eagle mill in connection with their operations.

Mineral Zone Mining Corporation added new equipment and reopened the old Colonel Sellers mine, three miles northeast of Elk City.

The Tyee Mining Company installed a dragline dredge on Little Elk Creek with a digging capacity of 2,500 yards daily. Eleven men are employed under the supervision of H. F. Reed.

American River Mining Company operated a 1 ½ yard dragline and washing plant on the South Fork of the Clearwater River below Elk City.

Frank Ruby had a power shovel and washing plant on Little Elk Creek. The Red Fir was worked by Richard S. McKee of Natches, Washington.

A crew of 8 men was employed at the Black Lady property until the month of March. Surface work was performed by a bulldozer uncovering vein showings. Underground work was confined to cutting these surface showings by crosscut tunnel. It is reported that lessees are now working the Black Lady mine and treating the ore by means of cyanide.

Lessees are mining ore from Grant Litchfield’s Mankato mine and shipping to the Bunker Hill Smelter at Kellogg.

The Mogul was rehabilitated by Cookingham and Green.

The Grangeville Gold Corporation increased the capacity of the mill on Relief Creek and operated until fire damaged the plant.

Warren District

Iola Consolidated Mines Corporation, Ltd. leased 10 claims in the Warren district. A crew of 3 men was employed installing equipment and rehabilitating old workings. Some shipments were made during the year.

Unity Gold Production Company employed a crew of 5 men but no substantial development work was reported.

The Baumhoff, Fisher and McDowell dredge was dismantled and moved to Moose Creek in Lemhi County by Fisher and Higgins.

W. R. McDowell worked a crew at the Rescue property and milled some custom ores during 1940.

A small floating dredge was moved from Little Smoky Creek in Camas County and put into operation in what is known as the “narrows” at the lower end of Warren Meadows by the Baumhoff-Fisher interests.

The Warren Dredging Company, E. T. Fisher, manager, operated throughout the year with a crew of 17 men. There is enough gravel remaining to keep this boat operating in the Warren Meadows 2 or 3 and possibly 4 years.
The 50-ton mill of the Golden Anchor Mining Company was operated throughout the year. With a crew average of 54 men this company was the largest operation in the district and ranked sixth in the production of gold in the state.

Kimberly Gold Mines, Inc. employed an average crew of 6 men during the fiscal year mostly driving a tunnel on the Digger vein. A 50-ton flotation mill was installed and a new tunnel driven to cut and explore the Crystal vein at depth was under way during the last half of the year. Lew Wilcox, Grangeville, was in direct charge of operations.

Treasure Knob Mining Company purchased a compressor and steel sharpener and plan to operate during the winter. The property includes the Snowstorm, Ruler and Jupiter group of claims. Harvey W. Peterson is president and manager.

At the Gold Crest near the Golden Anchor, E. T. Fisher employed a crew of 15 men exploring the property to determine the extent and value of ore bodies at depth.

American Rand Research Corporation, a subsidiary of American Rand Mines Company, is continuing to develop the property under lease from the parent company and to solve the difficult metallurgical problems involved in recovery of values from the ores in that particular district. The officers and directors of both companies are identical.

Idaho Rotary Gold Dredging Company constructed a suction dredge on the Salmon River above Whitebird. The property consists of 8 claims in the Camp Howard district held under sub-lease from R. M. Carrey, Whitebird.

Horseshoe Bend Placer, Inc. was operated by R. W. Bellows, George E. Mitzel and E. J. Auve during the year.

The China Garden placer property was purchased by the Arrowhead Mining Company. A shovel, floating plant and pumps were put into operation during the late summer.

Harpster Mining Company report 40 feet of development work on 4 unpatented claims in the Black Tail district near Harpster.

B. R. and R. Mining Company Inc. report 20 feet of development and some road work during the year. The property consists of 2 unpatented claims in the Simpson district near Lucile.

Idaho Goldfield, Inc. report assessment work only on 13 claims in the Simpson district.

Idaho Rainbow Mines Inc., with a crew of 3 men, report 300 feet of development work on 7 unpatented claims in the Ramey Ridge district.

Copper Queen Mining Co., Inc. report 100 feet of development work on 9 unpatented mining claims near Pardee.

Spring Bar Placer Co., located in Simpson district near Lucile, had a watchman at the property.

AMERICAN RAND RESEARCH CORPORATION

Mines Company. Ore: Gold, silver and platinum. Remarks: "American Rand Research Corporation is a subsidiary of American Rand Mines Company and all of the common stock, except 7 qualifying shares for the directors, is owned by American Rand Mines Company; American Rand Research Corporation was organized for the purpose of carrying on research and development work for parent company under lease of the property. American Rand Mines Company has spent approximately $125,000.00 in development work to date in an effort to solve the difficult metallurgical problems involved in recovery of values from the ores from that particular district and American Rand Research Corporation is continuing with that research work. The officers and directors of both companies are identical."

AMERICAN RIVER MINING COMPANY

B. R. AND R. MINING COMPANY, INC.

BLACK ROCK REDUCTION COMPANY

BONANZA MINING & MILLING COMPANY
Office: Dixie. Officers: D. W. Truitt, Pres.; C. C. Houck, Sec., both of 2541 15 St., S., Seattle, Wash. Inc.: Feb. 10, 1940. Capital: 10,000 shares; par value $1; all shares issued. Property: Bonanza Group of 8 claims held under lease and option; Dixie dist.; Dixie. Development: Approximate total development, 570 ft. Plant: Compressor and 15-ton mill. Ore: Gold and silver. Men Employed: Average, 6. Remarks: "In addition to the above statement, the company has a lease and option on 3 claims known as the American Mines group, 1 mile north of Dixie, Idaho County, in Dixie mining district on which the mill is located. This property is being purchased on a royalty basis for $1500, 10 per cent gross of all values taken from the property. The operations in 1939 were carried on under a partnership agreement but formed a company for 1940 to avoid complications and facilitate working conditions; all the men working on the property are stockholders of the company and under agreement to share and share alike the net proceeds. The claims are not patented and are owned by E. Y. Van Arsdall and partner of 1220 2nd St., Lewiston, Idaho."

CAL-IDAHO MINING CO.
CLEARWATER MINING CO.

CONSOLIDATED MINES SYNDICATE
(See Boise, Camas and Elmore counties)
Property: Blue Jacket group; 7 patented claims, Crooks Corral dist.; Lucile. Development: By 3 tunnels, the principal one being 868 ft. long; approximate total development, 3234. Remarks: Report not filed for 1940.

CONSOLIDATED RAPID RIVER MINING & MILLING CO., LTD.
Office: Genesee. Officers: D. Scharnhorst, Pres.; Harry Hansen, Sec., both of Genesee. Inc.: July 14, 1910 as Rapid River Mining & Milling Co., Ltd., name changed July 10, 1937. Capital: 1,500,000 shares; par value $1; May 8, 1939 reduced capital stock to $150,000 divided into 1,500,000 shares, par value 10c; 294,507 shares issued. Property: 12 unpatented claims, Rapid River; Pollock. Remarks: Report not filed for 1940.

COPPER QUEEN MINING CO., INC.

CROOKS CORRAL MINES, LTD.

DANDY GOLD PLACERS, INC.

DAVIS MINING CO.

WALTER A. ESTEP ESTATE

ELK CITY GOLD MINING CO.

ELLA GOLD MINES, INC.

EXPLORERS INC.
Office: 526 Hutton Bldg., Spokane, Wash. Officers: Leon Starmont, Pres.; Wellman A. Clark, Sec., both of Spokane, Wash.; Walter C. Clark, Statutory Agent, Kellogg. Inc.: Mar. 4, 1930. Capital: 250,000 shares; par value $1; Jan. 26, 1939, reclassified capital stock as follows: 125,000 non-assessable common, par value $1, and 1,250,000 shares assessable preferred, par value 10c; 81,333⅓ shares non-assessable common issued; 411,045 assessable preferred issued. Remarks: "The company has a substantial interest in the Treasure Knob Mining Company and has been sponsoring that company and assisting in the raising of money and in the development of its properties. Explorers Inc. also has an interest in the Gibbonsville Mining and Exploration Company of Idaho, to whom it has also advanced funds." Assessments levied: Aug. 22, 1939, $2391.00; Feb. 19, 1940, $2231.00.

FAR WEST GOLD-SILVER MINING COMPANY (See Shoshone County)

FRENCH CREEK GOLD MINING & MILLING CO.

GNOME GOLD MINING CO.

GOLD BAR PLACER, INC.
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GOLD CROSS MINING CO.

GOLD MASTER CONSOLIDATED MINING CO., INC.

GOLD POINT MINES, INC.

GOLDEN ANCHOR MINING CO.

GOODENOUGH UNITED MINING & MILLING CO., LTD.
Office: Weiser.  Officers: L. I. Purcell, Pres., New Plymouth; Mrs. Martha V. Guthrie, Sec., Letha.  Inc.: Nov. 1, 1905.  Capital: 1,000,000 shares; par
value 25c; 111,886 shares issued. **Property**: Goodenough group; 10 patented claims, Marshall Lake dist.; Burgdorf. **Remarks**: Property under lease and bond to Two Margarets Mining Co., Board of Trade Building, Portland, Oregon.

**GRANGEVILLE GOLD CORPORATION**

**GREEN-HILL MINING CORPORATION**
*Office*: Grangeville. *Officers*: Roy Green, Pres.; L. G. Jackson, Sec., Walter Hovey Hill, Vice-Pres., all of Grangeville. *Inc.*: November 18, 1936. **Capital**: 2,000,000 shares; par value 1c; 49,500 shares issued. **Property**: 6 unpatented claims, Ten Mile dist.; Golden. **Ore**: Gold. **Remarks**: Report not filed for 1940.

**HARPER MINING COMPANY**
*Officers*: J. C. Kittleman, Vice-Pres., Globe Hotel, Spokane, Wash.; Herbert Kermmer, Sec., Deer Park, Wash. *Inc.*: July 11, 1938. **Capital**: 2,000,000 shares; par value 5c; shares issued, 1,008,166. **Property**: 4 unpatented claims, Black Tail dist.; Harpster. **Development**: Approximate total development, 540 ft. **Ore**: Gold and silver. **Men Employed**: Average, 1. **Remarks**: About 40 ft. of development work during the year.

**HOMESTEAD MINING & LEASING COMPANY**
*Office*: 726 Paulsen Bldg., Spokane, Wash. *Officers*: E. B. Emrick, Pres., Conrad, Mont.; W. E. Cullen, Sec., Spokane, Wash. *Inc.*: Nov. 18, 1939. **Capital**: 5,000,000 shares; par value 1c; 3,500,000 shares issued. **Property**: 6 claims, Elk City dist.; Elk City. **Ore**: Gold. **Remarks**: "On account of pending litigation affecting status of title to property the company cannot proceed for present."

**IDAHO GOLDFIELDS, INC.**
*Office*: 914 3rd Ave., Spokane, Wash. *Officers*: M. E. Burgess, Pres.; Addie B. Cokley, Sec., both of Spokane, Wash. *Inc.*: May 10, 1930. **Capital**: 5,000,000 shares; par value 10c; 1,554,909 shares issued. **Property**: 13 claims, Simpson dist.; Lucile. **Ore**: Gold. **Remarks**: Assessment work only.

**IDAHO RAINBOW MINES INC.**
*Officers*: H. T. Maib, Pres., Grandview, Wash. *Inc.*: Dec. 14, 1938, Washington Corporation. **Capital**: 1,000,000 shares; par value 10c; 550,000 shares issued. **Property**: 7 unpatented claims, Ramey Ridge dist.; Big Creek. (Held under lease and bond.) **Plant**: MINE: Sullivan portable compressor, shovels, drill steel, etc.; several buildings. **Men Employed**: Average, 3. **Remarks**: 300 ft. of development work during the year.

**IDAHO ROTARY GOLD DREDGING CO.**
*Office*: Whitebird. *Officers*: Wm. Schierding, Pres.-Mgr.; R. A. Rathbun, Sec., both of Whitebird. *Inc.*: Jan. 17, 1940. **Capital**: 500,000 shares; par value 5c; 86,000 shares issued. **Property**: 8 claims, Camp Howard dist.; Grangeville, held under sub-lease from R. M. Carrey of Whitebird. **Remarks**: "Suction dredge now being constructed."

**IOLA CONSOLIDATED MINES CORPORATION, LTD.**
*Office*: Boise. *Officers*: Francis B. Shelley, Pres.-Mgr.; Winifred Lesslie, Sec., both of Boise. *Inc.*: Oct. 5, 1939. **Capital**: 500,000 shares; par value
MINING INDUSTRY OF IDAHO

JUMBO MINING & MILLING CO.

JUNOBOB MINING CO., INC.
Office: Walla Walla, Wash. Officers: Dr. Walter G. Cowan, Pres.; Dr. G. G. Schneller, Sec.-Treas., both of Walla Walla, Wash.; W. R. Crawford, Mgr., Riggins. Inc.: Nov. 28, 1938. Capital: 1,500,000 shares; par value 3c; 384,100 shares issued. Property: 17 unpatented claims, Florence dist.; Riggins. (Held under lease and bond.) Plant: Mill building, laboratory, G.B. & S. mill grinding unit, amalgamator, dump truck, half yard power shovel, assay furnace and usual laboratory equipment. Ore: Gold. Men Employed: Average, 6. Remarks: "Work this year has been mostly running a tunnel on the Digger Vein. This vein averages about 10 ft. in width. In April we started another tunnel near the Crystal Vein and heading for the Digger at about 200 ft. lower depth. We expect to locate our mill at the head of this tunnel."

KEY PLACERS CORPORATION

KIMBERLY GOLD MINES, INC.
Office: Parkland, Wash. Officers: M. T. Hokenstad, Pres., Snohomish, Wash.; H. L. J. Dahl, Sec., Parkland, Wash.; W. L. Campbell, Statutory Agent, Grangeville. Inc.: Feb. 21, 1938. Capital: 2,250,000 shares; par value 20c; 573,585 1/2 shares issued. Property: 19 unpatented claims, Marshall Lake dist.; Burgdorf; (all owned except the Blue Bucket group, which is held under lease and option from B. Walters and G. Motz, Riggins). Development: By 6 tunnels, the principal one being 360 ft. long. Plant: Complete mining equipment and housing facilities. Ore: Gold. Men Employed: Average, 6. Remarks: Development during the year, 353 ft. "Work this year has been mostly running a tunnel on the Digger Vein. This vein averages about 10 ft. in width. In April we started another tunnel near the Crystal Vein and heading for the Digger at about 200 ft. lower depth. We expect to locate our mill at the head of this tunnel."

LONE PINE GROUP (a partnership)
LOYALTY MINES, INC.

LUCKY FIVE MINING CO.

MAMMOTH MINE CORPORATION

MINERAL ZONE MINING COMPANY

NORTH HILL MINING CO.

OROGRANDE GOLD MINING COMPANY

PASADENA MINES, INC.

PENMAN MINES CORPORATION
par value 50c; April 27, 1939 decreased capital stock to $300,000 divided into 3,000,000 shares, par value 10c; 2,831,800 11/20 shares issued. Property: 2 patented and 27 unpatented claims, Orogrande dist.; Orogrande. Development: Approximate total development, 5325 ft. Plant: MINE: Complete mining equipment. MILL: 35-ton mill. Ore: Gold with some silver, copper and lead. Men Employed: Average, 37. Remarks: Development during the year: Tunnels, 1300 ft.; raising, 385 ft., and crosscutting 870 ft. "Company was under the courts for three years being released in March 1940. In the process of reorganization, stockholders were allowed the privilege of turning in their stock 5 for 1, or paying assessment in proportion. The court settled some old accounts by issuing stock to cover. Definite and complete statements were not received from the court, so actual figures are not available."

RARE METAL MINES INC.

REEDS CREEK GOLD MINES CO.

ROBINSON MINING & MILLING COMPANY

SALMON RIVER GOLD ORES COMPANY

SALMON RIVER MINING & MILLING CO.

SALMON RIVER PLACER COMPANY
SENTINEL MINES CORPORATION


SPRING BAR PLACER CO.


SYLVANITE GOLD COPPER CO.


TWO MARGARETS MINING COMPANY

Office: 513 Board of Trade Bldg., Portland, Ore. Officers: Cornelius W. Meyers, Pres.; Edgar M. Burns, Sec., both of Portland, Ore.; R. Fields, Statutory Agent, Burgdorf. Inc.: June 3, 1937. Capital: 1000 shares; par value $1; Jan. 20, 1938, increased capital stock from $1000 to $150,000, divided into 150,000 shares, par value $1; Oct. 6, 1938, reduced capital stock from $150,000 to $1000 divided into 1000 shares at $1; Dec. 28, 1938, increased capital stock from $1000 to $75,000 divided into 25,000 shares, par value $1 and 25,000 shares, par value $2; all shares issued. Property: 10 patented claims, Mt. Marshall dist.; Burgdorf. Development: Approximate total development, 800 ft. Ore: Gold and silver. Men Employed: Average, 5. Remarks: Idle.

UNITY GOLD PRODUCTION CO.

Office: 50 Church St., New York. Officers: Alexander Potter, Pres., New York; Clarence M. Ryan, Sec., Alstead, New Hampshire; Granville T. Eyman, Mgr., Warren. Inc.: Dec. 15, 1933. Capital: 1,000,000 shares; par value $1; all shares issued. Property: 2 patented and 14 unpatented claims, Warren-Edwardsburg dist.; Warren. Development: By 2 tunnels, the principal one being 5200 ft. long; approximate total development 15,000 ft. Plant: Complete mining and mill equipment. Ore: Gold and silver. Men Employed: Average, 5. Remarks: No substantial development work during the year. "By resolution of the Board of Directors on June 7, 1932 the Unity Gold Production Company authorized the issuance of its entire capital stock—1,000,000 shares—in payment for the property, equipment, power plant, buildings, tunnels, mine developments and equipment, and the assignment of all claims and indebtedness against the same; all the foregoing comprising the assets and liabilities of the Unity Gold Mines Company—upon condition that 450,000 shares of the stock so issued be assigned back to the Company as a Treasury stock donation."

UNA MINE CO.

Officers: J. S. McLean, Pres.-Mgr.; J. K. Coe, Sec.-Agt., both of Coeur d'Alene. Inc.: Feb. 6, 1925. Capital: 1,250,000 shares; par value 1c; Feb. 24, 1938 increased capital stock to 1,750,000 shares; 1,239,470 shares issued. Property: 2 patented and 4 unpatented claims, Orogrande dist.; Elk City. Development: Principally by 1 tunnel, 1200 ft. long. Plant: I-R Compressor and several buildings. Ore: Gold and silver. Remarks: 280 ft. of development work during the year. Assessment levied March 5, 1940; amount of levy not given.

WARREN DREDGING CO. (Partnership)

MINING INDUSTRY OF IDAHO

dist.; Warren. **Plant:** Complete mining equipment. **Ore:** Gold and silver. **Men Employed:** Average, 17.

BIBLIOGRAPHY

See pages 6-7 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. 60, art. 3, pp. 1-33, 1921.‡


The dairy industry, most of which is conducted on farms, returns as much as $12,000,000 annually to Idaho producers. Idaho's 190,000 dairy cows produce 30,000,000 pounds of butter, 11,000,000 pounds of cheese and 16,000,000 of evaporated milk. The per cow production of butter fat in Idaho is 40 pounds larger than the national average.

While it is estimated that less than 10 per cent of Idaho's potential water power has been developed, all of her cities and villages and 70 per cent of her farms have electrical service. The electrical rate to Idaho consumers is 30 per cent below the national average.

Idaho contains an area of 84,513 square 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.
KOOTENAI COUNTY


History and Future

Very little development work has been done on these mineral resources but some very encouraging results have been obtained. They are worthy of further attention.

Review of Year's Operations

Blue Goose Mining Company report 267 feet of development work on property in the Kootenai district during the year.

Caribou Mining Co., Ltd., with 5 unpatented claims in the Wolf Lodge district, completed 35 feet of development work in 1940.

Hayden Lake Mining and Milling Company was worked by lessees who hold a lease on the property until March 1, 1943.

The Idaho Diamond Sulphide Mining Company, Inc., with an average crew of 5 men, report 95 feet of development work during the year.

Assessment work only was reported by the Sunshine Metals Corporation. The property consists of 7 unpatented claims in the Hayden Creek district.

The Shamrock mine near Hayden Lake was acquired by the Fitsum Mining Company, 415 Hyde Bldg., Spokane, Washington. The mine was rehabilitated and several camp buildings erected during the year.

BLUE BIRD MINING CO.


BLUE GOOSE GROUP MINING COMPANY


CARIBOU MINING CO., LTD.


COEUR D'ALENE-SPOKANE MINING CO.


HAYDEN LAKE MINING AND MILLING CO.

Office: Rathdrum. Officers: Fred H. Bradbury, Pres., Rathdrum. Inc.: Jan. 20, 1923. Capital: 1,000,000 shares; par value 5c; shares issued, not
known. **Property:** 12 unpatented claims, unorganized dist.; Hayden Lake. **Remarks:** Under lease since March 1, 1938, for five years.

**HIGH CROPPING SILVER-LEAD MINING CO.**

*Office:* Burke. *Officers:* Leonard Bernard, Sec., Burke. *Inc.:* Sept. 18, 1924. **Capital:** 1,500,000 shares; par value 25c; 210,000 shares issued. **Property:** High Cropping group; 3 unpatented claims, mining district not known. **Development:** Approximately 450 ft. **Ore:** Silver, gold, lead. **Remarks:** Report not filed for 1940.

**IDAHO DIAMOND SULPHIDE MINING COMPANY, INC., THE**

*Office:* Coeur d'Alene. *Officers:* Frank Costin, Pres.; K. Costin, Sec., both of Coeur d'Alene. *Inc.:* July 10, 1935. **Capital:** 1,000,000 shares; par value 10c; 683,225 shares issued. **Property:** 2 patented claims and 1 unpatented claim, unorganized dist.; Coeur d'Alene. **Development:** Principally by 1 tunnel 600 ft. long. **Plant:** Complete mine equipment and buildings. **Ore:** Silver, copper, gold. **Men Employed:** Average, 5. **Remarks:** 95 ft. of development work during the year.

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

*Office:* Kellogg. *Officers:* T. R. Mason, Pres.; Robert Fritz, Sec., both of Kellogg. *Inc.:* Sept. 29, 1903. **Capital:** 1,500,000 shares; par value $1; 650,000 shares issued. **Property:** Hand Spike group, 3 patented claims, Little North Fork dist.; Linfor. **Development:** Approximate total development, 2080 ft. **Ore:** Copper. **Remarks:** Report not filed for 1940.

**PALISADE MINING & MILLING CO.**

*Office:* Coeur d'Alene. *Officers:* T. W. Schmidt, Pres.-Mgr.; Roscoe L. Weeks, Sec., both of Coeur d'Alene. *Inc.:* Jan. 31, 1912. **Capital:** 1,500,000 shares; par value $1; 1,109,624 shares issued. **Property:** Palisade group; 2 patented and 24 unpatented claims, unorganized dist.; Kellogg. **Development:** Approximate total development, 2080 ft. **Ore:** Silver-lead. **Remarks:** Report not filed for 1940.

**RAINBOW MINING & MILLING CO., LTD.**

*(See Shoshone & Benewah Counties.)* *(See Benewah County for capital structure.)*

**RAINBOW NO. 2**

**Property:** 3 patented and 1 unpatented claims, Linfor dist. **Development:** 1600 ft. tunneling. **Remarks:** Idle.

**RAINBOW NO. 4**

**Property:** 4 patented claims, Medimont dist. **Ore:** Silver-lead-zinc. **Development:** 600 ft. tunneling.

**THE ROYAL BASIN MINING CO.**

*Office:* Coeur d'Alene. *Officers:* A. H. Moe, Pres.-Mgr.; Vina Moe, Sec., both of Coeur d'Alene. *Inc.:* Dec. 24, 1910, as Royal Mining Company; name changed June 8, 1934. **Capital:** 1,500,000 shares; par value $1; June 8, 1934, capital reduced to $150,000, divided into 1,500,000 non-assessable shares; par value 10c; 550,000 shares issued. **Property:** 9 unpatented claims, Wolf Lodge dist.; Coeur d'Alene. **Development:** By 3 tunnels, the principal one being 500 ft. long. **Ore:** Gold-silver. **Remarks:** Report not filed for 1940.

**SUNSHINE METALS CORPORATION**


BIBLIOGRAPHY
See pages 6-7 for publisher's address, meaning of reference marks, and abbreviations.


Composition and origin of certain commercial clays of northern Idaho, by Edward L. Tullis and F. B. Laney, vol. 25, No. 5, Econ. Geol., 1933.

LATAH COUNTY


History and Future
Very little has been done to develop the metallic resources of the county, however, the non-metallic resources, particularly the fire clay deposits near Troy have been actively exploited.

Many opportunities for profitable development are available in this district.

Near Harvard and Elk River are districts of merit that should receive more attention in future.

Review of Year's Operations
Columbia Mines Corporation employed a watchman. Jay P. Graves, 222 Peyton Bldg., Spokane, Washington, is president. Assessment work was performed on the Mispah group of 30 unpatented claims in the Hoodoo district.

Engineers Gold Mining Company property was leased by Ken Egan and L. J. Burrows who installed dredging equipment during the year. The outfit is diesel electric powered and steam heat will make it possible for winter operations.

Fitsum Mining Company report that they constructed a camp, hoist house, built 5½ miles of road and stripped several veins with a bulldozer at the Wheelbarrow mine about 10 miles from Potlatch.

Idaho Fire Brick and Clay Co. employed a crew of 22 men and report that clay is mined by glory hole method at its property near Troy. During the year development work consisted of 225 feet of tunnels, 410 feet of drifts and 85 feet of raises.
Moscow Queen Mining Co., located on Moscow Mountain, has been idle for several years. John Kusterin is president and Abe Goff, secretary, both of Moscow. Owners are looking for a purchaser for the property.

Ten-Said Mining & Milling Co. report 45 ft. of development work on 8 unpatented claims located in the Poorman Creek district near Potlatch.

ACE MINING CO.

CASSIDY GOLD MINING & MILLING CO., LTD.

COLUMBIA MINES CORPORATION

MIZPAH GROUP

ENGINEERS GOLD MINING COMPANY

FITSUM MINING COMPANY

GOLD HILL MINING & MILLING CO.
IDAHO FIRE BRICK & CLAY CO.

MOSCOW QUEEN MINING CO.

TEN-SAID MINING & MILLING CO.
Officers: Clifton D. Harris, Pres.-Mgr., Kellogg; H. M. Hoskins, Sec., Potlatch. Inc.: Nov. 9, 1937. Capital: 1,000,000 shares; par value 1c; 1110 shares issued. Property: 8 unpatented claims, Poor Man Creek dist.; Potlatch. Plant: 8x8 Gardner-Rex compressor, dump cars, etc.; bunk house, compressor room and blacksmith shop. Development: By 3 tunnels: No. 1, 300 ft. long; No. 2, 110 ft. long; No. 3, 180 ft. long. Ore: Silver, lead and gold. Men Employed: Owners worked 120 days. Remarks: 45 ft. of development work during the year.

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Ground water for municipal supply at Potlatch, Idaho, by V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 23, 1927.**
Composition and origin of certain commercial clays of northern Idaho, by Edward L. Tullis and F. B. Laney, vol. 28, No. 5, Econ. Geol., 1933.

Idaho produces vast quantities of high quality alfalfa hay. Idaho is an important producer of alfalfa and clover seed. Idaho grows excellent crops of corn, barley and oats.
LEMHI COUNTY

County Seat: Salmon City. Area: 4597 sq. miles. Population: 6521. Principal Industries: Agriculture, stock raising and mining. Relief: This county contains the broad valleys of the Salmon, Lemhi and Pahsimeroi rivers but otherwise is high and mountainous. Transportation: The main valleys are served by a well maintained system of state highways and the back country can be reached over a system of Forest Service roads. Mineral Resources: Lead, copper, silver, gold, zinc, tungsten, manganese, molybdenum, nickel, cobalt, gypsum, tin and lignite.

History and Future

This county has had a very productive and profitable mining career in the past, both of base and precious metals. In common with most gold producing districts, with diversified resources, the trend was toward base metal until the present activity in gold mining.

During the last few years, a tremendous activity in the gold fields has taken place and the district is rapidly assuming importance in this respect. The people are alive to their opportunities and have formed the “Lemhi County Mining Ass’n” for the express purpose of presenting these opportunities to investors and operators.

This district has a prosperous future in prospect and is an ideal territory for the prospector, operator and investor.

Review of Year’s Operations

Gibbonsville Premier Gold Mine, Ltd., Inc. employed 6 men on 11 unpatented claims in the Dahlonega district near Gibbsonsville. 350 feet of development work was completed during the year.

Gold Canyon Mining Co., Inc., report 80 feet of development work on its property in the Spring Mountain district near Howe.

Gold Hill Mines, Inc. in the Mineral Hill district near Shoup employed a crew of 10 men drifting 85 feet and raising 364 feet. Arthur W. Hall is president and J. C. Bangs, secretary, both of Pocatello.

Gold Producers, Inc. employ a crew of 30 men in operating the old Grunter mine near Shoup. There is sufficient ore blocked out to ensure production for the next 10 years. L. L. McLean is president and general manager and J. H. McLean is superintendent, both of Shoup. The power plant was destroyed by fire and presented a problem in obtaining power. The company has selected a site on Big Creek for construction of an electric power plant but the site selected is limited in capacity for its needs. The company has doubled the capacity of its 100-ton mill and plan to install a cyanide plant. Power is furnished by diesel engines and the rehabilitating of the hydroelectric plant on Boulder Creek. During the year tunnels were extended 400 feet with 200 feet of drifts and 300 feet of crosscuts completed.

Goldstone Mine (partnership) employed a crew of 10 men at its property on Pratt Creek until its surface plant was destroyed by fire.

Ima Mines Corporation produced silver, copper, gold, tungsten and molybdenum during 1940 with a crew of 50 men. This property is located near Patterson in the Blue Wing district and is one of the leading producers of tungsten ore in the nation. The holdings consist of 21 patented and 14 unpatented claims. Additions to the plant during the year were: 1 D-13000 Diesel, 10 Denver Equipment Flotation machine, 1 Bendelari Jig, 1 Denver Equipment conditioner and Reagent Feeder, 4 Hummer Screens and Auxiliaries. 3000 feet of tunnels, 1000 feet of drifts, 1000 feet of crosscuts and 1000 feet of raises were reported as completed. Ben R. Tillery, Twin Falls, is president and W. P. Barton, May, is secretary. A recent fire destroyed the compressor room, blacksmith shop and dry room at the property.

Latest Out Mining & Smelting Co., Ltd., a corporation, located in the Texas district at Gilmore, was dissolved in May, 1940. The property is now
owned by Edwina Y. Nichols. During the year the property was worked by Milo Zook under lease. A crew of 10 men was employed. 600 feet of drifting was completed.

Lemhi Lead Mines, Inc. took over the property formerly known as the Lemhi Union Company. The holdings are located in the Spring Mountain district near Gilmore and consist of 19 claims with 11 additional claims leased from James G. Sims. William V. Sharp is president and Chas. S. Watson, secretary, both of Pocatello.

South Gilmore Mining Co., in the Spring Mountain district, extended all tunnels and improved trails and trams.

Assessment work was done on 8 unpatented claims in the Mackinaw district near Leesburg by Tacoma Placers.

Treasure Mines, Incorporated, report 48 feet of development work during the year on 4 unpatented claims in the Junction district near Leadore.

The General Electric Company equipped its Miller mine near Patterson with air compressors and other mine machinery in order to drive an 1800 foot crosscut and explore its holdings of 24 tungsten claims.

A custom gold concentration mill was erected by the Lemhi Flotation Company at Salmon City. The company is headed by Arlin Davidson, Salmon and R. W. Leonard of Boise. The plant has a capacity of 60 tons and is powered by a Buda-Lanova heavy duty diesel unit.

The Monolith gold property near Shoup has been sold by Gregor Anderson of Salmon to R. L. Richmond and R. W. Allen under bond and lease agreement. Equipment includes a 10-stamp mill and wire rope tramway from mine to mill. The lessees overhauled the mill and added a ball mill and classifier to the plant it is stated.

The Fisher and Higgins dredge is operating on the Moose Creek Placers, leased from John E. Mullen of Salmon. The boat was formerly owned by Baumhoff-Fisher interests operating at Warren in Idaho County. With a crew of 20 men on a three-shift basis the 450 h. p. diesel powered dredge is handling about 3000 yards of gravel daily. E. T. Fisher of Boise is in charge of operations.

Tendoy Copper Queen Syndicate, C. A. Dye, president-owner, worked a crew of 30 men on the Copper Queen, Gold Flint and Kimberly claims. The property is well equipped with modern camp, complete mining machinery and a 50-ton concentrator. The values have a peculiar occurrence of native gold in bornite with calcocite and chalcopyrite in quartzite shear zone. All country rock is quartzite and gneiss. A new gasoline-powered hoist was installed to increase hoisting capacity and permit sinking below the 250 foot level.

Alaska Idaho Mining Company operated a Marion dragline shovel and washing plant in the Mackinaw district near Leesburg with a crew of 14 men during the year.

The Good Hope Mining Company performed development work on the Kitty Burton and Ulysses properties, located on Indian Creek, with a crew of five men, under the direct supervision of T. M. Seidell. R. L. McKeever of Montesano, Washington is president and W. J. Martin of Aberdeen, Washington, secretary.

A ball mill and other machinery from the Pope-Shenon property, near Salmon, was purchased and taken to the Allie Mine at Gilmore. The Allie Company is headed by A. A. Fagnant, 2416 Third Avenue, Seattle, Washington, who is also general-manager. The mine is being operated under bond and lease from the Gilmore Mercantile Company. A reorganization of the company was perfected during the year.

The Uncle Sam Mining and Milling Company, Inc. has been organized to operate the Blackbird mine about 36 miles southwest of Salmon. The mine which has been idle for 35 years was leased by James G. Sims, and his son, Howard Sims, both of Salmon, late in 1938. The purchase of a 50-ton pilot plant is being considered and seven miles of truck road have been built to
connect with the Panther Creek road. The group includes 34 patented and 6 unpatented claims with values in gold, copper, nickel and cobalt. L. C. Walsh is president and Merle Stevenson, secretary-manager, both of Forney. A 60-ton milling plant was installed during the year including a crusher, ball mill and flotation unit. The road to the property was also improved to some extent.

Golden Dawn Mining Company, Inc., moved its equipment from Wallace Creek to ground located on Sheep Creek. J. W. Abbott is in direct charge of operations.

Benson Evans and a brother of the late Joe M. Denton worked a crew at the Silver Gulch Mine. Some shipments of high-grade silver ore were mined during the year.

The Maryland, owned by A. C. Amonson and E. S. Edwards, has been developed to the extent of about 3000 feet of tunnels, drifts and winzes and has opened rather extensive ore reserves from which a few carloads of high-grade silver-lead ore have been shipped. The presence of a large body of manganese ore in the Maryland and the Sellars Group makes them especially interesting. More than a half million tons of 22 to 36 percent manganese have been exposed by the development work on these claims.

Condor Gold Mining Company employed a crew of 30 men during the fiscal year. H. M. Hartman of Forney is manager and agent. The company did not file a report with this department as required by law. The charter was forfeited November 30, 1940.

**CALBAR COMPANY**


**CONTINENTAL MINES, INC.**


**DELAWARE IDAHO GOLD MINING CO.**


**GIBBONSVILLE PREMIER GOLD MINE, LTD., INC.**


**GOLD CANYON MINING CO., INC.**

Men Employed: Average, 2. Remarks: 80 ft. of development work during the year.

GOLD FLOTATION DEVELOPMENT CO.

GOLD HILL MINES, INC.

GOLD PRODUCERS, INC.

GOLDSTONE MINE (Partnership)

GOLDEN REWARD MINING CO.

IDAHO FALLS GOLD MINING COMPANY

IMA MINES CORPORATION
Office: May. Officers: B. R. Tillery, Pres., Twin Falls; W. P. Barton, Sec.-Mgr., May. Inc.: Mar. 12, 1930. Capital: 1,000,000 shares; par value $1; 850,000 shares issued. Property: 21 patented and 14 unpatented claims, Blue Wing dist.; May, held under lease and bond from Lemhi Metals
LEMHI COUNTY

Company, Salt Lake City, Utah. Development: Approximate total development, 16,000 ft. Ore: Silver, copper, gold, tungsten and molybdenum. Plant: Complete mining equipment and camp; 150-ton concentrator. Men Employed: Average, 50. Remarks: Development work during the year: Tunnels, 3,000 ft.; Drifting, 1,000 ft.; Crosscutting, 1,000 ft.; and Raises, 1,000 ft. Additions made during the year: 1 D-13000 Diesel, 10 Denver Equipment Flotation Machines, 1 Bendelari Jig, 1 Denver Equipment conditioner and Reagent Feeder, and 4 Hummer Screens and Auxilaries.

LANG MINES, INC.

LATEST OUT MINING & SMELTING CO., LTD.

LEESBURG MINING COMPANY

LEMHI LEAD MINES, INC.

OWL MINING CO., INC.

PLACERS EXPLORATION SYNDICATE, INC.

POCATELLO-LEMHI MINING & EXPLORATION CO.
patented claims, Junction dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Lead, silver. **Remarks:** Report not filed for 1940.

**RESCUE GOLD MINES CO.**
- **Office:** P. O. Box 624, Pasadena, Calif. **Officers:** Willis H. Brown, Sec.; A. B. Post, Agent, both of Pasadena, Calif. **Inc.:** Apr. 25, 1919. **Capital:** 90,000 shares; par value $1; 13,303 shares issued. **Property:** R. G. M. group; 23 patented claims, Dahlonega dist.; Gibbonsville. **Ore:** Gold, **Remarks:** Idle.

**SILVER CONSOLIDATED MINES INCORPORATED**
- **Office:** Pocatello. **Officers:** Wood D. Parker, Pres.-Mgr., St. Anthony; Chas. S. Watson, Sec.; Pocatello. **Inc.:** Sept. 23, 1937. **Capital:** 1,000,000 shares; par value 10c; 733,003 shares issued. **Property:** 28 claims, Spring Mountain dist.; Gilmore, held under lease and bond from Silver Cons. Mining Co. **Development:** By 3 tunnels, the principal one being 1950 ft. long. **Ore:** Lead, silver, copper and gold.

**SOUTH GILMORE MINING CO.**
- **Office:** Idaho Falls. **Officers:** Richard Martin, Pres.; Henry S. Martin, Sec., both of Idaho Falls. **Inc.:** Nov. 12, 1929. **Capital:** 300,000 shares; par value 10c; April 1, 1931, increased par value to $1 and capital stock to 1,000,000 shares; shares issued, 35,813. **Property:** 9 unpatented claims, Spring Mountain dist.; Gilmore. **Development:** By 3 tunnels, the principal one being 180 ft. **Plant:** MINE: 2 ton hoist, I-R compressor and haulage cars; barn, hoist and house. MILL: 100-ton flotation. **Men Employed:** Average, 2. **Remarks:** During the year extended all tunnels, improved trams and trails.

**SUN VALLEY GOLD, SILVER AND COPPER MINES, INC.**
- **Office:** Blackfoot. **Officers:** William L. Swan, Pres., Salmon; David L. Butler, Sec., Blackfoot. **Inc.:** Dec. 30, 1937. **Capital:** 500,000 shares; par value $1; 307,200 shares issued. **Property:** Italian group, Gold Metal group, Rainbow group and Blackpine group; 4 of these claims are patented. **Ore:** Gold, silver and copper. **Remarks:** Report not filed for 1940.

**TACOMA PLACERS**
- **Office:** 1209 N. Alder, Tacoma, Wash. **Officers:** F. C. Zirtzman, Sec., Tacoma, Wash. **Inc.:** Not incorporated. **Property:** 8 unpatented claims, Mackinaw dist.; Leesburg. **Remarks:** Assessment work only.

**TENDOY COPPER QUEEN SYNDICATE**
- **Office:** Tendoy. **Officers:** C. A. Dye, owner, Tendoy. **Inc.:** Not incorporated. **Property:** 2 patented claims and 1 unpatented held under lease and bond from T. E. G. Lynch, Digby, Nova Scotia. **Development:** Approximate total development, 3521 ft. **Plant:** MINE: Complete mining equipment and 17 buildings. MILL: 50 ton ball mill. **Ore:** Copper, gold and silver. **Remarks:** Report not filed for 1940.

**TREASURE MINES, INCORPORATED**
- **Office:** P. O. Box 1003, Pocatello. **Officers:** Fred H. Chase, Pres., Boise; J. Leland Bartley, Sec., Pocatello. **Inc.:** April 30, 1940. **Capital:** 1,200,000 shares; par value 2c; 599,998 shares issued. **Property:** 4 unpatented claims, Junction dist.; Leadore. **Development:** Principally by 1 tunnel, 75 ft. long. **Ore:** Gold, silver and lead. **Men Employed:** Average, 2. **Remarks:** 48 ft. of development work during the year.

**TRI-STATE GOLD MINING CO.**
- **Office:** Colville, Wash. **Officers:** F. T. Harbour, Pres., Slocan City, B. C.; Delbert Scoles, Sec., Colville, Wash. **Inc.:** Nov. 26, 1935. **Capital:** 1,500,000 shares; par value 3c; 506,000 shares issued. **Property:** 3 claims, Dahlonega
LEMHI COUNTY


UNITED IDAHO MINING CO.
Office: 75 Federal St., c/o U. S. Smelting, Refining & Mining Co., Boston, Mass. Officers: C. A. Hight, Pres.; George Mixter, Sec., all of Boston Mass.; Edwina Nichols, Agent, Salmon. 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 750; 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 988 ft. on the vein. Ore: Lead-silver. Remarks: Idle.

UNCLE SAM MINING & MILLING CO., INC.

BIBLIOGRAPHY
See pages 6-7 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. 18, 1905.§


MINING INDUSTRY OF IDAHO


Geology and ore deposits of Lemhi County, by J. B. Umpleby: U. S. Geol. Survey Bull. 528, 1913.*


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


Geology and ore deposits of the Birch Creek district, Idaho, by P. J. Shenon: Idaho Bureau of Mines and Geology Pamphlet 27, 1928.**


Idaho has the largest stand of white pine in the United States. Idaho’s forests are some of the world’s finest. The lumber industry in Idaho is well developed. One of the world’s largest white pine mills is at Lewiston. Selective cutting is practiced in logging as a timber conservation measure. Principal Idaho trees are white pine, ponderosa pine, red cedar, western hemlock, Douglas fir, white fir, spruce.

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. In addition to these a great variety of uncommon metals and minerals occur in sufficient extent to be of commercial importance. This great diversity of mineral wealth establishes Idaho as one of the principal mining states of the Union. It also makes mining the second most important industry in Idaho.
LEWIS COUNTY


BIBLIOGRAPHY

See pages 6-7 for publisher's address, meaning of reference marks and abbreviations.


KNOW YOUR IDAHO

1893

Repeal of the purchase provision of the federal silver coinage act, which provided for purchase of silver bullion by the government, resulted in a decrease in silver prices that forced a number of the Idaho mines to shut down, throwing men out of work and causing rapid ruin of expensive machinery through rust and idleness.

1907

The Idaho legislature selected William E. Borah as United States senator, a position in which Borah was to serve with international distinction until his death in 1940.

The legislature established an official state flag. The design was the state seal in color on a blue field. It has never been widely displayed, however arrangements have been perfected to produce the flag in quantities that will make it readily available.

Idaho's facilities for vacation and recreation are excellent. Wide areas of natural beauty lure the outdoor lover, the camper, the hiker, the horseback rider, the boating enthusiast and the mountain climber. Idaho's swift mountain streams are famous for the numbers and the gaminess of their fish. To Idaho rightly belongs the title: Vacation Land.

Idaho is an outstanding farm state. Approximately 2,500,000 acres of her fertile soil is irrigated. Several million additional acres are dry-farmed for grain production. Additional large areas, totaling hundreds of thousands of acres, are susceptible to future irrigation development.
NEZ PERCE COUNTY

County Seat: Lewiston. Area: 851 sq. miles. Population: 18,783. Principal Industries: The county is primarily an agricultural community and Lewiston is the commercial and civic center for this section of the state. Transportation: Lewiston is at the junction of the Clearwater and Snake rivers and will eventually be an important shipping point by water to the Pacific Coast. Good highways and two railroads serve the county. Mineral Resources: Copper, silver, gold, marble and limestone. Very little attention has been given these resources. The marble and limestone deposits particularly should be developed.

ALDER CREEK MINING COMPANY

Office: 500 First Nat'l Bank Bldg., Duluth, Minn. Officers: Thomas Owens, Pres., Two Harbors, Minn.; Lyon H. Fowler, Sec., Duluth, Minn.; E. D. Potvin, Agt., Lewiston. Inc.: April 4, 1902. Capital: 200,000 shares; par value $1; 180,000 shares issued. Ore: Placer gold. Remarks: “There has been no change in the status or condition of this company for a good many years except part of the property was leased May 9, 1939 to Robert S. Pike and Charles W. Helps, of Eveleth, Minn.”

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See pages 6-7 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.

Office: Malad. Officers: David M. Williams, Pres.-Mgr.; Hilton D. Williams, Sec., both of Malad. Inc.: Nov. 6, 1929. Capital: 2,500,000 shares; par value 10c; 81,588 shares issued. Property: Blue Jay group; 7 unpatented claims, unorganized dist.; Malad. Development: By 2 tunnels; No. 1, 600 ft. long; No. 2, 700 ft. long; No. 3, 400 ft. long. Ore: Lead-copper-gold-silver. Remarks: 100 ft. of development work during the year.
OWYHEE COUNTY

County Seat: Murphy. Area: 7596 sq. miles. Population: 5652. Principal Industries: Agriculture, stock raising and mining. Transportation: The roads of Owyhee County are very poorly maintained on account of its vast area and small taxation. One railroad, the Murphy branch of the Union Pacific, serves the county. Mineral Resources: Silver, gold, copper, lead, zinc, antimony, diatomaceous earth, opals, manganese and nitrates.

History and Future
After the discovery of the rich silver veins of the Silver City district in 1863, the county was the chief producer in the state. The ores were some of the richest ever discovered and made the operators fabulous profits. The tremendous cost of the early day operations and poor milling methods caused a decline in the operations until the district became almost deserted. Greater geological knowledge, more efficient transportation and modern metallurgical methods will once again give this district the prominence it once had. It is extremely favorable as a field for operators and investors.

Review of Year's Operations
Banner Mining & Milling Co. report assessment work only on 11 patented and 8 unpatented claims in the Carson district near Silver City.

Daly Mines, Inc., extended its tunnels a distance of 450 feet and completed 100 feet of drifts during the year.

De Lamar Milling Corporation treated material from the dumps of the famous De Lamar Mine in its 200-ton flotation mill. An average crew of 28 men was employed during the year. Values are in gold and silver. John H. Smith is president and M. D. Carter, secretary, both of Oregon City, Oregon. R. H. Lowe, De Lamar, is manager.

The De Lamar Placers, owned by the Brendel Oil Company, operated a 2-yard dragline and washing plant on Jordan Creek in the Carson district below De Lamar. The property consists of 22 claims held under lease and bond. Production is said to be 150 yards an hour with recoveries averaging about 25 cents a yard. Frank A. Kennedy, 710 North 19th Street, Boise, was manager and engineer in charge. 15 men were employed by this company on a three-shift basis.

Empire Mines Co. completed assessment work on the Trade Dollar group of 34 patented and 6 unpatented claims in the Carson district near Silver City. Charles A. Hackney of Boise is secretary.

It is reported that the South Mountain Mining Company operated the Golconda Group Mining Company's holdings consisting of 15 patented claims on South Mountain near Jordan Valley, Oregon. About 100 tons of silver-lead-zinc ore are trucked from the mine daily to Marsing and shipped by rail to Tooele, Utah for treatment. J. H. Cazier of Jordan Valley, Oregon is superintendent.

Goldflour Mining Company operated on ground held under lease near Grandview. Officers of the company include: L. A. Hoalst, president; R. M. Davidson, vice-president; Waldo Thurber, secretary-treasurer, and Blain C. Hoalst, manager. The plant consists of one power shovel, dragline, two dump trucks and washing plant with a small shack for tools and cleanup. An average crew of six men is employed.

The Knowles Brothers moved some equipment on to Big Foot Bar west of Grandview during the year.

Fred J. Test and Harry Butler operated the Golden Sunday mine.

Ida Bell Gold Mines, Inc., hold 12 unpatented claims on Reynold's Creek in the Carson district. The property has been operated by the Idaho Exploration, Inc., since January, 1936. This latter company holds a ten-year lease on the property.
Mother Lode Gold Mining & Milling Co., employed an average crew of 4 men and report 326 feet of development work during the year. The property consists of 3 patented and 10 unpatented claims, held under lease and bond, Carson district near Silver City. Carl Johnson of Silver City is president and E. G. Chaffer, Nampa, is secretary.

War Eagle Consolidated Mining Co. is held under lease under date of March 27, 1931, by Golden Chariot-War Eagle Mines Co.

Larry Shaver of De Lamar developed his group of 7 claims in the De Lamar district with a bulldozer which is used to remove the overburden.

Ymir Consolidated Mines Company, K. L. Stocker, president-manager, and H. R. Stratham, secretary, both of Pocatello, report 100 feet of development work during the year with a crew of 5 men. The property consists of 2 patented and 2 unpatented claims in the Carson district, Silver City, and is held under lease and bond from R. H. Leonard, Murphy. Additions made during the year include: a road to the property and installation of power plant and mine buildings. A concentrating plant was constructed on the mill site of the Addie Mining Company during the year. An average crew of 8 men was employed at the property.

John R. Rhodes of Melba operated the Rhodes Placers on the Snake River with a crew of 10 men. The ground is stripped from four to eleven feet in depth with an RD8 and Bulldozer. Pay dirt is loaded by an Austin Western Badger Shovel and hauled to a washing plant in Ford V-8 dump trucks. Recovery is by gravity and amalgamation. Water for washing purposes is pumped by Gardner-Denver Pump, powered by Hercules Diesel Engine. The property is leased from J. E. Gray and normally produces about 20 ounces of amalgam daily.

Annual labor was performed at properties in the vicinity of Oreana and Castle Creek.

Annual assessment work was performed throughout the county with activity noted on War Eagle and Florida Mountains in the vicinity of Silver City.

C. M. Brooks operated the South Empire property on War Eagle Mountain and uncovered ore that is stated to go $270.00 a ton.

The Owyhee Processing Co., Inc., has been formed to exploit an important deposit of diatomaceous earth about 70 miles south of Grandview. It is reported that the deposit consists of eighteen 20-acre claims from 0 to 70 feet deep and that the material will go $70.00 a ton for filter material and $23.00 a ton for insulation. Interested in the new company are: S. A. Mullenix, J. R. Cornell, Justo Echverria, Ralph Thomas and Guy Givens.

Testing was carried on by California interests on Cow Creek between De Lamar and the I. O. Nevada highway and also a testing rig was active about midway between Murphy and Silver City.

W. J. Stoddard worked the Wells Fargo claim to some extent. This claim is an extension of the Morning Star located at Silver City. It is stated that some high-grade shipped from this claim assayed $1253.00 in gold and 823 ounces of silver to the ton.

Carson Divide Mining Company employed a crew of men, developed 17 patented claims, located on Rich Gulch between the Trade Dollar and De Lamar mines.

BANNER MINING & MILLING CO.

COSMOPOLITAN MINING CO., LTD.

DALY MINES, INC.

DE LAMAR MILLING CORPORATION

DE LAMAR PLACERS

EMPIRE MINES CO.

GOLCONDA GROUP MINING CO.

GOLDFLOUR MINING COMPANY

IDAHO EXPLORATION INCORPORATED

**WALTER J. LONG PLACERS, INC.**


**MOTHER-LODE GOLD MINING & MILLING CO.**

**Office**: Nampa. **Officers**: Carl Johnson, Pres., Silver City; E. G. Chaffer, Sec., Nampa; E. R. Clark, Mgr., Silver City. **Inc.**: Aug. 30, 1932. **Capital**: 500,000 shares; par value $1; 323,943 shares issued. **Property**: 3 patented and 10 unpatented claims, held under lease and bond, Carson dist.; Silver City. **Development**: Approximate total development, 3500 ft. **Plant**: MINE: 2 compressors, Ingersoll Rand and Sullivan; complete mining equipment. **Ore**: Gold, silver. **Men Employed**: Average, 4. **Remarks**: 326 ft. of development work during the year.

**OROGRADE GOLD, INC.**

**Office**: Boise. **Officers**: J. A. May, Pres.; Corinne May, Sec., both of Boise. **Inc.**: Aug. 28, 1935. **Capital**: 100,000 shares; par value $1; 84,479 shares issued. **Property**: 13 unpatented claims, French dist.; Silver City. **Development**: Approximate total development, 7400 ft. **Ore**: Gold and silver. **Remarks**: Report not filed for 1940.

**OWYHEE DEVELOPMENT COMPANY, INC.**

**Officers**: Frank W. Roberts, Pres., Caldwell. **Inc.**: Sept. 29, 1930. **Capital**: 500,000 shares; par value $1; amount issued, not stated. **Remarks**: Report not filed for 1940.

**SNAKE RIVER EXPLORATION COMPANY**

**Office**: Cleveland, Ohio. **Officers**: A. E. R. Schneider, Pres.; R. E. Ives, Sec., both of Cleveland, Ohio. **Inc.**: Feb. 5, 1937. **Capital**: 50,000 shares; par value $1; 27,728 shares issued. **Property**: Snake River mine; 200 acres near Grandview. **Development**: Pits dug averaging 300 ft. in width. **Plant**: Pumping equipment, ramp washing machine, cook house, bunk house. **Ore**: Gold. **Remarks**: Report not filed for 1940.

**WAR EAGLE CONSOLIDATED MINING CO.**

**Office**: 919 Real Estate Trust Bldg., Philadelphia, Pa. **Officers**: Frank S. Lewis, Pres.; E. T. Woolmington, Sec., both of Philadelphia, Pa. **Inc.**: Filed in Idaho, April 22, 1907. **Capital**: 60,000 shares preferred, 240,000 shares common; par value $50; all shares issued. **Property**: South Oro Fino and Mahogany groups; 8 patented, 2 unpatented claims, French dist.; Silver City. **Remarks**: "Property leased under date of March 27, 1931, to Golden Chariot-War Eagle Mines Co."

**WESTERN MINING & EXPLORATION CORPORATION**

**Officers**: S. G. Baker, Pres.-Agt.; F. H. Thurston, Sec., both of Boise. **Inc.**: Mar. 23, 1937. Charter forfeited Nov. 30, 1940. **Capital**: 250,000 shares; par value 10c; 204,500 shares issued. **Property**: 24 unpatented claims, (2 claims 27 miles southwest of Grandview and 22 in the Jungo dist.; Nevada.) **Development**: Approximate total development, 130 ft. **Ore**: Gold.

**YMIR CONSOLIDATED MINING COMPANY**

**Office**: 206 Fargo Apts., Pocatello. **Officers**: K. L. Stoker, Pres.-Mgr.; H. R. Statham, Sec., both of Pocatello. **Inc.**: Jan. 26, 1939. **Capital**: 1,000-000 shares; par value 25c; 20,000 shares issued. **Property**: 2 patented and

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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. Late developments in the northwestern part of the county have uncovered promising deposits of aluminum and manganese.

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See pages 6-7 for publisher's address, meaning of reference marks and abbreviations.


POWER COUNTY

BANNOCK APEX MINES, INC.


BIBLIOGRAPHY

See pages 6-7 for publisher's address, meaning of reference marks and abbreviations.


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

Idaho has about two million sheep. The annual wool clip is about 17,000,000 pounds. About 1,900,000 fat lambs go to market from Idaho. In addition half a million feeder lambs are fattened in Idaho.
SHOSHONE COUNTY

County Seat: Wallace. Area: 2597 sq. miles. Population: 21,230. Principal Industries: Mining and lumbering. Transportation: Coeur d'Alene branch of the Union Pacific, Northern Pacific Railway, and the Chicago, Milwaukee, St. Paul & Pacific Railroad serve the county. Yellowstone Trail, a paved highway, and a well maintained system of county roads reach into all mining districts. Rivers: St. Joe River, North and South Fork of the Coeur d'Alene River are principal streams. Relief: The county lies on the west side of the Continental Divide and is mountainous with deep valleys and few level spots. Mineral Resources: The famous Coeur d'Alene Mining District is in the central part of the county. This district is a famous producer of lead-silver-zinc and copper. Other ores found are gold, antimony and tungsten.

History and Future

Mining in Shoshone County started with the discovery of gold on Prichard Creek in 1879. Although the chief excitement at this time centered in the gold placers near Murray, which proved very profitable, the major activity was transferred to the lead-silver mines on the South Fork after their discovery in 1885.

The gold district has continued to produce in a small way even to this day, but has been far overshadowed by the base metal mines which have developed until they produce approximately one-fourth of the silver of the United States, and rank among the leading states in the production of lead and zinc.

The district contains the first, third and fifth largest lead producing mines in the United States, viz.: The Bunker Hill & Sullivan, Morning and Hecla mines respectively. The largest silver producer in the United States is the Sunshine Mine, also located in this district.

The introduction of flotation, making possible the separation of the complex lead-zinc ores, opened up a vast new field of operations and today the district ranks as one of the important zinc producers of the country.

The continued development of new properties and the large ore reserves of some of the present operations assure a future comparable only to the past fifty years of large scale production, which in the five years prior to the depression averaged approximately 30 million dollars annually.

In 1940, mines in the Coeur d'Alene region of Shoshone County produced 89 per cent of the State's silver output, 81 per cent of the copper, 92 per cent of the lead, and 91 per cent of the zinc.

Review of Year's Operations

Following is an article with a chronological summary of the most important and outstanding events that took place in the Coeur d'Alene mining district during the year 1940. (Courtesy the Wallace Miner, Wallace, Idaho.)

During the year 1940 the mines of the Coeur d'Alene district made a notable gain over the production record for 1939, due primarily to the upswing of metal prices and the resumption of production by several properties that had suspended operations because of the low markets for their products.

Reviewing the mining events of the past year impresses one with the idea that the Coeur d'Alenes is a young district after more than 50 years of steady production of mineral wealth. A 50-mile radius from Wallace would probably embrace all of what is known as the Coeur d'Alenes and if called the "richest 50 miles square on earth" it might not be saying too much. This district holds the record for being the second largest producer of lead in the United States and holds first rank in the production of silver.

Less than 20 years ago this district produced silver only as a by-product of its lead mines. There were no known deposits of silver ores at that time but the deep opening of the Sunshine mine changed all that and today we
have an entire silver belt or district entirely independent of the lead-silver-zinc mines and which covers fully as large an area. Already five mining properties that justify ratings as mines, the Sunshine, Crescent, Polaris, Silver Dollar and Coeur d'Alene Mines, have been developed to the production stage and another one, the St. Elmo, is producing on a small scale from leasing operations. The outstanding new development is the Coeur d'Alene Mines property which has all the earmarks of developing into one of the really big producers. This company recently built a 300-ton mill which is operating at capacity.

The prosperity of the Coeur d'Alene district is on a permanent basis and is not affected by anything except it would be radical depressions of long duration in the metal markets. The depression of the last few years had retarded the growth of the district by slowing up mining activity but the recent advance in metals, especially in zinc, has created a great deal of new mining activity. The big Star zinc-lead mine has operated at capacity throughout the year while many zinc properties are preparing for immediate production.

After several years of non-production the Day properties, three in number, have resumed capacity output and two of them have erected new milling plants during the year.

Three new large capacity milling plants have been erected in the district during the year, which is always a sign of prosperity and a growing mineral district.

The district now possesses four custom milling plants which add to the general prosperity by providing a means whereby leasers and small prospect operators can have their ore treated at nominal cost. Roads and truck hauling also figure in this picture.

Confidence in the mineral geology of the district is evidenced by the willingness of big operators to spend huge sums prospecting the Coeur d'Alene ore formations at depth. Notable among these operations is the deep crosscut and tunnel work being carried on by Sunshine in the Big creek silver belt and by the Hecla in the Burke lead-silver-zinc belt. Hecla has also undertaken a major prospect enterprise at the Atlas property at Mullan where Hecla is sinking a three-compartment shaft to a depth of 800 feet. This development, if successful, will open to deep prospecting a vast mineral territory extending from Lake gulch, west of Wallace, to the Montana state line, east of Mullan. This area contains many surface mineral showings typified by huge iron outcrops.

The smelting activity of the Bunker Hill and zinc refining by the Sullivan company have added prestige to the district and recognition by the mining world. The Bunker Hill this year increased its smelting capacity 15 per cent and added an additional treatment unit to the big smelting plant at a cost of $500,000. This unit is designed especially for the recovery of bismuth and antimony from tetra-hedrite silver-copper ores peculiar to the Coeur d'Alene silver belt. It is the only plant of its kind in the United States.

The Sullivan electrolytic zinc plant in Government gulch, just west of Kellogg, is operating at full capacity for the first time in its history. The plant produces slab zinc 99.99 per cent pure and also produces cadmium in commercial quantities as a by-product.

Altogether the year has been notable for advancement in the general betterment of the mining industry and the future mining outlook of the district for 1941.

Following is a chronological summary of the most important and outstanding events that took place in the Coeur d'Alenes and outlying districts during the year 1940:

**January**

Sunshine Mining company, the nation's largest silver producer, reports the opening of two new silver veins on the 2500 mine level which gave assay returns of 100 ounces over five-foot widths.
Liberal King shaft on Pine creek was put down an additional 500 feet, making it the deepest mine workings in the Pine creek area, 1100 feet below the creek level.

Mackay Exploration company opened the old White Knob copper property at Mackay, Idaho, and shipped $24,500 worth of copper ore from the upper levels. This ore was produced by leasers.

**February**

Bunker Hill pays first 1940 dividend of $327,000, equal to 25 cents a share.

Hecla Mining company pays first quarterly dividend for year, amounting to $100,000 or 10 cents a share.

Coeur d'Alene Mines company opened new shoot of high grade silver ore on 2400 level.

Silver Dollar company receives smelter settlement of $7698.34 for a shipment of 26 tons of silver-copper ore.

Federal Mining & Smelting company pays first quarterly dividend of $61,-600, or 25 cents a share.

Tamarack & Custer company completes 300-ton mill at mine portal in Burke canyon.

Callahan Zinc-Lead company leased the 300-ton Galena mill on Lake gulch, west of Wallace, to William Zanetti.

**March**

James F. McCarthy, president of the Hecla Mining company, dies at age of 72. Had been identified with Hecla company for 36 years.

Famous old Last Chance silver property at Saltese leased to Irving Anderson, mining engineer of Wallace.

Dayrock company reports profit of $4185 for year 1939. Net revenues of company were $57,660 and net operating expense $53,475.

First carload of concentrates shipped from Tamarack & Custer company's new mill.

Bunker Hill builds new smelter unit at a cost of $500,000 to separate antimony and bismuth from tetrahedrite silver-copper ores produced in the Coeur d'Alene district silver belt.

Metropolitan company awards contract for 225 feet of shaft work.

General Electric company enters Blue Wing district in Lemhi county to develop a tungsten prospect.

Porter Bros., of Helena, Mont., take option on 2800 acres of placer ground on Prichard creek owned by Coeur d'Alene Mining company.

Goldback property at Murray sold under lease and bond to Interstate Mining company.

Hecla Mining company buys a 51 per cent interest in the Atlas Mining property at Mullan and prepares to sink a shaft 800 feet.

Federal Mining & Smelting company issues annual report announcing the opening of the You Like vein in a 1300-foot crosscut from the 2400 level of the adjoining Morning mine.

L. E. Hanley was elected president of Hecla Mining company and Leo J. Hoban, secretary, at a meeting in Milwaukee.

Harry A. Rogers, clerk and recorder of Shoshone county for 20 years, died at age of 59. Abner Fox, deputy county recorder during the same 20-year period, died at age of 66.

Jack Waite mine in Murray district operated at loss of $136.91, according to a report by the A. S. & R. company which is operating the mine on a percentage basis.
April

Annual report of Bunker Hill shows ore reserves of 2,905,344 tons blocked out and ready for mining.

Crescent silver mine, adjoining Sunshine on the west and operated by the Bunker Hill, deepens shaft to 1200 level.

Federal M. & S. company sinks the Morning shaft from 4250 to the 4450 level.

Coeur d'Alene Mines company begins construction of 300-ton concentrating mill.

Coeur d'Alene Hardware & Foundry company takes contract to build two of the largest mine hoists ever installed in the district, one for the Coeur d'Alene Mines and one for the Page mine of the Federal company.

Annual report of the Hecla Mining company shows it is operating and developing five mining properties in addition to the Hecla, namely, the Star, Resurrection (Colorado) Omaha, Heleene (Montana), and Atlas.

Bureau of mines report shows Idaho holds second place in lead production in United States and first place in silver production.

Sunshine mine opens new silver vein south and independent of Sunshine vein. Sunshine ore reserves reported as 745,000 tons.

Oom Paul company holds first meeting in 23 years.

Hecla officials elected to Atlas directorate. Hecla preparing Atlas workings for shaft sinking.

Silver Cable mining property, east of Mullan, starts production of ore under lease agreement to Walla Walla Leasing & Development company. Trucking ore to Silver Crescent mill on Moon gulch.

Sunshine Consolidated Mining company reports finding rich silver vein in diamond drill hole.

Aladdin company elects new board of directors and starts new mine development on gold property near St. Regis, Mont.

May

Silver Dollar company starts work sinking shaft an additional 500 feet.

Silver Cable ships first car of concentrates to Anaconda smelter.

Bunker Hill pays second quarterly dividend for year, amounting to $327,000, equal to 25 cents a share.

Annual reports of the Coeur d'Alene mining companies filed with the county assessor for the year 1939 show net profits of $6,936,803.

The Ima Tungsten mine at Patterson, Idaho, is reported to be shipping 60,000 pounds of tungsten concentrates each month.

According to the United States bureau of mines, Idaho produced during the year 1939 five minerals, gold, silver, copper, lead and zinc, valued at $30,075,800.

Hecla Mining Company paid its second quarterly dividend of 10 cents a share amounting to $100,000.

The old Kennan mining property on Pony gulch, between Wallace and Delta, has been reopened by J. D. Chapen, who is shipping gold ore and concentrates to the Bunker Hill smelter.

Sunshine Mining Company pays its second quarterly dividend for the year amounting to 40 cents a share or $595,529.

Largest gold dredge ever in use in the state is being built on the Yankee Fork of the Salmon river.

Leasers at the St. Elmo property shipped 77 tons of tetrahedrite silver-copper ore to the Bunker Hill smelter which netted $836.87.

June

Coeur d'Alene Hardware & Foundry Company received shipment of a 25-ton carload of Ingersoll-Rand "jackbits." The shipment contained 56,500 separate pieces.
Liberal King shaft has reached the 1000 level and is crosscutting for the vein.

Bunker Hill announces the installation of a solarium for artificial sunshine treatment for its employees.

Callahan Consolidated Mining company is driving ahead in the Red Monarch tunnel to open the old Rex mine workings and ore bodies.

Sullivan zinc plant at Kellogg is reported operating at 100 tons daily capacity production. Zinc produced is 99.99 per cent pure.

New dredging plants are operating on Trail and Pony gulches in the Murray section.

England brothers start dredging the Independence Mining company's placer ground on Independence creek.

State tax commissioner reports that the Idaho mine license tax yielded $259,119 for the year 1939.

U. S. circuit court of appeals at San Francisco orders the Sunshine mining company to pay back wages to some 300 striking C. I. O. affiliated miners. It is estimated the payment would amount to around $1,288,000. The company will ask for a review of the case before the United States supreme court.

High grade antimony ore is reported to have been discovered on claims located over the divide between Burke and Thompson Falls.

**July**

Stanly A. Easton, president of the Bunker Hill, announced the appointment of J. B. Haffner as manager of the company’s mines, mills and smelter at Kellogg.

The Jupiter Mining company was organized to take over the Last Chance and Woodburn Mining company's holdings in the Saltese district.

Sullivan Mining company starts experiments with new “sink-and-float” method of handling muck underground at Star mine.

The Ima tungsten mine at Patterson reports the discovery of a new and higher grade vein of tungsten ore on adjoining property owned by the company.

Butte mining men take an option on the Black Bear property in the Burke canyon and start shipping ore to a custom plant.

The famous Flynn group of mining claims between Burke and Mullan are sold at sheriff's sale.

Liberal King Mining company reports opening body of zinc ore in the crosscut from 1000 shaft level.

**August**

The Mullan Chamber of Commerce staged its second annual '49er three-day celebration.

Bunker Hill paid its third quarterly dividend for the year amounting to $327,000.

Sherman Lead Mining company announces the building of a 300-ton concentrating mill at the portal of the Hercules tunnel in Burke.

Hecla Mining company declared its third quarterly dividend for the year, paying stockholders $150,000.

Clayton Silver Mines company reports the opening of a new ore body at the mine near Clayton, Idaho.

Silver Dollar company completes the shaft work to the 2500 mine level and starts crosscutting for the vein.

Bunker Hill smelter returns on St. Elmo ore shipments by leasers show net values of 340 ounces of silver per ton. Net returns were $234.61 a ton. St. Elmo company buys the Venus claim.

Black Bear ships first carload of concentrates to smelter. The ore was milled at the Amy-Matchless mill on Pine creek.
Silver Dollar company reports smelter returns of $97,416.08 from ore shipped to the Tacoma smelter during the first six months of the year.

Kellogg Industrial union holds the 36th annual miners and smeltermen's picnic.

Hecla Mining company starts actual work on sinking new three-compartment shaft at Atlas property near Mullan. Preparations are complete to go down 800 feet.

Federal Mining & Smelting company announces its third quarterly dividend of 50 cents a share, double the amount paid in the two former dividends. The amount paid stockholders this quarter is $123,320.

IMA mine at Patterson ships 30-ton car of tungsten concentrates estimated to net the company $60,000.

Sunshine Mining company announces the payment of its third quarterly dividend of 40 cents a share, amounting to $575,529.

Grunter gold mine at Shoup, Idaho, plans to increase capacity of cyanide plant from 100 to 300 tons.

The Monitor Mining company incorporated by the Day interests to take over the Ray Jefferson and other mining property in the Beaver district.

U. S. geological survey reports that Idaho has the largest deposits of phosphate rock in the United States.

September

Sunshine Mining company completes installation of new mine ventilating system at a cost of $100,000.

Local mining men lease the old Senator W. A. Clark property on Sunset Peak and start shipping ore to the Golconda mill. Property is now owned by the Anaconda Copper Mining company.

Liberal King Mining company reports striking a body of high grade zinc ore in crosscut from 1000 shaft level.

October

Spokane-Idaho Mining company is formed by J. P. Graves of Spokane to operate the old Constitution zinc mine on Pine creek.

Highland-Surprise Consolidated Mining company starts operations reopening the company's mine on Pine creek.

The old Coeur d'Alene antimony mine on Pine creek reopened by Chas. F. Dean of Spokane and Sven Anderson of Bonners Ferry.

St. Elmo leasers received $1513.76 for a shipment of 7½ tons of silver-copper ore to the Bunker Hill smelter.

Sunshine Mining company starts work to open its 3700 mine level, deepest mine workings in the Coeur d'Alene district.

Tamarack & Custer Mining company declares a stock dividend, paying its stockholders pro rata interest in 2,000,000 shares of Sherman Lead Mining company stock.

Clayton Silver Mines company shipping three cars of concentrates monthly to Murray, Utah, smelter.

Bunker Hill announces 15 per cent increase in smelting capacity. Smelter now producing at the rate of 2600 tons of lead and 140,000 ounces of silver a month.

Lead advance to a new high of $5.50, the highest price since December, 1939.

Coeur d'Alenes Mines corporation starts production from its new 300-ton milling plant at mouth of McFarren gulch, near Osborn.

First carload of antimony ore shipped from the Snyder prospect on Prospect creek.
SHOSHONE COUNTY

Mineral King Mining company buys old Tarbox group of claims near Saltese.

Silver Dollar Mining company opens vein 35 feet wide in crosscut on 2500 level.

Bunker Hill declares fourth quarterly dividend for the year amounting to 25 cents a share, or $327,000.

November

Sunshine Mining company proposes to drive a crosscut south from the 3100 level to prospect its own ground in that direction and the adjoining Metropolitan group.

More gold dredges are reported operating in Idaho than at any other time in the history of the state.

Gold production of Idaho county for 1939 is officially reported as amounting to $1,151,000.

Polaris Mining company has made arrangements with the Sunshine to open the Polaris vein from the Sunshine 2700 level. The new development will give Polaris an additional 1400 feet of depth below their present lowest working level.

Highland-Surprise Mining company has completed unwatering both the Highland and Surprise shafts and are getting the milling plant in readiness for production early in 1941.

Hecla Mining company declares the fourth quarterly dividend for the year amounting to $250,000 on a basis of 25 cents a share.

Silver Dollar Mining company announces the expenditure of $249,157.56 in mine development and equipment since the shaft was started. Of this amount $116,256.37 was derived from ore shipments.

Sunshine Mining company declares its fourth quarterly dividend for the year on a basis of 40 cents a share, amounting to $595,528.

Jack Waite Mining company reports gross production of the mine for the month of October to be $42,856.86.

Coeur d'Alene Hardware & Foundry company delivered to the Page and Coeur d'Alene Mines the two large mine hoists contracted for earlier in the year. The machines were made entirely in the shops of the company in Wallace. Each hoist weighs 80 tons and is rated at 600 horsepower. They will hoist at rated capacity to depths of 4500 feet.

Lucky Friday Mining company at Mullan starts sinking shaft an additional 200 feet from the 100 level. The work is being financed by the Golconda company.

Clayton Silver Mines company reports the discovery of a vein of high grade milling and shipping ore on the 125-foot level of the mine at Clayton, Idaho.

Federal Mining & Smelting company announces payment of its fourth quarterly dividend for the year at the rate of $1 a share, amounting to $246,640.

Tuscumbia and Idora Mining companies report the sale of their mining properties in the Beaver district to the Prime Western Metals company.

Harry R. Allen, 71, former Wallace mining man, died in California on November 20.

Jerome L. Drumheller reports the discovery of a high grade shoot of ore at the Idaho-Lakeview property at Lakeview, Idaho.

December

Golconda Mining company making preparations to start mining ore from its Mayflower zinc-lead vein.

Beaver Tungsten Gold Mining company organized to operate the Kennan gold property on Pony gulch and has built a new 100-ton flotation milling plant.
Hecla Mining company has completed purchase of the controlling interest in the Heleene gold property at Norris, Mont., and has leased the property to Earl Hazelwood.

Silver Dollar Mining company resumes ore shipments from the new 2500 level.

Dan Murphy and associates of Wallace take a lease on the Black Bear property between Gem and Frisco in the Burke canyon.

Jack Waite Mining company reports net profits of $11,100 for the month of November.

Shoshone county received $16,346.17 in taxes from the Washington Water Power company.

Tamarack & Custer Mining company pays a one-cent dividend amounting to a total of $50,000.

Sherman Lead Mining company begins milling ore in its new 300-ton mill at Burke.

Anaconda Copper Mining company starts development of a reported large zinc deposit in Owyhee county.

The Milwaukee railroad paid Idaho counties $118,232.46 to cover its 1940 tax bill. Of this amount Shoshone county received $44,727.33.

Golden Chest mine at Murray hits pocket of "picture rock" gold ore.

Much ado about the diversion of $147,000 road funds earmarked for the improvement of No. 10 highway.

Sunshine Mining company makes a Christmas present to employees of 5 per cent of their 1940 wages. Amount to be distributed among 600 employees estimated at about $45,000.

Idaho Almaden quicksilver mine is rated as the seventh largest quicksilver producer in the United States.

Citizens Utilities company lowers electric power and light rates throughout the district.

Total tax paid by Idaho corporations for 1940 amounted to $1,007,183.50 and of this amount mining companies paid $408,113.94.

Eight big mining companies of the Coeur d'Alene district paid Shoshone county property taxes for 1940 amounting to $189,073.67.

Coeur d'Alene mining companies paid dividends for 1940 totaling $4,783,392 as compared with $4,110,765 for 1939.

First car of crude antimony ore shipped from Dave Snyder property on Prospect creek. Smelter returns amounted to $2950 for the car which held approximately 40 tons.

Merger Mines corporation reports completion of long crosscut and drift from 2400 Coeur d'Alene Mines level to Merger ground.

**ALICE MINING CO.**

**Office:** Wallace. **Officers:** Leo J. Hoban, Sec., Wallace. **Inc.:** July 30, 1902. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** 20 patented, 2 unpatented claims, Hunter dist.; 3 1/2 miles east of Wallace. **Development:** 9600 ft. drifts and crosscuts, one 685 ft. shaft. **Plant:** MINE: Complete mine camp and buildings. MILL: Partly dismantled 125-ton concentrator. **Ore:** Lead-silver.

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

**Office:** Wallace. **Officers:** C. W. Beale, Pres.; A. H. Featherstone, Sec., both 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:** Idle.

**AMAZON MANHATTAN MINING CO.**

**Office:** Wallace. **Officers:** Henry L. Day, Mgr., Wallace. **Inc.:** A. partnership. **Property:** Amazon Manhattan group; 8 patented claims, Beaver
SHOSHONE COUNTY


AMERICAN LEAD MINES, LTD.


AMERICAN MINING CO., LTD.


AMERICAN SILVER MINING COMPANY

Office: Osburn. Officers: E. W. Conrad, Jr., Pres.; L. B. Conrad, Sec., both of Osburn. Inc.: Sept. 22, 1924, as Fort Wayne Mining Co.; name changed July 8, 1930, to Idaho Montana Mining & Oil Co.; name changed Jan. 27, 1936. Capital: 1,500,000 shares; par value 3 1/3 cents; July 8, 1930, increased to 2,000,000 shares; par value 50c; Jan. 27, 1936, reduced from $1,000,000 to $200,000 by reducing par value from 50c to 10c; Aug. 19, 1938, increased capital stock to $225,000 divided into 2,250,000 shares; par value 10c; Amendment filed Jan. 7, 1938, making capital stock non-assessable. Aug. 31, 1938, increased capital stock to 2,750,000 shares; shares issued, 1,734,174. Property: 14% unpatented claims, Evolution dist.; Osburn. Development: Principally by 1 tunnel which is 3950 ft. long. Plant: 100 h. p. electric compressor, rails, pipe, etc.; cookhouse, garage, powder house, bunk house and blacksmith shop. Ore: Silver and lead. Men Employed: Average, 3. Remarks: Timbered main tunnel and did considerable surface work for patents.

AMERICAN SMELTING AND REFINING CO.


ANAConDA COPPER MINING CO.


ASSOCIATED MINES CORPORATION, LTD.

Inc.: Nov. 7, 1930. Capital: 3,000,000 shares; par value 10c. Remarks: Report not filed for 1940.
ATLANTIC MINING CO.

ATLAS MINING CO.
Office: % Hecla Office, Wallace. Officers: W. Earl Greenough, Pres.; Mullan; Leo J. Hoban, Sec.; L. E. Hanley, Mgr., both of Wallace. Inc.: March 4, 1924. Capital: 2,000,000 shares; par value $1; 1,492,883 shares issued. Property: Atlas group; 28 patented, 50 unpatented claims, Hunter dist.; Mullan. (In addition to the above mining claims the company owns a 93 acre tract of patented land fronting for a half mile on U. S. No. 10 Highway and N. P. Ry., for contingent use as a mill, plant and storage area.) Development: Tunnels, drifts, crosscuts, 23,115 ft.; raises and winzes, 934 ft. Plant: MINE: Electrically driven compressor and complete mining equipment. MILL: A 200 ton capacity ore bin located on the Atlas Dump is connected with a 300 ton bin along side of the Gold Hunter Mill by a 2,000 ft. aerial tramway spanning the Coeur d'Alene River Valley. The Gold Hunter Mill, located on the N. P. Railway, has a capacity of about 350 tons daily. This mill may be used to mill the initial production from the Atlas property. Ore: Lead-silver. Men Employed: Average, 25. Remarks: “On January 25, 1940, an AGREEMENT was signed by Atlas Mining Company and Hecla Mining Company whereby the latter obligates itself to furnish money and pay for certain development work to the minimum extent of sinking a vertical standard triple compartment shaft from the Atlas tunnel level at a point near the ‘Bird’ raise to at least 800 feet depth, and to crosscut to and explore the ‘Bird’ vein on approximately the 400 and 800 levels below the Atlas tunnel. In consideration for the money advanced Atlas will give notes, payable only out of net earnings from its property, and Hecla will have the option of acquiring 1,020,000 shares (51%) of Atlas stock @ 50c per share net, that for $510,000. This AGREEMENT will expire on March 15, 1945, unless Hecla elects to exercise its option meanwhile to buy the shares, and shall have completed the minimum work. Work under this agreement was started March 21, 1940, making the necessary arrangements for shaft sinking which will probably get started in July, 1940.”

AURORA MINING COMPANY, THE

BEAVER CREEK MINING CO.

BELL MINING CO.
BELL OF THE WEST MINING CO.

BENTON MINING CO., LTD.

BETTY LOU MINING COMPANY

BIG CREEK APEX MINING CO.

BIG CREEK MINING CO., LTD.

BIG DIVIDE MINING CO., LTD.

BIG ELK MINING CO., LTD.

BISMARK MINING CO.
BLACK BEAR MINES CO.

BLACK HAWK MINING & DEVELOPING CO., LTD.

BLAINE & EMMETT MINING CO., LTD.

BLUE EAGLE MINING COMPANY
Office: Kellogg. Officers: W. L. Tuson, Sec.; W. J. Owen, Mgr., both of Kellogg. Inc.: Apr. 18, 1925. Capital: 1,500,000 shares; par value 1c; Dec. 8, 1928, increased to 3,000,000 shares; par value 10c; 1,158,822 shares issued. Property: Blue Eagle group; 15 unpatented claims, Yreka dist.; Kellogg. Development: Approximate total development, 1450 ft. Plant: Electrically driven 8x9 I-R compressor; complete mining equipment. Ore: Lead-zinc-silver.

BLUE WING MINING CO., LTD.

BULLFROG SILVER LEAD MINING CO.

BULLION MINING CO., LTD.
SHOSHONE COUNTY

BUNKER CHANCE MINING CO.

BUNKER HILL & SULLIVAN MINING & CONCENTRATING CO.
Office: Kellogg. Officers: Stanly A. Easton, Pres.-Mgr., Kellogg; J. W. Crosby, Sec., 1022 Crocker Bldg., San Francisco, Calif. Inc.: Originally incorporated in Oregon and filed in Idaho, Aug. 20, 1903; changed to a Delaware corporation and filed in Idaho, Apr. 16, 1924. Capital: 327,000 shares common; par value $10; May 4, 1937, reclassified common stock by decreasing par value to $2.50, and increasing number of shares to 1,308,000; 20,000 shares preferred; par value $100; 6,734 shares preferred, and all common shares issued. Property: Bunker Hill; 406 patented, 41 unpatented claims, Yreka dist.; Kellogg. Development: The principal adit is the Kellogg tunnel which is 30,000 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 3133 ft. long, giving a vertical depth of 2400 ft. below the Kellogg tunnel level, and a 560 ft. winze-shaft on the 1900 ft. level, which open the ore bodies an additional depth of 400 ft. In the main shaft are 15 intermediate levels. Total development, approximately 68¥ miles. Plant: MINE: 3 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 300 tons, accommodates custom ores, particularly those from Pine Creek; West mill, capacity 1450 tons, treats output from the Bunker Hill mine; South mill, capacity 600 tons; Crescent mill on Big Creek, capacity 100 tons, treats output from Crescent and Alhambra mines. Ore: Lead-silver. Men Employed: In mines, mills and smelter, 766. Remarks: Development work during the year: Sinking, 530 ft.; Drifting, 1240 ft.; Crosscutting, 2017 ft.; Raise, 585 ft.

BUNKER HILL SMELTER
Officers: A. F. Beasley, Supt., Kellogg.

BUTTE & COEUR D'ALENE DEVELOPMENT CO.

BUTTE & COEUR D'ALENE SILVER LEAD MINES, INC.

CALEDONIA MINING CO.
Office: Kellogg. Officers: Stanley A. Easton, Pres.-Mgr.; Lee Prather, Sec., both of Kellogg. Inc.: July 1, 1907. Capital: 2,605,000 shares; par value $1;
all shares issued. **Property**: Caledonia; 2 patented claims, Yreka dist.; Kellogg. **Development**: Approximately 19,250 ft. of underground workings. **Plant**: Equipment rented from Bunker Hill & Sullivan M. & C. Co. **Ore**: Silver-lead. **Remarks**: “Mine has been closed since the latter part of the year 1927 except for unimportant leasing operations.”

**CALLAHAN CONSOLIDATED MINES, INC.**
Office: Wallace. **Officers**: Donald A. Callahan, Pres.; Eleanor McDonald, Sec., both of Wallace. **Inc.**: Feb. 24, 1937. **Capital**: 3,500,000 shares; par value 10c; amount issued, not stated. **Property**: Lease and bond on Delaware Mines, Ltd. **Remarks**: Report not filed for 1940.

**CALLAHAN ZINC-LEAD CO.**
Office: 9 Rockefeller Plaza, New York. **Officers**: Henry B. Van Sinderen, Pres.; Joseph T. Hall, Sec., both of New York; H. J. Hull, Agent, Wallace. **Inc.**: July 18, 1912, as Consolidated Interstate Mining Co.; name changed Mar. 25, 1921. **Capital**: 1,000,000 shares; par value $10; Oct. 2, 1935, reduced capital stock to 2,000,000 shares; par value $1; 1,802,409 shares issued. **Property**: 112 patented and 75 unpatented claims, Beaver Center and Evolution dists.; Wallace. **Development**: Principally by 1 tunnel 5000 ft. long. **Plant**: MINE: 25 H-P Cda Hoist, I-R compressor; complete mining equipment. MILL: 150-ton crusher ball mill and flotation. **Ore**: Lead, zinc and silver. **Remarks**: “The Company did not operate its Idaho properties in 1939 nor up to the time of filing this report in 1940. Part of the Interstate mine was leased to a group of about 10 men known as the Interstate Leasers who operated that portion on a royalty basis. The Galena mill was leased in August 1939 to the Silver Dollar Mining Company. Their lease was cancelled and the mill was leased to the Zanetti Brothers who are at present operating it on a rental basis. Other leases were given to various leasers who are to pay a royalty to the Company on their shipments. The Galena mine is filled with water.”

**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. **Ore**: Zinc-lead-silver.

**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.

**CARBONATE MINING & MILLING CO.**
**Officers**: A. P. Hutton, Pres.; W. A. Tuson, Sec., both of Kellogg. **Inc.**: Oct. 7, 1899. **Capital**: 1,000,000 shares; par value 25c; 354,575 shares issued. **Property**: Carbonate group; 4 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development**: By 2 tunnels: No. 1, 700 ft. long; No. 2, 330 ft. long. **Ore**: Lead-zinc-silver. **Remarks**: 30 ft. of development work during the year.
SHOSHONE COUNTY

CENTRAL MINING CO.

CHESTER MINING CO., LTD.

CINCINNATI MINING CO.

CLEAR GRIT MINING CO., LTD.

THE CLEARWATER GOLD & COPPER MINING CO., LTD.

COEUR D'ALENE CRESCENT MINING CO.

COEUR D'ALENE EXTENSION MINES, INC.

COEUR D'ALENE LEAD CO.
Office: Mullan. Officers: W. Earl Greenough, Pres.; Roger W. Greenough, Sec.-Mgr., both of Mullan. Inc.: April 28, 1927. Capital: 4,000,000 shares; par value $1; 2,263,297 shares issued. Property: Coeur d'Alene Lead is a holding company; owns 500,000 shares of the capital stock of Atlas Mining Co.
COEUR D'ALENE METALS CO.
Office: Eagle Bld., Wallace. Officers: M. W. Neary, Pres., 1075 Cal. St., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. Inc.: Jan. 18, 1926. Capital: 10,000 shares; par value $100; 195 shares issued. Remarks: “This corporation lost the bond and lease on Great Eastern Mining Co. property through forfeiture; divided up stock earned pro rata—may take up another property when economic conditions are favorable.”

COEUR D'ALENE MINES CORPORATION

COEUR D'ALENE MINING CO.

COEUR D'ALENE SYNDICATE MINING CO.

CONSOLIDATED GOLD MINES, INC.

CONSOLIDATED INDEPENDENT CALUMET MINING CO.

COPPER CHIEF MINING COMPANY
COPPER KING MINING & SMELTING CO., THE


CRYSTAL LEAD MINES CO.


CUBA MINING CO.


CUSTER GULCH MINES CO.


DAY DEVELOPMENT CO.


DAYROCK MINING CO.

Office: Wallace. Officers: F. M. Rothrock, Pres., Spokane, Wash.; S. F. Heitfeld, Sec.; John H. Wourms, Statutory Agt., both of Wallace. Inc.: Nov. 30, 1923, as Strattons Mines Co.; name changed Nov. 19, 1928. Capital: 2,000,000 shares; par value 10c; 1,747,150 shares issued. Property: Dayrock, Panhandle, and Monarch-Bonanza groups; 40 patented, 22 unpatented claims, Placer Center dist.; Wallace. Development: Dayrock group; principally by 1 tunnel 1746 ft. long, in which is an inclined shaft 531 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 366 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, more than 40,487 ft. Plant: Electrically driven hoist and 2 electrically driven compressors; complete mining equipment; storage-battery locomo-
tive and haulage. **Ore:** Lead-silver. **Remarks:** Development work during the year: Drifting, 510 ft.; Crosscutting, 438 ft.; Raising, 175 ft.; Winze, 70 ft.; Shaft Raise, 69 ft.

**DELAWARE MINES CORPORATION**

*Office:* Wallace. **Officers:** Therrett Towles, Pres., Spokane, Wash.; Otto A. Olsson, Sec., Wallace. **Inc.:** Mar. 10, 1926. **Capital:** 5,000,000 shares, par value 10c; 3,509,818 shares issued. **Property:** 6 patented and 52 unpatented claims, Beaver and Placer Center dists.; Wallace. (Property under lease and bond to Callahan Cons. Mines, Inc.)

**DICKENS-EAST MINING CO.**

*Office:* 519 Waverly Place, Spokane, Wash. **Officers:** Josephine Kratzer, Pres.; C. Fred Kratzer, Sec.-Mgr., both of Spokane, Wash. **Inc.:** Aug. 18, 1926. **Capital:** 2,500,000 shares; par value 10c; 1,500,000 shares issued. **Property:** 11 unpatented claims, Moon Creek, Yreka dist.; Kellogg. **Development:** Approximate total development to date, 300 ft. **Ore:** Lead, zinc, silver. **Men Employed:** Average, 2. **Remarks:** Assessment work only.

**DOBSON PASS LEAD AND SILVER MINES CORP.**

*Office:* Wallace. **Officers:** Geo. W. Dougherty, Sec., Wallace. **Inc.:** Sept. 17, 1932. **Capital:** 1,500,000 shares; par value 10c; 143,762 shares issued. **Property:** 3 patented claims, Dobson Pass group, Beaver dist. **Ore:** Lead-silver. **Remarks:** Idle.

**DOUGLAS MINING CO., LTD.**

*Office:* Wallace. **Officers:** Stanly A. Easton, Pres.-Mgr., Kellogg; Leo J. Hoban, Sec., Wallace. **Inc.:** Oct. 24, 1903. **Capital:** 1,200,000 shares; par value $1; all shares issued. **Property:** Douglas group; 15 patented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 4 tunnels: No. 1, 930 ft. long; No. 2, 1350 ft. long; No. 3, 1900 ft. long; No. 4, 650 ft. long; and an inclined shaft 330 ft. long. **Plant:** Electrically driven compressor and hoist; complete mining equipment and camp. **Ore:** Zinc-lead-silver. **Men Employed:** 1 watchman. **Remarks:** Idle.

**DULUTH MINING CO.**

*Office:* Wallace. **Officers:** S. F. Heitfeld, Sec., Wallace. **Inc.:** June 10, 1909. **Capital:** 1,500,000 shares; par value 25c; 322,210 shares issued. **Property:** Duluth group; 8 patented claims, Lelande dist., Burke. **Development:** By 5 tunnels with a total development of approximately 1000 ft. **Ore:** Lead-silver. **Remarks:** Idle.

**EAST ALAMEDA MINING CO., LTD.**

*Office:* Box 302, Wallace. **Officers:** J. Fred Markwell, Acting Secretary, Wallace. **Inc.:** July 25, 1907. **Capital:** 1,000,000 shares; par value $1; all shares issued. **Property:** East Alameda group; 1 patented, 1 unpatented claim, Lelande dist.; Black Bear. **Ore:** Lead-silver. **Remarks:** Annual assessment work only.

**EAST HECLA MINING CO., LTD.**

*Office:* Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** Nov. 24, 1906. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** East Hecla group; 4 patented claims, Hunter dist.; Mullan. **Remarks:** Idle.

**EAST STANDARD MINING CO.**

*Office:* Wallace. **Officers:** James E. Gyde, Jr., Acting Secretary, Wallace. **Inc.:** Aug. 9, 1911. **Capital:** 1,000,000 shares; par value $1; 709,391 shares issued. **Property:** 4 patented claims, Lelande dist.; Burke. **Ore:** Lead and silver. **Remarks:** Report not filed for 1940.
SHOSHONE COUNTY

ECHO MINING CO., LTD.

ELGIN & OGDEN MINING CO.

ENTERPRISE MINING CO.

FAR WEST GOLD-SILVER MINING CO.
(See Idaho County for officers and capital structure.) Property: Eureka group of patented claims, 2½ miles north of Wallace. Development: By 3 tunnels: No. 1, 400 ft. long; No. 2, 820 ft. long; No. 3, 500 ft. long. Remarks: Idle.

FEDERAL MINING & SMELTING CO.
Office: Wallace. Officers: F. H. Brownell, Pres.; J. L. Martin, Sec., both of New York City; H. G. Washburn, Mgr., Wallace. Inc.: Filed in Idaho, Sept. 24, 1903. Capital: 200,000 shares preferred, 100,000 shares common; par value of each $100; June 6, 1934, decreased preferred to 30,000 shares, and common to 50,000 shares, par value of each $100; May 25, 1936, decreased par value on common to $10, 30,000 preferred, par value $100 and 50,000 shares common, par value $10; June 22, 1937, reduced capital from $3,500,000 to $2,203,200, divided into 17,032 shares preferred, par value $100 and 50,000 shares common, par value $10; June 10, 1939, reduced capital stock to $500,000, divided into 50,000 shares, par value $10; (all outstanding preferred stock retired in May 1939); Dec. 11, 1939, reduced capital stock to $493,280, divided into 246,640 shares common, par value $2; all shares issued.

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 31,680 ft. Ore: Lead-zinc-silver. Remarks: Some work by lessees.

Glamorgan Group

Government Gulch Group
Property: Five-sixteenth 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.

Grouse Group
MINING INDUSTRY OF IDAHO

Men Employed: Average, 3. Remarks: Development work during the year: Tunnels, 380 ft.; Sinking, 56 ft.; (Diamond drilling, 593.5 ft. at cost of $2.02 per ft.)

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.

MACE GROUP

Property: 35 patented claims, Lelande dist.; Mace. Development: Principal development consists of No. 6 tunnel, 3600 ft. long; No. 3, Campbell, 3000 ft. long; and a 3-compartment vertical shaft 2400 ft. deep, with 22 intermediate levels; total development, approximately 18,000 ft. Plant: MILL: Almost entirely dismantled. Ore: Silver-lead. Men Employed: 1 watchman. Remarks: Some work by lessees.

BURKE GROUP

Property: One millsite, Lelande dist.; Burke. Plant: A small hydro-electric power plant.

MORNING GROUP

Property: 45 patented claims, Hunter dist.; Mullan. Development: The two principal tunnels are No. 5, 1600 ft. long, and No. 6, the main transportation tunnel, 9500 ft. long. The principal shaft, which is located in No. 6 tunnel, is a vertical, 4-compartment vertical shaft, 3200 ft. deep, with 19 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5200 ft. Total development, approximately 29½ 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. direct current) 1200 r. p. m. 265 volts; one 600 h. p. electrically driven double-drum Nordberg hoist; one Nordberg single-drum geared hoist, driven by 300 h. p. electric motor; one water-driven 5200 cu. ft. Rix 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 on intermediate levels. MILL: 1200-ton concentrator, fine grinding flotation; two ore-sorting plants; and complete modern change house. Ore: Lead-silver-zinc. Men Employed: Average, 444. Remarks: Development work during the year: Sinking, 87 ft.; Drifting, 3133 ft.; Crosscutting, 1958 ft.

PAGE GROUP

Property: 90 patented and 9 unpatented claims, Yreka dist.; Kellogg. Development: By 10 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 2190 ft. long, giving a vertical depth of 1674 ft., with 5 intermediate levels; total development, approximately 31,100 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 2550 cu. ft. electrically driven compressor; 1 trolley locomotive and 3 storage-battery locomotives; complete and modern mine camp, equipment and buildings. MILL: 400 ton flotation concentrator. Ore: Lead, zinc, silver. Men Employed: Average, 166. Remarks: Development work during the year: Sinking, 308 ft. Expect to install new hoist and galleries frame to cost approximately $70,000.00.

FLYNN GROUP MINING CO.


FORMOSA LEAD MINING CO., LTD.

FOUR SQUARE GOLD SYNDICATE

GALENA MINING CO.

GEM STATE MINING CO.

GENERAL MINES CORPORATION

GERTIE MINING CO.

GOLCONDA LEAD MINES
MINING INDUSTRY OF IDAHO


GOLD HUNTER MINES, INC.
Office: Mullan. Officers: Olive G. Keeley, Pres.; James W. Grogan, Sec., both of Chicago, Ill.; C. K. Cartwright, Mgr., Mullan. Inc.: Apr. 24, 1925; formerly Gold Hunter Mining & Smelting Co. Capital: 20,000 shares; par value $10; all shares issued. Property: Gold Hunter; 12 patented claims, Hunter dist.; Mullan. Development: Principal main haulage tunnel 7600 ft. long, from which level is a shaft 1500 ft. deep to the 1200 ft. level, in which there is another shaft 600 ft. deep; about 10 miles of underground workings. Plant: MINE: Complete and modern; electric hoist; two 3000 cu. ft. electrically driven compressors; pumps; machine and blacksmith shop; electric haulage. MILL: 500-ton concentrator, including flotation. Ore: Lead-silver. Men Employed: Average, 7. Remarks: “Rehabilitation of No. 6 Tunnel Hoist and Hoist Room destroyed by fire in 1935.”

GOODENOUGH MINING CO.

GOLDEN CHEST MINING AND CONCENTRATING CO.

GOVERNMENT GULCH MINING CO.

GRANADA LEAD MINES, INC.

GREAT EASTERN MINING CO., LTD.

GREEN HILL CLEVELAND MINING CO.
HAPPY DAY MINING CO., LTD.

HECLA MINING CO.
Office: Wallace. Officers: L. E. Hanley, Pres.-Mgr.; Leo J. Hoban, Sec., both of Wallace. Inc.: Sept. 26, 1898. Capital: 1,000,000 shares; par value 25c; all shares issued. Property: 48 patented claims, 10 unpatented, Lelande dist.; Burke. Development: Principally by a 4-compartment vertical shaft, which is 2800 ft. deep, and a 3-compartment vertical shaft from the 2000 ft. level, which is 800 ft. deep. Plant: MINE: 2 electrically driven I-R compressors, totaling 7500 cu. ft., housed in steel and concrete buildings; one of the largest, most complete and modern mine plants in the United States; 2 electrically driven hoists, the main one being driven by a 2100 h. p. motor. MILL: 900-ton concentrator, including flotation. Ore: Lead-silver. Men Employed: Average, 467. Remarks: Development work during the year: Tunnels, 1974.9 ft.; Sinking, 269.7 ft.; Drifting, 3740.8 ft., and Crosscutting, 1763.2 ft. Additions made: Flotation unit in Mill; Generating Plant in Mill.

HELMER SILVER MINES COMPANY

HERCULES MINING CO.

HERCULES GROUP
Property: Hercules group, 39 claims, Lelande and Placer Center dists.; Burke. Development: Principally by 5 tunnels: No. 1, 280 ft. long; No. 2, 4450 ft. long; No. 3, 4910 ft. long; No. 4, 10,250 ft. long; No. 5, 16,200 ft. long; and a 4-compartment vertical shaft 1300 ft. deep, with 8 intermediate levels; approximate total development, 85,831 ft. Plant: MINE: Special first motion double-reel Nordberg electric hoist, direct connected to 700 h. p. motor; one 22x16 I-R and one 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: 600-ton concentrator, including flotation. See Idaho Thirty-first Ann. Rept. Min. Industry, 1929, pp. 23-27, for complete description. Ore: Lead-silver. Men Employed: Average, 37.

AETNA GROUP
3 claims surveyed for patent.

AMBERGRIS GROUP
Property: Ambergris, Guelph and Honolulu groups; 22 patented claims, Summit, Lelande and Placer Center 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. Ore: Silver, lead, zinc.

ANDREWS GROUP
3 claims surveyed for patent.
BASIN GROUP

5 patented claims.

HUMMING BIRD GROUP

Property: 19 patented claims, Lelande dist.; Burke. Development: Total development, approximately 16,106 ft. of tunnels, the principal of which are No. 4, 1253 ft. long, and No. 5, Hercnules, 12,086 ft. long.

IDAHO & EASTERN GROUP


9 patented claims.

LACLEDE GROUP

9 patented claims.

MAHER-HEARN GROUP

Property: 38 patented claims, Lelande dist.; Burke. Development: Through 4500 ft. tunnel of Gertie Mining Co., at the end of which are more than 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.

ROANOKE GROUP

7 patented claims.

HIDDEN TREASURE MINING CO.


HIGH-CROPPING SILVER-LEAD MINING CO.


HIGHLAND-SURPRISE CONSOLIDATED MINING CO.


HILL MINING & MILLING CO.


HORNSILVER MINING & MILLING CO.


HORSESHOE MINING CO.

Office: Mullan. Officers: James B. Scoles, Pres., Mullan; Mrs. Mabel Clemons, Sec., Burke. Inc.: July 16, 1908. Capital: 1,500,000 shares; par value $1; 900,000 shares issued. Property: 9 unpatented claims, Hunter
SHOSHONE COUNTY


HUNDRED FOLD MINING COMPANY
Office: Coeur d'Alene. Officers: D. C. Phillips, N. 2521 Hamilton St.; M. D. Hughes, Sec., 1916 E. 13th, both of Spokane, Wash. Capital: 2,000,000 shares; par value 1c; 1,001,898 shares issued. Property: 20 patented and 6 unpatented claims, Lelande and Placer Center dists.; Gem. Development: 2 main tunnels and several short tunnels and open cuts; No. 1 tunnel, 250 ft. long; No. 2 tunnel, 2000 ft. long. Ore: Silver, lead and gold. Remarks: Assessment work only.

HYPOTHEEK MINING & MILLING CO.

IDAHO COPPER MINING CO., LTD.

IDAHO-MONTANA & ORLANDO CONSOLIDATED MINING CO.

IDAHO MOTHER LODGE GOLD MINES INC.
Office: 306 Radio Central Bldg., Spokane, Wash. Officers: E. B. Gibbs, Pres.-Mgr.; L. A. Montgomery, Sec., both of Spokane, Wash.; L. E. Haybarker, Statutory Agent, Murray. Inc.: Feb. 28, 1933. Capital: 3,000,000 shares; par value 5c; 2,459,829 shares issued. Property: 10 claims, Summit Flat dist.; Murray ("Mortgage of $10,000.00 on all property was foreclosed and mortgagee obtained property at sheriff's sale.") Remarks: "Property foreclosed and property sold at sheriff's sale. Property to be acquired by the Consolidated Gold Mines, Inc. See their annual report for details."

IDAHO STAR MINING CO.

IDORA MINING CO., LTD.
IMPERIAL MINING CO.

INDEPENDENCE LEAD MINES CO.
Office: Wallace. Officers: H. B. Kingsbury, Pres.; Herman Marquardt, Sec., both of Wallace. Inc.:Filed in Idaho, Nov. 12, 1929. Capital: 4,000,000 shares; par value $1; 3,740,000 shares issued. Property: 16 patented and 12 unpatented claims, Hunter dist.; Mullan. Development: American Commander group: by 4 tunnels: No. 1, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 6000 ft. long. Independence group: Principally by 4 tunnels: No. 1, 199 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 350 ft. vertical shaft in No. 4 tunnel; approximate total development, 15,863 ft. Plant: One electrically driven compressor, complete mining equipment. Ore: Lead, silver. Men Employed: Average, 1. Remarks: Idle.

INDEPENDENCE MINING CO., LTD.

INLAND EMPIRE MINING & MILLING CO.

INSPIRATION LEAD CO., INC.

INTERNATIONAL MINES, LTD.

IONE MINING CO.

IVANHOE MINING CO., LTD.

**JACK WAITE MINING CO.**


**JIM BLAINE SILVER SYNDICATE, LTD.**


**JUNO MINES CORP.**


**KENNAN MINING CO.**


**KING OF PINE CREEK MINING CO.**


**LANSING SILVER-LEAD MINING CO.**


**LEAD BLOSSOM MINING & MILLING CO.**


**LEROY GOLD & COPPER CO., LTD.**

Office: Wallace. Officers: G. F. Damm, Pres.; C. E. Clarke, Sec., both of Wallace. Inc.: Aug. 2, 1897. Capital: 1,000,000 shares; par value $1; all
shares issued. **Property:** Leroy group; 5 patented claims, unorganized dist.; Adair. **Ore:** Copper-gold. **Remarks:** Idle.

**LIBERAL KING MINING CO.**
Office: Wallace. Officers: C. J. Whittemore, Pres., Seattle, Wash.; H. J. Hull, Sec., Wallace. **Inc.:** June 12, 1928. **Capital:** May 24, 1933, increased capital from 1,500,000 shares common to 3,000,000 shares; par value 10c; 2,353,089 shares issued. **Property:** 21 unpatented claims, Yreka dist.; Kellogg. **Development:** Approximate total development, 11,922 ft. **Plant:** Electrically driven 850 cu. ft. capacity I-R compressor; complete mining equipment. **Ore:** Lead, zinc, copper and silver. **Men Employed:** Average, 13. **Remarks:** Development work during the year: Sinking, 416 ft.; Drifting, 700 ft.; Crosscutting, 310 ft.

**LINCOLN MINING CO.**
Office: Wallace. Officers: Percy J. Power, Pres., Union Guardian Bldg., Detroit, Mich.; Toimi Lehtola, Sec., Kellogg. **Inc.:** July 9, 1923. **Capital:** May 7, 1928, increased to 2,000,000 shares common; par value 10c; 30,000 shares preferred; par value $10; 1,191,441 shares common, 2875 shares preferred issued. **Property:** Silverado group: 31 unpatented, 2 patented claims, Evolution dist.; Osburn; some of the claims under contract of purchase from Edgar R. Kogelschatz, Detroit, Michigan. (All but 6 claims have been leased to the Silver Dollar Mining Company for 99 years). **Development:** Principally by 1 tunnel, 7800 ft. long and a perpendicular shaft 570 ft. deep, 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:** 1 cent assessment levied March 6, 1940.

**LINFOR COPPER CO.**
Office: 745 Peyton Bldg., Spokane, Wash. Officers: W. A. Beaudry, Pres.; R. P. Woodworth, Sec., both of Spokane, Wash. **Inc.:** July 28, 1919. **Capital:** 1,500,000 shares; par value 10c; 500,000 shares issued. **Property:** 2 patented and 3 unpatented claims, unorganized dist.; Linfor. **Ore:** Copper-silver. **Remarks:** Idle.

**LOG CABIN MINING & MILLING CO., LTD.**
Office: Wallace. Officers: Otto A. Olsson, Sec., Wallace. **Inc.:** Nov. 21, 1908. **Capital:** 1,000,000 shares; par value $1; 500,000 shares issued. **Property:** Log Cabin group; 4 unpatented claims, Placer Center dist.; Wallace. **Development:** By 2 tunnels: No. 1, 200 ft. long; No. 2, 80 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

**LOMBARDY MINING & MILLING CO.**
Office: Kellogg. Officers: Peter Albinola, Pres.; W. L. Tuson, Sec., both of Kellogg. **Inc.:** March 17, 1899. **Capital:** 1,500,000 shares; par value 10c; 855,397 shares issued. **Property:** Lombardy group; 15 patented claims, Yreka dist.; Kellogg. **Development:** By 3 tunnels and 1 shaft. **Plant:** Hoist, compressor and mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

**LUCKY BOY MINING & CONCENTRATING CO., LTD.**
Office: Mullan. Officers: S. E. Shatto, Pres., Mullan. **Inc.:** Jan. 12, 1907. **Capital:** 1,000,000 shares; par value $1; 412,950 shares issued. **Property:** Lucky Boy group; 31 unpatented claims, Hunter dist.; Mullan. **Development:** By 11 tunnels, the principal of which is 2600 ft. long. **Ore:** Lead-silver. **Remarks:** Report not filed for 1940.

**MAINE-STANDARD MINING CO., LTD.**
Office: Wallace. Officers: Carlton Fox, Pres., Washington, D. C.; Otto A. Olsson, Sec.-Mgr., Wallace. **Inc.:** March 4, 1907. **Capital:** 1,500,000 shares; par value $1; 598,373 shares issued. **Property:** Maine-Standard

MARSH MINES CONSOLIDATED

MERGER MINES CORPORATION
Office: 644-645 Peyton Bldg., Spokane, Wash. Officers: Morris Pearson, Pres.; J. M. Wibon, Sec., both of Spokane, Wash. Inc.: Filed in Idaho, March 3, 1931. Capital: 3,000,000 shares; par value $1; Nov. 4, 1936, reduced capital stock from $3,000,000 to $490,000 divided into 3,900,000 shares common; par value 10c and 100,000 shares preferred stock, par value $1; shares issued, common 2,102,868; shares of preferred issued, none. Property: Bear Top group; 9 patented claims, Summit dist.; Murray; Merger Silver or Aetna group near Osburn. Development: Bear Top group: Approximate total development, 4800 ft.; Merger Silver or Aetna; by 3 tunnels: No. 1, 800 ft. long; No. 2, 1500 ft. long and No. 3, 200 ft. long. Plant: 3 I-R hoists, 2 compressors, complete mining equipment. Ore: Lead. Remarks: Report not filed for 1940.

MILITARY MINING & MILLING CO., LTD.

MIDLAND MINING COMPANY

MINERAL FARM MINING CO., LTD.

MINERAL MOUNTAIN MINING & MILLING CO.
MINERAL POINT MINING CO.


MOHAWK MINING CO.


MONARCH METALS CO.


MOONLIGHT MINING CO.


MOUNTAIN CON MINING CO., INC.


MOUNTAIN QUEEN MINING CO., LTD.


MURRAY HILL MINING CO.


NABOB SILVER LEAD CO.

NATIONAL COPPER MINING CO., LTD.
Officers: Wm. J. Stratton, Pres.; C. O. Dunlop, Sec., both of Spokane, Wash. Inc.: Sept. 22, 1906. Capital: 2,500,000 shares; par value $1; issued unknown.

NEVADA-STEWART MINING CO.

NEW HOPE MINING CO., LTD.

NEW JERSEY CONSOLIDATED MINES CO.
Officers: W. J. Stratton, Pres.; W. W. Smith, Sec., both of Spokane, Wash. Inc.: June 20, 1928. Capital: 5,000,000 shares; par value 10c; 1,281,478 shares issued.

KING OF PINE CREEK GROUP
Property: King of Pine Creek group; 6 patented, 3 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.

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.

NIAGARA PLACER MINING CO.

NINE MILE MINING CO.

NORTH BUNKER HILL MINING CO., LTD.
NORTH STAR MINING COMPANY

NORTH STAR MINING & DEVELOPMENT CO.

OOM PAUL CONSOLIDATED MINING CO.

PAPUREL & GRAHAM MOUNTAIN MINING CO.

PARAMOUNT MINES CORPORATION

PARK COPPER & GOLD MINING CO., LTD.

PEARSON MINING CO.

PIONEER MINING CO., LTD.

PLAINVIEW MINING CO., INC.
POLARIS MINING COMPANY

PONY GULCH MINE

PROCTOR KNOTT MINING COMPANY

PROGRESS GOLD MINING CO.

PURITAN MINING CO., LTD.

RAINBOW MINING & MILLING CO., LTD.
(For Capital Structure See Benewah County.) Property: Rainbow No. 1 group; 22 patented claims; Evolution dist. Development: 5845 ft. of tunnels; 500 ft. diamond drilling. Ore: Silver-lead-zinc-copper.

RAMONA MINING CO.

RAY JEFFERSON MINING CO.

REINDEER-QUEEN MINING CO.

RHODE ISLAND MINING CO., LTD.

RIVERSIDE COPPER MINING CO., LTD.

ROB ROY MINING CO.

RUTH CONSOLIDATED MINING & MILLING CO.

ST. ELMO SILVER MINES CORPORATION

ST. JOE LEAD & SILVER MINES CO.

SAINT LOUIS & IDAHO MINING & MILLING CO.
SHOSHONE COUNTY

SAMSON MINING & DEVELOPMENT CO., LTD.


SAN FRANCISCO MINING CO., LTD.


SHERMAN LEAD CO.

Office: Wallace. Officers: Jerome J. Day, Pres.; S. F. Heitfeld, Sec., both of Wallace. Inc.: Nov. 4, 1918. Capital: 3,500,000 shares; par value 25c; Aug. 27, 1928, increased 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, more than 35,382 ft., consisting principally of Sherman No. 5 tunnel, 5943 ft. long; Sherman No. 6 tunnel, 2000 ft. long; Oreano No. 2 tunnel, 7441 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. Remarks: "Development work during the year: Tunnels, 644 ft.; Raising, 16 ft.; Drifting, 540 ft.; Crosscutting, 21 ft."

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; 5 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: Report not filed for 1940.

SIGNAL MINING COMPANY

Office: Kellogg. Officers: T. R. Mason, Pres., Kellogg; Ben H. Miles, Sec., Spokane, Wash. Inc.: June 16, 1906 as Bobby Anderson Group Mining Company; name changed Oct. 30, 1939. Capital: 1,500,000 shares; par value $1; March 25, 1929, increased to 2,000,000 shares; par value $1; Feb. 28, 1938, reduced capital stock from $2,000,000 to $20,000,000, divided into 2,000,-000 shares @ 1c; 775,231 shares issued. Property: Bobby Anderson group; 2 patented and 14 unpatented claims, Yreka dist.; Kellogg. Development: Principally by 1 tunnel 1300 ft. long and an inclined shaft 100 ft. long. Plant: Electrically driven compressor and hoist; complete mining equipment and camp. Ore: Lead-zinc-silver. Remarks: Report not filed for 1940.

SILVER BOWL, INC.


SILVER CIRCLE MINING CO.

Office: Murray. Officers: Michael Lorenzi, Pres., Wallace; L. W. Defenbach, Sec.-Mgr., Murray. Inc.: May 3, 1937. Capital: 3,000,000 shares; par value 10c; 1,600,000 shares issued. Property: 6 unpatented claims, Summit
MINING INDUSTRY OF IDAHO


SILVER CRESCENT, INC.

SILVER DALE & BIG HILL MINING CO.

SILVER DOLLAR MINING CO.
Office: Spokane, Wash. Officers: C. O. Dunlop, Pres.-Mgr.; W. T. Anderson, Sec., both of Spokane, Wash. Inc.: Feb. 6, 1929 as Stratton Silver Summit, Inc.; name changed June 6, 1934. Capital: 10,000,000 shares; par value 10c; Nov. 25, 1934, reduced capital stock from $1,000,000 to $175,000 divided into 1,000,000 shares common, Class A stock and 750,000 shares preferred, par value remaining 10c; 995,366 Class A Common and 510,541 shares preferred issued. Property: 42 unpatented claims, Evolution dist.; Osburn, 39 of which are held under 99 year lease. Development: Principally by 1 tunnel 8,000 ft. long; approximate total development, 13,050 ft. Plant: 550 cu. ft. I-R compressor, electrically driven; 125 h. p. Electric Coeur d’Alene hoist; complete mining equipment. Ore: Lead-silver. Men Employed: Average, 30. Remarks: “Pump and larger motor on hoist installed during the year. Development work: Tunnels, 150 ft.; Sinking, 350 ft.; Drifting, 400 ft.; Crosscutting, 100 ft.” July 1, 1939 levied a 1c assessment on Class “A” stock.

SILVER LODE MINING & MILLING CO.

SILVER REEF MINES, INC.

SILVER STANDARD MINING CO.
SILVER STRIKE MINING COMPANY

SILVER SUMMIT MINING CO.

SILVER SYNDICATE, INC.

SISTER MINING & MILLING CO., LTD.

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, 9 patented claims, Hunter dist.; Mullan. Development: Approximately 4000 ft. of workings, the principal of which are No. 2 tunnel, 3000 ft. long, and No. 1 tunnel, 900 ft. long. Plant: Electrically driven 3-drill compressor. Ore: Copper-silver. Remarks: Idle.
SONORA MINING & MILLING CO.

SPOKANE TUNNEL MINING CO.

SQUARE DEAL MINING & MILLING CO., LTD.

STANLEY MINING CO.

STERLING MINING CO., LTD.

SUCCESS MINING CO., LTD.

SULLIVAN MINING CO.
SHOSHONE COUNTY 219

the cadmium plant. **Ore:** Lead-zinc-silver. **Men Employed:** Average, 92. **Remarks:** Development work during the year: Raising, 86.5 ft.; Sinking, 167.4 ft.; Drifting, 694.6 ft.; Crosscutting, 256.4 ft.

SUNRISE MINE CO.
Office: 519 Waverly Place, Spokane, Wash. **Officers:** C. Fred Kratzer, Sec., Spokane, Wash. **Inc.:** Sept. 17, 1928. **Capital:** 1,500,000 shares; par value 10c; 1,381,409 shares issued. **Property:** 9 patented, 8 unpatented claims, Summit dist.; Wallace. **Development:** By 3 tunnels, the longest being 1900 ft. **Ore:** Lead-zinc-silver. **Remarks:** Annual assessment work only.

SUNSHINE CONSOLIDATED, INC.
Office: Kellogg. **Officers:** George P. Hardgrove, Pres., Seattle, Wash.; W. T. Simons, Sec., Kellogg; W. M. Yeaman, Mgr., Yakima, Wash. **Inc.:** April 21, 1934. **Capital:** 3,000,000 shares; par value 25c; 2,860,000 shares issued. **Property:** Yankee group; 15 patented claims and 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels, the principal one being 2500 ft. long; approximate total development, 5000 ft. **Ore:** Silver-lead. **Remarks:** Report not filed for 1940.

SUNSHINE MINING CO.
Office: Kellogg. **Officers:** R. M. Hardy, Pres.; C. M. Hull, Sec., both of Yakima, Wash.; R. D. Leisk, Mgr., Kellogg. **Inc.:** Jan. 3, 1921. **Capital:** 1,500,000 shares; par value 10c; 1,488,821 shares issued. **Property:** Yankee group; 15 patented claims and 3 unpatented claims, Big Creek, Yreka dist.; Kellogg. **Development:** By 5 tunnels, the principal of which is 2000 ft., and 2 shafts, the principal vertical shaft 3900 feet deep and an inclined shaft 2556 ft. in depth; approximate total development, 116,196.6 ft. **Plant:** MINE: 3 Worthington compressors, 2 hoists, all electrically driven; complete mining equipment, buildings and camp. MILL: 1000-ton concentrator, including fine grinding and flotation. **Ore:** Silver. **Men Employed:** Average, 624. **Remarks:** Development work during the year: Sinking 438.3 ft.; Drifting, 5784 ft.; Crosscutting, 2706 ft.; Raising, 5450 ft. In addition to the property listed above the Sunshine owns jointly with the Polaris Mining Company the following unpatented claims: L. B. M. Lode, I. X. L. Lode, Sis Bowen, V. L. Lode, X. Lode, O. K. Lode, Elk, Eleventh Hour, Emma Jane, Hecla No. 2, Morning Star, Mary Milliron.

SUNSHINE MINING CO., LTD.
Office: Wallace. **Officers:** Pete Lorenzi, Vice-Pres.; H. J. Hull, Sec., both of Wallace. **Inc.:** Jan. 5, 1907. **Capital:** 2,700,000 shares; par value $1; 922,412 shares issued. **Property:** Sunshine group; 4 patented, 12 unpatented claims, Beaver dist.; Wallace. **Development:** More than 6000 ft. of underground workings. **Plant:** Electrically driven I-R 5-drill compressor; complete mining equipment and camp. **Ore:** Lead-zinc-silver. **Remarks:** Assessment work only.

SUNSHINE PREMIER MINING CO.
**Officers:** E. Boulton, Pres., 1026 Joshua Green Bldg., Seattle, Wash.; F. C. Keane, Sec.,Wallace. **Inc.:** Not incorporated in Idaho. **Capital:** 3,500,000 shares; par value 10c; 1,265,154 shares issued. (Shares of this company were issued in lieu of two shares of United Mines and Metals Corporation for one share of Sunshine Premier and no stock has yet been sold in this new company until it is registered with the S. E. C.). **Property:** 3 patented claims, Hunter dist., Mullan. **Development:** Approximate total development, 13,000 ft. **Plant:** MINE: 100 h. p. Gardner-Denver compressor; complete mining equipment. **Ore:** Silver-lead. **Men Employed:** Average, 10. **Remarks:** Development work during the year: Tunnels, 700 ft.; Crosscutting, 300 ft.
TAMARACK & CUSTER CONSOLIDATED MINING CO.
Office: Wallace. Officers: Jerome J. Day, Pres.; Paul B. Jessup, Sec., both of Wallace. Inc.: Aug. 6, 1912. Capital: 5,000,000 shares; par value $1; all shares issued. Property: Tamarack & Custer; 78 patented claims, Lelande and Placer Center dists.; Gem. Development: Length of the principal tunnels: No. 1, 490 ft. long; No. 2, 3350 ft. long; No. 3, 2630 ft. long; No. 4, 10,119 ft. long; No. 5, 12,227 ft. long; No. 6, 8916 ft. long and No. 7, 11,557 ft. long. The principal vertical shafts are: 622 ft., 187 ft. and 463 ft. deep. The principal inclined shaft is 605 ft. long and gains a vertical depth of 600 ft. Total development, approximately 83,330 ft. 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 house, and camp. Mill: 300 ton concentrator. Ore: Lead-zinc-silver. Remarks: Development work during the year: Tunnels, 561 ft.; Crosscutting, 107 ft.; Drifting, 454 ft., and Raising, 308 ft. Constructed and placed in operation 300 ton concentrator.

TEDDY MINING & MILLING CO., LTD.
Office: Kellogg. Officers: Harvey A. Miller, Pres.; L. D. Hudson, Sec.-Mgr., both of Kellogg. Inc.: Dec. 1, 1904. Charter forfeited Nov. 30, 1940. Capital: 1,000,000 shares; par value $1; increased on April 26, 1930, to 1,500,000 shares; 464,763 shares issued. Property: Teddy group; 9 unpatented claims, Yreka dist.; Kellogg. Development: More than 2350 ft. of tunnels, the principal one of which is approximately 1500 ft. long. Ore: Lead-zinc-silver. Remarks: Retimbering and surface work during the year.

THOMAS MINES, INC.
Office: Wallace. Officers: Otto A. Olsson, Sec., Wallace. Inc.: Jan. 8, 1904, as Iron King Mining Co., Ltd.; name changed July 19, 1935. Capital: 1,000,000 shares; par value $1; July 19, 1935, increased capital stock to 2,000,000; reduced par value to 10c; 1,423,850 shares issued. Remarks: “Company has no property.”

TRADE DOLLAR MINING CO., LTD.

TREASURE VAULT MINING CO., LTD.

UNITED AMERICAN MINES CO., LTD.

UNITED LEAD-ZINC MINES COMPANY
UNIVERSAL METALS CO.

VENDETTA CHIEF MINING COMPANY

VERDE-MAY MINING CO., LTD.

VIENNA-INTERNATIONAL MINING & MILLING CO.

VINDICATOR MINING CO.

WALLACE IDAHO LEAD MINES, INC.

WALLACE MINING COMPANY

WALLACE SILVER-LEAD MINES COMPANY
Office: Wallace. Officers: Walter H. Hanson, Pres.; Chas. E. Horning, Sec., both of Wallace. Inc.: Aug. 17, 1927. Capital: 5,000,000 shares; par value 10c; 1,797,132 shares issued. Property: 1 patented, 5 unpatented claims, Placer Center dist.; Wallace. Development: By 3 tunnels, the principal tunnel 5261 ft. Approximate total development to date, 7876 ft.
MINING INDUSTRY OF IDAHO


WALL STREET MINING CO.

WASHINGTON-IDAHO MINING CO.

WASHINGTON MINING COMPANY

WEST BELL MINING CO., LTD.

WEST HECLA MINING CO.

WEST STAR MINING COMPANY

WESTERN PACIFIC MINING CO.
Office: Wallace. Officers: J. Fred Markwell, Sec., Wallace. Inc.: April 6, 1922. Capital: 2,500,000 shares; par value 1c; 1,250,000 shares issued. Property: South Side group; 10 patented and 4 unpatented claims, Lelande dist.; Wallace. (11 claims are held by the West Star Mining Company under a bond and lease.) Ore: Lead-silver. Men Employed: Average, 2. Remarks: Annual assessment work only.
WESTERN UNION MINING CO.

WILLOW CREEK MINING CO.

WOLVERINE MINING COMPANY, LTD.

WONDERFUL MINING CO., LTD.

WYOMING MINING & MILLING CO., LTD.

YAKIMA-SHOSHONE MINING CO.

YREKA MINING COMPANY
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SHOSHONE COUNTY


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KNOW YOUR IDAHO

1911

Declared as legal holidays in Idaho were the following: Each Sunday, New Year's Day, Washington's Birthday, Decoration Day, Idaho Pioneer Day, Independence Day (Fourth of July), Labor Day, Christmas Day, general election day, and "any public fast, thanksgiving or holiday declared either by the President or the Governor." To the above list has been added Armistice Day.

1931

By legislative enactment the syringa was designated Idaho's official state flower. This white flower, which flourishes in the mountainous areas, had been closely identified with the state since 1893 when it was selected and used as a feature of the Idaho exhibit at the Chicago World's Exposition.
TETON COUNTY

County Seat: Driggs. Area: 463 sq. miles. Population: 3,601. Principal Industries: Agriculture, live stock and mining. Transportation: Ashton-Victor branch of the Union Pacific. Teton State highway and an excellent system of county roads. Mineral Resources: Coal, phosphate rock, natural gas, limestone and asbestos. There are excellent possibilities for the discovery of petroleum. This is one of the few counties in the State that has beds of commercial coal.

SUPERIOR COAL MINING CO.


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That Idaho contains 84,313 square miles, or 53,960,320 acres. The land is classified as follows: 10,000,000 acres of agricultural land; 20,000,000 acres of timber; 18,960,320 acres of grazing land; and 5,000,000 acres of mineral land.

Idaho's 1940 population is estimated at 500,000 people. The Idaho birth rate is 21.58 per thousand population. The death rate is 9.8 per thousand, as compared with a national average of 10.5.

Idaho has a wide range of altitudes, ranging from 700 to 12,000 feet. While some two-thirds of Idaho is mountainous, there are broad fertile plains. Idaho has a remarkable amount of sunshine annually and the climate is unusually delightful and healthful.

With deer, elk, moose, antelope, mountain goats, big-horn sheep and bear among its interesting wildlife population, Idaho ranks easily as the nation's leading big game state. No other section can offer the same hunting thrills and assurance of success.
TWIN FALLS COUNTY


MINERAL RECOVERIES, INC.

IDAHO'S MINERAL RESOURCES

ANNUAL METAL PRODUCTION IN IDAHO SINCE 1915

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
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<td>1940</td>
<td>37,652,600</td>
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Idaho's annual average productions: 22,685,000 bushels of potatoes; 24,742,000 bushels of wheat; 494,000 tons of sugar beets; 1,404,000 bags of (100 pounds) of beans; 1,256,000 bushels of corn; 1,423,000 bushels of dry peas; 12,000 tons of prunes; 820,000 sacks (100 pounds) of onions.

Idaho is a foremost fruit state, her orchards producing large quantities of excellent apples, cherries, plums, pears and prunes.

Idaho leads the nation in per acre average production of sugar beets, with an average of nearly 16 tons. Idaho's average per acre onion production is 300 sacks. Idaho is second in per acre potato production, 250 bushels. Idaho ranks among the leaders in the per acre average production of wheat, dry peas and dry beans.
VALLEY COUNTY

County Seat: Cascade. Area: 3779 sq. miles. Population: 4,035. Principal Industries: Agriculture, stock raising, lumbering and mining. Transportation: State Highway up Payette River, the McCall-Warren-Edwardsburg-Yellow Pine-Landmark-Cascade Loop and Cascade-Bear Valley road, as well as numerous forest service roads and trails. The only railroad is the McCall branch of the Union Pacific. Relief: The county, as a rule, is high and rugged with few level spaces along the many rivers. The Payette Lakes, the largest in southern Idaho, occur at the head of the Payette River, occupying the upper end of the only large valley in the county. Mineral Resources: Gold, lead, silver, zinc, mercury, copper, tungsten, molybdenum and monazite. On account of the very difficult problem of transportation the mineral resources of this county have received scant development. Until recent years, only the placer and free lode gold could be successfully handled.

The building of roads by the forest service has been accompanied by a corresponding development in mining and this county is fast becoming one of the foremost mining districts of the state.

It has great possibilities and presents may opportunities to the prospector, operator and investor.

Review of Year's Operations

Bradley Mining Company was the largest operation in Valley County during the year. An average crew of 52 men was employed. The mine is worked from the surface by open pit method. The mill building and ore bin were enlarged and additions made to the plant during 1940, as follows: 8’x48” Hardinge mill. 3’x8’ tube mill, 8 Denver Sub-A flotation cells and a 175 h.p. diesel plant. At the pit a Bucyrus Erie 20-B shovel, 1 Cat D-7 tractor and 1 Gardner Denver D-99 drill.

Antimony Gold Ores Company plan extensive development work on its Sugar Creek group of claims during 1941. This property is the northeast extension of the structure being exploited by the Bradley Mining Company in its open pit mining operation. J. J. Oberbillig is president-manager and Charles V. Genoway is secretary, both of Boise.

Copper Camp Mining Co. report assessment work only on 20 claims in the Edwardsburg district.

Annual labor was performed on 8 unpatented claims in the Yellow Pine district by the Copper Cliffs Mining Co.

Far West Gold-Silver Mining Company hold a 50-year royalty lease on 1620 acres placer ground on Fitsum Creek.

The Gold Syndicate, Inc. report that equipment was installed during the year to operate its property near Donnelly by the open pit method. James O. Galloway of Boise is president and manager. A crew of 9 men was employed.

An average crew of about 10 men was employed under the supervision of Leverett Davis rehabilitating the Hall Interstate Mining Co. property at Deadwood.

Idaho Minerals Company located in the Yellow Pine district was remodeled and assessment work performed on 48 unpatented claims during the year.

Rapid Creek Mining Co., Ltd. report prospecting and annual labor on 42 unpatented mining claims located near McCall.

It is the intention of the Salmon River Gold Ores Company to further develop its 12 unpatented claims in the Big Creek district during the coming year.

Smith Creek Hydraulic Mining Company, Inc. report assessment work only on 19 placer claims held under lease and option in the Edwardsburg district.
United Mercury Mines Co. employed an average crew of 8 men. This company is the owner of the Cinnabar, Meadow Creek and East Fork groups that are optioned to the Bradley Mining Company.

Profile-Tamarack Mines Company extended its Spring Creek tunnel and it is stated is considering core drilling on the Spring Creek extension of the property. Henry T. Abstein is in direct charge of operations.

The Lucky Lad Mining Company, located on Pistol Creek, developed its holdings to some extent. Other activity in the vicinity of the Lucky Lad was performed by Kimball and Jensen, James Leahy, Harold Seaward and Cleve Warham. Indications point to another producing community in this area which has been held back for years by inadequate transportation facilities. This area embraces the Artillery Dome and Seaward districts.

Assessment work was performed by claimholders on Pistol Creek, Burnt Log Creek, Profile Gap, and in the Thunder Mountain area. Many organized companies did not send in reports to this office as required by law, therefore no mention is made of them.

Daniel C. McRea and son, Rob McRea, developed and operated the Sunday mine and mill near Edwardsburg. An average crew of 8 men was employed.

The mining districts of Valley County are tapped by unimproved dirt roads and pack trails. Landing fields are located at Cascade, Idaho Minerals Company, Yellow Pine, Stibnite and Edwardsburg. This county presents a very fertile field for the search and exploitation of the so-called “strategic minerals”.

**ANTIMONY GOLD ORES COMPANY**

**Office:** 256 Sonna Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; Charles V. Genoway, Sec., both of Boise. **Inc.:** Feb. 11, 1935. **Capital:** 3,500,000 shares; par value 10c; all shares issued. **Property:** 180 unpatented claims, Yellow Pine dist.; Stibnite. **Plant:** MINE: Modern living quarters to accommodate 12 men. **Development:** “The development of these various claims consists of shallow tunneling and open cut work to the extent of about 5,000 ft. The Sugar Creek Group belonging to the Antimony Gold Ores Company is the north-east extension of the East Fork structure now under operation as an open-pit mine by the Bradley Mining Company.” **Ore:** Gold, silver, and antimony. **Remarks:** “The Antimony Gold Ores Company will carry on extensive development work on all the above mentioned claims and especially so on the Sugar Creek Group, during the coming year.”

**BRADLEY MINING CO.**

**Office:** 425 Crocker Bldg., San Francisco, Calif. **Officers:** Worthen Bradley, Pres.; E. A. Griffen, Sec., both of San Francisco, Calif.; H. D. Bailey, Statutory Agent, Stibnite. **Inc.:** July 28, 1938. **Capital:** 750,000 shares; par value $1; 688,000 shares issued. **Property:** 21 patented and 171 unpatented claims, Yellow Pine dist.; Stibnite. (Bradley Mining Co. holding property under option from United Mercury Mines Co., Boise.) **Development:** Principally by 1 tunnel, 1420 ft. long; approximate total development, 15,975 ft. **Plant:** MINE: 1 - 900 cu. ft. and 1 - 300 cu. ft. I-R compressor; 4 diesel trucks, etc.—quarry to mill. **MILL:** 400 ton fine grinding, all flotation. **Ore:** Gold, silver, antimony. **Men Employed:** Average, 52. **Remarks:** Additions made during the year: “8’x48’ Hardinge mill; 3’x8’ tube mill, 8 Denver Sub A cells, 30” Picking belt. Mill building and ore bin enlarged; 175 h.p. Caterpillar diesel plant and building. At open pit 1-Bucyrus Erie 20-B shovel, 1-Cat D-7 tractor (total 2), 1-Gardner Denver D-99 drill.”

**COPPER CAMP MINING CO.**

**Office:** Edwardsburg, (via Cascade.) **Officers:** Napier Edwards, Sec.; Wm. A. Edwards, Mgr., both of Edwardsburg (via Cascade). **Inc.:** Oct. 19, 1928. **Capital:** 2,500,000 shares; par value $1; 1,462,000 shares issued. **Property:**
Copper Camp and Dixie: 20 claims, Edwardsburg district. **Development:** By 8 tunnels, the principal one of which is 545 ft. long. **Ore:** Copper-gold. **Remarks:** "Mine dormant during year except for assessment work."

**COPPER CLIFFS MINING CO.**
Office: Yellow Pine. **Officers:** J. F. Rilance, Pres.; G. H. Weber, Sec., both of Portland, Ore.; J. F. Thompson, Mgr., Yellow Pine. **Inc.:** Aug. 17, 1931. **Capital:** 25,000 shares; par value $1; 13,850 shares issued. **Property:** Copper Cliffs group; 8 unpatented claims, Yellow Pine dist.; Yellow Pine. **Development:** Approximate total development, 694 ft. **Ore:** Copper-gold. **Men Employed:** Average, 2. **Remarks:** Annual assessment work only.

**DEADWOOD MINING CO., LTD.**
Office: Boise. **Officers:** Fred E. Baker, Pres., Mayfield; Chas. W. Mack, Sec., Boise. **Inc.:** June 10, 1921. **Capital:** 1,000,000 shares; par value 10c; 306,634 shares issued. **Property:** Deadwood group; 8 unpatented claims, Deadwood dist.; Knox. **Development:** Principally by 1 tunnel 600 ft. long. **Ore:** Lead-silver. **Remarks:** Report not filed for 1940.

**FAR WEST GOLD-SILVER MINING CO.**
(See Idaho County for officers and capital structure.) **Property:** 50-year royalty lease on 1620 acres placer ground on Fitsum Creek, Valley County.

**GOLD FORK MINING CO.**
Office: 609 Idaho Bldg., Boise. **Officers:** W. E. Pierce, Pres.; W. Clyde Cox, Sec., both of Boise. **Inc.:** Jan. 18, 1916. **Capital:** 2,000 shares; par value $100; all shares issued. **Property:** 20 patented claims, Gold Fork dist.; Roseberry. **Ore:** Placer gold. **Remarks:** Idle.

**GOLD SYNDICATE, INC., THE**
Office: Boise. **Officers:** James O. Galloway, Pres.-Mgr., Box 1837, Boise; John R. Black, Sec., Carlson Bldg., Pocatello. **Inc.:** Jan. 26, 1940. **Capital:** 2,000,000 shares; par value 5c; 1,305,500 shares issued. **Property:** 167 unpatented claims, Unorganized dist.; Donnelly. **Development:** By open pit. **Plant:** MINE: 2-ton Mack truck; 2-ton Dodge truck; Dragline, 1-1/2 yd.; Trommel screen, 2 caterpillars, carryall, bulldozer, pumping plant, sluice boxes, cook and bunk house, electric plant, switch board, etc. **Ore:** Gold and silver. **Men Employed:** Average, 9. **Remarks:** All equipment installed during the year.

**HALL INTERSTATE MINING CO.**
Office: Boise. **Officers:** Sumner Hall, Pres.; Chas. W. Mack, Sec., both of Boise. **Inc.:** Oct. 30, 1915. **Capital:** 1,000,000 shares; par value 25c; May 28, 1940 increased capital stock to $500,000 divided into 2,000,000 shares, par value 25c; 155,500 shares issued. **Property:** Hall group; 5 unpatented claims, Deadwood dist.; Knox. **Development:** By 2 tunnels: Independence, 7000 ft. long; Anderson, 3000 ft. long. **Ore:** Lead-silver. **Remarks:** Report not filed for 1940.

**HOLCOMB CO., LTD.**
Office: Boise. **Officers:** Ario Pardee, Sec., 1600 Walnut St., Philadelphia; Chas. W. Mack, Mgr., Boise. **Inc.:** April 20, 1908. **Capital:** 500,000 shares; par value $1; 169,280 shares issued. **Property:** 16 patented claims, Thunder Mountain dist.; Stibnite. **Ore:** Gold.

**IDAHO MINERALS COMPANY**
Office: 256 Sonna Bldg., Boise. **Officers:** J. J. Oberbillig, Pres.-Mgr.; Chas. V. Genoway, Sec., both of Boise. **Inc.:** Sept. 21, 1933. **Capital:** 3,500,000 shares; par value 10c; all shares issued. **Property:** 48 unpatented claims, Yellow Pine dist.; Yellow Pine. **Development:** Principally by 1 tunnel, 2200 ft. long; approximate total development, 2900 ft. **Plant:** Modern liv-
ing quarters to accommodate 12 men. Ore: Gold, silver and antimony. 
Remarks: Annual assessment work and considerable retimbering during 
the year.

INDEPENDENCE MINES & POWER CO. 

LUCKY LAD MINING COMPANY 

RAPID CREEK MINING CO., LTD. 
Office: Cascade. Officers: F. M. Kerby, Pres.; M. D. Kerby, Sec., both of McCall. Inc.: Nov. 1, 1928. Capital: 1,000,000 shares; par value 10c; 500,000 shares issued. Property: Rapid Creek group; 42 unpatented claims; McCall. Development: By 2 short tunnels. Ore: Gold-silver. Remarks: Assessment work and prospecting during the year.

RED METALS CONSOLIDATED, INC. 

SALMON RIVER GOLD ORES COMPANY 
Office: 256 Sonna Bldg., Boise. Officers: J. J. Oberbillig, Pres.-Mgr.; Chas. V. Genoway, Sec., both of Boise. Inc.: May 24, 1938. Capital: 3,000,000 shares; par value 10c; 330,000 shares issued. Property: 12 unpatented claims, Big Creek dist.; Big Creek. Development: 300 ft. of tunneling on the north side of Logan Creek. Ore: Gold and silver. Remarks: "It is the intention of the company to carry on extensive development work during the coming year."

SMITH CREEK HYDRAULIC MINING CO., INC. 

SOUTH SALMON PLACER MINING CO., LTD. 

UNITED MERCURY MINES CO. 
dist.; Cascade. **Development:** Approximate total development, 4 miles. **Ore:** Gold, silver, antimony, copper and lead. **Men Employed:** Average, 8. **Remarks:** "You will note that the United Mercury Mines Co. is the owner of the Cinnabar Group. This group lies directly east of the East Fork and Meadow Creek. The Meadow Creek Group and East Fork Group where open pit mining is carried on is optioned from the United Mercury Mines Co."

**YELLOW PINE CO.**

**Office:** 922 Crocker Bldg., San Francisco, Calif. **Officers:** Worthen Bradley, Pres., E. A. Griffen, Sec., both of San Francisco, Calif.; H. D. Bailey, Mgr., Stibnite. **Inc.:** Filed in Idaho, May 25, 1928. **Capital:** 200,000 shares; par value $1; 62,605 shares issued. **Property:** Meadow Creek mine; 9 patented and 518 unpatented claims, Yellow Pine dist.; Stibnite. **Development:** By 6 tunnels, the principal one being 7364 ft.; approximate total development to date, 24,447 ft. **Plant:** **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:** 200-ton fine grinding flotation followed by cyanidation. **POWER:** South Meadow Creek hydroelectric plant 90 h.p., Pelton wheel 430' head, 3800' steel pipe, 720 acre ft. storage (to be doubled). Sugar Creek plant—2-500 h.p. units, Pelton wheels, 520' head, 11,000' redwood pipe, 1620' steel penstock. **Ore:** Mercury, gold, silver, antimony. **Remarks:** This property is held under option by the Bradley Mining Co.

**BIBLIOGRAPHY**

See pages 6-7 for publisher's address, meaning of reference marks and abbreviations.


"Thunder Mountain Mining District," by Clyde P. Ross, vol. 28, No. 6, Economic Geol., 1933.


WASHINGTON COUNTY

County Seat: Weiser. Area: 1,479 sq. miles. Population: 8,853. Principal Industries: Agriculture, stock raising and mining. Transportation: North and South Highway, Oregon Trail and well maintained county roads. The railroads serving the county are: The Union Pacific main line and Huntington-Robinette branch and the New Meadows branch. Rivers: Snake River forms western boundary and Weiser River flows southwesterly through the center of the county. Mineral Resources: Silver, copper, gold, lead, zinc, manganese, diatomaceous earth, pyrites, gypsum, clay, garnets and natural gas. History and future: Nearly all of the mineral resources occur in the mountain ranges that lie east of the Snake River. The principal district is known as the Mineral District and at one time had two blast furnaces in operation and was a large producer of silver. The district has been dormant for many years, however, and has almost reverted to its primitive condition. Nearly all of the ores are high-grade silver-copper ores, rather complex, but can be handled by modern flotation methods.

This district is one well worthy the attention of the operator and investor.

Review of Year's Operations

Consolidated Quicksilver Mining Corporation report development of the property during the year by a crosscut tunnel and core drilling. Complete mining equipment and camp were added in 1940. Francis L. Richardson is president and Frank Mortimer is secretary, both of Weiser.

Idaho Almaden Mines Company operated its property consisting of 1 patented and 30 unpatented claims about 22 miles northeast of Weiser. An average crew of 23 men was employed under the direct supervision of L. K. Requa, president and manager. The mine plant is composed of an air tugger hoist, 2 Gardner Denver compressors and complete mining equipment. The mill is a 50-ton Gould 3'x48' rotary furnace and condensing system. The camp consists of several residences, boarding house, bunk house and a school.

Flotation cells were added to the small mill of the Blue Dog mine on Munroe Creek 6 miles from Weiser originally designed to recover gold values by amalgamation. Operations were carried on by C. M. and Cecil S. Woods and R. A. Griffiths, all of Weiser, who own half the mine and lease the other half from William Van Sice of Weiser.

The Submarine Gold Mining Company, with an average crew of 10 men, operated a patented dredge which enables men to go down in the bottom of the river bed to search for the coarser gold. This company has a lease on the Snake River for approximately 16 miles on the Idaho side near Robinette, in addition to about 26 miles of the river on the Oregon side.

CONSOLIDATED QUICKSILVER MINING CORPORATION

Office: Boise. Officers: Francis L. Richardson, Pres.; Frank Mortimer, Sec., both of Weiser. Inc.: Jan. 27, 1940; name changed from Hoover Consolidated Quicksilver Mining Corp., March 9, 1940. Capital: 2,000,000 shares; par value 5c; 1,000,000 shares issued. Property: 60 unpatented claims, Hoover dist.; Weiser. Plant: Complete mining equipment and
WASHINGTON COUNTY

camp. Remarks: "The company expects to core drill this property this year to designate the depth and width of the cinnabar strata." Complete mining equipment and camp added during the year.

IDAHO ALMADEEN MINES COMPANY

PIONEER DRILLING CORPORATION

BIBLIOGRAPHY
See pages 6-7 for publisher's address, meaning of reference marks and abbreviations.


Idaho farm poultry flocks are one of the most consistent sources of farm income. This amounts to approximately $7,000,000 annually.
## COMPANIES INCORPORATED DURING 1940

### Reports Not Yet Filed

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**Address Details**

- **Salt Lake City, Utah**: Boise, Idaho
- **Boise, Idaho**: Wallace, Idaho
- **Spokane, Wash.**: 17 S.E. Union, Portland, Oregon
- **Payette, Idaho**: 309 W. 23rd St., Vancouver, Wash.
- **Boise, Idaho**: Salt Lake City, Utah
- **Whitebird, Idaho**: Emmett, Idaho
- **Wallace, Idaho**:_wallace, Idaho
- **Kellogg, Idaho**: Pocatello, Idaho
- **Weiser, Idaho**: Boise, Idaho
- **Paris Martin, Jr., Inc.**: Atlanta, Idaho
- **Missoula, Mont.**: Spokane, Wash.
- **Wilmington, Del.**: 205 Lumbermans Bldg., Portland, Oregon
- **Boise, Idaho**: Payette, Idaho
- **Silver City, Idaho**: Wall, Idaho
- **Clarkston, Wash.**: Wilsonian Apts., Seattle, Wash.
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<td>Tri Metals, Inc.</td>
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<td>Virmyra Gold Min. Co.</td>
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<td>C. E. Marr, Inc.</td>
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<td>W. A. Thielman, Pres.</td>
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<td>Route No. 7, Spokane, Wash.</td>
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<td>Wallace, Idaho</td>
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<td>25 Broadway, New York</td>
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MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD, AND ZINC IN IDAHO IN 1939—
FINAL ANNUAL FIGURES

U.S. BUREAU OF MINES REPORT
by
T. H. MILLER and PAUL LUFF

The total value of the metal output from mines in Idaho, was $29,794,144 in 1939 compared with $29,028,103 in 1938, an increase of nearly 3 percent. The total value of each metal except silver increased; zinc increased $718,216 and gold $460,215, but silver declined $588,404. Production of gold in Idaho in 1939 (116,662 fine ounces) was the largest since 1895; the gain over 1938 was due to increased output from lode mines as the output from placers declined. The quantity of silver decreased 9 percent and that of lead 1 percent; copper increased 18 percent in quantity and zinc 8 percent. Most of the decrease in total output of silver was at the Sunshine mine, and most of the increase in that of zinc was at the Morning mine, both in the Coeur d'Alene region, chief metal-producing area in Idaho.

Gold.—The output of recoverable gold in Idaho was 13 percent greater in 1939 than in 1938; it was the largest since 1895, when 125,517 ounces were produced. The output of gold from lode mines increased 37 percent over 1938 and was the largest since 1901; most of the increase came from gold ore and gold-silver ore. The output of gold from placers declined 10 percent, owing to the decreased output of gold from dredging. Nearly 54 percent of the State gold output in 1939 came from siliceous ore and 37 percent from all types of dredging operations. Eight floating (bucket) dredges treated 6,626,356 cubic yards of gravel and recovered 28,973 ounces of gold, a decrease of 2,261 ounces from 1938; 6 dragline dredges and 17 dry-land dredges treated 2,094,600 cubic yards of gravel and recovered 14,051 ounces of gold, a decrease of 3,397 ounces. Of the total placer gold, 85 percent came from the Boise Basin, Warren, Newsome, Carson, Elk City, Pierce, Orogrande, and Riggins districts where dredges were operated. Of the total lode gold, 89 percent came from the Warm Springs, Middle Boise, Burgdorf-Marshall Lake, Yellow Pine, Mineral Hill, Carson, Boise Basin, Ramey Ridge, Ten Mile, and Yankee Fork districts and the Coeur d'Alene region. Substantial increases in output of gold were recorded in the Warm Springs, Burgdorf-Marshall Lake, Middle Boise, Yellow Pine, Yankee Fork, and Mineral Hill districts and the Coeur d'Alene region, but large decreases in the Boise Basin, West View (Montour), Ten Mile, and Carson districts.

Snyder Mines, Inc., operating lode property near Ketchum, was the largest gold producer in Idaho in 1939. It was followed by the Fisher-Baumhoff Co., which operated two bucket dredges near Centerville; the Golden Anchor mine at Burgdorf; the Boise-Rochester property at Atlanta; the Warren Dredging Co. at Warren; the Yellow Pine mine at Stibnite; Newsome Creek Placers near Golden; Idaho Canadian Dredging Co. (formerly Moores Creek Dredging Co.) at Idaho City; Consolidated Gold Mines, Inc., at Murray; De Lamar Milling Corporation at De Lamar; and Gold Producers, Inc., at Shoup.

Silver.—The output of recoverable silver in Idaho was 17,222,370 fine ounces in 1939, a decrease of 9 percent from 1938. Production from the Sunshine mine declined from 11,352,154 to 9,414,514 ounces; there were also large decreases in silver output from the Polaris, Hecla, and Crescent mines, but increases were reported at the Morning and Mineral Point properties. The Coeur d'Alene region produced 88 percent of the State total silver in 1939; the rest came chiefly from the Warm Springs, Bayhorse, Carson, Port Hill, Pend Oreille, Blue Wing, Burgdorf-Marshall Lake, and Boise Basin districts. Silver ore
MINE PRODUCTION IN IDAHO

yielded 65 percent of the State total silver; zinc-lead ore, 24 percent; lead ore, 5 percent; and gold-silver ore, 4 percent. The yield of silver from silver ore decreased 2,258,552 ounces and that from lead ore also declined, but the output from zinc-lead ore increased 508,520 ounces and that from gold-silver ore, 632,251 ounces.

Nine mines—the Sunshine, Bunker Hill & Sullivan, Triumph, Polaris, Morning, Hecla, Crescent, Page, and Mineral Point—produced 92 percent of the silver output of the State in 1939. All these mines except the Triumph, are in the Coeur d’Alene region.

Copper.—The output of recoverable copper in Idaho was 5,032,000 pounds in 1939, an increase of 18 percent over 1938. The gain resulted chiefly from increased output of silver-copper ore from the Mineral Point mine and from shipments of copper ore from the Empire (Mackay Metals) mine. Silver ore (chiefly from mines in the Coeur d’Alene region) yielded nearly 67 percent of the State total copper; zinc-lead ore, 20 percent; gold ore, 6 percent; and copper ore and lead ore together, 7 percent.

The Sunshine mine produced nearly half of the total copper output of the State in 1939; most of the remainder came from the Mineral Point, Polaris, Copper Queen, Hecla, Bunker Hill & Sullivan, Triumph, Morning, and Empire properties.

Lead.—The output of recoverable lead in Idaho was 181,962,000 pounds in 1939, a decline of 1 percent from 1938, but the total value increased slightly in consequence of the higher average sales price. The marked decrease in output of lead from the Hecla, Triumph, and Bunker Hill & Sullivan mines more than offset an increase of about 12,000,000 pounds in lead from the Morning mine. Nearly 90 percent of the State total lead came from the Coeur d’Alene region and 6 percent from the Warm Springs district; considerable lead was produced also in the Port Hill, Bayhorse, Texas, and Pend Oreille districts. Zinc-lead ore from the Coeur d’Alene region and the Warm Springs district yielded 87 percent of the State total lead; lead ore, chiefly from the Coeur d’Alene region, yielded 11 percent. Lead recovered from lead ore decreased 23,515,438 pounds, but that from zinc-lead ore increased 18,770,583 pounds.

The combined lead output in 1939 of the three largest producers—Morning, Bunker Hill & Sullivan, and Hecla—was 135,073,600 pounds (134,740,600 pounds in 1938), or 74 percent of the State total; other large producers were the Page, Triumph, Star, Blackhawk, Idaho-Continental, Jack Waite, Gold Hunter, and Clayton properties.

Zinc.—The output of recoverable zinc in Idaho was 95,098,000 pounds in 1939, an increase of 8 percent over 1938. The gain was due entirely to increased output of zinc from mines in the Coeur d’Alene region, as production in the Warm Springs district declined 9,213,480 pounds. The largest increase (8,593,700 pounds) in zinc output was recorded from the Morning mine, but substantial increases were made also at the Hecla and Bunker Hill & Sullivan properties. More than 84 percent of the State total zinc in 1939 came from the Coeur d’Alene region, and nearly all the remainder came from the Warm Springs district. Zinc-lead ore concentrated yielded virtually all the zinc in 1939; only 78,114 pounds of recoverable zinc came from crude ore shipped to smelters.

Three mines—the Morning, Bunker Hill & Sullivan, and Triumph—produced 73 percent of the State total zinc in 1939; the rest came chiefly from the Star, Hecla, Page, and Frisco mines.

MINING INDUSTRY

Increased activity at gold properties in Idaho in 1939, which was centered chiefly at mines near Burgdorf, Atlanta, Stibnite, Shoup, Murray, and De Lamar, resulted in the largest output of gold in the State since 1895 and the largest output of gold from lode mines since 1901. However, production of silver and lead declined, despite gains in average sales price of both metals in 1939. The average sales price of zinc increased from 4.8 to 5.2 cents a pound, resulting in a gain of 8 percent in quantity and 17 percent in total value of
zinc output over 1938. Production of copper rose 18 percent in quantity and 25 percent in total value. There was a substantial increase in output of zinc-lead ore from mines in the Coeur d'Alene region, but a decrease from the Triumph property near Ketchum in the Warm Springs district.

METALLURGIC INDUSTRY

Of the 2,108,445 tons of ore produced in 1939 in Idaho, 1,919,136 tons (91 percent) were treated at concentrations plants, 121,898 tons (6 percent) were treated at amalgamation and cyanidation mills, and 67,411 tons (3 percent) were shipped crude to smelters.

Ore treated at concentration plants in 1939 comprised 120,940 tons of gold ore, 45,393 tons of gold-silver ore, 446,656 tons of silver ore, 109,652 tons of lead ore, and 1,196,495 tons of zinc-lead ore.

Ore treated at straight amalgamation mills in 1939 comprised 2,594 tons, yielding 737 ounces of gold and 313 ounces of silver. Ore treated at combined amalgamation and concentration plants comprised 108,886 tons, yielding 17,271 ounces of gold and 9,508 ounces of silver in amalgamation bullion and 1,572 tons of concentrates yielding 9,912 ounces of gold and 84,330 ounces of silver. About 700 pounds of quicksilver were consumed at amalgamation plants in Idaho.

Ore (10,418 tons) treated at straight cyanidation plants in 1939 contained 1,790 ounces of gold and 4,000 ounces of silver, indicating cyanide extraction of 87 percent of the gold and 77 percent of the silver; the plants used about 24,000 pounds of sodium cyanide (91 percent grade), 3,500 pounds of zinc dust, 117,800 pounds of lime, and 185 pounds of lead acetate.

The lead smelter and refinery of the Bunker Hill & Sullivan Mining & Concentrating Co. at Bradley were operated continuously in 1939 on ore and concentrates, chiefly from the Bunker Hill & Sullivan, Hecla, Sunshine, Polaris, and Crescent mines. During the fall the company began construction of an antimony-bismuth plant designed to handle ores and concentrates from the "Dry-Belt" section of the Coeur d'Alene region, eliminating these metals from the regular lead-smelting operations; the new plant was put in operation early in 1940. The electrolytic zinc plant of the Sullivan Mining Co. near Bradley operated throughout the year at a normal rate, chiefly on zinc concentrates from the Bunker Hill & Sullivan, Hecla, and Star mills.

ADA COUNTY

Black Hornet District.—Virtually all the output from the Black Hornet district in 1939 was gold ore from the Adelmann mine treated by amalgamation.

Highland (Boise River) district.—The entire output of the Highland district in 1939 was recovered by sluicing, chiefly at the Pick & Shovel, Pinto, Sheep Gulch, and Stout placers.

Snake River district.—Dry-land washers were operated in 1939 at the Osborn and Hot Shot properties near Grand View on the Snake River. The Gold Flour Mining Co. operated the Osborn claim, by far the largest producer.

ADAMS COUNTY

Rock Flat (Thorn Creek) district.—Placer gold and silver were recovered in 1939 by hydraulic icing at the Victory placer on Thorn Creek.

Seven Devils district.—The metal output of the Seven Devils district in 1939 came from 372 tons of gold ore from the Placer Basin mine and 29 tons of copper ore from the Helena claim.

Snake River district.—Placer gold was recovered in 1939 by sluicing at various bars along the Snake River in Adams County.

BENEWAH COUNTY

The entire output of Benewah County in 1939 was placer gold recovered from stream gravel from Tyson Creek.
BLAINE COUNTY

Little Wood River district.—A small lot of silver-lead ore was shipped from the Idaho Muldoon dump in 1939.

Mineral Hill and Camas district.—The value of the metal output from the Mineral Hill and Camas district in 1939 was nearly double that in 1938, owing to increased output of gold recovered from old tailings at the Daisy dump, from which 6,600 tons of old tailings were treated in a 100-ton cyanide plant by the Gold Recovery Co. The rest of the district output comprised gold ore from the Bellevue, Champlain, Gold Bottom, Happy Day, Jumbo, Golden Arrow, Treasure Vault, and Walla Walla properties; lead ore from the Eureka and Clearwater & Wolverine properties; silver ore from the Liberty, Bullion-Ophir, and Kelley mines; and zinc ore from the Red Elephant mine.

Sawtooth district.—The Vienna mine was the chief producer in the Sawtooth district in 1939; several cars of siliceous ore were shipped by a lessee to smelters in Utah.

Warm Springs district.—Nearly all the output from the Warm Springs district in 1939 was from the Triumph-North Star-West Shore groups operated by Snyder Mines, Inc., which comprised about 65,000 tons of zinc-lead ore shipped to the flotation plant of the Combined Metals Reduction Co. at Bauer, Utah, and 41,461 tons of gold-silver ore and 682 tons of lead ore shipped to the smelter at Tooele, Utah. This company was the largest producer of gold in Idaho in 1939 and ranked third in output of zinc, fourth in silver, and fifth in lead. Other producers in the Warm Springs district included the Valley Creek No. 2, Mascot, and Homestake mines. A little placer gold was recovered from claims on Placer Creek.

BOISE COUNTY

Banner district.—A lessee shipped 166 tons of silver ore in 1939 from the Edna mine near Idaho City. Placer gold was recovered from stream gravel from Gold Fork and Edna Creeks.

Boise Basin district (Centerville, Placerville, Idaho City, Pioneerville, Quartzburg).—In 1939 the Boise Basin district again was the chief gold-producing area in Idaho, but its output was 21 percent less than in 1938. Nearly 87 percent of the gold was recovered from placer operations, mostly by bucket dredges. Four bucket dredges treated 4,346,382 cubic yards of gravel in 1939 and recovered 17,787 ounces of gold compared with 18,549 ounces in 1938. The Fisher-Baumhoff Co. continued to operate two bucket dredges (one 2½-cubic foot and one 6-cubic foot) near Centerville and was the largest producer of placer gold in Idaho. The Idaho-Canadian Dredging Co. (formerly the Moores Creek Dredging Co.) operated its 7½-cubic foot bucket dredge at Idaho City throughout the year. Considerable gold was also recovered by the 4-foot bucket dredge at Pioneerville operated by the Grimes Co. Other important sources of placer gold were the Gold Hill, Leary-Brogan, Lucky Boy, and Elk Creek properties. The Lord & Bishop Co., a large producer of placer gold in 1938, suspended operations on Fall Creek late in that year and moved its dragline equipment to a property in California. Most of the lode production of the district in 1939 was gold ore from the Mayflower mine; the Texas-Owyhee Mining & Development Co. operated the mine continuously and treated 12,818 tons of gold ore in the 150-ton flotation plant. Rich gold-silver ore from the Come Back property at Pioneerville was shipped to a smelter, and lessees treated by concentration several hundred tons of gold ore from the Gold Hill & Iowa dumps. Most of the remainder of the district lode output was gold ore from the Black Eagle, Illinois, Enterprise, Golden Age, Twin Sister, and Native Missourian properties.

Eight Mile Creek district.—The Birthday Consolidated Gold Mines, Inc., treated 264 tons of gold ore in 1939 in a small concentration plant built during the year and shipped 5 tons of high-grade gold ore to a smelter.

Garden Valley district.—The entire output of the Garden Valley district in 1939 was placer gold from the Wash Creek and Gold Dollar claims.
Grimes Pass district.—Gold ore from the Golden Eagle and Homestake properties was concentrated in 1939, and gold ore from the Grandview group was amalgamated and concentrated. The Grandview property was operated by the Buckhorn Mining Co. and was the chief producer.

North Fork district.—A little silver ore from the Packer John claim and from a prospect was shipped to a smelter in 1939.

South Fork of Payette River district.—Placer gold and silver were recovered by sluicing in 1939 at properties near Grimes Pass and Lowman.

Summitt Flat district.—Gold ore from the Golden Cycle, Jessie, King, and Rock Creek properties was treated by amalgamation in 1939.

BONNER COUNTY

Lakeview district.—Several cars of silver-lead ore from the Keep Cool dump and a small lot of zinc concentrates from former milling operations were marketed in 1939.

Pend Oreille district.—The Hope (Elise K.) and Whitedelf properties near Clark Fork again were the chief producers in the Pend Oreille district; several thousand tons of silver-lead ore from each property were treated by flotation in 1939. Rich silver ore from the Brown Bear, Katherine, and Keystone claims were shipped to a smelter.

BONNEVILLE COUNTY

Placer gold was recovered by hydraulicking in 1939 at the Rosana, James, Lottie, and McCoy Creek properties in the Mt. Pisgah district.

BOUNDARY COUNTY

Moyie Yahk district.—Gold ore from the Buckhorn mine was treated by concentration in 1939, and lead ore from the Regal and Midas properties was shipped to a smelter.

Port Hill district.—The Idaho-Continental mine, operated by the Idaho Continental Mining Co., was the only producer in the Port Hill district in 1939; 15,630 tons of silver-lead ore were treated by flotation in 1939, compared with 4,000 tons in 1938.

BUTTE COUNTY

Antelope Creek district.—A little copper ore from the Copper Queen claim was shipped to a smelter in 1939.

Lava Creek district.—Virtually all the output from the Lava Creek district in 1939 was gold-silver ore from the Hornsilver mine near Arco, operated by the Era Mining & Development Co., Inc.

CAMAS COUNTY

Beaver Creek (Mineral Hill) district.—Lessees shipped several cars of gold ore from the Princess mine in 1939.

Little Smoky and Carrietown district.—The decrease in output of gold from the Little Smoky and Carrietown district in 1939 resulted from suspension of dredging operations by the Baumhoff-Fisher Co. Most of the district output was silver ore and lead ore from the Silver Star property and gold ore from the Five Points mine.

Skeleton Creek district.—Gold ore was produced at the El Oro, Red Horse, Gold Mountain, and Tip Top properties in 1939.

CANYON COUNTY

J. R. Rhodes operated a ¾-cubic yard power shovel and stationary washer in 1939 from March 24 to October 12 at a placer on the Snake River near Wilder and treated 32,178 cubic yards of gravel.

CASSIA COUNTY

A little lead ore was produced at the Alice & Badger group in the Stokes district in 1939.
CLEARWATER COUNTY

Burnt Creek district.—A little placer gold was recovered in 1939 from stream gravel by small-scale operators near Elk River.

Clearwater River district.—Various placer operators on the Clearwater River near Orofino and Greer recovered small lots of gold and silver in 1939.

Moose Creek and Independence Creek district.—The entire output of the district in 1939 was placer gold and silver recovered chiefly from the Lilly Simplex, First Chance, and White Diamond claims.

North Fork of Clearwater River district.—Small-scale operators recovered a little placer gold and silver from stream gravel near Dent in 1939.

Pierce district.—The output of gold in the Pierce district in 1939 was more than double that in 1938 owing to operation of a new 2½-cubic foot bucket dredge by the Quartz Creek Dredging Co. The dredge was active from July 8 to the end of the year and handled 495,639 cubic yards of gravel. The Dividend Placer Mining Co. placed a ½-cubic yard dragline and floating washer on the American property, but operations were suspended after a short run. Small-scale placering was continued on various creeks. The Silver Creek Gold Mining Co. was the only lode operator in the district; 2,758 tons of gold ore were treated by cyanidation.

CUSTER COUNTY

Alder Creek district.—Most of the increase in the value of the metal output of the Alder Creek district in 1939 was due to reopening of the Empire property by the Mackay Exploration Co.; 996 tons of copper ore were shipped. The remainder of the district output was principally silver-lead ore from the Bluebird, Horseshoe, and White Knob properties.

Bayhorse district.—The Clayton Silver Mines was in 1939, as usual, the chief producer in the Bayhorse district. The company operated its mine and 100-ton flotation plant throughout the year and shipped rich silver-lead concentrates to a smelter in Utah; 38,900 tons of silver-lead ore were milled, about the same quantity as in 1938. The rest of the district output was chiefly copper ore and lead ore containing considerable silver from the Ramshorn mine operated by lessees.

Boulder district.—Several cars of silver-lead ore were shipped from the Livingston mine in 1939.

East Fork (Washington Basin) district.—A little gold ore from the Dewey claim and a small lot of silver-lead ore from the Fuller prospect were marketed in 1939.

Rough Creek district.—Placer gold and silver were recovered in 1939 by sluicing operations at the Grubstake claim near Stanley.

Seafoam district.—The metal output of the Seafoam district in 1939 came from siliceous ore from the Greyhound mine and silver-lead ore from the Mountain King and Josephus Lake properties.

Stanley and Stanley Basin district.—A ¾-cubic yard dry-land excavator was operated a short time in 1939 at Stanley Creek Placers by the Stanley Basin Placer Mining Corporation; equipment for recovering the gold includes a vibrating screen, riffles, and special amalgamators. Other placer producers were the Lucky Strike, Golden Rule & Hot Stuff, Progressive, Bessie, and Nip & Tuck claims.

Yankee Fork district.—The chief output from mines in the Yankee Fork district in 1939 was rich gold ore from the General Custer-Lucky Boy group and copper ore rich in gold and silver from the Why Not mine. Other lode producers included the Jordan, Peak, Yankee Fork, Fourth of July, Snowdrift, P. & G. No. 2, and Fuller properties. Most of the placer output came from the Horse Trail property.

ELMORE COUNTY

Bear Creek district.—The Avalanch-Richmond, Passover, and Empire lode properties were the chief producers in the Bear Creek district in 1939; most of
the output was gold ore amalgamated and concentrated. Other producers of gold ore included the Vishnue, Daly, and Black Ribbon mines. A little placer gold and silver was produced from various claims near Rocky Bar.

**Boise River district.**—Most of the placer output from the Boise River district in 1939 came from the Five Bars and Sunflower properties near Twin Springs.

**Middle Boise (Atlanta) district.**—The increase of $206,186 in value of metal output in the Middle Boise district in 1939 resulted from the large gain in output of gold ore from the Boise-Rochester property. Talache Mines, Inc., operated the property throughout the year and treated 41,634 tons of gold ore and 6,000 tons of old tailings in a 150-ton amalgamation and flotation plant. The Last Chance Mining Co., operating Atlanta Mines (Monarch), continued to be a large producer of gold ore; about 8,500 tons of ore were treated by amalgamation and concentration, and 273 tons of rich gold ore were shipped to a smelter. The property was acquired by Talache Mines, Inc., in November. The remainder of the district output was nearly all placer gold recovered chiefly from the Boise Bar, Buck Creek, McKibbin, Honey Bee, and Rex properties.

**Neal district.**—Small amounts of placer and lode gold were produced from various properties in the Neal district in 1939.

**Pine Grove district.**—Small lots of gold ore were produced in 1939 at the Elk Horn and Owens claims at Pine.

**Snake River district.**—Stationary washers were operated for a short time in 1939 at the Mathis placer property near Bruneau and at the Rose claim near King Hill; nearly all the gold output from the district was recovered from these two properties.

**GEM COUNTY**

**West View district.**—The total value of the metal output of the West View district declined from $144,736 in 1938 to $7,040 in 1939, owing to suspension late in 1938 of dragline operations at the Gatfield & Montour property by Ralph Davis, Inc.; a little gold was recovered by hydraulicking at the property in 1939. Most of the output of the district was siliceous ore from the Lulu mine near Pearl.

**GOODING COUNTY**

Most of the placer output from properties on the Snake River near Hagerman in 1939 came from the Lucky Strike and Padgett claims.

**IDAHO COUNTY**

**American Creek (Bully, Mill, and Castle Creeks) district.**—Small amounts of placer gold and silver were recovered in 1939 by sluicing operations at the Holmes, Golden Eagle, and John's Creek properties.

**Burgdorf-Marshall Lake district.**—There was a large increase in output of gold and silver in the Burgdorf-Marshall Lake district in 1939 owing to a gain in output of gold ore from the Golden Anchor mine; the property was operated throughout the year by the Golden Anchor Mining Co., and 16,301 tons of gold ore were treated in the 50-ton amalgamation and concentration mill. The rest of the district output was chiefly placer gold recovered by hydraulic and sluicing operations at the Golden Rule and Laughing Water properties and gold ore from the Leadville and Old Kentuck mines.

**Camp Howard (Salmon River) district (White Bird).**—Green & Kuney operated a power shovel and stationary washer at the Large Bar in 1939 from January 15 to April 10, when work was suspended, and was by far the most important producer in the Camp Howard district. Other placer producers included the Rosebud, Burgund, White Bird, and Snure properties.

**Clearwater River district.**—Small amounts of placer gold and silver were recovered in 1939 by sluicing operations at the Lindgren claim near Pardee.

**Dixie district.**—The output of gold in the Dixie district increased 325 ounces in 1939, owing to the gain at the Dixie and Alpha properties. About
65,000 cubic yards of gravel were handled by the ¾-cubic yard dragline and stationary washer at Dixie Placers, and it was by far the most important producer in the district. The rest of the district output was principally gold ore from the Ontario mine and placer gold from the Capitol claim.

Elk City district.—The 1½-cubic yard dragline and floating washer of the American River Mining Co. handled 246,500 cubic yards of gravel in 1939 and accounted for most of the gain in the Elk City district; other placer producers included the Lucky Coin (power shovel and dry-land dredge), Little Million (power shovel and stationary washer), Columbus, and Gold Hill properties. The lode output of the district was chiefly gold ore from the Blue Ribbon, Mary K., Black Lady, Buster, Stickner Quartz, and Last Chance mines.

Florence and French Creek district.—Most of the placer gold produced in 1939 was recovered by the dragline and floating washer at the Sterling property on Sand Creek and by sluicing operations at various claims on Salmon River near French Creek. The chief producers of lode gold were the Gold Bug, Golden Dyke, and Waverly mines.

Kitchen Creek district.—A little placer gold was recovered in 1939 by sluicing operations at the Kitchen Creek claim.

Lolo Creek district.—Small lots of placer gold were marketed in 1939 from the Alice and Lolo claims.

Lower Salmon River district.—Most of the output from placers along the Salmon River in 1939 came from drift mining and sluicing operations at the Frank Hatke, Grubstake, and Sunshine properties.

Maggie and Pete King Creeks district.—In 1939 a little gold-silver ore from the Selway mine was shipped to a smelter, and a little placer gold was produced from the Nugget and Sunnyside claims.

Newsome district.—The Newsome Creek Mining Co. continued dredging operations on Newsome Creek in 1939 and again was a large producer of gold. The company operated its 3-cubic yard dragline and floating washing plant from March 25 to December 31 and treated 841,901 cubic yards of gravel; at the end of the year the property was acquired by the Ferris Mining Co.

Orogrande district.—The Mount Vernon Mining Co. was the largest producer of gold in the Orogrande district in 1939; the company operated the 2-cubic foot bucket dredge on Crooked River from April 14 to November 22 and treated 218,335 cubic yards of gravel. The Orogrande-Frisco Gold Mines, Inc., largest producer of gold in the district in 1938, was idle in 1939. The lode output of the district was chiefly gold ore from the Penman mine treated by flotation.

Ramey Ridge district.—The Snowshoe property, by far the most important producer in the Ramey Ridge district, was operated throughout 1939 by the Pierce Metals Development Co., and 4,125 tons of gold ore were treated in a 25-ton concentration plant. In January a fire destroyed the compressor building and power plant, but the building was rebuilt and new equipment installed.

Riggins (Salmon River) district.—The Shorts Bar Mining Co. operated a 2½-cubic yard dragline and floating washing plant on property 3 miles above Riggins on the Salmon River in 1939 and treated 380,000 cubic yards of gravel from July 10 to December 23.

Robbins (Buffalo Hump) district.—Nearly all the output from the Robbins district in 1939 was gold ore from the St. Louis mine; a new 25-ton flotation plant, erected by a lessee, was operated a short time during the last quarter of the year.

Salmon River (Shoup) district.—Placer gold and silver were recovered in 1939 by drift mining and sluicing operations at claims along the Salmon River west of Shoup; most of the output came from the Paradise Bar, Leyrer, Rutherford, and Willoughby properties.

Selway River district.—A little placer gold was recovered in 1939 by sluicing operations at the Happy Day and Maytag claims.
Simpson (Salmon River) district (Lucile).—Various small-scale placer operators continued to work bars along the Salmon River near Lucile. The chief producers in 1939 were the Katie B., Butcher Bar, and Betty Jean properties.

Snake River district.—Gold was recovered by sluicing operations in 1939 at the Bonanza placer.

South Fork of Clearwater River district.—A little placer gold was recovered in 1939 from stream gravel near Stites.

Ten Mile district (Golden).—The output of gold from both lode and placer properties in the Ten Mile district decreased in 1939. The decline in output of gold ore from the Blackbird mine, operated by the Clearwater Mining Co., accounted for most of the loss at lode mines, and the drop in placer production was due to suspension in August 1938 of dragline dredging at the Lena B-Komo property. The Lone Pine mine continued to be the largest producer of gold in the district; about 6,150 tons of gold ore were treated by amalgamation and concentration. Other fairly large producers of gold ore were the Center Star, Blackbird, and Shamrock properties. Most of the placer gold produced in the district was recovered by hydraulic and sluicing operations at the Key claim.

Warren district.—Bucket dredging continued in 1939 to be the chief source of gold in the Warren district. The Warren Dredging Co. operated its 3½-cubic foot bucket dredge throughout the year and treated 1,134,000 cubic yards of gravel; it was the largest producer of placer gold in Idaho County. The Baumhoff-Fisher Co., also a large producer of placer gold, operated its 3½-cubic foot bucket dredge from March 21 to August 6 and treated 432,000 cubic yards of gravel; the dredge was moved late in the year and will operate in 1940 on Moose Creek near Salmon City in Lemhi County. Most of the remainder of the district output in 1939 was gold ore from the Rescue, Gold King, Little Giant (Unity), Harding, and Silver King properties and placer gold from the Poorman, Buck Diggins, and Smith Gulch claims.

JEROME COUNTY

In 1939, as usual, the entire metal output of Jerome County was placer gold and silver recovered by various sluicing operations along the banks of the Snake River near Jerome, Murtaugh, and Hansen.

LATAH COUNTY

Placer gold was recovered in 1939 from claims in the Gold Creek, Hoodoo, and Moscow Mountain districts.

LEMHI COUNTY

Blackbird district.—The output of the Blackbird district in 1939 comprised gold ore from the Meadow property and copper ore from the Uncle Sam mine.

Blue Wing district.—The Ima Mines Corporation in 1939 again was the only producer in the Blue Wing district. The company treated 38,778 tons of tungsten ore by flotation and magnetic separation; several hundred tons of silver-lead-copper concentrates were shipped to the smelter at Midvale, Utah, and tungsten concentrates were shipped to eastern markets.

Boyle and Carmen Creeks district.—The metal output from the Boyle and Carmen Creeks district rose in 1939 owing to increased output of low-grade gold ore from the Silver Star-Contact group by the Gibbonsville Mining & Exploration Co.

Eldorado district.—A small lot of gold ore was produced from the Gold Bond mine in 1939, and a little placer gold was recovered from a claim on Bohannon Creek.

Eureka district.—About 200 tons of gold ore from the Queen of the Hills mine were treated by amalgamation in 1939; other producers of gold ore included the Tendoy, Lynch, and Poorman's Luck properties. Most of the placer gold was recovered by sluicing operations at the Greenhorn claim.
Gibbonsville district.—The North Fork Placers, operating four hydraulic giants at the Sundown property, was the most important producer in the Gibbonsville district in 1939; about 520 ounces of gold were recovered from 100,000 cubic yards of gravel. Hydraulic giants were operated at the Sheep Creek property by the Golden Dawn Mining Co. The district output of lode gold was considerably less than in 1938; the chief producers were the Bingham, Cross, and Providencia properties.

Indian Creek district.—About 100 tons of gold ore were produced in 1939 from the old Kittie Burton & Ulysses property operated by the Good Hope Mining Co., Inc., and 400 tons of old tailings from the Kittie Burton dump were amalgamated by the Idaho Gold Recovery Corporation.

Kirtley Creek district.—Small-scale placer operations in 1939 were reported at several properties on Kirtley Creek.

McDevitt district.—In 1939, as in 1938, the entire output of the McDevitt district was gold ore from the Copper Queen mine near Tendoy. The Tendoy Copper Queen Syndicate operated the property throughout the year and treated about 15,500 tons of ore by amalgamation and concentration.

Mackinaw district.—Most of the metal output of the Mackinaw district in 1939 was placer gold recovered by hydraulicking and sluicing and by dragline dredging. The output from lode mines in the district comprised lead ore from the Ringbone Cayuse claim and gold ore from the Shoo Fly and P. M. & B. properties. The chief production from hydraulicking and sluicing came from the K. G. W., Mae Belle, Big Jureano, Last Chance, and Best Bet properties. Dragline excavators and dry-land dredges were operated at the Camp Creek and Richardson properties.

Mineral Hill district.—Production of gold from the Mineral Hill district in 1939 increased about 1,300 ounces over 1938, owing chiefly to the gain in output of gold ore from the Grunter and Gold Hill properties at Shoup. The Grunter mine, operated throughout the year by Gold Producers, Inc., was by far the largest gold producer in Lemhi County; 24,947 tons of gold ore were treated by concentration. A lessee treated about 5,500 tons of gold ore from the Gold Hill mine by amalgamation and concentration. Other producers of gold ore were the Monolith and Billy Boy properties. Most of the district output of placer gold was recovered from the Cove Creek and Rattlesnake claims.

Pratt and Sandy Creeks district.—Fire destroyed the milling plant of the Goldstone Mining Co. early in 1939, resulting in a substantial decrease in the gold output of the district; the company shipped only 5 tons of high-grade gold-lead concentrates. Other producers were the Sick Horse and Dictator claims.

Salmon River district.—Small-scale placer operations in 1939 were reported at several properties along the Salmon River from Shoup to the county line.

Spring Mountain district.—Lessees shipped a little silver-lead ore from the Red Warrior and South Gilmore properties in 1939.

Texas district.—The value of the metal output of the Texas district was $82,462 in 1939, a gain of $49,064 over 1938, caused by increased shipments of silver-lead ore from the Latest Out mine at Gilmore. A little silver-lead ore was shipped also from the Allie and Snow Slide properties.

Yellow Jacket district.—The Condor Gold Mining Co. operated the Yellow Jacket property near Forney and treated several hundred tons of gold ore in a flotation plant in 1939, an increase over 1938. Gold ore was produced also from the Bryan and Tin Cup claims and placer gold from the Yellow Jacket Placers.

LEWIS COUNTY

Several placer operators worked stream gravel along the Salmon River in Lewis County in 1939.
In 1939, as in 1938, the metal output of Nez Perce County was placer gold and silver recovered by small-scale placer operations along the Salmon and Snake Rivers.

Owyhee County

Carson district (Silver City, De Lamar).—Production of gold from placer properties in the Carson district declined in 1939, but that from lode mines increased. The decrease in placer gold resulted from suspension in December 1938 of bucket dredging at De Lamar by Jordan Creek Placers, largest producer of gold in Owyhee County from 1936 to 1938. The gain in output of lode gold and silver resulted from the treatment of a large tonnage of old tailings (gold-silver) by the De Lamar Milling Corporation; about 45,200 tons were treated in a 200-ton flotation plant, and the company was the largest producer of gold and silver in Owyhee County. Several cars of rich gold ore were shipped from the Adelaide-Empire group by the Ymir Consolidated Mining Co., and gold-silver ore from the Addie mine was amalgamated and concentrated. Other producers of gold ore included the Pauper, South Central, Tango, Dewey, and Gold Bug mines. The De Lamar Placers operated its dragline and floating washer at property on Jordan Creek 6 months in 1939 and treated 250,000 cubic yards of gravel. The Morrison-Knudsen Co., Inc., a new operator in the district, worked the Lewis group near Silver City and treated 47,000 cubic yards of gravel with a power shovel and dry-land washer.

Castle Creek district.—Nearly all the output from the Castle Creek district in 1939 was rich silver ore from the Silver Rock mines and gold ore from the Overall-Lucky Boy group.

Snake River district.—Considerable placer gold was recovered in 1939 from gravel along the Snake River near Hammett and Grand View. Most of the output came from dry-land dredging at the Gray, Dollar, and Grand View (Murphy) properties by J. R. Rhodes and Grand View Mines.

Steele district.—Most of the output from the Steele district in 1939 was gold ore from the Morning Glory mine near Triangle.

Power County

The metal output of Power County in 1939 was, as usual, placer gold from small operations along the Snake River near American Falls.

Shoshone County

The value of the metal output of the Coeur d'Alene region increased 2 percent in 1939, chiefly as a result of the gain in production of zinc. The output of silver dropped more than 2,100,000 ounces owing to marked decreases at the Sunshine and Polaris mines, and the output of lead also declined. Large decreases in output of lead at the Hecla and Bunker Hill & Sullivan properties more than offset a substantial increase at the Morning mine. However, the output of zinc from the region increased 25 percent owing to large gains at the Morning, Hecla, and Bunker Hill & Sullivan mines; the output of gold increased nearly 2,000 ounces owing to increased output of gold ore from the Golden Chest mine at Murray; and the output of copper also rose. About 70 percent of the material produced in Shoshone County in 1939 was zinc-lead ore, 26 percent silver ore, and 3 percent lead ore. There was a marked increase in output of zinc-lead ore but a decided decline in output of lead ore.

Beaver district.—The Interstate Lease operated the Interstate-Callahan group in 1939 and shipped 3,200 tons of zinc-lead ore to the Golconda custom mill near Wallace. Most of the remainder of the Beaver district output was placer gold recovered chiefly from the Big 4 group by a dragline and dry-land dredge.

Coeur d'Alene district.—In 1939 a little gold ore from the Mountain Lion mine was treated by amalgamation; placer gold and silver were recovered from the Grove Walker, Old Dunn, Badger, Joe Gandy, Beehive Bar, Tiger Bar, and Nelson properties.
Eagle district.—Zinc-lead ore and lead ore from the Jack Waite mine continued in 1939 to be the chief output of the Eagle district. The American Smelting & Refining Co. worked the mine throughout the year, treated 10,352 tons of zinc-lead ore by flotation, and shipped 298 tons of high-grade lead ore to a smelter.

Evolution district.—The value of the metal production of the Evolution district was $7,698,489 in 1939, a decrease of $1,043,254 from 1938. The loss was caused by a substantial decline in output of silver from both the Sunshine and Polaris properties. However, the Sunshine Mining Co. remained the largest producer of silver in the United States; the company treated 320,990 tons of silver ore in its flotation plant compared with 321,605 tons in 1938, and the output of silver fell from 11,352,154 to 9,414,514 ounces. The Polaris Mining Co. operated its mine throughout the year, but production of silver ore dropped from 64,405 to 48,815 tons and that of silver from 1,583,721 to 1,085,023 ounces.

Hunter district (Mullan).—The value of the metal output of the Hunter district was $5,756,396 in 1939, a gain of $1,509,747 over 1938, due to a substantial increase in output of zinc-lead ore from the Morning mine and to resumption of operations in September at the Star mine, a large producer of zinc and lead. The Morning mine was operated continuously by the Federal Mining & Smelting Co.; 363,122 tons of zinc-lead ore were treated by flotation (compared with 262,329 tons in 1938), 601 tons of first-class silver-lead ore were smelted, and about 14,000 tons of old tailings (zinc-lead) were shipped by lessees to the Golconda custom mill. The property was the largest producer of lead and zinc in the State. The Sullivan Mining Co. operated its 800-ton flotation mill the last quarter of the year and treated 48,860 tons of zinc-lead ore from the Star mine. Lessees continued to operate the Gold Hunter and Golconda properties; 34,500 tons of silver-lead ore from the Gold Hunter and 5,471 tons of zinc-lead-silver ore from the Golconda were concentrated. Nearly all the rest of the district output was old tailings (zinc-lead) treated in the Golconda custom mill.

Lelande district (Burke, Mace, Frisco).—The Hecla mine, by far the most important producer in the Lelande district, was operated continuously in 1939 by the Hecla Mining Co.; 200,175 tons of zinc-lead ore were treated in the company flotation plant, and 9,066 tons of first-class silver-lead ore were shipped to a smelter. The Hull Leasing Co. continued to work the Frisco property and treated 23,708 tons of zinc-lead ore in its 100-ton flotation plant. The rest of the district output comprised 3,996 tons of silver-lead ore from the Sherman mine, 1,100 tons of zinc-lead ore from the Mace mines, and 5,340 tons of old tailings (zinc-lead) from deposits along Canyon Creek.

Placer Center district.—The value of the metal output of the Placer Center district increased 26 percent in 1939 owing to steady operations at the Tamarack and Dayrock properties. The Tamarack & Custer Consolidated Mining Co. worked the Tamarack mine throughout the year and shipped 10,974 tons of zinc-lead ore to the Hercules custom mill at Wallace. The company began to construct a 300-ton flotation plant at the mine in October. The Dayrock mine was operated continuously by the Dayrock Mining Co., and 6,208 tons of silver-lead ore were shipped to the Hercules mill. Most of the remainder of the district output was zinc-lead ore from the Success mines.

St. Joe district.—Placer gold was recovered in 1939 from the Gold Producer, Haystack, Grizzly-Cooley, and Iron Hill properties.

Summitt district (Murray).—Production of gold from the Summit district increased to 3,291 ounces in 1939, owing to the large gain in output of gold ore from the Golden Chest mine operated by Consolidated Gold Mines, Inc.; 12,190 tons of ore were treated by flotation. The rest of the district output was principally zinc-lead ore from the Anchor group and placer gold and silver re-
covered by various operators working property owned by the Coeur d'Alene Placer Mining Co.

Yreka district (Kellogg).—The value of the metal output of the Yreka district was $5,811,087 in 1939, a gain of 3 percent over 1938. As usual, zinc-lead ore from the Bunker Hill & Sullivan property was the most important product in the district; 343,019 tons were concentrated in 1939 compared with 347,315 tons in 1938. The property ranked second in output of silver, lead, and zinc in Idaho in 1939. The Bunker Hill & Sullivan Mining & Concentrating Co. continued operations at the Crescent group, treated 16,503 tons of silver ore by flotation, and shipped 2,740 tons of rich silver ore to a smelter; the total output of ore was much less than in 1938. The Page and Blackhawk properties were operated continuously by the Federal Mining & Smelting Co., and 71,852 tons of zinc-lead ore from the Page and 15,950 tons of similar ore from the Blackhawk were treated in the Page flotation plant; the total output of ore from the two properties in 1938 was 82,895 tons. The rest of the district output in 1939 was chiefly silver ore and lead ore from the Caledonia mine.

TWIN FALLS COUNTY
In 1939, as in 1938, the output of Twin Falls County was placer gold and silver recovered by sluicing at various properties along the Snake River.

VALLEY COUNTY

Big Creek district.—A little lead ore containing considerable gold was produced in 1939 from the Sunday claim, and placer gold was marketed chiefly from the Smith Creek, Freezeneuf, and Blue Monday properties.

Deadwood Basin district.—Nearly all the output from the Deadwood Basin district in 1939 was old tailings (gold) from the Merry Blue property treated by cyanidation.

Lake City (McCall) district.—Placer gold and silver were recovered in 1939 by hydraulic and sluicing operations at the Neely Hill and New Deal Queen claims.

Pistol Creek district.—Operations continued at the Lucky Boy mine in 1939, and rich gold-lead ore was shipped to smelters in Utah.

South Fork of Salmon River district.—Several small-scale placer operators sluiced stream gravel in 1939 along the South Fork of Salmon River near Warren.

Thunder Mountain district.—Production from the Thunder Mountain district in 1939 was mostly gold recovered by the sluicing of eroded-vein material from the Sunnyside property, operated by lessees; the mine was formerly worked by the Thunder Mountain Mining & Milling Co., but operations by the company were suspended late in 1938.

Yellow Pine district.—The Yellow Pine mine was in 1939, as usual, the only producer in the Yellow Pine district. The Bradley Mining Co. operated the property continuously and treated 56,074 tons of antimony-gold ore by flotation, a substantial increase over the 35,880 tons treated in 1938; the concentrates, containing considerable antimony, were shipped to the smelter at Midvale, Utah.

WASHINGTON COUNTY

Monroe Creek (Weiser) district.—A little gold ore was produced in 1939 from the Blue Dog claim.

Snake River district.—Placering in 1939 was reported at several properties along the Snake River in Washington County.

Washington district.—Operations continued at the Silver Still mine near Mineral in 1939, and several cars of silver ore containing lead and copper were shipped to smelters in Utah.

Unorganized district.—The Idaho Almaden mine, situated 17 miles west of Weiser, Washington County, was discovered in 1936. It began to produce in
May 1939 and in the remaining months of the year made an important contribution to the country's total production of mercury, which ranked it as the seventh largest producing mine in the United States. Ore is crushed in a jaw crusher and delivered to the 50-ton rotary furnace at approximately minus 1 inch. A short description of the property was published in the 1939 report.

**IDAHO LEADS U.S. AS SILVER PRODUCER**

The Bureau of Mines report that 1940 production of recoverable silver was 71,109,457 fine ounces, an increase of 8 per cent over 1939. The value was $50,566,725, an increase of 14 per cent.

Idaho, leading silver-producing state since 1933, produced 24 per cent of the total domestic output; Montana and Utah, 17 per cent each.

**IMPORTANCE OF MINERALS**

Minerals enter into practically every phase of our civilization and furnish the raw material for an amazing proportion of our industry. Among the industries dependent on minerals are: Motion Pictures, Tableware, Cooking Utensils, Automobiles, Batteries, Farm Machinery, Fertilizer, Railroad Rails and Coaches, Wire, Roofing and Building Materials, Printing, Chemicals, Plumbing, Inks, Paints—in fact practically every phase of human existence, human necessity, comfort or luxury.
MONTHLY AVERAGE PRICES OF METALS
1937-1938-1939-1940

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METAL MINING IN IDAHO, 1940 — PRELIMINARY ANNUAL FIGURES

Idaho ores and gravels in 1940 yielded gold, silver, copper, lead, and zinc valued at $37,652,600, an increase of 26 percent over 1939, according to the Salt Lake City Office of the Bureau of Mines, United States Department of the Interior. Greater output of all five metals, as well as moderately higher prices of silver and base metals, caused the increase. Production in 1940 (in terms of recoverable metals) was 145,000 fine ounces of gold, 17,235,000 fine ounces of silver, 6,700,000 pounds of copper, 207,600,000 pounds of lead, and 141,300,000 pounds of zinc. These figures compare with an output in 1939 of 116,662 ounces of gold, 17,222,370 ounces of silver, 5,032,000 pounds of copper, 181,962,000 pounds of lead, and 95,098,000 pounds of zinc, indicating increases in 1940 of 28,338 ounces in gold (24 percent), 12,630 ounces in silver (less than 1 percent), 1,668,000 pounds in copper (33 percent), 25,638,000 pounds in lead (14 percent), and 46,202,000 pounds in zinc (49 percent). The preliminary figures for 1940 are based on 10 months actual mine production with November and December production calculated from reports by mine operators, refineries (including the United States Mint), and smelters of expected shipments and receipts.

At the average prices used by the Bureau of Mines (shown below), the gross calculated value of the output of these metals in Idaho in 1940, with comparative figures for 1939 in parentheses, was: Gold, $5,075,000 ($4,083,170); silver, $12,256,000 ($11,690,336); copper, $757,100 ($523,328); lead, $10,380,000 ($8,552,214); and zinc, $9,184,500 ($4,945,096)—a total of $37,652,600 in 1940 compared with $29,794,144 in 1939.

The price of gold fixed by the United States Government remained at $35 per ounce throughout 1940; the price of domestic silver was $0.711+, compared with $0.678+ in 1939. The average weighted yearly price of copper advanced from $0.104 in 1939 to $0.113 in 1940, lead from $0.047 to $0.050, and zinc from $0.052 to $0.065.

The output (145,000 ounces) of gold in Idaho in 1940 was the largest since 1871 when 212,850 ounces were produced. Gold from placer operations totaled about 58,000 ounces, an increase from 48,663 ounces in 1939. Ten floating connected-bucket dredges recovered about 37,000 ounces of gold in 1940, and dragline operations recovered 14,100 ounces; 8 floating connected-bucket dredges produced 28,973 ounces in 1939 and 6 dragline dredges and 17 dry-land dredges produced 14,051 ounces. Four floating connected-bucket dredges operating in the Boise Basin district, Boise County, in 1940 recovered more than one-third of the State output of placer gold; most of the remainder came from floating connected-bucket dredges operating at Warren, at Pierce, near Elk City, near Salmon City, and at Sunbeam, and by dragline dredges operating near Elk City, Harvard, Leesburg, Murray, Golden, De Lamar, Grand View, and Pierce. The 3-cubic foot floating connected-bucket dredge which formerly operated at De Lamar was moved to a property at the mouth of Crooked River near Elk City and started operating in August, and one of the 3½-cubic foot floating connected-bucket dredges which formerly operated at Warren was moved to Moose Creek near Salmon City and also started operating in August. A new 8-cubic foot floating connected-bucket dredge was erected on Yankee Fork at Sunbeam and placed in operation in September, and new draglines operated in 1940 at Elk City, Harvard, Murray, Pierce, and White Bird. The production of gold from lode mines was about 87,000 ounces in 1940 compared with 67,999 ounces in 1939. About 79 percent of the total gold from lode mines came from the Middle Boise (Atlanta), Yellow Pine, Warm Springs (Hailey), Burgdorf-Marshall Lake, Coeur d'Alene, Mineral Hill (Shoup), Carson (Silver City), Yankee Fork, Orogrande, and Ten Mile districts. There were substantial increases in gold production from the Middle Boise, Yellow Pine, Boise Basin, Orogrande, Yankee Fork, Elk City, Hoodoo (Harvard), and Carson districts,
MINING INDUSTRY OF IDAHO

but large decreases from the Newsome, Warm Springs, and Burgdorf-Marshall Lake districts. The largest producers of gold in Idaho in 1940 were the Boise-Rochester-Monarch group at Atlanta, Fisher & Baumhoff dredges at Centerville, Yellow Pine mine at Stibnite, Triumph mine near Hailey, Warren Dredging Co. at Warren, Golden Anchor mine at Burgdorf, Idaho-Canadian Dredging Co. at Idaho City, De Lamar Milling Corporation at De Lamar, Gold Producers, Inc., at Shoup, Quartz Creek Dredging Co. at Pierce, Custer Consolidated at Sunbeam, Northwest Goldfields, Inc., dragline near Harvard, and Consolidated Gold Mines, Inc., near Murray.

The output of silver in Idaho in 1940 was slightly more than in 1939, owing chiefly to increases from the Mineral Point (Coeur d'Alene Mines Corporation), Bunker Hill & Sullivan, Star, Page, Hecla, and Silver Dollar properties. About 60 percent of the State output of silver in 1940 was recovered from silver ore, and the remainder largely from zinc-lead ore. The Sunshine Mining Co. was again the largest silver producer in the United States, although its output declined from 9,414,514 ounces in 1939 to about 8,100,000 ounces in 1940. A large decrease in silver output was reported also by the Triumph Mining Co. (formerly Snyder Mines, Inc.). Following the Sunshine, other large producers of silver in Idaho in 1940 were the Bunker Hill & Sullivan, Polaris, Hecla, Morning, Triumph, Coeur d'Alene, Page, Crescent, Star, De Lamar Milling, and Sherman mines, all in the Coeur d'Alene region except the Triumph and De Lamar Milling properties.

The copper output of Idaho was 33 percent greater in 1940 than in 1939, owing chiefly to the large increase in output of silver-copper ore from the Mineral Point mine near Kellogg and to copper ore from the Empire (Mackay Exploration Co.) mine near Mackay. More than half of the State total in 1940 was recovered from silver ore from the Sunshine and Mineral Point mines near Kellogg; the rest came largely from zinc-lead ore from the Bunker Hill & Sullivan, Hecla, Morning, and Triumph mines and from copper ore from the Empire mine.

Lead production in Idaho in 1940 was the largest since 1920 and 14 percent greater than in 1939; the gain resulted from the increase in the sales price of both lead and zinc, which caused virtually all the large producers of zinc-lead ore in the Coeur d'Alene region to increase their output of such ore. However, during the period 1911 to 1918, inclusive, Idaho produced a yearly average of 329,059,620 pounds of lead and reached a record production of 393,559,521 pounds in 1917. In 1940 Idaho was the largest producer of lead and zinc in the Western States. There were large increases in output of lead in 1940 at the Star, Bunker Hill & Sullivan, Tamarack & Custer, Hecla, Page, Sherman, Idaho Continental, and Interstate mines, but large decreases at the Morning and Triumph mines. The Bunker Hill & Sullivan mine was the largest lead producer in Idaho in 1940, followed by the Morning, Hecla, Page, Star, Triumph, Tamarack & Custer, Idaho Continental, Sherman, Blackhawk, Dayrock, and Gold Hunter mines; these 12 properties produced 95 percent of the State total. Nearly 92 percent of the State lead output came from zinc-lead ore and the remainder largely from lead ore.

The output (141,300,000 pounds) of zinc in Idaho in 1940 was the largest in the history of the State and 32,902,000 pounds greater than the former record of 1937. Nearly all the large producers of zinc-lead ore in the Coeur d'Alene region increased their output in 1940. There were notable increases in production of zinc at the Star, Hecla, and Tamarack & Custer mines and substantial increases at the Bunker Hill & Sullivan, Morning, Page, and Interstate mines, but a decrease at the Triumph mine. The Morning mine at Mullan was, as usual, the largest producer of zinc in Idaho and was followed by the Star, Bunker Hill & Sullivan, Hecla, Triumph, Tamarack & Custer, Page, Frisco, and Interstate properties; these nine properties, all except the Triumph in the Coeur d'Alene region, produced 97 percent of the State total.

About 2,500,000 tons of ore were produced in Idaho in 1940 compared with 2,108,445 tons in 1939. Approximately 78 percent of the total in 1940 came from 40 mines in the Coeur d'Alene region; the remainder was mostly gold ore from
Valley, Elmore, Idaho, Lemhi, and Boise Counties, zinc-lead ore from Blaine County, lead-silver ore from Custer, Boundary, and Bonner Counties, and gold-silver ore from Owyhee County. New milling plants were constructed and operated at the Tamarack & Custer mine near Burke, Sherman mine near Wallace, Mineral Point mine near Kellogg, Lincoln mine at Pearl, and Falls Creek property near Gilmore. The lead smelter and refinery at Bradley, owned by the Bunker Hill & Sullivan Mining & Concentrating Co., and the electrolytic zinc plant near Bradley, owned by the Sullivan Mining Co., were operated throughout the year at a substantial increase over 1939. The new plant of the Bunker Hill & Sullivan Mining & Concentrating Co. at Bradley to recover antimony and bismuth from the silver ores and concentrates from the "Dry Belt" section of the Coeur d'Alene region was operated part of the year.

Increases are indicated in the number of both lode and placer mines producing in Idaho in 1940; 362 lode mines and 465 placers were producing in 1939.

In 1940 mines in the Coeur d'Alene region of Shoshone County produced 89 percent of the State silver output, 81 percent of the copper, 92 percent of the lead, and 91 percent of the zinc; the rest of the silver, copper, and lead came largely from the Warm Springs district in Blaine County, the Bay Horse district in Custer County, the Port Hill district in Boundary County, and the Pend Oreille district in Bonner County and nearly all the rest of the zinc came from the Warm Springs district. The production of silver from the Coeur d'Alene region in 1940 was about the same as that (15,204,934 ounces) in 1939, gold increased from 5,928 to 6,600 ounces, copper from 4,136,115 to 5,500,000 pounds, lead from 163,397,979 to 190,500,000 pounds, and zinc from 80,129,962 to 127,900,000 pounds; the total output of ore and old tailings from the region was about 1,955,000 tons (compared with 1,611,068 tons in 1939), and more than 74 percent of it was zinc-lead ore and old tailings and most of the remainder was silver ore. Large increases in output of zinc-lead ore were recorded at the Bunker Hill & Sullivan, Star, Hecla, Tamarack & Custer, and Page properties, and of silver ore at the Mineral Point mine. Following the Coeur d'Alene region, the Warm Springs district near Ketchum, Blaine County, was the most important producing area in Idaho in 1940; its output was virtually all zinc-lead ore from property operated by the Triumph Mining Co. (formerly Snyder Mines, Inc.) and was shipped to Bauer and Tooele (Utah) for reduction. In 1940 approximately 88,000 tons of ore were produced in the Warm Springs district and yielded 9,375 ounces of gold, 855,000 ounces of silver, 200,000 pounds of copper, 10,100,000 pounds of lead, and 13,450,000 pounds of zinc; in 1939, 107,479 tons of ore yielded 12,477 ounces of gold, 1,197,209 ounces of silver, 241,673 pounds of copper, 11,129,447 pounds of lead, and 14,926,520 pounds of zinc.

Final State, county, and district annual figures and further operating details by districts will appear in Minerals Yearbook, 1941.

By George E. Woodward and Paul Luff, Salt Lake City Office, Mineral Production and Economics Division, H. Herbert Hughes, Chief Economist.

DEPARTMENT, INSPECTOR OF MINES
APPROPRIATION BIENNium 1939-1940

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