Fortieth Annual Report

of the

MINING INDUSTRY

OF IDAHO

For the Year

1938

ARTHUR CAMPBELL

INSPECTOR OF MINES

BOISE, IDAHO
HONORABLE BARZILLA W. CLARK
Governor, State of Idaho
Chairman, Board of Control, Bureau of Mines and Geology
LETTER OF TRANSMITTAL

To His Excellency,

THE HONORABLE BARZILLA W. CLARK,
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, 1938.

Respectfully submitted,

ARTHUR CAMPBELL,
Inspector of Mines.
TABLE OF CONTENTS

Letter of Transmittal ............................................................................................................. 3
Introduction ........................................................................................................................... 6
Why a Public Relations Program ......................................................................................... 8
A Public Relations Program for the Mining Industry ......................................................... 10
What Mining Means to the United States .......................................................................... 13
How Mining Distributes Its Income ................................................................................... 14
Wages, Hours, Employment (National) ............................................................................. 14
Education in Public Relations ............................................................................................ 15
Idaho Mining Association Convention:
  Address of Welcome, by Mayor J. L. Edlefsen ................................................................. 17
  Response, by Stanley A. Easton, Pres., Idaho Mining Assn. ............................................ 18
The Western Point of View, by Harrison C. Dale, Pres., University of Idaho ...................... 21
An Open Letter to a Driver Who Speeds Through Our Streets ........................................ 25
Bury Me on a Mountain Top (Idaho Verse), by Edwin G. Hall ....................................... 25
The Relation of Mines to Forests, by G. B. Mains, Forest Supervisor ............................... 27
Use Idaho Materials, If— ..................................................................................................... 30
Necessity for More Extended Use of Safety Equipment in Mines, by D. Harrington, U. S. Bureau of Mines ................................................................. 31
Mine Rescue Work in the Coeur d'Alene Mining District, by James Wilson, Director in Charge ..................................................... 42
Men Employed and Wages (Idaho) ................................................................................. 44
Accidents .............................................................................................................................. 46
Description of Fatal Accidents ............................................................................................ 47
The Evolution of Safety in Small Mines, by Paul V. Black, Safety Inspector, State Insurance Fund ................................................................. 64
Idaho Bureau of Mines and Geology:
  Director's Report, by Dr. A. W. Fahrenwald ................................................................. 65
  Bureau Activities, by Dr. A. W. Fahrenwald ................................................................. 69
  List of Assayers—Custom Charges for Metals .............................................................. 70, 71
Technical Publications:
  Idaho Bureau of Mines and Geology .............................................................................. 72
  United States Geological Survey ................................................................................ 75
  United States Bureau of Mines ..................................................................................... 76
General Bibliography of Idaho's Mineral Resources ........................................................ 79
Assessment Exemption ...................................................................................................... 104
Abbreviations and Symbols ............................................................................................. 106, 107
Ada County ......................................................................................................................... 108
Bannock County .............................................................................................................. 111
Bear Lake County ........................................................................................................... 112
Benewah County .............................................................................................................. 114
Bingham County ............................................................................................................. 115
Blaine County .................................................................................................................. 115
Boise County ................................................................................................................... 120
Bonner County ............................................................................................................... 127
Bonneville County .......................................................................................................... 133
Boundary County .......................................................................................................... 134
Butte County .................................................................................................................. 135
Camas County ................................................................................................................ 137
Canyon County ............................................................................................................... 140
Caribou County .............................................................................................................. 141
Cassia County ................................................................................................................ 143
Clark County .................................................................................................................. 143
Clearwater County ....................................................................................................... 144
Custer County ................................................................................................................ 147
Elmore County ............................................................................................................... 152
Fremont County ............................................................................................................. 156
Gem County ................................................................................................................... 157
Idaho County ................................................................................................................... 158
TABLE OF CONTENTS—(Continued)

<table>
<thead>
<tr>
<th>County</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kootenai County</td>
<td>173</td>
</tr>
<tr>
<td>Latah County</td>
<td>176</td>
</tr>
<tr>
<td>Lemhi County</td>
<td>179</td>
</tr>
<tr>
<td>Lewis County</td>
<td>187</td>
</tr>
<tr>
<td>Nez Perce County</td>
<td>187</td>
</tr>
<tr>
<td>Oneida County</td>
<td>188</td>
</tr>
<tr>
<td>Owyhee County</td>
<td>188</td>
</tr>
<tr>
<td>Payette County</td>
<td>192</td>
</tr>
<tr>
<td>Power County</td>
<td>193</td>
</tr>
<tr>
<td>Shoshone County</td>
<td>193</td>
</tr>
<tr>
<td>Teton County</td>
<td>239</td>
</tr>
<tr>
<td>Twin Falls County</td>
<td>240</td>
</tr>
<tr>
<td>Valley County</td>
<td>240</td>
</tr>
<tr>
<td>Washington County</td>
<td>245</td>
</tr>
<tr>
<td>Corporations Not Owning Property in Idaho</td>
<td>247</td>
</tr>
<tr>
<td>Reports of Mining Companies, Not Yet Filed</td>
<td>247, 248, 249, 250</td>
</tr>
<tr>
<td>Idaho Code Annotated, 1932, Official Edition:</td>
<td></td>
</tr>
<tr>
<td>Report to Inspector of Mines</td>
<td>251</td>
</tr>
<tr>
<td>Protection of Mechanics</td>
<td>252</td>
</tr>
<tr>
<td>Inspectors of Mines</td>
<td>254</td>
</tr>
<tr>
<td>Mineral Production, 1937</td>
<td>255</td>
</tr>
<tr>
<td>Mineral Production, 1938 (Preliminary Figures)</td>
<td>260</td>
</tr>
<tr>
<td>Monthly Average Prices of Metals 1935-1938</td>
<td>263</td>
</tr>
<tr>
<td>Production Review, Shoshone County</td>
<td>264</td>
</tr>
<tr>
<td>Taxes: Property, Income, Mine License</td>
<td>265</td>
</tr>
<tr>
<td>Hecla Mining Company's New Mill</td>
<td>266</td>
</tr>
<tr>
<td>Land Area, State of Idaho</td>
<td>267</td>
</tr>
</tbody>
</table>

TABLE OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark, The Hon. Barzilla W. Clark, Governor, State of Idaho</td>
<td>2</td>
</tr>
<tr>
<td>Dredge: Typical of Ten Floating Dredges in Idaho</td>
<td>246</td>
</tr>
<tr>
<td>Forest Highway</td>
<td>68</td>
</tr>
<tr>
<td>Idaho:</td>
<td></td>
</tr>
<tr>
<td>State Capitol</td>
<td>29</td>
</tr>
<tr>
<td>State Flag</td>
<td>20</td>
</tr>
<tr>
<td>State Seal</td>
<td>17</td>
</tr>
<tr>
<td>Map:</td>
<td></td>
</tr>
<tr>
<td>Geological Diagram</td>
<td>26</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>112-A</td>
</tr>
<tr>
<td>Miner: Operating Drill</td>
<td>254</td>
</tr>
<tr>
<td>Placer Mining: By Hydraulic Giant</td>
<td>71</td>
</tr>
<tr>
<td>Transportation:</td>
<td></td>
</tr>
<tr>
<td>Modern Underground Haulage, Bunker Hill &amp; Sullivan M. &amp; C. Co.</td>
<td>45</td>
</tr>
<tr>
<td>Transporting Supplies by Pack Train</td>
<td>267</td>
</tr>
<tr>
<td>Underground Haulage</td>
<td>262</td>
</tr>
<tr>
<td>University of Idaho: Administration Building</td>
<td>24</td>
</tr>
</tbody>
</table>
MINING INDUSTRY OF IDAHO

INTRODUCTION

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 22 of the 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 38 years, more than $26,000,000.
Average annual mine payroll, more than $9,000,000.

The office of State Inspector of Mines is a statutory office created by act of legislature, the same to be filled biennially at the general election, by the qualified electors of the state, as other offices. The bond, salary, oath and duties are also covered by statute.

The inspector subscribes to an oath which is different and more binding than the oath taken by the governor and the other constitutional officers. The Inspector of Mines shall not, at the time of his election or any time during his term of office, be an officer, director or employee in or of any mining corporation in this state, or in or of any milling corporation in the state engaged in the business of smelting or reducing ores. The Inspector shall devote his whole time to the duties of his office and solemnly swears that he will perform each and every duty required of him as Inspector of Mines for the State of Idaho; that he will at all times while acting in his official capacity, fulfill the duties of such office according to law, and to the best of his skill and understanding; that he will never at any time while holding the office of Inspector of Mines disclose to anyone, directly or indirectly, under any circumstances, any information relative to ore bodies, chutes, or deposits of ore, or the location, course or character of underground workings, or give his opinion founded on any examination made in the performance of his official duties, relative to the value of any mine or mining property, unless by permission of the person or persons in charge of the same; to all of which he pledges his sacred honor.

The duties in general, covered by statute, are very specific. It shall be the duty of the Inspector of Mines, at least once each year, to visit in person each mining county in the State of Idaho and examine all such mines therein as, in his judgment, may require examination for the purpose of determining the condition of such mines as to safety, to promulgate reasonable regulations for safety and health of employees in such mines, and to collect information and statistics relative to mines and mining and the mineral resources of the state, and to collect, arrange and classify mineral and geological specimens found in this state and to forward the same to the State School of Mines.

The Inspector's annual report of the mining industry of Idaho gives information on the mineral resources of the state and the capital structure of companies doing business in Idaho. It is the only publication dealing with general mining activities issued for distribution by the department. In fact it is more of a hand book than a formal report and serves as an advertising medium for the industry in the state. In the past these reports have proven exceedingly valuable, not only to operators and engineers, but to prospective investors, and every effort should be made to continue their...
INTRODUCTION

publication and to make them as complete as possible. This book has a
wide distribution in each county of the state, all states in the Union and
many foreign countries.

The Inspector of Mines is a member of the Board of Control of the
State Bureau of Mines and Geology, the other members of which are the
Governor, Dean of the School of Mines of the University of Idaho (who is
also Director of the Idaho Bureau of Mines and Geology), head of the
Department of Geology of the University of Idaho, and the president of the
Idaho Mining Association. The Inspector has direct charge and supervision
of the mining library and the mineral exhibit which is located in the rotunda
of the Capitol Building. The library is believed to be the largest library
of its kind in Idaho. In addition to magazines dealing with mining, which
are regularly received, it contains nearly every publication of the U. S.
Geological Survey and U. S. Bureau of Mines, most of the U. S. Mint Reports,
numerous volumes published by the geological surveys of other states, and
many volumes of journals dealing with mining, geology, mineralogy and the
mineral resources of Idaho. In order to make this information readily avail­
able to the public, this material has been indexed according to counties
and subjects and published in the report. The indexing has been kept up to
date, and so far as is known, each county bibliography contains references
to all material of any importance that has ever been published concerning
the county. Publications relating to specific minerals found in the State
are listed also under the "General Bibliography." The usefulness of the
Bibliographies has been further increased by including publisher's ad­
dresses and information as to whether each particular reference can be
procured or not. Symbols have been added as a guide to facilitate explain­
ing this information. Most of the publications listed are found in the In­
spector's library. These publications may also be consulted in all large
libraries.

Visitors are always welcome to consult the books of the library or to
read the magazines. In the absence of the Inspector, the secretary is glad
to assist visitors in finding desired information.

It has been the aim of this department to bring the prospect lists up to
date as we feel they are a very essential part of the report. The furnish­
ing of detailed information by owners of prospects not only assisted in dis­
playing the mining possibilities of Idaho, but often proved an attractive ad­
vertisement of the property. Owing to the continued curtailment of funds
and as a measure of economy, these lists have been omitted from this year's
report. We are hopeful, however, that the next session of the legislature
will provide adequately for this work.

Every effort has been made to cooperate with the various bureaus
and departments for the best interests of the state and the mining industry.

In conclusion it gives this department great pleasure to acknowledge
the good will and support the operators have uniformly rendered our
Safety First program and the co-operation of the employees in reducing the
number of serious and fatal accidents in an industry that is acknowledged
to be hazardous. Also, thanks to the newspapers who furnished gratuitous
subscriptions, the help of both federal and state bureaus and agencies, the
contributors of the special articles to this report, and the personnel who
have assisted the Inspector of Mines by their faithfulu services in the
performance of their duties. Trusting the year 1939 will bring increased
prosperity to the mining industry of Idaho, we respectfully submit this
report to all concerned.

ARTHUR CAMPBELL, Inspector of Mines.

MARIE CARROLL SAVAGE, Secretary.
Why a Public Relation's Program

In less than two generations the United States has changed from an agricultural to an industrial nation. Living standards and efficiencies at once the despair and envy of other countries have been created. Foreign delegations still flock to our shores to study our methods so that they may use them as patterns for their own organizations. Yet here at home today these methods and the systems responsible for them are under increasing attack by those who fail or refuse to comprehend our industrial economy.

Since every person employed in productive enterprise is a part of American industry, these attacks imperil the livelihood of nearly 40 million workers and their dependents. The newest addition to the payroll has as much at stake as the veteran business executive—in fact he may have even more at stake than the executive. That also is true of particular industries which at present may not be under direct fire. All industry is so interrelated and interdependent that even seemingly immune enterprises must suffer when the legitimate activities and the buying power of their customers, or the customers of their customers, are curtailed.

Ironically enough, public acquiescence in many of the current attacks is an indirect recognition of the satisfactory manner in which our industrial system normally functions. Reasonable opportunities for the employment of those ambitious to put their mental or physical talents to work, and continually rising standards of living, have come to be widely accepted as matters of course. Any unfavorable change in these conditions leaves the general public surprised, confused, and resentful. Such reactions as these further heightens resentments and breeds new misconceptions.

These misconceptions take many forms shaped by the experience, the inexperience, or the special interests of the critics. To one it appears that business can’t manage itself and must be owned and managed by the Government. Another believes that employees are underpaid or that stockholders and executives are overpaid. To others corporate surpluses are too high. Many have convinced themselves that power and machines have reduced employment opportunities; and that industry can raise wages and reduce prices while costs go up.

Several misconceptions are based on faulty generalizations. Because a few companies have been remarkably successful, it is argued that all could make money. Because some corporations have been ruthless, all corporations, it is contended, will stoop to unethical conduct to gain their ends. This is like saying: John Smith killed Bill Brown; John Smith is auburn-thatched; all redheads, therefore, are murderers. Unfortunately, those who would indict all business for the crimes of a few are more subtle in their approach and so create an impression not in accord with the facts.

To put it bluntly, American industry, once so highly praised for its contributions to the national well-being, is now on the spot. Prevailing misconceptions of how business operates and what it does have made a field day for those who propose to hamstring or destroy private initiative and individual opportunity. These proposals run a broad gamut: They include public ownership, increasing and rigid Federal control at the expense of local autonomy, ill-conceived legislation on hours and wages, labor dictatorships and confiscatory taxes on thrift and employment security.

Though the man in the street may be criticized for his willingness to swallow these nostrums, he is not wholly to blame. Industry, too, has been at fault, in assuming either that he was fully informed on those phases of its operations which are properly a matter of public interest, or that a healthy curiosity should be discouraged. Misconceptions multiply where the facts are hidden.
The tragedy of the situation lies in the fact that it might easily have been avoided. In the simple days of local and localized industry, everybody connected with a particular enterprise knew everybody else connected with it, and the details of its operations were an open book. The boss and the employees were neighbors; the customers, for the most part, fellow townsmen. Outside purchases were limited largely to those products which the local community neither manufactured nor raised. Competition in the modern sense was practically non-existent.

As industry developed and enlarged its field of operations, much of this early intimate personal touch was lost. The small enterprise grew bigger. In some cases combinations took in the local business and financial control passed out of the community. The local industry which still retained its identity was busy meeting increased competition and seeking to expand its distribution. Little attention was paid to changing conditions that were fostering misconceptions about the personal relations of the business. Bit by bit the close acquaintance and familiarity of the early days disappeared.

Common understanding of these things also was impeded by the greater variety of occupations as industry expanded. Each man's job became so highly specialized that the old feeling of common partnership in a joint undertaking frequently was buried in an exaggerated feeling of the relative importance of his own work. This made it easy for each occupational group to get the idea that its contribution to the undertaking alone was essential and that many of the other groups were parasitic or, at best, unimportant.

Such mistaken beliefs are the exclusive property of no particular group. "Goods are valueless until sold," chants the sales staff; "without us the wheels of industry would cease to turn." The wheels would turn much faster, growls the production department, "if we didn't have so many lame-brains drawing fat salaries as salesmen." Under the cold glance of both groups, the clerical force heatedly inquires: "How long do you think this business would last if we didn't keep the cost records, send out bills, and collect the money for pay checks?" Some executives and engineers, too, have been known to forget that their plans cannot be carried out without the co-operation of other groups.

Possibly the greatest single cause of misunderstanding and friction has been fuzzy thinking on social responsibilities. Many of the responsibilities which rested on the individual or the State in our fathers' and grandfathers' days have been shifted to the shoulders of industry. New ones constantly are added or proposed—often before industry has had time to adjust itself to those which have gone before. Some of these responsibilities affect employee relations; others involve customer relations. The worker, for example, no longer is completely defenseless against the occupational hazards of his employment. "Let the buyer beware" no longer is considered smart merchandising. Many of the changes now embodied in the laws were anticipated by industry itself. Opposition—valid or otherwise—to social legislation, however has been used to damn business in the public eye.

Fortunately, the barriers to good will and common understanding can be broken down. The process is a simple one. It consists chiefly in maintaining good policies in human relationships and in keeping all interested people—employees, stockholders and their neighbors, customers and the general public—informed. It means telling them in plain terms what revenue is received and where it comes from, what revenue is paid out and who gets it, how an industry serves the individual, the community and other industries. Finally, it includes the acceptance of the social responsibilities which the advance of civilization imposes upon business.

Add all these things together and you have public relations.

Most employers are willing to accept their social responsibilities, but they are inexpert in making that acceptance articulate. Too many employers have failed to make clear their policies, their practices, and their purposes as they relate to fair dealing with employees, investors, and the general
public. Their intentions have been good, but they have cloaked them with a veil of secrecy and made a mystery out of simplicity. As a result the uninformed have been given a royal opportunity to exercise their imagination. And they have done it!

Public relations is a comparatively new activity for most business enterprises and involves a technique which too many have not yet learned. Obviously, the first place for each company to start is within its own organization. This is the "inside job" that builds a company's good name among its own family and lays the firm foundation for building public confidence and favor. As one exponent of the art phrases it: Industry's public relations cannot be one thing and its private actions and policies something else. The two must be in complete accord.

The inside job should present no real difficulties to fair-minded employers. Most workers have a normal predisposition to view in a favorable light the organization in which they earn their livelihood. Most companies endeavor to conduct their operations so as to justify that favorable attitude. But too few of them are adept at dramatizing the facts that furnish a substantial basis for maintaining employee good will. So, where misunderstanding and suspicion born of ignorance exist, time may be required to break down the barriers that have grown up.

The task of telling this inside job to the outside world, however, will not be easy, for two reasons. First, it has been so long neglected that the backlog of misunderstanding is large. Second, public relations involves attitudes as well as actions, a viewpoint as well as an organization. Public relations is not a commodity that can be purchased like a car of coal or a bolt of silk; neither can it be sold by "canned" material. Each program to establish sound public relations must be individualized and indisputably stamped with the personality of the company promoting it. And the deed must always back the word!

But the task is worth the effort. For, with the inside job right, a properly conceived and intelligently executed public relations program offers business the means of counteracting successfully unjust public suspicion, unfair political attack, and unwarranted outside dictation. The need is urgent.

A PUBLIC RELATIONS PROGRAM FOR THE MINING INDUSTRY

Every mining company should cherish a good name and reputation among its employees and in the community in which it operates. Where the company and the community are practically identical, as in an isolated camp, the company has the entire problem under its control. Where two or more companies operate in a district, they have joint responsibility for community relations. But beyond these human relations—employer-employee relations—is the larger aspect of public relations that create in the public mind a favorable or an unfavorable reputation for the mining industry as a whole—a favorable or an unfavorable impression of its social and economic services to the public at large.

Assuming that a mining company senses the importance of gaining public good will and support, it can follow a pretty well-defined technique that has been developed out of experience. The basic elements of the program are nearly identical for any industrial unit, whether it be in mining, lumbering, construction, or manufacturing. Essentially, it is a matter of maintaining a contented and effective organization and a good name. The problem resolves itself into an inside job and an outside job—industrial (or employer-employee) relations, and public relations.
Employees are a company's first line of contact with the public. To a large extent they determine its reputation in and beyond the community in which the company operates. Hence the primary importance of establishing sound relations, which can be achieved by the steps outlined below.

**STEP 1—Set Up a Leader.** This work needs the leadership of an able administrator, with knowledge of mining and skilled in guiding human relations. He should report to the chief executive. In a small organization this duty and responsibility may devolve upon the executive himself.

**STEP 2—Clarify Organization.** Uncertainty means an uneasy personnel inclined toward political maneuvering. The organization of the company should be clearly defined, so that the authority and responsibility of individuals may be known to all. In many cases, this calls for more than a simple organization chart. A manual may be necessary. Whatever is done should be adequate to make specific the lines of authority and responsibility and the functions of all officials.

**STEP 3—Determine Personnel Policies.** A statement should be formulated by the top executives, aided by representatives of all the management groups. If satisfactory relations have been established, the statement should be submitted to the employee representatives. Once adopted, the policies should be made known to all employees.

Policy statements should be definite in such matters as wages, working hours, overtime, promotions, layoffs, vacations, medical and hospital care, safety, training and education, profit-sharing, collective bargaining, and other matters of primary concern to employees.

**STEP 4—Improve Personnel Efficiencies.** Strengthen those influences within the organization that increase the efficiency of the working force, the purpose being to advance the interests of the individual and the company through lower production costs and improvements in the quality of product. As basis for carrying out a program looking toward increasing the efficiency of the working force, it is necessary to establish certain basic policies such as—

1.—Payment of prevailing wages and salary scales.
2.—Evaluation of jobs and setting up uniform scales of pay for equal grades of work.
3.—Establishment of pay differentials, having due regard for responsibilities, requirements in skill, mentality, working conditions, and physical application.
4.—Establishment of financial incentives where possible.
5.—Establishment of positive procedures by which all changes in rates of pay are fully explained to the employees concerned. For example, where wage rates are based on metal prices.

**STEP 5—Assure the well-being of Employees.** Consider the physical and mental well-being of employees by providing safe and sanitary working conditions, and services necessary for human comfort. This applies to living quarters, quality of food and cooking, heat, light, and ventilation, and suitable means for rest and recreation.

The stabilizing of employment and the establishment of organized protection against unemployment, sickness, old age, and death have a far-reaching influence on both the physical and mental welfare of employees. So has assistance to deserving individuals in their problems of savings and housing.

**STEP 6—Train and Educate.** A safety and first-aid program should be developed, and provision should be made for the education of children. Adult education also may be undertaken with advantage to employees, the company, and the community.

These six steps are designed to create and maintain on the part of employees a feeling of confidence in the management and satisfaction with their work and their future. This is the most important part of the "inside
job" of public relations. Not only is it necessary to do the inside job. It is equally essential to let employees know that it is being done, not as a paternalistic gesture but as a matter of common sense in human relations.

**Public Relations**

Having done a good job on industrial relations within the organization, the most important step already has been taken toward building up good will outside. The Company is now in position to tell its public not what it aspires or pretends to be, but what it is and how it contributes to public welfare.

In the community where the company is located people judge the company by the things they are told. They may get their information from individuals or groups who are not parts of the organization and who are working for selfish ends. These people may or may not give facts. Or they may get their information from the employees themselves, who are prone to tell the truth as they know it. In promoting community good will, informed employees are an asset to the company that has done the "inside job."

A company can participate actively in building good will in the community by taking progressive steps to publicize facts about its business, making them available promptly, accurately, clearly, and frankly, through the local paper and other media that exist in every community.

A related method is to take an active and constructive part in community affairs. By becoming itself a good citizen and neighbor, a company makes itself known and liked. Here are types of community activities that have been used successfully:

1—Close acquaintance and co-operation with the local press following a policy of giving the whole truth and nothing but the truth.
2—Joining with other companies in the community to disseminate facts and to create and maintain public good will.
3—Encouraging employees to participate in civic affairs.
4—Discussing company and community affairs with local leaders of thought.
5—Participating in the operation of a community foreman's club.
6—Circulating company house organs to interested people outside the organization.
7—Presenting facts before civic organizations and clubs.
8—Showing plant operations by motion pictures in schools and before other groups.
9—Co-operating with local charities and character-building agencies.

**Informing the Public**

Who comprise the mining industry's public? Employees, other members of the immediate community, units of government—local, State, national—stockholders, sellers of supplies and equipment, and consumers of the industry's products. In all, quite a body of people, more or less interested and more or less influential. To keep them informed is quite a task.

Unfortunately, facts and figures of the mining industry have little circulation outside the industry itself. And yet there are many matters of public interest which, if suitably publicized, would gain good will and support for a single company or for the industry as a whole.

For example, there is probably little public appreciation of the tremendous economic and social service rendered by mining. On the other hand, there are many public misconceptions about mining that might be cleared up to the advantage of the industry.

What does the public know about the industry as an employer? What about its wages and hours? How do they compare with those of other industries? Does the public understand that one reason mining is able to pay its wage earners well is because workers are furnished the most efficient tools for production—in other words, that mechanization increases human productivity which is the sole source of workers' income? What about the
industry as a purchaser of supplies and power? How profitable is mining compared with the attendant risk? How much capital has to be invested to provide a job for a man? What part do the ordinary metals play in the standard of living? These and many other similar questions suggest topics of information for public dissemination in the interest of better public relations. Part of the job can be done by individual companies, and part by State or national associations.

The foregoing outline is merely a guide or road map for those who realize the trend of current thought, and who sense the importance of the subject. The notion should be dispelled that public relations is something that can be bought and paid for once and for all. It is a mode of industrial life that must be practiced as well as preached. Neither is it something that can receive abstract approval, be delegated to some subordinate, and then forgotten. It must always be on the executive's horizon. Successful application of its principles and policies will come only with practice and experience, and the best results will be achieved in those companies whose chief executives are keenly alive to the problem.

On the Following Pages

Assembled from authentic sources, a variety of data and facts about the mining industry are presented in the remaining pages of this insert. They answer some questions more or less prevalent in the minds of the public, of stockholders, of employees of mining companies.

How important a factor is mining in the economic and social structure of the United States? Obviously, far greater than would be indicated by the mere number of people engaged. How profitable is metal mining, and how do the companies fare that incur the risks of mining? The record emphasizes the risks and justifies the rewards. What income is produced, and how is it distributed? Wages take the major share. How do wages and hours in mining compare with those of other industries? Wages are better than in manufacturing industries, and hours are not excessive. How safe is the miner's work? The record shows a large margin for further reduction in severity and frequency of accidents.

Such facts deserve a wider public dissemination than they can receive in Engineering and Mining Journal. The courtesy is therefore freely extended to reproduce them in company papers, on bulletin boards, in newspapers of mining communities, or in any other manner that will promote public good will for the mining industry.

WHAT MINING MEANS TO THE UNITED STATES

. Measured in terms of capital investment, value of products, or number of workers employed, mining ranks last among the four primary industries of the United States. These conventional yardsticks, however, are not altogether accurate indicators of the importance of mining in our national economy. Actually, mining is coordinate with manufacturing, agriculture, and transportation because each of these primary industries is critically dependent upon the product of the mines. Manufacturing draws on the minerals both for its machines and for the power to operate them. The products of the mines constitute nearly two-thirds of the revenue freight handled by the railroads and about one-fourth of the ocean-borne traffic. Even agriculture now leans heavily on the minerals for its fertilizers and its implements of cultivation and harvesting. Moreover, minerals are necessary to link the farms with the markets. The products of the mines, in fact, form the material basis for modern industry. (Minerals Yearbook, 1937, Bureau of Mines.)
HOW MINING DISTRIBUTES ITS INCOME

Income paid out by the mining industry may be defined as the sum of payments to, or receipts by, individuals as compensation for economic services rendered in the form of labor, management, or the furnishing of capital. If the income paid out is less than the value of the net product, or income produced, then the industry may be said to have had positive business savings. If, on the other hand, the income paid out exceeds the income produced, the industry can be said to have incurred negative business savings. The aggregate income produced or paid out by all industrial groups constitutes the national income in the United States.

Roughly two-thirds of the national income paid out represents compensation of employees. In 1935 it was 67.3 per cent, including work-relief wages to the extent of 2.5 per cent. For the same year the mining and quarrying industry (anthracite and bituminous coal, metallic and non-metallic ores and minerals, oil and gas) distributed 69.3 per cent of its income paid out as wages and salaries.

The national income alone shows positive business savings in 1929, with annual negative savings since then. The effect of the depression on national income is clearly evident, but is much less severe than the impact on mining and quarrying as a whole, or on the metal and non-metal mining branches. Even in 1929 the mining and quarrying group and its metal and non-metal branches were drawing on capital and surplus, and negative business savings have been recorded in each succeeding year. Apparently, this is due to the rigidity of cost items other than income payments. In the metal-mining branch, which produces materials used largely in the durable-goods industries, income produced was a negative figure in 1932.

Metal mining consistency distributes a larger percentage of income paid out as dividends than does any other branch of mining and quarrying. In 1934, for example, metal mining distributed 33.8 per cent of income paid out as dividends. The entire mining and quarrying industry distributed only 10.2 per cent; anthracite, 0.6 per cent; bituminous coal, 1.7 per cent; non-metal, 26.0; oil and gas, 14.0 per cent.

WAGES, HOURS, EMPLOYMENT

Despite the agitation for shorter hours and higher wages for workers, and fallacious theories of arbitrary wage-hour legislation, little or no criticism has been directed toward the metal-mining industry.

The eight-hour day has long been the accepted work period for underground, surface, and open-cut workers (Bull. 410, Bureau of Mines).

The cost of living has not encroached on the purchasing power of metal miners. For the period 1933-1937 the cost of living rose, but weekly earnings of wage earners in the metal-mining industry rose faster. Result: purchasing power increased; wage earners could buy more goods and services with the money they received. Workers in quarries and non-metal mines would show almost as favorable a condition. Their purchasing power, however, did not rise above the cost of living until 1936, nor did it rise quite so high as for metal miners.

Wages of mine and smelter workers are higher, on the average, than for employees in industrial and manufacturing plants. Their earnings are high because their productivity is high. And their productivity is high because they are furnished with efficient mechanical equipment. Mining and metalurgy are "high-efficiency" industries.

The great majority of employees in the mining industry are wage earners and they receive the major part of all compensation for employees' services. Salaried workers are relatively few in number and receive a minor as for metal mining.
Salaried workers, however, fare better than wage earners, particularly in times of depression. Their jobs are slightly more secure, so that the percentage of this group tends to rise as total employment falls off. The same holds true of compensation. The percentage received by salaried workers tends to rise slightly as total compensation drops. But in either case—with respect to number employed or compensation received—there is fairly uniform percentage distribution between wage earners and salaried workers in good times and bad.

The cyclical fluctuations in employment and compensation, give evidence of the instability of our industrial activities as a whole. When manufacture and construction are at a low ebb, the demand for metals falls off and mining activity likewise must decline. Production must be curtailed if the industry is to avoid accumulating unwieldy stocks of metal to hang over the market and influence metal prices. Thus, mining is a "dependent" industry. It must relate its production to consumption, with inevitable effect on employment.

As employment and compensation decline during a period of industrial depression, striking changes occur in the distribution of income paid out by the industry. The percentage devoted to wages and salaries rises. Interest charges also go up, but the portion available for dividends to stockholders shrinks sharply. In other words, as operations become unprofitable, an increasing proportion of income paid out goes to wage earners and salaried workers. This was strikingly true in 1932, the low year of the depression, when "income produced" by metal mining was a negative figure.

---

EDUCATION IN PUBLIC RELATIONS

Each industry's job in public relations has its own peculiar requirements, depending on the nature of its public contacts. Obviously, they are not identical, for example, for food manufacture and metal mining. The former touches peoples' lives in the most intimate and direct manner, enters their homes, and affects their health and happiness. By contrast, nobody stops at the corner store on the way home to buy a pound of copper, lead, or zinc for personal consumption. Thus the mining industry is remote from the ultimate consumer of its products, despite the tremendous social and economic benefits derived from their manifold uses and the absolute dependence of modern civilization upon metals.

The primary markets of the metal-mining industry are in other industries—fabricators of equipment and supplies for construction, agriculture, transportation, communication, and limitless kinds of manufacturing operations. These metal-consuming industries constitute the customer group of the mining industry's public, aside from its employees, stockholders, and local communities. Fortunately, this customer group is well served by the mining industry with public information on production, consumption, stocks, prices, and uses of metals. This phase of the public-relations job is well done by joint agencies of different branches of the mining industry. Prominent among these agencies are: American Bureau of Metal Statistics, Copper Institute, United States Copper Association, Copper and Brass Research Association, Lead Industries Association, American Zinc Institute, Iron and Steel Institute, International Tin Research and Development Council, American Silver Producers Association, and American Mining Congress. Through these organizations the metal-using public is kept fully informed on statistical and economic conditions in the metal-mining industry.

Nor has the mining industry wholly neglected the cultivation of good relations with employees, stockholders, and local communities. These are, nevertheless, the aspects of public relations that call for unremitting thought and action, and can always be improved. They demand the study and education of executives as well as of other groups. In fact, unless trained executives become skilled in the techniques of industrial relations, unless knowledge and appreciation of the importance of the subject exist at the top,
progress is likely to be slow. The process works faster by downward than by upward percolation.

For the benefit of those interested in enlarging their knowledge of the subject, we append a few of many references that can be studied to advantage. Literature on public relations is growing rapidly, and much can be learned from the published experience of others.


(Note: The foregoing article is reprinted from October issue, 1938—Engineering and Mining Journal).
ADDRESS OF WELCOME

delivered at the
IDAHO MINING ASSOCIATION CONVENTION
Boise, Idaho, March 12, 1938.

by

MAYOR J. L. EDLEFSEN

Mr. Chairman, and Members of the State Mining Association:

To extend to your organization a welcome to the city of Boise seems superfluous, for it was through the mining industry Idaho was first really discovered, and because of it became a distinct unit of the nation rather than a vague section of the Old Oregon Territory.

It is a proud chapter in the State's history that its outpouring of gold during the Civil war contributed greatly toward the preservation of the Union.

When the pioneers of those days were wending their way to the hills north of our present beautiful city, Boise was but a small outpost for a brief stop before starting the mountain climb to the mines.

Such humble beginning is the foundation of Idaho's capital city of today, and to the miners we give first tribute in appreciation of its splendid growth and progress. Therefore, when the followers of this industry come to Boise they should always feel at home without the formality of an official welcome.

However, personally, and for the citizens of Boise, I am very happy to tender to you a most cordial greeting and to express pleasure that you have chosen our city for your annual convention. It is our desire to bestow upon you every hospitality to assure a pleasant and beneficial meeting, and we trust you will call upon us whenever we may be of service.

With you we rejoice in the revival of the mining industry, not only in the search for gold and silver, but of all useful metals and products, and express the hope that present indications of surpassing even the flowing records of former years, may be realized.

STATE SEAL

The Great Seal of the State, replica of which is embroidered in colors in the center of the flag, came into existence in 1891, by act of the first State Legislature. The translation of the Latin motto on the seal, "Esto Perpetua," is "It is perpetuated," or "It is forever." The river depicted in the shield is our mighty Snake River, a stream of great majesty.
MINING INDUSTRY OF IDAHO

RESPONSE

By STANLY A. EASTON,
President, Idaho Mining Association

Thank you very much, Mr. Mayor, for your kind words of welcome. An evidence of the appreciation of the hospitality the miners of Idaho have enjoyed here in Boise is the fact that they have again chosen Boise for their annual convention.

In response to these words of welcome, it may not be inappropriate for me, as President of the Association, to report briefly on the state of mining in Idaho, and its relation to the public.

The Mayor has just made reference to the enormous production of gold in the early 60's. I daresay he referred particularly to the production from the Boise Basin country, which is regarded as one of the richest shallow gravel beds ever known. Such production of gold in saving the union is noteworthy and had much to do with maintaining the credit of the nation, and in successfully conducting the war of the states.

Since those days, not only has production of gold in Idaho been well maintained, but there has been an astonishing diversity of other mineral products—not only such minerals as zinc, lead, and silver, but the non-metallic substances. You have here in the southeastern part of Idaho one of the most important phosphate deposits in the United States and in northern Idaho large deposits of clay. This clay produces some of the best and most refractory fire brick on the market. It is also used in the manufacture of fine pottery. In the north, particularly Shoshone County, we have the largest silver producer in the United States, probably the largest in the world for straight silver mining. Production of lead is surpassed by only one other state. The production of zinc has been built up so as to be second only to silver and lead. In addition we mine a small amount of copper and a valuable quantity of cadmium.

In Idaho, production of metallic minerals and non-metallic substances, which cover pretty nearly the whole catalog, indicates production will increase rather than diminish. I believe the mining profession can properly claim most of the credit for this diversified production. It has been done without any subsidies, without any governmental help or financial assistance.

We have all done this work practically as a private enterprise. Of course, we have had cooperation from the U. S. Bureau of Mines, and the U. S. Geological Survey. But this assistance has been technical in character. The financing has all been done by private individuals and corporations.

You inquire—What is the mining industry asking for; what do they desire? Now, as in the past, we are not asking for anything. As always we fight our own battles, but we do desire a measure of appreciation from the public.

The industry at the moment is not prosperous. 1937 was an excellent year. The first nine months saw a splendid demand for the products of the Idaho mines. Prices were fair. The close of the year showed a falling-off in demand and a very substantial decline in price. A year ago, for example, lead was 7.75. Today it is 4.5. That is a decline of over 40%. This isn't due to any fault of ours, but merely due to failure of industry. Two industries which were formerly large purchasers of our products are now buying scarcely any—automobiles and public utilities. Subsidiaries of A. T. & T. were large buyers of Bunker Hill lead. The utilities are now in ill-favor.

When one branch of the industry is crippled, it is reflected back on the whole industrial structure. The troubles of mining at the present time are entirely external. The industry itself here in Idaho is in a very
sound condition. I mean by sound condition, mines are well equipped, entirely modern, every effort has been made to comply with requirements of safe, efficient work and industrial hygiene. The mines are well capitalized, well staffed with competent and honest engineers, and to use a popular western phrase, are “Rarin’ to go.”

Our troubles are external—suffering under a tremendous load of growing taxation. I believe that the tax on mines has increased until it runs from thirty to forty cents on the dollar. It is still growing. The thought of the average citizen is, “The mines are paying dividends, they are making a lot of money, therefore, they should pay. This money is going to a relative small group of stockholders, many of whom are out of the state. Let’s keep some of this money at home.” Now that is the popular and short-range view. But, of course, we cannot—that is an industry cannot—continue to expand or improve when it is the object of unfair attacks. We have suffered under taxation which is aimed directly at a single industry and which is highly discriminatory. Such attacks block the revenue at its source.

The public hears a great deal of the value of mine production. They hear a great deal about dividends paid, but they do not hear very much about outlays—outlays on speculative development and production, outlays which are financed by the producing mines of Idaho, but more specifically from money which comes from outside. The Idaho Mining Association has kept a record of expenditures over a long period of years. 1937 figures are not compiled yet, but we do have the figures for 1936. I am quite sure that 1937 will be substantially higher than 1936. We have figures from twenty counties’ out of twenty-four, which you might call outstanding. I feel sure that in the other four counties there were some additional expenditures. The figures which Mr. Gwinn has compiled are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Labor</th>
<th>Materials &amp; Supplies</th>
<th>All Else</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Producing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td>$334,179.13</td>
<td>$267,308.40</td>
<td>$154,783.18</td>
<td>$756,270.71</td>
</tr>
<tr>
<td>Federal Taxes</td>
<td>2,833.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State &amp; County Taxes</td>
<td>2,833.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$760,931.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Producing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-Dividend</strong></td>
<td>$1,123,702.13</td>
<td>$958,728.61</td>
<td>$908,335.95</td>
<td>$2,990,766.69</td>
</tr>
<tr>
<td>Federal Taxes</td>
<td>8,104.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State &amp; County Taxes</td>
<td>55,040.95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ore Transportation</td>
<td>116,139.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight &amp; Smelter</td>
<td>350,658.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$3,520,710.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Producing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dividend-Paying</strong></td>
<td>$5,476,807.73</td>
<td>$3,755,575.83</td>
<td>$1,678,151.04</td>
<td>$10,910,534.60</td>
</tr>
<tr>
<td>Federal Taxes</td>
<td>983,581.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State &amp; County Taxes</td>
<td>931,919.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ore Transportation</td>
<td>28,982.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight &amp; Smelter</td>
<td>6,209,775.42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$19,064,793.02</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The grand total of all these expenditures, aside from production but including assessment and location work, amounts to over $24,000,000.00. I am very sure that for 1937 they will run over $30,000,000.00.

What I am stressing is that money from the Idaho mines that goes outside the state to a very substantial degree is returned to the state, both that money and other money. It is a source of revenue of which
the State of Idaho should not be deprived. That is all money turned loose in Idaho from the mining industry and which, I believe, will stand favorable comparison with any other activity in the state.

In closing, what we ask is to have faith in the mining industry of Idaho. It isn’t a racket, it isn’t a passing, wild-catting undertaking, but it is one of the big stable industries of Idaho and is producing basic materials which are absolutely essential for every industry. We want you to appreciate it. We want your good will. We want you to know that we are running our business with every regard for the public welfare and the state statutes; and that you properly regard not only the larger operators but the venturesome people who are putting their good money into new ventures for the possible great good of Idaho and its people. We are asking for a square deal—an even break—not favors or subsidies, but fair treatment which Idaho has in the past accorded, not only to us, but to other of its industries with which it is our desire to cooperate in every measure. We ask you to have faith in mining.

STATE FLAG

The official flag stands in the office of the Governor of Idaho. State Flag: A silk flag, blue field, 5 feet 6 inches fly; 4 feet 4 inches on pike, bordered by gilt fringe 2½ inches wide; with the State Seal of Idaho reproduced in the center of the flag. The words “State of Idaho” are embroidered in gold block letters two inches high on a red band, the band being embroidered in gold and placed about 8½ inches from lower border of fringe.
THE WESTERN POINT OF VIEW

By HARRISON C. DALE,
President, University of Idaho

(Delivered at Annual Banquet, Idaho Mining Association
Convention, Boise, Idaho, March 12, 1938.)

When I accepted the very kind invitation of your secretary to speak on
this occasion, I told him that the general subject of my remarks would
be "The Western Point of View." When I related this to my wife, she said:
"Before you have said a half-dozen words, I am sure that your audience,
judging from your accent and manner of speech, will wonder by what right
you can discuss the western point of view!" I think I ought, consequently,
to justify whatever claim I may have to speak with any degree of assurance
on this subject.

For the past twenty-five years I have been shuttling back and forth
between the East and the West, living for the early part of my life in the
extreme East, spending a number of years in the West, going back again
to the Middle West, coming to the Rocky Mountain Region once more,
again going back to the East, and once more returning to the West. This
experience, extending over a number of years accompanied by a certain
amount of thinking on the subject, has given me, perhaps, some claim to
speak on the subject of "The Western Point of View."

I think we who live out here in the West, who spend our lives here,
those of us whose existence depends upon the successful operation of
an enterprise in this part of the country sometimes fail to realize how
deep-seated and how very marked are the differences between the West and
the East. To one who has lived in both sections of the country, I think
it becomes more or less apparent that the eastern part of the country (and
I include in that what we commonly call the Middle West) is pretty largely
devoted to what might be called the fabricative industries. That is to
say, in the East most peoples' lives and fortunes hinge on the success of
enterprises concerned with the fabricating of raw materials into finished
products,—automobiles, tires, cash registers, textiles, shoes—you can ex­
tend the list indefinitely. By and large, I think we can characterize the
eastern part of the United States as being essentially concerned with
that type of enterprise and with a life and a civilization which rests upon
that type of enterprise.

When you come out to the West, to Idaho and her sister states, you
come into a portion of the country which is much more vitally concerned
with what may be called, I think, the extractive industries, that is to say,
industries concerned with extracting the raw materials out of nature. You
gentlemen represent one of the most important of these extractive in­
dustries, an industry concerned with taking the ore out of the ground,
an industry concerned with the production of basic raw materials—
extracting that material out of nature. But along with you can be properly
listed almost every other enterprise and activity in Idaho. Your neigh­
bors, the farmers, are engaged in an extractive industry—the extraction
of wheat and what not from the soil. Your lumber friends are in the same
type of enterprise—extracting an exceedingly important raw material from
these large forests with which the state has been endowed. In our sister
states to the west, fisheries further exemplify this type of extractive in­
dustry. Our whole life, our whole well-being—whether we be lawyers,
physicians, college professors, authors, all of us are dependent upon the
successful operation of these enterprises.

These extractive industries have about them certain characteristics,
certain qualifications, which mark them off from the fabricative industries
so typical of the rest of the country. For one thing, and most notably,
the extractive industries deal with wasting assets. Whether we like it or
not, the time will come when the rich ores of the Coeur d' Alenes will have been exhausted or at least when their development will have reached a point which is no longer profitable. Whether we like it or not, the new prospects on the Salmon River will have been exhausted. Whether we like it or not, these forests of ours will one day be gone. My lumber friends tell me that at the present time we are replacing our forest growth only about in the ratio of one to four, or at best of one to three. For every four trees cut, only one is replanted or allowed to grow. The time will come when your friends, the farmers, will face an exhausted soil unless steps are taken, and promptly, to replenish and and restore that thin layer of fertility which lies between the surface and the earth beneath. We face—all of us in the extractive industries—the problem of wasting assets. Depletion is our problem.

Quite different is the case with the fabricative industries. So long as there is an adequate supply of raw materials, these enterprises can continue. We are required perforce to be conservationists.

The conservation movement has had an interesting history. May I say a word about the origin of the movement? Gifford Pinchot, first U. S. forester, came out to this country to feel out public opinion with regard to forest conservation. Conservation began in the East. It was sponsored by Mr. Pinchot and a group of men who were desperately concerned lest the supply of industrial raw materials in this country be exhausted. If you read the procedures of those early conferences of governors held in Washington in 1903, 1907, and 1910, you will be impressed, I think, with the fact that the problem that was uppermost in the minds of those early conservationists was the protection of their supply of raw materials. They weren't much concerned about us. They didn't care a lot about saving for us. They weren't looking very far ahead to protect the citizens of Idaho. They were interested in conservation only as it affected the industrialized East.

Now today the picture is entirely changed. The east today—speaking generally—doesn't care a whoop about conservation. It has lost its enthusiasm for it, lost its interest in it because in that area devoted to the fabricative industries, people are convinced that the research chemist in his laboratory can create almost anything industry may need. You in the mining industry are fully aware of the development of synthetic products. I checked up on my figures a few moments ago with one of your members and, according to him, the manufacture of paint was the biggest single outlet of the lead industry. Today new surface coverings have supplanted the old line or type of surface coverings.

You find in the field of forestry a similar development of synthetic products designed to eliminate the need for our timber. With the development of these products the eastern part of the country has lost much of its enthusiasm for the conservation movement. In turn, that throws it back upon us who are concerned with mining, agriculture, and lumber to give thought to the problem of conserving these resources. This does not mean withholding them but developing them wisely. On this depends the livelihood of our children.

Again these extractive industries go where the raw materials are. The fabricative industries go where the markets are. Nobody, I suppose, in his right mind would ever have picked Mullan or Burke as a place to produce lead and silver were it not for the fact that nature placed the ore there. Perhaps no one would have picked Salmon River for a mining camp were it not for the fact that the ore is there. Nobody would have picked the regions of the Clearwater to produce timber were it not for the dense growth there. In other words, we must go where the raw materials are. That means in turn that we are vitally concerned with the problem of transportation. Transportation is one of the basic factors in the success of these enterprises. To the eastern industrialists the cost of moving his products to the market represents only a tiny fraction of their value—an overnight haul in many instances, and a haul
whose cost is trivial. To us out here, the cost of moving our raw materials to the place where they may be fashioned and fabricated represents an enormous proportion of the value of these products. We must all of us, then, be concerned not merely with adequate facilities for transportation by truck, railroad, water, or air, but concerned likewise with a rate structure adequate to maintain transportation companies, but also not of sufficient magnitude to keep our products out of the markets of the country. To us, in short, transportation is a life and death proposition, vastly more consequential than to eastern industries. Any part of the world devoted to the extractive industries is a section in which transportation problems loom large.

Again, and speaking broadly, most of these extractive industries of ours are industries and enterprises whose price structures are fixed pretty largely by factors and conditions beyond our immediate control. It is a pretty simple matter, the law permitting, for a group of leaders in many of our eastern industries to put into force policies which are related, if not identical. In short, it would not be a very difficult thing to bring together in a comparatively small compass the men on whose decision, in the last analysis, rest the prices of many of the products of these factories and industries. How different the case of the extractive industries. On wheat we face a world price. There is practically a world price on lead. There would be a world price for silver but for government intervention. Prices of things which we produce, the prices of products of the extractive industries, are governed by conditions and forces beyond the immediate control of the individual producer. That means, does it not, that all of us need to be concerned with an understanding of, and interpretation of those forces which make for world prices? Are we not, in the very nature of things, tremendously concerned over reciprocity agreements, over tariffs, and international trade agreements of all sorts? They are vital to us because the things which we produce are governed not by local but by world prices. We are bound to be concerned, consequently, with the forces and factors which determine these prices. Few things can happen in this world of great moment that do not in the end affect the prices of things which they produce.

Finally, it seems to me that in these extractive industries of ours we need continually to be alert to the discovery of new uses, new outlets for the things that we produce. I referred a moment ago to lead and to products that compete with lead as a surface covering, which didn’t exist a few years ago. I have just come from the State of Ohio and I have been living within a few miles of a big company which is putting steel houses on the market. These first steel houses were pretty crude affairs, but they are now developing, with the aid of architects and engineers, a fairly practicable steel house. This type of construction is competing with the lumber industry. In Toledo, Ohio, I visited one of the glass houses being constructed by the Owens-Illinois Glass Company—again a substitute product designed to supplant in part one of the products of our extractive industries. Does it not behoove us, consequently, to be awake to the problem of finding new outlets for the output of our fields, and our forests, and our mines? To no part of the country, it seems to me, is that problem so important as to us.

So this contrast between the extractive industries of the West and the fabricative industries of the East hinges on several points. In the first place, these extractive industries deal with wasting assets. Because of the problem of depletion, we are perforce conservationists. Second, these extractive industries go where the raw materials go, hence the problem of transportation, both in facilities and in rates. In the third place, these extractive industries being governed, as to prices, by forces beyond our immediate control, there is brought forcefully to our attention the need of careful attention to the price problem. And in the last place we are faced continually with the problem of finding new outlets for our forest products, and our agricultural and mineral products.

Before I sit down, I should like to say, and I think I can properly
do so, without being misunderstood—I should like to say that your state university is tremendously interested in the type of problem I have just been outlining to you. I do not mean that every boy and girl at the University of Idaho is forced to take a course in the extractive industries. Nevertheless, these young people are being educated in an intellectual atmosphere in which problems of this kind are uppermost. In our engineering school we are directing our attention not to problems that would arise in Pennsylvania or California, but to problems of Idaho. There is no institution in the country which can be more concerned with such questions than the University of Idaho. If the answer to these problems I have outlined is to be found, it will be found by the devoted and faithful, the scientifically trained people who are working on them in the state university.

It has been a real pleasure to be here this evening, to have a part in the concluding session of this splendid program.
AN OPEN LETTER TO A DRIVER WHO SPEEDS THROUGH OUR STREETS

I saw you barely miss a little boy on a tricycle this afternoon and heard you yell, "Get the H—— out of the way! Don't you know any better than to ride in the street?" He didn't answer because he hasn't learned to talk very well yet. So I'm going to answer for him.

No, the little boy doesn't know any better than to ride his tricycle in the street. He has been warned not to, but little boys don't always heed warnings. Some adults don't either, especially traffic warnings; for example, the one limiting the speed of automobiles.

I'm going to tell you something about that little boy. He has a mother who has endured considerable inconvenience, anxiety and suffering to bring him into the world. He has a father who has worked hard and made many sacrifices to make him healthy and happy. The supreme purpose of their lives is to have their little boy grow up to be a useful man.

Now stop a minute and think. If you should kill a child, how would you feel facing its parents? What excuse could you give for having robbed them of their dearest possession? More important: What excuse could you possibly offer Him whose Kingdom is made up of little children?

Children, my hasty friend, were here long before you or your automobile were thought of. All the automobiles on earth are not worth the life of one little boy. We don't know what that little boy may some day be. But we know what you are, and it's unimportant. We could get along without you, but we can't spare a single little boy on this street.

EVERY DAD.

(Courtesy The Louis Allis Messenger)

IDAHO VERSE—Edited by Bess Foster Smith, Weiser

BURY ME ON A MOUNTAIN TOP

When I die please grant this plea:
    I will die in peace if you promise me
That my grave shall be on a mountain high,
    Where tall pine trees brush against the sky;
Where the cougers prowl and coyotes roam,
    For only there am I at home.
Let the wild winds sing my funeral song—
    I will be happy, because it is where I belong.
Build no granite mound over me,
    Let my tombstone be a tall pine tree
Whose whispering branches shall always tell
    Of the mountains that I love so well.
And shed no tears as you lay me down,
    For then eternal peace I will have found;
And my hungry soul will at last find rest—
    On a mountain top in the golden west.

—EDWIN G. HALL.
Geological Diagram. Illustrating the Generalized Distribution of the Principal Idaho Formations

Legend:
- County Seats
- Custer, etc. Names of counties
- County Boundary Lines
- Recent Lake Bed Sediments
- Tertiary
- Tertiary Lava and Largely Soil Covered
- Cretaceous Coal Bearing Series
- Triassic Jurassic and Carboniferous Carboniferous Series
- Quartzite Slates and Graywackes
- Granite Gneiss and Schist.
THE RELATION OF MINES TO FORESTS

By G. B. MAINS, Forest Supervisor

Of the great number of natural resources with which our state was endowed, the first to be developed was the fur trade in the early part of 1800. By the very nature of its business the population of this class was nomadic. A few transient trading posts was all it contributed to the development of the state.

The arid valleys and plains did not appeal to the few agricultural minded who crossed the state near the middle of the century. They pushed on to the west coast where the abundant rainfall insured a crop, for irrigation had not as yet come into the picture of American farm life except in a few isolated places.

It remained for the miners to establish the first permanent settlements and social and political organizations. The early day miner of the West, like the trapper, had to be a self-reliant, self-sustaining individual, but the nature of the resource he pursued made of him a more permanent individual. The miner's search was for the frozen asset concealed underground. The trapper pursued the nimble footed furbearer over the earth's surface.

Once the mining communities were established the agriculturist came in to supply their needs for food, so that the two forms of development were coincident.

It took some time under the methods of transportation and communication for the territorial machinery of government to catch up with the sudden influx of population and until it could be organized each community set up their own. Many of the rules and practices governing mining and use of water have since been written into our statutes.

The raising of livestock was the leading agricultural activity until the passage of the Carey Act encouraged the building of larger and more elaborate irrigation projects at the beginning of the century. The building of two railroads across the state in the eighties had brought many new homeseekers from the eastern farming populations where homestead lands were getting scarce.

The prairie states were being settled at the same time and this brought on a demand for lumber from the magnificent forests that clothed the mountains and the lumber industry developed rapidly from 1890 on, to supply the local and export demand.

There had been little or no conflict between the farm seeker and the prospector since the class of land each sought differed widely in character and location, but the timber land seeker and the miner sometimes found themselves wanting the same piece of ground.

Both the farming and mining interests needed water and timber to carry on their industry and the threat of rapid depletion of our forests on the mountain slopes spurred on by the conservation movement beginning in the eastern states caused the creation of the first Forest Reserve in the state, the Bitter Root, in the central part of the state. This was created by President Cleveland in 1897, and was administered by the Department of Interior. The area was about four million acres.

The administration of these early forests was pretty much carried on from the National Capital at Washington and for this and other reasons Congress in 1905 changed them over to the Department of Agriculture.

From 1905 to 1908 many millions of acres were added to the National Forests in Idaho and other western states by President Theodore Roosevelt. The mining and stock interests became alarmed at so much area being withdrawn and in 1909 Congress took from the President the power to withdraw any more of the public domain in the five northwestern states.

In all these National Forests creations the right of the prospector
to enter, locate and operate under the laws of the state or mining district was given without restriction. Just why the mining interests became so fearful was not clear unless it was that during the first Roosevelt administration his Secretary of the Interior began to investigate the application of the land laws and unearthed some misapplications of them. Possibly some of the newly created Forest Officers became too officious or arbitrary. In building up an organization as hastily as was necessary to get these vast areas under administration there was bound to be some misfits. But examinations were held by the Civil Service in communities adjoining the newly created forests and as fast as lists could be made up and ratings given, local men were put in charge of the forests and people concerned began to feel easier and less worried about how these lands would be administered. As fast as these men showed themselves able to handle their job and take responsibility more and more was shoved out to them from the Secretary of Agriculture's office until it became possible for the local forest officer to meet the adjoining communities' needs with but an occasional reference to the Washington office for a decision.

The establishment of the Regional Offices in 1908 and provisions for local advisory boards to work with the local forest officers still further decentralized the organization and made it more flexible and democratic rather than bureaucratic.

With the early mining background of the population it was natural that when we came to survey the areas put under our supervision, that there were numerous settlers holding land under mining locations that were no longer being mined.

Many of these claims were taken in good faith but the mineral pinched out on them and the locator had turned the arable land into a farm to minister to the needs of more fortunate prospectors in the same vicinity.

If the claim was on unsurveyed land a mining location was about the only title he could place on it since the agricultural squatter's right would not take precedence over a mining location in a mining district.

To meet this situation the Department of Agriculture had Congress pass the Act of June 11, 1906, making it possible for forest officers to survey and classify these agricultural lands without expense to the owner, so he could prove up and get title to his improvements. This eliminated one of the main objections. On the other hand we found that mining locations had been used for other purposes totally foreign to the intent of the law, and these cases, where it was evident that the use had no connection with the mineral development, were contested and the use of the land put under its proper legal status of right-of-way, power site, mill site, summer home, hotel, roadhouse, etc. This gave rise to some of the criticism that the Forest Service was hostile to mining interests on the National Forests.

Sometimes a forest grazing permittee let his stock get onto a miner's ditch or too close to his cabin and the Forest was blamed for it; but these happenings were corrected as fast as we could locate the claims and another source of complaint was smoothed out.

In order to administer and protect the resources, the forest officers began at once to build trails and telephone lines into the remote sections and the miner found these developments adding to the ease, comfort and protection of his life and property. Even now the only telephone communication some of the more remote mining communities have is over Forest Service telephone lines.

With more intensive use of the resources on the National Forests the early trails began to be changed to roads to admit cheaper and faster transportation and the miner in the vicinity of such roads found himself able to cut costs, increase profits and secure capital for further development.

To date the National Forests in Idaho have built 1,316 miles of roads
at a cost of $7,186,000 that have helped to open up and increase mining operations. Some of the districts so helped are the Warren, Marshall Lake, Big Creek, Yellow Pine, Stibnite, Deadwood, Boise Basin, Black Warrior, Atlanta and Salmon River.

These roads have helped to increase the output and development of the mineral as well as other resources and made markets for the agricultural products. I believe this policy of helping to open up the undeveloped resources of the state has more than offset any restrictions imposed, and has won the thinking people of the state to the Forest Service policy of use without destruction of our renewable resources.

Local interests have always been considered in establishing any policy for the use of a National Forest resource. Sometimes it is necessary to rule against the use of a few for the benefit of the many, but that is not bureaucracy. This is but the form of majority rule of our established form of government.

Governments should be established for one purpose only: to serve the people governed and whenever any department, bureau or branch of government fails to serve the best interests of the people, then it has failed in its function.

The Forest Service has tried faithfully to protect, develop and make available the use of the mineral as well as other resources in the National Forests. We hope such service as we have been able to render your industry merits your approval.
USE IDAHO MATERIALS, IF—

There is a general lack of knowledge and appreciation in Idaho of the state's inexhaustible varieties and quantities of building materials. Too many people assume that Idaho's mineral resources are confined to gold, silver, lead, zinc and the other better-known metals. Idaho not only has a vast supply of high-grade limestone, but a variety of marble, sandstone, clay, asbestos, diatomaceous earth, gypsum, mica, sand, gravel and other minerals used in building materials.

Although these products are distributed generally throughout the thirty-six of Idaho's forty-four counties which have minerals of commercial importance, the Lewiston region is particularly blessed with such wealth. Nez Perce county has deposits of marble and limestone in unlimited quantities, the marble in particular of such exquisite beauty that, when developed, there will be no need of importation of this stone from other states for either exterior or interior decorative purposes. Clearwater county has some of the finest limestone and cement rock deposits in the state, now being actively developed for manufacture as cement, lime and other kindred products. A large deposit of asbestos has been explored out of Kamiah, in Idaho county, of the amphibole variety which is used extensively in shingles, insulation materials, cements, paints and paper stock. Latah county has an abundant supply of unusually high-grade clay, suitable for brick refractories and pottery. The more common building-stone materials are scattered through all of these north-central Idaho counties.

Two general factors have delayed the development and usage of these building resources. One has been that the people of Idaho have been very slow to realize that this wealth exists in their dooryard. Another is that high transportation costs have made it unprofitable to ship these materials into competitive markets. The former handicap can be met only by education. The latter will solve itself, in north Idaho at least, when cheap water transportation is a reality on the Snake and Columbia rivers, the benefits spread over a wide inland territory through joint rail-water-truck rates.

In the meantime—and particularly in projects financed by public funds—it would be well to give Idaho building materials preference, quality, price and other considerations being equal. The qualifications for preference should be kept in mind. In the past we probably have gone to the extreme on the side of negligence in using Idaho materials, yet it also is possible to go to the extreme on the other side, of mixing state loyalty with good business sense. There is a need of a campaign of education to bring Idahoans to a realization that they are importing many things from other states that are of no better quality nor of less cost, than our own Idaho materials and products. But the best way to give such a campaign a thorough setback, would be to overdo it by demanding use of Idaho materials when they should not be used.

After all, it is a wide world and those parts of it outside Idaho buy much Idaho wheat, potatoes, wool, lumber, livestock, dairy products, metals and other products. Of all areas in the nation, Idaho is about the last that could sensibly adopt a live-at-home policy, with respect to the other states of the union. But that is not a reason why we shouldn't use Idaho products and materials when and if it is really good sense to use them.

(Note: Extract from an editorial in the Lewiston Tribune, March 12, 1938.)
NECESSITY FOR MORE EXTENDED USE OF SAFETY EQUIPMENT IN MINES

Reprinted from Bureau of Mines Information Circular 7036.

By D. HARRINGTON

In recent years over 100,000 persons have been killed annually in the United States by accidents; about one-fifth of these have been workers in some of our industries; about one-third have been killed by motor vehicles; about another third have met death in home accidents, chiefly falls, burns, scalds, explosions, poisons, asphyxiations, suffocations, cuts, scratches, and so forth; and the rest have been killed in public accidents, excluding those caused by vehicles but including accidents on railroads or electric cars, drowning, and deaths by firearms and other means. Definite statistics on nonfatal accidents are not readily available, but at least 10,000,000 fairly serious accidents probably occur in the United States annually.

The latest industrial-accident statistics are obtainable from 1938 National Safety Council publications, in which annual industrial fatalities are divided about as follows: (in round numbers): Agriculture, 4500; trade and service, 4500; construction, 3100; transportation and public utilities, 2900; manufacturing, 2600; mining, quarrying, petroleum, etc., 1900.

The exact cost of these 100,000 or more annual fatalities and 10,000,000 or more relatively serious nonfatal accidents, whether in misery or in cold-blooded dollars and cents, is not definite, nor will it ever be. That the cost is vitally consequent in our national life is beyond argument; and when it is realized that those probably best qualified by training and experience to give a well-balanced opinion believe that at least 80 per cent, and perhaps as many as 90 per cent, of such accidents, fatal as well as non-fatal, are preventable, and that at least 50 per cent can be prevented by a relatively slight amount of well-directed effort, it is apparent that all of us have a problem to solve that is really worth our effort.

In 1930, H. W. Heinrich, of the Metropolitan Life Insurance Co., named $738,000,000 as the actual annual cost of compensable industrial accidents and somewhat over $5,000,000,000 as the total annual cost of all industrial accidents in the United States. In Arizona, one fatality cost an industrial concern more than $45,000 in compensation alone. One employer of large numbers of persons in mining and manufacturing has made an extensive study of the cost of noncompensable, "no-lost-time" accidents (so-called trivial accidents) and has placed the average cost to the company of each of these at $4—the average daily wage when the study was made. A relatively recent survey of the coal-mining industry indicates that at least 10 per cent of the cost of mining coal and placing it in railroad cars at the mine is chargeable to accidents.

For each of the past several years, approximately 20,000 lives have been lost and about 3,000,000 persons injured in American industrial plants; the causes have been numerous and, in at least some instances, more or less indefinite. Unquestionably, many such accidents, fatal and nonfatal, are caused directly or indirectly by mechanical equipment of some kind; it may be accepted as a certainty that the use of almost any kind of mechanical equipment in industrial work introduces its own hazards, though it may also remove or prevent others.

Mining has long been considered the most hazardous of the major lines of industrial endeavor. The latest statistics issued by the National Safety Council, those for 1937, indicate that, of 30 main industries in the United
states, mining (including all types) had by far the worst severity rate, 9.42, compared with an average of 1.58 for the 30 industries. Lumbering had the next poorest rate, 4.62. In frequency, mining ranked 29th among the 30 industries listed, with a rate of 44.29, compared with the average of 13.85. Lumbering alone had a higher frequency rate than mining—65.43. While accident statistics for mining are based on detailed data from only 145 of the several thousand mining plants in the United States, they indicate, at least generally, that in 1936 mining in the United States, notwithstanding a definite decrease in the rate of occurrence of mining accidents during the past several years, had an accident severity rate about 6 times and an accident frequency rate more than 3 times that of general industry. These figures roughly parallel accident occurrence in Great Britain, where the mining fatality rate indicated in relatively recent statistics is about 6 times that of general industry.

Having the poorest accident rate of the major industries of the United States gives mining a "black eye." The blackness is intensified by the fact that, according to the statisticians, the accident death rate in the United States as a whole is the poorest or worst of all of the leading nations of the world. Fortunately, this dark picture, like virtually all dark pictures, has redeeming features; otherwise, all of us might as well throw up our hands and join the already too great ranks of the fatalists, who believe that because mining is so inherently hazardous any attempt to prevent accidents in and around mines is merely a waste of time, money and effort.

The following statistics, tabulated by the Bureau of Mines, give information that indicates definitely that safety conditions in mining have been improving slowly but steadily and that, although there is reason to believe that there was a recession in 1937 (as indicated by the sharp increase in the coal mine accident rate in 1937), nevertheless the record for the past 5 years (including 1937) shows that safety in mines is improving.

**TABLE 1.—Accident rates in metal mines, quarries, and coal mines in the United States, 1911-35, inclusive.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Metal mines, killed and injured per thousand 300-day workers (Calculated)</th>
<th>Quarries, killed and injured per thousand 300-day workers (Calculated)</th>
<th>Coal mines, killed per million tons of coal produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1911-15</td>
<td>202.38</td>
<td>91.58</td>
<td>4.76</td>
</tr>
<tr>
<td>1916-20</td>
<td>245.04</td>
<td>162.39</td>
<td>3.86</td>
</tr>
<tr>
<td>Average, 1911-20, incl.</td>
<td>224.36</td>
<td>123.84</td>
<td>4.27</td>
</tr>
<tr>
<td>1921-25, incl.</td>
<td>276.27</td>
<td>175.22</td>
<td>3.96</td>
</tr>
<tr>
<td>1926-30, incl.</td>
<td>213.22</td>
<td>140.77</td>
<td>3.75</td>
</tr>
<tr>
<td>1926</td>
<td>243.48</td>
<td>162.15</td>
<td>3.83</td>
</tr>
<tr>
<td>1927</td>
<td>224.64</td>
<td>164.55</td>
<td>3.73</td>
</tr>
<tr>
<td>1928</td>
<td>208.11</td>
<td>131.41</td>
<td>3.78</td>
</tr>
<tr>
<td>1929</td>
<td>203.14</td>
<td>129.79</td>
<td>3.59</td>
</tr>
<tr>
<td>1930</td>
<td>170.78</td>
<td>109.76</td>
<td>3.84</td>
</tr>
<tr>
<td>1931</td>
<td>142.09</td>
<td>106.04</td>
<td>3.31</td>
</tr>
<tr>
<td>1932</td>
<td>138.46</td>
<td>97.33</td>
<td>3.36</td>
</tr>
<tr>
<td>1933</td>
<td>155.13</td>
<td>97.59</td>
<td>2.78</td>
</tr>
<tr>
<td>1934</td>
<td>163.17</td>
<td>91.18</td>
<td>2.93</td>
</tr>
<tr>
<td>1935</td>
<td>152.86</td>
<td>86.23</td>
<td>2.925</td>
</tr>
<tr>
<td>1936</td>
<td>Not available</td>
<td>Not available</td>
<td>*2.72</td>
</tr>
<tr>
<td>1937</td>
<td>&quot;</td>
<td>&quot;</td>
<td>**2.98</td>
</tr>
</tbody>
</table>

*Tentative, but likely to be very close to the final figure.

**Tentative.
In this table, the fatal plus nonfatal accident rates per thousand 300-day workers in metal mines and quarries are given by various periods from 1911 to 1935, inclusive; as similar figures are not at hand for coal mines (nonfatal-accident data being unavailable, except since 1930), fatality rates per million tons of coal produced are given, since they are the most definite data procurable on accidents in coal mining.

It will be noted that the fatal plus nonfatal accident rate per thousand 300-day workers in metal mines varied relatively little in the 5-year periods from 1911 to 1930, the rate for the 5-year period 1926-30, inclusive, having been somewhat higher than for the 5-year period 1911-15, inclusive. A study of the lower part of the table, which gives the annual rates from 1926 to 1935, inclusive, indicates that the first real break in the metal-mining rate came in 1930, when for the first time it fell well below 200. After the break the improvement continued, the rate for 1931 having been lower than that for 1930 and the rate for 1932 having been slightly lower than that for 1931.

In quarrying, the break from a high accident rate to a definitely lower one came in 1930, and since then every succeeding year has shown a slightly lower rate than that of its predecessor, although the rate for 1933 was slightly higher than that for 1932, which indicates that the industry has accident-prevention work well in hand.

In coal mines, the fatality rate per million tons of coal produced remained obstinately high after the considerable lowering of the rate from 4.76 for the 5-year period 1911-15, inclusive, to the much more favorable rate of 3.86 for the succeeding 5-year period 1916-20, inclusive. The rate hovered around or was slightly under 3.85 until 1931, when the lowest rate of 3.86 for the succeeding 5-year period 1916-20, inclusive. The rate failed to equal the excellent record of 1931 but was the next lowest rate so far; the rate for 1933 was 2.78, by all odds the lowest or best rate in the history of coal mining in the United States. Preliminary statistics for 1936 give a rate of 2.72, and when final data are assembled this probably will be found to be about correct, and is a lower rate than was achieved in any other year in the history of coal mining. Unfortunately, the tentative figures for 1937 indicate that the rate will be about 2.98, or higher than in any year since 1932, and final figures may bring the 1937 rate to above 3.00; but even so, 1937 probably will have a fatality rate lower than that of any year previous to 1932.

There is a more or less general impression that the rather heavy decrease in the accident rate in the mining industry during the past 5 or 6 years was due in large part to the decreased activity in the industry because of the depression. The rejoinder to those who believe this is that in the past periods of depression have been synchronous with increased accident occurrence, the recent depression having been an exception.

Notwithstanding the improvements shown in the above tabulation and discussion, our coal mines have been (and continue to be) more or less severely “under fire” because they have a much poorer accident rate on an exposure basis than have the coal mines of the more prominent coal-producing countries of Europe, as may be seen from table 2.

Column E gives the death rate per thousand workers adjusted to a year of 300 work days per employee, and it is very noticeable that the rate for the coal mines of the United States (bituminous and anthracite combined) for the 5-year period 1931-35 was 3.9357, or almost three times the rate (1.3454) for the coal mines of Great Britain for the same period, and, on the same basis, considerably more than three times the rate for Belgium (1.1340) and more than double that for Germany (1.8004) for the same period (1931-35). The rate for the coal mines of France for the 5 years 1930-34 (the latest figures available) was but 0.9507, or less than one-fourth the 1931-35 rate for the coal mines of the United States. None of these figures reflects credit upon the operation of the coal mines of the United States, and our coal mining people have been very severely censured for the disregard for human life indicated by such statistics,
TABLE 2.—Employment and accident data for coal mines in the United States and certain European countries.

<table>
<thead>
<tr>
<th>Year</th>
<th>Production short tons</th>
<th>Employees</th>
<th>Man-days</th>
<th>Killed</th>
<th>Death rate per 1000* employees</th>
<th>Average production per man per day short tons</th>
<th>300-day workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>UNITED STATES (bituminous mines): 1931-35, incl.</td>
<td>1,757,182,875</td>
<td>2,195,804</td>
<td>366,430,747</td>
<td>4,797</td>
<td>3.9273</td>
<td>4.7954</td>
<td>1,221,436</td>
</tr>
<tr>
<td>UNITED STATES (all coal mines): 1931-35, incl.</td>
<td>2,025,656,266</td>
<td>2,772,138</td>
<td>472,746,969</td>
<td>6,202</td>
<td>3.9357</td>
<td>4.2848</td>
<td>1,575,823</td>
</tr>
<tr>
<td>GREAT BRITAIN: 1931-35, incl.</td>
<td>1,237,783,093</td>
<td>4,079,075</td>
<td>1,002,070,000</td>
<td>4,494</td>
<td>1.3454</td>
<td>1.2352</td>
<td>3,340,233</td>
</tr>
<tr>
<td>FRANCE: 1930-34, incl.</td>
<td>275,596,507</td>
<td>1,295,460</td>
<td>325,958,630</td>
<td>1,033</td>
<td>.9507</td>
<td>.8454</td>
<td>1,086,529</td>
</tr>
<tr>
<td>BELGIUM: 1931-35, incl.</td>
<td>139,618,773</td>
<td>672,280</td>
<td>189,151,110</td>
<td>715</td>
<td>1.1340</td>
<td>.7381</td>
<td>630,504</td>
</tr>
<tr>
<td>GERMANY: 1931-35, incl.</td>
<td>644,159,540</td>
<td>1,439,753</td>
<td>414,229,000</td>
<td>2,486</td>
<td>1.8004</td>
<td>1.5550</td>
<td>1,380,763</td>
</tr>
</tbody>
</table>

*Adjusted to year of 300 work days per employee.

Note.—The figures in columns A, B, C, D, and G are totals for 5 years.

If averages per year are desired, the totals as given should be divided by 5.
At least part of the explanation for this sad state of affairs is to be found in the data contained in column F of table 2, which indicate that during 1931-35 the coal mines of the United States produced 4.2848 tons per man per day, or more than 3 times as much as the British coal miner (1.2352), five times as much as the French coal miner (0.8454), almost six times as much as the Belgian (0.7381), and nearly three times as much as the German (1.5550). Numerous factors are advanced as contributing to this much greater productivity of the coal miners of the United States, including our thicker coal beds, lesser depth of workings, extent of workings, etc., etc., but unquestionably the major item in the vastly greater productivity of the coal mines of the United States, as contrasted with that of European coal mines, is the much greater extent to which the coal mines of the United States are mechanized, using the word in its broadest sense, including hauling, cutting, drilling, blasting, loading, etc., etc. There is also the very best of reasons to believe that the much greater accident rate among the coal miners of the United States should be attributed to the same reason as is their higher productivity, namely, the more extended mechanization in the coal mines of the United States as compared with those of Europe, and to the fact that the machinery is largely driven by electricity, with its known maximum efficiency as well as maximum hazard to workers.

Some years ago, the influence of mechanization in the occurrence of fatal accidents in the American coal industry was studied. In that survey the term "mechanization" was used in a broad sense rather than in the relatively narrow present-day interpretation, which is confined to mechanical equipment that displaces hand labor (especially for loading) at or in the working places. The above study indicated that over 25 years 2000 or more lives had been lost annually by accidents in the coal mines of the United States, and that approximately 50 per cent of those fatalities were caused by machinery or equipment of some kind; some of the blame could be laid upon defective or unsafe or unsuitable mechanical devices or equipment, some to misuse of the machinery or equipment, and some to causes induced by the presence or use of the machinery or equipment.

As evidence of the rapid increase of some phases of the hazard from "equipment" in coal mines, it is found that from 1910 to 1924 only about 7½ per cent of the explosion disasters in our coal mines were caused by electricity as the igniting agent; but in the four fiscal years, July 1, 1927, to June 30, 1931, inclusive, out of 897 fatalities from explosions in the coal mines of the United States, 672 (74.8 per cent) were due to explosions started by electricity.

Unquestionably much of the unsavory safety record of the mines of the United States is a reflection of the cynical attitude of our citizens, which is manifested in the utter disregard of some of them for human life and limb in their desire for speed and efficiency. This is manifest also in our very high mortality from murders and suicides and in the fact that we have the doubtful honor of leading the world in accidental deaths, especially those due to automotive equipment used (or largely misused) on our streets and highways. In other words, our mines pay the penalty for speed in operation owing largely to our progressiveness in mechanizing, just as our general populace pays a decidedly heavy penalty in life and limb in the transition from the slow-going horse and buggy to the swift and efficient automobile.

While much, probably most, of the criticism directed at our coal-mining people because of the excessive number of accidents that have occurred in the coal mines of the United States, as compared with those in European countries, is unjust when it is considered that the number of accidents of all kinds is far higher in the United States than in European countries; on the other hand, our mining people use mechanized methods and processes primarily to increase productivity and to reduce costs, and mere decency demands (or should demand) that only the safest kind of machinery and equipment be used in an industry that is known, or at least
is believed, to be inherently the most hazardous of the major industries. Notwithstanding this fact, much, probably most, of the machinery and equipment in use in our mines is by no means the safest kind available.

In coal mining, for instance, some of the more progressive and far-seeing manufacturers of electricity operated machinery or equipment have co-operated with the Federal Bureau of Mines in devising and manufacturing what is termed "permissible" machinery or equipment, which can be used with relative safety in gassy or dusty mines, where the ordinary or "open" types of electrically-driven machinery or equipment are definitely dangerous. Statistics for four fiscal years indicate that 74.8 per cent of the fatalities from explosions in American coal mines were charged to explosions in which electricity was the igniting agent; in every case, the electrical equipment or machinery that caused the ignition was of the "open" type, and not even in one instance was permissible equipment involved. Notwithstanding this fact, which is common knowledge among operating officials of most American coal mining companies, it is amazing to find that relatively few of our coal mines are using permissible equipment. Such equipment is now available for almost every activity for which machinery is employed in a coal mine, as may be seen by consulting Bureau of Mines Information Circulars 6818 and 6845, which list the names of manufacturers and give other information on permissible machinery and equipment. Such machinery includes coal drills, undercutting, overcutting, or shearing machines, loading machines, conveyors, hoists, pumps, concrete mixers, electric switches, electric cap lamps, flame safety lamps, flashlights, telephones, locomotives, power trucks, and other equipment. When looking for the underlying reasons why readily available permissible equipment is passed by and the far less safe (and less durable and rugged) nonpermissible machinery and equipment is purchased and used, it is noted that very frequently the deciding factor is the slightly higher cost of permissible over nonpermissible types, which difference is sometimes as much as 20 per cent.

One relatively recent American coal mine explosion caused by a nonpermissible machine unit cost 97 lives, another 195 lives, and another 82; in each instance the total money cost of the disaster to the operating company was little if any less than $1,000,000, yet the difference in price of a relatively safe permissible unit and a definitely unsafe nonpermissible one in each instance was hardly $1000. This statement does not take into consideration the misery and hardships caused by the wholesale deaths of the victims of misguided purchasing; moreover, these three cases, while the worst examples available in connection with relatively recent disasters, do not by any means exhaust the instances of serious explosions caused by nonpermissible equipment and involving one or more deaths, and do not include numerous accidents (many fatal) due to the use of nonpermissible equipment and not in any manner concerned with explosions or fires.

In connection with the hazards of using nonpermissible electrical equipment in mines, it may be well to reiterate that so far as known there have been no explosion or fire disasters caused by permissible equipment; on the other hand, in addition to the above instances of fires and other disasters caused by nonpermissible equipment, dozens of other examples could be given, some with heavy loss of life, others with heavy loss of property, and still others with heavy loss of both property and life. Moreover, dozens of cases could be cited where nonpermissible equipment caused explosions or fires that entailed little actual loss, though potential hazards were dreadful to contemplate.

One consideration (in fact, the main one) in the failure of considerable numbers of users of mine electrical equipment to employ the permissible types has been the somewhat higher cost of permissible over nonpermissible equipment. In this connection it may be stated that a few progressive manufacturers of electrical mine equipment have announced that in the future they would make or market only permissible types, and presumably will furnish the safe equipment at a price equal to or at least comparable with that of nonpermissible equipment. These good intentions are
likely to spread among manufacturers, and in the next few years purchasers of electrical mining equipment probably will be able to obtain only the safer, more rugged, and more serviceable permissible types. This will be a definite forward step in safe mining, though the permissible equipment is by no means foolproof or a cure-all, as its safety and efficiency depend upon correct installation, use with good judgment, and maintenance in good repair or, in other words, in permissible condition.

Although the most spectacular problems in mine safety probably will continue to be those connected with the causation, prevention, handling, and control of mine explosion and fire disasters, the real offenders that swell fatality lists in coal and metal mining are various kinds of accidents due to falls of men and material; approximately 50 per cent of the mine fatalities of the United States over a period of years has come from these sources. Moreover, these causes are the most difficult to remedy and are those in which least progress probably has been made, the tentative rate of accident from falls of roof and coal for 1937 being 1.60 persons killed per thousand tons of coal produced and that for the 10-year period 1927-36, 1.608; therefore, progress has been essentially nil. This is not only disappointing but also surprising, because it is known that as the result of more extensive use of hard or safety hats numerous underground workers are now saved from serious accident or death. In fact, some safety experts place the number of lives saved through use of safety hats at 100 or more per year in the coal industry alone. The progress made in reducing the number of accidents from falls of roof through the use of the safety hats (and unquestionably considerable benefit has been achieved) probably is nullified by some other means. For example, many serious, often fatal, accidents from falls of roof or coal occur at mechanized faces where posts or timbers are removed "temporarily" to allow manipulation of the mechanized equipment; overlying material then falls upon the workmen because replacement of supports is delayed too long.

Safety hats have aided materially in reducing coal mine accidents, as is shown by the statement of a prominent western coal mine operator that in one instance with which he was familiar (a head injury that occurred before safety hats were invented and which could have been prevented by such a hat), the dollars-and-cents cost of the accident would have purchased safety hats for every coal miner in the State. A safety hat costs normally about $2.50 to $3.00, and the monetary cost of a fatality usually is at least $5000 if both direct and indirect expense is included. If 100 lives are saved annually in coal mines by safety hats, the savings in money must be more than $500,000, or enough to purchase safety hats for about one-third of the coal miners of the United States; and if the annual savings entailed by the hundreds of nonfatal accidents now prevented by the use of safety hats were added, the total would purchase hard hats for at least 50 per cent of our underground coal miners. It is estimated that not more than 50 per cent of our miners are wearing safety hats, although it was recently announced that 90 per cent of the West Virginia coal miners now use them.

The haulage-accident problem is almost as acute and as difficult to solve in mining as is the problem of automobile accidents on our streets and highways. Among the most hazardous features of the mine haulage problem (though by no means the only one) are the numerous unsafe conditions brought about by the use of the trolley system with its open, exposed, easily contacted wires that carry death-dealing electric current and cause arcing and sparking that readily ignite explosive gas or dust and initiated explosions and fires that have cost hundreds of lives and many millions of dollars in property loss. As with other hazardous equipment in use in mines, exact figures of the losses (humanitarian as well as financial) caused by the trolley haulage system are not available. If contact electrocutions, fatalities, and other accidents caused by men being "hit" by the trolley wire and then run over by cars or locomotives, fatalities and other injuries from explosions and fires caused by arcs and sparks from the trolley system are taken into consideration, that system is unquestionably
responsible for at least 10 per cent of fatal and large numbers of the non-fatal accidents that now occur in our mines. This is far too heavy a penalty to pay for the supposed efficiency of this method of haulage, and sooner or later either permissible storage locomotives or possibly Diesel engines with suitable safeguarding, or to some extent even compressed air methods, must supersede the trolley system with its numerous (one could almost say innumerable) hazards.

More extended use of up-to-date electric cap lamps, which furnish light vastly superior to that formerly available to our miners, certainly has been instrumental in aiding underground workers to protect themselves against accidents from falling material and other causes. Here again, however, changing conditions probably have intervened to help nullify the good effects of the superior lighting afforded by the up-to-date lamps; for example, the increased air dustiness from rapid extension of the use of loading and other machines in confined places in mines has decreased visibility considerably, sometimes as much as 90 per cent. The remedy for this is to continue or extend the use of up-to-date electric cap lamps and to adopt methods to decrease air dustiness, such as use of water on the cutting chain of mining machines and other wetting methods or other procedure for air-dust removal. More than 350,000 electric cap lamps are now in use in the coal mines of the United States, but unfortunately by no means all are the up-to-date types with their superior lighting facilities; hence, many of the mine workers, while protected from possible ignitions of gas or dust, are not supplied with as adequate lighting as they could and should be. Out-of-date electric cap lamps, all of which have served their purpose, should go the way of all obsolete equipment, namely, into the scrap pile; ordinary common sense demands that all underground employees should be supplied with the best available lighting system, and today that means electric cap lamps of up-to-date types. About 20,000 of our metal miners now use such lamps, hence are given maximum opportunity to safeguard themselves from accidents insofar as adequate lighting can be of assistance.

The exact savings or profits from the use of up-to-date electric cap lamps are not readily ascertainable, but certainly are appreciable. No explosion or fire has ever been caused by an electric cap lamp; on the other hand, open lights have caused scores of fires and explosions with the loss of hundreds of lives and millions of dollars worth of property. Even flame safety lamps have caused disasters entailing large loss of both life and property. Up-to-date electric cap lamps, with their much greater lighting efficiency than that of lights they displace, permit much more thorough sorting of ore in metal mines and removal of refuse in coal mines than do other types of underground lighting. These advantages are incidental or byproduct results of the use of the lamps, and numerous other benefits in addition to safety can be realized. One mining organization states that chiefly because of the installation of efficient lighting at the face region, accident occurrence was reduced more than 80 per cent and cost of coal was cut around 3 cents per ton when the various savings connected with the improved lighting were “lumped.” However, electric cap lamps, in spite of their great advantages as to safety, are like virtually every other type of mechanical equipment that goes into a mine, in that they have certain hazards of their own. The worst of these is that they give no warning of the occurrence of explosive, poisonous, or asphyxiating gases. Open lights give no warning of poisonous gases but do warn (too late) of the presence of explosive gases; the same thing may be said about asphyxiating gases, though under some circumstances a certain degree of warning is given by the open light. Some inventive genius should provide us with a safe, dependable, efficient light simultaneously warning on hazards from explosive, poisonous, or asphyxiating atmospheres.

Safety shoes help materially to prevent injuries in mines from falling or rolling material as well as from numerous other causes. The exact amount of accident prevention as well as savings in compensation and other expenditures through the use of safety shoes is unknown, although it is realized that large numbers of probable injuries (chiefly nonfatal but
NECESSITY FOR SAFETY

many with the possibility of total disability or loss of toes or feet) have been prevented.

Wide-awake mining companies now know that the use of goggles is most important in preventing mine accidents, especially those affecting eyes. To promote the use of goggles, some mining companies not only pay for the goggles but also for having employees' eyes examined and sight deficiencies corrected by having suitable lenses put in the goggles furnished the men. In consequence, eye injuries have not only almost ceased to occur, but mines operated by companies that have adopted this humane and far-sighted policy have had very good records in general safety, largely due to the fact that proper lenses in many instances have given employees their first really good vision, hence have enabled them to see more clearly the hazards about them and to protect themselves against those hazards. There is no doubt that the use of goggles can be made universal and there is also no doubt that the safety and efficiency achieved thereby will repay many times over the money spent for goggles.

Gradual elimination of the use of black blasting powder, with fuse and squibs and substitution of permissible explosives and other safety methods have worked wonders in promoting safe mine operation in the United States; the relatively recent campaign of the Department of Mines of West Virginia against the use of any form of black powder in the coal mines of the State has eliminated that source of danger in connection with mining all but about 10 per cent of the coal produced, an achievement not only humanitarian but also highly practical from a financial standpoint. From 1906 to 1910, when black powder was used almost exclusively for blasting in American coal mines, the average annual number of fatalities from explosives accidents in bituminous coal mines was 119; from 1931 to 1935, inclusive, with black powder largely eliminated, the average annual number of such fatalities was 23, most of which were due to the use of black powder in some form. These statistics give no information as to the large number of persons killed in coal mine fires and explosions initiated by black blasting powder as compared with no explosions and few, if any, fires as a result of using permissible explosives in a permissible manner. Certainly, the use of safety explosives and explosives appurtenances by mining people pays heavily, and, with equal certainty, no type of nonpermissible explosive should be used for any purpose in any coal mine.

Many kinds of mine safety equipment are now available but are utilized to only a limited extent; yet, by well-considered procedure in individual cases, mine efficiency as well as safety is advanced through results obtained from using this equipment. Alabama State inspectors employed gas sampling and analyzing to good advantage to curb gas and dust explosions; a Western coal mine used an aneroid barometer to determine information as to the power consumption of a restricted airway, and as a result of data obtained some widening was done, the cost of which was recovered in the saving in electric power consumed by the fan in two years; and the use of a psychrometer in a deep mining region gave data that caused several hundred thousand dollars to be expended to improve the ventilating system, the ultimate benefits to the company and to the workers more than offsetting the financial outlay. Dozens of cases could be cited in which the use of safety equipment or the substitution of safe for manifestly unsafe types have brought about substantial savings not only of life and limb but of dollars and cents as well.

The use of safety equipment of all kinds is at least as profitable in the mining industry as in any other industry, and it is remarkable that so little of it is in use in mines. Even the motion picture is highly useful in prevention of accidents in mines. About 1925 or 1926, a Bureau of Mines safety motion picture was shown in a coal mining community in Mexico and the titles were translated by an interpreter from English to Spanish for the benefit of the Mexican coal miners. In December 1936, more than 10 years later, an explosion occurred in a mine in the community, and 7 men in one place in the mine and 9 men in another saved their lives by barricading themselves from the poisonous explosion gases by the
methods depicted in the film they had seen 10 or more years previously.

Unquestionably, all safety equipment is profitable, but its benefits cannot be realized unless it is used, and up to the present time only part of our mines even attempt to take advantage of the safety equipment available to them. However, accidents cost not only life and limb to their human victims but they also cost money, not only to the victim or his family, or both, but also to his employers and to the general public as well. The already high cost of accidents is going to mount higher and higher as time goes on, as the various State legislatures year by year are increasing the benefits to victims of accidents (soon to include health as well as accident injuries); at least 20 of the State legislatures last year had such increases under consideration. As a result of changes made recently in the Pennsylvania State law, it is computed that under some conditions a single employee fatality may cost the employer as much as $20,000. Some years ago a single fatality cost an Arizona employer more than $45,000. With such possible penalties or taxes staring them in the face (and these benefits are very likely to be raised rather than lowered) the employer who fails to take advantage of available methods and equipment in trying to prevent accidents will soon find himself bankrupt; and at the present time, with the strong tendency to increased mechanization in mining, very few better opportunities offer themselves to the progressive mining man to protect himself, his employees, and his company's stockholders than to see to it that only the safest available equipment is used in and around his mines and that the equipment is kept in safe repair at all times and used as safely as is humanly possible.

Notwithstanding the fact that mechanized contrivances, especially those utilizing electricity, are hazardous in the extreme when used in confined places such as are found almost universally in mines, more and more of them will be used to keep pace with other phases of progress in industrial work, including mining. However, the high cost of compensation and of other features of accident occurrence that now are responsible for at least 10 per cent of the cost of most of our mineral products and that are likely to cost more owing to the increasing benefits that are being given injured workers through legislative action, will soon force the use of the safest obtainable mechanical equipment. One can confidently predict that in self defense against the mounting cost of accident and health compensation, the alert mine operator of the near future will use only permissible electrical devices and equipment in coal mines, and thereby probably prevent at least 100 fatalities per year. Only permissible explosives fired electrically will be used, and blasting will be done either on the off shift or under the most careful possible supervision if the admittedly unsafe practice of on-shift blasting is utilized, and if this is done it can be counted upon to prevent at least 50 fatalities per year. The open light as well as smoking will be eliminated from underground work and out-of-date, inferior types of lights will be superseded by up-to-date electric cap lamps with a probable prevention of 100 or more fatalities annually. The misnamed flame safety lamp of one gauze, or key-locked types, thousands of which now are in use, will be scrapped, as they should have been years ago, and replaced by either up-to-date methane detectors or at least by permissible flame safety lamps, thus preventing an average of approximately 25 fatalities per year. All of our workers in and around mines or mining plants instead of only some of them will at all times wear protective clothing, especially when underground, this to include safety hats, safety foot and leg wear, and safety goggles (preferably with corrective lenses); if this is done unquestionably the number of lives saved each year can be increased by at least 100. All, instead of a relatively few, of our coal mines will be rock dusted and the work will be well done and well maintained, thereby continuing to prevent 200 or more persons from being killed by dust explosions every year in the coal mines of the United States. All mines, metal as well as coal, will be ventilated adequately by safe, efficient, mechanically operated mechanisms and this will give reasonable protection to workers against health and other hazards, and will also immunize the
NECESSITY FOR SAFETY

mine operator against heavy monetary damage from occupational diseases as well as accidents. No metal-mining man will allow dust-producing equipment, such as dry drills, or use of dust-producing processes, such as blasting, to be employed while the workers are in the mine. Similarly, the alert coal operator will protect his workers against excessive air dustiness by using water on the cutter bar of cutting machines and with loading and conveying equipment. In fact, the time is rapidly approaching when mining people cannot afford to fail to use the safest obtainable equipment and machinery, and this is true even where the first cost or even the operating cost of the safety equipment may be appreciably higher than the cost of buying and operating unprotected, unsafe, worn-out equipment now so generally in use in probably most of our mines.

The use of safe equipment unquestionably pays good dividends in dollars and cents saved the relatively few operating companies that now use such equipment effectively. These savings are reflected not only in relief from excessive compensation and hospitalization charges, but in numerous other ways, by no means the least being greater efficiency and productivity due to the better morale of a personnel working under safe conditions. Not only has it been shown that mine safety equipment is profitable when used in an efficient manner, but there is good reason to believe that if State legislatures continue to increase compensation benefits, as has been done more or less steadily in the past several years (and more particularly the past 5 years), with the possibility, even the probability, that many States will soon have compensation laws such that a single fatality may cost the operating company $20,000 or more, as now is said to be the case in Pennsylvania, mine operators will be forced to employ all safety measures, including the purchase and maintenance of only the safest available equipment and machinery. If this is not done, it will be found in many cases that profitable operation will be an impossibility.

A book could be written on the advantages of using safety equipment in mines; certainly our highly mechanized age owes it to those who must use the machines through which our civilization now functions that such equipment should be as safe as it is possible to make them. Great Britain now requires that the mechanical equipment of factories must be provided with adequate safeguards by the manufacturer, and holds him responsible for failure to provide such safeguards. Our manufacturers eventually will be confronted with a similar requirement, and some of them realize it. In any event, those who operate the mines and are responsible not only for operating costs but also for the safety and health of the workers should certainly take definite steps to provide and maintain none but the safest equipment available.
MINE RESCUE WORK IN THE COEUR D'ALENE MINING DISTRICT

By JAMES WILSON

During the past year a number of changes and additions of various types of equipment have been made in order to keep up with improvements in this type of work. There are now in use in the district; two, Mine Safety Appliance Co., one hour type apparatus; eight Burrell, one hour gas masks; one hundred three, half hour self rescuers, and 73, standard two hour type apparatus. There is also a large amount of various fire fighting equipment, gas detectors for different gases, safety lamps, etc., as well as repair parts of numerous kinds. These supplies and equipment are kept at the training stations and underground at the different mines or at the Central Rescue Station.

The first use of mine rescue apparatus in the district was in 1912 at the Bunker Hill & Sullivan mine at Kellogg, on a fire near the No. 1 shaft in the Kellogg tunnel. Three sets of German made Draeger two hour apparatus had been purchased the same year by the Bunker Hill and the Hecla Mining Company also purchased three sets. A short period of helmet training was given after their purchase by a representative of the U. S. Bureau of Mines. The fire was reported Oct. 7, 1912, and about 4:30 A. M. Mr. Stanaly Easton, Mr. McDougall, Mr. John Rock, and Mr. Erle Dudley made the first trip into the fire wearing the apparatus. This fire burned until about midnight Oct. 9th, and clearly demonstrated the value of self contained oxygen apparatus. The three machines owned by the Hecla were sent to Kellogg and were used fighting this fire. A Bureau of Mines car then in Oklahoma was sent to Kellogg, but the fire had been put out before its arrival.

The first regular Bureau of Mines training car came to the district in 1913 and made regular trips thereafter. In 1923 after a number of serious fires in the district a Central Mine Rescue Station was established with a full time director in charge. This was housed in a car purchased from the Bureau of Mines and redesigned for its particular purpose and was located on a spur in Wallace for transfer at any time to any mine having rail service. Since this time a representative of the Bureau of Mines was sent each year to co-operate in helmet and first aid training at the various mines of the district.

The 73 standard two hour rescue apparatus carry oxygen tanks and enable the wearer to work in any smoke or gas for approximately two hours. They weigh about 40 pounds each, compared with 17 and a quarter pounds for the new Mines Safety Appliance Co., one hour type. These are more compact and are used especially in exploration and similar work. The half hour self rescuers and Burrell gas masks are, as the name implies, for self rescue of men underground in case of fire. These latter type are kept in convenient locations underground at the different mines. Stench warning systems for use in case of fire to call all the men out of the mine have been installed at the principal mines. The most commonly used stench is Ethyl Mercaptan, which is introduced into the air lines and ventilation system. This has a strong odor resembling garlic and when used all men have been instructed to leave their work at once and go to the nearest safe exit.

Classes in helmet training are held at three month intervals with additional training for previously trained men and for new men trained as replacements. Sixteen hours training is given each new man, with four hours review every three months. Each year first aid classes are held at the different mines, each course of training covering five classes, or about 10 hours of instruction. Any employee may attend these classes as they are not limited to the helmet crews and a large number do so.
Instruction is given by the Director of the Central Rescue Station, who is assisted by a representative of the U. S. Bureau of Mines, who issues a First Aid Certificate to all completing the course.

After each period of helmet training a list is made out showing the amount of training each man has received, his occupation, age, whether he has a Bureau of Mines helmet training and first aid certificate, etc. These are posted in the various rescue stations and a copy sent to the mine foreman and other officials. A complete list of the district is kept in the Central Station and in the event of a major fire additional men and equipment could be furnished at short notice. As all equipment in the district is standard, men from other properties would not be at a disadvantage as would be the case were a variety of equipment used.

The district has been very fortunate in the number of mine fires in the past several years. In June 1938 a fire started on the 1500 level of the Page mine in a station used as a lunch room. This is heated by electric stoves and on leaving Saturday night some clothes hung over the stoves caught fire. As there was no Sunday work the fire was not discovered until 7:30 A. M. Monday and had gained such headway that the entire station was burned. Eight drift sets east of the station and 31 sets west were also burned, with 12 or 15 more on the west so badly charred that they had to be replaced. Due to its headway this fire was rather difficult to overcome, but the trained helmet crews which were notified at 8 A. M. had the fire out at noon the same day. This certainly illustrates the advantage of being prepared with equipment and trained men. If this fire had advanced another 50 feet into the stopes it might have been necessary to flood the mine or seal it off until it had burned itself out. As it was, the mine was closed for only five days and before the regular crew began work all parts of the mine were tested and examined for gas and found clear. During the time the mine was shut down the 1500 drift was completely repaired.

In January 1939 a new mobile unit was put in service to replace the railroad car which had been in use since 1923. A new Central Station, including a workshop and equipment storage facilities with a garage for the mobile unit in conjunction has been provided in the yards of the Federal Mining Company at Wallace, close to the present station. The truck unit consists of a special aluminum body mounted on a one and a half ton Chevrolet truck chassis. The body was made to order and has built in cupboards, etc., for sufficient equipment, breathing apparatus and supplies for a crew for 24 hours. It will carry at all times eight, two hour Paul apparatus, six one hour Mines Safety Appliance Co. apparatus, a hand pump, two, two hundred cubic foot oxygen tanks, and various repair parts and supplies. With this unit in service a call can be answered to any mine fire, whether the mine has rail service or not, a great deal faster than with the old equipment, which could not reach some mines without rail service at all. Should the fire continue past the 24-hour period additional supplies could readily be obtained from other mines and the Central Station. As can be seen, the purchase of this new equipment is a very real advance and is another example of the manner in which rescue equipment in the Coeur d'Alene mining district is constantly being improved and kept up to date with the newest methods and equipment.
MEN EMPLOYED AND WAGES

Although the prices of base metal were low and legislation enacted that was not very encouraging to the mining industry of Idaho and other western states, employment has been fairly steady throughout the 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.

It is practically impossible to obtain complete and accurate statistics of the number of men employed in the mines; a great many are employed by prospectors and small companies which do not maintain continuous work and do not report to the Inspector of Mines; and the different reports filed by mining companies vary greatly as to the number of working days. A conservative estimate covering all mining operations in Idaho for the past year would total approximately 6500. This figure includes men getting out timber for use in mines. The Coeur d'Alene district, where the deep seated lead-silver-zinc mines are located accounted for over 4000 of this total and maintained, with a few exceptions, fairly steady employment throughout the year.

On January 28th the main four-compartment shaft at the Morning mine, at Mullan, had to be repaired, after a cave-in which blocked the shaft completely. About 500 men were out of work for about two weeks. Again in June, due to labor difficulties at the East Helena smelter (another subsidiary of the American Smelting & Refining Company) the Morning mine of the Federal Mining & Smelting Company was forced to curtail all production for three months and retained only a skeleton crew for repair and development work. Early in the year the Star mine of the Sullivan Mining Company confined its activities to further development work. This was due to the low metal price of zinc caused by lack of consumption, which built up tremendous stocks of metal on hand. The new trade agreement with Canada and other nations has dealt the mining industry of Idaho a severe blow. The loss to the zinc producers of three mills per pound under the trade agreement and the loss entailed by a skidding metal market has cost the zinc industry several hundred thousand dollars. This condition does not present a very bright outlook for zinc mining during 1939.

The price of newly mined silver will be a determining factor in the success of the mining industry during the coming year. Silver is a by-product in the ores of nearly every mining venture in the state of Idaho, and its price will have a direct bearing on mining activity which will affect employer and employee alike.

Wages in the State are not uniform. Placer and hydraulic miners are classed as surface workers and receive less remuneration. The several gold and other mining operations scattered throughout the State have their own individual scale to fit their particular problem.

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 5½ cents per pound; the bonus to graduate upward for each additional half cent added to the purchase price.

If the bonus scale had been adhered to in recent years, wages would have been cut to a point entirely out of proportion to wages paid in other parts of the State and too low under high living costs, so the signatories to the bonus scale waved their agreement. We are happy to announce at this time that the Coeur d'Alene mines pay the highest wage scale of any mining district in the nation. The following list prevailed during the year 1938 and is now in effect.
MEN EMPLOYED AND WAGES

Miners ............................................. $5.75 Pump and Compressormen .......... $6.00
Shovelers ......................................... 5.25 Surface laborers .................. 5.00
Timbermen ........................................ 6.25 Ore sorters ......................... 5.00
Timber helper ................................... 5.50 Cagers .............................. 6.00
Machinists ....................................... 6.50 Pipe and Trackmen .............. 6.00
Machinist helper ................................. 6.00 Shift bosses ....................... 7.25
Carmen, Trammers ............................... 5.25 Blacksmiths ....................... 6.50
Motormen ......................................... 6.00 Blacksmith helper .......... 5.50
Motorman helper ................................ 5.50 Electricians ....................... 6.50
Main hoistman ................................... 7.00 Flotation operator ............. 6.00
Small hoistmen .................................. 6.50 Mill repairmen .................. 6.00
Nippers ........................................... 5.50 Mill repairman helper ....... 5.50
Shaftmen .......................................... 6.75 Carpenters and Painters .... 6.50

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

The Sunshine Mining Company, considered the largest producer of silver in the United States, pay above the Coeur d’Alene scale and in addition the 550 to 575 employees received at Christmas a 4 per cent bonus based on the wages they received from the company during the year. Employees of the Hecla Mining Company and its affiliates, the Polaris and Sullivan, numbering about 800, each received a Christmas turkey with their pay checks.

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 promotors 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 very moot situation.
ACCIDENTS

The safety of men employed in the mining industry in Idaho is of paramount importance to this department. In line of duty, the Inspector of Mines made many suggestions and recommendations to men and their employers with a sincere hope that working conditions could be improved and the unavoidable accidents cut to a minimum. In this program the Inspector has been greatly assisted by representatives of the U. S. Bureau of Mines and the Safety Inspector of the State Insurance Fund.

Most of the larger companies have, for many years, maintained their own safety organizations. These organizations, in co-operation with the U. S. Bureau of Mines, give first-aid training with instruction in mine rescue to the men and in general watch the workings for dangerous conditions which are remedied as soon as possible. However, there is still room for improvement and before our program can 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.

In the medium size or smaller properties, particularly where partnerships and lessees are working, or where old mines are being reopened, there is a definite need for closer supervision and instruction in first-aid and safety work. In this connection, through the efforts of Paul V. Black, Safety Inspector for the State Insurance Fund, this department has had the co-operation and assistance of a man well schooled in this kind of a program.

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 the law 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 641 accidents reported during the year, 15 were fatal. The number of fatal accidents occurring in connection with underground mining was 13 as compared with 15 during a like period in the year 1937. Among these 13 underground accidents was one caused from heart failure. In the total are included two milling accidents, one caused by machinery and the other from a falling concrete slab during reconstruction of a mill.

A comparison of a total number of accidents during the year 1938 with those during a like period in the year 1937 show a decrease in compensable accidents of 53. In 1938 there were 15 fatal accidents compared with 22 that were fatal during the preceding year of 1937, and a total of 30 fatal accidents were recorded for 1938.
ACCIDENTS

DESCRIPTION OF FATAL ACCIDENTS


The deceased and two fellow workers were engaged in cutting a skip pocket about 40 feet below the 1650 station in the shaft of the Tamarack & Custer mine located in the Burke canyon between Black Bear and Mace, Idaho. The men had drilled and blown out five plugs preliminary to blasting in order to break away from shaft in starting 1650 skip pocket. A rock fell down shaft from unknown source. The men working with Calloway heard the rock bouncing from side to side of hoisting compartment, took to shelter yelling a warning to Callaway to do likewise. The rock of undetermined size (but not to exceed eight inches in diameter) missed the bucket that was hanging stationary in the hoisting compartment above the three workmen's heads, struck the deceased squarely on top of the hard boiled hat he was wearing for protection, causing a very badly fractured skull, from which he died less than three hours later.

AFFIDAVIT RELATING TO THE ACCIDENT AT THE MINE OF THE TAMARACK & CUSTER CONSOLIDATED MINING COMPANY, WHICH CAUSED THE DEATH OF JOHN THOMAS CALLAWAY

STATE OF IDAHO
County of Shoshone, ss.

LAWRENCE SEMENZA being first duly sworn, according to law, deposes and says:

My name is Lawrence Semenza. I am 36 years of age. I was at work in the Tamarack shaft on the afternoon shift on Saturday, January 1st, 1938, with Louis Cill and John T. Callaway. The accident occurred about 8:30 P. M. We had just finished drilling. I had finished blowing the holes and we had just taken up the staging from which we had drilled and were getting ready to lag off the side of the shaft before blasting about five holes. It would take about two or three sticks of powder to the hole. Callaway and I had just picked up the last piece of staging and were standing on the wall plate when I heard a rock coming, bouncing against the sides of the shaft. I yelled to the boys and stepped back right under the corner. Callaway was on the same wall plate with me and Cill jumped down one set below in the manway. The bucket hung in the shaft right over our heads. The rock evidently came from one of the corners coming between the bucket and the north wall plate near the divider and struck Callaway squarely on the head. I did not notice the size of the rock. We were very anxious to remove the injured man as rapidly as possible. I have no idea where the rock came from.

And further affiant sayeth not.

LAWRENCE SEMENZA

Subscribed and sworn to before me this 6th day of January, A. D. 1938.

(Seal)

ALPHA H. HOGAN,
Notary Public in and for the State of Idaho, residing at Wallace.
Commission expires Feb. 10, 1941.

AFFIDAVIT RELATING TO THE ACCIDENT AT THE MINE OF THE TAMARACK & CUSTER CONSOLIDATED MINING COMPANY, WHICH CAUSED THE DEATH OF JOHN THOMAS CALLAWAY

STATE OF IDAHO
County of Shoshone, ss.

CHARLES H. SWANSON being first duly sworn, according to law, deposes and says:
That his name is Charles H. Swanson. That he is 53 years of age. That he is hoistman at the mine of the Tamarack & Custer Consolidated Mining Co. on the 12 level;
That he was on the three o'clock shift on Saturday, January 1st, 1938; That it was about 8:30 in the evening. The hoist was at a standstill and all of a sudden there was one bell rung.
So I raised up thinking about shaking the bucket. About that time I got nine bells, which is the danger signal, and shortly afterwards two bells were rung, to lower the bucket. Then Lawrence Semenza came up and told the shift boss that a rock came down and that he thought that it got Tom Callaway. They both went down and then loaded Tom Callaway in the bucket and came right up. We immediately put him in a coach and took him out.

And further affiant sayeth not.

CHARLES H. SWANSON

Subscribed and sworn to before me this 6th day of January, 1938.

(Seal)

ALPHA H. HOGAN,
Notary Public in and for the State of Idaho, residing at Wallace.

AFFIDAVIT RELATING TO THE ACCIDENT AT THE MINE OF THE TAMARACK & CUSTER CONSOLIDATED MINING COMPANY, WHICH CAUSED THE DEATH OF JOHN THOMAS CALLAWAY

STATE OF IDAHO
County of Shoshone, ss.

LOUIS CILL being first duly sworn, according to law, deposes and says:

That his name is Louis Cill; that he is 38 years of age; that he was working in the shaft of the Tamarack & Custer Consolidated Mining Co. on Saturday night, January 1st, 1938; that he was engaged in cutting a pocket about 40 feet below the new 1650 station; that his fellow workmen were Lawrence Semenza and John T. Callaway;

That we had just finished blowing the holes and were getting ready to blast a light round; that all three of us were ready to lag the shaft before blasting when I heard a rock bouncing from side to side coming down the shaft. I jumped to a corner on the floor below and Semenza jumped to another corner. Callaway was in the middle. The bucket was about 10 feet over our heads. The rock just missed the bucket and struck Callaway squarely on the head. In our haste to remove Callaway I did not notice the size of the rock. I have no idea where the rock could have come from.

And further affiant sayeth not.

LOUIS CILL

Subscribed and sworn to before me on this 6th day of January, A. D. 1938.

(Seal)

ALPHA H. HOGAN,
Notary Public in and for the State of Idaho, residing at Wallace.

January 10, 1938; Federal Mining & Smelting Company; Morning Mine, Mullan, Shoshone County, Idaho. Harvey Wyatt, married, shoveler, age 45.

While on shift on the 26th floor above No. 5 Tunnel, Wyatt complained about being ill and was led to a drift where he sat down. He had asked for a drink of milk when he suddenly fell over unconscious. Artificial respiration was resorted to but the man died before the arrival of a
physician. Dr. Rolfs pronounced death due to heart failure. This diagnosis was confirmed by Dr. H. C. Mowery, Coroner.

**AFFIDAVIT**

I, the undersigned, Floyd Goff, was working on the 26th floor on January 10, 1938.

Harvey M. Wyatt was with me on the 26th floor clearing grizzlies of muck. He was up on the 26th floor for possibly a half hour. He mentioned it was too gassey, that he had to go down.

I did not know he was sick until Roy Dalbey, the shift boss, called me to help give artificial respiration. We were giving him artificial respiration for about two hours. Then we took him down to the 32nd floor. During artificial respiration he seemed to have slight pulse at temple and his face and ears warmed up, but we could not bring back strong heart action before we had orders to send him down below.

FLOYD E. GOFF.

GUY FISHER,
Witness.

Subscribed and sworn to before me this 13th day of January, 1938.

B. N. OUIMETTE,
(Seal) Notary Public.

**AFFIDAVIT**

I, Roy Dalbey, the shift boss of Harvey M. Wyatt do testify as follows: When I got up there, Mr. Wyatt had left where he was working, he had gone to the other side of the stope where he had his bucket. Albert Mitcham who was working with Wyatt told me Wyatt had gone over to the other side and was sick.

A few minutes later Wyatt returned. I says to him, "What's the matter with you?" He said, "I was sick and I went over to my pail and took a drink of milk." I says to him, "How are you feeling now?" He says, "Better," and laughed.

I went on away from there then to the other side of the stope and I imagined in about ten minutes Ed Hicks called and asked if I was up there. I answered him. He says, "Come down." And when I came down he said, "Harvey is pretty sick." And I went right down where he was at, and he was in an unconscious condition.

We began to massage him—he was cold and his pulse was weak and we rubbed him there for a little while and he tried to throw up. He made three or four efforts to throw up. Then it seemed as though respiration stopped.

I left then and I went down after ammonia and sent it up. And then went out and called Mr. Walters, the mine superintendent, and told him that I had a very sick man and to try to get a doctor up there. Mr. Walters called me back and said I was to try to get Mr. Wyatt down and out to the Head House. I went back and we lowered him down to the 32nd floor where the doctor was.

The doctor examined him and pronounced him dead.

ROY DALBEY.

AXEL E. JOHNSON,
Witness.

Subscribed to and sworn before me this 13th day of January, 1938.

B. N. OUIMETTE,
(Seal) Notary Public.

**AFFIDAVIT**

I, the undersigned, Steve Fenner was working with W. E. Hicks on January 10, 1938 when Albert Mitcham came and called us to help him to get Harvey M. Wyatt down to the level. Going back in we met Wyatt, and he sat down in the drift. Soon after we reached him he fell over and
stopped breathing, and after a few minutes he took a few gasps of breath and acted like he wanted to vomit. He was given artificial respiration by me and Floyd Goff and Albert Mitcham for about one hour and a half. Then we took him down to the 32nd floor.

L. J. Markel,  
Witness.  
Subscribed to and sworn before me this 13th day of January, 1938.  
B. N. Ouimet.  
Notary Public.

Affidavit

I, the undersigned, Albert Mitcham, was working with Harvey M. Wyatt on the 10th day of January, 1938.

When coming on shift Wyatt and John Bowden went up to the 26th floor and I was tramming on the 23rd floor. I think he was working with Bowden about 45 minutes, then he came down to help me. We were pulling out of the chute. He was loading the cars from the chute and I was doing the tramming. He trammed one car to spell me off. We worked about 30 minutes, he says, "Let us go out on the sill, this gas is bothering me a bit." I told him to go out and I would do what I could while he was going. He went out about 30 to 45 minutes and then he came back and I took out one car to dump in the chute. I was held up at the chute about 15 minutes. Coming back in to about 50 or 60 feet from the chute that we were pulling, I met Wyatt coming out again and he said, "Come on, let us get out of here." I said, "OK" and left the car standing on the track. He was walking ahead of me. We walked about 200 feet and he sat down. He said, "Go and get Ed, meaning W. E. Hicks, to help get me out." I left him and ran down the drift about 100 feet to where Ed Hicks was working. Ed Hicks, Steve Fenner and myself started back to where I left him. He had got up and was coming towards us, but had to sit down again before we reached him. When we reached him, he said, "Get that milk bottle out of my bucket." As he said this he fell over on his face on the track. Hicks went to get Roy Dalbey the shift boss, and I went to get his milk bottle and Fenner stayed with him. When I got back, Fenner was rubbing his arms and I started to rub the other arm. Roy Dalbey came and went to get Floyd Goff and we gave him artificial respiration for about one hour and 45 minutes. Then we brought him down to 32nd floor where we were met by Dr. Rolfs.

Axel E. Johnson,  
Witness.  
Subscribed and sworn to before me this 12th day of January, 1938.  
B. N. Ouimet.  
Notary Public.

Affidavit

I, the undersigned, John Bowden, was working on the 26th floor with Harvey M. Wyatt getting ready to drop muck down, etc. He was working with me about 10 minutes, then he went down to start to pull muck two floors below. I continued to work on the 26th floor almost all shift.  

John F. Bowden.  
Witness.  
Subscribed and sworn to before me this 13th day of January, 1938.  
B. N. Ouimet.  
Notary Public.

Affidavit

I, the undersigned, Balbino Urizar was timbering on the 26th floor with Floyd Goff. Mr. Harvey Wyatt was mucking below and getting ready to drop the muck down. I did not see Mr. Wyatt take sick, but saw
him later in the drift while Floyd Goff and Steve Fenner were giving him artificial respiration. John Bowden and I worked the balance of the shift in the stope.

AXEL E. JOHNSON,  
Witness.  
Subscribed to and sworn before me this 13th day of January, 1938.  
B. N. OUIMETTE,  
(Seal)  
Notary Public.

January 28, 1938; Federal Mining & Smelting Company; Morning Mine, Mullan, Shoshone County, Idaho. Yak Maki, married, shaft repairman, age 56.  
Shaftmen were engaged in repairing 1850 level station and shaft pocket. Just before the lunch hour the station timbers began to take weight quite suddenly. Noting this the workmen had telephoned for the shaft foreman who was on Top station (800 Level) to come down to the 1850 level and look things over. Before he arrived the station timbers collapsed against the shaft, blocking the four compartments completely. Shaftmen Eli Niva and Jack Salo went to the jacket sets at the north end of the shaft and were rescued. Niva received a skull fracture, scalp wounds and badly fractured arm that was caught between the shaft timber and the timber of the jacket sets, while Jack Salo received hardly a scratch. The deceased took refuge at the south end of the shaft and was crushed between the caving timbers and died instantly from a fractured skull and crushed body. Maki, a native of Finland, had been an employee of the Morning mine for 17 years. The cave-in wrecked and blocked the mine's four compartment shaft completely. It took two weeks to repair the damage and during this time production operations were suspended. Men working below the 1850 level were forced to climb ladders to the Star tunnel which is used as an emergency exit from the lower workings of the Morning mine. From this horizon the men were hoisted to the 5 tunnel of the Morning mine and from there were lowered in another shaft to the 800 or surface level which also serves as the main haulage adit for the Morning mine.

AFFIDAVIT  
I, the undersigned, Alfred Eastman, shaft foreman, have had for the past two months men working on the 1850 station retimbering station and skip pocket. All timbers were changed.  
On January 28, 1938, Jack Salo, Eli Niva and Yak Maki were working on the 1850 station flooring over the skip pocket. About 10:45 A. M. I left the 1850 station and went to top. All timbers on the station were in good shape. About 11:15 A. M. Jack Salo called from 1850 level to ask me to come down. The chippy cage was on the way up, and both skips were at the 800 level. I decided to wait for the cage to come up as Ed Hill, the shift boss on the shift, was to take down some blocks to some other level during lunch time.

Ed Hill got on top deck and I went on lower deck and he rang the bell for 1850 level. About 40 feet above 1850 station we hit and stopped. I jumped into the pipe compartment and manway, and started for the 1650 station to call the top. Going back again we found Eli Niva with his arm pinned between two timbers, and started to work to get him loose. Later we found Yak Maki's body pinned between two timbers.

AXEL E. JOHNSON,  
Witness.  
Subscribed and sworn before me this 4th day of February, 1938.  
B. N. OUIMETTE,  
(Seal)  
Notary Public.
I, the undersigned, Jack Salo, was working with Eli Niva and Yak Maki on the 1850 station on January 28, 1938. We were flooring over the skip pocket with lagging in front of chippy compartment.

About 11:15 A. M. we noticed the ground started to work, the 4th cap from the shaft was starting to move. I called Fred Eastman, the shaft foreman, on the telephone and asked him to come down.

I saw the chippy cage go up with men for lunch. We decided to eat our lunch on station in front of the chippy compartment, because we figured that we would be safe there under a double cap even if the 4th cap from the station would move.

About 11:35 A. M. we heard a sound like thunder and all of us ran behind the shaft into the jacket set, and then the station came down.

I climbed up in the jacket set on some cribbing on the pipe compartment side of the shaft and into the manway, where I saw Fred Eastman and Ed Hill on the cage on top of muck pile. The three of us climbed up to 1650 level and called to top for bell line and then went down on the chippy cage and we found Eli Niva with his arm pinned between two timbers, and started to work to get him loose.

AXEL E. JOHNSON,
Witness.

Subscribed and sworn before me this 4th day of February, 1938.

B. N. OUIMETTE,
(Seal) Notary Public.

February 11, 1938; Equities Incorporated, Mining Division; Ranger Mine, Salmon, Lemhi County, Idaho. James Barclay Allen, single, miner-timberman, age 63.

James Barclay Allen and his helper T. M. Brown were lowering the track grade and retimbering an old drift. The ground had been tested by Allen in the presence of the mine manager about three hours before the accident. The sheared schist was not easily tested by sounding, as it was intensely sheared but tightly compressed in the zone and appeared to be safe. The deceased was picking in the bottom preparatory to placing new stulls, when about three tons of schist slid in without warning on him from a concealed slip in the upper right side of the tunnel. The schist fell as a single piece but broke up completely upon striking Allen. Death resulted two hours after the accident while the man was being transported to the hospital at Salmon, from a fractured pelvis, general shock and possible internal hemorrhage.

April 9, 1938; Tamarack & Custer Consolidated Mining Company; Wallace, Shoshone County, Idaho. E. J. Thomas, married, shift boss, age 44.

On the morning of April 11th, at 8 A. M., Thomas was helping crew place cap and was picking for heading when a slab of rock fell out of hanging wall striking him on the left side and back. Thomas was removed to the Wallace hospital under the care of Dr. Max T. Smith who found that the injured man was suffering from a broken back and bruised left side which resulted in death at about 6:00 P. M., of April 14th, 1938. The deceased is survived by his wife, one daughter, 15 years old and son of 10 years.

May 25, 1938; Tendoy Copper Queen Syndicate; Tendoy, Lemhi County, Idaho. Noel C. Ankrum, married, millman (surface), age 24.

On the afternoon of May 25th, at 4:00 P. M., Noel C. Ankrum was operating an air hoist used to pull loaded mine cars from an old tailings dump up an incline to the mill, a distance of about 400 feet. In some manner the deceased stepped in front of the hoist, placing himself between the loaded car and the hoist, and apparently neglected to turn off the air
or having his hand on the throttle he probably slipped and tried to use the throttle lever as a means to hang on. This action pulled the loaded car up against the drum of the hoist with Ankrum between the two. The hoist was a Sullivan Turbinair carrying about 500 feet of % wire cable, and was bolted to 8" x 8" beams. The throttle had an extension to permit easy control from the side so that the operator had no need to place himself in front of car or hoist. The operator was required to his car on a level stretch of track just as it entered the mill building and push it ahead by hand to where it was dumped into a temporary bin over a feeder belt leading to a ball mill. Although the men who witnessed the accident tried to revive him, Ankrum never regained consciousness, and the doctor examined him in Salmon one hour later and pronounced the man dead. At the Coroner's inquest, the next afternoon, the doctor testified that there were no marks except a slight abrasion across the man's chest in the heart region and apparently no broken bones. Immediately after the accident the machinery was examined thoroughly for defects. None were found. Without any changes an operator ran the hoist the next shift and it worked in a satisfactory manner. No changes or suggestions were made to improve the set-up and method of operation. One exception would be the installation of a nigger head or bumping block between the hoist and car if practical.

May 28, 1938; Sullivan Mining Company; Star Mine; Burke, Shoshone County, Idaho. R. R. Wedman, married, raise miner, age 28.

R. R. Wedman, was a raise miner working in No. 13 raise, 2900 level of the Star mine. While engaged in removing muck from the working floor he was struck by a falling ground at 10:15 A. M., on May 28th. The force of the impact forced the injured man through the grizzly or muck hole into the chute and he fell a distance of 126 feet to the top of the muck which was about 5 sets or 45 feet above the sill. Wedman was still alive, but unconscious when taken from the chute. The man died at the Providence hospital at Wallace about 11:00 P. M. the same day of the accident from a fractured skull, general body abrasions, contusions and internal injuries.

STATEMENT OF LEE MESSERLY, SHIFT BOSS IN THE SULLIVAN MINE

On May 28, 1938 at about 10:30 A. M. while on 4000 level I was notified by Unto Kosonen that R. R. Wedman had been knocked into the chute at the No. 13 raise on 2900. I went to the 2900 level and up 13 raise and found Thomas Kelly, W. W. Rockwell, and Elmer West cutting away the chute about five sets above the level. They told me what had happened; I then assisted in cutting the chute away, we found Wedman on top of the muck with his face covered with fine muck, alive but unconscious. We took him from the chute, lowered him to the level below, and from there he was sent on out to the surface.

After seeing that Wedman was sent to the surface; W. W. Rockwell, Elmer West and myself went to the top of the raise to examine the place where the accident happened. I tested the back and found it sound and in good shape. Rockwell called my attention to the rock that had hit Wedman and upon examination of the back I could see where it had fallen from. I examined the floor, muck hole, and grizzly and found every thing in place and in good working order.

### Classification of Accidents

<table>
<thead>
<tr>
<th>MINE</th>
<th>Fatal</th>
<th>Seriously Injured</th>
<th>Time lost more than 14 days</th>
<th>Slightly Injured</th>
<th>Time lost 7 to 14 days</th>
<th>MILL</th>
<th>Fatal</th>
<th>Seriously Injured</th>
<th>Time lost more than 14 days</th>
<th>Slightly Injured</th>
<th>Time lost 7 to 14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNDERGROUND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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>5</td>
<td>3</td>
<td>73</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Rock or ore while loading at working face or chute</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Timber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Explosives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Haulage, Cars or Motors</td>
<td>1</td>
<td>1</td>
<td>29</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Persons falling down chute, winze, raise or stope</td>
<td>1</td>
<td></td>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Drilling (by machine or hand drills)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Hand tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Machinery (other than motors or drills)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Flying or falling objects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Fall of persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Lifting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Nails and splinters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Other causes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>8</td>
<td>14</td>
<td>319</td>
<td>136</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Milling Accidents

<table>
<thead>
<tr>
<th>MILL</th>
<th>Fatal</th>
<th>Seriously Injured</th>
<th>Time lost more than 14 days</th>
<th>Slightly Injured</th>
<th>Time lost 7 to 14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Haulage (cars and locomotives)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Railway cars or motors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Crushers, rolls or stamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Tables, jigs, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Other machinery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Falls of persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Falls in ore bins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Falling objects, (rocks, timbers)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Scalding (steam, water or acid)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Lifting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Hand tools, axes, bars etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Nails, splinters, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Other causes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Drowning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time lost more than 14 days</th>
<th>Time lost 7 to 14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>
### Shaft Accidents

<table>
<thead>
<tr>
<th>Accident Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Falling down shaft</td>
<td></td>
</tr>
<tr>
<td>17. Objects falling down shaft</td>
<td>2</td>
</tr>
<tr>
<td>18. Breaking of cables</td>
<td></td>
</tr>
<tr>
<td>19. Overwinding</td>
<td></td>
</tr>
<tr>
<td>20. Cage, skip or bucket</td>
<td>1</td>
</tr>
<tr>
<td>21. Falling ground, nails, splinters, explosives, pumps and other causes</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5</td>
</tr>
</tbody>
</table>

### Surface Accidents

<table>
<thead>
<tr>
<th>Accident Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Mine cars or mine locomotives, gravity or aerial trams</td>
<td>2</td>
</tr>
<tr>
<td>23. Flying and falling objects</td>
<td>1</td>
</tr>
<tr>
<td>24. Lifting</td>
<td>1</td>
</tr>
<tr>
<td>25. Falls of persons</td>
<td>15</td>
</tr>
<tr>
<td>26. Nails and splinters</td>
<td>1</td>
</tr>
<tr>
<td>27. Hand tools, bars, axes, etc.</td>
<td>1</td>
</tr>
<tr>
<td>28. Falls or run of ore in or from bin</td>
<td>2</td>
</tr>
<tr>
<td>29. Machinery</td>
<td>1</td>
</tr>
<tr>
<td>30. Timber, open pits, snow slides and other causes</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>81</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>14</td>
</tr>
</tbody>
</table>

### Smelter Accidents

<table>
<thead>
<tr>
<th>Accident Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Haulage (cars, motors, etc.)</td>
<td></td>
</tr>
<tr>
<td>17. Machinery</td>
<td></td>
</tr>
<tr>
<td>18. Cranes</td>
<td></td>
</tr>
<tr>
<td>19. Falls of persons</td>
<td></td>
</tr>
<tr>
<td>20. Lead fumes</td>
<td></td>
</tr>
<tr>
<td>21. Flying or falling objects (rocks, timbers, etc.)</td>
<td></td>
</tr>
<tr>
<td>22. Hand tools, axes, bars, etc.</td>
<td>1</td>
</tr>
<tr>
<td>23. Burns from matte, slag or molten metal</td>
<td>1</td>
</tr>
<tr>
<td>24. Other causes</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

### Auxiliary Works

<table>
<thead>
<tr>
<th>Accident Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. Falls of persons</td>
<td>3</td>
</tr>
<tr>
<td>26. Flying and falling objects</td>
<td>1</td>
</tr>
<tr>
<td>27. Nails and splinters</td>
<td>1</td>
</tr>
<tr>
<td>28. Hand tools, axes, bars, etc.</td>
<td>1</td>
</tr>
<tr>
<td>29. Lifting</td>
<td>2</td>
</tr>
<tr>
<td>30. Machinery</td>
<td>1</td>
</tr>
<tr>
<td>31. Handling hot materials</td>
<td>1</td>
</tr>
<tr>
<td>32. Electricity and other causes</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

**Grand Total** 414 152
STATEMENT OF W. W. ROCKWELL, PUSHER IN No. 13 RAISE ON 2900 LEVEL OF SULLIVAN MINE

On the morning of May 28, 1938 the day shift of No. 13 raise went to the working face of the raise. We barred down thoroughly. After making sure that everything was safe to go to work, we started cleaning the muck from the floor by mucking it into the muck hole. This hole is about three feet wide and four feet long. The muck falls through this hole and onto the grizzly on the floor below and then it drops into the chute.

At around 10:15 A. M. on that morning Wedman and myself were mucking with our backs to the muck hole. I heard a noise and looked up just in time to see Wedman disappear through this hole and through the grizzly on the floor below. I looked and saw a large rock laying on the floor about where he had been standing and at once assumed that this rock had fallen from the back and struck him, knocking him through the muck hole. This rock had to come from the back of the raise because we had cleaned the floor well past that point on the floor.

I immediately went to the grizzly on the next floor and placed boards over it to keep other rocks from coming down the chute. Then I climbed down the raise and called to the hoistman, Elmer West, to go for help and also to have the shift boss notified. Then proceeded to locate the place where we would have to take him from the chute. The chute was opened up by cutting a hole in it. We took him from the chute, lowered him to the level below. From that point he was taken from the mine.

Wedman fell a distance of fourteen sets down the chute. These sets are nine feet apart. Wedman was still alive, but unconscious when taken from the chute.

After he was taken from the chute the shift boss and I went back up in the raise and I showed him how the accident had occurred. The shift boss and I examined the back and came to the conclusion that we could locate the place where the rock had dropped from. We also examined the grizzly and found it in good working condition. None of the boards that form the grizzly were out of place.

Signed: W. W. ROCKWELL.

Witnessed by:
ROY G. PLUMLEE.

STATEMENT OF ELMER WEST, HOISTMAN FOR No. 13 RAISE ON THE 2900 LEVEL OF THE SULLIVAN MINE

On May 28, 1938 at about 10:15 A. M. while at work near the hoist, W. W. Rockwell called down to me from above telling me to come up in a hurry as R. R. Wedman had been knocked into the chute by a slab. On my way up the manway I heard Wedman moaning; I then called up to Rockwell to bring an axe and come down in the mean time. I located Wedman on about the fifth set. When Rockwell came down I told him about where Wedman was located and I then went for more help. I told Buster Flanigan what had happened and told him to notify the hoistman to send in the basket and then to get Tom Kelly to come and help. I then returned to the place where we had located Wedman and helped cut the chute away and get Wedman out and lower him to the 2900 level from which he was taken on out to the surface.

After he was taken from the level I returned to the raise and went up with Rockwell and the shift boss; we located the place from which the slab fell. We also examined the grizzly and found it in good working condition; none of the boards forming the grizzly were out of place.

Signed: ELMER E. WEST
STATEMENT OF THOMAS KELLY, TIMBERMAN IN 12 RAISE ON THE 3100 LEVEL OF THE SULLIVAN MINE

While working in 12 raise on 3100 on May 28, 1938, I was called from my work by the hoistman to go to the 2900 level to assist getting a man out of a chute. I went to the 2900 level and up to the 13 raise where I found Elmer West and W. W. Rockwell cutting away the chute five sets above the 2900 level. They told me that R. R. Wedman had been knocked into the chute by a slab at the workings above. I helped cut away the chute and climbed in and found Wedman on top of the muck; with his face covered with fine muck; I uncovered his face and assisted in getting him out of the chute and to the surface.

Signed: THOMAS KELLY,

FATAL ACCIDENT OCCURRING AT SUNSHINE MINE ON MAY 30, 1938 TO CECIL G. ROHLF

Cecil G. Rohlf, Elmer Haxton and William Foster were wiring in the bottom of No. 3 shaft, at the Sunshine mine, wiring up a round preparatory to electric blasting. An empty primer box fell out of the shaft bucket which was on the 2700 level. The box weighed about 30 pounds. It fell approximately 200 feet striking the deceased. Death resulted from a badly gashed head and crushing injury to chest.

Signed: STEPHEN PENBERTHY,
RALPH PRUITT,
R. E. HAXTON,
WILLIAM FOSTER.

July 8, 1938; Sunshine Mining Company; Sunshine Mine; Kellogg, Shoshone County, Idaho. Arron Anderson, married, shaft repairman, age 42.

Anderson with fellow workers were repairing an incline shaft, on the footwall, two sets below the 1500 station of the Sunshine mine. At 1:20 P. M., of July 8th the center block of the staging Anderson was working from gave way and caused the deceased to fall about 12 sets (70 feet)
landing on blocks below. The man made no statement. Death was caused by crushed chest and fractured skull.

August 7, 1938; Bryan Lode Mine; Yellow Jacket Mining District; Forney, Lemhi County, Idaho. Carl G. Sylvester, married, mine laborer, age 32.

At 10:45 A. M., the morning of August 7th, Carl G. Sylvester and his partner Leonard V. Lilya were engaged in starting a shaft about 30 feet from the portal of a prospect tunnel at the Bryan Lode mine that was being worked under lease and option by H. G. Snyder of Salt Lake City, Utah, from Fred Brough, Salmon, Idaho, the owner. About 15 feet of over-burden, which was held up by timbers, caved in and caught the two men as they tried to get out of the shaft collar that at the time of the accident was five or six feet deep. Sylvester's body, with the exception of his head, was covered by timbers and muck. The man was dead when the accident was discovered and before he could be rescued by a crew from the Yellow Jacket mine.

August 13, 1938; Bryan Lode Mine; Yellow Jacket Mining District; Forney, Lemhi County, Idaho. Leonard V. Lilya, married, mine laborer, age 38.

Leonard Victor Lilya had worked in Utah mines before coming to Idaho. When found with Carl Sylvester, Lilya's head was pinned to a rail of the track on the tunnel level. The man was breathing but died soon after he was extracted from the cave. The Bryan Lode mine is a prospect about 60 miles from Salmon and 14 miles from Forney in the Yellow Jacket Mining district.

IN THE CORONER'S COURT OF LEMHI COUNTY, STATE OF IDAHO

In the Matter of the Inquest upon the Body of Karl G. Sylvester and Leonard V. Lilya. Deceased

We, the jury in the above entitled inquest, being duly empanelled and sworn according to law; find the name of the deceased to be Karl G. Sylvester and Leonard V. Lilya of the age of 32 and 38 years, a native of Utah, that they came to their deaths on the 13th day of July, 1938 in Lemhi County, State of Idaho. The jury finds that the deceased came to their deaths by means of an unavoidable accident caused by a cave-in at the Bryan Lode in the Yellow Jacket Mining District, Lemhi County, State of Idaho.

To all of which we certify by this our inquisition in writing.

Done at Salmon, Lemhi County, State of Idaho, this 14th day of July, 1938.

Sworn before me this 14th day of July, 1938.

A. C. LUDRIG, CHARLES W. DOEBLER, Coroner.
DAN M. SCHOLL, Jr., In and for Lemhi County, State of Idaho.
OWEN S. STRATTON,
WILLIAM L. HODGES,
ROBERT WAGNER,
A. T. BENNETT,

August 4, 1938: Hecla Mining Company; Hecla Mine; Burke, Shoshone County, Idaho. P. C. Dodd, single, track cleaner, age 62.

P. C. Dodd had been in the employ of the Hecla Mining Company since October 29th, 1919, and was at the time of the accident carried on the payroll as a track cleaner. These jobs are generally given to men who have seen service with a company for a number of years because the air is better and the accident hazards reduced to a minimum. At 11:45 A. M., of August 4th, Dodd stepped in front of a moving locomotive on the 2400 level. In attempting to get out of the way he slipped and fell. His body was caught and rolled between the locomotive and a drift post
before the electric locomotive could be stopped. Death resulted immediately from extensive crushing injury to chest and general shock from accident.

STATEMENT OF NORMAN K. JOHNSON, SHIFT BOSS ON 2400' EAST LEVEL

On this date, August 4th, 1938, I was on the 2200 Winze station when I heard someone flash on the shaft signal that a man was hurt. I heard the phone ring and listened in and heard that a man had been hurt by the motor on the 2400 level.

I immediately proceeded to the scene of the accident. I saw that he was pretty badly hurt and we made him as comfortable as possible till the basket arrived. He was then sent to the surface.

I then endeavored to place the cause for the accident. Upon questioning the train crew and others who were near I found that Dodd had evidently not heard the motor coming and that it was almost upon him before he started to move. In trying to get out of the way he had stumbled and fallen and was struck by the motor. At the point where he was hurt there was quite a grade to the track and it would be impossible to stop the motor before it had gone several feet. None of the men that I talked to and who saw the accident could say just where Dodd stepped from onto the track. He was regularly employed as track cleaner on the 2400 level.

NORMAN K. JOHNSON,
Burke, Idaho, August 4, 1938.

STATEMENT OF D. L. ALLISON, MOTOR-HELPER 2400 LEVEL

I was waiting in the drift for my partner, Frank Frank, who was running motor while he went back in the drift to get cars. After a short time I started walking up the direction from which he should have to return. I saw the motor coming down the drift and stopped and was waiting for him. I did not notice that Pearl Dodd was around till the motor was about five feet from him. He turned around, looked at the motor, and took two or three steps, stumbled and fell and the motor struck him and rolled him between the motor and a post and dragged him about seven feet. I could tell by the sound of the motor that my partner had put the motor in reverse to stop it. However, the motor was on a down grade and it skidded about its own length before it came to a stop.

This occurred at about 11:45 A. M. Probably the reason that I did not see Dodd sooner was that he had his light turned away from me or that his light was very poor. When we picked up his light it was just barely burning.

D. L. ALLISON,
Burke, Idaho, August 4, 1938.

STATEMENT OF FRANK FRANK, MOTORMAN ON 2400 LEVEL

I had gone back to the end of the East drift with the motor to pick up two ore cars so that I could start hauling muck. As I came back down the drift I suddenly saw a man step out from the side of the drift into the path of the motor. He looked and saw the motor and then started running down the track. He stumbled and fell and before I could stop the motor he was struck and rolled between the post and the motor. I did not have time to apply the brakes but reversed the motor in an effort to stop it. The track at this point is on quite a down grade and the motor slid ahead about seven or eight feet before it stopped completely. He was struck at about 11:45 A. M.

I got off the motor and saw that the man struck was Pearl Dodd, the track cleaner on 2400 level. I called for help and did what I could to make him comfortable till help arrived.
I was operating the motor carefully and at the same speed as I always have previously in performing my work. Because of the closeness of the timbers to the track it is never possible to operate the motor at little more than a walking gait.

FRANK FRANK,
Burke, Idaho, August 4, 1938.


At about 1:20 P.M. of August 4th the jigger boss in the bottom of No. 3 shaft at the Sunshine mine rang the bucket for the top to get a load of lagging. In some unexplained manner the bulk-head (blasting timber) was hooked to the cross-head. The bulk-head raised into place with Mauldin astride section of blasting timber, crushing him against matching section of stationary shaft timber. Death was due to a fractured skull.

STATEMENT OF ALPHONSE FORGETTE, (JIGGER)

I sent up for lagging, wedges and blocks to block up the bulk-head, and the cage went up to 2700 and was some little time coming back. In the meantime I was checking up on my set (Mickey Lowrie was helping me) and the cross-head was a little time coming back so I jingled the bell in order to get it back down to us. When it came back there were no lagging, only wedges and blocks, and I wondered what was the matter, so I told George Lutich to take off the wedges and the blocks, that I would go up and see why we did not get out lagging. I got on the cross-head and rung for the top station. In the meantime, John Mauldin and Joe Crozel were down on the bottom where the bulk-head was and it must be that John Mauldin hooked on to the bulk-head unbeknownst to me. Since I had rung for the top station, the hoistman (Ed. Box) pulled the cross-head fast and when we came to the jerk of the bulk-head we knew something had gone amiss. Someone called that I was hooked on to the bucket which I understood, and right after one of the men called that I had got John Mauldin between the bulkhead and the set of timbers. In the meantime, I had stopped the cross-head and when we got the release of the cross-head and bulk-head John Mauldin was laying astride, stomach down on the divider of the bulk-head, and that is from where we removed him to the bucket.

It has been an absolute rule, and has heretofore always been observed that no man except myself, or one acting in my stead during days which I do not work, take the responsibility of raising or lowering the bulk-head. Because of this strict rule, and because it had never before been violated, and because no one else can account for the bulk-head being hooked up, it is assumed by me that Mauldin himself must have hooked it up.

ALPHONSE FORGETTE,
Jigger boss on day shift, July 24, 1938.

STATEMENT OF CLAUDE CUNNINGHAM, AMBULANCE DRIVER

I was called from the garage where I was washing ambulance by Ray Butler, and told there was an ambulance case. I took ambulance and drove it to portal. In about five minutes patient was brought out and loaded quickly into ambulance. (This at about 1:25 P. M. D. L. S.)

Raymond Butler and Milton Bauman accompanied me to hospital with the injured man. Patient appeared no different when he had left the mine than he appeared at about 1:38 or 1:40 when the doctor pronounced him dead, so I believe that the man was dead at the time he was put into ambulance.

Dr. Bonebrake was the physician in this case. John L. Mauldin was the deceased.
I called the mine and had Victor Demers, who answered the phone, get Mr. Graham on the wire. I told him that the man was dead, and asked him to find out where we could get in touch with relatives. Mr. Graham told me that he would come up.

I called Ward's Undertaking parlors and had body removed there. Mr. Graham came up to Wallace, and I returned to the mine.

Signed: CLAUDE CUNNINGHAM,
Ambulance driver, July 24, 1938.

STATEMENT OF MICKEY A. LOWRIE, SHAFTMAN

I was with Alphonse Forgette on the first set above the bottom at the time accident occurred which was fatal to John L. Mauldin. I have read Alphonse Forgette's statement, and find it true to the best of my knowledge. I have nothing to add, or would detract nothing from statements which he has made, and his story of the accident and mine coincide in every respect.

I helped put Mr. Mauldin in bucket for removal to portal, took him from bucket alone at the top at the 2700 winze. He was still living at the time we put him into the skip on the 2700 level.

M. A. LOWRIE,
Shaftman on day shift, July 24, 1938.

STATEMENT OF GEORGE LUTICH

I was standing on the set and I saw John Mauldin hook up something, I could not say what. Then I called to Frenchy, "Watch out, Frenchy, bucket hooked on." Immediately the blasting set and all came right up. I yelled, "Frenchy, let her down, let her down." He let it down, and I jumped down and grabbed John. I tried to get him to talk but I could not, so we pulled bucket out and we all put him in bucket, and went to the top with him. We put him on some boards until the basket got there then put him in basket, and brought him out of mine.

Signed: GEORGE LUTICH,
Shaftman on day shift, July 24, 1938.

STATEMENT OF JOE CROZEL REGARDING THE DEATH OF JOHN L. MAULDIN

I was working in the bottom of the No. 3 shaft with John L. Mauldin. He was standing in the center of the shaft, and I was on the other end where I usually worked, and I was standing on a blasting set. John was, as near as I can figure out, starting to step over bulk-head, and was astride it. The blasting set was hooked up. He and I were the only ones in the bottom, and I did not see John Mauldin hook up blasting set, but I did not hook it up, so he was the only one who could have done so. First thing I knew the blasting set started up with a jerk, and that is when I jumped off. John was laying across the divider of the blasting set and he had no chance to get off, and was crushed up against matching timber.

As I jumped off blasting set, I landed on my head in water in sump, and when I got up I saw the blasting set squash him up against timber.

I stayed in the bottom until the set was lowered, and then I helped put John Mauldin in bucket. I came up in bucket with him. I got out on the 2700 level, helped put him in basket, and then I remained on 2700 level, and then I came up and quit for the day.

I would say that Mauldin was still alive when we put him in basket.

Signed: JOSEPH CROZEL,
Shaftman on day shift on July 24, 1938.
STATEMENT OF ED BOX, HOISTMAN

I had just lowered cross-head to the bottom of the shaft, and was expecting a bell to the top, because I knew that they were short of lagging, so when I got it I started right up. I did not have the hoist wide open yet when I felt there was something wrong. I shut it off. It was too late, as I had felt a big jar. I waited for signal, and was given the lowering signal, and lowered the cross-head back down. After a wait they rang the top. I then brought them up. The first I knew that some one was hurt was when someone yelled, “John has been killed.”

Signed: ED BOX, Hoistman on day shift, on July 24, 1938.

August 29, 1938; Hecla Mining Company; Hecla Mill; Gem, Shoshone County, Idaho. Clifford Gilseth, married, jig operator, age 42.

Gilseth was working with a helper tearing down a rolls foundation connected with the reconstruction program at the Hecla mill. About 4:30 the afternoon of August 29th a concrete slab loosened by this wrecking crew tipped over and fell on Gilseth's back, causing a crushed chest and fractured left arm, which resulted in instant death.

STATEMENT OF W. L. ZEIGLER, MILL SUPERINTENDENT, HECLA MILL, GEM, IDAHO

About 4:30 on the afternoon of August 29, 1938, I was standing about 80 feet away, but facing the scene of the accident which claimed the life of Clifford Gilseth.

He was working with a helper tearing down a rolls foundation which consisted of timber bents which were boarded up and filled with loose rock, on top of which was a concrete slab about 2½' x 3½' x 5" thick. The shift boss had previously explained the construction of this foundation to Gilseth and told him the manner in which it should be wrecked. Gilseth, with his helper, Joe Bonomi, were barring down the posts of the structure, which was about six feet high. When the post started to tip, the concrete slab tipped over sideways with it. Gilseth started to step back to get in the clear and had plenty of time to get out of the way. His feet evidently slipped, and losing his balance, he failed to get back far enough. The slab fell on his back, doubling him up beneath, resulting in the injuries which caused instantaneous death. The men immediately rushed to the spot where Gilseth was trapped and lifted the concrete slab from his body without the use of any tackle or bars. I immediately called the doctor from Wallace to be present if medical aid could save Gilseth's life.


STATEMENT OF JOE BONOMI, PARTNER OF CLIFFORD GILSETH

Upon coming to work at 2:30 on the afternoon of Monday, August 29, 1938, Clifford Gilseth and I were told by Oscar Anderson, to go to work tearing down an old rolls foundation which consisted of a box framework approximately six feet high. This framework had been filled with tailings and on top of them was resting a concrete slab, which, I should judge, weighed approximately 1000 pounds. A ditch had been dug in front of the framework so this made the top of the structure about 7½' or 8' from the ground.

We immediately started to work trying to tear the structure down with bars but found we were not making much progress. We then procured a saw and took approximately three feet off the top of each of the front corner posts. In this manner we were able to get two or three of the cribbing boards from the structure. We got some wedges and split the posts, then taking our bars, we tore out the left front corner post.
in chunks. We both got down in front of the structure and were attempting to remove the right front corner post—I stepped away from the front of the structure and around to the right of the post. I had taken a more-or-less of a measuring swing at the post and was just preparing to stick my bar into it when the tailings pile started to move. The concrete also started to move, tumble, at this time and I cried out to Gilseth to "Look Out" as I thought possibly the slab might catch his feet. Gilseth evidently slipped in getting out of the way of the slab. I believe, but I did not see the slab turned over and caught Gilseth. He was doubled up beneath it with his head down between his legs. His left arm was struck by the slab and broken. He had obviously tried to protect himself from the slab by pushing with this arm. I immediately tried to move the slab—five other men then came running to the spot and we moved the slab from Gilseth without the aid of tackle. As soon as the block was removed from him, I bent down to feel his pulse and listen for any heart action; to the best of my knowledge he was dead at the time. He did not cry out at any time. We put him on a stretcher and took him outside—a doctor arrived shortly afterwards and immediately pronounced him dead.

I should judge the time of the accident as 4:30 P.M.

Signed: JOE BONOMI,

STATEMENT OF OSCAR ANDERSON, SHIFT BOSS, AFTERNOON SHIFT — GEM MILL

Joe Bonomi and Clifford Gilseth were working together tearing out old rolls foundation. This foundation consisted of wooden framework which was filled with tailings and on top of which was a cement base. This cement base was supported by the tailings and the wooden framework. It was necessary to remove this cement base and to accomplish this, they were removing boards from the sides and top and removing gravel. While both men were prying on one of the corner posts in order to remove more side boards, the gravel supporting the cement base gave way and the cement base slid down off the foundation on top of Clifford Gilseth.

I was standing perhaps 50 feet away when I heard the noise and a call for help. We immediately lifted the slab up and took him from under it. A doctor had been summoned and arrived a few minutes afterwards.

It is my opinion that Clifford Gilseth slipped and fell while trying to escape from the falling slab. There was plenty of room and time for him to get out of the way.

Signed: OSCAR ANDERSON,
Gem, Idaho, August 30, 1938.

November 21, 1938; Texas-Owyhee Company; Mayflower Mine; Quartzburg, Boise County, Idaho. Dewey Epperson, married, raise miner, age 38.

Dewey Epperson and Roy Streddler were working in No. 305 east raise at the Mayflower mine on the day of the accident. Streddler had gone to the surface for lunch and on his return found Epperson on the 6th or working floor of the raise partially covered with muck which had fallen from the back. The injured man did not take any lunch and we assume he was waiting for his helper to return before resuming work. The raise was a three cap, two compartment raise that was well timbered and dry. During the forenoon the men had stood the center set and were preparing to stand the end set before breasting out the other compartment of the raise to finish the floor. I know of no safer way to drive a raise than the method being used in this particular operation. The man was removed to the St. Alphonsus hospital in Boise, where he was given several transfusions from some of his fellow workers in an attempt to save his life. His condition became weaker and Epperson died November 11th, 1938.
THE EVOLUTION OF SAFETY IN SMALL MINES

By PAUL V. BLACK,
Safety Inspector, State Insurance Fund

Mining is one of man's oldest form of industry and is easily traced back to the early ages. While not going back to the primitive days in Idaho, nevertheless it is closely associated with and has played an important part in the development and establishment of the wealth of our state.

We might compare the early day mining to the skimming over and accumulation of nature's open mineral wealth, but our present day manner of mining is rapidly developing into the matching of education and experience against the formations and patterns of nature's hidden wealth.

In the early days development and production were carried on with little or no thought of safety appliances or safeguards. Accidents were regrettable but unavoidable—production costs could be measured by transportation, wages, and materials. With the advent of the Workmen's Compensation Laws, the larger operators began to take notice of the costs of accidents and to take some steps toward decreasing them. Demand for better living and working conditions started our first safety campaigns in the mines—a movement that was started primarily as an act of economy soon began to gain recognition as a standard or efficiency by both employer and employee. At the present time there are no large mining operations that are not actively engaged in safety work.

The safety movement is just now beginning to be recognized among the majority of the smaller operators and prospectors, the effects of which can best be shown by a comparison of the number of accidents and fatalities by the smaller mining operations as reported to the State Insurance Fund, which covers practically all the small mines of the state.

During the year of 1937 there was a total of 650 accidents, 16 of them fatal, that were reported to the State Insurance Fund. This is not only a large number of injuries and fatalities, but brings out the startling fact that on the average every forty-first accident resulted in death. A special effort to establish a standard of safety in these smaller mines was made during this year and we hope that some of this work is reflected in the fact that there were about 100 less injured, and only 4 fatal accidents reported during the year. This made possible the raising of the average of fatal claims to 1 in every 137 as compared to 1 in 41 of 1937.

In spite of these improved conditions, the work of safety is merely started, and must not only be carried out but pushed during the coming year. Safety is not the other fellow's responsibility—but yours. To insure as far as possible, safe working conditions, is the responsibility of the employer. The practice of personal safety on the job can come only from the employee. We cannot hope to stop all accidents as long as we have movement of body and constructive operations, but we can stop the ones that are being caused by thoughtless and unguarded movements, and faulty or carelessly worked operations.

A continuous co-operative safety program is the ultimate solution of health efficiency and economical production. Whatever pinches the hand also pinches the pocketbook.
REPORT OF DIRECTOR

To: The Board of Control, Idaho Bureau of Mines and Geology.

Gentlemen:

In my report of March 31, 1937, there was given a statement of the biennial appropriation and an itemized budget for 1937-38. The report and budget were approved by the Board in an official meeting of the Board on April 9, 1937. In view of this, a financial report is not made at this time.

There is reported herewith progress on projects approved as of April 9, 1937, and a group of new U. S. Geological Survey projects for the 1938 field season, commencing about June 1, 1938.

PROJECTS FINISHED SINCE APRIL 9, 1937

I. U. S. G. S. Co-operation.

   (Party head, Professor Alfred L. Anderson, School of Mines.) Project initiated in 1932. The written report was completed early in 1936, is still in the hands of the Director of the Survey where it appears to be stalled for the need of critical attention and final editing.

2. Murray-Pritchard gold district, Shoshone County.
   (Party head, Dr. P. J. Shenon, U. S. G. S.) Study initiated in June, 1936. Mr. Shenon has finished his report and it is now in the office of the Director of the Survey. It should be published early this spring or in the summer.

3. High-bench placer ground studies in Burgdorf, Warren, Florence, and Slate Creek districts, Idaho County.
   (Party head, Mr. J. C. Reed, U. S. G. S.) Project initiated in the spring of 1934. Work covering the Burgdorf and Warren districts has just been published by the Bureau as Pamphlet 45 entitled "Geology and Ore Deposits of the Warren Mining District, Idaho County, Idaho". It is a 75-page report containing 15 illustrations. It is believed that this report, which attempts to interpret the geology of this type of placer deposits, should be of great help to engineers and to prospectors. Manuscript upon the Florence and Slate Creek districts is being prepared by Mr. Reed and should be ready for publication some time this summer.
   Studies were continued last summer by Mr. S. R. Capps, U. S. G. S., and a report of his work will be issued perhaps next fall.

4. Atlanta district, Elmore County.
   (Party head, Professor Alfred L. Anderson, School of Mines.) Project initiated in June, 1936. As stated in my March, 1937, report, the field work has been completed. The written report was completed early in 1937 and is now approaching final form for publication. It should be issued this summer; however, it is still in possession of the Director of the Survey.

5. Silver belt, Shoshone County.
   (Party head, Dr. P. J. Shenon, assisted by Roger McConnell, U. S. G. S.) This study has been continuously in progress since June, 1936. An excellent piece of geologic work has been done by these men in working up the geology of the Silver Belt near Kellogg. It deviates considerably from and is much more precise than earlier reports. The survey has been timely and has already been of much value in the economic development of the Silver Belt. The work will terminate in June, 1938, at which time Dr. Shenon's report also will be ready for editing and for publication next fall or perhaps the spring of 1939.
(Party head, Professor Alfred L. Anderson, School of Mines.) Professor Anderson undertook this survey last June. The field work was finished during the summer. The report is being prepared and will be ready to submit to the Director of the Survey by June 1, 1938. Mr. Anderson is not enthusiastic over the economic mineral possibilities of this county. The citizens of Coeur d'Alene City and of Kootenai County, who for several years urged this survey, we regret, will find little in Mr. Anderson's report of encouragement to them.

PROPOSED PROJECTS

I. U. S. G. S. Co-operation.

1. Geologic study on the Snake River south of Pittsburg Landing, Idaho County, and of the Seven Devils country, Adams County.

Two summers ago I made a hurried inspection trip on the east side of the Snake River south from Pittsburg Landing—Pittsburg Landing is about 25 miles south and east of Whitebird. The mineralization looked particularly interesting. There were some well defined gold-copper-silver outcrops traceable over great distances. A study of this district, I feel, is well justified and should be undertaken in the near future.

Although many years ago, Dr. F. B. Laney made a geologic study of the Seven Devils country, no report has been published. In view of the greater possible economic importance of this district, an early geologic report by the Bureau would be timely.

II. State Mineral Resources Investigation.

In this division a variety of studies, surveys, and researches are conducted under the direction of the Director of the State Bureau of Mines and Geology. The work in kind and quantity is limited only by the money available. In this division, we are free to conduct investigations on our own account or in co-operation with the federal bureaus. The service roughly is of three kinds: (A) Research and testing of ores, both metallic and nonmetallic to improve economics, prevent mineral waste, and to devise methods of processing minerals of possible future commercial and economic importance; (B) Service to the industry in the form of (1) mineral inspection and identification, (2) consultation with prospectors and engineers concerning their mining and metallurgical problems, (3) reply by correspondence to numerous inquiries on all phases and angles of mining and metallurgy, technical and geographical; (C) Mineral surveys and reports.

A. 1. Flotation research (a) to develop broad fundamentals, (b) to develop, if possible, methods of separating sulphides from each other and from such other minerals as scheelite, wolframite, and molybdenite, and flotation methods of beneficiating and processing Idaho phosphates.

2. Crushing and grinding studies to elucidate fundamentals which in turn serve to affect better comminution methods and to reduce costs.

3. Gold and silver recovery studies having for their objectives reduction in operating costs and increased recoveries. In some preliminary experiments, cyanidation tests in air and oxygen under pressure have given standard recoveries in a fraction of the time required in present practice. Atomic hydrogen has been found to be a precipitant of gold and silver from cyanide solutions. This method has possibilities.

B. 1. The mineral identification service, handled by Dr. F. B. Laney, is a service much appreciated by mining people in all parts of
the state. Hundreds of samples are received and reported on each month.

2. Engineering service. This is a service that is constantly rendered, in so far as we are able to give it, to all who call in person or who inquire by letter. It touches on all phases of the mining business, including economic, processing, mining, etc.

C. Mineral surveys and reports. From time to time geologic studies are made by the State Bureau of Mines and Geology independent of the U. S. Geological Survey of smaller projects but of immediate interest. Two such projects are outlined below for approval of this board.


One of the very few beryllium deposits in this country is located near Troy, Idaho. Beryllium alloyed with copper and with magnesium, because of the unusual physical properties of such alloys, is of tremendous industrial importance now. There is a strong demand for the element, and it commands in eastern markets a price of $30.00 and $35.00 per ton, f.o.b. mines. There is no geologic report available at this time to indicate the possible economic importance of this deposit. One should be made.

2. Economic survey of Latah County clays; collecting of samples for washing experiments.

As is well known, there is in Latah County extensive clay deposits, a large percentage of which is reputed to be of a quality comparable to the finest anywhere on the continent or in foreign countries. It is known, however, that vast parts of these deposits contain contaminating impurities. It seems timely that these deposits should be sampled and a study made to determine the amenability of the material to purification by modern flotation processes. The above two projects are recommended for approval of the Board. It is the desire to undertake the field studies and sampling this summer and to initiate the laboratory investigations next September.

PUBLICATIONS ISSUED IN 1937-38


"Ore-dressing benefits by research," by A. W. Fahrenwald; Eng. & Min. Jour., vol. 139, No. 2.


TITLES OF MANUSCRIPTS ACCEPTED BY AND IN THE HANDS OF THE PUBLISHERS


"The pulp density as a factor in flotation," by A. W. Fahrenwald, Joseph Newton, and Arthur O. Ipsen; Eng. & Min. Jour.
“Relationship of the state of sphalerite in aqueous suspension and sphalerite flotation,” by A. W. Fahrenwald, Joseph Newton, and E. M. Walters; Eng. & Min. Jour.
“The effect of static load in drop-weight crushing,” by A. W. Fahrenwald, Joseph Newton, and Earl Leatham; Rock Products.

Respectfully submitted,

A. W. FAHRENWALD,
Director, Idaho Bureau of Mines and Geology, Secretary, Board of Control.
ACTIVITIES IN THE IDAHO BUREAU OF MINES AND GEOLOGY

By DR. A. W. FAHRENWALD, Director Idaho Bureau of Mines & Geology

As is attested by the many additions to be noted in the List of Publications of the Idaho Bureau of Mines and Geology, seen elsewhere in this report, the Bureau has had a very active and productive biennium. The output per dollar of appropriated funds reached an all time high.

Of the Bureau's geologic work carried on in cooperation with the U. S. Geological Survey, the activities have been well spread over the State geographically. Dr. P. J. Shenon, ably assisted by Roger McConnel (now geologist for the Bunker Hill and Sullivan Mining and Concentrating Company) has done a magnificent piece of work in the Coeur d'Alene mining district, Shoshone County. Pamphlet No. 47 "Geology and ore deposits near Murray, Idaho," covers his studies of the old and famous placer mining district near Murray and Pritchard. The quartz lode mining which has been underway in that district intermittently over recent years enabled Dr. Shenon to bring the geology up to date and in turn for engineers using his report to re-appraise future mining possibilities there. Dr. Shenon, now geologist for that great Canadian mining company, the International Nickel Company, with headquarters soon to be at Johannesburg, Africa, after two years continuous study of the geology of the Coeur d'Alene silver belt, made famous by the Sunshine Mining Company, has turned in a report of monumental significance. A geologic map accompanied by a brief preliminary statement is to be published shortly. It is contemplated that field work in this district will be continued during the present biennium.

The Boise Basin report, which we confess is long overdue, is to have every possible consideration for its early publication in an abridged form. Those who particularly have been waiting for this report will be pleased to learn that Dr. Alfred L. Anderson returned to that district last summer for a hurried resurvey of new developments over what existed at the time of his original work there in the summer of 1932. Dr. Anderson advises that, as a result of his visit, he is now able to make new deductions and to greatly improve his report. There is now the possibility that the report will be issued by midyear.

The placer studies in central Idaho, originally initiated in 1933 in charge of Dr. John C. Reed, have been continuously in progress; the last two years under the direction of Dr. Stephen R. Capps. Those who read Dr. Reed's reports (Pamphlets Nos. 40, 45, and 46) and the forthcoming reports of Dr. Capps will find new light on the geology of the placer ground (particularly the bench placers) of the districts surrounding Burgdorf, including Warren, Florence, Dixie, and the Secesh Meadows. Many important new observations have been made. The older theories of the formations of these beds are materially modified. It is the tentative plan to continue this study to a logical conclusion. Justification for continuing this program is to be had in the unofficial estimate that the placer gold production this year will reach $3,000,000.

Idaho is not a large producer of copper. Its potentialities as a copper producer, however, have been many times alluded to by the late Robert E. Bell, for many years the State Inspector of Mines. Mr. Bell many times gave mention to the Seven Devils district on the Snake River, Adams County. Dr. Ralph S. Cannon spent the entire past season geologizing in this district. Owing to the tremendous ruggedness of this country, the work is hard and the progress slow. Several summers will be required to gather enough data for a geologic report. When completed, however, it will constitute a long-needed document on the copper mineralization of this district of value.

Other recent geologic studies have been in Kootenai County, the
Atlanta and Rocky Bar districts, Elmore County, the clay and beryl deposits in Latah County, and the phosphate deposits in the southeastern corner of the State.

Studies relating to metal and mineral recovery and beneficiation are continuously under way. A stream of contributions over recent years on such subjects as flotation of metallic and nonmetallic minerals, cyanidation, crushing and grinding, classification, have appeared in print as bureau pamphlets or as articles in leading technical journals. Many new fundamentals and processes in whole or in print have gone into practice in the industry. Recently some fifteen placer samples were collected at various places on the Snake and Salmon rivers. The gold content, the sizes and shapes of the gold particles, and the amenability of the gold to flotation are some of the studies being made. If the particles do not respond to flotation, the reason therefor is being sought.

Studies to determine methods of beneficiating Idaho's phosphatic rock, some of the better clays of Latah County, and methods of flotation concentration of beryl found in Latah County, are being made. Other highly technical studies also are in progress.

The free mineral identification service rendered by the Bureau, always in the hands of a trained mineralogist, is taken advantage of by prospectors, engineers, high school instructors and students, and others whose hobby is in this field. Hundreds of identifications are made each month. These identifications are by observations of hand specimens and of crushed samples by the unaided eye, also under the microscope and by those test tube and blow pipe experiments familiar to the mineralogist. When fire or quantitative assays are required, it is suggested that the samples be sent for this purpose to competent commercial analysts. Neither the Bureau nor the School of Mines make assays free or at a charge in competition with the private assayer. A list of competent and reputable assayers is given elsewhere in this report.

Bureau engineers, at their offices in the School of Mines, are glad to help those who call in person. We are also glad to make suggestions and to help, in any way within our capacities, those who write us of their problems. There are numerous questions about flotation and cyanidation of gold ores, and for reference to the best books and technical literature on specific subjects. We are glad to give this information.

LIST OF COMPETENT AND REPUTABLE ASSayers

MONTANA

Butte:
Lewis and Walker, 108 North Wyoming St.
Richard McCarthy, 56 East Granite St.

Helena:
Brunner and Perey, 11 Broadway.
Goodall Bros., 46 South Main St.

UTAH

Salt Lake City:
Alonzo F. Bardwell, 158 Southwest Temple St.
Black & Deason, 165 Southwest Temple St.
Crismon & Nichols, 229 Southwest Temple St.

WASHINGTON

Seattle:
Geijsbeek Engineering Co., Arctic Bldg.
Laucks Laboratories, Inc., Maritime Bldg.
Northwest Testing Laboratories, Second and James Sts.
Willis H. Ott, 5200 Airport Way.

Spokane:
The C. M. Fassett Co., 211 North Wall St.

Tacoma:
Bennetts Chemical Laboratory, 1131 Market St.
## CUSTOM CHARGES FOR METALS

<table>
<thead>
<tr>
<th>Metal</th>
<th>Charge</th>
<th>Metal</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>$3.00-</td>
<td>Iron and steel:</td>
<td></td>
</tr>
<tr>
<td>Antimony</td>
<td>2.50-5.00</td>
<td>Individual elements</td>
<td>$1.00-3.00</td>
</tr>
<tr>
<td>Arsenic</td>
<td>3.00-5.00</td>
<td>Seven elements</td>
<td>12.00-</td>
</tr>
<tr>
<td>Barium</td>
<td>3.00-5.00</td>
<td>Lead</td>
<td>1.00-2.00</td>
</tr>
<tr>
<td>Beryllium</td>
<td>5.00-</td>
<td>Magnesium</td>
<td>2.00-3.50</td>
</tr>
<tr>
<td>Bismuth</td>
<td>3.00-5.00</td>
<td>Manganese</td>
<td>1.00-3.00</td>
</tr>
<tr>
<td>Brass and bronze:</td>
<td></td>
<td>Mercury</td>
<td>2.50-5.00</td>
</tr>
<tr>
<td>Individual elements</td>
<td>3.00-</td>
<td>Molybdenum</td>
<td>2.50-5.00</td>
</tr>
<tr>
<td>Four elements</td>
<td>8.00-</td>
<td>Nickel</td>
<td>3.00-5.00</td>
</tr>
<tr>
<td>Cadmium</td>
<td>3.00-5.00</td>
<td>Palladium</td>
<td>10.00-</td>
</tr>
<tr>
<td>Chromium</td>
<td>2.50-5.00</td>
<td>Phosphorus</td>
<td>3.00-5.00</td>
</tr>
<tr>
<td>Cobalt</td>
<td>3.50-5.00</td>
<td>Platinum</td>
<td>3.00-7.50</td>
</tr>
<tr>
<td>Copper:</td>
<td></td>
<td>Platinum metals, each</td>
<td>6.00-</td>
</tr>
<tr>
<td>Ordinary</td>
<td>1.00-2.00</td>
<td>in one sample</td>
<td>5.00-</td>
</tr>
<tr>
<td>Electrolytic</td>
<td>3.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferroalloys, each element</td>
<td>5.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ore</td>
<td>1.00-2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullion</td>
<td>2.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold and platinum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in one sample</td>
<td>6.50-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold and silver</td>
<td>1.00-2.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullion</td>
<td>3.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold, silver, platinum,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in one sample</td>
<td>7.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold, silver and combined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>platinum metals</td>
<td>15.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold, platinum, rhodium,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>osmiridium, palladium</td>
<td>35.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold, platinum, rhodium,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>palladium, ruthenium,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and osmium</td>
<td>75.00-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iridium</td>
<td>5.00-10.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>1.00-3.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HYDRAULIC PLACER MINING.**
*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 co-operation with the U. S. Bureau of Mines.)

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

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


*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. Meinzner. 1924.


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

*PAMPHLET NO. 21—"The Vienna district, Blaine County, Idaho," by Clyde P. Ross. 1927. (Prepared in co-operation 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.


MINING INDUSTRY OF IDAHO


*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. 38—Biennial report on the activities of the Bureau, by John W. Finch.

*PAMPHLET NO. 39—“The Dome mining district, Butte County, 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. (In course of preparation.)

PAMPHLET NO. 47—“Geology and ore deposits near Murray, Idaho,” by Philip J. Shenon. Price 50c.
TECHNICAL PUBLICATIONS

FIELD WORK COMPLETED FOR WHICH MANUSCRIPTS ARE IN PROCESS OF PREPARATION AND WHICH WILL BE PUBLISHED POSSIBLY WITHIN THE NEXT SIX MONTHS ARE AS FOLLOWS:

“Geology and ore deposits of the Atlanta district, Elmore County, Idaho,” by Alfred L. Anderson.
“Geology and metalliferous deposits of Kootenai County, Idaho,” by Alfred L. Anderson.
“Geology and gold deposits of the Rocky Bar district, Elmore County, Idaho,” by Alfred L. Anderson.


PRESS BULLETIN NO. 18—“Early and recent mining activity in North-central Idaho,” by John C. Reed, 1936. (Prepared in cooperation with the U. S. Geological Survey.)

ISSUED BY THE U. S. GEOLOGICAL SURVEY

In cooperation with the Idaho Bureau of Mines and Geology


BULLETIN NO. 846-d—“Some lode deposits in the northwestern part of Boise Basin, Idaho,” by Clyde P. Ross, 1934. (Obtainable from the Superintendent of Documents, Washington, D. C., for 35 cents.)

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.)


**MINING INDUSTRY OF IDAHO**

**ISSUED BY THE U. S. BUREAU OF MINES**

*In cooperation with the Idaho Bureau of Mines and Geology*

*BULLETIN NO. 205—“Flotation tests of Idaho ores,”* by Clarence A. Wright, James G. Parmelee and James T. Norton, 1921.

**TECHNICAL PAPER NO. 403—“Hydraulic classification, theory, mechanical development and application in ore dressing,”** by A. W. Fahrenwald, 1927. (Obtainable from Superintendent of Documents, Washington, D. C. Price 15 cents.)

**REPORT OF INVESTIGATION, SERIAL NO. 2933—“Effect of sieve motion on screening efficiency,”** by A. W. Fahrenwald and S. W. Stockdale, 1929.

**REPORT OF INVESTIGATION, SERIAL NO. 2949—“The relation of table feed preparation to table efficiency,”** by A. W. Fahrenwald and W. F. Meckel, 1929.

**INFORMATION CIRCULAR NO. 6382—“Mine ventilation in the Coeur d'Alene mining district, Idaho,”** by G. E. McElroy, 1931.

**INFORMATION CIRCULAR NO. 6943—“Design of small wooden head frames,”** by W. W. Staley, June, 1937.


**PUBLICATIONS IN TECHNICAL MAGAZINES**


"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.


"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.

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


MINING INDUSTRY OF IDAHO


*NOTE: All publications marked * (out of print) may be consulted in public libraries and libraries of instructional institutions.
GENERAL BIBLIOGRAPHY OF IDAHO'S MINERAL RESOURCES

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 22 of these counties there are producing mines.

In the past practically all mining has been confined to the five principal metals: Lead, silver, gold, zinc, and copper, which are widely distributed throughout the state. 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 28 years, more than $26,000,000.
Average annual mine payroll, more than $9,000,000.

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


GENERAL REFERENCES
Retracement of the boundary line between Idaho and Washington from the junction of Snake and Clearwater rivers northward to the international boundary, by R. B. Marshall: U. S. Geol. Survey Bull. 466, 1911.‡
An old erosion surface in Idaho, by J. B. Umpleby: Jour. Geology, vol. 20, pp. 139-147, 1912.§
The Idaho peneplain, by Waldemar Lindgren (Discussion): Econ. Geology, vol. 13, pp. 486-488, September, 1918.§
An old erosion surface in Idaho, by D. C. Livingston (Discussion of Mr. Rich's article): Econ. Geology, vol. 13, pp. 488-492, September, 1918.§

Mineralogy of some black sands from Idaho, with a description of the methods used for their study, by E. V. Shannon, No. 2398: U. S. Nat. Museum Proc., vol. 60, art. 3, pp. 1-33, 1921.†


Mesozoic and Tertiary granitic rock in Idaho, by C. P. Ross: Jour. Geology, vol. 36, No. 8, November-December, 1928.**


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


Contact phenomena associated with the Cassia batholith, Idaho, by Alfred L. Anderson: Jour. of Geol., vol. XLII, No. 4, 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.


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


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 heretofore 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.

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.)*


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.


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 manufacture of pottery, chinaware, porcelain, enamel ware, and enamel brick and tile.

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

GARNET

Garnet is a common accessory mineral in a large variety of rocks, occurring abundantly in contact metamorphic zones and in metamorphosed crystalline 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 only 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.§


Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 791-793, June 7, 1902.§


The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, 1908.§


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


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


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


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.*

Geology and mineral resources of the region about Orofino, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 34, 1930.**


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


Geology of the Pearl-Horseshoe Bend gold belt, Idaho, by Alfred L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 41, 1934.**


SNAKE RIVER GOLD


The origin of the fine gold of the Snake, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 143-144, 1902.$


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

Flotation of gold from river sand and black sand, by A. W. Fahrenwald: the Mining Journal, Phoenix, Arizona, April 30, 1935.


**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.


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.§


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


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.**


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


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.

**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.


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).*


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.


MINING INDUSTRY OF IDAHO


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 a little mercury has been produced from an experimental plant. 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.


Idaho was again the largest producer of silver in the United States. The output of silver in Idaho in 1938 was about 18,601,127 ounces.

The largest 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.


100 MINING INDUSTRY OF IDAHO


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. Umpleby: 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. 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.†


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.**

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.*


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


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 silver ore deposits of the Pend d’Orielle district, Idaho, by Edward Sampson: Idaho Bureau of Mines and Geology Pamphlet 31, 1928.**


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


Sequence of ore deposition in north Idaho, by A. L. Anderson: Econ. Geology, vol. 25, p. 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.**

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 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.*


**ASSESSMENT EXEMPTION**

June 29, 1938

COUNTY RECORDER: (Have received word this afternoon that the Bill was signed) The following are the provisions of the Act providing for the suspension of the Annual Assessment Work on mining claims and a suggested form for filing Notice of Intention under the Act.

ARTHUR CAMPBELL,
INSPECTOR OF MINES,
BOISE, IDAHO

AN ACT OF THE 75TH CONGRESS, THIRD SESSION, KNOWN AS SENATE BILL NO. 3493

AN ACT PROVIDING FOR THE SUSPENSION OF ANNUAL ASSESSMENT WORK ON MINING CLAIMS HELD BY LOCATION IN THE UNITED STATES.

BE IT ENACTED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA IN CONGRESS ASSEMBLED, That the provision of Sec. 2324 of the Revised Statutes of the United States, which requires on each mining claim located, and until a patent has been issued therefor, not less than $100 worth of labor to be performed or improvements aggregating such amount to be made each year, be, and the same is hereby suspended as to all mining claims in the United States during the year beginning at 12 o'clock meridian July 1, 1937, and ending at 12 o'clock meridian July 1, 1938; PROVIDED, THAT THE PROVISIONS OF THIS ACT SHALL NOT APPLY IN THE CASE OF ANY CLAIMANT NOT ENTITLED TO EXEMPTION FROM THE PAYMENT OF A FEDERAL INCOME TAX FOR THE TAXABLE YEAR 1937; PROVIDED FURTHER, THAT EVERY CLAIMANT OF ANY SUCH MINING CLAIM, IN ORDER TO OBTAIN THE BENEFITS OF THIS ACT, SHALL FILE, OR CAUSE TO BE FILED, IN THE OFFICE WHERE THE LOCATION NOTICE OR CERTIFICATE IS RECORDED, ON OR BEFORE 12 O'CLOCK MERIDIAN, JULY 1, 1938, a notice of his desire to hold said mining claim under this Act, which
notice shall state that the claimant, or claimants, were entitled to exemp-
tion from the payment of a Federal income tax for the taxable year 1937:
AND PROVIDED FURTHER, that such suspension of assessment work
shall not apply to more than six lode mining claims held by the same
person, nor to more than twelve lode mining claims held by the same
partnership, association or corporation: AND PROVIDED FURTHER,
That such suspension of assessment work shall not apply to more than
six placer mining claims, not to exceed 120 acres in all, held by the same
person nor to more than twelve placer mining claims, not to exceed 240
acres (in all) held by the same partnership, association or corporation.

NOTICE OF INTENTION TO HOLD MINING
CLAIM

KNOW ALL MEN BY THESE PRESENTS, THAT I (we) ..............

.....................................................................................................................
County, State of Idaho, a citizen (or having declared my intention to
become a citizen) of the United States of America, and the owner ........
..................................................................................................................... and claimant ..............

of ........................................................................................................ mining claims, do hereby give notice of my (our) desire and intention
to hold said mining claims for the year ending at 12:00 o'clock meridian,
July 1, 1938. Said mining claims being situated in ......................................
mining district, County of .................................................., State of Idaho, and now
of record in the office of the Recorder of said ........................................ County, State of Idaho, and

I (we) hereby certify that we desire to hold said mining claims under
and claim the benefit of that certain Act of the 75th Congress, Third
Session, known as Senate Bill No. 3493 entitled “An Act Providing for
the suspension of Annual Assessment work on mining claims held by
location in the United States,” and I (we) hereby certify that we were
entitled to exemption from the payment of the Federal Income Tax for
the taxable year 1937.

WITNESS MY (our) hand .......................................................... and seal
.................................................................................................. this ......................... day of .................., 1938.

Signed.................................................................................................................................

...........................................................................................................................................

Subscribed and sworn to before me this ........................................day of
........................................................................................................, 1938.

................................................................................................................

Notary Public.

NOTE: THIS NOTICE MUST BE FILED NOT LATER THAN 12:00
O'CLOCK NOON JULY 1, 1938, AND LIMITS EXEMPTION TO SIX
LODE CLAIMS HELD BY THE SAME PERSON OR TO TWELVE
LODE CLAIMS HELD BY A PARTNERSHIP, ASSOCIATION OR
CORPORATION, AND TO SIX PLACER MINING CLAIMS, NOT
EXCEEDING 120 ACRES, HELD BY ONE PERSON, OR TWELVE
PLACER MINING CLAIMS, NOT EXCEEDING 240 ACRES, HELD
BY A PARTNERSHIP, ASSOCIATION OR CORPORATION.
NAMES, ADDRESSES, ABBREVIATIONS AND SYMBOLS USED IN BIBLIOGRAPHIES

Am. Geology

American Institute of Mining and Metallurgical Engineers Transactions, 29 West 39th St., New York City

American Journal of Science Tuttle, Morehouse & Taylor Co., 123 Temple St., New Haven, Conn.

Am. Mineralogist
American Mineralogist Princeton, N. J.

California Jour. Tech.
California Journal of Technology University of California, Berkeley, Calif.

Canada Geological Survey Annual Report Ottawa, Canada

Canadian Min. Inst. Jour.
Canadian Mining Institute Journal Drummond Bldg., Montreal, Quebec, Canada

Colorado Scientific Society Proceedings†

Columbia School of Mines Quart.
Columbia School of Mines Quarterly University of New York City

Compressed Air Mag.
Compressed Air Magazine Bowling Green Bldg., 11 Broadway, New York City

Econ. Geology
Economic Geology University of Illinois, Urbana, Ill.

Eng. and Min. Jour.
Engineering and Mining Journal Tenth Ave. & 36th St., New York City

Eng. and Min. Jour.-Press
Engineering and Mining Journal-Press†

Franklin Inst. Jour.
Franklin Institute Journal 15 South 7th St., Philadelphia, Pa.

Geol. Soc. America
Geological Society of America Museum of Natural History, Columbus Ave. & 77th St., New York City

Idaho Ann. Rept. Min. Industry

Idaho Bureau of Mines and Geology
Idaho Bureau of Mines and Geology, Moscow, Idaho

Proceedings International Mining Congress International Mining Congress, Washington, D. C.

Jour. Geology

Mines and Minerals
Mines and Minerals†

Min. Con. Journal
Mining Congress Journal American Mining Congress, 309 Munsey Bldg., Washington, D. C.

Min. and Eng. World
Mining and Engineering World†

Mining and Metallurgy
American Institute of Mining and Metallurgical Engineers, Inc. 29 West 39th St., New York City

Min. Mag.
Mining Magazine†

Min. Reporter
Mining Reporter†

Min. and Sci. Press
Mining and Scientific Press†

Min. World
Mining World†

Nat. Geog. Mag.
National Geographic Magazine National Geographic Magazine Society, Hubbard Memorial Hall, Washington, D. C.

New York Academy of Science Transactions New York Academy of Science, New York City

No.
Number
NAMES, ADDRESSES, ABBREVIATIONS AND SYMBOLS

Northwest Min. News .......................................................... Northwest Mining News†
Northwest Science, Spokane, Wash.

Pacific Miner ................................................................. Pacific Miner†
p., pp. ................................................................................ page, pages

Pan.-Am. Geologist ...................................................... Pan-American Geologist, Des Moines, Iowa
pt. ......................................................................................... part

Salt Lake Min. Review ...................................................... Mining Review
Walker Bank Bldg., Salt Lake City, Utah

Sci. Am. Suppl. ............................................................... Scientific American Supplement
New York City

ser. ......................................................................................... series

U. S. Bureau of Mines I. C. ....U. S. Bureau of Mines Information Circular†
U. S. Geol. Survey Mon. ............................... U. S. Geological Survey Monograph††

Univ. of Idaho ............................................................... University of Idaho, Moscow, Idaho
vol. ......................................................................................... volume

211 Church St., Easton, Pa.

SYMBOLS

*—Available in libraries only. Publication out of print.
**—Can be procured from publisher.
§—Not available for general distribution; may possibly be procured from publisher. (Also section reference in law citations.)
†—Can be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.
††—Publication suspended.
‡—Address: Washington, D. C.
MINING INDUSTRY OF IDAHO

ADA COUNTY

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

Many claim owners took advantage of an act by Congress providing for the suspension of annual assessment work on mining claims held by location in the United States, so most of the activity in Ada County during the year 1938 was confined to placer operations along the Snake River, with some prospecting and annual labor performed on properties north of Boise, especially in the Black Hornet district.

BOISE OIL COMPANY
Office: Sonna Bldg., Boise. Officers: Charles H. Schmelzer, Pres., Eagle; Orland Oakley, Sec., Boise. Inc.: March 15, 1938. Capital: 90,000 shares; par value $1; 35,900 shares issued. Remarks: "This company was charted by the state March 15, 1938. The time between March and September 28, 1938 was spent on preliminary work. Actual drilling operations began on September 28, 1938 and continuing."

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

- Bergdahl Oil Co.
- Boise Dome Gas & Oil Co.
- Boise Mining, Milling & Smelting Co.
- Nampa Gold Dredging Corporation.
- Releces-Gold Mining Co.

BIBLIOGRAPHY

See pages 106-107 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.:j:


ADAMS COUNTY

County Seat: Council. Area: 1,366 square miles. Population: 2,867. 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 mountainsous. 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

Properties of merit are located in the Seven Devils district that are worthy of investigation by scouts and field parties. Large deposits of copper ores, with better than a trace of gold in their content, are known to exist and have been diamond drilled to some extent.

Prospecting, testing, assessment work and shipments of ore were made from Cuddy Mountain, Placer Basin and Indian Creek. Shipments were made from Homestead and Council.

Operations at the Placer Basin Company were permanently discontinued during the month of December 1937. This company operated with a crew of about 25 men and handled custom ore.

It is reported that R. E. Langdon of Payette, former Lewiston geologist, discovered a deposit of abrasive soap. Properties of the substance, Langdon determined, were 48 per cent abrasive, 20 per cent natural petroleum residue, 18 per cent borax and other elements which became soap when heated, 4 per cent talc, 1/10 of 1 per cent caustic and 1/1000 of 1 per cent tungsten. It was also found that the tungsten, a valuable utility metal could be removed by magnetic screening without impairing the efficiency of the soap.

Messrs. G. T., T. H. and H. G. Hamill of Council were quite active during the year developing mining properties in the Seven Devils district.

This county presents a favorable area for prospecting and the exploitation of its mineral resources. In the past these districts have been
subjected to the wrong kind of promotion. The money collected did not go into development but flowed into other channels. We have hopes that a law will be placed on our statutes that will require a certain percentage of money collected by sale of stock to go into development until such time as the property becomes self-supporting.

**PLACER BASIN COMPANY**


**DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.**

Crackerjack Gold Mining Company.
Red Ledge, Inc.
Triad Mining Company.

**BIBLIOGRAPHY**

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


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


** BANNOCK COUNTY **

County Seat: Pocatello. Area: 1,837 square miles. Population: 31,266. Principal Industries: Distributing center, R. R. division and shops. Highways: Oregon Trail and Yellowstone Park highway; excellent branch roads. Railroads: Union Pacific R. R., shops and central district headquarters in Pocatello. Mineral Resources: Phosphate rock, limestone, manganese, copper, silver, gold and building stone. The limestone is suitable for cement and the phosphate rock for fertilizer. Manganese deposits near Cleveland and Lava Hot Springs were discovered in 1924 and reports indicate that there is a large tonnage of high grade ore available.

Review of Year's Operations

The Idaho Portland Cement Company, located at Inkom, employed an average of 50 men in the manufacture of "Eagle Brand" cement. This product is in demand and it was reported that the company enjoyed a satisfactory business during the year 1938.

IDAHO PORTLAND CEMENT CO.


BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


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


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

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


County Seat: Paris. Area: 980 sq. miles. Population: 7,872. 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 1938 was practically dormant with the exception of some assessment work and restaking of claims. However, much interest was shown in the future development and exploitation of the vast phosphate deposits in this section of the State with the aid of a Federal project.

PARIS MINING AND MILLING CO., INC.

SAN FRANCISCO CHEMICAL CO.
Office: 351 California St., San Francisco, Calif. Officers: Wm. F. Kett, Pres.; W. S. Howard, Sec., both of San Francisco, Calif.; H. H. Groo, Statutory Agt., Montpelier. Inc.: July 17, 1906. Capital: 2000 shares; par value $100; all shares issued. Property: Waterloo group; 10 patented claims; 505 acres; Montpelier. Ore: Phosphate rock. Remarks: "Mine has been closed down since 1928 due to lack of demand and inability to produce under present conditions. We see no prospect of reopening at this time."

STOCKHOLDERS' SYNDICATE

SUNSET MINING CO.

UTAH-IDAHO MINING AND MILLING CO.
STATE OF IDAHO

NATURAL RESOURCES

COMMERCIAL TIMBER
BY COUNTIES IN MILLION FEET BOARD MEASURE
STATE TOTAL - 5683 ACRES - 6,300 MILLION FT. B.M.

MINERAL RESOURCES
A. GOLD
B. SILVER
C. SULPHUR
D. ZINC
E. QUICKSILVER
F. TUNGSTEN
G. MOLYBDENUM
H. LEAD
I. LIMESTONE
J. PHOSPHATE
K. MONAZITE
L. BENTONITE
M. MICA
N. GYPSUM
O. LIMESTONE
P. BUILDING STONE
Q. FIRE CLAY
R. COAL
S. MONAZITE
T. COPPER
U. QUICKSILVER
V. TUNGSTEN
W. ZINC
X. NITRATES
Y. ARSENIC
Z. MANGANESE

HYDRO ELECTRIC POWER
65 DEVELOPED SITES - 292,701 HP
BY LOCATION - PRODUCTS MAP - 80% TIME FLOW
UNDEVELOPED SITES - 3,277,777 HP
SNAKE RIVER DIRECT - 193,700 HP
SNAKE RIVER TRIBUTARIES - 198,600 HP
BOISE RIVER BASIN - 47,900 HP
PANETTE RIVER BASIN - 104,710 HP
SALMON RIVER BASIN - 810,090 HP
CLEARWATER RIVER BASIN - 183,977 HP

LEGEND
- BOISE CAPITAL
- COUNTY SEAT
- STATE BOUNDARIES
- COUNTY BOUNDARIES
- NATIONAL FOREST
- RIVERS-CREEKS
- LAKES-RESERVOIRS

SCALE: 0 5 10 15 20 25 MILES
BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


Lake Bonneville, by G. K. Gilbert: U. S. Geol. Survey Mon. 1, 1890.*


Geol. of the copper deposits near Montpelier, Bear Lake County, Idaho, by H. S. Gale: U. S. Geol. Survey Bull. 430, pp. 112-121, 1909.*


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.§

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

County Seat: St. Maries. Area: 786 sq. miles. Population: 6371. 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.

Review of Year's Operations

Many claim holders took advantage of exemption privileges extended by Congress for the past year. Many properties were idle. However, some prospecting and annual labor was performed and this work covered all the mining activity in Benewah County during the year 1938.

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


SILVER STAR MINING & DEVELOPMENT CO.


DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Othello Mining Co.

BIBLIOGRAPHY

See pages 106-107 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. 28, No. 5. Econ. Geol., 1933.

BINGHAM COUNTY

County Seat: Blackfoot. Area: 2184 sq. miles. Population: 18,561. 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.

Review of Year's Operations

Very little mining of any kind in this county with the exception of some prospecting along the Snake River. No new discovery of importance was reported.

BIBLIOGRAPHY

See pages 106-107 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.*

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.*


BLAINE COUNTY

MINING INDUSTRY OF IDAHO

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. Elevation from 4500 ft. in the southern part to Hyndman Peak in the Sawtooth Mountains, elevation 12,078 ft., the highest point in Idaho. **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**

Snyder Mines, Inc., operated the Hailey Triumph, Independence and Star mines with a crew of approximately 200 men on the company's payroll including leasors. This company, with main offices in Salt Lake City, Utah, carried on an extensive development program and leads the list as the largest producer of mineral in southern Idaho. The ore contains lead, silver, zinc, and gold which is transported by rail to Utah for treatment. Neil Snyder is manager and Arthur Jensen, superintendent.

The Snider claims, adjoining the Hailey Triumph and the North Star, were optioned by J. M. Mercer of Hailey who added new machinery and developed the mine throughout the year. This operating company is known as the Challenger Trust.

Eureka Development Co., Ltd., explored promising ground in the Eureka main tunnel. Five men were employed.

Gold Bottom Mining Company, operating in the Mineral Hill district, report 80 ft. of development work with a crew of 3 men.

Gold Recovery Company contemplate to work over old tailings from the 8 patented claims they hold in the Gold Belt district.

Liberty Gem Mines, Inc., with a crew of 4 men, accomplished 210 ft. of development work in the Mineral Hill district on property held under lease.

Idaho Mineral Products Co., Silver King Mining and Milling Company, Silver Spar Mining Co. and Tantamount Mining Company were all idle during 1938.

Treasuremont Mining Company, with a crew of 4 men, report 475 ft. of development work on property held under lease and bond.

A. L. Heine Mines, Inc., with a crew of 4 men, built 2 miles of road and camp. Three hundred feet of development work was reported during 1938 on the Bellevue Group located between the Croesus and the Minnie Moore mine. The property is reported to be one of considerable promise with about ¾ of a mile of underground workings on different horizons.

Activity at the Minnie Moore was to extend the Hershey crosscut on the 450 ft. level of the Rockwell shaft and to carry on diamond drilling in an effort to locate its objective, the extension of the rich Minnie Moore vein. This property is located near Bellevue. An average crew of 15 men was employed when work was suspended in October 1937. During the summer of '38 this work was resumed under a change of organization.

Penetration to a rich silver deposit in the Gray Mule mine, 35 miles from Hailey, is reported. The surface is said to yield $180 a ton. A lease was acquired by Producers Mines, Inc., of Chloride, Arizona, from C. J. Robertson, who staked the ground three years ago.

Garfield Lead-Silver Mining Company, located in the Muldoon district, was operated by M. T. Rowland.

Utah-Bellevue Mines Co. report assessment work only.

Some work was noticed at the Red Elephant holdings in the Mineral Hill district.
Baltimore & Victoria Mining Co.  
**Office:** T. H. First Natl. Bank, Terre Haute, Ind.  
**Officers:** William K. Hamilton, Pres., Terre Haute, Ind.; B. R. Howell, Sec., Salt Lake City, Utah; Eph Daft, Agent, Hailey.  
**Inc.:** July 3, 1903.  
**Capital:** 150,000 shares; par value 10¢; all shares issued.  
**Property:** Ida Harland group; 5 patented and 8 unpatented claims, Warm Springs Creek dist.; Hailey.  
**Ore:** Lead-silver.  
**Remarks:** "Property idle for about seven years."

Eureka Development Co., Ltd.  
**Office:** 319 Dooly Blk., Salt Lake City, Utah.  
**Officers:** W. A. Wilson, Pres.-Mgr., Salt Lake City, Utah.  
**Inc.:** June 28, 1905.  
**Capital:** 200,000 shares; par value 50¢; 94,000 shares issued.  
**Property:** Eureka group; 15 patented, 8 unpatented claims, Mineral Hill dist.; Hailey, 7 miles.  
**Development:** Approximately 10 miles of underground workings, the principal of which is the Plummer, or main haulage tunnel, which is over 6000 ft. long and connects the North Star and Independence groups. Approximate total development, 62,229 ft.  
**Plant:** All necessary mine and mill equipment with buildings for a 500-ton operation.  
**Ore:** Gold-silver-lead-zinc.  
**Remarks:** "Operations ceased August 1, 1923. Mine leased to Triumph Development Company."

Federal Mining & Smelting Co. (See Shoshone County)  
**Office:** Wallace.  
**Officers:** F. H. Brownell, Pres.; J. L. Martin, Sec., both of 120 Broadway, New York City; H. G. Washburn, Mgr., Wallace.  
**Property:** Independence, North Star, Koeninger, and Malta groups; 45 patented, 4 unpatented claims, 762 acres, Warm Springs Creek dist.; Hailey, 12 miles.  
**Development:** Approximately 3015 ft. of underground workings; principal tunnel 1278 ft. long.  
**Plant:** Car, several hundred feet of track and small tools; 2 cabins and blacksmith shop.  
**Ore:** Lead-silver.  
**Remarks:** "Prospecting for ore."

Fields Mutual Development Co.  
**Office:** 34 S. E. 52nd St., Portland, Ore.  
**Officers:** V. F. Rodgers, Sec., Portland, Ore.  
**Inc.:** Nov. 6, 1926; formerly known as Fields Mutual Mining Co.  
**Capital:** 500,000 shares; par value $1; 101,045 shares issued.  
**Property:** 14 unpatented claims, Kelly Mountain, Mineral Hill dist.; Hailey.  
**Development:** Approximately 1015 ft. of underground workings; principal tunnel 1278 ft. long.  
**Remarks:** "Exploring promising ground in Eureka main tunnel."

Goldsbottom Mining Company  
**Office:** Twin Falls.  
**Officers:** E. J. Malone, Pres.; E. M. Wolfe, Sec., both of Twin Falls; A. E. Larsen, Mgr., Hollister.  
**Inc.:** Jan. 19, 1937.  
**Capital:** 1,000,000 shares; par value $1; 94,726 shares issued.  
**Property:** 9 unpatented claims, Mineral Hill dist.; Bellevue.  
**Development:** Approximate total development 745 ft.  
**Plant:** Car, several hundred feet of track and small tools; 2 cabins and blacksmith shop.  
**Ore:** Gold.  
**Remarks:** 80 ft. of development work during the year.

Gold Recovery Co.  
**Office:** Boise.  
**Officers:** Charles Ryberg, Pres.; C. W. Gebauer, Sec., both of Boise.  
**Inc.:** June 2, 1938.  
**Capital:** 50 shares; par value $100; 30 shares issued.  
**Property:** 8 patented claims, Gold Belt dist.; Hailey.  
**Remarks:** "Contemplate to work the tailings."

Homestake Mines Corporation  
**Office:** Ketchum.  
**Officers:** H. L. Kaufman, Pres.-Mgr., Ketchum, A. J. Anderson, Sec., Santa Barbara, Calif.  
**Inc.:** July 27.  
**Capital:** 1000 shares, par value $100; increased Oct. 30, 1931, to 1,000,000 shares, par value $1; 400,000 shares issued.  
**Property:** Homestake group;
1 patented, 12 unpatented claims, Warm Springs Creek dist.; Ketchum. **Development:** Approximately 6000 cu. ft. of workings, the principal tunnels being: No. 3 tunnel, 500 ft. long; No. 4 tunnel, 800 ft. long; No. 5 tunnel, 1500 ft. long; No. 6 tunnel, 1895 ft. long. **Plant:** Gas-driven C-P compressor; complete mining equipment and camp. **Ore:** Lead-silver-zinc.

**IDAHO MINERAL PRODUCTS CO.**

**Office:** Hailey. **Officers:** George C. Lancaster, Pres., Calgary, Alberta; J. G. Hedrick, Sec., Hailey. **Inc.:** July 6, 1920. **Capital:** 1,000,000 shares, par value $1; 732,564 shares issued. **Property:** Vienna group; 36 patented and 4 unpatented claims, held under contract (⅓ interest, Sawtooth dist.) Ketchum. **Plant:** MINE: 75 h. p. Diesel engine driving compressor. Complete mining equipment. MILL: 75-ton modern flotation plant powered by 200 h.p. F. M. Diesel engine with generator. **Ore:** Silver-gold. **Men Employed:** 1 watchman. **Remarks:** Idle.

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

**LIBERTY GEM MINES, INC.**

**Officers:** Guy E. Matthews, Pres.; G. Arlon Matthews, Sec., both of Hailey. **Inc.:** Sept. 13, 1927. **Capital:** 250 shares; no par value, all shares issued. **Property:** Liberty group; 16 unpatented claims, Mineral Hill dist.; Hailey. **Development:** 250 ft. of tunnel and 250 ft. of sinking; approximate total development, 1700 ft. **Plant:** MINE: 2 electrically driven compressors; air-driven hoist; complete mining equipment and camp. MILL: Fine-grinding selective flotation, 100-ton capacity. **Ore:** Lead-silver-zinc. **Men Employed:** Average, 4. **Remarks:** 210 ft. of development work during the year. Property under lease.

**SILVER KING MINING AND MILLING COMPANY**

**Office:** Ketchum. **Officers:** Chas. F. Wren, Pres., Builders Exchange Bldg., Los Angeles, Calif.; Bert Wren, Sec., Ketchum. **Inc.:** March 11, 1937. **Capital:** 50,000 shares; par value $1; 36,405 shares issued. **Property:** Silver King group; held under lease from A. B. Watson, Santa Ana, California. **Remarks:** Idle.

**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; 94,449 shares assessable 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:** Watchman. **Remarks:** Idle.

**TANTAMOUNT MINING COMPANY**

**Office:** Hailey. **Officers:** James B. Allen, Pres., O. C. Thurber, Sec., both of Salt Lake City, Utah. **Inc.:** July 1, 1935. Charter forfeited Nov. 30, 1938. **Capital:** 500,000 shares; par value 10c; 268,232 shares issued. **Property:** 9 unpatented claims held under lease and bond. **Development:** Approximate total development, 265 ft. **Plant:** 3 small cabins and boarding house under construction. **Ore:** Lead-silver. **Remarks:** Idle.

**TREASUREMONT MINING COMPANY**

**Office:** 321 Boylston Ave. No., Seattle, Wash. **Officers:** W. J. Logus, Pres.-Mgr.; Mildred A. Logus, Sec., both of Seattle, Wash. **Inc.:** Sept. 10, 1937. **Capital:** 2,000,000 shares; par value 5c; 1,000,000 shares issued. **Property:** Lucky Coin group; 7 unpatented claims held under lease and bond, Warm Springs Wood River dist.; Ketchum. **Development:** Approximate total development, 700 ft. **Plant:** Steel dump car, track and blacksmith outfit; powder house, blacksmith shop, and change room. **Ore:** Silver, lead, gold and zinc. **Men Employed:** Average, 4. **Remarks:** 475 ft. of development work during the year.
BLAINE COUNTY

UTAH-BELLEVUE MINES CO.

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.
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.§


**BOISE COUNTY**

County Seat: Idaho City. Area: 1840 sq. miles. Population: 1847. 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 the 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

Talache Mines Inc., operated its Gold Hill and Iowa mines at Quartzburg until about July 1, 1938. This company employed a crew of 60 men. In 1937 the property was ranked among the largest gold producers in the state. Recovery was by straight amalgamation. The mine was opened to a depth of 1250 feet, with working levels down to and including the 1000 foot level. Square-set stoping methods were used with all loading and tramming done by hand. 836 ft. of development work was completed during the year. Much of the machinery in the 200-ton milling plant and other equipment was transferred to the Boise-Rochester property at Atlanta, Elmore County. This mine is owned outright by A. H. Burroughs, Jr., of Boise, President and Manager of Talache Mines Inc.

The Texas-Owyhee Mining & Development Company operating the Mayflower mine near Quartzburg is at present the largest mining operation in Boise County. The company is financed by Houston, Texas interests. The mine has complete mining equipment, including electric hoist and 100-ton fine grinding and flotation concentrator. This company is entitled to every courtesy and encouragement that can be extended by local agencies in bringing success to their operations in the development of Idaho mineral resources. A crew of 80 men is employed with a payroll of approximately $1400.00 a month.

Many claim holders again took advantage of exemption privileges extended by Congress governing annual assessment work for the past year which, in our opinion, has retarded development and in some cases delayed the opening up of good ore-bodies.

Mellor and Proffer installed a small ball-mill on an old dump at the Mountain Chief mine near Quartzburg and handled small quantities of custom ores.

Rehabilitation and development work at the Belshazzar mine of the Idawa Gold Mining Company has put the property in shape for a leasing proposition according to E. A. Nordquist of Boise.

The Mann Placer near Placerville was worked by hydraulic and employed several men. Earl A. Pack holdings were also operated with some success.

The largest dredge in the state was operated at New Centerville by the Fisher-Baumhoff interests with a fair margin of profit as was the "Mickey-Mouse" (a smaller boat) on Granite Creek that is owned by the same company. These men also operate at Warren, Idaho County and provide a substantial pay-roll by their activities and are scouting and testing placer ground in many sections.

The Grimes Company operated a floating dredge at Pioneerville during the year with a crew of 14 men.

Come-Back Mining Company was operated on the leasing system. 162 ft. of development work was completed during the year and shipments of high-grade ore sent to Utah smelters. C. C. Fairchild, Centerville, is President and Louis F. Truger, Pioneerville, secretary-manager.
H. F. England & Company, a partnership, operated two California "Doodlebug" outfits equipped with % yard shovels and washing plants on Grimes Creek and Muddy Creek. This machinery was diesel powered. Later in the year these two units were moved to ground near Baker, Oregon.

The Golden Cycle produced enough mill ore to cover expenses of development during the year.

The Edna mine on Edna Creek was inactive during 1938.

Near Grimes Pass the Grimes-Homestake did considerable rehabilitation and development work. From outside sources it is reported that the company erected a 20-ton mill that will be ready to operate in a short time.

Mr. Kidd, a former instructor in mineralogy at the University of Utah, was in charge of the Mineral Mining Company mill, which is equipped to handle custom ores.

Wm. W. Elmer reports 1673 ft. of development work with a crew of 16 men by the Cloverleaf Metals Company on Elk Creek.

A later report from Idaho City advises that the Cleveland was optioned to W. W. Elmer by J. W. Duquette and approximately 800 ft. of drifting and raising accomplished during the year. These men are legitimate operators who are an asset to any community and their efforts in the mining field of this state should meet with whole hearted cooperation and appreciation from every source possible. H. K. Merwin is owner of the Cloverleaf property.

The placer possibilities of Pine Creek near Idaho City was investigated by the Boozer Brothers of Hamilton, Montana.

Vivian Thorn leased the Gambrinus property to Messrs. Howe and Green of Idaho City. Some ore has been recently milled at the Cloverleaf mill with satisfactory results.

A ten-stamp mill was erected during the fall upon the Illinois property of J. W. Duquette.

Some ore was milled and considerable development work done on the Texida property which adjoins the Illinois mine.

W. H. Simons, former inspector of mines, has organized a company on the Elk Creek and Monazite properties to be operated by power shovels and washing plants. One unit is now under construction in Boise. The holdings consist of about 3000 acres.

Charles Rowe, Custer Young and associates have located 7 group claims and 22 single claims on the North Fork of the Boise River with the anticipation that a dredge will be placed on this ground during the coming year.

Hal R. Jarvis employed 4 men during the summer months prospecting his Hay Fork property.

Martin Stein ran many feet of development work on the old Elk-Horn property which is now known as the Tennegar.

J. H. Eggers placered all year on the old More's Creek ancient channel with fair return for his labors.

A small quartz mill has been installed on the Mascot property, near Idaho City, which handled considerable tonnage of ore during the year.

Fred Day and Rossi located a very promising gold property over the hill from the Banner silver mine on Archer Creek.

Charles Stoll was active on his Lucky Star holdings which are located on the Payette drainage of Grimes Pass.

Modoc Placer Mining Company, located below New Centerville on Grimes Creek, is owned and operated by Albert S. Holcombe. This company was active during the year.

Moore's Creek Dredging Company operated their floating dredge on More's Creek near Idaho City continuously with a crew of 15 men. We are unable to give more detailed information as the secretary of the company did not send in a report to this office, as required by law.
Packer John. Mines Corporation, located in an unorganized district near Smith's Ferry, built a tractor road and developed the 6 unpatented claims to some extent. Gordon C. Smith is president and James W. Gwinn, secretary, both of Boise. A watchman is now employed at the property.

Scouts and engineers were often seen in the Basin country but did not divulge any information as to their activities or whom they represented. The same applies to prospectors, skin diggers and snipers.

**BOISE COUNTY**

**BASIN RIDGE MINES, INC.**

*Office:* Box 2853, Boise. *Officers:* Earl C. Heffner, Pres.-Mgr.; Vera E. Dorsey, Sec., both of Boise. *Inc.:* March 2, 1938. *Capital:* 7,500 non-assessable common, 2,500 non-assessable preferred; par value $10; 2,710 common and 500 shares preferred issued. *Property:* 15 unpatented claims, Placerville dist.; Garden Valley. *Development:* Approximate total development, 270 ft. *Remarks:* "The construction of a mill building will be done within the immediate near future and also cabins will be erected to house the men hired at both mine and mill."

**BLUE ROCK MINES CORPORATION**


**CLOVERLEAF METALS COMPANY**


**COME-BACK MINING CO.**


**CONSOLIDATED MINES SYNDICATE**

(See Camas, Elmore and Idaho counties.)

*Office:* 623 First Nat. Bank Bldg., Boise. *Officers:* Frank E. Johnesse, Pres.; Paul L. Oakes, Sec., both of Boise. *Inc.:* May 6, 1924. *Capital:* 10,000,000 shares; par value $1; 3,433,564 shares issued. *Property:* Washington and Subrosa groups; 4 patented, 11 unpatented claims, Gambrinus dist.; Idaho City. *Development:* Total development, approximately 10,200 ft., the principal part of which is the main crosscut tunnel 3735 ft. long. *Plant:* Modern boarding and bunk houses, change house, blacksmith shop and work shop. *Ore:* Silver-gold. *Men Employed:* 1 watchman. *Remarks:* "Road was repaired. As soon as financing permits we plan on installing a 50-ton daily capacity reduction plant and getting property on a production basis."

**H. F. ENGLAND & CO.**


**GOLDEN AGE MINING PROPERTIES, INC.**

R. F. Reynolds, statutory agent, Pioneerville. **Inc.: Aug. 30, 1924.**

**Capital:** 10,000 shares; no par value; all shares issued. **Property:** 19 patented claims and 1 unpatented claim, Boise Basin; Pioneerville. **Development:** Approximate total development, 1200 ft. **Plant:** Rand compressor. **Ore:** Gold, silver, lead. **Men Employed:** 1 watchman. **Remarks:** Maintenance and repair work only.

**GOLDEN SEAL MINING & MILLING CO.**

**Office:** 919 Idaho St., Boise. **Officers:** L. M. Gorton, Pres., Boise. **Inc.: Oct. 28, 1924.** Charter forfeited Nov. 30, 1938. **Capital:** 1,000,000 shares; par value 25c; 933,000 shares issued. **Property:** 12 unpatented claims, unorganized dist.; Dry Creek, Boise. **Development:** By 3 tunnels: No. 1, 100 ft. long; No. 2, 150 ft. long; No. 3, 800 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** “Expect to begin development work shortly.”

**GOLD DREDGING & POWER CORPORATION**

**Officers:** S. K. Atkinson, Pres., Boise. **Remarks:** “Final statement. This company has been liquidated and has gone out of business. All property and equipment was sold to the Western Gold Corporation, an Idaho corporation, 617 First National Bank Bldg., Boise.”

**GOLD PRODUCTION CO., A TRUST**

**Officers:** S. K. Atkinson, Pres., Boise. **Remarks:** “Final statement. This has been liquidated and has gone out of business. All property and equipment was sold to the Western Gold Corporation, an Idaho corporation, 617 First National Bank Bldg., Boise.”

**THE GRIMES COMPANY**

**Office:** Boise. **Officers:** H. B. Murphy, Pres., Boise; Geo. E. Murphy, Sec., Portland, Ore.; H. B. Murphy, Statutory Agt., Boise. **Inc.: March 20, 1935.** **Capital:** 1000 shares common; no par value; 250 shares preferred; par value $100; all shares issued. **Ore:** Gold. **Men Employed:** Average, 14.

**IDAHO-CANADIAN DREDGING COMPANY**

**Office:** 630 First Nat'l Bank Bldg., Boise. **Officers:** H. B. Murphy, Pres.-Mgr., Boise; G. E. Murphy, Sec., 302 Lbrmen Bldg., Portland, Oregon. **Inc.: July 30, 1937.** **Capital:** 250,000 shares; par value $1; 76,445 shares issued. **Ore:** Gold. **Men Employed:** Average, 18.

**IDAHO MINING SMELTING & REFINERS, INC.**

**Office:** Boise. **Officers:** C. S. Klingaman, Pres.; Dr. W. H. Innis, Sec., both of Boise. **Inc.: July 14, 1936.** **Capital:** 50,000 shares; par value $1; Dec. 15, 1936, increased to 300,000 shares; 35,000 shares issued. **Property:** 9 patented claims under option to purchase; ½ interest in 145 acre calcite deposit and 6 quartz claims. **Mineral sought:** Calcite. **Remarks:** “Property tied up for past year in court litigation.”

**IDAHO MODOC PLACER MINING CO.**

**Office:** Boise. **Officers:** Albert S. Holcombe, Pres.; B. F. Rider, Sec., both of Boise. **Inc.: Sept. 14, 1936.** **Capital:** 100,000 shares; par value $1; 60,000 shares issued. **Property:** 4 unpatented claims, Centerville dist.; Centerville. **Development:** By 3-mile ditch. **Ore:** Gold. **Men Employed:** Average, 2. **Remarks:** “Additional buildings erected. Another water reservoir built and nearly a mile of additional ditch added.”

**IDAHO-NEVADA COPPER CORPORATION, LTD.**

(See Elmore county)

**Office:** 216 First Nat'l Bank Bldg., Boise. **Officers:** James O. Galloway, Pres.-Mgr.; Kenneth Jensen, Sec., both of Boise. **Inc.: Feb. 3, 1938.** **Capital:** 2,000,000 shares; par value 5c; 1,129,988 shares issued. **Property:** 4 unpatented claims, Morris Creek dist., Idaho City, held under lease and option from Fred J. Kuntz, Boise. 42 unpatented claims, Cope and Elko districts, Mountain City, Nevada. **Ore:** Gold-silver-copper. **Men Employed:** Average, 25. **Remarks:** 600 ft. of tunnels during the year.
MAYFLOWER GOLD MINES, INC.
Office: Noble Bldg., Boise. Officers: J. B. Eldridge, Pres.; G. R. Eldridge, Sec., both of Boise. Inc.: May 20, 1931. Capital: 300,000 shares; par value $1; 158,855 shares issued. Property: Mayflower group; 2 patented, 7 unpatented claims, Quartzburg dist.; Quartzburg. Development: By 3 tunnels: No. 1, 640 ft. long; No. 2, 130 ft. long; No. 3, 100 ft. long; and an inclined shaft 260 ft. deep in which are two intermediate levels. Plant: MINE: Electrically driven hoist; complete mining equipment and camp. MILL: 30-ton fine grinding and flotation concentrator. Ore: Gold. Remarks: “Property under development and operation of Texas-Owyhee Mining and Development Company.”

MINERAL PRODUCTS COMPANY, A TRUST
Office: 617 First National Bank Bldg., Boise. Officers: S. K. Atkinson, Pres.; W. A. Buis, Sec., both of Boise. Capital: 4,000,000 non-assessable stock, par value 25c; 500,000 common stock, par value, $1; 5000 preferred stock, par value $50; 882,492 shares of non-assessable common issued. Remarks: “Final statement. This company has been liquidated and has gone out of business. All property and equipment was sold to the Western Gold Corporation, 617 First National Bank Bldg., Boise, Idaho.”

PACKER JOHN MINES CORPORATION

PITTSBURGH-IDAHO HYDRAULIC MINING CO.
Officers: John P. Moss, Pres.; John S. Craig., Sec., both of Pittsburgh, Pa. Inc.: Jan. 11, 1916. Capital: 250,000 shares, par value $1; all issued. Remarks: “We do not have a mine. We own 236.197 acres on Moore’s Creek at Stierman Ranch, Boise County. We made an effort to develop the property eighteen years ago, but without avail. The property consists of 15 claims which are of record in the Recorder’s Office, Boise County, Idaho, under the name of the Pittsburgh-Idaho Mining Co.”

QUEZON DEVELOPMENT CORPORATION

TALACHE MINES, INC.
Office: Boise. Officers: A. H. Burroughs, Jr., Pres.-Mgr.; B. K. Burroughs, Sec., both of Boise. Inc.: Apr. 21, 1917, as Armstead Mines; name changed June 8, 1922. Capital: 1,000,000 shares common, 600,000 shares preferred; par value $1; 1,580,233 shares issued. Property: Gold Hill & Iowa mine; 19 patented and 28 unpatented claims, Quartzburg dist.; Quartzburg. Development: Principally by an 1246-ft. 3-compartment vertical shaft with 9 intermediate levels; total development over 40,000 ft. in Gold Hill mine. Plant: MINE: 75 h. p. single drum hoist; G. D. two-stage 770 cu. ft. compressor; complete underground equipment and mining camp. MILL: 100-ton electrically driven amalgamation mill. Ore: Gold. Men Employed: Average, 60. Remarks: 836 ft. of development work during the year.

TEXAS-OWYHEE MINING & DEVELOPMENT CO.
3 patented and 21 unpatented claims, Quartzburg dist.; Placerville.

**Development:** Approximate total development, 4664 ft. **Plant:** MINE: Electrically driven hoist; complete mining equipment and camp. MILL: 50-ton fine grinding and flotation concentrator. Ore: Gold. **Men Employed:** Average, 50. **Remarks:** “Additions made during the year: MILL--1-5x6' ball mill, 1-20'x6' Dorr Classifier, 1-6'x6' Conditioner, 2-2’ Wilfley Sand Pumps, 14’x40’ Mill Building Addition, Compressor and compressor house, blacksmith shop, change room, framing shed. **Development performed:** Sinking, 191 ft., drifting 1319 ft. and 70 ft. of crosscutting.”

**WESTERN GOLD CORPORATION**

**Office:** 617 First Nat'l Bank Bldg., Boise. **Officers:** S. K. Atkinson, Pres.; Earl Murphy, Sec., both of Boise. **Inc.:** Dec. 14, 1936. **Capital:** 1,000,000 shares; par value $1; 289,704 shares issued. **Property:** Garden Gulch, Walla Walla, Moores Creek, Grimes Creek, Big Muddy, Monazite and Black Warrior groups, Boise Basin dist.; Idaho City; owns property, with the exception of 4 claims on Clearwater river above Golden, held under lease from Thos. Freebury, Golden. **Plant:** Dragline dredge fed by a two cubic yard Northwest dragline. **Men Employed:** Average, 15. **Remarks:** “The Western Gold Corporation bought the property and equipment formerly belonging to the Mineral Products Company, The Idaho Gold Dredging Corporation, Idaho Exploration, Inc., Gold Production Co., Gold Dredging & Power Corporation and the Metals Syndicate, and these companies have been liquidated and have gone out of business.”

**DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.**

Alandoc Mining Co.
Croesus Gold Mining Co.
Granite Creek Dredging Company.
Grimes Homestake Gold Mines Consolidated.
Idawa Gold Mining Co.
Iron Dyke Mines Co.
Mineral Mining Co.
Missouri Mining Co., Ltd.
National Mining & Development Co.
Old Liberty Mining Company.
Pioneer Development Co.
Semi-Anthracite Coal Mining Co.
Washoe Mining Co.

**BIBLIOGRAPHY**

See pages 106-107 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.‡


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


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 1885. 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**

Annual labor was performed by Centennial Claims Incorporated on the Centennial property consisting of 67 unpatented claims located in the Priest Lake district.

Del Monte Claims, Incorporated, report assessment work only on 11 unpatented claims in the Priest Lake district.

Hope Silver-Lead Mines, Incorporated, with a crew of 35 men, completed 2,750 feet of development work during the year. This property, under the direct supervision of Albert M. Nash, was the largest mining operation in Bonner County. Ore was milled at the company's 125-ton flotation mill and shipped to the smelter from Clark Fork.

Whitedelf Mining & Development Company, Compton I. White, president, Clark Fork, employed a crew of 16 men during the year. The mine was reopened, workings unwatered and retimbered. Additions include a blacksmith shop and dry house to the surface buildings. 200 ft. of development work was reported. Lead-silver ore was milled at the 75-ton flotation concentrator and shipped to the Bunker Hill smelter at Kellogg, Idaho.

Lawrence Consolidated Mining Company, worked by lessees, completed 125 ft. of development work during 1938.

Idaho Lakeview Mines Company, with holdings consisting of 4 patented and 7 unpatented claims in the Lakeview district, near Lakeview, was idle. This mine has a total development of approximately 14,571 ft. and a plant which includes electrically driven hoist, 100-ton fine grinding and flotation mill and complete mining equipment.

Keep Cool Mining Company near Lakeview, consisting of 4 patented claims, with complete mining equipment and 50-ton hardinge mill, was leased to Silver Leaf Mines Company with option to purchase. 460 ft. of development work was completed with a crew of 11 men.

Lucky Strike Mining Company report 40 ft. of development work during the year. Property is in the Pend d'Oreille district.

Milwaukee Mines, Incorporated, employed 2 men at the mine near Priest River and developed the property to some extent.

Nevada Mines in Priest Lake district completed 60 ft. of development work on 30 unpatented claims.

Opportunity Mining Company developed its 11 claims in the Pend d'Oreille district to the extent of 151 ft.

Ponderosa Mining Company completed 20 ft. of development on 6 unpatented claims in the Pend d'Oreille district.

Silver Leaf Mines Corporation, worked the Keep Cool Group with a crew of 11 men. The Keep Cool Group is held under lease with option to purchase.

Assessment work only was completed by the Silver Mountain Mining Company on 9 unpatented claims in the Priest Lake district.

**AMALGAMATED GOLD MINING CO.**


**AMERICAN EAGLE MINING CO.**


BIG FIVE MINING CO.

BINARCH CREEK MINING CO.

CAROLINA CLAIMS, INC.

CENNTENNIAL CLAIMS INC.

DEL MONTE CLAIMS, INC.

EMPIRE TUNGSTEN MINING CO.

HOPE SILVER-LEAD MINES, INC.

IDAHO LAKEVIEW MINES CO.
Office: Trail, B. C. Canada. Officers: D. M. Drumheller, Jr., Pres., Cutbank, Mont.; E. G. Randall, Sec., Trail, B. C. Inc.: June 28, 1928. Capital: 2,100,000 shares, par value 20c; increased Nov. 25, 1929, to 2,310,000 shares; increased April 3, 1930, to 2,510,000 shares; par value 20c; 2,254,415 shares issued. Property: Hewer group; 4 patented, 7 unpatented 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: 500 cu. ft. 1-R compressor; electrically driven hoist; 75 kw. generator,

KANIKSU MINING CO.

KEEPCOOL MINING CO.

LAWRENCE CONSOLIDATED MINING CO.

LUCKY STRIKE 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 $10, 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: Main cross-cut tunnel 575 ft. with drift of 197 ft. Plant: Equipped for hand mining. Camp buildings, bunk house, boarding house, blacksmith shop and boat house. Men Employed: Average, 2.

MINERVA SILVER, INC.
nerva mine and is endeavoring to secure a property that can be operated with profit."

NEVADA MINES

OPPORTUNITY MINING CO.

PONDERA MINING & POWER CO.

PONDEROSA MINING CO.

SILVER LEAF MINES CORPORATION

SILVER MOUNTAIN MINING CO.

WHITEDELF MINING & DEVELOPMENT CO.
DELIBERANT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Auxer Gold Mines Co.
Camp Bird Mining & Development Co.
Clarinda Copper Mining Co.
Falls Creek Mining Co.
King Solomon's Mines Co.
Priest River Mining Co.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


Granodiorites in the Pend d'Oreille district of northern Idaho, by J. L. Gillson: Jour. Geol., vol. 35, pp. 1-33, 1927.§


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

BONNEVILLE COUNTY

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 CONSOLIDATED PLACER MINING CO.

IDAHO GOLD MINING CO.

MALGRE MINING COMPANY

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; 193,439 shares issued.

BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.

Fifth, Sixth and Eleventh Ann. Repts., U. S. Geol. and Geog. Survey of the Territories, by F. V. Hayden, 1871, 1873, 1879.†


Geology and water resources of the Snake River Plains of Idaho, by I. C. Russell: U. S. Geol. Survey Bull. 199, 1902.†


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

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

Oil possibilities of southeastern Idaho, by V. R. D. Kirkham: Mining and Metallurgy, Vol. 6, No. 218, February, 1925.§

Ground water for municipal supply at Idaho Falls, Idaho, by A. M. Piper and V. R. D. Kirkham: Idaho Bureau of Mines and Geology Pamphlet 16, 1926.**

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


BOUNDARY COUNTY


Principal Industries: Lumbering, farming and mining. Transportation: A well maintained system of state and county highways. The Great Northern and the Spokane International railroads serve the county. Rivers: The county comprises the drainage basin of the Moyie and Kootenai rivers.

Mineral Resources: Lead, silver, gold, copper, zinc, tungsten and molybdenum.

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

Some mining properties operating in this county have either forfeited their charter or have not made a report to the inspector of mines as required by law, therefore no mention is made in the Mining Industry of Idaho for the year 1938, as to their activities. A few of these operations include The American Girl, Cyanide Gold Mining Company, The Idaho Continental Company (Klockmann Lease), The Montgomery, Lead Consolidated Mining Co., Lucky Abe Mining Co., North Idaho Development Company and the Commercial.

Golden Sceptre Mining Company, with a crew of 3 men, completed 151 ft. of development work on their property in the Port Hill district. The mine is equipped with a gas-driven C-P compressor, tools and machinery for mining, including the camp.

Idamont Lead-Zinc Mines Company reports 50 ft. of development work, with a crew of 3 men. This property consists of 57 placer and lode claims of approximately 2400 acres in the Moyie-Yaak district. The plant has complete mining equipment, with company buildings and 35 individual homes for the employees.

International Molybdenum Company completed installation of machinery during the month of December 1937 and reported 131 ft. raise was driven the past year to reach surface. Ten men were employed. Floyd B. Satterlee of Sandpoint is President and Manager.

Molybdenum Products Company, with 32 unpatented claims in the Priest Lake and Porthill districts, was idle during the past year.

CLANCY MINING CO.


GOLDEN SCEPTRE MINING CO.

BUTTE COUNTY


IDAMONT LEAD-ZINC MINES CO.

INTERNATIONAL MOLYBDENUM CO.

MOLYBDENUM PRODUCTS COMPANY

DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.
North Idaho Development Co.

BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.
Geology of the region adjoining the western part of the international boundary, by R. A. Daly: Canada Geol. Survey Ann. Rept., vol. 14, pp. 39-51a, 1901.§
Tungsten, cinnabar, manganese, molybdenum and tin deposits of Idaho by D. C. Livingston: Univ. of Idaho School of Mines Bull. 2, vol. 14, 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.**

BUTTE COUNTY
Little Lost rivers. **Mineral Resources:** Lead, silver, zinc, gold, tungsten, manganese, limestone and marble. The distribution and abundance of high grade lead silver ores makes this county one of the principal producers of southern Idaho, and a favorable district for the prospector and operator.

**Review of Year's Operations**

Badger Mines Company in the Dome district near Howe was idle.

Sampling and testing of old tailings dumps by lessees during the year ending May 31, 1938 was the only work reported by the Wilbert Mining Company, Limited, who own the Daisy Black group consisting of 7 patented and 33 unpatented claims in the Dome district near Howe.

Mr. Wm. E. Clark reports that he took a lease from Mrs. Agnes Williams of Salt Lake City, Utah on the old original Horn Silver mine consisting of the following named mining claims:—Horn Silver, Bucking Pinto, East Side and Last Chance, which are all patented claims. Wm. E. Clark then formed a partnership and divided the company into fiftieths with the following interests: Kenneth S. MacKenzie 5-50, Allan MacKenzie 5-50, Kenneth A. MacKenzie 1-50, Fred Guderjohn 5-50, E. J. Clarke 9-50, T. H. Clarke 9-50, H. L. Clark 1-50, J. J. Petersen 1-50, leaving Wm. E. Clark the remaining interest in the company. These men have worked conscientiously to develop the property since 1936; have shipped 34 railroad cars to smelters and are at present on a production basis. Machinery installed includes a 10 x 12 Sullivan compressor driven by a 6 x 7 Climax 77 H.P. gas engine, modern up-to-date Stoper and Drifter machines using one-inch steel, and one Ingersoll-Rand Drill Sharpener. The present work is in a tunnel on an 85 ft. wide gold and silver vein which is considered good mill feed in a formation of andicites and true andecite porphyry. This year Wm. E. Clark took a lease and option on the Whale claim which adjoins the Horn Silver property on the south and has sub-leased to Martin Mullins of Polson, Montana, who is developing by means of tunnel in granite porphyry that has just cut a vein of merit that gives much encouragement.

**BADGER MINES CO.**


**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:* “The only work done during the year ending May 31, 1938, was the sampling and testing of an old tailings dump by some lesseors.”

**DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.**

Horn Silver Consolidated Mines Co.
CAMAS COUNTY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


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

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


Lava Creek vents, Butte County, Idaho, by A. L. Anderson: Northwest Science, vol. 3, pp. 13-18; also issued privately; December, 1928.§


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


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

The Carrie Leonard Mining Company, Consolidated Mines Syndicate, El Oro Mine, The Prospecting Syndicate of Canada, Ltd., Red Hill Mining & Milling Co., and the Richard Allen Mines Company were idle during 1938, while the Paradise Gold Dredging Company, Inc., was reported by H. W. Barry of Buhl to be a defunct corporation.

The Fisher and Baumhoff interests took over and operated the 2½-ft. Yuba Gold dredge of the Little Smoky Dredging Company in the Little Smoky district with a crew of about 15 men. The boat is equipped with 58 buckets and is Diesel powered.

Dixie Queen Mining Company, Inc., hold 10 unpatented claims in the Little Smoky district under lease and bond. It is reported that the company employs a crew of 3 men, that the plant consists of complete mining equipment and that more equipment is being moved to the mine and general preparations made to commence operations. L. J. Balbach, Secretary, Public Service Building, Portland, Oregon, informs us by letter that this report is for the year ending May 31, 1939. From that information we assume that no further activity is contemplated on the property until after that date.

Five Points Mining & Milling Company, Inc., with an average crew of 14 men, report that 600 ft. of development work was completed during the year and that a 100-ton Eimco Ball-mill and 4 flotation cells were being installed in a new mill building. The property comprises 4 unpatented claims. The camp has several buildings including mill, cookhouse, bunkhouses and blacksmith shop. The ore is reported to average $20.00 a ton. A new road to
the property and a loading dock at Fairfield was completed to facilitate the shipping of ore.

Gold Mountain Mines Company, hold ½ interest in 11 unpatented claims in the Skeleton Creek district under lease and option. There is a 5-ton Gibson mill on the property. Forty ft. of development work was reported for the year 1938.

Hi-Bar Mining Company, C. C. Schorzman, President and W. B. Boger, Secretary, both of Boise, report the company has taken a lease on 8 unpatented claims, in an unorganized district, near Featherville, known as the Axalorr group. The report also states that an average crew of 5 men is employed and the company is getting ready to enlarge the water supply and add equipment for an hydraulic placer operation.

David G. Jarron, Edward Feindel and L. L. Saxton dewatered and rehabilitated the Texas-Star property, consisting of three claims, Homeguard No. 1, 2 and 3, located near Fairfield.

Rich gold ore has been exhibited lately at Fairfield according to G. J. Sherry, mining engineer, from a strike at the head of the Little Smoky. One sample, weighing five pounds, is said to have carried $970 in gold and another more than $400. A shipment was made by mail to the United States mint. The first of its kind for many years.

Other strikes are said to have been made by D. W. Zentin at the Starmey Gelose mine. This ore is said to carry 600 ounces of silver per ton, according to Mr. Sherry.

CARRIE LEONARD MINING CO.

CONSOLIDATED MINES SYNDICATE
(See Boise, Elmore and Idaho counties.)
Office: 623 First Nat. Bank Bldg., Boise. Officers: Frank E. Johnesse, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. Inc.: May 6, 1924, Capital: 10,000 shares, no par value; Aug. 15, 1924, changed to 10,000,000 shares, $2.50 par value; May 2, 1925, decreased to 10,000,000 shares, par value $1; 3,433,564 shares issued. Property: Princess-Blue Ribbon groups; 8 unpatented claims, Mineral Hill dist.; Fairfield. Development: Approximate total development, 3700 ft. Plant: Gas-driven compressor; air-driven hoist; complete mining equipment and camp. Ore: Gold-silver-lead-zinc.

DIXIE QUEEN MINING COMPANY, INC.

EL ORO MINE

FIVE POINTS MINING & MILLING COMPANY, INC.
Office: Twin Falls. Officers: David R. Strong, Pres., Fairfield; Iris Smith, Sec., Twin Falls. Inc.: March 9, 1936. Capital: 80,000 shares; par value $1; 72,081 shares issued. Property: Five Point group: 4 un-

GOLD MOUNTAIN MINES CO.

HI-BAR MINING COMPANY

PARADISE GOLD DREDGING COMPANY, INCORPORATED, THE

PROSPECTING SYNDICATE OF CANADA, LIMITED, THE

RED HILL MINING & MILLING CO.

RICHARD ALLEN MINES CO.

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Isabella Leasing and Development Co., The Silver Star-Star-Queens Mines, Inc.
BIBLIOGRAPHY

See pages 106-107 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.‡


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


CANYON COUNTY

The only known mineral resources of this county are 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.

DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

United Development Corporation.
United Utilities Corporation.

BIBLIOGRAPHY

See pages 106-107 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: C. F. Kelley, Pres.; D. B. Hennessy, 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. 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 53,771 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 substations, 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 bin car 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. Taylor 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, 86. **Remarks:** 1748 ft. of development work during the year. Expect to remodel crushing section of mill to produce minus ¼-inch rock.

**NORTHWESTERN SULPHUR COMPANY, INC.**

**Office:** Soda Springs. **Officers:** Stanley T. Harper, Mgr., Soda Springs. **Inc.:** Not incorporated in Idaho. **Remarks:** "Extensive development work was carried on by the Northwestern Sulphur Company, Inc. on its properties located about six miles east of Soda Springs, in Caribou County, Idaho, during 1938. Sulphur is being extracted and refined by means of flotation. The plant consists (in part) of a (removed) steam boiler, crusher, blower and flotation tanks and retorts. Electricity is generated on the premises. In excess of $25,000.00 was expended on the property in 1938. The present plant is considered as a pilot mill and large development is expected to take place in 1939."

**BIBLIOGRAPHY**

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


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

Types of Rocky Mountain structure in southeastern Idaho, by G. R. Mansfield: Jour. Geology, vol. 29, No. 5, pp. 444-468, July-August, 1921.¶


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

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


CASSIA COUNTY


BIG BERTHA MINING CO., INC.

SILVER HILLS MINING CO.

BIBLIOGRAPHY
See pages 106-107 for publisher’s address, meaning of reference marks, and abbreviations.


Geology and water resources of the Goose Creek basin, Cassia County, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Bull. 6, 1923.*


Contact phenomena associated with the Cassia batholith, Idaho, by Alfred L. Anderson: Jour. of Geol., vol. XLII, No. 4, 1934.

CLARK COUNTY

Birch Creek district in the northwest corner of the county, is an extension of the Nickolia district of Lemhi County.

**Review of Year's Operations**

A mill and tramway was constructed by the Blue Ledge Company during the year 1937. The mine was developed to some extent, uncovering considerable ore of commercial value. The company failed to send in its annual report but from information gained on an inspection of the property it appears to be owned and operated by Jack Tont and Jack Sheets.

Frank Worthing opened a 4-foot vein of coal on Cottonwood Creek, 10 miles north of Kilgore which deserves further development.

Shipments were made from properties located on Birch Creek, near Nickolia, and from copper holdings in Skull Canyon.

**BIRCH CREEK MINING CO., LTD.**


**BIBLIOGRAPHY**

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.

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


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


**CLEARWATER COUNTY**


**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**

crew of 60 men. This venture has stimulated business in Clearwater County and the product is very much in demand.

The Gold Creek Placer Mining Company operated a two-yard lime shovel and washing plant on Orofino Creek. Offices of the company are in the Kuhn Building, Spokane, Washington. Buck Brae is in direct charge of operations.

Charles L. Ross of Pierce, Idaho, carried on an extensive exploration program on Quartz Creek. The values are described as being low-grade but consistent. Some equipment, including a drag-line and washing plant, was moved last year from the Jett-Ross property near Atlantic City, Wyoming, and set up near Jaypee. The Jett-Ross combination represent old time operators from Alaska.

Highly successful mill operations are reported at the Silver Creek mine owned and operated by Edward A. Campbell and associates. The plant consists of a modern camp, complete mining machinery and a 50-ton mill powered by a 140 h.p. diesel engine. This fall nearly 2 miles of road was completed to give the property a better outlet. The company has planned an extensive development program and expect to erect a swampl to cut mine timbers. G. E. Stowell is mill superintendent and Clarence Watson, mine foreman. Fifteen men were employed in the mine on one shift and the mill is run continuously on a three-shift basis.

The floating dredge on Rhodes Creek, operated by Mr. Curren, is down pending the settlement of litigation with former owners. This operation normally employs from 12 to 15 men.

Sewell Lime Company, located on Lime mountain, worked a crew of 4 men on 240 acres of land leased from the state of Idaho. The company has fairly complete mining equipment, 6-ton kiln and camp buildings. Herbert I. Britan, president, and Joseph M. Molloy, secretary, both live in Orofino.

Crawford Gold Strike, owned by J. R. Crawford, Orofino, consists of 2 patented and 14 unpatented claims on Cow Creek in the Pierce district. Very little activity is reported in this area during 1938.

Western Gold Mines, Inc., controlled by Seattle, Washington, interests, was idle during the year.

Companies scouting for available placer ground may contact Probate Judge E. B. Steele and Samuel F. Swayne of Orofino. Both men report they have holdings in Clearwater County of merit and would deal with the right party. It is our understanding that these men have separate property.

Musselshell and M. & I. mining companies were idle, while the Independence Placer Mining Co., Ltd. was held under lease.

**Alder Creek Mining Company**


**Independence Placer Mining Co., Ltd.**


**M. & I. Mining Co.**


**Musselshell Mining Company**

WASHINGTON-IDaho LIME PRODUCTS CO.

WESTERN GOLD MINES, INC.

WESTERN METALS PRODUCTS CO.

DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.
American Placer Mining Co., Ltd.
Cobra Mining & Milling Co.
Crystal Lime Company.
Oxford Copper Mining Co., Ltd.
Sewell Lime Co.
Silver Creek Gold Mining Co.

BIBLIOGRAPHY
See pages 106-107 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.‡
Geology and mineral resources of the region about Orofino, Idaho, by A. L. Anderson: Idaho Bureau of Mines and Geology Pamphlet 34, 1930.**
"An occurrence of giant hornblendite," by Alfred L. Anderson, vol. 41, No. 1, Jour. of Geol. 1933,
CUSTER COUNTY

County Seat: Challis. Area: 4921 sq. miles. Population: 3162. 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

American Dollar Mining & Milling Co., located in the Yankee Fork district, employed 2 men in reopening mine and retimbering old drifts.

Stanley Basin Placer, operated by Colonel George B. Walbridge, Thomas Courtis and Walter Courtis of Detroit, Michigan, carried on an extensive testing and exploration campaign with a crew of 15 men. The holdings consist of 2400 acres located in the upper Stanley Basin with approximately 45,000 yards of available placer ground to the acre.

Aztec Mining & Milling Company reports that the company intends to patent the 3 claims known as the Kingfisher group during this year.

Catherine Mining Co., No. 1, operated a steam shovel and washing plant on 9 unpatented claims in the Bayhorse district on the main Salmon River near Robinson Bar.

Clayton Silver Mines Company, operating a silver-lead property near Clayton, has had the best year in its history and is preparing for even larger operations during the coming year. The company worked an average crew of 22 men and report 657 ft. of development work during the year. A heavy duty sump pump was installed in the mine and new 4-cell Denver Sub-A flotation equipment was installed in the mill. The production could be easily increased but Clayton's problem from the beginning has been one of insufficient power. The property is now equipped with two hydroelectric plants capable of producing 400 h. p. and 3 Diesel motors with a capacity of 170 h. p.

Ford Motor Company reports a small amount of repairs to chutes, ladders and stull timbers with no actual mining work during the year 1938.

The old tailings dump of the General Custer mill near Custer has been leased by William Martin of Nevada.

Leasers operated at the Ramshorn mine in the Bayhorse district. The company extended one of the tunnels on the property.

Copper Basin Consolidated Mines Corporation, with property in the Copper Basin district, near Mackay, report 145 ft. of development work during the year with a crew of 5 men.

Elk Creek Mine, Inc., worked a crew of 3 men and added a 35 h. p. turbine water wheel, compressor, air hoist, pump and all necessary ditch and pipe for operating mine.

H. & H. Mines, a partnership, report that this company is sole owner of Livingston Mines, Roy Oestreich, Auditor, 710 Yeon Building, Portland, Oregon.

Western States Mining, Milling & Exploration Company, Ltd. acquired 31 unpatented claims late in 1937. With a crew of 4 men the Ibex group was developed and some prospecting on other groups.

White Knob Mining Co. reports 347 ft. of development work by lessees.

The Grey Eagle property on Batchelor Mountain was worked to some extent. Dr. Kirtlely of Challis is the owner with direct supervision of the mine.
Strunk and Sherry developed a molybdenum property at the head of Lost River on Little Fall Creek. Mackay Metals was inactive due to pending sale of the property. G. M. Tomle has held an option on this property for some time with the Custer County Commissioners. J. Ray Weber is receiver for the company. The reopening of this mine would mean much to the people living in the vicinity of Mackay.

Mackay Mines Consolidated is being organized to develop properties adjoining Mackay Metals. In this merger are included the Bluebird, Big Liz, property of Alex Cameron, George Williams and the Anderson claims, the Challenger group and possibly the U. S. and Copper Queen. If sanctioned by the Securities and Exchange Commission, this company is ready to start operations. Three men are employed at the property.

**AETNA MINING & INVESTMENT CO., LTD.**
- **Office:** 321 Felt Bldg., Salt Lake City, Utah. **Officers:** O. J. Salisbury, Pres.; Leo Eaga, Sec., both of Salt Lake City, Utah. **Inc.:** Feb. 6, 1900. **Capital:** 10,000 shares; par value $5; all shares issued. **Property:** 4 claims, Bayhorse dist.; Challis. **Remarks:** Idle.

**AMERICAN DOLLAR MINING & MILLING CO.**
- **Office:** Box 455, Boise. **Officers:** Hillman Lueddeman, Pres., Portland, Ore.; Karl B. Evans, Sec., Box 455, Boise. **Inc.:** Dec. 14, 1936. **Capital:** 100,000 shares; par value $1; 54,000 shares issued. **Property:** 9 unpatented claims, Yankee Fork dist.; Stanley. **Development:** By 6 tunnels, the principal one being 3500 ft.; approximate total development, 8000 ft. **Plant:** MILL: 2-stage crushing plant—ten stamps—10 mesh—1 Ellis regrinding mill and Wilfley tables. **Ore:** Gold-silver. **Men Employed:** Average, 2. **Remarks:** “Reopening mine and re­timbering old drifts.”

**AZTEC MINING & MILLING CO.**
- **Office:** 839 W. Lander St., Pocatello. **Officers:** D. C. Ray, Pres.; Ben F. Anderson, Sec.-Mgr., both of Pocatello. **Inc.:** May 26, 1917. **Capital:** 25,000 shares; par value $1; increased March 2, 1915, to 50,000 shares, par value $1; 37,708 shares issued. **Property:** Kingfisher group; 3 unpatented claims, Stanley dist.; Stanley. **Development:** Inclined shaft 650 ft. long; total development, approximately 1850 ft. **Plant:** MINE: 25 h. p. steam-driven hoist. MILL: Gibson mill and amalgamation plates. **Ore:** Gold. **Remarks:** “Expect to patent all claims this year.”

**CATHERINE MINING CO., NO. 1**
- **Office:** Boise. **Officers:** Gale Michaelson, Pres., Boise; Kate Finch, Sec., Clayton. **Inc.:** December 30, 1937. **Capital:** 1,000,000 shares; par value 5c; 551,000 shares issued. **Property:** 9 unpatented claims, Bay Horse dist.; Clayton. **Plant:** MINE: Steam shovel and dragline washing plant. **Ore:** Gold.

**CLAYTON SILVER MINES CO.**
- **Office:** Wallace. **Officers:** H. B. Kingsbury, Pres.; Herman Marquardt, Sec., both of Wallace; C. A. Fay, Mgr., Clayton. **Inc.:** Jan. 20, 1934, formerly Clayton Mining Company. **Capital:** 3,000,000 shares; par value $1; all shares issued. **Property:** Camp Bird group; 25 patented and 10 unpatented claims, Bay Horse dist.; Clayton. **Development:** Principal tunnel 2400 ft.; approximate total development, 10,000 ft. **Plant:** MINE: Cœur d’Alene Electric Hoist; Ingersoll Rand Compressor; blacksmith shop, power houses, boiler house and assay office. MILL: 150-ton flotation. **Ore:** Lead-silver. **Men Employed:** Average, 22. **Remarks:** “657 ft. of development work during the year.Installed heavy duty sump pump in mine. Installed new 4 cell Denver Sub-A flotation equipment.”

**COPPER BASIN CONSOLIDATED MINES CORPORATION**
- **Officers:** George L. Judd, Pres., Mackay; R. D. Leach, Sec., Pocatello; Grover Crocke, Mgr., Mackay. **Inc.:** Oct. 4, 1937. **Capital:** 600,000 shares; par value 1c; 400,992 shares issued. **Property:** 10 unpatented claims, Copper Basin dist.; Mackay. Eight of the above
CUSTER COUNTY


ELK CREEK MINE, INC.

FORD MOTOR CO.
Office: Dearborn, Mich. Officers: Edsel B. Ford, Pres.; B. J. Craig, Sec., both of Dearborn, Mich. 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: "The only work done on property during year was a small amount of repairs to chutes, ladders and stull timbers. No actual mining work done."

GREYHOUND MINING & MILLING CO., LTD.

H & H MINES (Partnership)
Sole owner of Livingston Mines. Roy Oestreich, Auditor, 710 Yeon Building, Portland, Oregon.

IDAHO POWER & MINES CO.

IVANHOE MINING CO.
Office: 485 California St., San Francisco, Calif. Officers: Edward H. Clark, Pres.; C. B. Greeley, Sec., both of San Francisco, Calif. Inc.: Filed in Idaho July 28, 1909. Capital: 2500 shares; par value $1; all shares issued. Property: 34 patented and 2 unpatented 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. The claims of the "Triumph Group" in Blaine County are under lease to the Snyder Mines, Incorporated, whose postoffice address is 218 Felt Building, Salt Lake City, Utah."

LOON CREEK HYDRAULIC PLACER MINING CO., LTD.
RAMSHORN MINES CO.

SALMON RIVER MINING CO.

TWIN APEX MINES CO.

WASHINGTON BASIN MINING & MILLING CO.

WESTERN STATES MINING, MILLING & EXPLORATION CO., LTD.
Office: 506 McIntyre Bldg., Salt Lake City, Utah. Officers: G. H. Schmidt, Pres.; Peter Vogelaar, 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 dist.; Clayton. Ore: Gold, silver, lead. Men Employed: Average, 4. Remarks: "The company acquired these properties during the fall of 1937. It was impossible to work these during the winter and work was not commenced until a few days ago. It is planned to do some extensive development work on the Ibex group, and some prospecting on the other groups."

WHITE KNOB MINING CO.

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.
Hermit Mines of Idaho, Inc.
Mackay Metals.
Phemspace Mines Co.
Stanley-Five Bars Mining Co.
Yankee Fork Placer Co., Ltd.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


The deepest mine in Idaho, the Ramshorn at Bay Horse, by R. N. Bell: Mines and Minerals, vol. 21, pp. 174-176, November, 1900.*


The genesis of the Mackay copper deposits, by J. B. Umpleby: Econ. Geology, vol. 9, pp. 307-358, June, 1914.§


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


Ground water in Pahsimeroi Valley, Idaho, by O. E. Meinzer: Idaho Bureau of Mines and Geology Pamphlet 9, 1924.**

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


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

ELMORE COUNTY


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

Cordova Mining Company, located in the Neil district near Mayfield, was leased in May, 1937 to H. D. Languille for 3 years. During the past year some further effort was made to open up old workings and sufficient prospecting to cover annual assessment work.

J. R. Compton reports that annual labor was performed on holdings in the Neil district, known as the Sunset and Rescue groups.

The Idaho-Nevada Corporation, Ltd., developed an unpatented claim held under lease and option from R. E. Beeson and Fremont Wood of Boise.

Northwest Gold Mining Company, Forest Major, manager, located near King Hill, worked a crew of 9 men on a high bar of the Snake River. The plant powered by diesel consisted of trommel and shaker screens, 7 tables and a 450 gallon centrifugal pump. In digging, a Bucyrus ½-yard shovel mounted on a caterpillar is in use with a 3-yard International truck to transport gravel to the washing plant.

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.

Old Channel Mining Company, Inc., with a crew of 5 men, built a camp, installed 1-yard Bagley scraper and dragline powered by steam donkey engine. Testing and exploration to prove values with 5 miles of ditches on Bear and Wood Creeks was completed. The work was in charge of R. S. Towse who said the company intends to install portable equipment, including washing plant. The property consists of 7 unpatented claims in the Pine Grove district near Pine.
M. A. Cook of Nampa reports that he has secured a lease and option on the Ida-Elmore property at Rocky Bar and on the mine and 30-ton mill at the old Franklin mine near Pine. The venture is to be worked as a partnership.

Feather River Placer, owned by W. H. Crum and J. E. Rahm, was leased on behalf of Frank A. Brendel with J. R. Mathis as operator. The equipment consists of a Northwest shovel, 2 trucks and washing plant powered by diesel.

Flagstaff Mining Company constructed a mill on the Gotch property located in Wide West gulch and plan to work over approximately 10,000 tons of dump material. The mill was built under the direction of F. W. Stacey and is equipped with a Dodge crushe, 10-ton ball mill and Wilfley table.

Francis Knowles, trucking contractor, with a crew of 8 men, worked the Rocky Bar Placer for a short time during the past year.

A 10-ton stamp mill has been purchased to be installed early next spring in place of the Gibson mill with only an 800-pound capacity on the Independence and Empire No. 1 and No. 2 groups of claims near Rocky Bar. It is believed that an extension of the Mountain Goat vein, a former producer of high grade gold ore, runs through the property. Oscar Pearson of Rocky Bar is associated with Roy Peterson of Mountain Home, Idaho, and R. N. Anderson of Salt Lake City, Utah, in this work. Development has been continuous during the past year. The lease has 3½ years to run. A large body of free milling gold ore is stated to be exposed that will average $15.00 a ton. New camp buildings have been erected and winter supplies stored. Two men are employed with Oscar Pearson in charge. The Independence mine is owned by William A. Nixon of Rocky Bar.

The proposed 1000-ft. tunnel in the Ada-Elmore mine is progressing at the rate of 10 ft. daily according to reports. The property, which is located in the Bear Creek district near Rocky Bar, was recently taken over by L. S. Breckon of Bingham Canyon, Utah, and associates. William Plumhoff, Jr., is in charge at the property. Adequate camp buildings have been erected and supplies taken in for winter operations. Three men are employed, work being done under contract. Equipment includes a large new Worthington Diesel-powered portable compressor unit. The tunnel is expected to open the Elmore and Alturas veins in undeveloped territory.

S. L. Robbins developed the Pal group, consisting of 5 claims, to some extent. The property is located near the Minerva with values in gold and silver.

Frank May, Bud Brown and associates acquired the Minerva property and constructed a 50-ton concentration, amalgamation and flotation mill and power plant with plans for an extensive development and production program outlined for the coming year.

Elk Creek Spanish Town Mines, Inc. worked a crew of 5 men until finances forced the property to suspend operations.

R. A. Peck reports 50 ft. of development work with 2 men on the Sky Line No. 1, No. 2 and the Ophir Bill near Spanish Town.

The Big Lode property was rehabilitated by M. C. Mohrman, Joe Briggs, both of Atlanta, and Earl Smith of Boise. The 10-stamp mill was also put in shape for operation.

The Last Chance Mining Company, E. F. Phippen, Atlanta, president, worked the Monarch with success during the year. The mill feed was furnished from open pit mining and dump material which was transported by truck to the 50-ton mill at Atlanta. Matt Hovick is in direct charge of mining operations including several leasers working underground in the Monarch mine. Marcus White is mill superintendent. It is reported that a deal is pending for sale of the property to out-of-state interests.

Other properties near or adjoining the Monarch that are being rehabilitated and being further developed include the Petit, the Big Lode,
Minerva, Tahoma, Jessie Benton and Grey Eagle. All these mines are grouped along Quartz Creek and Atlanta Ridge within one and a half miles from Atlanta.

Talache Mines, Inc., reopened the Boise-Rochester property, formerly operated by the St. Joe Lead Company. A. H. Burroughs, Jr. of Boise is president of the company and Joe H. Skidmore, superintendent in charge at the property. Machinery and supplies were moved in from the Gold Hill mine at Quartzburg and the mill was revamped with the addition of some new machinery. Twenty-five men were employed during the past year and it is reported that about 75 men will be employed at the property this winter, including lessees.

The old mining camp of Atlanta is staging a strong comeback. Housing facilities are at a premium. The big problem is in keeping the roads passable during the winter months and all agencies should cooperate in giving the residents of Atlanta a chance to come and go the year round by keeping the road free of snow.

The Vre Non Mining Corporation, which built a complete camp during the fall of 1937, was visited by a snow slide last winter. During the year the camp was rebuilt and the property further developed. Harry Ryan and Robert Dutcher head the company.

The Winner group, Earl F. Money, owner, report 130 ft. of development work during the year. From outside sources it was learned that the property was leased during the year to Morgan and Connell, a partnership.

Wallie Tout's placer operation is reported to have enjoyed a successful season.

The Black Warrior district was practically dormant during the year with the exception of some desultory and intermittent operations.

Many placer properties were promoted along the Boise River but the operators forgot in some way to provide ways and means to cover pay rolls for the crews and royalties of the owners of the ground out of the cleanups. Again I call your attention to the need of adequate laws in the State of Idaho to remedy this condition.

Sheep Creek Mining Corporation, consisting of 3 unpatented claims, near Twin Springs, enjoyed a very successful run. John J. Kinsella, president and manager, was injured by sluffing ground during mid-summer and removed to a Boise Hospital.

APEX GOLD MINING CO.

CONSOLIDATED MINES SYNDICATE
Office: 623 First Nat. Bank Bldg., Boise. Officers: Frank E. Johnson, Pres.-Mgr.; Paul L. Oakes, Sec., both of Boise. Inc.: May 6, 1924. Capital: 10,000 shares, no par value; Aug. 15, 1924, changed to 10,000,000 shares, $2.50 par value; May 2, 1925, decreased to 10,000,000 shares, par value $1; 3,357,814 shares issued. Property: Revenue group; 11 unpatented claims, Volcano dist.; Hill City. Development: By 1 tunnel 1453 ft. long. Plant: Gas-driven compressor; complete mining equipment and camp. Ore: Copper, gold and silver. Men Employed: 1 watchman. Remarks: "Tunnel now underway to be driven 2000 ft. to cut ore zone and further equipment will then be determined."

CORDOVA MINING CO.
Mayfield. **Ore:** Gold. **Remarks:** "During past year some further effort to open up old workings was made and additional work was done in new ground but no crew was employed. The work was mostly prospecting and only to an extent sufficient to cover assessment work on the entire group of claims. In May, 1937 company executed a lease for 3 years to H. D. Languille."

**GOOD LUCK GROUP**

Dollie M. Money, owner. **Property:** 3 unpatented claims; Middle Boise dist.; Atlanta. **Development:** Approximate total development, 350 ft. **Remarks:** 150 ft. of development work during the year.

**IDAHO MINES, INC.**

Office: 111 S. 10th St., Tacoma, Wash. **Officers:** J. S. Davies, Pres.; F. W. Lane, Sec., both of Tacoma, Wash. **Inc.:** Unknown. **Capital:** 600,000 shares; no par value; 330,397 shares issued. **Property:** Quill Pig group; 4 unpatented claims, Bear Creek dist.; Rocky Bar. **Development:** 3 short tunnels. **Ore:** Gold. **Remarks:** Idle.

**IDAHO-NEVADA COPPER CORPORATION, LTD.**

(See Boise County for capital structure.) **Property:** 1 unpatented claim, Neal district; held under lease and option from R. E. Beeson and Freemont Wood of Boise.

**MARSH CREEK MINING CO.**

**Officers:** Roy Y. Bogard, Pres.-Mgr.; Curtis F. Pike, Sec., both of Boise. **Inc.:** July 9, 1921. **Capital:** 1,000,000 shares; par value $1; 39,625 shares issued. **Property:** 2 unpatented claims on Marsh Creek, Bear Creek dist.; Featherville.

**OLD CHANNEL MINING COMPANY, INC.**

**Office:** Buhl. **Officers:** H. A. De Neal, Pres.; Edward Herzinger, Sec., both of Buhl. **Inc.:** Apr. 4, 1938. **Capital:** 100,000 shares; par value $1; all shares issued. **Property:** 7 unpatented claims, Pine Grove dist.; Pine. **Remarks:** Some prospecting work.

**GEORGE F. ROTH CO.**

**Office:** 1012 Union Trust Bldg., Rochester, N. Y. **Officers:** Walter J. Duffy, Sec., 30 N. Plymouth Ave., Rochester, N. Y. **Inc.:** June 17, 1909. **Capital:** 2500 shares; par value $100; 2102 shares issued. **Property:** Homestake group; 9 patented, 3 unpatented claims, Neal dist. **Ore:** Gold. **Remarks:** Idle.

**WINNER GROUP**

Earl F. Money, owner. **Property:** 4 unpatented claims; Middle Boise dist.; Atlanta. **Development:** Approximate total development, 865 ft. **Remarks:** 130 ft. of development during the year.

**DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.**

- Atlanta Gold Mine Corporation.
- Blackstone Mining Co., Ltd.
- Canada Gold Mines, Inc.
- Daley Consolidated Mines Co.
- Hydro Mining & Exploration Corporation.
- Idaho Pacific Mines, Inc.
- Sheep Creek Mining Corporation.
- Stanley-Five Bars Mining Co.

**BIBLIOGRAPHY**

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations


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


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


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 106-107 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

Annual labor was performed on several claims in the Pearl district including the Gold Digger group, owned by K. H. Swanholm of Boise, and the King Tut group where an active development program was under way. The King Tut is owned and operated by Babcock and Murphy of Boise.

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 classed as a producing mine in the near future.

Huron Mines, Inc., with a crew of 8 men under the direct supervision of J. L. Fozard, dewatered and reopened the Lincoln mine. This property was a large producer for many years but due to litigation has been idle for some time. It is our understanding that Huron Mines, Inc. is a subsidiary of the Manufacturer's Trust, New York City.

J. C. Johnson and Walter White developed the La Trinidad property to some extent.

A small tonnage of coal was mined on the surface near Montour and delivered by truck to local consumers. Henry Reims of Payette is owner of the property.

Ralph Davis, Inc., had a very successful year and reports 198,500 cubic yards of placer gravel washed during the year. The property is known as the Gatfield Ranch near Montour. The plant consists of a Monighan dragline, washing and pumping plants powered by diesel. A crew of 16 men was employed by the company.

FELIX MINING CO.

GOLD DIGGER GROUP

GRANITE STATE CONSOLIDATED MINES CO.

RALPH DAVIS, INC.
MINING INDUSTRY OF IDAHO

washing plant; pumping plant; diesel power plant on boat. Ore: Gold.
Dragline built in 1937.

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

The International Engineers & Mfg., Ltd.
The International Ore Milling & Mining Co.
Lincoln Mine Operating Co.
New Liberty Mining Co.
Ojus Mining Co.
Old Liberty Mining Co.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks, and abbreviations.


IDAHO COUNTY

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 metal-
lurgical 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.

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

Salmon River District

Operations at Short's Bar, 2 miles above Riggins on the main Salmon River, were commenced in April by the Harrison-Rowland Company. Later in the year this property was worked intermittently by the Morland Gold Corporation until the month of September when the equipment was removed.

Many claim owners took advantage of the exemption on annual labor. There was not much activity on lode properties but the Salmon River had its usual quota of placer miners. Testing was done on ground between Riggins and Whitebird while skim diggers were in evidence all along the river.

Roy Green started operations in August on a large bar below Slate Creek. The plant consists of a gas shovel, caterpillars, trucks and washing plant. Associated with Green is Max Kuney. These men are handling a large yardage of good gravel ranging from 12 to 20 feet deep.

Dandy Gold Placers, Inc., incorporated September 10, worked 6 unpatented claims in the Simpson district, Lucile. It is estimated that about 40,000 yards of gravel have been worked on the property in past development.

Ten Mile District

The Lone Pine mine, near Golden, formerly operated by F. O. Miller of Clarkston, Washington, is now operated by Frank W. Holzheimer of Seattle, Washington and Andrew McGregor and O. C. Thompson, both of British Columbia. The mine was operated steadily treating 50 tons of ore daily. About 40 men are employed under the direct supervision of Sam Allm of Golden.

The Newsome Creek Mining Company moved approximately 600,000 yards of gravel on Newsome Creek during the season from March until December when the property was closed down until next spring. Ferris and Marchbank have the controlling interest. The plant consists of a Bodinson washing plant with a capacity of 200 yards an hour and a drag line with a 3-yard bucket, both operated by power from diesel engines. This operation ran about 2 months in 1937 and there is enough ground ahead for another season.

The Western Gold Corporation took over the S. D. Alexander plant and lease of ground between Santiam Creek and Newsome Creek along the South Fork of the Clearwater River in March. About September the Bodinson washing plant and drag line was dismantled and moved to Oregon.

The Clearwater Mining Company purchased the Blackbird property near the Lone Pine power house and is hauling ore by trucks to the mill on Reeds Creek, a distance of over a mile.

Some ore was milled at the Buffalo-Idaho mill from nearby claims.

The Shamrock, known as the old New York, produced a small tonnage of good ore. H. W. White and associates of Latah, Washington, report a sale of the property to Seattle interests during the month of December. The Una mine carried on an extensive development campaign but failed to send in a report of activities to the inspector of mines' office for the year 1938.

Other activity in the district was confined to annual labor and the development of the many promising prospects in this gold mining district.

Elk River District

The American River Mining Company operated a 1½-yard dragline
with a washing plant mounted on a barge along the American River below the mouth of Elk Creek. This ground was leased from C. E. Marr of Spokane, Washington, by Peterson and Cummings of the Peterson Construction Company of Minneapolis, Minnesota. They moved the outfit in from Yuma, Arizona, and expect to operate all winter.

The dredge at Deadwood was moved to Crooked River below Orogrande and operated until December 15. Operations will be resumed after the first spring thaw.

Dr. A. W. Boyd finished a 500 ft. crosscut tunnel cutting the Blue Ribbon vein 170 ft. east and on a level with the bottom of the winze in the upper workings. The vein at this point is reported to be 10 ft wide and carries values around ½ ounce in gold. Boyd bought the 10 stamp mill at the American Eagle which was revamped, built about 2 miles of road on a good grade from the Blue Ribbon to the mill and is trucking about 25 tons of ore daily.

The small custom mill at Elk City was operated at various times during the year on ore from the Massam property, the St. Louis claim in the Buffalo Hump district (leased by Walter Reamer from Mrs. Stone of Boston, Massachusetts) and from the Black Pine of the Mary K. Company. Reamer, who also has the Concord in the Buffalo Hump district, cleaned up the St. Louis workings and trucked about 500 tons of $50.00 ore to the Elk City mill.

A 50-ton mill was built by a Mr. Haigh during the late summer and fall at the mouth of Crooked River to handle custom ores. Many prospectors are on properties this winter getting out ore for the custom mills. Thirty-one different prospectors are ready to start trucking ore to the Haigh mill.

The district was full of scouts for placer properties all summer. Most of the ranches on Elk and Red rivers have been optioned to placer mining companies who will continue to drill again in the spring of 1939.

A. L. De Puy, engineer on the Cottonwood-Salmon river road has a crew sinking on the Mineral Zone, known as the old Baskett property, ¾ of a mile north of Elk City.

Ted Ward and W. J. Walker of Ely, Nevada, are working a crew of 7 men on development at the Center Star.

It is reported that a man by the name of Myar took 69 tons of Mascot ore (Massam property on Kirks Fork, 2 miles east of Elk City) to the Lyon’s mill during the fall months and saved over $70.00 per ton.

Lucky Ranger Mining & Milling Co. report 270 ft. of development work during the year.

Florence District

Practically the only activity in this camp during the year 1939, aside from small production of gold by itinerant miners, was the operation on Meadow Creek and on South Sand Creek by Walter J. Jones with a small gas shovel, caterpillar angle dozer and portable washing plant. About 50,000 yards of material was stripped and washed.

Holdings in this area that are dormant due to lack of finances for their development are worthy of more attention from scouts and engineers on the lookout for properties of promise.

Dixie District

A better highway was completed into Dixie by the forest service from the Big Mallard Creek road that should aid materially the economic development of lode mines in the Dixie district.

Many of the mines were down during the year 1938 and aside from small spasmodic operations very little work was done in this district.

The Bunker Hill & Sullivan trucked the machinery from the Mamoth mine to Grangeville, where it was stored. Last year this property had a crew of 35 men. During October, 1938 N. B. Pettibone and son of Grangeville leased the mine and put in supplies for 3 men for winter operations.
Many properties visited during 1938 that were active the previous year were not working. Watchmen at several properties could not give the inspector of mines any definite information on contemplated activity by their employers during the fall months.

The Gold Master Consolidated Mining Company was idle when the inspector visited the property in July. The company reports 197 ft. of development work during the year ending May 31, 1938, with a crew of 5 men.

Several people were at the Penman but the property was tied up in litigation. The inspector of mines was advised that nothing would be done until the case was settled.

Burgdorf-Marshall Lake District

Golden Anchor Mining Co., with a crew of 42 men, operated the Holte group consisting of 6 patented and 25 unpatented claims. This company is the largest in the district and ranks among the leading gold producers of the state. Twenty-nine hundred thirty two ft. of development work was completed during the year and a new Eimco Electric mine hoist installed. A good road from this property to the Salmon River would do much to encourage mining in the Marshall Lake area and facilitate all winter operations.

Goodenough United Mining and Milling Co., Ltd. is being worked under lease to the Two Margarets Mining Co., Cornelius Meyers, Portland, Oregon, president. Six men were employed.

Gold Run Mining Company, with a crew of 12 men under the direct supervision of Daniel Flotre, manager, report improvements to mine camp and 220 ft. of development work during the year. These properties, consisting of 18 unpatented claims, are now held under contract by Kimberly Gold Mines, Inc. of Seattle, Washington.

Idaho-Klondike Mining Co., located on California Creek, report 360 ft. of development work during the year with a crew of 3 men. This property consists of 5 unpatented claims and is an underground placer which taps an old river channel. Mark Evans, Burgdorf, is president of the company and is in direct charge of operations.

Annual labor was performed by many claims holders in the Marshall-Burgdorf districts and with an all winter road this area will show more activity in years to come.

Warren District

The Salmon River Placer Company, located at Riversmeet where the South Fork joins the main Salmon River, was active during the year. Machinery brought in from McCall by the Johnson Flying Service in its tri-motored plane last year totaled over 100 tons in 4,250-pound loads. One dragline donkey was in operation powered by a Ford V-8 engine. The washing plant handled about 400 yards daily. When a 300 k.w. generator, driven by a low pressure power wheel is installed, 3 other donkey dragline units will be put into operation. This equipment is on the ground ready to be installed. J. J. Oberbillig of Boise is president and manager.

The Warren Dredging Company, E. T. Fisher, manager, Warren, operated throughout the year on Warren Meadows. This company is a partnership with property consisting of 486 acres patented and 214 acres of unpatented land. The boat has about five years work ahead that will give employment to a crew of 12 or 15 men.

The Baumhoff, Fisher and McDowell boat, which was formerly known as the Anderson dredge, worked during 1938 on hi-bar gravel below the town of Warren which presented many problems to the operators. There is a possibility of this electrically driven dredge being moved to ground that will afford more feasible working conditions in the near future.

Unity Gold Production Co. of Warren report 170 ft. of development during the year with a crew of 18 men. Additions to the plant include a 75 h.p. Westinghouse Synchronous motor to drive compressor, Wilfley concentrator and general overhaul of crushing and amalgamation equipment. Some work was done at the Rescue and custom ore was handled at the mill erected by W. R. McDowell last year.
Activity on Warren Summit at the Bear Track and other prospects in this district give an optimistic look to the future development of properties of merit near Warren.

**Orogrande District**

Orogrande-Frisco Gold Mines, Inc. operated with a crew of 40 men until late in November. This company is operated by the open pit method and report extensive diamond drilling for the year in its development program. Additions of 2 jigs, 2 rolls, 2 tanks, concentrating tables, new dragline, assaying equipment and enlargement of the mill building and heating plant were made during 1938.

Frank Peck sold the Moon Group just east of Orogrande to the men who formerly had the Pasadena. The new owners built a small mill on the property during the fall months.

Ralston McCaig of Spokane, Washington, worked a small crew on the North Hill property and shipped a truck load of highgrade ore to the Bunker Hill Smelter at Kellogg.

The Una completed a 200 ft. raise on the vein from the tunnel level to the surface during the year. An average crew of 5 men is employed. The main office is located in Spokane, Washington. Ralston McCaig is secretary-manager; J. M. McLean, president.

The St. Louis and Concord in the Buffalo Hump was leased to Walt Reamer who trucked about 500 tons of ore to a mill at Elk City. Sampling and road construction was the only other activity noticeable in this area.

The Baker-Seigal Company, under the direct supervision of Mr. Linder, operated a power shovel, trucks and washing plant on the gravel of Baker Gulch.

Gnome Gold Mining Company ceased operations during the summer of 1937.

Lester Strack had a placer operation on Crooked River.

The Mt. Vernon dredge was moved from Deadwood and put into operation on Crooked River bars. They intend to resume digging with the first spring thaw.

The Haigh mill has been constructed at the mouth of Crooked River to handle custom ores from prospects in the several surrounding districts.

**Edwardsburg District**

Golden Hand, Inc., located on Cache Creek, a tributary to Beaver and Big Creeks, worked a few men and milled some ore. Additions were made to the equipment of mine and mill. It is contemplated to drive a raise to draw all ore for the mill from the lower level. It is rumored this company will be reorganized before further development.

Walter A. Estep Estate, Burt B. Spillman, administrator, reports 51 ft. of development work with ore run through a 2½-ton crushing and washing plant to save free gold. Some fines were shipped during the year. Spillman also reports flooring of cabin 20x30 ft.

Pierce Metals Development Co., located on Crooked Creek, a tributary to Big Creek, worked the property known as the Snowshoe Mine with a crew of 14 men. All the work during the year consisted of raising and stopping on production. The mine is fully equipped; the mill is a 25-ton gravity concentration and flotation set-up. Concentrates carrying gold and copper values are hauled by truck to Cascade and shipped to the U. S. Smelter, Salt Lake City, Utah. A new contract entered into with the Lawrence Warehouse Company to issue negotiable warehouse receipts against concentrates in warehouse at the property, will enable the mine to continue operations throughout the winter. R. D. Inman, Grandview, Washington, is president, Marcus Ware, Lewiston, Secretary-Treasurer and H. E. Peterson, superintendent.

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

CAL-IDAHO MINING CO.
Office: 403 Seventh St., Huntington Beach, Calif. Officers: Edward H. Cookingham, Pres., Bremerton, Wash.; M. G. Jones, Sec., Huntington Beach, Calif. Inc.: Not filed in Idaho. Capital: 250,000 shares; par value $1; all shares issued. Property: Gold Hill placer; 7 patented claims, 9 unpatented claims, held under lease and option, Elk City dist.; Elk City. Plant: 8-mile ditch; complete hydraulic equipment and mine camp. Ore: Placer gold. Men Employed: Average, 4. Remarks: "(Moved about 200,000 yds. of material.) For the past two years we have leased our property to James A. Green, 1021 West Fourth Street, Spokane, Washington. Last year a large slide prevented washing any of lower gravels. This year he expects to wash out slide materials and clean up bed rock materials. Stockholders have paid for materials used in development work and also for improvements made."

CENTRAL IDAHO MINING & MILLING CO.
Office: P. O. Box 318, Seattle, Wash. Officers: C. G. Smith, Pres.; M. E. Mangin, Sec., both of Seattle, Wash. Inc.: Nov. 12, 1929. Charter forfeited Nov. 30, 1938. Capital: 1,000,000 shares; par value $1; Aug. 15, 1933, increased to 1,250,000 shares; Sept. 17, 1934, decreased to 1,000,000 shares; 887,876 shares issued. Property: 48 unpatented claims, Robbins dist.; Dixie. Plant: MINE: Gas-driven 250 cu. ft. Sullivan compressor; sawmill, complete mining equipment and camp. MILL: 25-ton flotation concentrator. POWER: 150 kva hydroelectric. Ore: Gold-silver-copper. Men Employed: Average, 4. Remarks: "The mine closed down June 15, 1936 all operations. Operations were taken over by Central Idaho Syndicate, August 1936, which is a trusteeship for the benefit of existing stockholders of the company willing to make advances in order to demonstrate the values of the property. Property taken over for development by the Syndicate."

CENTRAL IDAHO SYNDICATE

CLEARWATER EXPLORATION COMPANY (A Trust)

CLEARWATER MINING CO.

CONSOLIDATED GOLD QUARTZ MINES CORPORATION
Office: 826-16th Ave., Seattle, Wash. Officers: W. G. Tanner, Pres.; G. A. Dickenson, Sec., both of Seattle, Wash. Inc.: March 27, 1936. Capital: 3,000,000 shares; par value 1c; 1,500,000 shares issued. Property: Owns some 20 claims exchanged for stock in company.

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: Idle.

CONSOLIDATED RAPID RIVER MINING & MILLING CO., LTD.

COPPER QUEEN MINING CO., INC.

CROOKS CORRAL MINES, LTD.

DANDY GOLD PLACERS, INC.

ELK CITY GOLD MINING CO.

WALTER A. ESTEP ESTATE
Officers: Burt B. Spillman, Administrator, Big Creek. Inc.: Not incorporated. Property: 12 unpatented claims, Ramey Ridge dist.; Big

FAR WEST GOLD-SILVER MINING CO. (See Shoshone Co.)

GNOME GOLD MINING CO.

GOLD BUG MINING CO.

GOLD CROSS MINING CO.

THE GOLD EAGLE DREDGING COMPANY

GOLD MASTER CONSOLIDATED MINING CO., INC.
GOLD RUN MINING COMPANY

GOLDEN ANCHOR MINING CO.

GOLDEN HAND, INC.
Office: 768 Commerce St., Tacoma, Wash., or Big Creek, Idaho. Officers: C. W. Mason, Pres., Big Creek; Harry M. Smith, Sec., Tacoma, Wash. Inc.: Aug. 10, 1933. Capital: 15,000,000 shares; par value 1c; Jan. 19, 1937, increased to 30,000,000 shares; 17,697,232 shares issued. Property: 35 unpatented claims, Ramey Ridge dist.; 9 held by location and 26 by lease and option. Development: Approximate total development, 950 ft. Plant: Complete mining equipment and buildings. Ore: Gold. Remarks: “Added a mine and smelter barrel amalgamator with corduroy cloth for free gold or metallic recovery. Added a little power house for Pelton wheel. During current year it is expected that ball mill capable of handling ½ inch feed 35-45 tons to 60 mesh, Denver jig, Fahrenwald 6 flotation rougher with Kraut cleaner, larger compressor and 130 h. p. steam boiler; two new water Leyner drifters and 2 stopers. Complete raise and draw all ore for mill from lower level.”

GOODENOUGH UNITED MINING & MILLING CO., LTD.

GRANGEVILLE GOLD CORPORATION
ployed: Average, 6. Remarks: 200 ft. of development work during the year.

IDAHO GOLD DREDGING CO.

IDAHO GOLDFIELDS, INC.

IDAHO KLONDIKE MINING CO.

JUMBO MINING & MILLING CO., LTD.

KEITH'S STAR MINING CO.

KEY PLACERS CORPORATION

LOYALTY MINES, INC.

LUCKY FIVE MINING CO.

LUCKY RANGER MINING & MILLING CO.

METALS RECOVERY COMPANY

MINERAL ZONE MINING COMPANY

NORTH HILL MINING CO.
Office: 404 Lindelle Bldg., Spokane, Wash. Officers: J. M. McLean, Pres.; Ralston McCaig, Sec., both of Spokane, Wash. Inc.: April 18, 1925. Capital: 1,500,000 shares; par value 1c; 1,024,446 shares issued. Property: Summit Flat group; 7 unpatented claims, Ten Mile dist.; Orogrande. Development: Principally by 1 tunnel, 1175 ft. long. Plant: Steam-driven Gardner compressor and hoist; camp; complete mining equipment. Ore: Gold. Men Employed: Average, 2. Remarks: "The mine now has a road to Santiam Creek road, which gives direct connection with South Fork of the Clearwater Highway to Fall Creek or elsewhere. A small amount of surface work during the year."

OROGRANDE-FRISCO GOLD MINES, INC.

OROGRANDE GOLD MINING COMPANY
IDAHO COUNTY

3,500,000 shares; par value $1; 1,805,722 shares issued. Property: Orogrande group; 5 patented, 32 patented claims, Orogrande dist.; Orogrande. Remarks: "An option and lease agreement was entered into under date of January 15, 1934 between the undersigned as Receiver of the Orogrande Gold Mining Company and J. R. Moore, for a sale of the properties of the company. The possession of these properties is now in J. R. Moore under the option and all assessment work and other expenses are being done by the option holder. The undersigned is not advised as to the changes in the condition of the property with respect to the development work done and being done by the option holder."

PASADENA MINES, INC.

PIERCE METALS DEVELOPMENT CO.

REEDS CREEK GOLD MINES CO.

ROBINSON MINING & MILLING COMPANY
Office: Dixie. Officers: Anson Robinson, Pres.-Mgr.; Theresa V. Warneck, Sec., both of Dixie. Inc.: February 15, 1935. Capital: 300,000 shares; par value $1; 50,000 shares issued. Property: 10 unpatented claims, Dixie dist.; Dixie. Development: By 4 tunnels, the principal one being 380 ft. long. Ore: Gold. Remarks: 470 ft. of development work during the year. This work was done by the Bunker Hill & Sullivan under bond and lease from October 1937 to April 1938.

SALMON RIVER EXPLORATION CO.
Office: Lucile. Officers: F. W. Whitney, Pres., Lucile; Carl J. Smith, Sec., Dexter Horton Bldg., Seattle, Wash.; F. W. Whitney, Mgr., Lucile. Inc.: March 4, 1935. Capital: 100,000 shares; par value 10c; September 27, 1935, increased capital stock to 500,000 shares; 70,000 shares issued. Property: 6 claims, Simpson dist. Lucile, held under lease and option from Eben W. Butcher, Lucile. Ore: Gold. Plant: Pumping and hoisting machinery, sluice boxes, giants, camp buildings and engine room. Remarks: "Carl J. Smith says: This corporation is entirely out of existence and has been so for the last two years, there having been no operation and no business of any kind transacted during that time."

SALMON RIVER MINERS, INC.
MINING INDUSTRY OF IDAHO

shares; par value $1; 6000 shares issued. Property: 1 patented placer claim, Camp Howard dist.; Whitebird. Ore: Placer gold.

SALMON RIVER MINING & MILLING CO.

Officers: John Wm. Errington, Pres.; H. M. Browne, Sec., both of Spokane, Wash. Inc.: June 8, 1931. Capital: 500,000 shares; par value 10c; increased Jan. 3, 1932, to 1,500,000 shares; 924,381 shares issued. Property: 1 patented placer claim, Camp Howard dist.; Whitebird. Ore: Placer gold.

Remarks: "Considerable laboratory work was done during the year on this class of rock, endeavoring to work out a commercially profitable method of extraction of values."

SECESH DREDGING MINING & MILLING CO.


SENTINEL MINES CORPORATION


SPRING BARR PLACER CO.


SYLVANITE GOLD COPPER COMPANY


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, New Meadows. Inc.: June 3, 1937. Capital: 1000 shares; par value $1; Jan. 20, 1938, increased capital stock from $100 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 $1,000 to $75,000 divided into 25,000 shares, par value $1 and 25,000 shares, par value $2; 81,249 shares issued as of May 31, 1938. Property: 10 patented claims, Mt. Marshall dist.; Burgdorf. Development: Approximate total development, 500 ft. Ore: Gold and silver. Men Employed: Average, 6. Remarks: Property held under lease and bond—Goodenough Mining and Milling Co., L. I. Purcell, Pres., New Plymouth.

UNITY GOLD PRODUCTION CO.

WARREN DREDGING CO. (Partnership)

DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Best Chance Gold Mines Corporation.
Buffalo-Idaho Mining Co.
Channel Gold Corporation.
Corner Stone Mining & Milling Co.
Diatom Products Co.
Empire Metals Co.
Esperanza Gold Dikes Mining Corporation.
French Creek Gold Mining & Milling Co.
Gold Point Mines, Inc.
The Golden Hand Extension Mining Co.
Granite Creek Dredging Company.
Green-Hill Mining Corporation.
The Idaho Corporation.
Idaho Newsome Mining & Milling Co., Inc.
Mammoth Mine Corporation.
Mammoth Mining & Development Co.
Salmon River Placer Company.
Sherman Howe Mining Co.
Una Mine Co.

BIBLIOGRAPHY
See pages 106-107 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.‡


A geological reconnaissance across the Bitterroot Range and Clearwater
MINING INDUSTRY OF IDAHO


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.‡


KOOTENAI COUNTY


KOOTENAI COUNTY


Principal Industries: Lumbering, dairying, farming, mining. Transportation: Three state highways, a well maintained system of county roads, six railroads and by boat on Lakes Coeur d’Alene and Pend d’Oreille.

Mineral Resources: Zinc, lead-silver, copper, gold, arsenic and high-grade clays.

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

Crystal Spring Mining Co. reports 340 ft. of development work during the year. This company leased the property of the Coeur d’Alene-Spokane Mining Company in October, 1937 for exploration purposes.

Palisade Mining & Milling Co. own 2 patented and 24 unpatented claims, located in an unorganized district near Kellogg, report 30 ft. of development work completed during the year.

Radio Mining Co., with a crew of 2 men, did 70 ft. of development work on its lead-silver property near Wolf Lodge.

Rainbow Mining & Milling Co., Ltd. with properties in Kootenai, Benewah and Shoshone counties, report 745 ft. of development work on their various holdings, with a crew of 5 men for the year 1938.

Riverside Copper Mining Co., Ltd. employed 5 men and report 160 ft. of development work on 5 patented claims in the Linfor district on Little North Fork.

Shamrock Silver Mining Company, Inc., in the Hayden Lake district, report 110 ft. of development work during the year.

Sunshine Metals Corporation employed 4 men to recondition tunnel. This property consists of 7 unpatented claims in the Hayden Lake district.

BLUE BIRD MINING CO.


COEUR D’ALENE-SPokane MINING CO.

Office: Helena, Mont. Officers: C. A. Spaulding, Pres., Helena, Mont.; Robert E. Strobel, Sec., Helena, Mont. Inc.: Sept. 6, 1918. Capital: 1,000,000 shares; par value $1; 500,000 shares issued. Property: 3 patented claims, Medimont dist.; Lane. Remarks: "Property belonging to this company was leased on the 30th day of October, 1937 to the Crystal Spring Mining Co., Cataldo, Idaho. Our understanding
is that this company is exploring the property for the purpose of determining the feasibility of installing a plant and actively engaging in mining thereon. This is the usual lease and option and nothing has been paid to this company thereunder nor will anything be due until October 30th, 1938."

COMMONWEALTH METALS CO.
Name changed to Sunshine Metals Corporation Oct. 13, 1937.

CRYSTAL SPRING MINING CO.

GRAY WOLF MINING CO.

HAYDEN LAKE MINING AND MILLING CO.

HIGH CROPPING SILVER-LEAD MINING CO.

IDAHO DIAMOND SULPHIDE MINING COMPANY, INC.

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

PALISADE MINING & MILLING CO.

RADIO MINING CO.
Office: 811 Riverside Ave., Coeur d'Alene. Officers: W. P. Brennan,
KOOTENAI COUNTY


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

(See Benewah County for capital structure.)

RAINBOW NO. 2


RAINBOW NO. 4


RIVERSIDE COPPER MINING CO., LTD.

Office: Kellogg. Officers: T. R. Mason, Pres.; W. W. Papesh, Sec., both of Kellogg. Inc.: Sept. 17, 1906. Capital: 1,000,000 shares; par value $1; May 4, 1936, reduced to $100,000, divided into 2,000,000 shares; par value 5c; 1,000,000 shares issued. Property: 5 patented claims, Little North Fork dist.; Linfor. Development: 1 tunnel, 500 ft. long. Ore: Lead-silver. Men Employed: Average, 5. Remarks: 160 ft. of development work during the year.

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: Idle.

SHAMROCK SILVER MINING COMPANY, INCORPORATED


SUNSHINE METALS CORPORATION


DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-
MINING INDUSTRY OF IDAHO

1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Beauty Bay Mining Co.
Caribou Mining Co., Ltd.
Hamburg American Copper Mining & Milling Co.
King Solomon Mining & Milling Company.

BIBLIOGRAPHY

See pages 106-107 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. 28, No. 5, Econ. Geol., 1933.

LATAH COUNTY

Principal Industries: Agriculture, lumbering and stock raising. Transportation: Three railroads and an excellent system of county highways.
Mineral Resources: Copper, gold, silver, opals, mica, feldspar, beryl and high grade fire clay.

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 Elk City is a district of merit that should receive more attention in future.

Review of Year's Operations

Columbia Mines Corporation, operating the Mispah group of 30 claims in the Hoodoo district near Harvard, employed a crew of 10 men and report 600 ft. of development work during the year ending May 31, 1938.

Many opportunities present themselves for profitable development of properties in this district. Very little work has been done to develop the metallic resources of Latah County. However, non-metallic deposits have been actively exploited, particularly the fire clay near Troy which is some of the best that can be found for refractory purposes.

It has been reported that millions of yards of good placer ground in its virgin state is available pending the right kind of a deal. For further information contact Otto A. Huefner, 518 W. 15th Avenue, Spokane, Washington.

Gold Hill Mining & Milling Co. resumed work at the property during
the month of October, 1937. Since that time the main tunnel has been driven ahead 300 feet.

Idaho Fire Brick and Clay Co. report 20 ft. of development work with a crew of 22 men. Four men work in the glory hole where the clay is mined on the surface, dumped into chutes in tunnel where it is conveyed to the puddling and molding equipment.

Moscow Queen Mining Co., a prospect on Moscow mountain, is looking for a purchaser for the mine.

Ten-Said Mining & Milling Co. was worked by the mine owners of the property and report 50 ft. of development work completed during the year with a bunkhouse and compressor room under construction. This property consists of 8 unpatented claims in the Poorman Creek district near Potlatch.

ACE MINING CO.

CASSIDY GOLD MINING & MILLING CO., LTD.

COLUMBIA MINES CORPORATION

MIZPAH GROUP

RIVERSIDE GROUP

ENGINEERS GOLD MINING COMPANY

GOLD HILL MINING & MILLING CO.
IDAHO CERAMIC MATERIALS CO.

IDAHO FIRE BRICK & CLAY CO.

MOSCOW QUEEN MINING CO.
Office: Moscow. Officers: John Kusterin, Pres.; Abe Goff, Sec., both of Moscow. Inc.: June 23, 1936. Capital: 50,000 shares; par value $1; 32,000 shares issued. Remarks: "This company has a prospect on Moscow Mountain. Corporation being kept alive only to perhaps sell charter to some one else."

TEN-SAID MINING & MILLING CO.
Officers: Wm. Furze, Pres.; H. A. Finlay, Sec., both of Wardner. Inc.: Nov. 9, 1937. Capital: 1,000,000 shares; par value 1c; 450 shares issued. Property: 8 unpatented claims, Poor Man Creek dist.; Potlatch. Development: By 3 tunnels: No. 1, 300 ft. long; No. 2, 50 ft. long; No. 3, 180 ft. long. Ore: Silver, lead and gold. Men Employed: 9 of the owners worked 70 days. Remarks: 50 ft. of development work during the year. Bunkhouse, and compressor room under construction.

TROY GOLD & COPPER MINING CO., LTD.

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.
Spokane-Idaho Copper Co.

BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


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.

**LEMHI COUNTY**

**County Seat:** Salmon City. **Area:** 4597 sq. miles. **Population:** 4643.

**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. The only railroad into the county is the Pittsburgh and Gilmore from Armstead, Montana, into the Lemhi Valley. **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**

The North Fork Placer Company, J. J. McGovern, Jr., of Gibbonsville, president and general manager, worked the Sundown hydraulic placer property under lease from A. D. Burrow of Gibbonsville from April until November. During the season from 2 pits 500 to 1000 cubic yards of gravel are handled every 24 hours with 3 No. 4 Hendy giants equipped with 5 and 6 inch nozzles. The ditch is over 4 miles long and from 12 to 14 second feet at a 125-ft. head used. The gravel is run through a 3 x 3 foot flume 350 ft. long, using 20 pound rails on a 12-inch grade. During 1937, 95,000 yards of 25 cent gravel was handled in 198 days. The company estimates enough gravel is available for 5 or 6 working seasons.

Twin Bros. mine was operated by the McLean brothers during the year ending May 31, 1938. The Twin Bros. 50-ton custom mill was moved to the Grunter property below Shoup.

Buckhorn Gold Corporation, operating in the Yellow Jacket district, report 430 ft. of development work during the year and state the property was turned over to the Treasure Gold Mining Company, 905 Continental Bank Bldg., Salt Lake City, Utah, for stock in that corporation.

Gibbonsville Premier Gold Mine, Ltd., Inc., in the Dahlonega district, report 150 ft. of development work with a crew of 4 men.
I. D. Theriault, Shoup, has leased the mine and 100-ton flotation mill from the Gold Hill Mines, Inc., 1 mile south of Shoup, according to A. W. Hall, president. The property consists of the Old Kentuck group of 3 patented and 29 unpatented claims in the Mineral Hill district. Total development approximated 9000 ft.

Gibbonsville Mining and Exploration Company purchased the machinery at the Harmony mine and moved it to the company's property on Boyle Creek, 14 miles from Salmon. Two diesel units furnish the power necessary to run mill equipment which includes a 7-ft. Hardinge ball mill, 10 flotation cells. About 75,000 tons of ore are stated to be ready for milling. This company is said to be backed by a group of employees of the Bunker Hill and Sullivan Company of Kellogg with Philo Seelye of Salmon in direct charge.

Placer ground was tested on several creeks including Geertson, Moose, Boulder, Williams, Hughes, Sheep and the North Fork of the Salmon River.

The Shoo Fly, in the Eureka district, owned by James G. Sims and son, Howard, was worked from November until June.

The Ring Bone Cayuse, owned by Fred and Burrell Brough of Salmon, was worked by lessees up to the month of May, 1938.

Properties in the vicinity of Leesburg were active and the usual production was evident in this locality. Some of the highest grade gold found in the state comes from the Leesburg Basin.

The Blackbird mine, 37 miles southwest of Salmon, is reported to have been leased by James G. Sims and his son Howard, both of Salmon. The property will be reopened and developed during the winter and Sims expects the property to be on production with a mill in operation by July 15, 1939. The property, which comprises 38 patented and several unpatented claims, shows values in gold, copper, nickel and cobalt. Floyd Stevenson of Spokane, Washington, has been in charge of the construction crew which built a road and camp. The 7-mile road connects with the recently finished Panther Creek road.

Equities Inc., operated the Ranger mine with a crew of about 30 men. Edward F. Fitzhugh, Jr., was in charge of operations. The mine is located on the Continental Divide near Baker. Reports that the company has discontinued work at the property have been received at this office.

Goldstone Mine, a partnership, operated the Goldstone property, under lease and option from Mrs. Isadore Gies, Great Falls, Montana, with a crew of 23 men. The property consists of 7 unpatented claims in the Pratt Creek district, near the Continental Divide. The plant has complete mining equipment, modern camp and 50-ton concentration and flotation mill. Four hundred fifty feet of development work was completed during the year.

Sandy Creek Mining Company, Ltd. employed a crew of 12 men getting the mine, mill and assay office ready for production. A few changes were necessary in the 35-ton flotation plant after a test run. Values are in gold and silver with some copper and lead. The property is located 20 miles northwest of Salmon. J. Bryant Kasey, Box 511, Salmon, is in general charge.

The Mahogany, owned and operated by A. C. Amonson, Salmon merchant, was developed to some extent. This property has merit as a potential producer of silver and manganese with further development.

West State Mines, Inc., Robert E. Strahorn, president, report that work during 1938 consisted mostly in reopening tunnels on the Union Pacific, Burlington and Lang properties, checking timbers and resampling the ore bodies. A crew of 9 men was employed.

Milo Zook worked a crew at the Latest Out mine at Gilmore. Aside from sinking a shaft on the property some shipments were made. It is reported that a man by the name of Taylor has leased a portion of the Allie mine at Gilmore.

Benson Evans and a brother of the late Joe M. Denton worked a
crew at the Silver Moon Gulch mine. In 1937 a rich strike of high-grade silver ore created a great deal of interest in this section. Shipments were continued throughout the year.

Wilbur Hayes and associates continued to ship gypsum from Leadore to the Portland Cement Company's plant at Inkom that is said to be 97 per cent pure.

South Gilmore Mining Company continued to develop the Red Warrior mine in the Spring Mountain district. The property is owned by the Miller family.

Tendoy Copper Queen Syndicate, C. A. Dye, president and owner, worked a crew of 35 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.

Ima Mines Corporation, W. P. Barton, general manager, May, has developed into the second largest tungsten producer in the United States. Fourteen to 18 tons of 68 per cent tungsten trioxide is shipped monthly and in addition about 175 tons of flotation concentrates are trucked to the rail head at Mackay that contain from 40 to 60 ounces in silver to the ton, about 6 per cent lead, 6 per cent copper and a little gold. Many improvements were made at the Ima during 1938 including new dry house, compressor room, diesel compressor unit, diesel power unit, extra mancha storage battery for trammer, Dings Magnetic Separator, a 4' 2 D American Oliver Filter and Blast Furnace Drier constructed to specifications. Thirty men were employed and 1000 ft. of development work was completed during the year.

Idaho Falls Gold Mining Company, in the Lemhi district, report assessment work only. Also the Lemhi Union Company report 30 ft. of development work on 19 unpatented claims in the Spring Mountain district, Gilmore.

Leesburg Mining Company cleaned out all ditches and repaired diversion boxes. The company expects to use a shovel and dragline operated with diesel or gas engine with washer and Hungarian riffles.

Owl Mining Co., Inc., expended $220.81 on road work, trenching and prospecting by 2 men.

Placers Exploration Syndicate, Inc., with a crew of 6 men, closely drilled and tested 1½ miles of placer ground in the Mackinaw district, Leesburg.

Silver Consolidated Mines, Inc., report that the property was leased on a straight royalty basis. Tramway was repaired and put in operating order, cookhouse built and roads repaired.

Sun Valley Gold, Silver and Copper Mines, Inc., prospected during the year and expect to develop property as soon as conditions will permit.

Tacoma Placers located 6 group claims in the Mackinaw district since 1934.

H. S. Steen has promising placer and lode holdings in the Yellow Jacket district.

Richards and Truax have carried on an extensive development program at the Nabob property with a crew of 4 men.

Golden Dawn Mining Company, Inc., located on Wallace Creek, has available 900,000 yards of placer gravel. Under the supervision of J. W. Abbott a crew of 8 men built 800 ft. of sluice and laid 1700 ft. of pipe. The equipment also includes a caterpillar and 2 giants with plenty of water for a long season's run. Abbott reports this company will install like equipment on Sheep Creek with a crew of 15 men.

Frank Glennon, Joe Hughes and Carol Medbury, worked the Last Chance group, formerly known as Queen of the Hills. This 3-man partnership recovered 15 ounces of gold from 28 mine cars of dirt which averaged 1 ounce per ton.

The Famous, worked by Clyde L. Browning, divulged some picture rock that would assay 15 ounces of gold per ton.
Many other properties of merit were not visited by the inspector due to the necessarily short time to cover the county thoroughly. Information on mining activity is always welcomed by this office at any time.

**BUCKHORN GOLD CORPORATION**


**DELAWARE—IDAHO GOLD MINING CO.**


**GIBBONSVILLE PREMIER GOLD MINE, LTD., INC.**


**GOLD FLOTATION DEVELOPMENT CO.**


**GOLDSTONE MINE (Partnership)**


**IDAHO FALLS GOLD MINING COMPANY**


**IMA MINES CORPORATION**

*Office: May. Officers: Dr. E. L. Berry, Pres., Buhl; W. P. Barton, Sec., May. *Inc.: Mar. 12, 1930. *Capital:* 1,000,000 shares; par value $1; 850,000 shares issued. *Property:* 21 patented and 4 unpatented claims, Blue Wing dist.; May, held under lease and bond from Lemhi Metals Company, Salt Lake City, Utah. *Development:* Approximate
total development 10,000 ft. Ore: Silver, copper, gold and tungsten. Plant: Complete mining equipment and camp; 100-ton concentrator. Men Employed: Average, 30. Remarks: 1000 ft. of development work during the year. Additions made: 1 diesel compressor unit, 1 diesel power unit, 1 extra Mancha Trammers Storage Battery, 1 Dings Magnetic Separator, 1 4'2D American Oliver Filter and 1 Blast Furnace Drier constructed to specifications.

LANG MINES, INC.

LEESBURG LODE & PLACER MINING CO.

LEESBURG MINING CO.
Office: Tacoma, Wash. Officers: J. S. Heisey, Pres.; O. E. Kirkpatrick, Vice-Pres., Leesburg; S. M. Collins, Treas.; Mrs. J. A. Cowan, Sec., both of Tacoma, Wash. Inc.: In Washington Aug. 4, 1936. Capital: 500,000 shares; par value 10c; amount issued, not known. Property: 565 acres consisting of Gold Ridge and Highland Quartz claims and the Camp Creek Placer claim and acreage covering the creek beds of Candy Creek and Camp Creek. Remarks: "All ditches have been cleaned out and the diversion boxes repaired and new ones put in where necessary. It is our present intentions to start operations in the property as soon as weather conditions in the spring will permit. We expect to use shovel and drag line operated with diesel or gas engine and with a washer and Hungarian Riffles."

LEMHI LEAD MINES, INC.
Office: Pocatello. Officers: William V. Sharp, Pres.; Chas S. Watson, Sec., both of Pocatello. Inc.: Nov. 27, 1937. Capital: 2,000,000 shares; par value 5c; 940,000 shares issued. Property: Lemhi Union group of 19 claims and James H. Sims property consisting of 11 claims, held under lease and bond; Spring Mountain dist.; Gilmore. Development: Approximate total development, 2450 ft. Plant: Installing new machinery. One large bunkhouse and cook house combined, 3 smaller cabins. Remarks: "These claims are being operated by lessee. 30 ft. of development work during the year.

LEMHI UNION COMPANY

MEADOW MINES, INC.
"We do not own any properties and we are inactive and considering dissolution."

**OWL MINING CO., INC.**

**Office:** Salmon. **Officers:** H. A. Simmons, Pres.; S. G. Carpenter, Sec., both of Red Lodge, Mont. **Inc.:** Dec. 9, 1929. **Capital:** 1000 shares; par value $100; all shares issued. **Property:** 1 patented, 12 unpatented claims, Mineral Hill dist.; Shoup. **Development:** By 2 short tunnels. **Ore:** Gold-silver. **Remarks:** Road work, trenching and prospecting. $220.81 paid 2 men for tunnel work.

**PLACERS EXPLORATION SYNDICATE, INC.**

**Office:** 512 Radio Central Bldg., Spokane, Wash. **Officers:** Wm. J. Porter, Pres.; A. J. Bowers, Sec., both of Spokane, Wash. **Inc.:** May 24, 1937. **Capital:** 750,000 shares; par value 10c; 448,673 shares issued. **Property:** 21 unpatented claims, Mackinaw dist.; Leesburg. **Development:** Placer testing. **Ore:** Placer gold. **Men Employed:** Average, 6. **Remarks:** "During 1937 season one mile and half of placer ground was closely drilled and tested with No. "71" Keystone Placer Drill and through sinking shafts."

**POCATELLO-LEHMI MINING & EXPLORATION CO.**

**Office:** Pocatello. **Officers:** W. E. Magnuson, Pres.-Mgr.; Madge D. Hawkins, Sec., both of Pocatello. **Inc.:** Oct. 23, 1926. **Capital:** 1,000,000 shares; par value $1; shares issued, 263,167. **Property:** Jamieson group; 15 unpatented claims, Junction dist.; Leadore. **Development:** By 2 short tunnels. **Ore:** Lead-silver. **Remarks:** Idle.

**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., St. Anthony; Chas. S. Watson, Sec., Pocatello. **Inc.:** Sept. 23, 1937. **Capital:** 1,000,000 shares; par value 10 cents; 745,000 shares issued. **Property:** 19 unpatented claims, Spring Mountain dist.; Gilmore. **Development:** By 3 tunnels, the principal one being 1925 ft. long. **Ore:** Lead, silver, copper and gold. **Remarks:** Tramway repaired and put in operating order. Cookhouse built and roads improved. Property under lease on a straight royalty basis.

**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; 7200 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:** "It was the intention of the present company to develop this property and will carry out this intention as soon as conditions will permit. At present we are on the property and working in a prospective way. We hope to get under way during the summer with our development."

**TACOMA PLACERS**

**Office:** 740½ Court D, Tacoma, Wash. **Officers:** M. G. Brown and Associates; F. C. Zertsymen, Sec., all of Tacoma, Wash. **Inc.:** Not incorporated. **Property:** 6 groups of claims in Mackinaw district located in 1934.

**TENDOY COPPER QUEEN SYNDICATE**

**Office:** Tendoy. **Officers:** C. A. Dye, owner, Tendoy. **Inc.:** Not in-
LEMHI COUNTY 185

corporated. **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 (under construction). **Ore:** Copper, gold and silver. **Men Employed:** Average, 41. **Remarks:** New 50-ton concentrator under construction. Prospective new equipment, additions and improvements include: C. P. air compressor, new change house, several cabins for employees with families.

**TRI-STATE GOLD MINING COMPANY**  
**Office:** Colville, Wash. **Officers:** F. T. Harbour, Pres., Nelson, 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 dist.; Gibbonsville. **Development:** Approximate total development, 830 ft. **Ore:** Gold.

**UNITED IDAHO MINING CO.**  
**Office:** 75 Federal St., c/o U. S. Smelting, Refining & Mining Co., Boston, Mass. **Officers:** C. A. Hight, Pres.; F. W. Batchelder, Sec., all of Boston, Mass. **Inc.:** Oct. 18, 1924. **Capital:** 10,000 shares common, no par value; 10,000 shares preferred, par value $10; June 20, 1930, preferred shares decreased to 7504; 7053 shares common, 7267 shares preferred issued. **Property:** Pittsburgh-Idaho group; 5 patented claims, Texas dist.; Gilmore. **Development:** By 4 tunnels; No. 1, 600 ft. long; No. 2, 1000 ft. long; No. 3, 1600 ft. long; No. 4, 1300 ft. long, in which is an inclined shaft 1200 ft. long, which gives a vertical depth of 988 ft. on the vein. **Ore:** Lead-silver. **Remarks:** Idle.

**WEST STATES MINES, INC.**  
**Officers:** Rob't E. Strahorn, Pres., Boise; Claude E. Masters, Sec., Salmon. **Inc.:** Nov. 2, 1936. **Capital:** 10,000,000 shares; par value 10c; 2,301,400 shares issued. **Property:** 3 patented and 18 unpatented claims, Mackinaw or Eureka dists.; Salmon. **Development:** By 6 tunnels, the principal one being 1200 ft. long; approximate total development, 2648 ft. **Plant:** MINE: Hendrie & Blothoff hoist; complete mining equipment and camp. **Ore:** Gold. **Men Employed:** Average, 9. **Remarks:** "Work consisted mostly of reopening the tunnels, checking timbers and resampling the ore bodies. Total development on Lang Mine 1450 lineal feet consisting of 180 ft. inclined shafts and 100 ft. vertical raises and 1170 ft. tunnels."

**DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.**

- Gilmore Mercantile Company.
- Gold Producers, Inc.
- Latest Out Mining & Smelting Co.
- Lead Mountain Mining Co.
- Leesburg Bonanza Placer Co.
- Napias Placers, Inc.
- Northwestern Development Co., Ltd.
- South Gilmore Mining Co.
- Virginia Gold Mining & Milling Company.

**BIBLIOGRAPHY**

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.  


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


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.§


LEWIS COUNTY


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


LEWIS COUNTY


BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


NEZ PERCE COUNTY

County Seat: Lewiston. Area: 851 sq. miles. Population. 17,591. 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.

BIBLIOGRAPHY

See pages 106-107 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.†


188 MINING INDUSTRY OF IDAHO

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

ONEIDA COUNTY

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

BLUE JAY MINING CO.


OWYHEE COUNTY

County Seat: Murphy. Area: 7596 sq. miles. Population, 4103. 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

Placer operations were working along the Snake River from Grandview to Homedale. However, the recovery of flour gold still presents a major problem in the success of many operations located on the bars of this river.

Some annual labor was performed on the properties in the vicinity of Oreana and Castle Creek.

The old mining camp of Silver City is staging a comeback. From practically a ghost town in 1937, the renewed activity during the past year has caused the town to show new signs of life and given hope to those who knew the camp when it was flourishing.

Orogrande Gold, Incorporated, report 450 ft. of development work with a crew of 3 men. J. A. May, vice-president of the company, is the engineer in charge. The property has merit and is undergoing an intelligent development program.

Fred J. Test and Harry Butler operated the Golden Sunday mine.

George H. Gage, Portland, Oregon, constructed and equipped a 50-ton ball and flotation type mill at the old Dewey mine near Wagon Town. Gage acquired the Trade Dollar property, which consists of 57 patented claims and rehabilitated parts of the mine expecting to reopen and block out new ore while working over some old dumps and handling custom ores. The ball mill was moved from the Mountain Chief mine and some machinery was salvaged from the 35-ton flotation plant at the Golden Sunday mine, which was destroyed by fire during the winter of 1937.
Carson Divide Mining Company reopened and developed the Rich Gulch property consisting of 17 patented claims lying between the Trade Dollar and DeLamar mines. Seven men were employed under the direct supervision of N. M. Williams of Boise. It is reported that the venture is backed by E. A. King and associates of the Idaho Power Company.

Ray D. Elrey developed the Regan, Webfoot and Lipley groups, consisting of 14 patented and 10 unpatented claims with a crew of 12 men. Elrey stated he expects to mill the ore from these claims at one of the custom mills.

At Silver City the Potosi mill, operated by a Portland company, plans larger scale of activities.

L. R. Shaver, with a crew of 3 men, worked at the De Lamar mine. I. E. Hammond contemplates working over the De Lamar tailings and expects about a 2-year operation with a crew of about 10 men.

About 25 men were employed by the De Lamar Milling Company building a 100-ton mill on the hill above town near the main dump of the famous De Lamar mine. This mill will work over approximately 200,000 tons of ore from the various dumps of the mine and is prepared to handle custom ores. The work was under the direction of Carl N. Anderson, engineer in charge. John H. Smith, Jr. of Oregon City, Oregon, is said to have financed the construction of the mill.

The De Lamar Placers, owned by the Brendel Oil Company, operate a 2-yard dragline and dredge on Jordan Creek in the Carson district below De Lamar. Production is said to be about 150 yards an hour with recovery running around 25 cents a yard. Frank A. Kennedy, 710 North Nineteenth Street, Boise, is manager and engineer in charge. Fifteen men are employed on 3 shifts by this placer company.

Jordan Creek Placers operated a steel pontoon Yuba dredge on Jordan Creek about 5 miles below De Lamar with good results. The dredge will have covered 180 acres in its 3 years run. According to Frank B. Thornburg, manager, the ground will be exhausted late in the year 1938 and the dredge with 9 portable houses is to be dismantled and moved to the scene of the next operation. With a crew of 12 men the boat handled an average of 2500 cubic yards every 24 hours.

BANNER MINING & MILLING CO.

COSMOPOLITAN MINING CO., LTD.

DE LAMAR PLACERS

EMPIRE MINES CO.

GOLCONDA GROUP MINING CO.
MINING INDUSTRY OF IDAHO


IDA BELL GOLD MINES, INC.

IDAHO EXPLORATION INCORPORATED

INTERSTATE GOLD MINING COMPANY

MOTHER LODE GOLD MINING & MILLING CO.

OROGRANDE GOLD, INCORPORATED

THE SNAKE RIVER EXPLORATION COMPANY
WAR EAGLE CONSOLIDATED MINING CO.

WESTERN MINING & EXPLORATION CORPORATION

DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Owyhee Development Co., Inc.
Owyhee Gold Bug Mines, Inc.
Village Blacksmith Mining Co., Inc.
War Eagle Mining & Milling Co.

BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.

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


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.

PAYETTE EXPLORATION CO.


DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-1620 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Boise Petroleum Corporation.
Voltuff Products Company.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


POWER COUNTY

BANNOCK APEX MINES, INC.

BIBLIOGRAPHY
See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.

Geography, geology and mineral resources of the Fort Hall Indian Reservation, Idaho, by G. R. Mansfield: U. S. Geol. Survey Bull. 713, 1920.†
Possibilities of petroleum in Power and Oneida counties, Idaho, by A. M. Piper: Idaho Bureau of Mines and Geology Pamphlet 12, 1924.**

SHOSHONE COUNTY

County Seat: Wallace. Area: 2597 sq. miles. Population: 19,060. 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 lead and one-eighth of the silver of the United States.
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.

Review of Year's Operations
Records of the more notable events of 1938 in chronological order pertaining to the mining industry in the Coeur d'Alene district. (Courtesy the Wallace Miner, Wallace, Idaho.)
January

The year 1938 was a period of uncertainty for the mining industry of the Coeur d'Alenes. Metal prices fluctuated within a narrow margin but at no time reached a point where expansion of operations was deemed justified. Throughout the year huge stocks of lead and zinc were carried on hand by mines and smelters. The price paid for domestic silver was an incentive for increased outputs in the silver belt and caused a considerable amount of development to be carried on in that area.

The Sunshine mine maintained its position as the greatest silver producer in the United States, output averaging approximately one million ounces of silver per month.

The price paid for silver during the year was fixed at 64.64 cents an ounce, 13 cents an ounce off the price the miners had received during the previous year.

On account of low metal prices wages were reduced in the district 50 cents per shift.

The Callahan Zinc-Lead Company announced its intention to mine extensively for gold in Alaska.

Silver Summit directors announced plans to sink a shaft 1000 feet on their property in the silver belt.

H. G. Washburn, general manager of the Federal Mining and Smelting company, elected chairman of Columbia section, American Institute of Mining & Metallurgical Engineers.

Directors of the Ione property in the Murray district announced their plans for a resumption of development operations.

The Coeur d'Alene mining district will arrange a comprehensive mineral exhibit at the San Francisco Golden Gate Exposition of 1939.

National labor board examiner files decision ordering Sunshine Mining company to reinstate 216 strikers and pay back wages.

Idaho supreme court holds 3 per cent excise tax on ore mined in the state constitutional.

Manager R. D. Leisk of the Sunshine company reported a net profit for 1937 of $5,401,457, equivalent to $3.63 a share on 1,488,821 shares of capital stock.

February

Hecla Mining Company dividend of 10 cents per share, totaling $100,000 for first quarter.

Lead-zinc industry threatened with possible lowering of present tariff rate existing between Canada and the United States. Operators file protests in Washington.

Bunker Hill & Sullivan passes dividend on common stock due to low metal prices and accumulation of large stocks of lead and zinc at the smelter.

Morning mine shaft damaged at 1850 station when a portion of the shaft caved in blocking the entrance. One miner lost his life in the accident.

Silver Dollar announces plans to continue shaft operations.

Metropolitan Mines Corporation directors report good progress in shaft operations.

Sunshine Mining Company officials report 450,000 tons of ore reserves. Operations at the Callahan Zinc-Lead curtailed due to low price paid for zinc.

Coeur d'Alene Mines Corporation reports shaft down 500 feet.

Palisade M. & M. directors report plans for development work at property on west fork of Pine creek during the summer.

Liberal King shaft on Pine creek down 240 feet, Manager Henry Weber announced.

Sunshine announces shaft will be sunk to the 3100-foot level.

Rainbow Mining Company officials announced important disclosure in the deep tunnel on Evans creek.

The silver belt employs 1000 miners in production and development operations.
Jack Waite Mining Company pays dividend of 1½ cents per share, totaling $41,316.

An assessment of 2 mills per share was levied by the Bell of the West Company.

March

State Mine Inspector Arthur Campbell issues comprehensive annual report covering mining industries of Idaho for 1937.

Drift on the 1900 level from the Sunshine working into the Polaris ground discloses rich silver ore body which will be mined under joint agreement between Sunshine and the Polaris.

W. Clayton Miller, 78, died in Los Angeles. He was associated with the late Charles Sweeney in the organization of the Federal Mining & Smelting Company and was general manager for several years.

Mineral Mountain Company announces plans to sink shaft from tunnel level.

Robert Weniger and Kenneth Best take lease on a portion of the St. Elmo mine, near Osburn.

Sunshine directors set first quarterly dividend at 60 cents per share, totaling $893,292.60.

Stewart Campbell, former Idaho state mine inspector, opens office in Spokane.

President James F. McCarthy of the Polaris Mining Company reported 3650 feet of development work during the past year. Ore sales amounted to $577,199.

Hecla Mining Company reported a total of 280,074 tons mined and treated during the past year. Net profits were $1,343,020.


The Federal Mining & Smelting Company officials report large body of ore on the 4050 level in the Morning mine.

Development work at the Sunshine Consolidated reported by Manager Frank Eichelberger to be in favorable geological structure. Drift is being extended westward.

Bunker Hill & Sullivan reports 386,576 tons of ore mined during 1937. Ore reserves given as 2,670,858 tons. The Bunker Hill smelter sales for 1937 reported as $21,580,446.87.

Shaft at the Metropolitan reaches the 500-foot level.

April

Silver Dollar Mining Company manager issues appeal to stockholders to help finance deep shaft operations.

Price for zinc lowered to 4 cents per pound. Lead quoted at 4.50 cents per pound.

King Solomon mine in the Fourth of July canyon district is the scene of important ore disclosure when cross-cut reached vein.


Average depth of snow at Lookout summit, elevation of 4700 feet, measured 101.3 inches April 1, Forest Ranger Erwin Puphal announced.

Rex-Delaware property in the Nine Mile district to be developed by the Callahan Mining Company.

Sunshine Mining Company stockholders reelect all members of the old board of directors. R. M. Hardy, president; Alex Miller, vice president; C. M. Hull, secretary, all residing at Yakima; Joshua Green, Seattle, and J. B. Cox, Spokane. R. D. Leisk continued as general manager.

Idaho Mother Lode at Murray sustained considerable damage by high water suspending operations at the property.

Flood waters caused heavy damage throughout the district. Mine operations were interfered with when rail lines were washed out. Flood followed 24 hours of continuous rainfall accompanied by a strong chinook wind. Traffic conditions were greatly hampered throughout the district.

Airplanes brought in mail and passengers when rail and bus lines were washed out.
Price of zinc advanced a quarter of a cent per pound.

Stock of the Silver Summit Mining Company listed on the Spokane Standard stock exchange.

Nine Mile Mining Company reports plans for installation of electric power equipment.

Senior class of the Idaho School of Mines, Moscow, visited mines, mills and smelters of this district during the week.

Dr. Francis B. Laney, 63, head of the department of geology, University of Idaho, since 1920, died from a heart attack at his home in Moscow.

May

Net profits of the Coeur d'Alene mines for 1937 announced as $13,008,556, according to reports filed with the county assessor. Eleven producing mines and four leasers reported.

Officials of the Gibbonsville Mining & Exploration Company report construction of 200-ton milling plant at property near Salmon.

Liberal King shaft at 450-foot level.

John D. Bradley, San Francisco, is elected a member of the board of directors of the Bunker Hill & Sullivan.

Polaris Mining Company stockholders reelected James F. McCarthy, president; L. E. Hanley, vice president; Leo J. Hoban, treasurer; Bert Woolridge, secretary. These officers with A. W. Witherspoon comprising the directorate. Shaft is reported down to the 1900-foot level.

Mineral Dome, Inc., filed articles of incorporation with the county auditor.

Diamond drill operations reported at Sunshine Consolidated property.

Exemption of annual assessment work on unpatented mining claims under debate in congress.

Custer Gulch Mining Company reports plans for development work on the Lynch property in the Pine creek district.

Lead price reduced to 4.25 cents per pound.

Liberal King reported at the 500-foot level.

H. L. Altshuler resigns as resident manager of the Bunker Hill & Sullivan and will engage in mining engineering work with offices in New York.

Stanly A. Easton, president of the Bunker Hill & Sullivan, elected chairman of the board of governors of the western division of the American Mining Congress.

Idaho's great deposits of phosphate attract nation-wide attention and win congressional study.

June

Sullivan Mining Company reports accumulation of 7700 tons of zinc at the electrolytic zinc plant at Kellogg with sales insufficient to dispose of current production. Plant operating at one-third of capacity.

Palisade Mining Company installs power machinery.

Sunshine directors declare quarterly dividend of 60 cents per share.

U. S. Senate passes bill to exempt owners of unpatented mining claims from annual labor provision.

For the year 1937 the mines of Idaho produced metals valued at $37,840,184, according to the U. S. Bureau of Mines.

Lead quoted at 4 cents per pound and zinc at the same price. Copper, 9 cents per pound.

Announcement made that the Morning mine at Mullan would close down on June 25 due to low metal prices.

U. S. Bureau of Mines rescue car, located the fire 700 feet west of the main shaft on the 1500-foot level.
Diamond drill operations under way at the Metropolitan property on Big creek.

Moratorium on assessment work on unpatented mining claims passed by congress. Intention to hold must be filed by July 1.

Silver Dollar shaft down 200 feet.

The shaft at the Coeur d'Alene Mines Corporation property reached the 1000-foot level on June 28. A crosscut to the vein will be made from the level.

Lead market advanced to 4.75 cents per pound.

July

The lead market advanced to 4.90 cents per pound with the price firm at that figure.

Ore opened on the 1900 level at the Polaris mine when the crosscut reached the vein at a distance of 1000 feet. Confirmation of the strike was made by the president, James F. McCarthy, who stated the ore disclosure was an important one.

New road completed to the Palisade property on the west fork of Pine creek.

Leasers at the St. Elmo are shipping ore for treatment at the Galena mill of the Callahan Zinc-Lead Company.

Diamond drill operations are under way at the Metropolitan property on Big creek. The work is on the 400 shaft level.

Development operations are under way at the property of the Butte & Coeur d'Alene Silver-Lead in the Mullan district.

Corporations and individuals in Shoshone county spent $184,725 for assessment on mining claims during the past year.

Charles H. Wilson, 89, pioneer placer miner of the Murray district, with holdings on Trail gulch, died at Kellogg. Mr. Wilson came to the Coeur d'Alenes in the gold rush of 1884.

Development operations have started at the property of the Callahan Consolidated Mines in the Nine Mile district. The Red Monarch tunnel will be advanced to the Rex vein.

Kellogg miners hold 34th annual miners' picnic.

Manager R. D. Leisk of the Sunshine company reports net smelter returns for the second quarter were $1,800,433. Dry tons milled were 70,745 with an average head assay of 43.2 ounces of silver to the ton.

August

Shaft operations started at the property of the Silver Summit at a point 5300 feet in from the portal of the main tunnel.

The shaft at the property of the M. & M. Company has reached the depth of 100 feet below the main tunnel level.

The Hecla Mining Company declared a dividend of $50,000, equal to 5c a share.

Shoshone County Pioneer Association will hold its annual meeting at Kellogg August 13.

The stockholders of the Silver Dollar Mining Company have voted to make the class "A" shares assessable and thereby provide funds to carry forward operations in the shaft.

The Pine creek road, badly damaged by spring floods, is under repair by 40 WPA workers.

Members of the Northwest Mining Association of Spokane attend the 34th annual miners' picnic at Kellogg.

Bunker Hill & Sullivan gives up lease and option on the Mammoth mine in the Dixie district of central Idaho after two years of exploration.

Crystal Springs Mining Company acquires the Stroebel property near Lane and will start development operations.

September

Bunker Hill & Sullivan for first seven months of current year reports net profits of $388,281. No dividend on the common stock has been declared this year.

H. A. Guess of New York, vice president of the American Smelting and Refining Company and managing director of the mines of the Federal M.
& S. Company, visited the district this week and inspected the company’s holdings with Manager H. G. Washburn.

Labor troubles at the East Helena smelter caused shutdown of a number of mines shipping ore to that plant.

Sunshine opens ore on the 3100-foot level. Directors order payment of 60 cents per share dividend for the third quarter.

Diamond drill operations at the property of the Atlas Mining Company near Mullan, have disclosed a good showing of lead-silver ore, according to W. Earl Greenough, president.

The Morning mine, closed since June 25, is to resume operations on September 21. The order restores jobs to 600 employees.

Col. D. C. Jackling, president of the American Institute of Mining and Metallurgical Engineers, visited the district this week as a guest of Columbia chapter. A banquet attended by 100 mining men of the district, given in his honor at Kellogg.

Midland Mining Company plans operations at its Terrible Edith mine near Murray. H. C. Stapleton is the manager.

Financed by local mining men, the Gibbonsville Mining & Exploration Company starts shipments of concentrates to the Bunker Hill smelter. A 100-ton mill is now in operation.

Lead quoted at 5.10c per pound and zinc at 4.95c.

Crosscut from the 2000-foot level at the Coeur d’Alenes Mines Corporation has been advanced 350 feet. The vein is estimated to be 500 feet from the shaft station.

C. O. Fernquist, mineral curator at the Spokane museum, addressed the Geological Society of the Coeur d’Alenes on the subject of “Fossil Plants Found in Shale Beds Near Spokane.”

October

The crosscut on the 2000-foot shaft level of the Coeur d’Alene Mines property opened a mineral-bearing vein carrying good silver values. Drifts will be extended both to the east and west on this vein.

The Anchor property, in the Murray district, ships a carload of high grade lead-silver ore. The ore was taken from development operations and hand sorted at the mine.

The Polaris shaft is being extended to the 2300 level. Ore is being extracted from the 1900 level as well as several levels above.

The shaft at the Mineral Mountain is reported to be down 165 feet.

Mines of the Coeur d’Alene district, in compliance with the new federal wage-hour law, to operate on a 40-hour week basis with the exception of the Sunshine where 44 hours will be worked, using seven hours and 20 minutes to the shift.

The mill at the Sunshine mine is treating an average of 918 tons of ore daily, Manager R. D. Leisk reported to the stockholders. Net profits for the third quarter were reported as $1,033,433.

The Red Monarch crosscut at the Callahan Consolidated is nearing the Rex vein at a point 200 feet below former Rex operations.

Settlement of the strike at the East Helena smelter has permitted shipment of concentrates from several mines in this district.

Eighteen to 20 inches of high grade silver ore is reported at the Lucky Friday, near Mullan.

Polaris Mining Company directors declare a dividend of 11 cents a share, totaling $220,000.

November

Ore from the drift on the 2000 level of the Coeur d’Alene Mines corporation is being treated at the Hercules mill. The ore in the east drift is reported to be four feet wide and about the same in the west drift.

Merger Mines management announces plans are under way for a diamond drill exploration at its property in the silver belt.

More than 3000 men are employed in the Coeur d’Alene district, according to a recent survey.

Development work is under way at the King Tut, in the Fourth of July canyon district. Recent ore disclosures lead to the belief that the
long lost source of ore found on the surface of the King Tut has been located.

Silver Summit management announces plans to crosscut to the vein from the 600 level of the shaft. The vein is estimated to be about 480 feet south of the shaft station.

A vein at the Mineral Point property of the Coeur d'Alene Mines Corporation is reported to be nine feet wide in the west drift.

The Clayton mine, in which many Coeur d'Alene district investors are interested, shipped four cars of concentrates during September and October which gave net returns of $16,994.28. The net value per ton averaging approximately $100.

Development operations have been resumed on the property of the North Bunker Hill Mining Company, located in the Wardner district.

Directors of the Hecla Mining Company declared a dividend of 15 cents per share, totaling $150,000, for the fourth quarterly disbursement. Total dividends paid for the year were $300,000.

Trade agreements between Canada and the United States have reduced the tariff on zinc ores from 1½ cents to 1 1/5 cents and has seriously injured the zinc industry in the Coeur d'Alenes. After announcement of the tariff cut the price of zinc dropped from $5.05 to $4.50 per hundred.

December

The Sunshine Mining Company directors set the rate for the fourth quarterly dividend at 40 cents per share. For the year the mine paid its stockholders $2.20 per share in dividends for a total of $3,275,406.

Sydney L. Shonts, prominent mining engineer of this district, was killed near San Francisco in an airplane accident. He had resided in this district for 30 years.

Idaho mines and miners spent $32,428,081 during 1937 for labor and supplies, according to James W. Gwinn, secretary of the Idaho Mining Association.

Walter G. Palmer, president of the Silver Syndicate, Inc., reports signing an agreement with the Sunshine Mining Company which provides for the development at depth of the Silver Syndicate holdings, which adjoin the Sunshine on the north.

Resolutions asking that the price of silver not be lowered have been forwarded to Washington by various civic organizations of the Coeur d'Alene district. The price to be paid for silver in 1939 will be announced by the President prior to January 1.

The shaft at the Coeur d'Alene Mines Corporation property now down 1000 feet, will be lowered an additional 400 feet, the management reports. Drifting on the vein on the 2000 level will be continued.

The Hecla Mining Company reports its newly modernized mill now ready to receive ore. The enlarged plant has a capacity of 900 tons daily and operates on the flotation principle exclusively.

The crosscut from the 600 level of the Silver Summit reached the vein at 490 feet and has disclosed a good showing of silver ore in a vein more than 17 feet in width. Drifts will be started to explore the extent of the ore body at once.

Harry C. McAlister, former prominent mining broker of this district, died in Spokane.

The U. S. geological survey has issued a descriptive bulletin dealing with the gold deposits in the Murray district. The study was made by Phil Shenon, well known geologist, with the geological survey.

AETNA MINING & MILLING CO., LTD.

ALICE MINING CO.
Office: Wallace. Officers: James F. McCarthy, Pres.; Leo J. Hoban, Sec.,
both of Wallace. Inc.: July 30, 1902. **Capital**: 1,000,000 shares; par value $1; all shares issued. **Property**: 20 patented, 2 unpatented claims, Hunter dist.; 3½ 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. **Remarks**: Idle.

**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.**


**AMBERGRIS CONSOLIDATED MINING CO.**

Office: Wallace. Officers: Jerome J. Day, Pres.; S. F. Heitfeld, Sec., both of Wallace. Inc.: Dec. 14, 1928. **Capital**: 3,500,000 shares; par value $1; 3,476,300 shares issued. **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. **Plant**: Mine plant and equipment leased from Hercules Mining Co. **Ore**: Lead-silver. **Remarks**: Idle.

**AMERICAN MINING CO., LTD.**


**AMERICAN SILVER MINING COMPANY**

Office: 223 Symons Blk., Spokane, Wash. Officers: E. W. Conrad, Pres.-Mgr.; J. M. Hennecke, Sec., both of Spokane, Wash. 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 33⅓ 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, 1936, increased capital stock to $225,000 divided into 2,250,000 shares; par value 10c; Amendment filed Jan. 7, 1938, making capital stock nonassessable. Aug. 31, 1938, increased capital stock to 2,750,000 shares; shares issued, 1,644,354. **Property**: Eclipse group; 18 unpatented claims, Evolution dist.; Osburn. **Development**: Principally by 1 tunnel which is 2590 ft. long. **Plant**: 100 h. p. electric compressor. **Ore**: Lead-silver. **Men Employed**: Average, 2. **Remarks**: "Retimbered long tunnel."

**AMERICAN SMELTING AND REFINING CO.**

Office: 120 Broadway, New York. Officers: Simon Guggenheim, Pres.; G. A. Brockington, Sec., both of New York; H. G. Washburn, Mgr., 516 Bank St., Wallace. Inc.: New Jersey, filed in Idaho May 15, 1934. **Capital**: 500,000 shares 7% preferred; par value $100; 200,000 shares 6% second preferred; par value $100; 4,000,000 shares common; no par value; all 7% preferred issued; 2,191,669 shares common issued. **Property**: Property of Jack Waite Mining Co., 31 patented claims and 126 unpatented claims, Eagle dist.; Duthie, held under operating agreement.

ANACONDA COPPER MINING CO.

ATLANTIC MINING CO.

ATLAS MINING CO.
Office: Mullan. Officers: W. Earl Greenough, Pres.; Roger W. Greenough, Sec., both of Mullan. Inc.: March 4, 1924. Capital: 2,000,000 shares; par value $1; all shares issued. Property: Atlas group; 19 patented, 19 unpatented claims, Hunter dist.; Mullan. Development: Tunnels, drifts, crosscuts, 23,115 ft.; raises and winzes 934 ft. Plant: Electrically driven compressor and complete mining equipment. Ore: Lead-silver. Remarks: "The first three carloads of ore of the usual Coeur d'Alene silver-lead character were shipped from this property in 1931 being ore recovered in the course of development. No stoping operations have heretofore been carried on but with the natural underground ventilation gained in August this year it is planned to begin stoping operations and production in an initial way when metal prices justify."

ATLAS X CO.

BELL MINING CO.

BELL OF THE WEST MINING CO.

BENTON MINING CO., LTD.
Gnaedinger, Sec.-Mgr., Wallace. Inc.: Feb. 14, 1903. Capital: 1,500,000 shares; par value $1; 1,250,000 shares issued. Property: Benton group; 5 patented claims, Lelande dist.; Burke. Development: By 6 tunnels, the principal one of which is 1000 ft. long, and 1 vertical shaft 200 ft. deep. Ore: Lead-silver.

**BETTY LOU MINING COMPANY**

**BIG CREEK APEX MINING CO.**
Office: 209 Civic Center Bldg., Wallace. Officers: T. R. Jones, Pres.; Wardner; Joseph T. Hall, Sec., Wallace. Inc.: Sept. 8, 1937. Capital: 2,000,000 shares; par value 5c: all shares issued. Property: 6 unpatented claims, Yreka and Evolution districts, Kellogg. Development: By 1 tunnel 2000 ft. long. Ore: Silver-lead. Remarks: “The property is being developed by drifts, crosscuts and diamond drilling from the 1700 level of the Sunshine mine. The work is being done under agreement by the Sunshine Consolidated, Inc. The work has been continuous since September 1, 1937.”

**BIG CREEK MINING CO., LTD.**

**BIG DIVIDE MINING CO., LTD.**

**BIG ELK MINING CO., LTD.**

**BISMARCK MINING CO.**

**BLACK BEAR MINING CO.**
BLACK HAWK MINING & DEVELOPING CO., LTD.

BLAINE & EMMETT MINING CO., LTD.

BLUE EAGLE MINING CO.

BLUE RIBBON MINING CO.

BLUE STAR MINING & MILLING CO., LTD.

BLUE WING MINING CO., LTD.

BOBBY ANDERSON GROUP MINING CO.
Office: Kellogg. Officers: T. R. Mason, Pres., Kellogg; Ben H. Miles, Sec., Spokane, Wash. Inc.: June 16, 1906. 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 $20,000.00, 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. Men Employed: Average, 1. Remarks: "No active development work was done during the year. A watchman has been steadily employed and the buildings, machinery and equipment have been put in good shape. Two men were employed part of the year.
mucking out and retimbering the portal of the No. 2 tunnel, slashing and burning brush, building trail from No. 2 to No. 3 tunnel, painting buildings, putting corrugated roofing on blacksmith shop and repairing damage caused by the flood."

**BULLFROG SILVER LEAD MINING CO.**

**Office:** Box 241, Spokane, Wash. **Officers:** L. J. Oatman, Pres., Box 1115, Burke; Geo. F. Gaub, Sec., Spokane, Wash. **Inc.:** May 17, 1930. **Capital:** 500,000 shares; par value 20c; 262,610 shares issued. **Property:** 5 unpatented claims, Lelande dist.; Burke. **Development:** By 3 tunnels: No. 1, 97 ft. long; No. 2, 485 ft. long; No. 3, 80 ft. long. **Remarks:** "Worked 34 days picking up timbers at portal to tunnels, opening up cuts on Bull Frog 3 and 4."

**BULLION MINING CO., LTD.**

**Office:** Wallace. **Officers:** William Squance, Pres.; James H. Taylor, Sec.-Mgr., both of Wallace. **Inc.:** Dec. 5, 1902. **Capital:** 1,500,000 shares; par value $1; 516,602 shares issued. **Property:** Bullion group; 16 patented claims, St. Joe dist.; Mullan. **Development:** 3 tunnels: No. 1, 500 ft. long; No. 2, 2000 ft. long; No. 3, 4800 ft. long; 1 vertical shaft 100 ft. deep. **Plant:** Pelton water wheel driving I-R compressor. **Ore:** Copper-gold. **Remarks:** Idle.

**BUNKER CHANCE MINING CO.**

**Office:** Wardner. **Officers:** Nick Petrinovich, Pres.-Mgr., Wardner; S. A. Hull, Sec., Portland, Ore. **Inc.:** May 8, 1922. **Capital:** 1,500,000 common shares; par value 25c; all shares issued. **Property:** Bunker Chance group; 1 patented, 11 unpatented claims, Yreka dist.; Wardner. **Development:** By 4 tunnels, the principal one of which is 2800 ft. long. **Plant:** Electrically driven 7x9 I-R compressor and complete mining equipment. **Ore:** Lead-silver. **Remarks:** Extensive development program planned for the year.

**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; 6,847 shares preferred, and all common shares issued. **Property:** Bunker Hill; 405 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 2785 ft. long, giving a vertical depth of 2000 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 13 intermediate levels. Total development, approximately 67 miles. **Plant:** MINE: 2 electrically driven hoists; 2 electrically driven I-R compressors; 1 steam-driven Nordberg compressor. Trolley locomotive haulage in Kellogg tunnel; storage-battery locomotive haulage in intermediate levels. Complete and modern machine shop, blacksmith shop, and change house. MILL: 4 complete and modern concentrators, including flotation: Sweeny mill, capacity 300 tons, accommodates custom ores, particularly those from Pine Creek; West mill, capacity 1200 tons, treats output from the Bunker Hill mine; South mill, capacity 600 tons, treats output from Star Mine of Sullivan Mining Co.; Crescent mill on Big Creek, capacity 100 tons, treats output from Crescent and Alhambra mines. **Ore:** Lead-silver. **Men Employed:** In mines, mills and smelter, 815.
SHOSHONE COUNTY

BUNKER HILL SMELTER


BURKE MINING CO., LTD.


BUTTE & COEUR D'ALENE DEVELOPMENT CO.


BUTTE & COEUR D'ALENE SILVER LEAD MINES, INC.


CALABRIA MINING CO.


CALEDONIA MINING CO.


CALLAHAN ZINC-LEAD CO.

Office: Wallace. Officers: Frank Eichelberger, Mgr., 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; 1,695,538 shares issued. Men Employed: Average, 18. Remarks: 400 ft. of development work during the year.

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:** W. A. Tuson, Sec., 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, 300 ft. long. **Ore:** Lead-zinc-silver. **Remarks:** Repaired timbering in tunnels, trail and cabin.

CENTRAL MINING CO.

**Office:** Burke. **Officers:** F. C. Richardson, Pres.; F. H. Richardson, Sec., both of Burke. **Inc.:** Oct. 28, 1911. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** Central group; 5 patented claims, lying between Hercules and Oom Paul; Lelande dist.; Burke. **Development:** Approximate total development, 2340 ft. **Ore:** Lead-silver. **Remarks:** Idle.

CHESTER MINING CO., LTD.

**Office:** Wallace. **Officers:** James F. McCarthy, Pres.; Bert P. Woolridge, Sec., both of Wallace. **Inc.:** July 31, 1900. **Capital:** 1,000,000 shares; par value $1; 914,145 shares issued. **Property:** Chester group; 6 patented claims, Evolution dist.; Osburn. **Development:** By 1 tunnel 1500 ft. long. **Remarks:** Polaris Mining Company is developing the property through the Silver Summit tunnel.

CINCINNATI MINING CO.

**Office:** Wallace. **Officers:** R. E. Seysler, Pres.; W. H. Herrick, Sec.-Mgr., both of Wallace. **Inc.:** Jan. 18, 1924. **Capital:** 1,000,000 shares; par value 25c; 750,000 shares issued. **Property:** Cincinnati group; 5 unpatented claims, Hunter dist.; Mullan. **Development:** 1300 ft. of tunnels. **Ore:** Lead-silver. **Remarks:** Idle.

CLEAR GRIT MINING CO., LTD.

**Office:** Wallace. **Officers:** F. C. Rood, Pres., Longview, Wash.; E. G. Gnaedinger, Sec.-Mgr., Wallace. **Inc.:** May 9, 1906. **Capital:** 1,000,000 shares; par value $1; 750,000 shares issued. **Property:** 6 unpatented claims, Beaver dist.; Prichard. **Development:** By 1 tunnel approximately 2000 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

THE CLEARWATER GOLD & COPPER MINING CO., LTD.

**Office:** Wallace. **Officers:** F. B. Dawley, Pres., Seattle, Wash.; Alpha Hogan, Sec., Wallace. **Inc.:** July 26, 1907. **Capital:** 500,000 shares; par value $5; 498,900 shares issued. **Property:** 9 patented claims and 1 unpatented claim; unorganized dist., in extreme south part of Shoshone County on the divide between St. Joe and Clearwater rivers. **Plant:** Small hoist; compressor. **Remarks:** Idle.

COEUR D'ALENE CHAMPION MINING CO.

**Officers:** J. Reeves, Pres., Coeur d'Alene; James Keith, Sec., Spokane, Wash. **Inc.:** Jan. 22, 1907, under the laws of Washington. **Capital:** 1,500,000 shares; par value $1; 385,144 shares issued. **Property:** 15 unpatented claims, Hunter and Lelande dists.; Burke. **Development:** Approximate total development, 4500 ft. **Ore:** Galena. **Men Employed:** Average, 2. **Remarks:** 20 ft. of development work during the year.
COEUR D'ALENE CRESCENT MINING CO.

COEUR D'ALENE EXTENSION MINES, INC.

COEUR D'ALENE LEAD CO.
Office: Mullan. Officers: James A. Wayne, Pres., Wallace: W. Earl Greenough, Sec.-Mgr., Mullan. Inc.: April 28, 1927. Capital: 4,000,000 shares; par value $1; 1,615,616 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 Blk., Wallace. Officers: M. W. Neary, Pres., 862 33rd Ave., San Francisco, Calif.; A. G. Kennedy, Sec., Wallace. Inc.: Jan. 18, 1926. Capital: 10,000 shares; par value $100; 289 shares issued. Remarks: "For development done and equipment—the corporation earned 17,928 shares of Great Eastern Mining Co., Ltd. These shares were prorated to all Coeur d'Alene Metals Co. stockholders—rate of 61 shares to 1 subscribed."

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 KING MINING & SMELTING CO.

CRYSTAL LEAD MINES CO.

CUBA MINING CO.

CUSTER GULCH MINES CO.
Office: Spokane, Wash. Officers: H. O. Ferring, Pres.; N. P. Ferring, Sec.; both of Spokane, Wash. Inc.: April 1, 1936, as Pine Creek Queen, Inc.; name changed Feb. 22, 1937; name changed from Custer Gulch Mines, Inc., Jan. 19, 1938. Capital: 3,000,000 shares; par value 25c; Feb. 22, 1937, reduced capital stock from $750,000 to $500,000, divided into 300,000 shares pref. non-assessable and 200,000 shares common non-assessable; par value $1; shares issued, 31,728. Property: Lynch group; 18 unpatented claims, Yreka dist.; Kellogg, held under lease and bond. Ore: Lead, silver and zinc. Development: Approximate total development, 4000 ft. Men Employed: Average, 2. Remarks: 50 ft. of development work during the year.

DAY DEVELOPMENT CO.
SHOSHONE COUNTY

(resigned), both of Wallace. Incl.: Filed in Idaho as Hercules Exploration Co. Nov. 27, 1928; name changed Nov. 25, 1930. Capital: 10,000 shares; par value $100; 518 shares issued.

DAYROCK MINING CO.
Office: Wallace. Officers: F. M. Rothrock, Pres., Spokane, Wash.; S. F. Heitfeld, Sec.; Henry L. Day, Mgr., both of Wallace. Incl.: 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; 39 patented, 22 unpatented claims, Placer Center dist.; Wallace. Development: Dayrock group; principally by 1 tunnel 1612 ft. long, in which is an inclined shaft 460 ft. long, with 4 intermediate levels, which opens the vein to a vertical depth of 400 ft. Panhandle group: Principally by 1 tunnel 1562 ft. long, and an inclined shaft 360 ft. long, with 3 intermediate levels, which opens the vein to a vertical depth of 253 ft. Total development in both groups, more than 38,717 ft. Plant: Electrically driven hoist and 2 electrically driven compressors; complete mining equipment; storage-battery locomotive and haulage. Ore: Lead-silver.

DELAWARE MINES CORPORATION

DICKENS-EAST MINING CO.
Office: Spokane, Wash. Officers: Josephine Kratzer, Pres.; C. Fred Kratzer, Sec., both of Spokane, Wash. Incl.: 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. Remarks: 50 ft. of development work during the year.

DOBSON PASS LEAD AND SILVER MINES CORP.

DOUGLAS MINING CO., LTD.

DULUTH MINING CO.

EAST ALAMEDA MINING-CO., LTD.
MINING INDUSTRY OF IDAHO

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: Assessment work only.

EASTERN STAR MINING CO., LTD.

EAST HECLA MINING CO., LTD.

ECHO MINING CO., LTD.

ELGIN & OGDEN MINING CO.

FRISCO GROUP
Property: 15 patented claims, Lelande dist.; Gem. Development: Principally by 4 tunnels; No. 1, 1,000 ft. long; No. 2, 1,500 ft. long; No. 3, 550 ft. long; No. 4, 1,000 ft. long; and a vertical 4-compartment shaft 1,650 ft. deep; total development, approximately 31,680 ft. Ore: Lead-zinc-silver. Remarks: Some work by lessees.
SHOSHONE COUNTY

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.

CON. BIEDERMAN GROUP


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: 41 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 shaft, 3200 ft. deep, with 19 intermediate levels below No. 6 tunnel, which opens the vein to a depth of approximately 5220 ft. Total development, approximately 37 3/4 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. 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, 581. Remarks: 1039 ft. of development work during the year. New additions: Hoisting plant for offset shaft on 3850 level; 400 h. p. double drum—rope speed 1200' per min.—net load 2 1/2 tons.

PAGE GROUP

Property: 86 patented claims, Yreka dist.; Kellogg. Development: By 10 tunnels, the principal one of which is the Curlew, 650 ft. long; and an inclined shaft 1882 ft. long, giving a vertical depth of 1446 ft., with 5 intermediate levels; total development, approximately 30,088 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: 300-ton flotation concentrator. Ore:
Lead-zinc-silver. **Men Employed**: Average, 126. **Remarks**: Development during the year, drifting 1047 ft. and crosscutting 779 ft.

**FLYNN GROUP MINING CO.**
*Office*: Wallace. **Officers**: J. J. Cronin, Pres., Wallace; J. F. Whelan, Sec., Vancouver, B. C. **Inc.**: Aug. 21, 1905. **Capital**: 2,500,000 shares; par value 25c; 1,763,585 shares issued. **Property**: Flynn group; 21 patented claims, Lelande dist.; Black Bear. **Development**: Total development, approximately 6600 ft. **Remarks**: Idle.

**FORMOSA LEAD MINING CO., LTD.**

**FOUR SQUARE GOLD SYNDICATE**

**GALENA MINING CO.**
*Office*: Wallace. **Officers**: A. H. Featherstone, Pres.; Herman Marquardt, Sec., both of Wallace. **Inc.**: Not filed in Idaho. **Capital**: 3,000,000 shares; par value $1; 2,000,000 shares issued. **Property**: Idaho Galena group; 5 patented, 7 unpatented claims, Placer Center dist.; Wallace. **Remarks**: Idle.

**GEM STATE MINING CO.**
*Office*: 817 W. Knox, Spokane, Wash. **Officers**: W. E. Horstkotte, Pres.; A. H. Burk, Sec., both of Spokane, Wash. **Inc.**: Aug. 25, 1924. **Capital**: 2,200,000 shares, no par value; Sept. 3, 1931, changed to 2,000,000 shares, par value 5c; 642,000 shares issued. **Property**: 8 patented, 12 unpatented claims, Hunter dist.; Wallace. **Development**: By 6 tunnels, the longest of which is No. 4, 2118 ft. in length. **Ore**: Lead-zinc-silver. **Men Employed**: Average, 2. **Remarks**: 140 ft. of development during the year.

**GENERAL MINES CORPORATION**
*Office*: Amendment of Nov. 29, 1938 gives business address, Kellogg. **Officers**: H. G. Loop, Pres.-Mgr.; E. I. Fisher, Sec., both of Spokane, Wash. **Inc.**: Nov. 23, 1925. **Capital**: 2,000,000 shares; par value 5c; Nov. 29, 1938, increased capital stock from $100,000 to $150,000, divided into 3,000,000 shares, par value 5c; 1,319,712 shares issued. **Property**: Big Eight group; 21 unpatented claims and 106 acres patented land, Yreka dist.; Kellogg. **Development**: Principally by 1 tunnel 4138 ft. long. **Plant**: Electrically driven G-D compressor; complete mining equipment. **Ore**: Gold-silver-lead. **Men Employed**: Average, 4. **Remarks**: 190 ft. of development work during the year. Also one-half mile of new road and bridge built.

**GERTIE MINING CO.**
*Office*: Wallace. **Officers**: Frank M. Rothrock, Pres.; F. W. Rothrock, Sec., both of Spokane, Wash. **Inc.**: July 23, 1914. **Capital**: 2,500,000 shares; par value 10c; all shares issued. **Property**: Gertie group; 3 patented claims, Lelande dist.; Burke. **Remarks**: Idle.
GOLCONDA LEAD MINES

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. 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, 47. Remarks: Operations carried on by “Hunter Lease.”

GOODENOUGH MINING CO.
Office: Box 302, Wallace. Officers: J. Fred Markwell, Sec., Wallace. Inc.: Apr. 6, 1922. Capital: 2,500,000 shares; par value 1c; all shares issued. Property: Goodenough group; 13 patented, 6 unpatented claims, Lelande and Hunter dists.; Gem. Men Employed: Average, 3. Remarks: “Property is being developed through a crosscut approximately 2800 ft. in length. Approximately a mile of new road was constructed from a point in Bell Gulch behind the Hecla Mill to the portal of this tunnel. A new bunkhouse and timber shed have been built this past year. Work clearing out and retimbering this tunnel is now underway.”

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: James F. McCarthy, 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, 470. Remarks: 2785.3 ft. of development work during the year.

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 loco-

ANDREWS GROUP

3 patented claims.

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, Hercules, 12,086 ft. long. IDAHO & EASTERN MINING & MILLING CO., LTD.


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.

7 patented claims.

ROANOKE GROUP

HIDDEN TREASURE MINING CO.


HORNSILVER MINING & MILLING CO.


HYPOTHEEK MINING & MILLING CO.


IDAHO COPPER MINING CO., LTD.

IDAHO & EASTERN MINING & MILLING CO., LTD.
Inc.: Aug. 20, 1903. Capital: 1,000,000 shares; par value $1; 753,150 shares issued. Remarks: See Hercules Mining Company.

IDAHO STAR MINING CO.

IDORA MINING CO., LTD.

IMPERIAL MINING CO.

INDEPENDENCE LEAD MINES CO.
Office: Wallace. Officers: H. B. Kingsbury, Pres.-Mgr.; Herman Marquardt, Sec., both of Wallace. Inc.: Filed in Idaho, Nov. 12, 1929. Capital: 4,000,000 shares; par value $1; 3,240,000 shares issued. Property: Independence group, 11 patented claims; American Commander group; 2 patented claims; West Hunter group, 13 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, 100 ft. long; No. 2, 300 ft. long; No. 3, 1200 ft. long; No. 4, 6000 ft. long, a vertical raise 313 ft. long connecting No. 3 and No. 4 tunnels, and a 350 ft. vertical shaft in No. 4 tunnel. Plant: One electrically driven compressor, complete mining equipment. Ore: Lead-silver. Men Employed: Average, 6. Remarks: 975 ft. of development work during the year, consisting of drifts and crosscuts on the 500 foot level during 1937. A diamond drill program now underway to locate ore below the 500 foot level.

INDEPENDENCE MINING CO., LTD.

INLAND EMPIRE MINING & MILLING CO.

INSPIRATION LEAD CO., INC.
Officers: W. J. Stratton, Pres.; W. W. Smith, Sec.-Mgr., both of Spokane, Wash. Inc.: Aug. 14, 1929. Capital: 10,000,000 shares; par value 10c; 3,259,623 shares issued. Property: Moe and Troy groups; 4 patented,
30 unpatented claims; Moe group held under lease and bond; Hunter dist.; Mullan. **Development:** By 3 tunnels; No. 1, 500 ft. long; No. 2, 1100 ft. long; No. 3, 2400 ft. long. **Plant:** 14x12 I-R compressor and hoist, both electrically driven; complete mining equipment. **Ore:** Lead-silver.

**INTERNATIONAL MINES, LTD.**
**Office:** Wallace. **Officers:** A. H. Featherstone, Sec., Wallace. **Inc.:** July 2, 1903. **Capital:** 1,500,000 shares; par value $1; all shares issued. **Property:** 14 patented claims, Lelande dist.; Burke. **Ore:** Lead-silver.

**IONE MINING CO.**
**Office:** Wallace. **Officers:** O. M. Nordquist, Pres.; L. L. Brainard, Sec., both of Wallace. **Inc.:** Dec. 19, 1922. **Capital:** 1,500,000 shares; par value 10c; 300,000 shares issued. **Property:** lone group; 4 unpatented claims, Summit dist.; Murray. **Ore:** Lead-silver.

**IVANHOE MINING CO., LTD.**
**Office:** Mullan. **Officers:** W. P. Bean, Sec., Mullan. **Inc.:** Oct. 18, 1906. **Capital:** 1,500,000 shares; par value $1; 1,145,212 shares issued. **Property:** 2 patented claims, Hunter dist.; Mullan. **Ore:** Lead-silver.

**JACK WAITE MINING CO.**
**Office:** P. O. Box 1832, Seattle, Wash. **Officers:** J. F. Duthie, Pres.; G. W. Klinefelter, Jr., Sec., both of Seattle, Wash. **Inc.:** Jan. 30, 1928, as Jack Waite Consolidated Mining Co., reorganized, name changed, and filed in Idaho, Sept. 4, 1930. **Capital:** 3,500,000 shares; par value $1; 2,754,431 shares issued. **Remarks:** "All information regarding development and operation of property will be furnished by American Smelting & Refining Company."

**JIM BLAINE SILVER SYNDICATE, LTD.**
**Office:** 323 Lindelle Blk., Spokane, Wash. **Officers:** Dan Krehbiel, Pres., Lind, Wash.; R. L. Brainard, Sec., Wardner. **Inc.:** April 12, 1920. **Capital:** 2,000,000 shares; par value 5c; 1,399,000 shares issued. **Property:** Jim Blaine group; 25 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 3 tunnels: No. 1, 1500 ft. long; No. 2, 1000 ft. long; No. 3, 1320 ft. long. **Ore:** Lead-zinc-silver.

**JUNO MINES CORP.**
**Office:** 409 Empire State Bldg., Spokane, Wash. **Officers:** C. H. Halstead, Pres.; Geo. H. Walters, Sec., both of Spokane, Wash. **Inc.:** Mar. 18, 1934. **Capital:** 1,000,000 shares; par value 10c; 308,150 shares issued. **Property:** Juno group, 6 unpatented claims, Union dist.; Pritchard. **Ore:** Gold-silver-lead. **Development:** Length of principal tunnel, 300 ft. **Men Employed:** Average, 2. **Remarks:** 70 ft. of development work during the year.

**KENNAN MINING CO.**
**Office:** N. 1111 Hamilton St., Spokane, Wash. **Officers:** E. J. Roberts, Jr., Pres.; S. D. Roberts, Sec., both of Spokane, Wash. **Inc.:** Sept. 4, 1917. **Capital:** 250,000 shares; par value $1; none issued. **Property:** 12 unpatented claims, Beaver dist.; Murray. **Ore:** Lead-silver. **Remarks:** "Leased to Ben Johnson and J. D. Chapin of Wallace."

**KING OF PINE CREEK MINING CO.**
**Office:** Wallace. **Officers:** William J. Stratton, Mgr., Spokane, Wash. **Inc.:** Aug. 10, 1904. **Capital:** 1,500,000 shares; par value $1; 935,572 shares issued. **Property:** King of Pine Creek group; 6 patented, 3 unpatented claims, Pine Creek, Yreka dist.; Kellogg. **Development:** By 2 tunnels: No. 1, 400 ft.; No. 2, 400 ft. **Ore:** Lead-silver-zinc. **Remarks:** Idle.
LACCLEDE MINING CO., LTD.

LANSING SILVER-LEAD MINING CO.

LEAD BLOSSOM MINING & MILLING CO.

LEROY GOLD & COPPER CO., LTD.

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; 2,331,115 shares issued. Property: Silverado group; 34 unpatented, 2 patented claims, Evolution dist.; Osburn. Development: Principally by 1 tunnel, 7800 ft. long and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. Plant: MINE: 500 cu. ft. electrically driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. Ore: Zinc. Men Employed: Average, 16. Remarks: 626 ft. of development work during the year. Additions made: Compressor, hoist, automatic pumping equipment, 4 new ore cars, 3 sinker rock drills, 4000 ft. 12" vent pipe, 1600 ft. 3" air pipe, 1000 ft. 4" air pipe, 2 receivers, 1 timber shed 22'x30'.

LINCOLN MINING CO.
Office: Wallace. Officers: Theodore Wellman, Pres., Wallace; Toimi Lehtola, Sec., Kellogg. Inc.: July 9, 1923. Capital: 1,500,000 shares; par value 10c; May 7, 1928, increased to 2,000,000 shares common; par value 10c; 2875 shares preferred; par value $10; 1,191,541 shares common, 2875 shares preferred issued. Property: Silverado group; 34 unpatented, 2 patented claims, Evolution dist.; Osburn. Development: Principally by 1 tunnel, 7800 ft. long and an inclined shaft 570 ft. long, giving a vertical depth of 550 ft. with 4 intermediate levels. Plant: MINE: 500 cu. ft. electrically driven compressor; complete mining equipment. MILL: 50-ton concentrator, including flotation. Ore: Lead-silver. Remarks: "All of the company's properties are held by the Silver Dollar Mining Company under a 99-year lease."

LINFOR COPPER CO.
LOG CABIN MINING & MILLING CO., LTD.  

LOMBARDY MINING & MILLING CO.  

LON CHANEY MINING & MILLING CO.  

MAINE-STANDARD MINING CO., LTD.  

MAJESTIC MINING CO., LTD.  

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 2,103,728; shares of preferred issued, none. Property: Bear Top group; 9 patented claims, Summit dist.; Murray. Development: Approximate total development, 4,800 ft. Ore: Lead. Men Employed: Average, 10. Remarks: "A three-mile road has
been built from the highway to the portal of the No. 3 tunnel to accommodate heavy trucks. The old tunnels, raises and stopes have been cleaned out and the mine is now open and easily accessible."

Additions made: Dry house; compressor room; two compressors installed together with electrical equipment.

MILITARY MINING & MILLING CO., LTD.

MIDLAND MINING COMPANY

MINERAL FARM MINING CO., LTD.

MINERAL MOUNTAIN MINING & MILLING CO.

MINERAL POINT MINING CO.
Office: Wallace. Officers: H. E. Worstell, Pres.; Martin Nicholson, Sec., both of Wallace. Inc.: July 7, 1904. Capital: 1,200,000 shares; par value $1; 686,168 shares issued. Property: 1 patented, 7 unpatented claims, Evolution dist.; Osburn. Ore: Lead-silver. Remarks: "Property, consisting of eight claims, was under contract of sale to Cœur d'Alène Mines Corporation of Wallace, Idaho. This corporation completed payments in 1937 and the property has been deeded to it. Mineral Point Mining Company is now in process of liquidation. This is probably last report that will be made, as some time this year dissolution will have been completed."

MOHAWK MINING CO.
ft. long; No. 3, 50 ft. long. **Plant:** Small water-driven compressor; complete mining equipment. **Ore:** Lead-silver. **Remarks:** Idle.

**MONARCH METALS CO.**
*Office:* P. O. Box 357, Wallace. **Officers:** M. W. Neary, Pres., 862 33d Ave., San Francisco, Calif.; Allen G. Kennedy, Sec.-Mgr., Wallace. **Inc.**: Sept. 16, 1932. **Capital:** 1,000,000 shares; par value $1; 103,810 shares issued. **Property:** Cooney group, 7 patented claims, Lelande dist.; Burke. **Development:** 3370 ft. of drifting and crosscuts. **Ore:** Lead-silver. **Remarks:** Idle.

**MOONLIGHT MINING CO.**
*Office:* Wallace. **Officers:** John F. Murphy, Pres., Wallace. **Inc.:** April 27, 1903. **Capital:** 1,500,000 shares; par value 50c; 615,333 shares issued. **Property:** Mountain Queen group; 10 unpatented claims, Eagle dist.; Murray. **Development:** By 1 tunnel 360 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

**MOUNTAIN CON MINING CO., INC.**
*Office:* Wallace. **Officers:** W. H. Keating, Pres.-Mgr.; P. J. Conley, Sec., both of Wallace. **Inc.:** July 27, 1929. **Capital:** 1,500,000 shares; par value $1; 469,400 shares issued. **Property:** Mountain Queen group; 10 unpatented claims, Eagle dist.; Murray. **Development:** By 1 tunnel 360 ft. long. **Ore:** Lead-silver. **Remarks:** Idle.

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; 1,291,478 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 FORK DEVELOPMENT CO.
NORTH STAR MINING & DEVELOPMENT CO.

NORTHERN LIGHT MINING & MILLING CO.

OOM PAUL CONSOLIDATED MINING CO.

PAPUREL & GRAHAM MOUNTAIN MINING CO.

PARK COPPER & GOLD MINING CO., LTD.

PEARSON MINING CO.

PINE CREEK LEAD-ZINC MINING CO.
Office: 419 1st Ave., S., Seattle, Wash. Officers: Peter David, Pres.; H. G. Beales, Sec., both of Seattle, Wash. Inc.: Nov. 8, 1929. Capital: 1,000,000 shares; par value 10c; 561,021 shares issued. Property: Little Pittsburgh group; 4 patented, 3 unpatented claims, Pine Creek, Yreka dist.; Kellogg. Development: By 3 tunnels: No. 1, 220 ft. long; No. 2, 800 ft. long; No. 3, 1600 ft. long. Plant: MINE: Electrically driven 10-drill I-R compressor, complete mining equipment and camp. MILL: 250-ton fine-grinding flotation concentrator. Ore: Lead-zinc-silver. Men Employed: Average, 5. Remarks: “Started rehabilitation operations on the property in September 1937 with a small crew of men and continued until November 1937. During this period the tunnels were cleaned out and retimbered and roads were rebuilt.”

PIONEER GOLD MINING & DEVELOPMENT CO.
PIONEER MINING CO., LTD.

PLAINVIEW MINING CO., INC.

POLARIS MINING COMPANY

PONTIAC MINING CO.
Office: Murray. Officers: H. C. Stapleton, Vice-Pres., Murray; Ruth Hodges, Sec., Kellogg. Inc.: June 21, 1929. Capital: 1,500,000 shares; par value $1; 1,372,000 shares issued; increased Oct. 25, 1933, by creating 30,000 shares preferred; par value $5; 10,000 shares issued. Property: 28 unpatented claims, Summit and Eagle dist.; Murray. Development: By 6 tunnels, the principal one being 2100 ft. long. Plant: Electrically driven I-R compressor; complete mining equipment and camp. Ore: Lead-silver. Remarks: "The Pontiac Mining Company sold out its holdings to Midland Mining Company in 1937 and all mine work will be reported by the Midland Company. Expect to dissolve the Pontiac Company in 1938."

PURITAN MINING CO., LTD.

RAINBOW MINING & MILLING CO., LTD.
(For Capital Structure See Benewah & Kootenai counties.) 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.

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.

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 Oreana groups; 9 patented claims, Lelande dist.; Burke. Development: Total development, more than 34,569 ft., consisting principally of Sherman No. 5 tunnel, 5943 ft. long; Sherman No. 6 tunnel, 2000 ft. long; Oreana No. 2 tunnel, 7441 ft. long; and two 1070 ft. inclined raises connecting Sherman No. 6 tunnel and Oreana 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: 1932 ft. of development work during the year.

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: Idle.

SILVER BAR MINING COMPANY


SILVER BOWL, INC.


SILVER CLIFF GOLD & COPPER MINING CO., LTD.


SILVER CRESCENT, INC.

SILVER CIRCLE MINING CO.

SILVER DALE & BIG HILL MINING CO.

SILVER DOLLAR MINING CO.

SILVER LODE MINING & MILLING CO.

SILVER REEF MINES, INC.

SILVER STANDARD MINING CO.

SILVER STRIKE MINING COMPANY
SILVER SUMMIT MINING CO.
Office: Wallace. Officers: Harry P. Pearson, Pres.-Mgr.; Martin Nicholson, Sec., both of Wallace. Inc.: Mar. 7, 1927. Capital: 1,500,000 shares; par value $1; May 14, 1936, increased to 2,500,000 shares; 1,636,790 shares issued. Property: Coeur d'Alene-Jumbo group; 20 patented and 12 unpatented claims, Evolution dist.; Osburn. Development: Approximate total development, 11,000 ft. Ore: Silver and lead. Remarks: "Development operations were commenced in February 1938. A large station room 25 ft. wide by 75 ft long was cut and a three compartment raise of 113 feet was run to sheave wheel in preparation for sinking of shaft. Shaft was started in June and by June 30th was down 80 feet. Shaft dimensions are three compartments of 4'4"x5'6" in clear. It is intended to sink 1000 feet before crosscutting vein. Also a drift was started in June 45 feet above station to be driven 170 feet and then a raise to No. 5 tunnel of 642 ft. will be driven principally for ventilation purposes."

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, 8 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 comprressor. Ore: Copper-silver. Remarks: Idle.

SONORA MINING & MILLING CO.

SPokane TUNNEL MINING CO.
SQUARE DEAL MINING & MILLING CO., LTD.

STANLEY MINING CO.

SUCCESS MINING CO., LTD.

SULLIVAN MINING CO.

SUNRISE MINES CO.

SUNSHINE CONSOLIDATED, INC.
MINING INDUSTRY OF IDAHO

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, 2854.15 feet deep and an inclined shaft 2356 ft. in depth; approximate total development, 84,635.7 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, 651. Remarks: Development during the year: Sinking, 411.2 ft., drifting, 6121.6, crosscutting 4005.5 ft., and raises 4,454.4 ft.

SUNSHINE MINING CO., LTD.

SUNSHINE PREMIER MINING CO.
Office: 728 Sprague Ave., Spokane, Wash. Officers: James E. White, Pres.; G. C. Lamar, Sec., both of Spokane, Wash. Inc.: Not incorporated in Idaho. Capital: 3,500,000 shares; par value 10c; 1,103,892 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.

SUNSHINE SILVER QUEEN MINING CO.

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; 71 patented, 2 unpatented 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 81,825 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. Ore: Lead-zinc-silver. Remarks: Development work during the year: 54.0 ft. of tunneling; 426.0 ft. of crosscutting; 1586.9 ft. of drifting; 48.1 ft. of sinking shafts and 773.2 ft. of raising.
TEDDY MINING & MILLING CO., LTD.
Office: Kellogg. Officers: T. R. Mason, Pres.; J. B. Cox, Sec., both of Kellogg. Inc.: Dec. 1, 1904. Capital: 1,000,000 shares; par value $1; increased on April 26, 1950, to 1,500,000 shares; 784,095 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: Idle.

THOMAS MINES, INC.

TRADE DOLLAR MINING CO., LTD.

TREASURE VAULT MINING CO., LTD.

UNITED AMERICAN MINES CO., LTD.

UNITED LEAD-ZINC MINES COMPANY

UNITED METALS CO.

VICTOR MINING CO.
VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.

VINDICATOR MINING CO.

WALLACE IDAHO LEAD MINES, INC.

WALLACE MINING COMPANY

WALLACE SILVER-LEAD MINES COMPANY

WALL STREET MINING CO.

WEST BELL MINING CO., LTD.

WEST GEM MINING CO.

WEST HECLA MINING CO.
WESTERN PACIFIC MINING CO.
Office: Wallace. Officers: J. Fred Markwell, Sec., Wallace. Inc.: April 6, 1922. Capital: 2,500,000 shares; par value 1c; all shares issued. Property: South Side group; 9 patented and 5 unpatented claims, Lelande dist.; Wallace. Ore: Lead-silver. Men Employed: Average, 2. Remarks: "A new road was built on a good grade giving access to the holdings of the company from the main highway at Gem. In addition a timber shed and bunk house were erected for mine accommodation. Work was done in various places and a crosscut mined and timbered for use in the development of the group."

WESTERN UNION MINING CO.

WOLVERINE MINING COMPANY, LTD.
Office: 304 Lindelle Bldg., Spokane, Wash. Officers: C. C. Harrington, Pres.; Harold M. Gleeson, Sec., both of Spokane, Wash. Inc.: Aug. 4, 1909. Capital: 1,250,000 shares; par value $1; increased capital stock to 2,000,000 shares July 11, 1928; shares issued, 1,644,236. Remarks: "Property has been transferred to another company."

WONDERFUL MINING CO., LTD.

WYOMING MINING & MILLING CO., LTD.

YAKIMA-SHOSHONE MINING CO.

DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-20 OF ALL CORPORATIONS, DOMESTIC OF FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.
Alameda Mining Co.
Altura Mining Co.
American Lead Mines, Ltd.
Aurora Mining Co.
Beaver Creek Mining Co.
Big It Mining & Milling Co.
Brandon Gold Fields, Inc.
Caledonia Silver-Lead Mining Co.
Climax Silver Mining Co.
Coeur d'Alene Big Creek Mining Co.
Consolidated Mining Corporation
Copper Chief Mining Co.
East Caledonia Mines Co.
East Standard Mining Co.
Eldorado Mining & Smelting Co., Ltd.
Equitable Mining & Milling Co.
Evolution Mining Co.
Fannie Grimm Mining Co.
Florence Mining & Milling Co., Ltd.
Great Helena Mining & Milling Co.
Hayden Hill Consolidated Mining Co.
Highland-Surprise Consolidated Mining Co.
Horseshoe Mining Co.
Idaho & Los Angeles Mining & Milling Co.
Idaho Mother Lode Gold Mines, Inc.
Lewis & Clark Mining Co.
McGregor Mining Co.
Merry Widow Mining Co.
Metropolitan Mines Corporation, Ltd.
Moe Mining Co., Ltd.
North American Mining & Milling Co., Ltd.
North Idaho Mining Co.
North Star Mining Co.
Oasis Mining Co.
Oregon Trail Mining Company
Pacific Mining & Milling Co.
Paramount Mines Corporation
Patuxent Mining Co.
Progress Gold Mining Co.
Raven Mining Co., Ltd.
Shrine Mining Co.
Sidney Leasing Co.
Sidney Mining Co.
Silver Bar Mine, Inc.
Silver Moon Mining Co., Ltd.
Silver Star-Queens Mines, Inc.
Sterling Mining Co., Ltd.
Trapper Creek Silver Mining Co.
Tuscumbia Mining Co., Ltd.
United States Silver Lead Mines Co.
Vendetta Chief Mining Co.
Washington-Idaho Mining Co.
Washington Mining Co.
Willow Creek Mining Co.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


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

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


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


The north side of the Coeur d'Alene district, by H. S. Auerbach: Eng. and Min. Jour., vol. 86, pp. 65-70, July 11, 1908.§


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.§


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, p. 32, 1916.**


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.§


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


Timbering at the Hecla mine, by A. S. Corsun: Mining and Metallurgy, vol. 11, pp. 382-384, August, 1930.**


**

TETON COUNTY

County Seat: Driggs. Area: 463 sq. miles. Population: 3573. 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.

Officers: Roy L. Black, Pres., Pocatello; Peter Corgatelli, Sec., Shelley. Inc.: Dec. 24, 1924. Capital: 1,000,000 shares; par value $1; 127,467 shares issued. Property: Assignment of prospecting permits and applications for lease on 1400 acres; Horseshoe dist.; Sam. Development: By 8 short tunnels, the longest being 520 ft., all of which are drifts on coal veins; and an inclined shaft 158 ft. long. Plant: Steam-driven hoist. Mineral Sought: Coal. Remarks: Idle.
DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-20 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Idaho Coal & Coke, Inc.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


The Horseshoe Creek district of the Teton Basin coal field, by E. G. Woodruff: U. S. Geol. Survey Bull. 541, 379-388, 1912.**


TWIN FALLS COUNTY


MINERAL RECOVERIES, INC.


VALLEY COUNTY

County Seat: Cascade. Area: 3779 sq. miles. Population: 3488. 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 many opportunities to the prospector, operator and investor.

Review of Year’s Operations

Many properties took advantage of the moratorium on annual assessment work and, as a result, were inactive during the year. Included among these properties are: Copper Camp Mining Co., Copper Cliffs Mining Co., Deadwood Mining Co., Ltd., Gold Forks Mining Co., Hall Interstate Mining Co., Holcomb Co., Ltd., Independence Mines & Power Co., Smith Creek Hydraulic Mining Co., Inc., and the South Salmon Placer Mining Company.

Bradley Mining Co. took over the operation of the Yellow Pine mine from the Yellow Pine company August 1, 1938.

Lucky Lad Mining Company, George O. A. Kellogg, president and manager, reports 500 ft. of development work during the year with a crew of 10 men. The property is located on Pistol Creek about 20 miles from Landmark. During the fall of 1937 14 miles of road were completed connecting the mine with the forest service roads. A well equipped camp has been built at the property.

Guy H. Herbert, Jr., reports an interesting strike on Burnt Log Creek about 8 miles airline from Pistol Creek. Herbert’s claims are known as the Chuck-A-Luck group.

Rapid Creek Mining Co., Ldt. report 10 ft. of tunnel work on holdings known as the Rapid Creek group.

Red Metals Consolidated, Inc., with a crew of 3 men, completed 190 ft. of development work during the year. Present plans include finishing road to buildings, completion of mill and addition of new flotation unit and classifier to the mill machinery.

Idaho Minerals Company, with 63 unpatented claims in the Yellow Pine district, continued development of the property during the year.

The Yellow Pine Company at Stibnite, under the management of Lloyd C. White, had 49 men on the payroll during the fiscal year ending May 31, 1938. The company tapered off on their underground operations and at present most of the mill feed is mined on the surface by the open pit method and transferred to the 200-ton mill by truck. The crew has been reduced to about 30 men for winter operations. The property was taken over by the Bradley Mining Company, July 28, 1938. This company is headed by Worthen Bradley, president, 922 Crocker Building, San Francisco, California. The Bradley Company intends to increase the capacity of the plant in the near future. During the year 1936 the company’s Meadow Creek mine was the largest producing lode mine of gold and antimony ores in the state.

The Thunder Mountain Mining and Milling Company ceased operations during August, leaving the crew and material men holding the sack for remuneration for services rendered. The actions and attitude of the company to ignore laws while operating is a fine example of the kind of operation that relies on promotion of stock for profit rather than the legitimate development of Idaho’s mineral resources. We feel that laws pertaining to mining in this state should be revised so that operations of this kind would be curbed in Idaho and I will continue to advocate legislation along these lines.

Daniel C. McRea and son reopened and developed to some extent a patented property near Edwardsburg with showings that look encouraging.
AMALGAMATED RED METALS MINES CO.

BRADLEY MINING CO.

COPPER CAMP MINING CO.

COPPER CLIFFS MINING CO.

DEADWOOD MINING CO., LTD.

GOLD FORKS MINING CO.

HALL INTERSTATE MINING CO.

HOLCOMB CO., LTD.

INDEPENDENCE MINES & POWER CO.
LUCKY LAD MINING COMPANY

RAPID CREEK MINING CO., LTD.

RED METALS CONSOLIDATED, INC.

SMITH CREEK HYDRAULIC MINING CO., INC.

SOUTH SALMON PLACER MINING CO.

YELLOW PINE CO.
Office: 922 Crocker Bldg., San Francisco, Calif. Officers: Worthen Bradley, Pres., E. A. Griffen, Sec.; both of San Francisco, Calif.; Lloyd C. White, 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 Ot-tumwa 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, 75 kw., driven by Pelton water wheel under a 520 ft. head, water delivered through an 11,000 ft. 28 in. redwood pipe and a 1620 ft. 24 in. steel penstock; 5 miles of transmission lines. Ore: Mercury, gold-silver-antimony. Men Employed: Average, 49. Remarks: "Property taken over by the Bradley Mining Company July 28, 1938."
DELIQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-20 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Antimony Gold Ores Co.
Big Creek Gold Mines, Inc.
Cascade Valley Corporation
Idaho Minerals Co.
Lost Pilgrim Mining Co.
Mary Jane Mining Co., Ltd.
Paddy Flat Placer Mining Corp.
Profile-Tamarack Mines Co.
Profile Yellow Pine Company, Inc.
United Mercury Mines Co.
Venable Mining Company, Inc.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations.


Geology of Thunder Mountain and central Idaho, by R. N. Bell: Eng. and Min. Jour., vol. 73, pp. 791-793, June 7, 1902.§


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


“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: 7,962. Principal Industries: Agriculture, stockraising 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 Pacific and Idaho Northern. 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

Submarine Gold Mining Company, Inc., constructed and put into operation a suction dredge, invented by Robert G. Neider of Boise, on 12 miles of Snake River bed near Robinette. The property is held under lease from the state.

Development work progressed during the year at the Nutmeg Mine, located 16 miles east of Weiser. The property, which is also known as the Osa Anna, has been prospected since the summer of 1937. While it is not out of the prospect stage, L. K. Requa, engineer in direct charge of operations, reports encouraging developments. No definite plans have been made for the construction of a mill, although it is possible that a plant will be constructed during 1939. Values are in quicksilver.

The Silver Still, owned and operated by James G. Still, Huntington, Oregon, carried on a campaign of development and shipped a few cars of ore to the smelter.

SUBMARINE GOLD MINING COMPANY, INCORPORATED


DELINQUENT LIST OF MINING COMPANIES WHO DID NOT FILE ANNUAL REPORTS FOR THE YEAR ENDING MAY 31, 1938, AS REQUIRED BY IDAHO CODE ANNOTATED SECTIONS 25-1616, 25-1619-20 OF ALL CORPORATIONS, DOMESTIC OR FOREIGN, AND ASSOCIATIONS ENGAGED IN MINING AND MINING OPERATIONS WITHIN THE STATE OF IDAHO.

Silver Still Mining Co.
Weiser Gas & Petroleum Co.

BIBLIOGRAPHY

See pages 106-107 for publisher's address, meaning of reference marks and abbreviations


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


## CORPORATIONS NOT OWNING PROPERTY IN IDAHO

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afterthought Mines Corp.</td>
<td>Rom Warburton,</td>
<td>Salt Lake City, Utah</td>
</tr>
<tr>
<td></td>
<td>Asst. Sec.,</td>
<td></td>
</tr>
<tr>
<td>Aladdin Gold M. &amp; M. Co.</td>
<td>J. H. Graber, Sec.</td>
<td>Wallace, Idaho</td>
</tr>
<tr>
<td>Anaconda Sales Co.</td>
<td>A. F. Dohrman, Sec.</td>
<td>25 Broadway, New York</td>
</tr>
<tr>
<td>Belmont Copper Corp.</td>
<td>Peter C. Warwick, Jr.,  Pres.</td>
<td>Richmond, Va.</td>
</tr>
<tr>
<td>Delamar Mines of Mont., Inc.</td>
<td>C. R. Bernard</td>
<td>Imlay, Nevada</td>
</tr>
<tr>
<td>Franklin Cons. Gold Mines Co.</td>
<td>Fred T. Kelly, Sec.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Haywire M. &amp; M., Inc.</td>
<td>Ray Rammels, Sec.</td>
<td>Bonners Ferry, Idaho</td>
</tr>
<tr>
<td>Idaho Lime Phosphate, Inc.</td>
<td>J. W. Gwinn, Sec.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Metals Extraction Corp.</td>
<td>Paul L. Oakes, Sec.,</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Moon Creek Mining Co.</td>
<td>Otto A. Olsson, Sec.</td>
<td>Wallace, Idaho</td>
</tr>
<tr>
<td>Mountain City Copper Co.</td>
<td>Rom Warburton, Treas.</td>
<td>Salt Lake City, Utah</td>
</tr>
<tr>
<td>Nancy Lee Mines, Inc.</td>
<td>Frank J. Schultze, Sec.</td>
<td>Kellogg, Idaho</td>
</tr>
<tr>
<td>Solar Dev. Co., Ltd.</td>
<td>E. G. Randall, Sec.</td>
<td>Trail, B. C.</td>
</tr>
<tr>
<td>St. Joseph Lead Co.</td>
<td>Harry B. McGown, Sec.</td>
<td>250 Park Ave., New York, N. Y.</td>
</tr>
<tr>
<td>Tri-State Mountain Sheep Mining Co.</td>
<td>T. P. Jones, Sec.,</td>
<td>Bovill, Idaho</td>
</tr>
<tr>
<td>Trout Creek Gold Placer Mining Company</td>
<td>Walter H. Hanson, Pres.</td>
<td>Wallace, Idaho</td>
</tr>
<tr>
<td>Vail Coal Mining Co.</td>
<td>Harry S. Martin</td>
<td>Idaho Falls, Idaho</td>
</tr>
</tbody>
</table>

### COMPANIES INCORPORATED DURING 1932

#### Reports Not Yet Filed

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratton Mills &amp; Mines, Inc.</td>
<td>Wm. J. Stratton</td>
<td>Wallace, Idaho</td>
</tr>
</tbody>
</table>
### COMPANIES INCORPORATED DURING 1934
Reports Not Yet Filed

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold King M. &amp; M. Co.</td>
<td>J. M. Howell, Sec.</td>
<td>Pine, Idaho</td>
</tr>
<tr>
<td>Reliance Min. Co.</td>
<td>James Jameson</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Snake River Coal Gas &amp; Oil Co.</td>
<td>U. G. Stevens</td>
<td>Payette, Idaho</td>
</tr>
</tbody>
</table>

### COMPANIES INCORPORATED DURING 1935
Reports Not Yet Filed

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidwell Silver Min. Co.</td>
<td>H. E. Hendry</td>
<td>Baker, Oregon</td>
</tr>
<tr>
<td>Montgomery Mines, Inc.</td>
<td>W. E. Wheelan</td>
<td>Bonners Ferry, Idaho</td>
</tr>
<tr>
<td>Portland M. &amp; M. Co.</td>
<td>Robert T. Jacobs</td>
<td>Public Service Bldg., Portland, Oregon</td>
</tr>
</tbody>
</table>

### COMPANIES INCORPORATED DURING 1936
Reports Not Yet Filed

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominion Mines, Inc.</td>
<td>Irene Comer, Sec.</td>
<td>304 Arts Bldg., Vancouver, Wash.</td>
</tr>
<tr>
<td>Fidelity Investment Corp.</td>
<td>R. C. Pauley, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Golden West Dredging Corp., Inc.</td>
<td>Rosalie Leonard</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Peoples Gas &amp; Oil Co. of Idaho</td>
<td>M. G. Whitney</td>
<td>Coeur d'Alene, Idaho</td>
</tr>
<tr>
<td>Red Lode Mining Co., Inc.</td>
<td>G. A. Sarlee</td>
<td>P. O. Box 142, Seattle, Wash.</td>
</tr>
<tr>
<td>Rose M. &amp; M. Co.</td>
<td>E. F. Rose</td>
<td>Portland, Oregon</td>
</tr>
<tr>
<td>The Snyder Mines, Inc.</td>
<td>Guy Snyder, Sec.</td>
<td>218 Felt Bldg., Salt Lake City, Utah</td>
</tr>
<tr>
<td>Teton Coal Co., Inc.</td>
<td>H. F. Samuels</td>
<td>Samuels, Idaho</td>
</tr>
</tbody>
</table>
### COMPANIES INCORPORATED DURING 1937

#### Reports Not Yet Filed

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope Mines, Inc.</td>
<td>N. Hank, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Beaver Placer, Inc.</td>
<td>Lyman G. Stanley</td>
<td>Dixie, Idaho</td>
</tr>
<tr>
<td>Bell Mtn. Copper Co.</td>
<td>B. L. Farnsworth</td>
<td>Salt Lake City, Utah</td>
</tr>
<tr>
<td>Blue Ledge Min. Co.</td>
<td>Delbert G. Taylor, Inc.</td>
<td>Rexburg, Idaho</td>
</tr>
<tr>
<td>Duncan River M. Syndicate, Inc.</td>
<td>R. L. Brainard, Inc.</td>
<td>Kellogg, Idaho</td>
</tr>
<tr>
<td>Golden Cycle Min. Corp.</td>
<td>J. O. Galloway</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Golden Gate Min. Co. of Idaho</td>
<td>W. S. Wright, Sec.</td>
<td>Shelley, Idaho</td>
</tr>
<tr>
<td>Hillside Min. Corp.</td>
<td>Leonard Koski, Inc.</td>
<td>Hailey, Idaho</td>
</tr>
<tr>
<td>The Northwest Gold Min. Co.</td>
<td>Beryl Roberts, Sec.</td>
<td>220 Miner Bldg., Eugene, Oregon</td>
</tr>
<tr>
<td>Premier M. &amp; M. Co.</td>
<td>K. F. Williams</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>River of No Return Lodge, Inc.</td>
<td>Wm. O. Stephens, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Scott Petroleum Co.</td>
<td>O. H. McClelland, Inc.</td>
<td>Idaho Falls, Idaho</td>
</tr>
<tr>
<td>South Fork Gold Co.</td>
<td>James A. Green, Pres.</td>
<td>Kellogg, Idaho</td>
</tr>
<tr>
<td>Spokane-Portland Cement Co.</td>
<td>R. K. Neill, Sec.</td>
<td>Elk City, Idaho</td>
</tr>
<tr>
<td>Texas Mining Co.</td>
<td>E. W. Robinson, Inc.</td>
<td>Wallace, Idaho</td>
</tr>
<tr>
<td>Wide West Min. Corp.</td>
<td>Oscar Worthwine, Inc.</td>
<td>Boise, Idaho</td>
</tr>
</tbody>
</table>
### COMPANIES INCORPORATED DURING 1938
#### Reports Not Yet Filed

<table>
<thead>
<tr>
<th>NAME</th>
<th>OFFICER</th>
<th>P. O. ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska, All States, Golden Circle Mining and Development Company, Inc.</td>
<td>Edith Cotant, Inc.</td>
<td>American Falls, Idaho</td>
</tr>
<tr>
<td>American River Mining Co. (Cal.)</td>
<td>Geo. B. Peterson, Treas.</td>
<td>Los Angeles, Calif.</td>
</tr>
<tr>
<td>Blackbird Mines Co., Inc.</td>
<td>Walter G. Bell, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Calbar Co. (Utah)</td>
<td>Lincoln G. Kelly, Sec.</td>
<td>Salt Lake City, Utah</td>
</tr>
<tr>
<td>Daly Mines, Inc.</td>
<td>Robert A. Davis, Jr., Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Edna Development Co.</td>
<td>W. B. Sheppard, Inc.</td>
<td>Santa Ana, Calif.</td>
</tr>
<tr>
<td>Garnet Mines, Inc.</td>
<td>B. M. Taylor, Inc.</td>
<td>Moscow, Idaho</td>
</tr>
<tr>
<td>Gold Arrow Mines Co., Inc. (Utah)</td>
<td>Fred S. Irwin, Pres.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Gold Bar Mining Co., The (Utah)</td>
<td>Fred J. Babcock, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Gold Bottom Dev. Co.</td>
<td>J. S. Larsen, Sec.</td>
<td>Salt Lake City, Utah</td>
</tr>
<tr>
<td>Gold Canyon Mining Co., Inc.</td>
<td>E. M. Wolfe, Attorney</td>
<td>Twin Falls, Idaho</td>
</tr>
<tr>
<td>Gold Pistol Mines Corp.</td>
<td>W. L. Carlyle, Inc.</td>
<td>Pocatello, Idaho</td>
</tr>
<tr>
<td>Gold Warrior Corp.</td>
<td>Roy L. Black, Inc.</td>
<td>Pocatello, Idaho</td>
</tr>
<tr>
<td>Gold Wedge Mining Co.</td>
<td>M. Oliver Koelsch</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Golden Dawn Mining Co., Inc.</td>
<td>H. G. Snyder, Inc.</td>
<td>Salmon, Idaho</td>
</tr>
<tr>
<td>Goldflour Mining Co.</td>
<td>J. W. Abbott, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>The Grant Mining Co.</td>
<td>R. M. Davidson, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Harpster Mining Co.</td>
<td>E. F. Mobley, Inc.</td>
<td>Idaho Falls, Idaho</td>
</tr>
<tr>
<td>Highland Petroleum, Inc.</td>
<td>Mike Carney, Sec.</td>
<td>Harpster, Idaho</td>
</tr>
<tr>
<td></td>
<td>T. C. Anderson, Inc.</td>
<td>Blackfoot, Idaho</td>
</tr>
<tr>
<td>NAME</td>
<td>OFFICER</td>
<td>P. O. ADDRESS</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Huron Mines, Inc.</td>
<td>Jess Hawley, Sec.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Idaho Aluminum Corp., Ltd.</td>
<td>George R. Cross, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Jane Lee Mining Corp.</td>
<td>T. N. Adams, Inc.</td>
<td>Fairfield, Idaho</td>
</tr>
<tr>
<td>La Marne-Mattingly Corp.</td>
<td>M. Oliver Koelsch</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Maggie Creek Min. Co.</td>
<td>J. J. Kowalski, Pres.</td>
<td>1128 N. Broadway,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seattle, Wash.</td>
</tr>
<tr>
<td>McAdoo Gold Mines, Inc.</td>
<td>Charles A. Mayo</td>
<td>Golden, Idaho</td>
</tr>
<tr>
<td>Metals Production Co.</td>
<td>A. W. Nelson, Inc.</td>
<td>412 S. Arthur St.,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spokane, Wash.</td>
</tr>
<tr>
<td>Mines Exp. Co., Inc.</td>
<td>C. E. Beymer, Sec.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Morland Gold Corp.</td>
<td>R. L. Rowland, Pres.</td>
<td>Realty Bldg.,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spokane, Wash.</td>
</tr>
<tr>
<td>Northern Dev. Co.</td>
<td>James Harp, Inc.</td>
<td>Priest River,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Idaho</td>
</tr>
<tr>
<td>Parker Mines, Inc.</td>
<td>C. E. Christie</td>
<td>1606 S. E. 46th</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ave., Portland,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oregon</td>
</tr>
<tr>
<td>Pearl Mining Co.</td>
<td>W. S. Kehrer, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Pilot Knob Gold Corp.</td>
<td>W. R. Austin, Sec.</td>
<td>Spokane, Wash.</td>
</tr>
<tr>
<td>Salmon River Gold Ores Co.</td>
<td>J. J. Oberbillig, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Siva Mining Corp.</td>
<td>Laurence S. Gossi, Inc.</td>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Targhee Coal Co., Inc.</td>
<td>Frank G. Worthing, Inc.</td>
<td>Winsper, Idaho</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salt Lake City,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Utah</td>
</tr>
<tr>
<td>Yuba M. &amp; M. Co.</td>
<td>Frank May, Inc.</td>
<td>Atlanta, Idaho</td>
</tr>
</tbody>
</table>

IDAHO CODE ANNOTATED, 1932, OFFICIAL EDITION

REPORT TO INSPECTOR OF MINES

Section 25-1616. MINING COMPANIES—REPORT TO INSPECTOR OF MINES.—All corporations, domestic or foreign, and associations engaged in mining operations within the state, shall during the month of June each year after the passage and approval of this chapter file with the inspector of mines for the State of Idaho, a report which shall be made under oath and shall contain names of each mining claim and the total number of such claims, owned, leased, or otherwise held, forming the basis for the issue of stock certificates, and the number being worked and developed, and the mining district and county in which such property is located; the nature of the title thereof, or interest therein, whether leaseholder or otherwise, the character, value and general descrip-
tion of all buildings, works, machinery and other improvements; the total amount and description of all development work done by such corporation or association; the total sum of money or other valuable consideration given or paid out therefor; the total number of shares or certificates that such corporation or association is by law authorized to issue, and the different classes and the par value thereof; total number of shares of stock certificates set aside by such corporation or association in its treasury to sell or otherwise dispose of for the purpose of working, developing or otherwise improving the property of such corporation or association; the total number of shares of stock or certificates sold and the total sum of money or other consideration received therefor and the number of shares of certificates remaining unsold. All corporations, domestic or foreign, and associations, who are not now engaged in mining operations within this state, who desire to engage in mining and mining operations within this state, shall, before engaging in mining and mining operations within this state, make, execute and file such report as is above provided, and such report shall be made and filed by corporations, domestic or foreign, and associations who shall be engaged in mining and mining operations within this state at the time of taking effect of this chapter.


Cross Ref. Express reference to this section, penalty, sec. 25-1619.

Section 25-1619. MINING COMPANIES—PENALTY FOR NOT FILING REPORT.—It shall be unlawful for any corporation or association to refuse, fail or neglect to make, execute, and file the report provided for in Section 25-1616, and upon conviction thereof such corporation or association shall be deemed guilty of a misdemeanor and punished accordingly.


Section 25-1620. MINING COMPANIES—PENALTY FOR FALSE REPORT.—Any person, corporation, or association, who knowingly makes a false report to the inspector of mines for the State of Idaho as provided by this chapter, of or concerning any mining property in this state, or any person, corporation, association, or individual whomsoever, who knowingly makes or publishes in any way whatever, or permits to be so made or published, any book, prospectus, notice, report, statement, exhibit or other publication of or concerning the affairs, financial condition or property of any corporation, association, joint stock association, copartnership, or individual, which said book, prospectus, notice, report, statement, exhibit, or other publication, shall contain any statement which is false, shall be deemed guilty of a felony, and upon conviction thereof shall be imprisoned for not more than ten years or fined not more than $10,000 or shall suffer both such fine and imprisonment.

Hist. 1913, ch. 117, sec. 18, p. 461, reen. C. L. 224:19; C. S., sec. 5323; S. L. 1921, ch. 123, sec. 3.

PROTECTION OF MECHANICS

Section 43-401. EMPLOYERS TO MAKE STATEMENT.—It shall be the duty of any person, persons, company or corporation engaged in working any mine, mines, mining premises or in developing any mining claim or claims, whether quartz or placer, or in the running of any tunnel, or in the erection or repair of any building or other structure, or in the construction of any canal, ditch, railroad, wagon road or aqueduct, in every case where mechanics or laborers are employed in or about the properties above-mentioned to make, record and publish a statement under oath, setting forth the following data:

1. The name or names of the owner or owners of the mine, mines,
mining claims or premises, tunnel, building, canal, ditch, railroad, wagon road, aqueduct or other structure upon which work is being done or upon which it is intended to begin work.

2. The name or names of the person, persons, company or corporation engaged in, or who contemplates engaging in, work upon any of the properties or structures mentioned herein.

3. The conditions under which said person, persons, company or corporation is prosecuting said work, whether as owner, agent, lessee, contractor, subcontractor, contemplative purchaser or lien holder.

4. The principal office of said person, persons, company or corporation and, if a corporation, the state or county where incorporated and the agent in this state on whom service may be had.

5. The day of the week or month when payment of the laborers, mechanics and materialmen will be made, and the place where said payments will be made.

6. A statement of all mortgages and liens against the property on which work is being done, with the amount of each of said encumbrances and whether or not the same is due.

**Hist. 1899, p. 365, secs. 1, 2; compiled and reen. R. C. & C. L., sec. 1446; C. S., sec. 2311.**

**Cross Ref.** Mechanics' liens, sec. 44-501 et seq.

**Notice by Agent.** Notice posted at mine that certain person, as trustee for others was employer, is not sufficient to bind such others without their knowledge, since it is merely a statement by agent. Groome v. Fisher, 48 Ida. 771, 284 Pac. 1030.

Section 43-402. **STATEMENT BEFORE EMPLOYING MECHANICS AND LABORERS—RECORDING AND POSTING.**—Any person, persons, company or corporation who shall engage in working, developing or prospecting any mine, mines, mining claim or premises, or in running any tunnel, or in repairing or erecting any building, or in constructing any canal, ditch, railroad, wagon road, aqueduct or other structure, and shall employ any mechanics or laborers in prosecuting said work, shall, before employing said mechanics or laborers or any of them, make a statement under oath containing the data provided for in the preceding section, and file the same for record in the office of the recorder of the county in which said labor is being done, and if there be a district recorder, then also in the office of said district recorder of the district where said mechanics or laborers are employed, and also to post similar statements in his or its office, at the place where the payment of wages is to be made, and in a public and conspicuous place where it can be easily seen at or near the place where said mechanics or laborers are employed.

**Hist. 1899, p. 365, secs. 3, 4; compiled and reen. R. C. & C. L., sec. 1447; C. S., sec. 2312.**

**Section 43-403. VIOLATION OF CHAPTER, A MISDEMEANOR.**—Any person, persons, company or corporation, or any managing agent violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than $100.00, or by imprisonment in the county jail for not exceeding three months.

**Hist. 1899, p. 365, sec. 5, reen. R. C. & C. L., sec. 1448; C. S., sec. 2313.**
INSPECTORS OF MINES

WILLIAM S. HASKINS ................................................................. 1893-1894
E. H. DEWEY ................................................................. 1895-1896
BENJAMIN F. HASTINGS ......................................................... 1897-1898
JAY A. CZIZEK ................................................................. 1899-1900
MARTIN JACOBS ................................................................. 1901-1902
ROBERT N. BELL ................................................................. 1903-1904
ROBERT N. BELL ................................................................. 1905-1906
ROBERT N. BELL ................................................................. 1907-1908
F. CUSHING MOORE ............................................................. 1909-1910
ROBERT N. BELL ................................................................. 1911-1912
ROBERT N. BELL ................................................................. 1913-1914
ROBERT N. BELL ................................................................. 1915-1916
ROBERT N. BELL ................................................................. 1917-1918
ROBERT N. BELL ................................................................. 1919-1920
STEWARD CAMPBELL ............................................................ 1921-1922
STEWARD CAMPBELL ............................................................ 1923-1924
STEWARD CAMPBELL ............................................................ 1925-1926
STEWARD CAMPBELL ............................................................ 1927-1928
STEWARD CAMPBELL ............................................................ 1929-1930
STEWARD CAMPBELL ............................................................ 1931-1932
W. H. SIMONS ................................................................. 1933-1934
ARTHUR CAMPBELL ............................................................ 1935-1936
ARTHUR CAMPBELL ............................................................ 1937-1938
ARTHUR CAMPBELL ............................................................ 1939-1940

MINER OPERATING DRILL
MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD AND ZINC IN IDAHO IN 1937—FINAL ANNUAL FIGURES

The output of gold, silver, copper, lead, and zinc from lode and placer mines in Idaho in 1937, in terms of recovered metals, was 81,861 fine ounces of gold, 19,587,766 fine ounces of silver, 4,464,000 pounds of copper, 207,422,000 pounds of lead, and 108,398,000 pounds of zinc, according to the Bureau of Mines, United States Department of the Interior; compared with 1936 the output of the metals increased as follows: Gold 1,570 ounces, silver 5,050,236 ounces, copper 1,510,000 pounds, lead 24,744,000 pounds, and zinc 10,198,000 pounds.

Idaho was again the largest producer of silver in the United States and its output in 1937 was the largest ever recorded in the State. The State also made a record production of zinc in 1937.

The value of the output of the five metals was $37,840,184 in 1937 compared with $27,654,472 in 1936, an increase of 37 percent. The total value in 1937 has been surpassed only in two other years—1917 with a value of $54,845,153 and 1916 with a value of $48,767,783.

The mine production of gold, silver, copper, lead, and zinc in Idaho from 1863 to 1937, inclusive, in terms of recovered metals, has been as follows: Gold (lode and placer), 7,112,687 fine ounces; silver (lode and placer), 399,134,261 fine ounces; copper, 86,134 short tons; lead, 5,125,148 short tons; and zinc, 632,103 short tons. The total value of this output has been $1,091,053,624.

The total ore and old tailings sold or treated from properties in Idaho was 2,075,402 tons in 1937 compared with 1,807,530 tons in 1936. More than 54 percent of the total in 1937 was zinc-lead ore and old tailings; nearly 20 percent was lead ore; nearly 16 percent was silver ore; and nearly 10 percent was gold ore and old tailings. Most of the zinc-lead ore and old tailings, lead ore, and silver ore came from properties in the Coeur d'Alene region and most of the gold ore and old tailings came from properties in the Orogrande, Boise Basin, and Yellow Pine districts.

The output of gold from lode mines in Idaho in 1937 was 41,321 ounces, a decrease of 4,540 ounces, and gold recovered from placer properties amounted to 40,540 ounces, an increase of 6,110 ounces. Ten floating (bucket) dredges in Idaho in 1937 produced 28,962 ounces of gold compared with 12 in 1936 producing 26,098 ounces. The Boise Basin district with a production of 25,653 ounces of gold in 1937 was by far the largest gold producing area in Idaho; it was followed by the Warren, Marshall Lake, Yellow Pine, Carson, and Seven Devils districts.

In 1937 mines in the Coeur d'Alene region, Shoshone County, produced 94 percent of the State's silver, 87 percent of the copper, 93 percent of the lead, and 87 percent of the zinc; most of the remainder of the silver, lead, and zinc came from mines in the Warm Springs district, Blaine County. Considerable silver and lead were also produced from mines in the Bayhorse, Pend d'Orielle, Texas and Port Hill districts.

More detailed statistics and information on the metal-mining industry in Idaho in 1937 will appear in Minerals Yearbook, 1938, to be issued in August and available from the Superintendent of Documents, Washington, D. C.

The following tables give final figures on the number of mines producing, quantity of ore sold or treated, classification of ores, and the quantity and value of the metals produced in each county in Idaho in 1937, with State totals for 1937 and 1936. The production of the Coeur d'Alene region, in which there was decided improvement, is shown as Shoshone County.
## Mine Production of Gold, Silver, Copper, Lead, and Zinc in Idaho in 1937, by Counties, in Terms of Recovered Metals

<table>
<thead>
<tr>
<th>County</th>
<th>Mines Lode</th>
<th>Mines Placer</th>
<th>Ore Lode (short tons)</th>
<th>Ore Placer (short tons)</th>
<th>Gold Fine ounces</th>
<th>Gold Value</th>
<th>Silver Fine ounces</th>
<th>Silver Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ada</td>
<td>2</td>
<td>15</td>
<td>34</td>
<td>3</td>
<td>521</td>
<td>$18,235</td>
<td>44</td>
<td>$34</td>
</tr>
<tr>
<td>Adams</td>
<td>7</td>
<td>...</td>
<td>4,224</td>
<td>...</td>
<td>3,984</td>
<td>139,440</td>
<td>1,775</td>
<td>1,373</td>
</tr>
<tr>
<td>Bear Lake</td>
<td>3</td>
<td>...</td>
<td>28</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Benewah</td>
<td>1</td>
<td>3</td>
<td>20</td>
<td>11</td>
<td>11</td>
<td>385</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Blaine</td>
<td>23</td>
<td>...</td>
<td>70,520</td>
<td>...</td>
<td>1,413</td>
<td>49,455</td>
<td>507,956</td>
<td>392,904</td>
</tr>
<tr>
<td>Boise</td>
<td>39</td>
<td>117</td>
<td>40,520</td>
<td>26,866</td>
<td>257</td>
<td>8,995</td>
<td>79,011</td>
<td>61,115</td>
</tr>
<tr>
<td>Bonner</td>
<td>11</td>
<td>...</td>
<td>28,866</td>
<td>...</td>
<td>144</td>
<td>5,040</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Bonneville</td>
<td>1</td>
<td>6</td>
<td>21</td>
<td>1</td>
<td>1</td>
<td>35</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Boundary</td>
<td>1</td>
<td>1</td>
<td>7,200</td>
<td>1</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Butte</td>
<td>6</td>
<td>...</td>
<td>806</td>
<td>...</td>
<td>48</td>
<td>1,680</td>
<td>7,391</td>
<td>5,717</td>
</tr>
<tr>
<td>Camas</td>
<td>5</td>
<td>3</td>
<td>554</td>
<td>194</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Canyon</td>
<td>...</td>
<td>2</td>
<td>...</td>
<td>...</td>
<td>3</td>
<td>105</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Cassia</td>
<td>5</td>
<td>...</td>
<td>44</td>
<td>...</td>
<td>11</td>
<td>385</td>
<td>318</td>
<td>246</td>
</tr>
<tr>
<td>Clearwater</td>
<td>2</td>
<td>67</td>
<td>270</td>
<td>2,199</td>
<td>76,965</td>
<td>525</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Custer</td>
<td>28</td>
<td>20</td>
<td>30,640</td>
<td>449</td>
<td>15,715</td>
<td>233,395</td>
<td>180,531</td>
<td>11,488</td>
</tr>
<tr>
<td>Elmore</td>
<td>19</td>
<td>32</td>
<td>6,973</td>
<td>2,722</td>
<td>95,270</td>
<td>14,852</td>
<td>1,715</td>
<td>...</td>
</tr>
<tr>
<td>Gem</td>
<td>6</td>
<td>7</td>
<td>290</td>
<td>759</td>
<td>26,565</td>
<td>2,217</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Gooding</td>
<td>...</td>
<td>1</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Idaho</td>
<td>58</td>
<td>236</td>
<td>97,034</td>
<td>22,217</td>
<td>777,595</td>
<td>35,894</td>
<td>27,764</td>
<td>...</td>
</tr>
<tr>
<td>Jerome</td>
<td>...</td>
<td>21</td>
<td>...</td>
<td>...</td>
<td>149</td>
<td>5,215</td>
<td>9</td>
<td>...</td>
</tr>
<tr>
<td>Latah</td>
<td>2</td>
<td>22</td>
<td>131</td>
<td>126</td>
<td>4,410</td>
<td>44</td>
<td>34</td>
<td>...</td>
</tr>
<tr>
<td>Lemhi</td>
<td>52</td>
<td>75</td>
<td>12,407</td>
<td>4,152</td>
<td>145,320</td>
<td>109,311</td>
<td>84,552</td>
<td>...</td>
</tr>
<tr>
<td>Nez Perce</td>
<td>28</td>
<td>7</td>
<td>28</td>
<td>28</td>
<td>980</td>
<td>9</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Owyhee</td>
<td>17</td>
<td>36</td>
<td>754</td>
<td>4,807</td>
<td>168,245</td>
<td>11,704</td>
<td>9,053</td>
<td>...</td>
</tr>
<tr>
<td>Power</td>
<td>...</td>
<td>6</td>
<td>...</td>
<td>...</td>
<td>698</td>
<td>24,300</td>
<td>44</td>
<td>...</td>
</tr>
<tr>
<td>Shoshone</td>
<td>49</td>
<td>38</td>
<td>1,731,801</td>
<td>3,659</td>
<td>128,065</td>
<td>18,457,726</td>
<td>14,277,051</td>
<td>...</td>
</tr>
<tr>
<td>Twin Falls</td>
<td>...</td>
<td>14</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Valley</td>
<td>9</td>
<td>12</td>
<td>41,613</td>
<td>6,379</td>
<td>223,265</td>
<td>43,930</td>
<td>33,980</td>
<td>...</td>
</tr>
<tr>
<td>Washington</td>
<td>1</td>
<td>...</td>
<td>652</td>
<td>3</td>
<td>105</td>
<td>25,925</td>
<td>20,053</td>
<td>...</td>
</tr>
<tr>
<td>Total, 1936</td>
<td>347</td>
<td>741</td>
<td>2,075,402</td>
<td>81,861</td>
<td>2,865,135</td>
<td>19,587,766</td>
<td>15,151,137</td>
<td>...</td>
</tr>
<tr>
<td>County</td>
<td>Copper Pounds</td>
<td>Copper Value</td>
<td>Lead Pounds</td>
<td>Lead Value</td>
<td>Zinc Pounds</td>
<td>Zinc Value</td>
<td>Value Total</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
<td>--------------</td>
<td>-------------</td>
<td>------------</td>
<td>-------------</td>
<td>------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Ada</td>
<td>74,843</td>
<td>$9,056</td>
<td>29,542</td>
<td>$1,743</td>
<td></td>
<td></td>
<td>$18,269</td>
<td></td>
</tr>
<tr>
<td>Adams</td>
<td>934</td>
<td>113</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>149,869</td>
<td></td>
</tr>
<tr>
<td>Bear Lake</td>
<td>113</td>
<td></td>
<td>2,897</td>
<td></td>
<td></td>
<td></td>
<td>1,890</td>
<td></td>
</tr>
<tr>
<td>Benewah</td>
<td>1,322</td>
<td>380</td>
<td>49,102</td>
<td>1,925</td>
<td>334,800</td>
<td>21,762</td>
<td>1,842,899</td>
<td></td>
</tr>
<tr>
<td>Blaine</td>
<td>171,628</td>
<td>20,767</td>
<td>8,047,305</td>
<td>1,891,695</td>
<td>111,610</td>
<td>334,800</td>
<td>1,842,899</td>
<td></td>
</tr>
<tr>
<td>Boise</td>
<td>1,132</td>
<td>137</td>
<td>49,102</td>
<td>2,897</td>
<td></td>
<td></td>
<td>969,612</td>
<td></td>
</tr>
<tr>
<td>Bonner</td>
<td>15,909</td>
<td>1,925</td>
<td></td>
<td></td>
<td>334,800</td>
<td>21,762</td>
<td>205,407</td>
<td></td>
</tr>
<tr>
<td>Bonneville</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,943</td>
<td></td>
</tr>
<tr>
<td>Boundary</td>
<td>3,215</td>
<td>389</td>
<td>1,037,000</td>
<td>61,183</td>
<td></td>
<td></td>
<td>78,317</td>
<td></td>
</tr>
<tr>
<td>Butte</td>
<td>6,000</td>
<td>728</td>
<td>94,881</td>
<td>5,989</td>
<td></td>
<td></td>
<td>13,721</td>
<td></td>
</tr>
<tr>
<td>Camas</td>
<td>562</td>
<td>68</td>
<td>3,983</td>
<td>235</td>
<td></td>
<td></td>
<td>7,568</td>
<td></td>
</tr>
<tr>
<td>Canyon</td>
<td>33</td>
<td>4</td>
<td>3,797</td>
<td>224</td>
<td>400</td>
<td>.26</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>Cassia</td>
<td>33</td>
<td>4</td>
<td>3,797</td>
<td>224</td>
<td>400</td>
<td>.26</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>Clearwater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77,371</td>
<td></td>
</tr>
<tr>
<td>Custer</td>
<td>61,967</td>
<td>7,498</td>
<td>1,976,881</td>
<td>116,636</td>
<td></td>
<td></td>
<td>320,380</td>
<td></td>
</tr>
<tr>
<td>Elmore</td>
<td>6,000</td>
<td>726</td>
<td>94,881</td>
<td>5,989</td>
<td></td>
<td></td>
<td>106,782</td>
<td></td>
</tr>
<tr>
<td>Gem</td>
<td>281</td>
<td>34</td>
<td>3,746</td>
<td>221</td>
<td></td>
<td></td>
<td>28,535</td>
<td></td>
</tr>
<tr>
<td>Gooding</td>
<td>281</td>
<td>34</td>
<td>3,746</td>
<td>221</td>
<td></td>
<td></td>
<td>28,535</td>
<td></td>
</tr>
<tr>
<td>Idaho</td>
<td>13,496</td>
<td>1,633</td>
<td>6,966</td>
<td>411</td>
<td></td>
<td></td>
<td>807,403</td>
<td></td>
</tr>
<tr>
<td>Jerome</td>
<td>281</td>
<td>34</td>
<td>3,746</td>
<td>221</td>
<td></td>
<td></td>
<td>807,403</td>
<td></td>
</tr>
<tr>
<td>Latah</td>
<td>10,504</td>
<td>1,271</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,222</td>
<td></td>
</tr>
<tr>
<td>Lemhi</td>
<td>19,560</td>
<td>23,070</td>
<td>1,143,729</td>
<td>67,480</td>
<td></td>
<td></td>
<td>320,422</td>
<td></td>
</tr>
<tr>
<td>Nez Perce</td>
<td>281</td>
<td>34</td>
<td>3,746</td>
<td>221</td>
<td></td>
<td></td>
<td>28,535</td>
<td></td>
</tr>
<tr>
<td>Owyhee</td>
<td>281</td>
<td>34</td>
<td>3,746</td>
<td>221</td>
<td></td>
<td></td>
<td>28,535</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>19,560</td>
<td>23,070</td>
<td>1,143,729</td>
<td>67,480</td>
<td></td>
<td></td>
<td>320,422</td>
<td></td>
</tr>
<tr>
<td>Shoshone</td>
<td>3,888,157</td>
<td>470,467</td>
<td>193,010,644</td>
<td>11,387,628</td>
<td>94,140,000</td>
<td>6,119,100</td>
<td>32,382,311</td>
<td></td>
</tr>
<tr>
<td>Twin Falls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,883</td>
<td></td>
</tr>
<tr>
<td>Valley</td>
<td>4,521</td>
<td>547</td>
<td>98,051</td>
<td>5,785</td>
<td></td>
<td></td>
<td>263,577</td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td>20,157</td>
<td>2,439</td>
<td>24,000</td>
<td>1,416</td>
<td></td>
<td></td>
<td>24,013</td>
<td></td>
</tr>
<tr>
<td>Total, 1936</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37,840,184</td>
<td></td>
</tr>
<tr>
<td>Total, 1936</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37,840,184</td>
<td></td>
</tr>
</tbody>
</table>

† Average value of metals in 1937: Gold, $35 per fine ounce; silver, $0.7735 per fine ounce; copper, $0.121 per pound; lead, $0.059 per pound; zinc, $0.065 per pound.
‡ Average value of metals in 1936: Gold, $35 per fine ounce; silver, $0.7745 per fine ounce; copper, $0.092 per pound; lead, $0.046 per pound; zinc, $0.050 per pound.
### GOLD AND SILVER PRODUCED AT PLACER MINES IN IDAHO IN 1937, BY COUNTIES IN FINE OUNCES, IN TERMS OF RECOVERED METALS

<table>
<thead>
<tr>
<th>County</th>
<th>Sluicing, and hydraulic and sluicing</th>
<th>Drift Mining</th>
<th>Dragline †Dredges</th>
<th>Floating (bucket) dredges</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gold</td>
<td>Silver</td>
<td>Gold</td>
<td>Silver</td>
<td>Gold</td>
</tr>
<tr>
<td>Ada</td>
<td>62</td>
<td>12</td>
<td></td>
<td></td>
<td>450</td>
</tr>
<tr>
<td>Benewah</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boise</td>
<td>1,096</td>
<td>275</td>
<td>36</td>
<td>8</td>
<td>1,193</td>
</tr>
<tr>
<td>Bonneville</td>
<td>118</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boundary</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camas</td>
<td>14</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canyon</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearwater</td>
<td>159</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custer</td>
<td>77</td>
<td>25</td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Elmore</td>
<td>127</td>
<td>66</td>
<td></td>
<td></td>
<td>85</td>
</tr>
<tr>
<td>Gem</td>
<td>67</td>
<td>10</td>
<td></td>
<td></td>
<td>500</td>
</tr>
<tr>
<td>Gooding</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idaho</td>
<td>922</td>
<td>231</td>
<td>36</td>
<td>6</td>
<td>2,248</td>
</tr>
<tr>
<td>Jerome</td>
<td>149</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latah</td>
<td>64</td>
<td>6</td>
<td></td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>Lemhi</td>
<td>1,036</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nez Perce</td>
<td>28</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owyhee</td>
<td>99</td>
<td>596</td>
<td>13</td>
<td>1</td>
<td>1,104</td>
</tr>
<tr>
<td>Power</td>
<td>35</td>
<td>4</td>
<td></td>
<td></td>
<td>663</td>
</tr>
<tr>
<td>Shoshone</td>
<td>65</td>
<td>6</td>
<td>348</td>
<td>50</td>
<td>319</td>
</tr>
<tr>
<td>Twin Falls</td>
<td>48</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valley</td>
<td>106</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total, 1936</td>
<td>4,286</td>
<td>1,399</td>
<td>433</td>
<td>65</td>
<td>6,859</td>
</tr>
</tbody>
</table>

† Power-shovel excavators with floating washing plants or special amalgamators.
ORE SOLD OR TREATED IN IDAHO IN 1937, WITH CONTENT IN TERMS OF RECOVERED METALS

<table>
<thead>
<tr>
<th>Source</th>
<th>Mines Producing</th>
<th>Ore</th>
<th>Gold</th>
<th>Silver</th>
<th>Copper</th>
<th>Lead</th>
<th>Zinc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short Tons</td>
<td>Fine Ounces</td>
<td>Fine Ounces</td>
<td>Pounds</td>
<td>Pounds</td>
</tr>
<tr>
<td>Dry gold ore</td>
<td>203</td>
<td>203,197</td>
<td>36,025</td>
<td>106,305</td>
<td>133,711</td>
<td>79,315</td>
<td></td>
</tr>
<tr>
<td>Dry gold-silver</td>
<td>8</td>
<td>205</td>
<td>725</td>
<td>17,923</td>
<td>688</td>
<td>7,151</td>
<td></td>
</tr>
<tr>
<td>Dry silver ore</td>
<td>31</td>
<td>328,112</td>
<td>796</td>
<td>14,119,025</td>
<td>3,074,069</td>
<td>1,752,728</td>
<td></td>
</tr>
<tr>
<td>Copper ore</td>
<td>15</td>
<td>850</td>
<td>22</td>
<td>36,622</td>
<td>145,450</td>
<td>5,550</td>
<td></td>
</tr>
<tr>
<td>Lead ore</td>
<td>66</td>
<td>412,378</td>
<td>913</td>
<td>2,060,761</td>
<td>334,577</td>
<td>63,560,870</td>
<td>1,706,250</td>
</tr>
<tr>
<td>Zinc-lead ore</td>
<td>37</td>
<td>1,130,660</td>
<td>2,840</td>
<td>3,234,843</td>
<td>775,505</td>
<td>142,016,386</td>
<td>106,691,750</td>
</tr>
<tr>
<td>Total, lode mines</td>
<td>†347</td>
<td>2,075,402</td>
<td>41,321</td>
<td>19,575,479</td>
<td>4,464,000</td>
<td>207,422,000</td>
<td>108,398,000</td>
</tr>
<tr>
<td>Total placers</td>
<td>741</td>
<td></td>
<td></td>
<td>40,540</td>
<td>12,287</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total, 1936</td>
<td>1,088</td>
<td>2,075,402</td>
<td>81,861</td>
<td>19,587,766</td>
<td>4,464,000</td>
<td>207,422,000</td>
<td>108,398,000</td>
</tr>
<tr>
<td></td>
<td>1,109</td>
<td>1,807,530</td>
<td>80,291</td>
<td>14,537,530</td>
<td>2,954,000</td>
<td>182,678,000</td>
<td>98,200,000</td>
</tr>
</tbody>
</table>

† A mine producing more than 1 class of ore is counted but once in arriving at total for all classes.

By Paul Luff, Salt Lake City Office,
Mineral Production and Economics Division,
O. E. Kiessling, Chief Economist.
METAL MINING IN IDAHO IN 1938—
PRELIMINARY ANNUAL FIGURES

Metal mines in Idaho produced, in terms of recoverable metals, gold, silver, copper, lead, and zinc valued at about $28,742,000 in 1938, according to estimates by the Salt Lake City office of the Bureau of Mines, United States Department of the Interior. This total is a decided drop from the comparable figure of $37,840,184 in 1937. The output of silver decreased 986,639 ounces; copper, 264,000 pounds; lead, 26,422,000 pounds; and zinc, 21,398,000 pounds. Gold production increased 19,139 ounces to the largest total in any year since 1899. The total value of the five metals in 1938 decreased 24 percent from 1937. Most of the decrease in value was in lead, silver, and zinc and resulted from a combination of lower metal prices and curtailed production by the large mines in the Coeur d'Alene region.

The average sales price per pound of copper declined from 12.1 cents in 1937 to 9.8 cents in 1938, lead from 5.9 to 4.7 cents, and zinc from 6.5 to 4.9 cents; the price of silver was 64.6+ cents an ounce in 1938 compared with 77.35 cents in 1937; and the price of gold remained at $35 an ounce.

The output of gold in Idaho was about 101,000 fine ounces valued at $3,535,000 in 1938 compared with $2,865,135 in 1937, an increase of 23 percent. Gold from placer operations totaled about 56,500 ounces, an increase from 40,540 ounces in 1937. Approximately 33,800 ounces of the placer gold in 1938 was recovered by 9 connected-bucket dredges and 17,200 ounces by several dragline dredges; in 1937, 10 connected-bucket dredges produced 28,962 ounces and dragline excavators only 6,859 ounces. Four bucket dredges working in the Boise Basin district, Boise County, in 1938 recovered about one-third of the State output of placer gold; most of the remainder was recovered by bucket dredges operating at Warren and De Lamar and by dragline dredges operating near Golden, Montour, De Lamar, Placerville, and Elk City. The production of gold from lode mines was about 44,500 ounces in 1938 compared with 41,321 ounces in 1937. About 30 percent of all gold produced in Idaho in 1938 was recovered from placer and lode operations in the Boise Basin district and the output from this district increased from 25,653 ounces in 1937 to 30,000 ounces in 1938. Other important gold-producing areas were the Marshall Lake, Middle Boise, Warm Springs, Coeur d'Alene, Yellow Pine, Ten Mile, Ramey, Mineral Hill, Orogrande, and Pratt Creek districts. There were substantial increases in gold production from the Newsome, West View, Warm Springs, Middle Boise, Warren, Carson, Mineral Hill, Ramey, Ten Mile, and Elk City districts. The largest producers of gold in Idaho in 1938 were the Fisher & Baumhoff dredges at Centerville, Moores Creek Dredging Co. near Idaho City, Warren Dredging Co. at Warren, Golden Anchor mine at Burgdorf, Ferris & Marchbank dragline on Newsome Creek, Jordan Creek Placers (dragge) at De Lamar, Triumph mine near Ketchum, Mayflower mine at Quartzburg, and the Yellow Pine mine at Stibnite.

The output of silver in Idaho was about 18,601,127 fine ounces valued at $12,024,971 in 1938 compared with 19,587,766 ounces valued at $15,151,137 in 1937, a decrease of 5 percent in quantity and 21 percent in value. Virtually all the large producers of silver in the Coeur d'Alene region reported decreased output. However, a substantial increase was reported by Snyder Mines, Inc., operating the Triumph mine near Ketchum in Blaine County, and by the Polaris Mining Co., operating property near the Sunshine mine in Shoshone County. The Sunshine Mining Co. near Kellogg was by far the largest producer of silver in Idaho in 1938; it was followed by the Polaris, Hecla, Bunker Hill & Sullivan, Triumph, Morning, Crescent, Page, Clayton, and Sherman mines, all in the Coeur d'Alene region except the Triumph and Clayton properties.
More than half of the State output of copper in 1938 was recovered from silver ore from the Sunshine property; the balance came largely from silver ore from the Polaris and Crescent mines, zinc-lead ore from the Bunker Hill & Sullivan, Triumph, and Morning mines, and lead ore from the Hecla mine. The copper output was about 4,200,000 pounds valued at $411,600 in 1938 compared with 4,464,000 pounds valued at $540,144 in 1937.

The output of both lead and zinc in Idaho in 1938 dropped sharply compared with 1937—lead 13 percent in quantity and 30 percent in value and zinc 20 percent in quantity and 40 percent in value. Lead production was about 181,000,000 pounds valued at $8,507,000 in 1938 compared with 207,422,000 pounds valued at $12,237,898 in 1937; while zinc was about 87,000,000 pounds valued at $4,263,000 compared with 108,398,000 pounds valued at $7,045,870. All the large producers in the Coeur d'Alene region curtailed their output of zinc-lead ore and lead ore in 1938. The Morning mine and mill at Mullan were closed for about 6 weeks during the summer and the output of lead and zinc decreased nearly 12,000,000 and 9,000,000 pounds, respectively. Large decreases in lead and zinc were also reported at the Bunker Hill & Sullivan and Star mines; lead from the Hecla decreased although zinc increased slightly. These large losses in the Coeur d'Alene region were offset in part by substantial increases at the Triumph mine near Ketchum in Blaine County where the output of silver, lead and zinc was about double that in 1937. The Bunker Hill & Sullivan mine was again the largest lead producer in Idaho, followed by the Hecla, Morning, Triumph, Page, Star, Sherman, and Gold Hunter mines. Nearly 96 percent of the zinc produced in Idaho in 1938 came from the Morning, Triumph, Bunker Hill & Sullivan, Star, Frisco, Page and Hecla mines, named in order of output.

In 1938 mines in the Coeur d'Alene region, Shoshone County, produced 92 percent of the State silver output, 87 percent of the copper, 89 percent of the lead, and 71 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, and the Pend d'Oreille district in Bonner County; while nearly all the remaining zinc came from the Warm Springs district. The production of silver, lead and zinc from the Coeur d'Alene region was much less in 1938 than in 1937; silver decreased from 18,457,726 to 17,070,000 ounces, lead from 193,010,644 to 161,800,000 pounds, and zinc from 94,140,000 to 62,000,000 pounds. Copper decreased slightly (from 3,888,157 to 3,650,000 pounds), but gold production was virtually the same as in 1937 (3,659 ounces). The total output of ore from the region was about 1,510,000 tons in 1938 compared with 1,731,801 tons in 1937; more than 53 percent in 1938 was zinc-lead ore, 28 percent silver ore, and 18 percent lead ore. The Sunshine Mining Co. continued as the largest producer of silver in the United States, although its output decreased from 12,152,000 ounces in 1937 to approximately 11,477,000 ounces in 1938. The Morning mine of the Federal Mining & Smelting Co., the largest producer of zinc in Idaho and a large producer of silver and lead, was idle during the summer, and the Star mine, a large producer of zinc-lead ore, was closed in July. The lead smelter and refinery at Kellogg, owned by the Bunker Hill & Sullivan Mining & Concentrating Co., and the electrolytic zinc plant at Silver King, operated by the Sullivan Mining Co., were operated throughout the year but at a much lower rate than in 1937.

Following the Coeur d'Alene region, the Warm Springs district near Ketchum, Blaine County, was the most important producing area in Idaho in 1938. Its output was virtually all zinc-lead ore from property operated by Snyder Mines, Inc.; the ore was shipped to Bauer and Tooele (Utah) for milling. In 1938, approximately 106,000 tons of ore were produced in the district, yielding 4,310 ounces of gold, 988,600 ounces of silver, 210,000 pounds of copper, 14,725,000 pounds of lead, and 24,900,000 pounds of zinc; in 1937, 69,342 tons of ore yielded 1,132 ounces of gold, 494,419 ounces of silver, 170,636 pounds of copper, 8,008,017 pounds of lead, and 13,918,000 pounds of zinc.
About 1,935,000 tons of ore were produced in Idaho in 1938 compared with 2,075,402 tons in 1937. The output of zinc-lead ore decreased from 1,130,660 to 915,000 tons; silver ore increased from 328,112 to 419,000 tons, and gold ore from 203,197 to about 270,000 tons; and lead ore decreased from 412,378 to 330,000 tons. The Bunker Hill & Sullivan mine was the largest producer of ore in the State, followed by the Sunshine, Hecla, Triumph, Orogrande-Frisco, Page and Polaris mines. The Orogrande-Frisco property near Orogrande continued as the largest producer of gold ore. About 78 percent of the total ore produced in the State in 1938 came from 30 mines in the Coeur d'Alene region; the remainder was mostly gold ore from Idaho, Valley, Boise, Lemhi, and Elmore Counties and zinc-lead ore from Blaine County.

An increase was indicated in the number of lode mines in 1938, but a decrease in the number of placers. There were 741 placers and 347 lode mines producing in 1937, a total of 1,088 mines.

Final State and county annual figures and further operating details by districts will appear in Minerals Yearbook, 1939.

By T. H. Miller and Paul Luff, Salt Lake City Office, Mineral Production and Economics Division, H. Herbert Hughes, Acting Chief Economist.
## MONTHLY AVERAGE PRICES OF METALS
### 1935-1936-1937-1938

### SILVER

<table>
<thead>
<tr>
<th>Month</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>54.418</td>
<td>47.250</td>
<td>44.913</td>
<td>44.750</td>
</tr>
<tr>
<td>February</td>
<td>54.602</td>
<td>44.750</td>
<td>44.750</td>
<td>44.750</td>
</tr>
<tr>
<td>March</td>
<td>59.048</td>
<td>44.750</td>
<td>45.130</td>
<td>44.446</td>
</tr>
<tr>
<td>April</td>
<td>67.788</td>
<td>44.892</td>
<td>45.460</td>
<td>42.750</td>
</tr>
<tr>
<td>May</td>
<td>74.356</td>
<td>44.369</td>
<td>45.025</td>
<td>42.750</td>
</tr>
<tr>
<td>June</td>
<td>71.940</td>
<td>44.750</td>
<td>44.818</td>
<td>42.750</td>
</tr>
<tr>
<td>July</td>
<td>68.216</td>
<td>44.750</td>
<td>44.750</td>
<td>42.750</td>
</tr>
<tr>
<td>August</td>
<td>66.366</td>
<td>44.750</td>
<td>44.750</td>
<td>42.750</td>
</tr>
<tr>
<td>September</td>
<td>65.375</td>
<td>44.750</td>
<td>44.750</td>
<td>42.750</td>
</tr>
<tr>
<td>October</td>
<td>65.375</td>
<td>44.750</td>
<td>44.750</td>
<td>42.750</td>
</tr>
<tr>
<td>November</td>
<td>65.375</td>
<td>45.431</td>
<td>44.750</td>
<td>42.750</td>
</tr>
<tr>
<td>December</td>
<td>63.170</td>
<td>45.340</td>
<td>44.750</td>
<td>42.750</td>
</tr>
</tbody>
</table>

Quotations cents per oz. troy, 999 fine.

### LEAD

<table>
<thead>
<tr>
<th>Month</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>3.692</td>
<td>4.500</td>
<td>6.000</td>
<td>4.720</td>
</tr>
<tr>
<td>February</td>
<td>3.528</td>
<td>4.515</td>
<td>6.299</td>
<td>4.632</td>
</tr>
<tr>
<td>March</td>
<td>3.579</td>
<td>4.600</td>
<td>7.190</td>
<td>4.500</td>
</tr>
<tr>
<td>April</td>
<td>3.692</td>
<td>4.600</td>
<td>6.175</td>
<td>4.500</td>
</tr>
<tr>
<td>May</td>
<td>3.962</td>
<td>4.600</td>
<td>6.000</td>
<td>4.400</td>
</tr>
<tr>
<td>June</td>
<td>4.020</td>
<td>4.600</td>
<td>6.000</td>
<td>4.148</td>
</tr>
<tr>
<td>July</td>
<td>4.128</td>
<td>4.600</td>
<td>6.000</td>
<td>4.482</td>
</tr>
<tr>
<td>August</td>
<td>4.254</td>
<td>4.600</td>
<td>6.452</td>
<td>4.900</td>
</tr>
<tr>
<td>September</td>
<td>4.413</td>
<td>4.600</td>
<td>6.400</td>
<td>4.998</td>
</tr>
<tr>
<td>October</td>
<td>4.512</td>
<td>4.631</td>
<td>5.740</td>
<td>5.100</td>
</tr>
<tr>
<td>November</td>
<td>4.500</td>
<td>5.114</td>
<td>5.033</td>
<td>5.091</td>
</tr>
<tr>
<td>December</td>
<td>4.500</td>
<td>5.345</td>
<td>4.850</td>
<td>4.860</td>
</tr>
</tbody>
</table>

Quotations, cents per pound.

### ZINC

<table>
<thead>
<tr>
<th>Month</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>3.730</td>
<td>4.848</td>
<td>5.847</td>
<td>5.000</td>
</tr>
<tr>
<td>February</td>
<td>3.714</td>
<td>4.859</td>
<td>6.465</td>
<td>4.813</td>
</tr>
<tr>
<td>March</td>
<td>3.894</td>
<td>4.900</td>
<td>7.381</td>
<td>4.417</td>
</tr>
<tr>
<td>April</td>
<td>4.030</td>
<td>4.900</td>
<td>7.010</td>
<td>4.141</td>
</tr>
<tr>
<td>May</td>
<td>4.220</td>
<td>4.900</td>
<td>6.750</td>
<td>4.042</td>
</tr>
<tr>
<td>June</td>
<td>4.299</td>
<td>4.880</td>
<td>6.750</td>
<td>4.131</td>
</tr>
<tr>
<td>July</td>
<td>4.325</td>
<td>4.783</td>
<td>6.923</td>
<td>4.745</td>
</tr>
<tr>
<td>August</td>
<td>4.535</td>
<td>4.800</td>
<td>7.192</td>
<td>4.750</td>
</tr>
<tr>
<td>September</td>
<td>4.669</td>
<td>4.850</td>
<td>7.190</td>
<td>4.846</td>
</tr>
<tr>
<td>October</td>
<td>4.825</td>
<td>4.850</td>
<td>6.085</td>
<td>5.012</td>
</tr>
<tr>
<td>November</td>
<td>4.850</td>
<td>4.974</td>
<td>5.630</td>
<td>4.924</td>
</tr>
<tr>
<td>December</td>
<td>4.850</td>
<td>5.160</td>
<td>5.150</td>
<td>4.500</td>
</tr>
</tbody>
</table>

Quotations, cents per pound.

### COPPER

<table>
<thead>
<tr>
<th>Month</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>8.775</td>
<td>9.025</td>
<td>12.415</td>
<td>10.198</td>
</tr>
<tr>
<td>February</td>
<td>8.775</td>
<td>9.025</td>
<td>13.427</td>
<td>9.775</td>
</tr>
<tr>
<td>March</td>
<td>8.775</td>
<td>9.025</td>
<td>15.775</td>
<td>9.775</td>
</tr>
<tr>
<td>April</td>
<td>8.775</td>
<td>9.169</td>
<td>15.121</td>
<td>9.775</td>
</tr>
<tr>
<td>May</td>
<td>8.775</td>
<td>9.275</td>
<td>13.775</td>
<td>9.375</td>
</tr>
<tr>
<td>June</td>
<td>8.634</td>
<td>9.275</td>
<td>13.775</td>
<td>8.775</td>
</tr>
<tr>
<td>July</td>
<td>7.775</td>
<td>9.352</td>
<td>13.775</td>
<td>9.585</td>
</tr>
<tr>
<td>August</td>
<td>7.979</td>
<td>9.525</td>
<td>13.775</td>
<td>9.900</td>
</tr>
<tr>
<td>September</td>
<td>8.504</td>
<td>9.525</td>
<td>13.530</td>
<td>10.028</td>
</tr>
<tr>
<td>October</td>
<td>8.967</td>
<td>9.563</td>
<td>11.858</td>
<td>10.760</td>
</tr>
<tr>
<td>November</td>
<td>9.025</td>
<td>10.161</td>
<td>10.979</td>
<td>11.025</td>
</tr>
<tr>
<td>December</td>
<td>9.025</td>
<td>10.454</td>
<td>10.500</td>
<td>11.025</td>
</tr>
</tbody>
</table>

Quotations, cents per pound.
## COEUR D'ALENE MINES DIVIDEND RECORD
### FOR 1938

<table>
<thead>
<tr>
<th>Company</th>
<th>1938</th>
<th>1937</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunker Hill &amp; Sullivan M. &amp; C. Co.</td>
<td>$54,776</td>
<td>$1,851,659</td>
<td>$52,271,407</td>
</tr>
<tr>
<td>Dayrock</td>
<td></td>
<td>17,473</td>
<td>271,438</td>
</tr>
<tr>
<td>Federal Mining &amp; Smelting Co.</td>
<td>79,000</td>
<td>1,003,419</td>
<td>26,607,947</td>
</tr>
<tr>
<td>Hecla Mining Co.</td>
<td>300,000</td>
<td>950,000</td>
<td>22,755,000</td>
</tr>
<tr>
<td>Jack Waite</td>
<td>41,316</td>
<td></td>
<td>41,316</td>
</tr>
<tr>
<td>Polaris</td>
<td>220,000</td>
<td>60,000</td>
<td>280,000</td>
</tr>
<tr>
<td>Sherman</td>
<td></td>
<td>44,100</td>
<td>80,850</td>
</tr>
<tr>
<td>Sunshine Mining Co.</td>
<td>3,275,406</td>
<td>4,466,466</td>
<td>15,602,843</td>
</tr>
<tr>
<td>Sidney Mining Co.</td>
<td></td>
<td></td>
<td>108,750</td>
</tr>
<tr>
<td>Sullivan Mining Co.</td>
<td></td>
<td></td>
<td>174,482</td>
</tr>
<tr>
<td>Tamarack</td>
<td></td>
<td>20,000</td>
<td>1,242,123</td>
</tr>
</tbody>
</table>

$3,970,498 $8,413,114 $118,967,841

### Dividends Paid by Mining Companies of the Coeur d'Alene Mining District

#### (1886 TO 1938)

<table>
<thead>
<tr>
<th>Company</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunker Hill &amp; Sullivan</td>
<td>$52,271,407</td>
</tr>
<tr>
<td>Big Creek Leasing Co.</td>
<td>5,000</td>
</tr>
<tr>
<td>Black Cloud</td>
<td>71,889</td>
</tr>
<tr>
<td>Caledonia</td>
<td>4,851,492</td>
</tr>
<tr>
<td>Consolidated Interstate-Callahan</td>
<td>7,721,689</td>
</tr>
<tr>
<td>Crown Point</td>
<td>102,000</td>
</tr>
<tr>
<td>Dayrock</td>
<td>271,438</td>
</tr>
<tr>
<td>Douglas</td>
<td>38,407</td>
</tr>
<tr>
<td>Federal Mining &amp; Smelting Co. (all holdings)</td>
<td>26,607,947</td>
</tr>
<tr>
<td>Golconda</td>
<td>80,000</td>
</tr>
<tr>
<td>Gold Hunter</td>
<td>521,074</td>
</tr>
<tr>
<td>Green Hill-Cleveland</td>
<td>2,951,877</td>
</tr>
<tr>
<td>Hecla</td>
<td>22,755,000</td>
</tr>
<tr>
<td>Hercules</td>
<td>21,543,622</td>
</tr>
<tr>
<td>Humming Bird</td>
<td>34,096</td>
</tr>
<tr>
<td>Jack Waite</td>
<td>41,316</td>
</tr>
<tr>
<td>Marsh Mining Co.</td>
<td>40,000</td>
</tr>
<tr>
<td>Ontario</td>
<td>394,877</td>
</tr>
<tr>
<td>Polaris Mining Co.</td>
<td>280,000</td>
</tr>
<tr>
<td>Sidney (company and leasing company)</td>
<td>173,685</td>
</tr>
<tr>
<td>Sherman Lead</td>
<td>80,850</td>
</tr>
<tr>
<td>Snowstorm</td>
<td>1,457,647</td>
</tr>
<tr>
<td>Star</td>
<td>250,000</td>
</tr>
<tr>
<td>Stewart</td>
<td>2,892,747</td>
</tr>
<tr>
<td>Sullivan Mining Co.</td>
<td>174,482</td>
</tr>
<tr>
<td>Success</td>
<td>1,267,894</td>
</tr>
<tr>
<td>Sunshine</td>
<td>15,602,843</td>
</tr>
<tr>
<td>Tamarack</td>
<td>1,242,123</td>
</tr>
<tr>
<td>Tuscumbia</td>
<td>18,226</td>
</tr>
<tr>
<td>Yukon Gold Dredge (Murray)</td>
<td>500,000</td>
</tr>
<tr>
<td>Leasers and companies not listed (estimated)</td>
<td>500,000</td>
</tr>
</tbody>
</table>

**GRAND TOTAL** $163,753,627

The amount estimated for leasers and companies not listed is placed at a conservative figure rather than otherwise.

The list does not include records of personal and partnership profits in small operations, principally in placer mining in the Murray district.
PROPERTY TAXES
VALUATION OF MINE PROPERTY BOOSTED
(Associated Press Dispatch, December 12, 1938)

Assessed valuation of only four classes of property was increased in the eight-year period ending with 1937, the state planning board reported on December 12, 1938.

Mining property valuations for taxing purposes were increased 40.2 percent in 1937 compared with 1929, the board said an 18-months survey conducted as a Works Progress Administration project disclosed.

Valuation of light and power companies' property gained 20.3 percent, telephone companies, 28 percent, and telegraph companies, 3 percent.

An 18 percent decline in assessed valuation of railroad property, however, reduced total utilities' property 8.4 percent.

Total valuation of all types of property was listed in 1937 at $381,-106,978, a 21.7 percent decline from the $486,604,398 figure in 1929.

The survey disclosed these other figures:
Agriculture property in 1937 was assessed at $150,710,326, compared with $210,055,950 in 1929; lumber property at $15,163,414 compared with $32,788,151; business property at $56,522,843 compared with $68,508,882, and residence property at $37,815,254 compared with $47,909,915.

Railroads in 1937 were valued at $71,134,283, a decline from $86,796,667 in 1929.

Light and power company property, however, gained from $23,704,865 in 1929 to $28,524,367 in 1937; telephone property increased from $3,912,076 to $5,008,956, and telegraph property from $767,436 to $790,244.

Mining property was valued at $10,324,118 in 1929 and $14,470,527 in 1937.

INCOME TAX

BOISE, Idaho, Dec. 21.—(Idaho News Bureau)---Idahoans paid income tax amounting to $2,133,772.54 in 1938, it was revealed today in a report by Leslie Shellworth, head of the income tax bureau, of which $1,463,042.30 was paid by corporations and $670,730 by individuals.

This is the tax paid during 1938 on income earned during 1937. In contrast to previous years, the bureau did not tabulate the tax paid by married individuals as contrasted with single individuals.

The corporation share of the tax was more than two thirds the total paid, Shellworth's figures disclosed. These figures compare with a total tax from all sources of $1,852,226 in 1937 on the 1936 taxable year, of which $1,170,708 was paid by corporations. Thus the proportion of income tax paid by corporations in 1938 was slightly greater than in 1937.

While figures for individual corporations are kept confidential under the law, in some of the groups of larger interests the bureau has compiled figures. These show that four groups of interests—mines, railroads, power companies and utilities—pay 65.4 percent of the total corporation income tax in the state, and nearly 44% of all income taxes paid in Idaho.

Mines, with more than 50 per cent of the total corporation tax and more than a third of the total combined income tax, led the list. They paid $767,917.22 for the period under discussion.

Railroads paid $8,870.88 of the total; power companies were nicked for $149,200.39; and telephone and telegraph companies ponied up $29,428.19.

A year ago, the railroad income tax was $5,308.97; the power companies paid $143,510, and the telephone and telegraph companies paid $24,414.81.

MINE LICENSE TAX

The Mine License Tax Law was enacted by the 1935 Legislature in its first extraordinary session. This act provides for the imposition of a
license tax for the privilege of mining or extracting ores upon all persons engaged in the business of mining or extraction of ores in the state; for determining the measure of the tax levied by this act, which shall be in addition to all other taxes provided by law; fixing the time of payment of such tax and the distribution thereof; providing for enforcing and collection of the same by the Commissioner of Law Enforcement; and prescribing penalties for violation thereof.

The United Mercury Mines Company instituted suit against the Commissioner of the Department of Law Enforcement to abstain him from collection of the tax upon the ground that the act was unconstitutional.

The Third Judicial Court upheld this position upon the ground that the act was uncertain in the use of certain words, and prohibited the enforcement.

The Commissioner of Law Enforcement appealed to the Supreme Court of the State of Idaho in May, 1936, and on January 23, 1937, the Supreme Court reversed and remanded the case to the District Court with instructions to dismiss (see United Mercury Mines Company et. al v. Pfost Comm. et al 25 I 293).

New suits were filed by the United Mercury Mines Company and the Idaho Gold Dredging Company in which cases the law was upheld. Upon appeal to the Supreme Court, that body on January 25, 1938, affirmed the judgment of the District Court (see Idaho Gold Dredging Co. et al v. Balderston, Comm. et. al 58 I 692).

DISTRIBUTION OF TAX COLLECTED BY COUNTIES AND YEAR IN WHICH TAX LIABILITY WAS INCURRED

<table>
<thead>
<tr>
<th>County</th>
<th>1934</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>Interest</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoshone</td>
<td>$87,784.90</td>
<td>$151,416.80</td>
<td>$256,496.47</td>
<td>$383,958.33</td>
<td>$60,105.75</td>
<td>$939,762.25</td>
</tr>
<tr>
<td>Idaho</td>
<td>5,544.90</td>
<td>6,667.00</td>
<td>6,870.53</td>
<td>5,813.47</td>
<td>2,490.53</td>
<td>27,386.43</td>
</tr>
<tr>
<td>Elmore</td>
<td>12,573.61</td>
<td>3,786.67</td>
<td>222.99</td>
<td>1,402.96</td>
<td>936.84</td>
<td>16,583.27</td>
</tr>
<tr>
<td>Valley</td>
<td>2,939.04</td>
<td>1,498.75</td>
<td>930.97</td>
<td>584.91</td>
<td>684.91</td>
<td></td>
</tr>
<tr>
<td>Blaine</td>
<td>1,439.80</td>
<td>5,775.03</td>
<td>115.18</td>
<td>7,772.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boise</td>
<td>3,003.19</td>
<td>3,440.10</td>
<td>210.83</td>
<td>6,654.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owyhee</td>
<td>2,043.37</td>
<td>2,423.45</td>
<td>131.27</td>
<td>4,598.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custer</td>
<td></td>
<td></td>
<td>936.97</td>
<td>939.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemhi</td>
<td>100.00</td>
<td>584.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$108,842.45</td>
<td>$163,369.22</td>
<td>$271,350.32</td>
<td>$403,843.10</td>
<td>$64,271.65</td>
<td>$1,011,682.74</td>
</tr>
</tbody>
</table>

COLLECTIONS BY YEARS

<table>
<thead>
<tr>
<th></th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$12,573.61</td>
<td>$772.29</td>
<td>$12,273.72</td>
<td>$986,063.12</td>
<td>$1,011,682.74</td>
</tr>
</tbody>
</table>

HECLA MINING COMPANY'S NEW MILL

The Hecla Mining Company's modernized mill, located at Gem, Idaho, which has been under construction during the last half of 1938, is now treating Hecla ore on a flotation principle exclusively. During the month the work has been under way Hecla ore was milled at the Star plant, located near the Hecla shaft, at Burke.

The new mill has a capacity of 900 tons daily and the alterations and additions cost upward of $80,000, the officials report. It is equipped to make double separation of lead and zinc concentrates and fine grinding of all ore will be possible. A very close saving of values is assured and the ore handled on a very economical basis. W. L. Zeigler, Hecla mill superintendent, designed the new mill and had charge of the work of remodeling the plant.
LAND

Idaho, ranking twelfth in size in the United States, contains 83,888 square miles. Of this amount, approximately 534 square miles are water area and 83,354 square miles are land. The major portion of the state, being of rough topography and unsuited for agricultural purposes, has never been taken into private ownership. Approximately 68% of the land area of the state is in Federal ownership, 6% in state ownership and the remaining 26% is privately owned.

FEDERAL

Of the total land in Federal ownership, 53% is National Forest, 31% is Public Domain, 14.5% is unsold, withdrawn for reclamation, game and parks and 1.5% is Indian Reservation. The area in National Forests actually amounts to approximately 36% of the total land area of the state. This land is chiefly in mountainous regions and involves little that would be suitable for agricultural purposes. It is chiefly utilized as grazing and forest lands, game refuges, recreation lands, water sheds and for mining purposes.

Public Domain amounts to 21% of the total land area of the state. Most of it is not suited to agriculture unless water is introduced. At the present time, it is utilized as grazing lands under the Taylor Grazing Act.

STATE

About six percent of the land area of Idaho is owned by the state. Much of it is forested and is composed of lands granted to various educational, charitable and penal institutions. The Organic Act of the Territory of Idaho, approved March 3, 1863, provided that sections 16 and 36 of every township should be reserved for the use and benefit of public schools. The Idaho Admission Bill, approved July 3, 1890, set forth in detail the land grants made by the Federal Government to the State of Idaho, for the establishment and maintenance of its various educational, charitable and penal institutions. Educational institutions were granted 5,264 square miles; charitable institutions, 234 square miles; state hospitals and public buildings, 128 square miles; penal institutions, 78 square miles.

Nearly two-fifths of the entire land area of Idaho, or 19,891,000 acres, exclusive of agricultural, grazing and barren areas within the forest belt, are classed as forest land.

TRANSPORTING SUPPLIES BY PACK TRAIN
# INDEX

<p>| Abbreviations and Symbols | 106, 107 |
| Accidents, Classification of | 46, 54, 55 |
| Ace Mining Co | 177 |
| Ada County | 108 |
| Adams County | 109 |
| Aetna Min. &amp; Inv. Co., Ltd | 148 |
| Aetna M. &amp; M. Co., Ltd | 199 |
| Afterthought Mines Corp | 247 |
| Aladdin Gold M. &amp; M. Co | 247 |
| Alamed Min. Co | 233 |
| Alandoc Min. Co | 126 |
| Alaska, All States, Golden Circle M. &amp; D. Co., Inc | 250 |
| Aldeen Creek Min. Co | 145 |
| A. L. Heine Mines, Inc., The | 119 |
| Alice Min. Co | 199 |
| Alpena Copper Min. Co., Ltd | 200 |
| Altura Min. Co | 233 |
| Amal. Gold Min. Co | 128 |
| Amal. Red Metals Mines Co | 242 |
| Amazon Manhattan Min. Co | 200 |
| Ambergris Cons. Min. Co | 200 |
| American Dollar Min. &amp; M. Co | 148 |
| American Eagle Min. Co | 128 |
| American Lead Mines, Ltd | 233 |
| American Min. Co., Ltd | 200 |
| American Placer Min. Co., Ltd | 146 |
| American Rand Research Corp | 250 |
| American River Min. Co. (Cal.) | 250 |
| American Silver Min. Co | 200 |
| American S. &amp; R. Co | 200 |
| Anaconda Copper M. Co | 141, 201 |
| Anaconda Sales Co | 247 |
| Andrews Group | 215 |
| Anna Bell M. &amp; M. Co | 247 |
| Antelope Mines, Inc | 249 |
| Antimony | 81 |
| Antimony Gold Ores Co | 244 |
| Apex Gold Min. Co | 154 |
| Arsenic | 81 |
| Asbestos | 81 |
| Assayers: |
| List of | 70 |
| Custom Charges | 71 |
| Assessment Work, Providing for the Suspension of | 104 |
| Atlanta Gold Mine Corp | 155 |
| Atlantic Min. Co | 201 |
| Atlas Min. Co | 201 |
| Atlas X Co | 201 |
| Aurora Min. Co | 234 |
| Auxer Gold Mines Co | 132 |
| Aztec M. &amp; M. Co | 148 |
| B. R. &amp; R. Co., Inc | 162 |
| Badger Mines Co | 136 |
| Baltimore &amp; Victoria Min. Co | 117 |
| Banner M. &amp; M. Co | 189 |
| Bannock Apex Mines, Inc | 193 |
| Bannock County | 131 |
| Barytes | 82 |
| Basin Group | 215 |
| Basin Ridge Mines, Inc | 123 |
| Bear Lake County | 112 |
| Beauty Bay Min. Co | 176 |
| Beaver Creek Min. Co | 234 |
| Beaver Placer, Inc | 249 |
| Bell Min. Co | 201 |
| Bell Mtn. Copper Co | 249 |
| Bell of the West Min. Co | 201 |
| Belmont Copper Corp | 247 |
| Benewah County | 114 |
| Bentonite | 82 |
| Benton Min. Co., Ltd | 201 |
| Bergdahl Oil Co | 108 |
| Beryl and Beryllium | 82 |
| Best Chance Gold M. Corp | 171 |
| Betty Lou Min. Co | 202 |
| Bibliographies, General | 79 |
| Big Bertha Min. Co., Inc | 143 |
| Big Creek Apex Min. Co | 202 |
| Big Creek Gold Mines, Inc | 244 |
| Big Creek Min. Co., Ltd | 202 |
| Big Divide Min. Co., Ltd | 202 |
| Big Elk Min. Co., Ltd | 202 |
| Big Five Min. Co | 129 |
| Big It M. &amp; M. Co | 234 |
| Binarch Creek Min. Co | 129 |
| Bingham County | 115 |
| Birch Creek Min. Co., Ltd | 144 |
| Bismarck Min. Co | 202 |
| Bismuth | 82 |
| Black Bear Min. Co | 202 |
| Blackbird Mines Co., Inc | 250 |
| Black Hawk M. &amp; Dev. Co., Ltd | 203 |
| Blackstone Min. Co., Ltd | 155 |
| Blaine County | 115 |
| Blaine &amp; Emmett Min. Co., Ltd | 203 |
| Blue Bird Min. Co | 173 |
| Blue Eagle Min. Co | 203 |
| Blue Jay Min. Co | 188 |
| Blue Ledge M. Co | 249 |
| Blue Ribbon Min. Co | 203 |
| Blue Rock Mines Corp | 123 |
| Blue Star M. &amp; M. Co., Ltd | 203 |
| Blue Wing Min. Co., Ltd | 203 |
| Bobby Anderson Group Min. Co | 203 |
| Boise County | 120 |
| Boise Dome Gas &amp; Oil Dev. Co | 249 |
| Boise Dome Gas &amp; Oil Co | 108 |
| Boise Oil Co | 108 |
| Boise M. M. &amp; S. Co | 108 |
| Boise Petroleum Corp | 192 |
| Bonner County | 127 |
| Bonneville County | 132 |
| Boundary County | 134 |
| Bradley M. Co | 242 |
| Brandon Gold Fields, Inc | 234 |
| Buckhorn Gold Corp | 152 |
| Buffalo-Idaho Min. Co | 171 |
| Building Stone | 82 |
| Bullion Min. Co., Ltd | 204 |
| Bullfrog Silver Lead Min. Co | 204 |</p>
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burke Group</td>
<td>211</td>
</tr>
<tr>
<td>Bunker Hill &amp; Sull. M. &amp; C. Co.</td>
<td>204</td>
</tr>
<tr>
<td>Burke Group</td>
<td>211</td>
</tr>
<tr>
<td>Burke Min. Co., Ltd.</td>
<td>205</td>
</tr>
<tr>
<td>Butte &amp; Coeur d'Alene D. Co.</td>
<td>205</td>
</tr>
<tr>
<td>Butte &amp; Cda. Silver-Lead Mines, Inc.</td>
<td>205</td>
</tr>
<tr>
<td>Bunker Chance Min. Co.</td>
<td>204</td>
</tr>
<tr>
<td>Bunker Min. Co., Ltd</td>
<td>205</td>
</tr>
<tr>
<td>Bunker Hill</td>
<td>205</td>
</tr>
<tr>
<td>Bunker Chance Min.</td>
<td>205</td>
</tr>
<tr>
<td>Bunker Min. Co., Ltd</td>
<td>205</td>
</tr>
<tr>
<td>Butte County</td>
<td>135</td>
</tr>
<tr>
<td>Calbar Co. (Utah)</td>
<td>250</td>
</tr>
<tr>
<td>Calabaria Min. Co.</td>
<td>205</td>
</tr>
<tr>
<td>Caledonia Min. Co.</td>
<td>205</td>
</tr>
<tr>
<td>Caledonia Silver-Lead Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Cal-Idaho Min. Co.</td>
<td>163</td>
</tr>
<tr>
<td>Calhanna Cons. Mines, Inc.</td>
<td>249</td>
</tr>
<tr>
<td>Callahan Zinc-Lead Co.</td>
<td>205</td>
</tr>
<tr>
<td>Camas County</td>
<td>137</td>
</tr>
<tr>
<td>Camp Bird M. &amp; D. Co.</td>
<td>132</td>
</tr>
<tr>
<td>Canada Gold Mines, Inc.</td>
<td>155</td>
</tr>
<tr>
<td>Canyon County</td>
<td>140</td>
</tr>
<tr>
<td>Carbonate M. &amp; M. Co.</td>
<td>206</td>
</tr>
<tr>
<td>Caribaria Min. Co.</td>
<td>206</td>
</tr>
<tr>
<td>Caribou County</td>
<td>176</td>
</tr>
<tr>
<td>Clay</td>
<td>83</td>
</tr>
<tr>
<td>Clayton Silver Mines Co.</td>
<td>148</td>
</tr>
<tr>
<td>Clear Grit Min. Co., Ltd.</td>
<td>206</td>
</tr>
<tr>
<td>Clearwater County</td>
<td>144</td>
</tr>
<tr>
<td>Clearwater Exp. Co. (A Trust)</td>
<td>163</td>
</tr>
<tr>
<td>Clearwater G. &amp; C. M. Co., Ltd.</td>
<td>206</td>
</tr>
<tr>
<td>Coal</td>
<td>123</td>
</tr>
<tr>
<td>Cobalt</td>
<td>84</td>
</tr>
<tr>
<td>Cobra M. &amp; M. Co.</td>
<td>146</td>
</tr>
<tr>
<td>Coeur d'Alene Big C. M. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Coeur d'Alene Champion M. Co.</td>
<td>206</td>
</tr>
<tr>
<td>Coeur d'Alene Crescent M. Co.</td>
<td>207</td>
</tr>
<tr>
<td>Coeur d'Alene Dividend Record 1886-1938</td>
<td>264</td>
</tr>
<tr>
<td>Coeur d'Alene Extension Mines, Inc.</td>
<td>207</td>
</tr>
<tr>
<td>Coeur d'Alene Lead Co.</td>
<td>207</td>
</tr>
<tr>
<td>Coeur d'Alene Metals Co.</td>
<td>207</td>
</tr>
<tr>
<td>Coeur d'Alene Mines Corp.</td>
<td>207</td>
</tr>
<tr>
<td>Coeur d'Alene Min. Co.</td>
<td>207</td>
</tr>
<tr>
<td>Coeur d'Alene Spokane Min. Co.</td>
<td>173</td>
</tr>
<tr>
<td>Coeur d'Alene Syn. Min. Co.</td>
<td>207</td>
</tr>
<tr>
<td>Columbia Mines Corp.</td>
<td>177</td>
</tr>
<tr>
<td>Come-Back Min. Co.</td>
<td>123</td>
</tr>
<tr>
<td>Commonwealth Metals Co.</td>
<td>174</td>
</tr>
<tr>
<td>Cons. Biederman Group</td>
<td>211</td>
</tr>
<tr>
<td>Consolidated Gold Mines, Inc.</td>
<td>208</td>
</tr>
<tr>
<td>Consolidated Gold Quartz M. Corp.</td>
<td>164</td>
</tr>
<tr>
<td>Cons. Independent Calumet M. Co.</td>
<td>208</td>
</tr>
<tr>
<td>Cons. Min. Corp.</td>
<td>234</td>
</tr>
<tr>
<td>Cons. Rapid River M. &amp; M. Co. Ltd.</td>
<td>164</td>
</tr>
<tr>
<td>Corner Stone M. &amp; M. Co.</td>
<td>171</td>
</tr>
<tr>
<td>Corporations, Delinquent 247, 248, 249</td>
<td>247</td>
</tr>
<tr>
<td>Corporations, New</td>
<td>250, 251</td>
</tr>
<tr>
<td>Corporations Not Owning Property in Idaho</td>
<td>247</td>
</tr>
<tr>
<td>Cosmopolitan Min. Co., Ltd</td>
<td>189</td>
</tr>
<tr>
<td>Crackerjack Gold Min. Co.</td>
<td>110</td>
</tr>
<tr>
<td>Croesus Gold Min. Co.</td>
<td>126</td>
</tr>
<tr>
<td>Crooks Corral Mines, Ltd.</td>
<td>164</td>
</tr>
<tr>
<td>Crystal Lead Mines Co.</td>
<td>208</td>
</tr>
<tr>
<td>Crystal Lime Co.</td>
<td>146</td>
</tr>
<tr>
<td>Crystal Spring Min. Co.</td>
<td>174</td>
</tr>
<tr>
<td>Cuba Min. Co.</td>
<td>208</td>
</tr>
<tr>
<td>Custer County</td>
<td>147</td>
</tr>
<tr>
<td>Custer Gulch Mines Co.</td>
<td>208</td>
</tr>
<tr>
<td>Daley Cons. Mines Co.</td>
<td>155</td>
</tr>
<tr>
<td>Daly Mines, Inc.</td>
<td>250</td>
</tr>
<tr>
<td>Dandy Gold Placers, Inc.</td>
<td>164</td>
</tr>
<tr>
<td>Dawson Mines, Inc.</td>
<td>250</td>
</tr>
<tr>
<td>Day Dev. Co.</td>
<td>208</td>
</tr>
<tr>
<td>Dayrock Min. Co.</td>
<td>209</td>
</tr>
<tr>
<td>Deadwood Min. Co., Ltd.</td>
<td>242</td>
</tr>
<tr>
<td>Delamar Mines of Mont., Inc.</td>
<td>247</td>
</tr>
<tr>
<td>De Lamar Placers</td>
<td>189</td>
</tr>
<tr>
<td>Delaware-idaho Gold Min. Co.</td>
<td>182</td>
</tr>
<tr>
<td>Delaware Mines Corp.</td>
<td>209</td>
</tr>
<tr>
<td>Del Monte Claims, Inc.</td>
<td>129</td>
</tr>
<tr>
<td>Diatomaceous Earth</td>
<td>85</td>
</tr>
<tr>
<td>Diatom Products Co.</td>
<td>171</td>
</tr>
<tr>
<td>Dickens-East Min. Co.</td>
<td>209</td>
</tr>
<tr>
<td>Dixie Gold, Inc. (Wash.)</td>
<td>250</td>
</tr>
<tr>
<td>Dixie Queen M. Co., Inc.</td>
<td>138</td>
</tr>
<tr>
<td>Dobson Pass Lead &amp; Silver Mines Corp.</td>
<td>209</td>
</tr>
<tr>
<td>Dominion Mines, Inc.</td>
<td>248</td>
</tr>
<tr>
<td>Douglas Min. Co., Ltd.</td>
<td>209</td>
</tr>
<tr>
<td>Duluth Min. Co.</td>
<td>209</td>
</tr>
<tr>
<td>Duncan River M. Syndicate, Inc., The</td>
<td>249</td>
</tr>
<tr>
<td>East Alameda Min. Co., Ltd</td>
<td>209</td>
</tr>
<tr>
<td>Company Name</td>
<td>Page Number</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>East Caledonia Mines Co</td>
<td>234</td>
</tr>
<tr>
<td>East Hecla Min. Co., Ltd</td>
<td>210</td>
</tr>
<tr>
<td>East Standard Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Eastern Star Min. Co., Ltd</td>
<td>210</td>
</tr>
<tr>
<td>Echo Min. Co., Ltd</td>
<td>210</td>
</tr>
<tr>
<td>Edna Development Co</td>
<td>250</td>
</tr>
<tr>
<td>Elk City Gold M. Co.</td>
<td>164</td>
</tr>
<tr>
<td>Elk Creek Mine, Inc.</td>
<td>149</td>
</tr>
<tr>
<td>Eldorado M. &amp; S. Co., Ltd</td>
<td>234</td>
</tr>
<tr>
<td>Elgin &amp; Ogden M. Co.</td>
<td>210</td>
</tr>
<tr>
<td>Elmore County</td>
<td>152</td>
</tr>
<tr>
<td>El Oro Mine</td>
<td>138</td>
</tr>
<tr>
<td>El Oro Placers, Inc.</td>
<td>248</td>
</tr>
<tr>
<td>Empire Metals Co.</td>
<td>171</td>
</tr>
<tr>
<td>Empire Mines Co.</td>
<td>189</td>
</tr>
<tr>
<td>Empire Tungsten Min. Co.</td>
<td>129</td>
</tr>
<tr>
<td>Employment, Wages, Hours</td>
<td>15</td>
</tr>
<tr>
<td>(National)</td>
<td></td>
</tr>
<tr>
<td>Engineers Gold M. Co.</td>
<td>177</td>
</tr>
<tr>
<td>England, H. F. &amp; Co.</td>
<td>123</td>
</tr>
<tr>
<td>Enterprise Min. Co.</td>
<td>210</td>
</tr>
<tr>
<td>Equitable M. &amp; M. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Esperanza Gold Dikes M. Corp.</td>
<td>171</td>
</tr>
<tr>
<td>Estep Estate, Walter A.</td>
<td>164</td>
</tr>
<tr>
<td>Eureka Dev. Co., Ltd</td>
<td>117</td>
</tr>
<tr>
<td>Evolution Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Falls Creek Min. Co.</td>
<td>132</td>
</tr>
<tr>
<td>Fannie Grimm Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Far West Gold-Silver M. Co., 165</td>
<td>210</td>
</tr>
<tr>
<td>Federal M. &amp; S. Co.</td>
<td>117</td>
</tr>
<tr>
<td>Feldspar</td>
<td>85</td>
</tr>
<tr>
<td>Felix Min. Co.</td>
<td>157</td>
</tr>
<tr>
<td>Fidelity Inv. Corp.</td>
<td>248</td>
</tr>
<tr>
<td>Fields Mutual Dev. Co.</td>
<td>117</td>
</tr>
<tr>
<td>Fitchburg Mining Co.</td>
<td>250</td>
</tr>
<tr>
<td>Five Points M. &amp; M. Co., Inc.</td>
<td>138</td>
</tr>
<tr>
<td>Florence M. &amp; M. Co., Ltd</td>
<td>234</td>
</tr>
<tr>
<td>Flynn Group Min. Co.</td>
<td>212</td>
</tr>
<tr>
<td>Ford Motor Co.</td>
<td>149</td>
</tr>
<tr>
<td>Forrests, Relation of Mines to</td>
<td>27</td>
</tr>
<tr>
<td>Formosa Lead Min. Co., Ltd</td>
<td>212</td>
</tr>
<tr>
<td>Four Square Gold Syndicate</td>
<td>212</td>
</tr>
<tr>
<td>Franklin Cons. Gold Mines Co.</td>
<td>247</td>
</tr>
<tr>
<td>Fremont County</td>
<td>156</td>
</tr>
<tr>
<td>French Creek Gold M. &amp; M. Co.</td>
<td>171</td>
</tr>
<tr>
<td>Frisco Group</td>
<td>210</td>
</tr>
<tr>
<td>Galena Mine</td>
<td>206</td>
</tr>
<tr>
<td>Galena Min. Co.</td>
<td>212</td>
</tr>
<tr>
<td>Garnet</td>
<td>85</td>
</tr>
<tr>
<td>Garnet Mines, Inc.</td>
<td>250</td>
</tr>
<tr>
<td>Gas</td>
<td>96</td>
</tr>
<tr>
<td>Gem County</td>
<td>157</td>
</tr>
<tr>
<td>Gem State Min. Co.</td>
<td></td>
</tr>
<tr>
<td>(Shoshone Co.)</td>
<td>212</td>
</tr>
<tr>
<td>General Mines Corp.</td>
<td>212</td>
</tr>
<tr>
<td>General Petroleum Corp. of Calif.</td>
<td>247</td>
</tr>
<tr>
<td>Gertie Min. Co.</td>
<td>212</td>
</tr>
<tr>
<td>General Phosphate Corp.</td>
<td>250</td>
</tr>
<tr>
<td>Gibbonsville Premier Gold Mine, Ltd., Inc.</td>
<td>182</td>
</tr>
<tr>
<td>Gilmore Merc. Co.</td>
<td>185</td>
</tr>
<tr>
<td>Glamorgan Group</td>
<td>211</td>
</tr>
<tr>
<td>Gnome Gold M. Co.</td>
<td>165</td>
</tr>
<tr>
<td>Gold Caledonia Group Min. Co.</td>
<td>189</td>
</tr>
<tr>
<td>Goldconda Lead Mines</td>
<td>213</td>
</tr>
<tr>
<td>Gold            (Utah)</td>
<td>85, 89</td>
</tr>
<tr>
<td>Gold Arrow Mines Co., Inc</td>
<td></td>
</tr>
<tr>
<td>(Utah)</td>
<td>250</td>
</tr>
<tr>
<td>Gold Bottom Dev. Co.</td>
<td>250</td>
</tr>
<tr>
<td>Gold Bug Min. Co.</td>
<td>165</td>
</tr>
<tr>
<td>Gold Canyon Mining Co., Inc</td>
<td>250</td>
</tr>
<tr>
<td>Gold Cross Min. Co.</td>
<td>165</td>
</tr>
<tr>
<td>Gold Digger Group</td>
<td>157</td>
</tr>
<tr>
<td>Gold Dollar Mines, Inc</td>
<td>248</td>
</tr>
<tr>
<td>Gold Dredging and Power Corp.</td>
<td>124</td>
</tr>
<tr>
<td>Gold Eagle Dredging Co., The</td>
<td>165</td>
</tr>
<tr>
<td>Gold Flotation Dev. Co.</td>
<td>182</td>
</tr>
<tr>
<td>Gold Forks Min. Co.</td>
<td>242</td>
</tr>
<tr>
<td>Gold Hill M. &amp; M. Co.</td>
<td>177</td>
</tr>
<tr>
<td>Gold Hunter Mines, Inc</td>
<td>213</td>
</tr>
<tr>
<td>Gold K. M. &amp; M. Co.</td>
<td>248</td>
</tr>
<tr>
<td>Gold Mt. Mines Co.</td>
<td>139</td>
</tr>
<tr>
<td>Gold Pistol Mines Corp</td>
<td>250</td>
</tr>
<tr>
<td>Gold Point Mines, Inc</td>
<td>171</td>
</tr>
<tr>
<td>Gold Producers, Inc.</td>
<td>185</td>
</tr>
<tr>
<td>Gold Production Co., A Trust</td>
<td>124</td>
</tr>
<tr>
<td>Gold Recovery Co.</td>
<td>117</td>
</tr>
<tr>
<td>Gold Reef Mines Co.</td>
<td>250</td>
</tr>
<tr>
<td>Gold Ridge Min. Co.</td>
<td>249</td>
</tr>
<tr>
<td>Gold River Mines, Inc</td>
<td>250</td>
</tr>
<tr>
<td>Golden Gate Min. Co. of Idaho</td>
<td>249</td>
</tr>
<tr>
<td>Goldflour Mining Co.</td>
<td>250</td>
</tr>
<tr>
<td>Golden Hand, Inc.</td>
<td>166</td>
</tr>
<tr>
<td>Golden Hand Ext'n M. Co., The</td>
<td>171</td>
</tr>
<tr>
<td>Golden Sceptre Min. Co.</td>
<td>134</td>
</tr>
<tr>
<td>Golden Seal M. &amp; M. Co.</td>
<td>124</td>
</tr>
<tr>
<td>Golden West Dredging Corp., Inc</td>
<td>248</td>
</tr>
<tr>
<td>Goldstone Mine (Partnership)</td>
<td>182</td>
</tr>
<tr>
<td>Goodenough United M. &amp; M. Co., Ltd.</td>
<td>166</td>
</tr>
<tr>
<td>Goodenough Min. Co.</td>
<td>213</td>
</tr>
<tr>
<td>Good Luck Group</td>
<td>155</td>
</tr>
<tr>
<td>Government Gulch Group</td>
<td>211</td>
</tr>
<tr>
<td>Government Min. Co.</td>
<td>213</td>
</tr>
<tr>
<td>Granada Lead Mines, Inc</td>
<td>213</td>
</tr>
<tr>
<td>Granite Creek D. Co.</td>
<td>126, 171</td>
</tr>
<tr>
<td>Granite State Cons. Mines Co.</td>
<td>157</td>
</tr>
<tr>
<td>Grant Mining Co., The</td>
<td>250</td>
</tr>
<tr>
<td>Graphite</td>
<td>90</td>
</tr>
<tr>
<td>Gray Wolf Min. Co.</td>
<td>174</td>
</tr>
<tr>
<td>Great Eastern Min. Co., Ltd</td>
<td>214</td>
</tr>
<tr>
<td>Great Helena M. &amp; M. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Green Hill Cleveland M. Co</td>
<td>214</td>
</tr>
</tbody>
</table>
INDEX

Green-Hill Min. Corp. .................................. 171
Greyhound M. & M. Co., Ltd.......................... 149
Grimes Co., The ..................................... 124
Grimes-Homestake Gold Mines Cons. .................. 126
Gypsum .................................................. 90
H & H Mines (Partnership) ............................ 149
Hall Interstate Min. Co. .............................. 242
Hamburger Am. C. M. & M. Co. ...................... 176
Happy Day Min. Co., Ltd. ............................ 214
Harpster Mining Co. ................................... 250
Hayden Hill Cons. Min. Co. ......................... 234
Hayden Lake M. & M. Co. ............................ 174
Haywire M. & M. Inc. .................................. 247
Hecla Min. Company ................................... 214
Hecla Min. Company's New Mill ..................... 266
Helmer Silver Mines Co. ............................... 214
Hercules Min. Co. .................................... 214
Hermit Mines of Idaho, Inc. ......................... 150
Hi-Bar Mining Co. ..................................... 139
Hidden Treasure Min. Co. ............................ 215
High Cropping Silver-Lead M. Co. ................... 174
Highland Petroleum, Inc. ............................ 250
Highland Surprise Cons. M. Co. ...................... 234
Hillside M. Corp. ..................................... 249
Holcomb Co., Ltd. ..................................... 242
Homestake Mines Corp. ................................ 117
Hope Silver-Lead Mines, Inc. ......................... 129
Horn Silver Cons. Mines Co. ......................... 214
Hornsilver M. & M. Co. ............................... 215
Horseshoe Min. Co. ................................... 234
Humming Bird Group ................................... 215
Huron Mines, Inc. ..................................... 251
Hydro Min. & Exp. Corp. ............................. 155
Hypotheek M. & M. Co. ............................... 215
Ida Bell Gold Mines, Inc. ............................ 190
Idaho Aluminum Corp., Ltd ......................... 251
Idaho Basin Min. Co. .................................. 248
Idaho Beryllium Corp. ................................ 247
Idaho Bureau of Mines and Geology:
Report of Director ..................................... 65
Bureau Activities ...................................... 65
Idaho-Canadian Dredging Co. ......................... 124
Idaho Molybdenum Co. ................................ 124
Idaho Ceramic Materials Co. ......................... 173
Idaho Coal & Coke, Inc. ............................. 240
Idaho Code:
Report to Inspector ................................... 251
Protection to Mechanics ............................... 252
Idaho Cons. Placer Min. Co. ......................... 133
Idaho Copper Min. Co., Ltd ......................... 215
Idaho Corp., The ..................................... 171
Idaho County .......................................... 158
Idaho Diamond Sulphide M. Co., Inc. ............. 174
Idaho & Eastern M. & M. Co., Ltd .................. 216
Idaho Exp., Inc. ....................................... 190
Idaho Falls Gold M. Co. ............................. 182
Idaho Fire Brick & Clay Co. ......................... 178
Idaho Gold Dredging Co. ............................ 167
Idaho Goldfields, Inc. ................................ 167
Idaho Gold Min. Co. .................................. 133
Idaho Klondike Min. Co. ............................. 167
Idaho Lakeview Mines Co. ......................... 129
Idaho & Los Angeles M. & M. Co. ................... 234
Idaho Lime-Phosphate, Inc. ......................... 247
Idaho Materials, Use, It— ........................... 30
Idaho Minerals Co. ................................... 244
Idaho Mineral Products Co. ......................... 118
Idaho Mines, Inc. ..................................... 155
Idaho Mng. Assn. Convention:
Address of Welcome ................................... 17
Response ............................................... 18
Idaho M. S. & Refiners, Inc. ......................... 124
Idaho Modoc Placer Min. Co. ......................... 124
Idaho Mother Lode Gold Mines, Inc. ............... 234
Idaho Newsome M. & M. Co., Inc. .................. 171
Idaho-Nebraska Copper Corp., Ltd. .................. 124
Idaho Pacific Mines, Inc. ........................... 155
Idaho Portland Cement Co. ......................... 111
Idaho Power & Mines Co. ............................ 149
Idaho Star Min. Co. ................................... 216
Idaho Verse ............................................ 25
Idamont Lead-Zinc Mines Co. ....................... 135
Idawa Gold Min. Co. .................................. 126
Idora Min. Co., Ltd. .................................. 216
Illustrations, Table of ................................ 5
Ima Mines Corp. ....................................... 182
Imperial Min. Co. ..................................... 216
Income, How Mining Distributes
It ....................................................... 14
Independence Lead Mines Co. ......................... 216
Independence Min. Co., Ltd. ......................... 216
Independence Mines & Power Co. ..................... 242
Independence Placer Min. Co., Ltd. ................. 145
Inland Empire M. & M. Co. ......................... 216
Inspectors of Mines, 1893-1940 ..................... 254
Inspiration Lead Co., Inc. ............................ 216
International Engineers and Mfg., Ltd. .......... 158
International Mines, Ltd. ............................ 217
International Molybdenum Co. ....................... 135
International Ore M. & M. Co. ....................... 158
Interstate Gold Min. Co. ............................. 190
Introduction .......................................... 6
Ione Min. Co. .......................................... 217
Iron Dyke Mines Co. .................................. 126
Isabella Leasing & Dev. Co., The .................... 139
Ivanhoe Min. Co. ..................................... 118, 149
Ivanhoe Min. Co., Ltd. .............................. 217
Jack Waite Min. Co. ................................... 217
Jane Lee Mining Corp. ............................... 251
Jim Blaine Silver Syndicate, Ltd .................... 217
Jumbo M. & M. Co., Ltd. ............................. 167
Juno Mines Corp. ...................................... 217
Kamiksu Min. Co. ..................................... 130
Keep Cool Min. Co. .................................... 130
Kennan Min. Co. ...................................... 217
Keith's Star Min. Co. .................................. 167
Key Placers Corp. ..................................... 167
Kiddwell Silver M. Co. ............................... 248
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nabob Silver-Lead Co.</td>
<td>221</td>
</tr>
<tr>
<td>Nampa Gold Dredging Corp.</td>
<td>108</td>
</tr>
<tr>
<td>Nancy Lee Mines, Inc.</td>
<td>247</td>
</tr>
<tr>
<td>Napias Placers, Inc.</td>
<td>185</td>
</tr>
<tr>
<td>National Copper Min. Co.</td>
<td>221</td>
</tr>
<tr>
<td>Nat'l Gold M. Co.</td>
<td>248</td>
</tr>
<tr>
<td>National M. &amp; D. Co.</td>
<td>126</td>
</tr>
<tr>
<td>Natural Gas (See Gas)</td>
<td></td>
</tr>
<tr>
<td>Nevada Mines</td>
<td>131</td>
</tr>
<tr>
<td>Nevada-Stewart Min. Co.</td>
<td>221</td>
</tr>
<tr>
<td>New Hope Min. Co., Ltd.</td>
<td>222</td>
</tr>
<tr>
<td>New Jersey Cons. Mines Co.</td>
<td>222</td>
</tr>
<tr>
<td>New Liberty Min. Co.</td>
<td>158</td>
</tr>
<tr>
<td>Nez Perce County</td>
<td>187</td>
</tr>
<tr>
<td>Niagara Placer Min. Co.</td>
<td>222</td>
</tr>
<tr>
<td>Nickel</td>
<td>95</td>
</tr>
<tr>
<td>Nine Mile Min. Co.</td>
<td>222</td>
</tr>
<tr>
<td>Nitrates</td>
<td>96</td>
</tr>
<tr>
<td>North American M. &amp; M. Co., Ltd.</td>
<td>234</td>
</tr>
<tr>
<td>North Bunker Hill Min. Co., Ltd.</td>
<td>222</td>
</tr>
<tr>
<td>North Fork Development Co.</td>
<td>222</td>
</tr>
<tr>
<td>North Hill Min. Co.</td>
<td>168</td>
</tr>
<tr>
<td>North Idaho Dev. Co.</td>
<td>135</td>
</tr>
<tr>
<td>North Idaho Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>North Star Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>North Star M. &amp; D. Co.</td>
<td>223</td>
</tr>
<tr>
<td>Northern Dev. Co.</td>
<td>251</td>
</tr>
<tr>
<td>Northern Light M. &amp; M. Co.</td>
<td>239</td>
</tr>
<tr>
<td>Northwestern Gold M. Co., The</td>
<td>249</td>
</tr>
<tr>
<td>Northwestern Dev. Min. Co., Ltd.</td>
<td>185</td>
</tr>
<tr>
<td>Northwestern Sulphur Co., Inc.</td>
<td>192</td>
</tr>
<tr>
<td>Oasis Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Oil</td>
<td>96</td>
</tr>
<tr>
<td>Oius Min. Co.</td>
<td>158</td>
</tr>
<tr>
<td>Old Channel M. Co., Inc.</td>
<td>155</td>
</tr>
<tr>
<td>Old Image Min. Corp.</td>
<td>249</td>
</tr>
<tr>
<td>Old Liberty Min. Co.</td>
<td>126, 158</td>
</tr>
<tr>
<td>Oneida County</td>
<td>188</td>
</tr>
<tr>
<td>Oom Paul Cons. Min. Co.</td>
<td>223</td>
</tr>
<tr>
<td>Opportunity Min. Co.</td>
<td>131</td>
</tr>
<tr>
<td>Oregon Trail Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Orogrande-Frisco Gold Mines, Inc.</td>
<td>168</td>
</tr>
<tr>
<td>Orogrande Gold, Inc.</td>
<td>190</td>
</tr>
<tr>
<td>Orogrande Gold Min. Co.</td>
<td>168</td>
</tr>
<tr>
<td>Othello Min. Co.</td>
<td>114</td>
</tr>
<tr>
<td>Owl Min. Co., Inc.</td>
<td>184</td>
</tr>
<tr>
<td>Owyhee County</td>
<td>188</td>
</tr>
<tr>
<td>Owyhee Min. Min. Co., Inc.</td>
<td>191</td>
</tr>
<tr>
<td>Owyhee-Gold Bug Mines, Inc.</td>
<td>191</td>
</tr>
<tr>
<td>Oxford Copper Min. Co., Ltd.</td>
<td>191</td>
</tr>
<tr>
<td>Pacific M. &amp; M. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Packer John Mines Corp.</td>
<td>125</td>
</tr>
<tr>
<td>Paddy Flat Placer Min. Corp.</td>
<td>244</td>
</tr>
<tr>
<td>Page Group</td>
<td>211</td>
</tr>
<tr>
<td>Palisade M. &amp; M. Co.</td>
<td>174</td>
</tr>
<tr>
<td>Palisade Petroleum Co.</td>
<td>133</td>
</tr>
<tr>
<td>Panarel &amp; Graham Mntn. Min. Co.</td>
<td>223</td>
</tr>
<tr>
<td>Paradise Gold D. Co., Inc.</td>
<td>139</td>
</tr>
<tr>
<td>Paramount Mines Corp.</td>
<td>234</td>
</tr>
<tr>
<td>Park C. &amp; Gold Min. Co., Ltd.</td>
<td>223</td>
</tr>
<tr>
<td>Parker Mines, Inc.</td>
<td>251</td>
</tr>
<tr>
<td>Paris M. &amp; M. Co., Inc.</td>
<td>112</td>
</tr>
<tr>
<td>Pasadena Mines, Inc.</td>
<td>169</td>
</tr>
<tr>
<td>Patuxent Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Payette County</td>
<td>192</td>
</tr>
<tr>
<td>Payette Exp. Co.</td>
<td>192</td>
</tr>
<tr>
<td>Pearson Min. Co.</td>
<td>223</td>
</tr>
<tr>
<td>Pearl Mining Co.</td>
<td>251</td>
</tr>
<tr>
<td>Peoples Gas &amp; Oil Co. of Idaho</td>
<td>248</td>
</tr>
<tr>
<td>Phemspace Mines Co.</td>
<td>151</td>
</tr>
<tr>
<td>Phosphate</td>
<td>167</td>
</tr>
<tr>
<td>Pierce Metals Dev. Co.</td>
<td>169</td>
</tr>
<tr>
<td>Pilot Knob Gold Corp.</td>
<td>251</td>
</tr>
<tr>
<td>Pine Creek Lead-Zinc Min. Co.</td>
<td>223</td>
</tr>
<tr>
<td>Pioneer Dev. Co.</td>
<td>126</td>
</tr>
<tr>
<td>Pioneer Gold M. &amp; D. Co.</td>
<td>223</td>
</tr>
<tr>
<td>Pioneer Min. Co., Ltd.</td>
<td>224</td>
</tr>
<tr>
<td>Pittsburg-Idaho Hydraulic M. Co.</td>
<td>125</td>
</tr>
<tr>
<td>Placer Basin Co.</td>
<td>110</td>
</tr>
<tr>
<td>Placers Exp. Syndicate, Inc.</td>
<td>184</td>
</tr>
<tr>
<td>Plainview Min. Co., Inc.</td>
<td>224</td>
</tr>
<tr>
<td>Pocatello-Lemhi M. &amp; E. Co.</td>
<td>184</td>
</tr>
<tr>
<td>Polaris Min. Co.</td>
<td>224</td>
</tr>
<tr>
<td>Pondera M. &amp; P. Co.</td>
<td>131</td>
</tr>
<tr>
<td>Ponderosa M. Co.</td>
<td>131</td>
</tr>
<tr>
<td>Pontiac Min. Co.</td>
<td>224</td>
</tr>
<tr>
<td>Portland M. &amp; M. Co.</td>
<td>248</td>
</tr>
<tr>
<td>Power County</td>
<td>193</td>
</tr>
<tr>
<td>Premier M. &amp; M. Co.</td>
<td>249</td>
</tr>
<tr>
<td>Priest River Min. Co.</td>
<td>132</td>
</tr>
<tr>
<td>Proctor Knott M. Co.</td>
<td>248</td>
</tr>
<tr>
<td>Profile-Tamarack Mines Co.</td>
<td>244</td>
</tr>
<tr>
<td>Profile Yellow Pine Co., Inc.</td>
<td>244</td>
</tr>
<tr>
<td>Progress Gold Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Prospecting Syndicate of Canada, Limited, The</td>
<td>139</td>
</tr>
<tr>
<td>Public Relations, Education</td>
<td>16</td>
</tr>
<tr>
<td>Public Relations Program</td>
<td>10</td>
</tr>
<tr>
<td>Public Relations, Why a Program</td>
<td>8</td>
</tr>
<tr>
<td>Publications, Technical:</td>
<td></td>
</tr>
<tr>
<td>Idaho Bureau of Mines &amp; Geology</td>
<td></td>
</tr>
<tr>
<td>U. S. Geol. Survey</td>
<td>72</td>
</tr>
<tr>
<td>U. S. Bureau of Mines</td>
<td>75</td>
</tr>
<tr>
<td>Puritan Min. Co., Ltd.</td>
<td>224</td>
</tr>
<tr>
<td>Pyrite</td>
<td>98</td>
</tr>
<tr>
<td>Quezon Dev. Co.</td>
<td>125</td>
</tr>
<tr>
<td>Quicksilver</td>
<td>96</td>
</tr>
<tr>
<td>Radio Min. Co.</td>
<td>174</td>
</tr>
<tr>
<td>Rainbow M. &amp; M. Co., Ltd.</td>
<td>114, 175, 224</td>
</tr>
<tr>
<td>Ralph Davis, Inc.</td>
<td>157</td>
</tr>
<tr>
<td>Ramona Min. Co.</td>
<td>224</td>
</tr>
<tr>
<td>Ramshorn Mines Co.</td>
<td>150</td>
</tr>
<tr>
<td>Rapid Creek Min. Co., Ltd.</td>
<td>243</td>
</tr>
<tr>
<td>Raven Min. Co., Ltd.</td>
<td>234</td>
</tr>
<tr>
<td>Ray Jefferson Min. Co.</td>
<td>224</td>
</tr>
<tr>
<td>Red Hill M. &amp; M. Co.</td>
<td>139</td>
</tr>
<tr>
<td>Red Lark Min. Co.</td>
<td>119</td>
</tr>
<tr>
<td>Red Ledge, Inc.</td>
<td>110</td>
</tr>
<tr>
<td>Red Lode M. Co., Inc.</td>
<td>248</td>
</tr>
<tr>
<td>Red Metals Cons. Inc.</td>
<td>243</td>
</tr>
<tr>
<td>Reeds Creek Gold Mines Co.</td>
<td>189</td>
</tr>
<tr>
<td>Company Name</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Reindeer-Queen Min. Co</td>
<td>225</td>
</tr>
<tr>
<td>Releces-Gold Min. Co</td>
<td>108</td>
</tr>
<tr>
<td>Reliance M. Co.</td>
<td>248</td>
</tr>
<tr>
<td>Rescue Gold Mines Co</td>
<td>184</td>
</tr>
<tr>
<td>Rhode Island Min. Co., Ltd</td>
<td>225</td>
</tr>
<tr>
<td>Rich Gulch Mines, Inc</td>
<td>249</td>
</tr>
<tr>
<td>Richard Allen Mines Co</td>
<td>249</td>
</tr>
<tr>
<td>Rio-Tinto Min. Co.</td>
<td>251</td>
</tr>
<tr>
<td>River of No Return Lodge, Inc</td>
<td>249</td>
</tr>
<tr>
<td>Riverside Copper Min. Co., Ltd</td>
<td>175</td>
</tr>
<tr>
<td>Roanoke Group</td>
<td>215</td>
</tr>
<tr>
<td>Rob Roy Min. Co.</td>
<td>225</td>
</tr>
<tr>
<td>Robinson M. &amp; M. Co</td>
<td>169</td>
</tr>
<tr>
<td>Rose M. &amp; M. Co.</td>
<td>248</td>
</tr>
<tr>
<td>Roth Co., Geo. F</td>
<td>155</td>
</tr>
<tr>
<td>Royal Basin M., The</td>
<td>175</td>
</tr>
<tr>
<td>Ruth Cons. M. &amp; M. Co</td>
<td>225</td>
</tr>
<tr>
<td>Rutile</td>
<td>98</td>
</tr>
<tr>
<td>Safety: The Evolution of Safety in Small Mines</td>
<td>64</td>
</tr>
<tr>
<td>Safety: Open Letter to a Driver Who Speeds Through our Streets</td>
<td>25</td>
</tr>
<tr>
<td>Safety Equipment in Mines</td>
<td>31</td>
</tr>
<tr>
<td>St. Elmo Silver Mines Corp</td>
<td>225</td>
</tr>
<tr>
<td>St. Joe Lead &amp; Silver Mines Co</td>
<td>225</td>
</tr>
<tr>
<td>St. Joseph Lead Co</td>
<td>247</td>
</tr>
<tr>
<td>St. Louis &amp; Idaho M. &amp; M. Co</td>
<td>225</td>
</tr>
<tr>
<td>Salmon River Exp. Co</td>
<td>169</td>
</tr>
<tr>
<td>Salmon River Gold Ores</td>
<td>251</td>
</tr>
<tr>
<td>Salmon River Miners, Inc</td>
<td>169</td>
</tr>
<tr>
<td>Salmon River Min. Co</td>
<td>150</td>
</tr>
<tr>
<td>Salmon River &amp; M. Co</td>
<td>170</td>
</tr>
<tr>
<td>Salmon River Placer Co</td>
<td>171</td>
</tr>
<tr>
<td>Salt</td>
<td>98</td>
</tr>
<tr>
<td>Samson M. &amp; D. Co., Ltd</td>
<td>225</td>
</tr>
<tr>
<td>Sandstone (See Building Stone)</td>
<td></td>
</tr>
<tr>
<td>San Francisco Chemical Co</td>
<td>112</td>
</tr>
<tr>
<td>San Francisco Min. Co., Ltd</td>
<td>226</td>
</tr>
<tr>
<td>Sawtell Min. Corp.</td>
<td>249</td>
</tr>
<tr>
<td>Scott Petroleum Co.</td>
<td>249</td>
</tr>
<tr>
<td>Secesh Dredging M. &amp; M. Co</td>
<td>170</td>
</tr>
<tr>
<td>Semi-Anthracite Coal Min. Co</td>
<td>126</td>
</tr>
<tr>
<td>Sentinel Mines Corp.</td>
<td>170</td>
</tr>
<tr>
<td>Sewell Lime Co.</td>
<td>146</td>
</tr>
<tr>
<td>Shamrock Silver M. Co., Inc</td>
<td>175</td>
</tr>
<tr>
<td>Sheep Creek Min. Corp</td>
<td>155</td>
</tr>
<tr>
<td>Sherman Howe Min. Co</td>
<td>171</td>
</tr>
<tr>
<td>Sherman Lead Co.</td>
<td>225</td>
</tr>
<tr>
<td>Sherwood Min. Co.</td>
<td>249</td>
</tr>
<tr>
<td>Shoshone County</td>
<td>153</td>
</tr>
<tr>
<td>Shrine Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Sidney Leasing Co.</td>
<td>234</td>
</tr>
<tr>
<td>Sidney Min. Co.</td>
<td>234</td>
</tr>
<tr>
<td>Sierra Nevada Cons. Min. Co</td>
<td>226</td>
</tr>
<tr>
<td>Silver</td>
<td></td>
</tr>
<tr>
<td>Silver Bar Mine, Inc</td>
<td>234</td>
</tr>
<tr>
<td>Silver Bar Min. Co</td>
<td>226</td>
</tr>
<tr>
<td>Silver Bowl, Inc.</td>
<td>226</td>
</tr>
<tr>
<td>Silver Circle Min. Co</td>
<td>227</td>
</tr>
<tr>
<td>Silver Cliff Gold &amp; C. M. Co., Ltd</td>
<td>226</td>
</tr>
<tr>
<td>Silver Cons. Mines, Inc</td>
<td>184</td>
</tr>
<tr>
<td>Silver Creek Gold Min. Co</td>
<td>146</td>
</tr>
<tr>
<td>Silver Crescent, Inc</td>
<td>226</td>
</tr>
<tr>
<td>Silver Dale &amp; Big Hill M. Co</td>
<td>227</td>
</tr>
<tr>
<td>Silver Dollar Min. Co</td>
<td>227</td>
</tr>
<tr>
<td>Silver Hills Min. Co</td>
<td>143</td>
</tr>
<tr>
<td>Silver King M. &amp; M. Co</td>
<td>118</td>
</tr>
<tr>
<td>Silver Leaf Mines Corp</td>
<td>131</td>
</tr>
<tr>
<td>Silver Lode M. &amp; M. Co</td>
<td>227</td>
</tr>
<tr>
<td>Silver Moon Min. Corp, Ltd</td>
<td>234</td>
</tr>
<tr>
<td>Silver Mountain Min. Co</td>
<td>131</td>
</tr>
<tr>
<td>Silver Reef Mines, Inc</td>
<td>227</td>
</tr>
<tr>
<td>Silver Spar Min. Co</td>
<td>118</td>
</tr>
<tr>
<td>Silver Standard Min. Co</td>
<td>227</td>
</tr>
<tr>
<td>Silver Star M. &amp; D. Co</td>
<td>114</td>
</tr>
<tr>
<td>Silver Star-Queen Mines, Inc</td>
<td>119, 139, 234</td>
</tr>
<tr>
<td>Silver Still M. Co</td>
<td>245</td>
</tr>
<tr>
<td>Silver Strike M. Co</td>
<td>227</td>
</tr>
<tr>
<td>Silver Summit Min. Co</td>
<td>228</td>
</tr>
<tr>
<td>Silver Syndicate, Inc</td>
<td>228</td>
</tr>
<tr>
<td>Sister M. &amp; M. Co., Ltd</td>
<td>228</td>
</tr>
<tr>
<td>Siva Mining Corp.</td>
<td>251</td>
</tr>
<tr>
<td>Smith Creek Hyd. M. Co., Inc</td>
<td>243</td>
</tr>
<tr>
<td>Smuggler Cons. Min. Co</td>
<td>228</td>
</tr>
<tr>
<td>Snake River Exp. Co., The</td>
<td>190</td>
</tr>
<tr>
<td>Snake River Coal Gas &amp; Oil Co.</td>
<td>248</td>
</tr>
<tr>
<td>Snowshoe Min. Co.</td>
<td>228</td>
</tr>
<tr>
<td>Snyder Mines., Inc.</td>
<td>248</td>
</tr>
<tr>
<td>Solar Dev. Co., Ltd.</td>
<td>247</td>
</tr>
<tr>
<td>Sonora M. &amp; M. Co.</td>
<td>228</td>
</tr>
<tr>
<td>South Fork Gold Co.</td>
<td>249</td>
</tr>
<tr>
<td>South Gilmore Min. Co</td>
<td>185</td>
</tr>
<tr>
<td>South Salmon Placer M. Co</td>
<td>243</td>
</tr>
<tr>
<td>Southern Gold Mines Corp</td>
<td>247</td>
</tr>
<tr>
<td>Spokane Dredging &amp; Min. Co</td>
<td>247</td>
</tr>
<tr>
<td>Spokane-Idaho Copper Co</td>
<td>178</td>
</tr>
<tr>
<td>Spokane Portland Cement Co</td>
<td>249</td>
</tr>
<tr>
<td>Spokane Tunnel Min. Co</td>
<td>228</td>
</tr>
<tr>
<td>Spring Barr Placer Co</td>
<td>170</td>
</tr>
<tr>
<td>Square Deal M. &amp; M. Co., Ltd</td>
<td>229</td>
</tr>
<tr>
<td>Stanley-Five Bars Min. Co</td>
<td>155</td>
</tr>
<tr>
<td>Stanley Min. Co.</td>
<td>229</td>
</tr>
<tr>
<td>Sterling Min. Co., Ltd</td>
<td>234</td>
</tr>
<tr>
<td>Stockholders' Syndicate</td>
<td>112</td>
</tr>
<tr>
<td>Stratton Mills &amp; Mines, Inc</td>
<td>247</td>
</tr>
<tr>
<td>Submarine Gold M. Co, Inc</td>
<td>245</td>
</tr>
<tr>
<td>Success Min. Co., Ltd</td>
<td>229</td>
</tr>
<tr>
<td>Sullivan Min. Co.</td>
<td>229</td>
</tr>
<tr>
<td>Sulphur</td>
<td>102</td>
</tr>
<tr>
<td>Sunrise Mines Co.</td>
<td>229</td>
</tr>
<tr>
<td>Sunset Min. Co.</td>
<td>112</td>
</tr>
<tr>
<td>Sunshine Cons., Inc</td>
<td>229</td>
</tr>
<tr>
<td>Sunshine Metals Corp</td>
<td>175</td>
</tr>
<tr>
<td>Sunshine Min. Co.</td>
<td>230</td>
</tr>
<tr>
<td>Sunshine Min. Co., Ltd</td>
<td>230</td>
</tr>
<tr>
<td>Sunshine Premier M. Co</td>
<td>230</td>
</tr>
<tr>
<td>Sunshine Silver Queen Min. Co</td>
<td>230</td>
</tr>
<tr>
<td>Sun Valley Gold, Silver &amp; C. Mines, Inc</td>
<td>184</td>
</tr>
<tr>
<td>Superior Coal Min. Co</td>
<td>239</td>
</tr>
<tr>
<td>Sylvanite Gold Copper Co</td>
<td>170</td>
</tr>
<tr>
<td>Symbols and Abbreviations</td>
<td>106, 107</td>
</tr>
<tr>
<td>Tacoma Placers</td>
<td>184</td>
</tr>
<tr>
<td>Talache Mines, Inc.</td>
<td>125</td>
</tr>
</tbody>
</table>
INDEX

Talc ........................................................................ 102
Tamarack & Custer Cons. M. Co. .......................... 230
Tantamount M. Co ........................................... 118
Targhee Coal Co., Inc ................................. 251
Taxes:
  Property, Income and Mine
  Distribution by Counties ........................... 266
  Teddy M. & M. Co., Ltd. .......................... 231
  Tendoy Copper Queen Syndicate ............ 184
  Ten-Said M. & M. Co ............................... 178
  Teton Coal Co., Inc ................................. 248
  Teton County ......................................... 239
  Texas Min. Co ........................................ 249
  Texas-Owyhee M. & D. Co ...................... 125
  Thomas Mines, Inc .................................. 231
  Tin .......................................................... 102
  Tip Top Group Min. Co. ............................ 119
  Trade Dollar Min. Co., Ltd .................... 231
  Trapper Creek Silver Min. Co ............... 234
  Treasure Gold Min. Co ............................ 251
  Treasumont Min. Co ............................... 118
  Treasure Vault Min. Co., Ltd ............... 231
  Triad M. Co ............................................ 110
  Tri State Gold M. Co ............................... 185
  Tri-State Mountain Sheep M. Co ......... 247
  Trout Creek Gold Placer M. Co ............ 247
  Troy Gold & Copper Min. Co., Ltd ........ 178
  Tungsten .................................................. 102
  Tuscumibia Min. Co., Ltd ........................ 234
  Twin Apex Mines Co ................................. 150
  Twin Falls County ..................................... 240
  Two Margaret's Min. Co ......................... 170
  Una Min. Co ......................................... 171
  United American Mines Co., Ltd ...... 231
  United Development Corp ...................... 140
  United Idaho Min. Co .............................. 185
  United Lead-Zinc Mines Co ................. 231
  United Mercury Mines Co ...................... 244
  United Metals Co ................................... 231
  United States Silver Lead Mines Co .... 234
  United Utilities Corp ............................... 140
  Unity Gold Prod. Co ................................ 170
  Utah-Bellevue Mines Co ......................... 119
  Utah-Idaho Min. & M. Co ..................... 112
  Vail Coal M. Co ...................................... 247
  Valley County ........................................... 240
  Vendetta Chief Min. Co ......................... 234
  Veneable Min. Co., Inc ......................... 244
  Victor Min. Co ........................................ 231
  Vienna-International M. & M. Co., Ltd .... 232
  Village Blacksmith M. Co., Inc ........... 191
  Vindicator Min. Co ................................. 222
  Virginia Dev. Co ................................... 251
  Virginia Gold M. & M. Co .................... 185
  Voltuff Products Co ............................... 192
  Vre-Non Min. Corp ................................. 249
  Wages ...................................................... 44
  Wages, Hours, Employment
  (National) ........................................... 14
  War Eagle Cons. Min. Co ..................... 191
  War Eagle M. & M. Co ........................... 191
  Warren Dredging Co ................................. 171
  Washington County ................................. 245
  Washington Basin M. & M. Co .......... 150
  Washington-Idaho Lime Prod. Co ....... 146
  Washington-Idaho Min. Co .................. 234
  Washington Min. Co ............................... 234
  Washoe Min. Co ..................................... 126
  Weiser Gas & Petroleum Co .................. 245
  West Bell Min. Co., Ltd ..................... 232
  West Gem Min. Co ................................. 232
  West Hecla Min. Co ............................... 232
  West States Mines, Inc ......................... 185
  Western Gold Corp ................................. 126
  Western Gold Mines, Inc ...................... 146
  Western Metals Products Co ............... 146
  Western Min. & Exp. Corp .................... 191
  Western Pacific Min. Co ...................... 233
  Western Point of View ......................... 21
  Western States Min., M. & Exp.
  Co., Ltd ............................................ 150
  Wood River Min. Co ............................... 119
  Wyoming M. & M. Co., Ltd ................. 233
  Yellow Pine Min. Co .............................. 119
  Yukon-Moody Mines Co ........................ 151
  York Min. Co ........................................ 151
  Yuba M. & M. Co .................................. 251
  Zinc ...................................................... 103

Property, Income and Mine Distribution by Counties

Washington County

Taxes:

Tungsten

Tuscumibia Min. Co., Ltd

Twin Falls County

Two Margaret's Min. Co

Una Min. Co

United American Mines Co., Ltd

United Development Corp

United Idaho Min. Co

United Lead-Zinc Mines Co

United Mercury Mines Co

United Metals Co

United States Silver Lead Mines Co

United Utilities Corp

Unity Gold Prod. Co

Utah-Bellevue Mines Co

Utah-Idaho Min. & M. Co

Vail Coal M. Co

Valley County

Vendetta Chief Min. Co

Veneable Min. Co., Inc

Victor Min. Co

Vienna-International M. & M. Co., Ltd
OSTER PRINTING COMPANY
153 SOUTH 8TH STREET
BOISE, IDAHO