

Northwest Mines Handbook

A REFERENCE WORK OF THE MINING
INDUSTRY OF IDAHO, WASHINGTON,
BRITISH COLUMBIA, WESTERN
MONTANA AND OREGON

BY

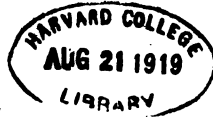
SIDNEY NORMAN
EDITOR, NORTHWEST MINING TRUTH
SPOKANE, WASHINGTON

VOLUME ONE
PRICE \$5.00

PUBLISHED BY
SIDNEY NORMAN
Mohawk Building, Spokane, Washington
Under Auspices of Northwest Mining Association

1918

File 7745.75



Madwell fund

**COPYRIGHT 1918
BY
SIDNEY NORMAN**

**SHAW & BORDEN CO.
PRINTERS, SPOKANE
172017**

Foreword

NORTHWEST MINES HANDBOOK will fill a long-felt want in many commercial lines identified with the mining industry, and it will also convey some idea of the importance of that industry upon the prosperity—past, present and future—of the city of Spokane.

The prime object of the work is to cover enterprises within a reasonable distance of Spokane. Idaho and Washington have been treated more fully than in any other publication of the kind, while British Columbia has been given generous space, in spite of the fact that data has been obtained with difficulty in many directions. No effort has been made to cover the great operations of Butte, Mont., information regarding that state being confined to the tier of counties bordering upon Idaho, and therefore within relatively short distance of Spokane. Oregon information is more or less incomplete, but I hope next year's edition will show marked improvement.

While distribution of Volume 1 has been delayed beyond the date originally set, the information it contains will reach the reading public almost ten months ahead of that in any other similar publication. It was found impossible to bring the matter completely up to date without last year's annual reports and as many of the latter are not published until March or April, I concluded to postpone publication. In future, the work will be distributed as near as possible to April 1 in each year.

I wish to express my sincere appreciation of financial aid extended to me by Fidelity National Bank, which has shown itself fully awake to the necessity of encouraging the mining industry in all legitimate ways.

I also wish to express my thanks for aid extended by contributors to Volume 1. The geological and review articles of the different states and the province of British Columbia will, I believe, be appreciated by subscribers.

In the actual preparation of the work, I am indebted to Messrs. A. R. Arbuckle, Storey Buck, J. T. Omo and John J. Judge, Mrs. Margaret Orr and Mrs. Mary Nelson, who have all rendered valuable assistance.

In conclusion, I promise improvement in next year's edition and bespeak the support of all lines of business interested in the great industry which is so largely responsible for the continued prosperity enjoyed by the Northwest.

SIDNEY NORMAN.



MR. THADDEUS S. LANE

President Spokane Chamber of Commerce, vice-president Washington State Metal Miners' Association, and an indefatigable civic worker. Born in Trumbull county, Ohio, Mr. Lane came West in 1906, settling in Butte, Montana, where he organized the Montana Independent Telephone Co. Eight years ago he moved to Spokane as president and manager of Home Telephone Co., a position which he occupied until the company passed into control of Bell system in 1912. Mr. Lane is closely identified with the mining industry, being a large stockholder of Granby Mining, Smelting & Power Co., the biggest copper producer in the Dominion of Canada; large owner of lease of Klockmann Bros. upon property of Idaho-Continental Co., Porthill, Idaho, and stockholder of parent company; large stockholder of Electric Point Mining Co. and Gladstone Mining Co., both near Northport, Washington. Member of Spokane, Spokane Country and Manito Golf clubs, Spokane. Interested in cattle-raising business in Montana and lumber business in British Columbia.

CONTENTS

	Page
GENERAL	
Spokane, Northwest Mining Center.....	9
Spokane's Mine Power.....	162
Northwest Mine Taxation.....	12
GENERAL STATISTICS	
Northwest Mine Dividends, to March 31, 1918.....	11
Gold Production, U. S., 1880-1917.....	14
Silver Production, U. S., 1880-1917.....	14
Lead Production, U. S., 1880-1917.....	15
Copper Production, U. S., 1880-1917.....	15
Zinc Production, U. S., 1880-1917.....	15
Metal Prices, 1880-1917.....	16
IDAHO	
Production, State, 1863-1917.....	17
Production, Coeur d'Alenes, 1884-1917.....	19
Geology, Prof. D. C. Livingston, State School of Mines.....	21
Mineral Resources, State Mine Inspector, Robt. N. Bell.....	27
Mines and Corporations (Alphabetically arranged).....	31
BRITISH COLUMBIA	
Production, 1900-1917.....	213
Economic Geology, with map, S. J. Schofield, G. S. of Canada.....	214
Mines and Corporations (Alphabetically arranged).....	218
WASHINGTON	
Production, 1860-1917.....	141
Geology, Charles E. Weaver, Geologist, University of Washington.....	143
Mineral Resources, Prof. Solon Shedd, State School of Mines.....	146
Chewelah District, descriptive, illustrated.....	151
Chewelah District, Geology, L. K. Armstrong, E. M.....	149
Electric Point District, descriptive, illustrated.....	159
Stevens County Magnesite, by F. M. Handy, E. M.....	315
Cedar Canyon District, descriptive.....	157
Mines and Corporations (Alphabetically arranged).....	163
MONTANA	
Production, 1900-1917.....	272
Mines and Corporations (Alphabetically arranged).....	273
Wilsonium.....	271
OREGON	
Production, 1900-1917.....	293
Mineral Resources, A. M. Swartley, Oregon Bureau of Mines.....	294
Mines and Corporations (Alphabetically arranged).....	300
BIOGRAPHICAL SKETCHES WITH HALF-TONES	
Caldwell, Charles F.....	212
Corbin, Daniel C.....	Frontispiece
Day, Harry L.....	20
Dennis, Graham B.....	8
Easton, Stanly A.....	18
McCarthy, James F.....	22
Lane, Thaddeus S.....	4
Percival, John A.....	24
Ross, F. A.....	140
Wolfe, Conrad.....	142

Illustrated throughout.

Alphabetical List of Advertisers

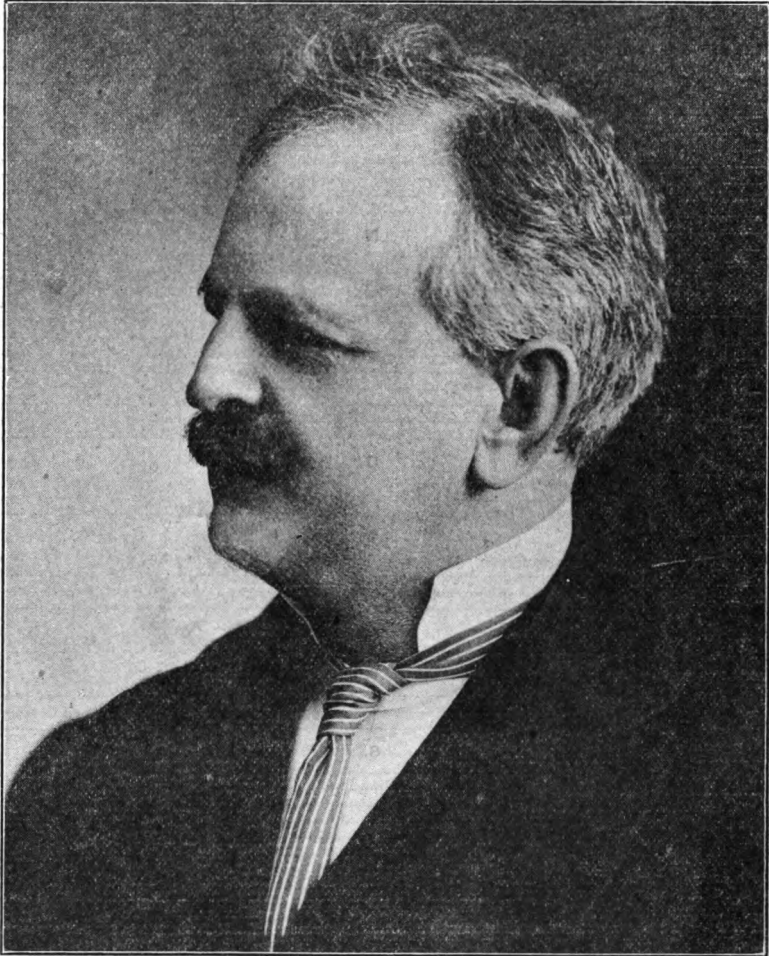
	Page
A	
Armstrong, L. K.....	319
Armstrong's Library.....	355
Ashley, John K.....	319
B	
Bard, Darsie C.....	319
Bennett's Chemical Laboratory.....	336
Berg, F. O.....	384
Betts, C. G.....	332
Brown Brothers.....	326
Bunker Hill & Sullivan Mining & Concentrating Co.....	352
Burdick Brothers & Brett, Ltd.....	323
Bush, Thomas G. & Co.....	332
Business Men's Clearing House.....	323
C	
Callaway, Fred W.....	319
Campbell, Wells & Elmendorf.....	319
Canadian Explosives, Ltd.....	366
Cartwright, Matheson & Co.....	319
Clark, J. G.....	336
Collins, G. A.....	319
Collins, Russell F.....	319
Consolidated Interstate-Callahan Mining Co.....	353
Consolidated Mining & Smelting Co. of Canada, Ltd., The.....	356
Cooper, Moses R.....	319
Cox, A. H. & Co., Inc.....	323
Crerar, George.....	319
Currie, J. W. & Co.....	319
D	
Davenport Hotel.....	339
Deister Concentrator Co.....	335
Diamond Drill Contracting Co.....	326
Dixon, K. H. Co.....	345
Doerr-Mitchell Electric Co., The.....	324
Drumheller, D. M., Jr.....	319
Dudman, Harry.....	345
Du Pont, E. I., de Nemours & Co.....	333
E	
Eby, J. H.....	319
Economy Stores.....	334
Edison Storage Battery Co.....	331
Eldridge-Buick Co.....	328
Eldridge, G. S. & Co.....	319
Eureka Quartz Mill Co.....	326
F	
Fairbanks, Morse & Co.....	330
Fassett, C. M. & Co.....	320, 324
Ford, F. D.....	345
G	
Giant Powder Co., Consolidated, The.....	335
Gillis Investment Co., The C. L.....	346
Goodale, C. W.....	320
Goodall Brothers.....	320
Goodsell, Charles H.....	320
Graham, John W. & Co.....	340
Graupner, M. F.....	320
Grether, W. Scott.....	320
Guyer, Raymond.....	320
H	
Haas, J. C.....	320
Hallidie Co.....	333
Hartley, G. F.....	322
Harvey, Chester H. Co.....	346
Hawley, W. S. & Son, Inc.....	346
Heath, Roy Franklin.....	320
Hecla Mining Co.....	353
Herman, A.....	323
Herrin & Rhodes, Inc.....	336
Hockensmith Wheel & Mine Car Co.....	330
Hofius Steel & Equipment Co.....	337
Hotel Spokane.....	341
Hough, U. B.....	320
Hume Hotel.....	351
Hunt, John.....	320
I	
Idaho School of Mines.....	363
Imperial Trading Co.....	336
Inland-American Printing Co., The.....	365

	Page
J	
Jack, Adam	324
K	
Keffer & Johns.....	320
L	
Larson, A. G.....	320
Laucks, I. F.....	320
LeMaster, Cannon & Co.....	324
Lippert Investment Co.....	323
Mc	
McAllister, Harry C. Co.....	347
McBride, J. W.....	321
McCarthy & Edge.....	323
McDonald, E. H.....	321
McNutt, W. H.....	348
M	
Mabry, Bob.....	321
Martin, Photographer.....	350
Mining & Engineering Record.....	366
Missouri School of Mines.....	323
Morley, A. B. & Co.....	323
Muscovite Mica Mining Co.....	351
N	
Nash, A. D.....	321
New Process Engraving Co.....	351
Nicholls, Walter J. & Co.....	Outside Cover
Nicholls, William A.....	347
Nixon-Kimmel Co.....	334
Norman, S. & Co.....	349
Northwest Magnesite Co.....	354
Northwest Mines Handbook.....	361
Northwest Mining Truth.....	357
Nott-Atwater Co.....	326
Novo Engine Co.....	337
Nuzum, Clark & Nuzum.....	323
O	
Olin, The O. A. Co.....	348
Olsen, Charles O.....	321
Oregon Bureau of Mines, The.....	362
P	
Pattison, Everett H.....	321
Payne, Henry Mace.....	321
Peterson, Ole.....	365
Price, D. W.....	323
Q	
Quinn, M. F.....	321
R	
Richards, J. W.....	321
Ross, Frank A.....	321
Rubens, Myer S.....	365
S	
Sacket, C. T.....	321
Sales, Reno H.....	321
Shaw & Borden Co.....	359
Spannagel, Otto.....	321
Spokane Chamber of Commerce.....	360
Spokane Office Supply Co.....	334
Spokane Stock Exchange.....	342, 343
Spokane Stove & Furnace Repair Works, Inc.....	340
State College of Washington.....	364
Stowell, W. H. & Co.....	321
T	
Taylor, Samuel A.....	322
Thompson, Monica B.....	339
Traylor Engineering Co.....	327
U	
Union Iron Works.....	329
United Filters Corporation.....	325
United Stores Co.....	338
United Supply Co.....	332
V	
Van Eman, A. G.....	322
W	
Wahl, H. R.....	322
Walters, R. E.....	322
Weaver, Charles E.....	322

ALPHABETICAL LIST OF ADVERTISERS (Continued)

W

	Page
Weed, Walter Harvey.....	322
Western Iron Works.....	338
Western Machinery & Equipment Co.....	332
Westervelt, William Young.....	322
Whelan & Mortimer.....	348
White, J. Rush.....	322
Whitehouse, Irving Co.....	344
Williams, Wakeley A.....	322
Wood, Ernest C.....	322



MR. GRAHAM B. DENNIS.

President Northwest Mining Association and one of the organizers and first president of similar organization perfected in Spokane in 1885. One of the purchasers of Old Dominion mine, near Colville, soon after discovery in 1885 and operator for several years in partnership with Chicago associates. Since then closely identified with mining industry throughout the Northwest and a prominent figure in all civic enterprises. One of the large real estate owners of Spokane, having built the first electric street car line in the city in 1889. Publisher of the first mining publication in the Northwest, the Spokane Miner, in the 80's.

Spokane, Northwest Mining Center

THE history of Spokane, a metropolitan city of 135,000 people, railroad radiating point of the Northwest, is closely interwoven with development of great and prolific surrounding mining districts. In fact, it is quite possible that, but for the wealth poured in from that source, the city of to-day would still be but the cow-pasture village of yesterday.

The real history of Spokane as a progressive city, always in the front rank of civic endeavor, dates back to 1883, when Prichard, a typical prospector, found placer gold in the Idaho creek which was later given his name. News of the find traveled apace and within a few weeks the struggling little settlement by the roaring falls of the Spokane river became a veritable beehive of activity. Two years later, or, to be exact, on April 12, 1885, the Old Dominion mine, near Colville, 80 miles due north of Spokane, was discovered and the ever-restless crowd of prospectors turned their steps northward. Five months later, on September 10, 1885, the immortal jackass stumbled over the great surface outcropping of the Bunker Hill mine, near Wardner, which has since become the greatest dividend payer among all silver-lead mines of the world.

The impetus of these strikes was great and far-reaching. Railroads were constructed to the Coeur d'Alenes, and northward towards the Canadian boundary line, and Spokane began to put on metropolitan airs. The first big brick building was paid for with money won from the Bunker Hill—by "Dutch Jake" Goetz and Harry Baer.

In July, 1887, the intrepid band of pioneer prospectors, keeping well ahead of the northern railroad, came across the surface croppings of the Hall mines, on Toad mountain, across the international line. That brought Nelson into being as a prosperous city, a position it has maintained to this day. In the next few years discoveries of great importance came thick and fast, all contributing in some measure to the prosperity of Spokane. In 1889, the mines of Ainsworth on Kootenay lake commanded attention and in 1891 Eli Carpenter started the great Slocan excitement by discovery of the Payne mine. In quick succession, important finds were made in the Duncan and Lardeau fields, and widespread optimism and prosperity were at their height when the price of silver broke in 1893, causing temporary stagnation.

Meanwhile, development of more or less unpromising surface showings of base ore at Rossland had been going on, and in 1894 Spokane awoke to the fact that a new gold-copper camp of prime importance had been added to the already long list of districts contributing to her prosperity. The late F. Augustus Heinze, one of the really great mining men developed in the West, began construction of Trail smelter in the following year, and the boom was capped in 1898, by the entry of the late Whittaker Wright, of England, who, through ex-Governor Mackintosh, secured the great Le Roi mine from Spokane owners and poured \$4,000,000 into the arteries of her trade. Evidences of that sale are still present on every hand, in the shape of modern business blocks and beautiful homes. A little later, in the same year, the War Eagle mine was sold to a Toronto syndicate, bringing another million to the city.

Meanwhile, the older districts had been forging ahead. The Coeur d'Alenes had become the greatest producer of silver-lead ore on the continent and practically every sale of the important mines of the district brought new wealth to Spokane. In the Slocan district, such mines as Payne, Slocan Star, Reco, Idaho-Alamo, Rambler-Cariboo, Washington, Noble Five, Freddie Lee and many others, all owned in whole or in part in this city, contributed their share to the general prosperity and the up-

building of a modern city without rival between Puget Sound and the Mississippi River.

In 1896, the south half of the Colville reservation, northwest of Spokane, in the state of Washington, was opened to mineral entry and within a short time thereafter Spokane was in the throes of the only genuine gold-mining boom of her history. Development of the Republic mine by the late Patrick Clark, a conspicuous figure of Spokane's mining history, was of the sensational order, and in 1899 the property was transferred to Montreal purchasers for over three million dollars. Again Spokane profited in large amount, both from this and from other transfers, and business, which had flattened out a little following the great panic of 1893, when five or six local banks failed, was again revived.

In fact, it may truthfully be said that Spokane has many times been saved from the hands of the sheriff by new wealth won from mines at the nick of time. Often, when the outlook has been blackest, something of importance has occurred in surrounding territory to blow away the clouds and let in the sun of prosperity. From the mines of the Coeur d'Alenes alone, all within 100 miles of the center of the city, no less than \$85,000,000 in dividends has been won since Prichard first turned the eyes of the mining world that way. In the same period, British Columbia mines, always closely identified with Spokane, have yielded over \$30,000,000, while the territory in this state, between Spokane and the international boundary, has contributed approximately \$1,000,000. It must be remembered that these sums are but a tithe of the tremendous amounts taken from the ground. The total yield has probably been well over \$1,000,000,000, of which perhaps seven-tenths has been spent in labor and supplies. These figures give some idea of the importance of the mining industry in its bearing upon Spokane.

Spokane has grown to present position as mining center of the Great Northwest, in spite of herself and not through the aid of her business men. But, for what she possesses to-day, in tangible evidence of prosperity and the invisible sinews that keep her to the front as a commercial center, Spokane owes most to the great mining industry. Let her not forget such men as Jim Wardner, S. S. Glidden, John M. Burke, Charles Sweeny, Patrick Clark, John A. Finch, A. B. Campbell, Byron White, Scott McDonald, and a host of others who have passed on.

Much remains to be done if Spokane would profit to ultimate extent from development of mineral resources in this region. The older districts, such as the Coeur d'Alenes and many camps in British Columbia, have but been scratched. Central, Southern and Northern Idaho are crying for capital for development of surface showings comparing with any in the West. On every hand are opportunities almost as great as those converted into our early prosperity. Spokane needs more men—men of initiative, resourcefulness and action—men such as those who have gone ahead. The first requisite is encouragement by the local business world. With that incentive, Spokane will continue to reap great benefits from a mineral region without rival on the map of the world.

SIDNEY NORMAN.

NORTHWEST MINE DIVIDENDS TO END OF FIRST QUARTER, 1918

COEUR D'ALENES

Company—	To and Inc. 1910	1911	1912	1913	1914	1915	1916	1917	1st Quar. 1918	1st Quar. 1917	Diff. 1st Qr. 1918	Grand Total
Bunker Hill & Sullivan—	\$12,293,100	\$866,550	\$752,100	\$817,500	\$981,000	\$1,062,750	\$1,716,750	\$1,962,000	\$490,500	\$490,500	---	\$20,942,250
Big Creek Lease	---	---	---	---	---	---	---	10,000	---	---	---	10,000
Blackhawk Lease	---	---	---	---	---	---	---	4,700	---	---	---	4,700
Caledonia	---	---	---	---	130,250	755,450	911,750	937,800	234,450	234,450	---	2,969,700
Douglas	---	---	---	---	---	---	---	28,453	---	---	---	28,453
Federal Common	2,708,750	840,000	720,000	720,000	600,000	480,000	510,000	840,000	209,757	209,757	---	2,708,750
Federal, Preferred	9,216,695	840,000	300,000	320,000	220,000	585,000	1,550,000	1,600,000	50,000	50,000	---	14,136,452
Hedley	2,110,000	240,000	600,000	1,500,000	1,500,000	2,250,000	2,481,227	3,000,000	750,000	900,000	---	6,955,000
Hercules	1,750,000	400,000	600,000	1,500,000	1,500,000	2,250,000	2,481,227	3,000,000	750,000	900,000	---	14,231,927
Intermountain	---	---	---	---	---	---	---	16,218	---	---	---	16,218
Interstate-Callahan	---	---	---	---	---	2,557,445	2,783,940	929,980	232,495	464,990	---	6,509,860
Richmond	---	---	---	---	---	---	---	84,000	---	---	---	84,000
Stewart	---	---	---	402,467	773,976	866,853	345,000	---	---	---	---	2,043,236
Success	710,000	60,000	180,000	90,000	---	555,000	71,050	53,287	53,287	---	---	1,940,000
Tamarack & Custer	---	---	---	---	---	---	---	---	---	---	---	177,624
†Obsolete	12,000,000	---	---	---	---	---	---	---	---	---	---	12,000,000
Total	\$40,788,545	\$2,406,550	\$2,552,100	\$3,849,967	\$4,205,226	\$9,032,498	\$10,391,935	\$9,445,220	\$2,020,489	\$2,749,697	---	\$84,752,520

BRITISH COLUMBIA

Canada, Copper—	\$ 201,200	\$147,930	\$177,512	\$88,756	---	---	---	---	---	---	---	615,339
Cons. Min. & Sm.	781,885	---	232,176	232,176	464,376	464,398	776,337	996,503	261,936	210,655	---	4,239,787
Granby	4,349,565	---	---	899,910	449,955	449,955	1,049,895	1,499,848	374,962	374,962	---	9,074,009
Hedley	204,000	300,000	360,000	360,000	300,000	300,000	240,000	240,000	36,000	60,000	---	2,340,000
Le Roi No. 2	1,284,782	145,998	29,199	---	---	---	---	29,199	---	---	---	1,547,577
Mother Lode	---	---	---	---	---	---	---	---	---	---	---	137,500
Rambler-Cariboo	365,000	---	425,000	---	---	---	---	---	---	---	---	542,500
Standard Silver-Lead	---	---	---	650,000	475,000	250,000	600,000	35,000	---	---	---	2,700,000
Utica	---	---	---	---	---	---	---	64,000	---	---	---	64,000
†Obsolete	9,831,000	---	---	---	---	---	---	---	---	---	---	9,831,000
Total	\$17,037,432	\$3,539,228	\$1,223,387	\$2,230,842	\$1,689,331	\$1,557,752	\$2,891,232	\$3,164,550	\$72,898	\$645,657	---	\$31,061,852

WASHINGTON

American Minerals Prod. Co. (mag.)	---	---	---	---	---	---	---	---	---	---	---	30,000
Electric Point	---	---	---	---	---	---	---	---	---	---	---	166,635
Knob Hill	---	40,000	5,000	25,000	---	---	7,935	158,700	23,805	23,805	---	105,000
Loon Lake	---	---	---	---	---	---	---	43,352	5,000	5,000	---	43,352
United Copper	---	---	40,000	---	---	---	10,000	100,000	30,000	30,000	---	150,000
†Obsolete	500,000	---	---	---	---	---	---	---	---	---	---	500,000
Total	500,000	40,000	45,000	25,000	---	---	17,935	367,052	58,805	58,805	---	994,937
Grand Total	\$58,325,977	\$3,040,478	\$3,820,987	\$6,105,809	\$5,894,557	\$10,650,250	\$13,301,102	\$12,976,822	\$2,693,387	\$3,454,159	---	\$116,809,369

*Decrease. †Increase. ‡Obsolete.

It will be noticed that "obsolete" mines are credited with \$12,000,000 in the Coeur d'Alenes and \$9,831,000 in British Columbia. This classification covers properties that have ceased to give up profits, or are now merged with other larger corporations still on the dividend list. The Coeur d'Alene list includes Last Chance, Tiger-Poorman, Standard-Mammoth and Morning, all large profit payers before absorption by Federal; Greenhill-Cleveland, of which one-half only is owned by Federal, and which is estimated to have yielded \$5,000,000 in past five years; Ontario, a subsidiary of Bunker Hill, operated at great profit by a leasing company; Snowstorm, with definite record of \$1,169,610, and Sierra Nevada, another Bunker Hill subsidiary. The estimate of \$12,000,000 is believed to be entirely conservative.

As to Washington and British Columbia, there is definite record of the sum credited, although it is quite possible the actual amount from all sources is really considerably higher.

Northwest Mine Taxation

(From Northwest Mining Truth, April 16, 1918.)

IDAHO is the only northwestern state providing taxation on net profits. Washington and Oregon assess mining property upon the basis of other real property and in many instances such methods have led to excessive taxation that has driven mining operators from the state.

A case in point is that of the First Thought mine, near Orient, for many years operated by Patrick Burns, the well-known cattle and meat dealer of Canada. Several years ago Stevens county levied an excessive assessment and the matter was taken to the state courts, where it dragged for many years. Eventually, the assessment was scaled down to a figure within reason. Meanwhile, all operations were suspended and, in fact, no effort has since been made to reopen the mine, which in earlier days was the most ambitious undertaking of the kind in the county. There have been many similar cases, particularly in Ferry county, where constant friction has arisen between the mine operators and county assessor.

Washington Taxation Laws.

Section 34 of the Revenue Laws of Washington provides that "all property shall be assessed at not to exceed 50 per cent of its true and fair value in money. In determining the true and fair value of real or personal property, the assessor shall not adopt a lower or different standard of value because the same is to serve as a basis of taxation; nor shall he adopt as a criterion of value the price for which the said property would sell at auction, or at forced sale, or in the aggregate with all the property in the town or district; but he shall value each article or description of property by itself, and at such sum or price as he believes the same to be fairly worth in money at the time such assessment is made. The true cash value of property shall be that at which the property would be taken in payment of a just debt from a solvent debtor. In assessing any tract or lot of real property, the value of the land, exclusive of improvements, shall be determined; also, the value of all improvements and structures thereon, and the aggregate value of the property, including all structures and other improvements, excluding the value of crops growing on cultivated lands. In valuing any real property on which there is coal or other mine, or stone or other quarry, the same shall be valued at such price as such property, including the mine or quarry, would sell at a fair, voluntary sale for cash. Taxable leasehold estates shall be valued at such price as they would bring at a fair, voluntary sale for cash."

Assessors Hold Full Power.

It will thus be seen that great and elastic power is delegated to assessors in the mining counties of the state. Their conception of the cash value of any particular mining property may be far out of line with the actual selling value and yet there is little opportunity for redress, except through the equalization boards, that may, or may not, revise valuations. In the case of Ferry county, mining property embraces the greatest taxable value and every effort is therefore made to hold up valuation to the highest point, irrespective of the earning power or cash selling value of the property.

Oregon Has Similar Laws.

The taxation laws of Oregon closely resemble those of Washington, mining property being treated as real estate, irrespective of its earning value.

Idaho Taxes "Net Profits."

The state of Idaho provides for taxation of profits, a system that appears to have worked well, resulting in little if any friction. Tax levies in Shoshone county, where the great mines of the Coeur d'Alenes are located, has run in recent years from 10 to 15 mills. Sworn statements filed by some of the big operating companies for 1916 were as follows: Bunker Hill, \$1,310,071; Caledonia, \$1,154,763; Gold Hunter, \$161,361; Hecla, \$1,681,059; Hercules, \$2,931,136; Consolidated Interstate-Callahan, \$2,481,537. Assuming that the tax levy was 15 mills last year, above corporations would pay taxes as follows: Bunker Hill, \$19,650; Caledonia, \$17,320; Gold Hunter, \$2419; Hecla, \$25,215; Hercules, \$43,966; Consolidated Interstate-Callahan, \$37,222.

"Net Profits" Defined.

The law provides that mines and mining claims, after purchase from United States, shall be taxed at price paid to United States, unless the ground is used for other than mining purposes, when it shall be taxed at its value for such purpose. Machinery, buildings and equipment of all kinds are separately taxed. Net profits are defined as follows: "The amount of money received from the mining of said metals or minerals, after deducting actual expenditures of money and labor in and about extracting the metals and minerals from the mine or mining claim, and transporting the same to the mill, concentrator or reduction works, and the reduction thereof, and conversion of the same into money, or its equivalent, and also the deduction of all monies expended for necessary labor, machinery and supplies needed and used in the mining operations, for the improvements necessary in and about the mine or mining claim, for reducing ores, for the construction of the mill and reduction works used and operated in connection with the mine or mining claim, for transporting the ore, and for extracting the metals and minerals therefrom; but the money invested in the mine, or improvements made during any year except the year immediately preceding such statement, must not be included therein. Such expenditures do not include the salaries, or any portion thereof, of any person or officers not actually engaged in the working of the mine, or personally superintending the management thereof."

Penalties are Severe.

Sworn statements must be filed not later than May 1 of each year, false statements constituting perjury, subject to prosecution as provided for in other cases of like nature. The assessor is given the right to examine the books of all corporations, information so gathered being deemed as confidential, except where used in proceedings affecting validity of taxation or assessment, or charge of perjury. Violation of confidence by assessors is made a felony, conviction entailing removal from office and prosecution as provided by law. In the absence of sworn statement, the assessor is authorized to list the property according to his best knowledge and information. The tax is a lien upon the property after the second Monday in January in the year next succeeding filing of statement.

British Columbia.

British Columbia taxes mining acreage at \$5 per acre and exacts 2% upon gross profits of operating mines. In 1917 a war revenue measure provided for additional 10% on gross profits, but at this time provisions have not been put into effect, owing to widespread opposition.

UNITED STATES PRODUCTION

Gold and Silver Production of the United States, in Ounces

1880-1917

GOLD		SILVER	
Year	Quantity	Year	Quantity
1880	1,741,500	1880	30,318,700
1881	1,678,612	1881	33,257,800
1882	1,572,187	1882	36,196,900
1883	1,451,250	1883	35,732,800
1884	1,489,950	1884	37,743,800
1885	1,538,373	1885	39,909,400
1886	1,686,788	1886	39,694,000
1887	1,603,049	1887	41,721,600
1888	1,604,478	1888	45,792,700
1889	1,594,775	1889	50,094,500
1890	1,588,877	1890	54,516,300
1891	1,604,840	1891	58,330,000
1892	1,597,098	1892	63,500,000
1893	1,739,323	1893	60,000,000
1894	1,910,813	1894	49,500,000
1895	2,254,760	1895	55,727,000
1896	2,568,132	1896	58,834,800
1897	2,774,935	1897	53,860,000
1898	3,118,398	1898	54,438,000
1899	3,437,210	1899	54,764,500
1900	3,829,987	1900	57,647,000
1901	3,805,500	1901	55,214,000
1902	3,870,000	1902	55,500,000
1903	3,560,000	1903	54,300,000
1904	3,892,480	1904	57,682,800
1905	4,265,742	1905	56,101,600
1906	4,565,333	1906	56,517,900
1907	4,374,827	1907	56,514,700
1908	4,574,340	1908	52,440,800
1909	4,821,701	1909	54,721,500
1910	4,657,018	1910	57,137,900
1911	4,687,053	1911	60,399,400
1912	4,520,717	1912	63,766,800
1913	4,299,783	1913	66,801,500
1914	4,572,976	1914	72,455,100
1915	4,887,604	1915	74,961,075
1916	4,465,807	1916	72,883,800
1917	4,085,500	1917	74,244,500
Total	116,291,626	Total	2,053,223,175

UNITED STATES PRODUCTION

United States Production of Copper, Lead and Zinc

1880-1917

From Domestic and Foreign Sources, in Short Tons.

LEAD		COPPER		SPELTER	
Year	Production	Year	Production	Year	Quantity
1880	95,725	1880	30,240	1880	23,239
1881	114,495	1881	35,840	1882	33,765
1882	129,780	1882	45,323	1883	36,872
1883	140,297	1883	57,763	1884	38,544
1884	136,297	1884	72,473	1885	40,688
1885	126,192	1885	82,937	1886	42,641
1886	132,189	1886	78,367	1887	50,340
1887	156,630	1887	90,460	1888	55,903
1888	176,015	1888	113,180	1889	58,860
1889	178,357	1889	113,387	1890	63,683
1890	157,844	1890	129,881	1891	80,873
1891	198,363	1891	142,060	1892	87,260
1892	208,223	1892	172,499	1893	78,332
1893	224,320	1893	164,677	1894	75,328
1894	213,650	1894	177,094	1895	89,686
1895	235,822	1895	195,306	1896	81,499
1896	257,487	1896	230,031	1897	99,980
1897	282,169	1897	247,039	1898	115,399
1898	302,148	1898	263,256	1899	129,051
1899	293,047	1899	284,333	1900	123,886
1900	367,773	1900	303,058	1901	140,822
1901	371,032	1901	301,036	1902	156,927
1902	367,892	1902	329,754	1903	159,219
1903	368,939	1903	349,022	1904	186,702
1904	393,452	1904	406,268	1905	203,849
1905	388,307	1905	444,392	1906	224,770
1906	404,746	1906	458,902	1907	249,860
1907	413,389	1907	434,498	1908	210,424
1908	396,564	1908	471,285	1909	255,760
1909	446,909	1909	546,475	1910	269,184
1910	470,272	1910	540,079	1911	286,526
1911	486,979	1911	548,666	1912	338,806
1912	480,394	1912	621,634	1913	346,676
1913	462,460	1913	612,242	1914	353,049
1914	542,122	1914	575,063	1915	489,519
1915	550,055	1915	694,004	1916	667,456
1916	571,134	1916	963,925	1917	690,000
1917	640,000	1917	1,181,000		

Total, tons.....11,886,969

Total, tons12,507,449

Total, tons6,635,878

METAL PRICES

Average Yearly Prices Silver, Copper, Lead and Zinc

1880 to 1917 Inclusive

Year.	Silver Fine oz.	Copper Pound.	Lead Pound.	Zinc Pound.
1880	\$1.15	\$0.214	\$0.05	\$0.055
1881	1.13	.182	.048	.052
1882	1.14	.191	.049	.053
1883	1.11	.165	.043	.045
1884	1.11	.13	.037	.044
1885	1.07	.108	.039	.043
1886	.99	.111	.046	.044
1887	.98	.138	.045	.046
1888	.94	.168	.044	.049
1889	.94	.135	.039	.05
1890	1.05	.156	.045	.055
1891	.99	.128	.043	.05
1892	.87	.116	.04	.046
1893	.78	.108	.037	.04
1894	.63	.095	.033	.035
1895	.65	.107	.032	.036
1896	.68	.108	.03	.039
1897	.60	.12	.036	.041
1898	.59	.124	.038	.046
1899	.60	.171	.045	.058
1900	.62	.166	.044	.044
1901	.60	.167	.043	.041
1902	.53	.122	.041	.048
1903	.54	.137	.042	.054
1904	.58	.128	.043	.051
1905	.61	.156	.047	.059
1906	.68	.193	.057	.061
1907	.66	.20	.053	.059
1908	.53	.132	.042	.047
1909	.52	.13	.043	.054
1910	.54	.127	.044	.054
1911	.53	.125	.045	.057
1912	.615	.165	.045	.069
1913	.604	.155	.044	.056
1914	.553	.133	.039	.051
1915	.507	.175	.047	.124
1916	.658	.272	.068	.134
1917	.814	.271	.087	.089
Average, 38 yrs.....	.755	.1515	.04455	.0547

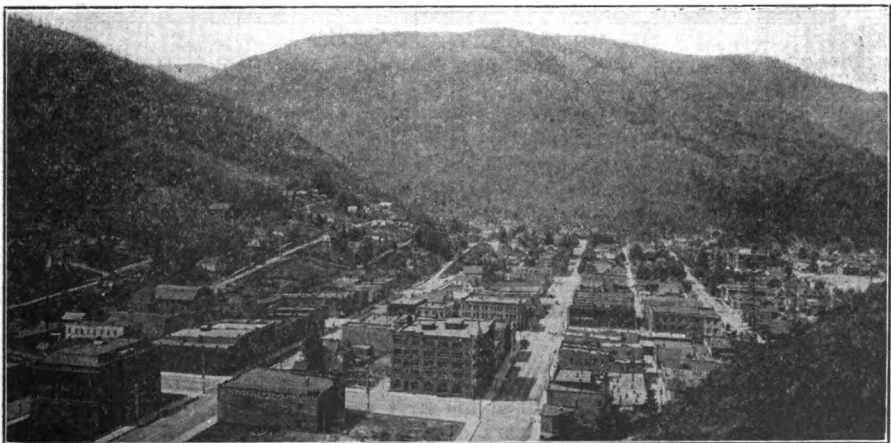
IDAHO

Ore sold or treated in Idaho, 1863-1917 (incl.), number of producers and mine production of gold, silver, copper, lead, and zinc

Year.	Producers.	Ore Tons.	Gold. Value.	Silver. Fine ozs.	Copper. Pounds.	Lead. Pounds.	Zinc. Fine ozs.	Total value.
1863-1870			\$ 51,675,200	2,176,738				\$ 54,575,200
1871-1880			18,758,707	3,152,989		700,000		22,684,685
1881-1890			17,615,293	24,866,722	380,781	329,801,639		57,609,865
1891-1900			20,537,380	44,856,082	3,685,465	965,942,461		89,158,127
1901			1,917,313	5,591,734	480,511	162,553,069		12,667,486
1902			1,510,015	5,942,714	227,500	128,606,458		10,474,698
1903		1,578,800	1,361,119	7,398,970	569,484	213,143,618		14,526,833
1904	360	1,668,327	1,710,365	7,666,382	5,087,518	233,096,375	2,600	16,933,405
1905	257	1,669,038	1,075,618	8,679,093	7,321,585	259,812,428	1,228,449	19,743,620
1906	287	1,787,673	1,149,100	9,018,815	9,558,913	255,014,446	2,065,597	23,698,400
1907	359	1,690,860	1,255,911	8,415,431	10,890,731	233,823,854	6,985,732	21,793,064
1908	385	1,689,231	1,443,459	7,469,981	10,041,850	206,827,816	37,410	15,416,599
1909	324	1,772,333	1,453,822	7,041,633	9,115,489	215,986,285	1,351,010	15,660,849
1910	417	1,786,174	1,096,842	7,369,742	7,037,292	228,258,839	5,603,114	16,316,196
1911	369	2,170,897	1,372,387	8,196,136	5,152,937	272,556,525	8,340,249	19,100,894
1912	408	2,266,334	1,381,214	8,294,745	7,492,152	284,185,657	13,905,502	21,466,521
1913	384	2,451,592	1,344,559	9,989,193	9,592,966	317,871,945	23,173,953	24,149,049
1914	384	2,235,349	1,152,315	12,479,516	6,445,187	348,526,069	42,012,435	24,645,848
1915	412	2,408,846	1,179,731	11,769,128	6,978,713	345,999,466	70,153,234	33,328,930
1916	418	2,718,045	1,115,810	12,300,873	8,478,281	375,081,781	86,505,219	48,767,783
1917	est.		715,000	11,773,000	6,753,000	383,000,000	80,000,000	54,000,000
Total		27,893,549	\$130,821,160	224,449,617	115,290,355	5,760,788,931	341,364,504	\$616,718,052

Figures of U. S. Geological Survey, Mineral Resources. Idaho mines report, C. N. Gerry.

Prepared for Northwest Mines Handbook by Victor C. Helkes, Statistician, Division of Mineral Resources, U. S. G. S., Salt Lake City, Utah.



The City of Wallace, Commercial Center of the Coeur d'Alenes.



MR. STANLY A. EASTON.

Manager, since January 1st, 1903, continuously, of Bunker Hill & Sullivan Mining & Concentrating Co., leading producer of the Coeur d'Alenes, and largest dividend payer among lead-silver mines of the world, with total of over \$21,000,000 to its credit; operating the only complete mining, reduction, smelting and refining plant in the West and employing over 1200 men. Mr. Easton is also president of Idaho Mining Association; president, Caledonia Mining Co., which has paid over \$3,000,000 in dividends; president, Sierra Nevada Consolidated Mining Co.; manager, Ontario Mining Co.; chairman, Relief Committee, Shoshone Chapter, American Red Cross; member, American Institute Mining Engineers; American Mining Congress; Mining & Metallurgical Society of America; Institute of Mining & Metallurgy, London, England; Spokane Club, Spokane Country Club, Pacific Union Club of San Francisco, and Rocky Mountain Club of New York. Mr. Easton was born in California and graduated from the College of Mines, University of California, April, 1894. He gained his first experience in mines of his native state, followed by eight years of varied work in mines of Idaho and British Columbia. In 1896-7 he was employed as a miner in the big property of which he is now manager.

COEUR d'ALENE OUTPUT

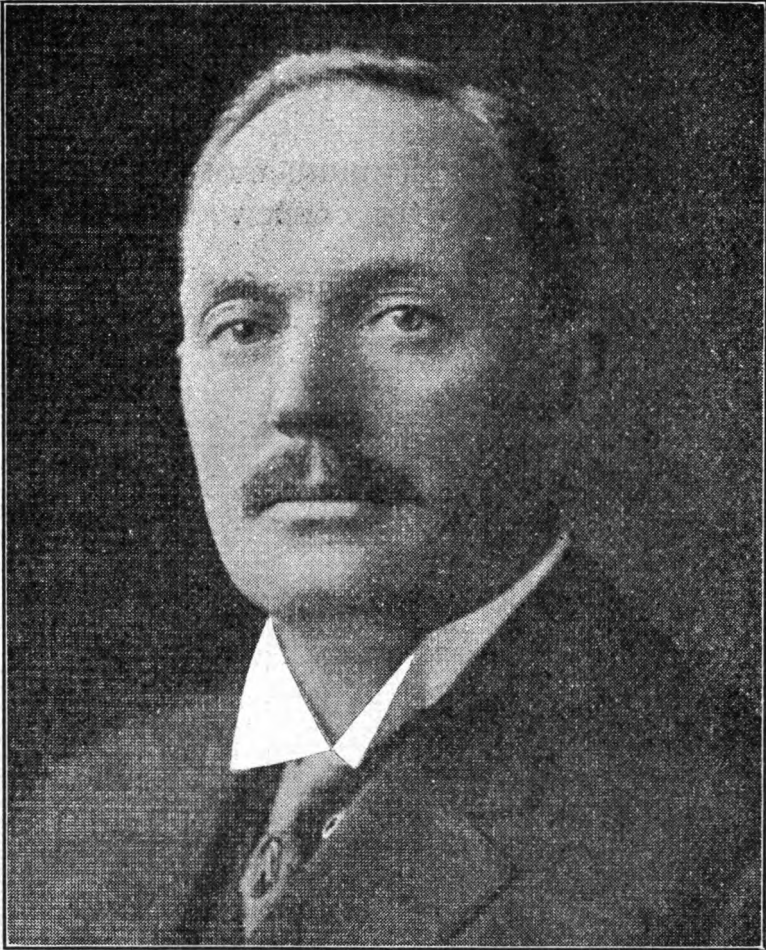
Total ore sold or treated, number of producers, and total value of gold, silver, copper, lead, and zinc

1884-1917

Year.	Producers.	Quantity of Ore. Short tons.	Gold. Value.	Silver. Fine ozs.	Copper. Pounds.	Lead. Tons.	Zinc. (spelter.) Pounds.	Total value.
1884			\$ 258,375					\$ 258,375
1885			376,607					376,607
1886			182,371	116,246		1,500		436,335
1887			152,276	340,000		5,980		1,022,996
1888			211,867	554,000		8,000		1,438,227
1889			174,310	1,095,265		17,500		2,532,978
1890			165,360	1,499,663		27,500		4,132,506
1891			206,700	1,825,765		33,000		4,868,356
1892			227,370	1,195,904		27,839		3,538,684
1893			304,841	1,963,561		29,563		4,258,621
1894			362,365	2,343,314		30,000		3,816,026
1895			381,134	2,471,300		31,000		4,016,049
1896			359,017	3,163,657		37,250		4,703,971
1897			339,070	3,756,212		57,777		6,764,010
1898			268,937	3,521,982		56,339		6,565,287
1899			177,803	2,737,218		50,006		6,263,404
1900			118,935	5,261,417		81,535		10,588,707
1901			101,593	4,339,296		68,953		8,731,662
1902			98,410	5,033,928		74,739		8,847,552
1903			158,146	5,471,620		103,691		11,885,078
1904	27	1,410,245	46,015	6,143,001	1,424,400	112,584		13,592,014
1905	37	1,526,927	38,987	7,292,986	5,225,606	126,928		17,198,856
1906	36	1,622,975	86,607	7,944,338	6,393,940	126,011	144,000	21,133,963
1907	33	1,541,670	81,696	7,266,862	7,199,648	114,721	6,948,655	18,888,203
1908	43	1,551,680	80,167	6,364,552	9,042,876	102,069		13,220,853
1909	41	1,569,332	89,418	6,201,157	8,906,944	106,779	1,280,000	13,724,065
1910	39	1,639,781	65,076	6,703,080	6,018,688	109,879	5,526,717	14,416,910
1911	50	2,004,487	86,035	7,383,899	2,926,551	127,419	8,310,435	16,306,680
1912	52	2,108,037	84,430	7,558,314	4,386,403	132,276	13,800,181	18,313,604
1913	48	2,289,226	81,749	9,337,109	5,097,894	148,370	21,415,565	20,767,410
1914	38	2,152,268	64,157	12,178,194	4,242,662	169,849	41,523,383	22,728,903
1915	52	2,255,475	46,433	11,158,955	1,941,296	164,199	69,685,003	30,119,424
1916	63	2,516,325	46,459	11,639,841	2,370,610	178,117	86,238,283	44,424,716
*1917			4,753	11,715,000	2,004,000	187,767	92,623,000	51,392,348
Total		24,188,428	\$5,564,469	165,577,636	67,181,518	2,649,140	349,550,220	\$411,273,380

1884 to 1916, from Mineral Resources, U. S. Geol. Survey, Mines report, C. H. Gerry.

*1917, from estimates Robt. N. Bell, State Inspector of Mines.



MR. HARRY L. DAY.

As head of his family, Mr. Day is a leading figure in the lead market of the United States, controlling Hercules, Tamarack & Custer, Ray-Jefferson, Amazon-Manhattan, and many other smaller mines in the Coeur d'Alene district; the Northport smelter at Northport, Washington; refinery of Pittsburg Smelting & Refining Co., at Pittsburg, Pa.; Wallace Bank & Trust Co.; Miners' Bank at Northport; large real estate holdings in Portland, Ore., and other cities of the Northwest. Mr. Day has been identified with the Coeur d'Alene district since the earliest days and for many years directed the affairs of the great Hercules mine. He is now in charge of general management of all the family's interests, with headquarters at Wallace.

Geology of Idaho.

By D. C. LIVINGSTON,

(Geologist, School of Mines, University of Idaho.)

IDAHO HAS a very complex geological structure, as it contains within its borders rocks of practically every geological age, from the Archean gneisses of the central mountain region to the glacial gravels of the Lake Region in the north.

Topography.

Topographically, Idaho may be divided into the following provinces: The Lake Region in the north; the Plateau Region; the Central Mountain Region; The Snake River Plains; and the South Eastern Mountain Region.

The Lake Region extends from Coeur d'Alene Lake and the Spokane River to the International Boundary. This region was formed by a combination of block-faulting, followed by glaciation. The lakes which now exist are only shrunken remnants of a large lake which extended from near Spokane to the Arrow Lakes in British Columbia, and to Missoula.

The Plateau Region is the eastern extension of the great lava plains of the Columbia River. This region comprises the country around Moscow, Camas Prairie, etc. It has been deeply dissected by the Snake, Salmon and Clearwater Rivers, and divided by these streams into separate plateaus, varying from about 2200 to 4500 feet in elevation.

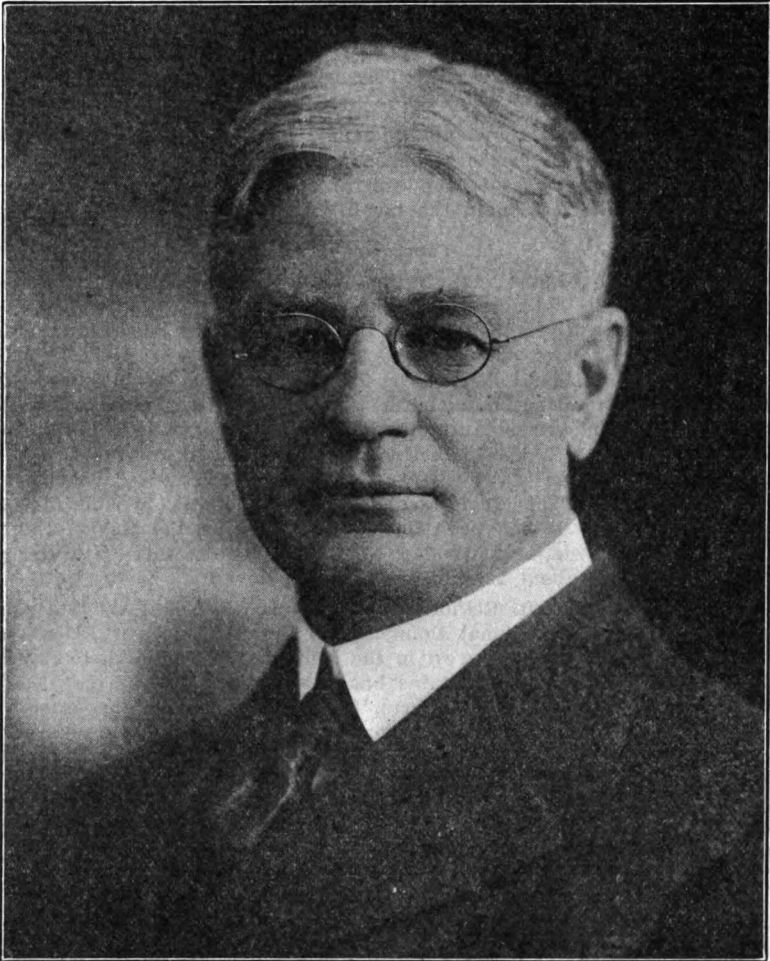
The Central Mountain Region occupies more than half the State and extends from the International Boundary to the Snake River Plains, and across the State from east to west in the central part. This vast labyrinth of deep canyons and high mountains has been formed by the elevation of what was formerly a plain or plateau, followed by tremendous erosion of the country by the swift mountain streams which resulted from this elevation. The deepest canyon is that of the Salmon River, which divides the State completely, and has in places a depth of upwards of a mile. The highest mountains are in the southern part of the region, along the divide between the Salmon and Snake Rivers, which shows the mountain region to have a gradual slope from south to north. The highest surveyed mountain is Mt. Hyndman, with an elevation of 12,078 feet, but the highest reported mountain is at the head of the Salmon River, one of the White Cloud peaks, and supposed to be 13,500 feet in elevation.

The Snake River Plains have an area of about 20,000 square miles, and extend from the Oregon line to the foot of the Teton Mountains in Wyoming. This region was formerly the site of a lake, known geologically as Lake Payette, which was filled with sandy sediments brought in by the streams, and also by lava flows. The Snake River has cut its channel through these beds, and in so doing has given rise to several important water falls, where rocks of different hardness have been encountered.

The South Eastern Mountain Region is quite different to the mountain mass of central Idaho. The mountains in the former are typical ranges, similar to the ranges of the Great Basin Region to the south, and have been formed primarily by folding and faulting of the sedimentary rocks, of which they are composed, rather than by erosion.

Geology—Central Granite Area.

Geologically, the state of Idaho may be considered as being built up around a great central mass of granite. This mass of granite was forced



MR. JAMES F. McCARTHY.

For fifteen years manager of Hecla Mining Co. and later president and manager, a position which he still occupies. Under his management, the company distributed 176 consecutive monthly dividends from 1904 to early in 1918, with aggregate of \$6,950,000. Mr. McCarthy has been connected with mining operations in the Coeur d'Alenes since 1898, his first position being as assayer with Mammoth Mining Co. Later he was assistant manager of the same property until it was sold to Federal Mining & Smelting Co. in 1903, when he became identified with Hecla.

up under the overlying rocks, which were mainly pre-Cambrian and Paleozoic sediments, during the Cretaceous or Jurassic period. This granite is of the same age as the granitic rocks of the Sierras in California, and the coast range of Alaska, and is in fact a part of an enormous batholith of granitic rocks, which underlie a considerable portion of the Rocky Mountain region from Mexico to Alaska.

In Idaho, this granite, which is very uniform in texture and mineral composition, outcrops over an area of approximately 20,000 square miles in the central mountain region, and in several smaller areas in other parts of the state. One of the best examples of the latter is Silver City, in Owyhee county. It extends from Priest Lake in the north to the Snake River Plains in the south. In traveling from north to south, the granite is not entirely continuous in the northern counties, but occurs in more or less isolated areas, as the area around Priest Lake, the Thatuna Hills, the monzonite rocks of the Coeur d'Alenes, Gold Hill in Latah county, and other detached areas.

The northern boundary of the main granite mass may be considered roughly as the divide between the St. Joe and Clearwater drainage, and from there south to the Snake River Plains it is practically continuous, and has a width of nearly a hundred miles. It reaches the western border of the state in the north and touches the eastern border in many places along the Bitter Root Mountains, to as far south as Lemhi county, where it disappears below the older sediments.

In this main granite area occur isolated masses of older rocks, consisting of gneisses and schists, of supposed Archean age, and also pre-Cambrian sediments. The best example of a gneiss or a schist area is the Elk City district in Idaho County. The granite is also intruded in many places by Tertiary volcanics.

Gold Occurrences.

The granite and Archean schists or gneisses contain many gold quartz veins, which were evidently formed during the cooling of the granite mass. These veins have been subjected to tremendous erosion, which undoubtedly represented in some places a removal of several miles, in depth, of rock, together with the veins. This erosion took place during the Tertiary era, when central Idaho was reduced to an almost level plain. The erosion of these gold-bearing quartz veins gave rise to many valuable placers, such as Pierce City, the Boise Basin, Elk City, Florence, Dixie, etc. These placers often occur near the heads of the streams and represent the old stream channels of the ancient plain. When this plain was re-elevated in more recent times, the lower parts of the streams were cut down into canyons and the gold contained in them was evidently sluiced into the Salmon, Snake and Clearwater Rivers and made extremely fine. Where some obstruction occurred in the lower courses of the new channels, the gold was again concentrated into workable placer deposits. Boise Basin is undoubtedly an example of the latter process, due to the damming of Moore's Creek by lava flows, while Florence, Dixie and Warren evidently represent the uneroded channels of the old plain.

Belt Sediments.

The main granite area is bounded on the north by the so-called Belt Series of pre-Cambrian or Algonkian sediments, which have in some places a thickness of upwards of 25,000 feet. These rocks are usually metamorphosed and consist of quartzites, slates, schists and occasional beds of limestone. They evidently occupied a much larger area formerly than at present, and probably extended as far south as the Salmon River, but have since been removed from the underlying granite by erosion. These rocks extend into Montana and British Columbia, and besides this large area in the north there are several areas in different parts of the state, but chiefly



MR. JOHN A. PERCIVAL.

President Consolidated Interstate-Callahan Mining Co., one of the greatest zinc-lead producers in the United States, with a dividend record of \$6,509,860 paid since April 1, 1915, when initial disbursement of \$116,360 was made. Under Mr. Percival's direction the property has been completely equipped with modern labor-saving and recovery processes and is now among the largest mining enterprises in the Coeur d'Alenes. Mr. Percival is a resident of New York City, where the head offices of the company are maintained.

near the eastern boundary. One of these is in Lemhi County and another, which has never been mapped, occurs on Big Creek, one of the principal tributaries of the Middle Fork of the Salmon. Undoubtedly, other areas will be located when the state is accurately mapped.

Yields Heavy Mineral Production.

This series of rocks is at the present time the most important in Idaho from an economic point of view. Something like ninety per cent of the mineral production of the state comes from veins occurring in these rocks. Most of this production is from the lead-silver and zinc veins of the Coeur d'Alenes. Many other important deposits of gold, lead, silver, copper, tungsten, etc., are known to occur in these rocks, as for instance in Lemhi County and certain recent discoveries of copper in Latah County.

The granite is bounded on the south by the Tertiary basaltic lava flows of the Snake River Plains, and by lake beds of Neocene age. The lava and lake beds, which are often interbedded, occupy an area of something like 20,000 square miles, covering the Snake River Plains. The lake beds are of economic importance only, and contain building stone in the neighborhood of Boise, and some impure lignite coal in one or two places, as for example on the Payette River, and Goose Creek on the south side of the Snake.

The granite is bounded on the east by the Belt series to the north and by Paleozoic sediments to the south. The latter extend from the north end of Lemhi County to the Snake River plains, and from the eastern boundary of the state to a little west of the meridian passing through Wood River. They consist of limestones, shales, quartzites, sandstones and a little conglomerate. They have been greatly folded and metamorphosed and are intruded by the granite in many places and also by Tertiary eruptives. They contain within their boundaries one of the greatest mineralized regions in the state. This region includes the Wood River and adjoining districts, containing lead-silver, zinc and gold deposits; the copper deposits of Mackay and Ivers; the lead-silver deposits of Gilmore and the Dome district; the Bayhorse district and many others in Lemhi, Custer and Blaine Counties. The greater part of this region is so inaccessible that only a few mines are in the producing stage, and many promising properties are idle on account of the lack of adequate transportation facilities. Many square miles of this region are almost unprospected.

Idaho's Great Phosphate Beds.

Another important area of Paleozoic sediments lies to the south of the Snake River plains, and evidently connects with the area just described beneath the lava and lake beds of the plains. This area contains some copper deposits in the Fort Hall district and some gold deposits on Caribou Mountain. Its greatest economic value, however, lies in the phosphate beds of the southeastern counties, which contain the largest known body of high grade phosphate rock in existence.

The granite area is bounded on the west by the Columbia River basalt flows to the north, and by highly metamorphosed sediments and greenstones of supposed Triassic age to the south. The latter are exposed in the canyon of the Salmon River near Lucile, and are also cut by the Snake River, commencing near the mouth of the Grande Ronde and continuing up the river to the Seven Devils. In the Seven Devils mountains these rocks consist of limestones, which have been intruded and metamorphosed by volcanics, in the form of greenstones or altered basic porphyries, and also by more acid porphyries.

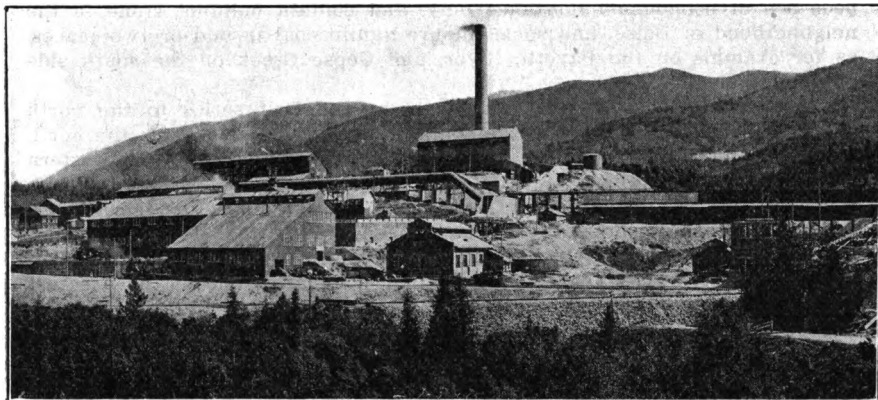
Seven Devils Copper Region.

This district contains copper deposits of considerable importance, though only partially developed, and is considerably handicapped by the

difficulties of transportation and the rugged nature of the country. If a railroad be brought into this region, either by continuation of the present line from Homestead on the Snake, or from Council, on the Weiser River, it should become an important producer of copper.

A small area of Cretaceous rocks occurs in the southeastern part of the state, the best exposures being on the west side of the Teton River, in the Snake River Range. These rocks contain workable coal seams of good grade, but expensive to mine on account of the steepness of the seams.

The Tertiary rocks of the state are represented by the lava flows already mentioned and by many intrusive rocks, as well as flows in other parts of the state. During the intrusion of these Tertiary volcanics, there was a period of mineralization later than that represented by the intrusion of the granite. As examples of this period of mineralization, the Silver City district in Owyhee County may be quoted and the Banner Mine, in Boise County, which contains rich sulphantimonides of silver, also un-



Bunker Hill Smelter, Kellogg, Idaho.

doubtedly belongs to this period. These are quoted as examples, but there are many others in the central mountain region.

The quaternary deposits, with the exception of the wind-blown soils of the Palouse Country in the north, and the fine silts of similar origin on the Snake River Plains, are of minor importance. They consist of some glacial gravels in the north and lake beds in many of the intermontane valleys in the south.

Only a small area of the state has been accurately mapped and the above may be considered a bird's-eye view of the main topographic and geologic features.

In compiling the above, many publications of the United States Geological Survey have been used, of which the following should be mentioned in particular:

1. A Geological Reconnaissance in Northern Idaho and Northwestern Montana, Calkins & MacDonald. U. S. G. S. Bull. 384.
2. Geological Reconnaissance Across the Bitter Root Range, Etc. U. S. G. S. Prof. Paper No. 27. Lindgren, Waldemar.
3. The Gold and Silver Veins of Silver City, Delamar and Other Mining Districts in Idaho. U. S. G. S. 20th Ann. Report. Lindgren, W.
4. A Geological Reconnaissance Across Idaho. U. S. G. S. 16th Ann. Report. Eldridge, Geo. H.
5. Geology and Water Resources of the Snake River Plains of Idaho. U. S. G. S. Bull. 199. Russell, Israel C.
6. Bulletins 528 and 539, U. S. G. S. By Jos. B. Umpleby, on Lemhi and Custer Counties, respectively.

Mineral Resources of Idaho

(Contributed to Northwest Mines Handbook by Robert N. Bell, State Mine Inspector.)

THE metal production of Idaho to date aggregates, according to statistical records and conservative estimates since mining first began with the discovery of placer gold at Pierce City in 1860, a grand total yield of \$809,000,000, which substantially establishes its right to rank among the prominent precious and useful metal-producing states of the Union. Of this total, lead value has been the most important, gold ranking second, silver third, zinc fourth, and copper fifth in the ratio of importance to total yield. The position of gold in Idaho metal-production is rapidly being overcome and will shortly be succeeded by silver, in which we rank close second to the four principal producing states of the West, with a total output in 1917 of 12,500,000 ounces. Lead has always been a conspicuous factor in our output since 1873, when a small lead furnace was erected and several hundred thousand dollars' worth of rich lead-silver bullion produced and shipped from the South Mountain mines in Owyhee county, now owned by George Sonneman, of Spokane.

The lead ores of Idaho have always been noted for a rich associated value in silver, and it was the chief metal sought in first development. Discoveries were made in the early eighties in the Wood River district, and also in Custer county and Lemhi county, where a notable production of lead-silver values was made in early days. The Coeur d'Alene lead-silver district, discovered in 1885, as a result of an overflow of prospectors from the Murray gold rush of 1883, has since developed into one of the richest centers of lead-silver ore production ever discovered. The Idaho yield of lead has continually expanded up to and including the year 1917, when the enormous output of approximately 400,000,000 pounds was produced, fully 90% of which was derived from the mines of the Coeur d'Alene district.

Coeur d'Alene District Leads State.

This district is extensively mineralized over an area of 10 by 20 miles and, as previously outlined, embraces the most favorable physical and geologic conditions imaginable for the existence of permanent ore bodies, particularly in lead, silver and zinc ore. During the past 20 years its principal producing mines have been operated in a most vigorous and up-to-date manner, without any apparent regard for the future, or even to the immediate prosperity of operators, and have stood the hammering activity of a metal-hungry world in a most remarkable manner. The noted ore bodies of this district have proven decidedly inconspicuous on their surface manifestation, with one exception, and there still remain dozens of splendid prospects well worthy of extensive development-investigation, based on comparative surface conditions that existed in the primary development of several of the principal producers.

It must be admitted that discoveries calculated to develop the magnitude of some of the principal mines have been slow in recent years, but the field is still rich in possibilities and more persistent cross-cutting development, even in the older mines, will likely result in the disclosure of new tonnage to maintain the present splendid capacity of the district for years to come.

Idaho Second in Lead Production.

The Coeur d'Alene district is backed by widespread manifestations of lead-silver bearing minerals throughout the length and breadth of the

state. Idaho at present ranks second among the states of the Union in lead production, being excelled only by the state of Missouri. It produces twice as much lead as its next nearest competitor, Utah, and twice as much lead as all the other states in the Union combined, including Colorado; and from the many favorable partially developed ore deposits in the numerous other districts of the state, including the eruptive granite formations, I am of the opinion that Idaho will hold its present rank in lead production indefinitely.

Zinc Output Has Increased Rapidly.

Zinc production in Idaho in important quantities is a comparatively recent development, and received its first impetus through the activities of



Mullan, Idaho, Capital of the Eastern Portion of the Coeur d'Alenes.

H. F. Samuels, by his purchase of the old Granite mine on Nine Mile creek, in the Coeur d'Alene district, subsequently operated under the name of the Success. The successful demonstration, and expanding markets, resulted in the higher appreciation of this useful metal and its widespread existence in the Coeur d'Alene district and in the subsequent development of the now famous Consolidated Interstate-Callahan, whose splendid resources and production of the past three or four years has given it rank as the third individual producer of zinc ore in America, and probably in the world. This remarkable deposit also constitutes what is probably the richest natural concentration of zinc sulphide mineral mined anywhere in the world, with a daily output of 500 tons. Mine-run value is about five times that of the average of the famous southwestern Missouri zinc districts. The phenomenal profits derived from this operation as a result of

war prices, has induced extensive investigation of other zinc prospects in the Coeur d'Alene district and the disclosure of a number of other promising sources of ore in the adjacent mountain slopes of Nine Mile creek and Beaver creek, and particularly in the new zinc-lead district of upper Pine Creek, where the same types of formations are extensively manifested. Veins are fissures and mineralized with massive replacement zinc ore, indicating probable permanency, particularly at the Constitution mine. Pine Creek ores are more complex, owing to the presence of iron sulphide, complicating separation of the valuable minerals, which will probably necessitate hydro-mechanical methods and cheap electric power supply. In a state with such vast idle resources of water power available for cheap development, these new zinc ore discoveries are likely to prove a permanent factor in the industrial progress of the Coeur d'Alene district.

Outlook for Copper Is Bright.

Aside from the Coeur d'Alene district, the other present source of zinc ore, only partially developed but of considerable promise, is in the Blaine county districts, along the tributaries of Wood river.

Copper ores in Idaho are broadly manifested throughout all the mountain countries, deposits embracing every variety of occurrence that has proven of such vast importance in other states. I am of the opinion that Idaho will ultimately rank high in the production of the metal.

Gold Output Has Declined.

Our gold output has suffered a serious decline with the exhaustion of the richer surface placer gold deposits, but the state still contains several splendid prospects of new gold supply from deposits of both placer and lode. The remaining placer deposits are confined to lower grade material, that will have to be operated on a large scale, either by dredging or hydraulic methods.

The likeliest source of new and permanent lode gold supply in Idaho will be from numerous narrow rich fissures of specimen ore of the type recently disclosed at the Holt mine, in the Marshall Lake district in Idaho county, where a quarter of a million dollars' worth of bullion was produced during the last year with a small mill of 25 tons daily capacity, and also from the successful treatment of immense bodies of low grade gold ore of the type exhibited by the Oro Grande mine near Elk City, where a 300-ton pilot mill was recently completed for the treatment of a broad shear zone, in soft granite, several hundred feet wide and believed to carry bands up to 100 feet wide of \$3.00 gold values and to afford splendid opportunities for open quarry, steam shovel methods of mining. Success of this enterprise, which will be tested during the coming year, will warrant erection of a 3000-ton plant. This type of deposit is substantially duplicated in the Big Creek district, south of the Salmon river, where considerable preliminary cross-cut development has disclosed ore bodies richly impregnated with iron sulphide, carrying crude average values of \$2.00 to \$4.00 per ton and \$40.00 to \$50.00 in the concentrates, in widths varying from 60 to 200 feet on well defined lode courses traceable for miles, that promise some large-scale operations in gold mining and milling.

Idaho contains a variety of minor metals and minerals, including prospects of decided commercial promise in tungsten, molybdenite, antimony, manganese, cobalt, nickel, tin and quicksilver.

Coal Measures in Teton County.

By reason of widespread formations unfavorable for the existence of coal, Idaho people are at the mercy of adjacent states for this essential domestic requirement, and annually pay a cash tribute of several million dollars to the adjacent states of Utah and Wyoming. We have, however,

a limited area of the famous coal-bearing formations of Wyoming extending across the eastern border of the state in Teton county, where a prominent operator, Mr. R. S. Talbot, has recently purchased a large tract of patented coal land with quite extensive preliminary development, has since pushed a shaft down on a five-foot pitching vein of clean, high-grade bituminous coal to a depth of 500 feet and is rapidly putting the property in shape for a quite important production, with a development that now definitely promises an output of 500 tons of coal a day within a year. From a recent survey, by competent geologists, it is estimated that the deposit contains several million tons above a moderate drainage development level and will afford an enterprise which, under present market conditions insuring very substantial profits, will relieve the serious coal famine conditions with which the state is afflicted at this time.

Great Deposits of Phosphate.

While deficient in coal, Idaho possesses another non-metallic resource in the form of phosphate rock in the southeastern counties of the state, from which a partial survey estimate by the U. S. Geologic Survey indicates a resource of upwards of 3,000,000,000 tons of clean, high-grade phosphate mineral that occurs in regular persistent veins like coal in carboniferous formations. When the Idaho area of this field is fully surveyed, I think this resource will warrant an estimate of 10,000,000,000 of tons, and it also carries a vast reserve aggregating ten times that tonnage in a little lower grade, but serviceable, mineral. Phosphate rock of this quality—70 per cent—has a selling value in southeastern states of \$5.00 per ton, from which it will be seen that we have a potential resource that makes all our great metallic values and prospects seem like a mere bagatelle by comparison. This statement is emphasized by the following facts:

The primary soils of the United States on an average contained 1200 pounds of phosphorus before the prairie sod was first turned to a plow share depth of 6¼ inches. When the element is much reduced below this proportion, the soil will not produce profitable crops. Every steer produced on and sold off an American farm carries with him fifty pounds of phosphates in his bones, and every other meat animal a relative proportion. Every ton of wheat produced and sold off an American farm carries with it 18 pounds of phosphorus, and every ton of other grain, especially corn, a similar high proportion of this necessary element of agricultural success. The importance to Idaho of this vast asset as a future source of mining and industrial activity is apparent. To the agricultural industry of the nation at large it offers the only sound solution of our present high living costs and the baneful social problems they involve.

Volume 2

NORTHWEST MINES HANDBOOK

Will be published about April 1, 1919. Owners of mines and officials of mining corporations are invited to supply details of projects. Blanks upon application.

Idaho Mines and Corporations

ACME MINING AND MILLING CO.

Kellogg

Capital: \$50,000. 1,000,000 shares. Par value, 5c. Directors: Elba Allen, F. M. Holter, T. P. Wormward.

ADVANCE MINING CO.

Missoula, Mont.

Capital: 1,000,000 shares. Par value, \$1. Assessable. Directors: Herbert Crego, pres.; F. D. Fox, vice-pres.; Henry Hubert, secy.-treas., Missoula, Mont. Annual Meeting: Nov. 30. Property: Five unpatented claims, Gentle Annie gulch, Hunter district, Coeur d'Alenes. Class of Ore: Silver-lead. Development: 75 ft. tunnel and cross-cuts. Small force. No shipments to date. Informant: Secy.-Treas. Hubert.

ARTNA MINING AND MILLING CO.

Wallace

Capital: \$150,000; 1,500,000 shares. Par value, 10c. Assessable. Directors: Jas. A. Murphy, Burke; C. S. Stone, Leo F. Quigley, August Nelson, Wallace; C. W. Gilstrap, Bluestem, Wash.; O. W. Lewis, Wallace, secy.-treas. Annual Meeting: Third Tuesday in March. Property: Four unpatented claims in Lalande district, Coeur d'Alenes. Class of Ore: Lead-silver. Development: 300 feet of tunnel. No shipments. Informant: Secy.-Treas. Lewis.

AJAX MINING CO.

Burke

Capital: \$1,600,000. Par value, \$1.00. All issued. Assessable. Directors: Fred E. Starkey, Spokane, pres.; Harry W. Woodward, Lynn, Mass., vice-pres.; J. A. Havighorst, Spokane, secy.-treas.; F. Moriarity, Spokane; George E. Sprague, Lynn, Mass.; Gus Benson, Burke, Idaho, and Alva C. Bixby, Wallace, Idaho. Annual Meeting: First Tuesday after first Monday in September. Class of Ore: Silver-lead. Equipment: Compressor and Ingersoll-Rand drills, operated by electric power. Property: 13 patented claims, Lalande district, Coeur d'Alenes, adjoining Hercules estate on the east. Development: Force of between 20 and 30 men employed extending Oom Paul tunnel to meet Ajax vein system; heading about 7000 feet from the portal in January. In February, 1918, reported to have struck vein showing in upper workings, at vertical depth of approximately 1200 feet. Over 500 feet drifting in upper levels disclosed strong fissure vein, from three to four feet wide, carrying oxidized iron, quartz and occasional galena, and showing characteristic of Hercules vein, which Ajax ground is believed to cover for 4000 feet easterly. Shaft is also being sunk 4000 feet west of Tunnels No. 1 and No. 2, 30 feet north of south line of Woodman claim and about 150 feet from west end line. Shaft now 200 feet deep and crosscut to vein expected to reach objective any day. Shaft is at lower horizon than upper tunnels, but still 600 feet above level of Oom Paul tunnel. Control of company in hands of Lynn and Boston, Mass., capitalists. Financed by assessments, of which nine have been levied—seven of half a cent and two of one cent. Very important discoveries in eastern workings of Hercules at great depth are considered of great moment to Ajax.

ALAMEDA MINING & MILLING CO.

Wallace

Reorganized as Alameda Mining Co. in 1910.

ALAMEDA MINING CO.

Wallace

Capital: \$1,500,000. Par, \$1.00. All issued. Assessable. Directors: F. J. Finucane, Spokane, pres.; Frederick Burbidge, vice-pres.; Charles McKinnis, mgr.; J. A. Wayne, secy.-treas.; Charles Hussey. History: Originally Alameda M. & M. Co., but reorganized 1910 under present name. In April, 1916, Spokane syndicate bought 800,000 shares at reported price of 15c and since then development has been carried on systematically. Property: Six claims adjoining estate of Success Mining Co., Nine-mile district, Coeur d'Alenes. Equipment: Compressor and air drills, run by electricity. Development: 1200-foot crosscut tunnel, started on Julia claim, and cutting Success vein under Cardiff claim at depth of approximately 700 feet. Requests for information as to present conditions ignored and it may therefore safely be said that development has so far shown nothing of great value. Note: Large bodies of ore extracted from within Cardiff lines by Success Mining Co. in 1914 and 1915. Suit for recovery of damages was decided in Alameda's favor in district court in January, 1916, and referee subsequently set damages at \$56,070. Appeal was taken to Supreme Court of Idaho and lower court reversed with order to enter judgment for Success, permitting latter "right to pursue the Granite vein downward between the vertical planes of the end lines of the Granite claim indefinitely beneath the surface of Cardiff claim or any other claim or claims under which the said vein may extend within the planes of such vertical lines in its downward course indefinitely." Notice of appeal to

Supreme Court of United States was given by Alameda, but was not then perfected. At this time arrangements for perfection said to be in progress, owing to discovery by Success of lead ore-body on 1500-foot level, 800 feet below point at which Alameda crosscut intersects vein. When litigation was started, spelter was selling at high figure and ore-bodies were of great value. Since then price of metal has declined to a point which renders mining of zinc ores in Success unprofitable. **Note:** On March 5, 1918, ledge was entered in 2,500-ft. tunnel, when stringers were exposed in face.

ALBANY LEAD MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** John Dunphy, pres.-treas.; Chas. W. Betts, secy., Burke. **Property:** 11 unpatented claims in Lalande district, Coeur d'Alenes. **Annual Meeting:** First Saturday in October. No shipments.

ALCIDES MINING CO.**Spokane, Wash.**

Capital: \$1,000,000. In 1,000,000 shares. Par value, \$1.00. Assessable. **Directors:** Grant D. Miles, Fairfield, Wash., pres.; Oscar Cain, Spokane, treas.; M. W. Neary, Spokane, secy.; Ed Ehrenberg, Spokane, vice-pres.; F. J. Russell, Spokane. Washington corporation. **Annual Meeting:** January. **Property:** Four claims and one-half interest in three fractions, known as Cooney Group, in Lalande district (all patented), Burke, Idaho. **Development:** Development through long crosscut tunnel of Gertie Mining Co., but late details are not obtainable. **History:** Property bought from Mark Cooney in October, 1915, for reported purchase price of \$150,000, of which \$25,000 was said to have been paid at that time. Other payments of \$50,000 and \$75,000 fell due in one year and in eighteen months. Subsequently, terms were modified and it is understood about \$60,000 has been paid, with balance on liberal time. Closed down in February, 1918, but expected to resume almost immediately.

ALHAMBRA MINING CO., LTD.**Spokane**

Capital: \$1,000,000. 1,000,000 shares. Par value, \$1. Assessable. **Directors:** E. H. Moffitt, pres.; Chas. Hussey, treas.; W. A. Corey, secy., Spokane. **Annual Meeting:** Second Monday in December. **Property:** 22 patented claims in Yreka district, Coeur d'Alenes. **Class of Ore:** Disseminated lead-silver. **Equipment:** Compressor plant and 50-ton flotation mill. Shipments, 179 tons. **Informant:** Secy. W. A. Corey. **Note:** 50-ton fine-grinding and flotation mill erected eighteen months ago by interests identified with Bunker Hill & Sullivan M. & C. Co., which owns about one-tenth of stock, under arrangement which provides for milling charge and payment of balance of receipts to company. Ore is lead-zinc-silver and very complex, requiring fine grinding.

ALICE MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Walter Mackay, pres., Portland, Ore.; John H. Foss, vice-pres., Mullan; James F. McCarthy, secy.-treas., Wallace; C. E. Bender, Spokane; Geo. W. Ruggles, Los Angeles. **Annual Meeting:** Second Tuesday in August. **Property:** 23 patented claims, $3\frac{1}{2}$ miles east of Wallace, Lalande district. **Class of Ore:** Lead and silver. **Equipment:** Compressor, drills, pumps and 150-ton concentrator. **Development:** 9570 ft. drifts and crosscuts, 635 ft. shaft. Shipments to date, 3420 tons. **Informant:** L. E. Hanley, Wallace. **Note:** Under lease to Seattle people for short time in 1916, but work unproductive.

ALLIE MINING CO., LTD.**Gilmore**

Capital: 30,000 shares. Par value, \$10. Non-assessable. **Directors:** Edgar C. Ross, pres., Gilmore; T. B. Cook, vice-pres., Dubois; Harvey R. Hyde, secy.-treas., Ridgway, Pa. **Annual Meeting:** January. **Property:** 6 patented claims and developed water right. **Class of Ore:** Gold and silver. **Development:** Shafts and drifts. Shipments last year, \$25,000. **Informant:** Bernard Allhands, Gilmore.

ALMA BAY MINING CO.**Kellogg**

Capital: \$375,000. Par value, 25c. Assessable. Organized 1917. **Directors:** W. W. Papesh, pres.; Peter Engle, vice-pres.; Chas. Weigand, secy.-treas.; R. A. Brockman and C. B. Forbes, Kellogg. **Property:** 14 claims, adjoining Lombardy group, half-mile west of Kellogg, Yreka district, Coeur d'Alenes. **Class of Ore:** Silver, lead, zinc. Not in operation.

ALPINE COPPER MINING CO., LTD.**Wallace**

Capital: \$100,000. 1,000,000 shares. Par value 10c. **Directors:** Chas. W. Beale, pres.; A. H. Featherstone, secy.-treas., Wallace. **Annual Meeting:** Third Tuesday

in October. **Property:** 6 unpatented claims in St. Joe district. **Class of Ore:** Copper. Not working.

ALPINE MINE.

Boise

John A. Percival, of New York, pres. of the Interstate-Callahan. **Class of Ore:** Silver. On Payette river, near Banks.

ALTA COPPER MINING CO.

Salt Lake City

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Frank M. Foote, pres.; Ernest R. Woolley, vice-pres.; Fred R. Woolley, secy.-treas.; H. C. Parker, L. S. Ramp-ton; A close corporation. **Property:** 7 claims on Lost River, Idaho, with several water rights. **Development:** About 500 ft. of tunnels, showing a 14-ft. vein carrying 2-ft. pay streak of high grade copper and lead, mainly of smelting grade. Ore has assayed up to 174 ozs. silver and 1.02 ozs. gold.

ALTA-IDAHO GOLD & COPPER MINING CO.

Wilkes-Barre, Pa.

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** M. C. Hetler, pres., Berwick, Pa.; J. H. Tine, secy., Plymouth, Pa.; J. B. Nuss, treas., Blooms-burg, Pa.; Geo. M. Snyder, mgr., Pardee, Idaho. **Annual Meeting:** First Tuesday in January. **Property:** 9 unpatented claims and mill-site, in Lolo district. **Class of Ore:** Gold, silver, copper. **Equipment:** Steel track and car, blacksmith shop, magazine and tools. **Development:** 250 ft. crosscut tunnel and 150 ft. drifts. **Informant:** Manager Geo. M. Snyder.

ALTA MINING CO., LTD.

Salmon

Capital: \$500,000. Par value, \$1.00. Non-assessable. **Directors:** W. B. Horn, pres.; Albert Amonson, secy.; Harry Kelly, treas., Salmon. **Annual Meeting:** June 13. **Property:** Three unpatented claims on Jessie Creek, near Salmon. **Class of Ore:** Gold, silver, lead. **Development:** 1100 feet of tunnels. About 100,000 tons of ore blocked out. No shipments. **Informant:** Pres. W. B. Horn.

AMARGO MINING CO.

Mullan

Joint partnership. **Owners:** C. A. Maynard, Louis Maynard and John Sherrard, Mullan. **Property:** 6 unpatented claims, on headwaters South Fork Coeur d'Alene river. **Class of Ore:** Silver. **Development:** 190 ft. of tunnel. **Informant:** Manager C. A. Maynard.

AMAZON-MANHATTAN MINE.

Wallace

Property: 6 or 7 claims northwest of Consolidated Interstate-Callahan, Beaver Creek district, Coeur d'Alenes. **Partnership:** Owners, Jerome J. Day, 1-2; Patrick Burke, 1-4; F. C. Robertson, 1-10; Fred Miller, 1-20; John M. Gleason, 1-20; Joseph F. Morton, 1-20; the four latter being attorneys in litigation recently decided, and which goes back to 1912. Former owners: C. W. Betts, Horace M. Davenport, Charles F. Asp, Milton J. Flohr, and estate of Barry N. Hillard, Wallace, Idaho; William M. Clark, Ben Stanley Revett and Thomas Kelly, of Denver, Colorado. In 1912 option to purchase was given to Patrick Burke of Wallace, and William T. Tracy of Galesburg, Ill., for \$160,000, first payment, \$16,000, due June 1, 1912. Friction arose between Burke and Tracy and payment not made. Burke secured extension of option, but failed to make first payment in December, 1912. Owners then gave option to John H. Wourms, Wallace attorney, who conveyed to Consolidated Interstate-Callahan Mining Co. Burke refused to deliver and District Court ordered vacation of the premises. Appeal taken to Supreme Court and case sent back to lower court. Amended pleadings alleged that Wourms had represented both Burke and Interstate-Callahan. Supreme Court upheld Burke's contention and cited Wourms to appear in disbarment proceedings, subsequently suspending him for two years. Interstate-Callahan ordered to restore property to Burke upon payment of \$159,825, paid as purchase price. Amount provided by Eugene R. Day and other members of the family and paid October 6, 1917, Interstate-Callahan abandoning litigation, in spite of notice of appeal to Supreme Court of United States. Development immediately commenced, under direction of E. R. Day, and in January, 1918, mine was connected by tramway with Ray Jefferson mill and production commenced. It is said reserves are worth \$2,000,000, carrying lead, zinc and silver. The mine has been opened by three levels, the lowest of which, No. 3, has a length of 2000 ft. and vertical depth of 900 ft. The levels above are about 250 ft. apart. No. 3 tunnel run mainly on ore for 1000 ft. It is expected that 400 tons of ore will be milled per day, with output of approximately 100 tons of lead and zinc concentrates. **Note:** Following policy pursued by Day family, official information unobtainable, but above is believed to cover situation accurately. **Note:** On March 16, 1918, Co. announced it had 1,000 tons of ore ready for shipment; awaiting repairs to railroad, damaged by floods.

AMBERGRIS MINES CO.**Wallace**

Capital: \$1,000,000, in 1,000,000 shares. Par value, \$1.00. All issued. **Directors:** Eugene R. Day, Wallace, pres.; W. B. Heitfelt, Wallace, secy.; Eugene R. Day, treas.; August Paulsen, W. Clayton Miller and Al Page, of Spokane. **Annual Meeting:** Last Monday in January. **Property:** Group north and west of Burke, adjoining Hercules group on northwest, taken over from Ambergris Mining Co. **Class of Ore:** Lead-silver. **History:** Property originally owned by the late U. S. Senator W. B. Heyburn, John P. Gray of Coeur d'Alene, Clayton Miller of Spokane, and associates. Hercules disputed title when ore was encountered in 200-ft. shaft near Hercules side line and litigation was commenced. Compromise effected and capitalization increased from \$1,500,000 to \$3,000,000, in dollar shares, Hercules taking additional issue and management of property, which then lay idle for several years. In 1916, capitalization was reduced to \$1,000,000, in dollar shares, and development resumed from Hercules No. 4 tunnel, 1200 ft. crosscut being started to reach point under original shaft. Understood that tunnel reached its objective and uncovered several feet of good ore carrying high silver values, but exact information unobtainable, owing to fact that Day family refuses details. Sworn statement in recent suit involving Hercules Mining Co. showed that latter owned 505,333 shares of Ambergris, costing \$34,019. Assessment of 2c per share levied in January, 1917, payable March 3, 1917.

AMERICAN COMMANDER MINING AND MILLING CO.**Mullan**

Capital: \$2,500,000. Par value, \$1.00. Practically all issued. **Directors:** E. J. Clark, Carlyle Hotel, Spokane, pres.; M. J. McHugh, Mullan, secy.-treas.; D. F. Clark, Mullan; P. J. Gearon, Wallace, and a stockholder residing at Newark, N. J. **Annual Meeting:** First Monday in July. **Property:** American, Commander and Commander Fraction claims, 3000 ft. north of Mullan, adjoining western part of estate of Hunter Gold Mining Co., and 3500 ft. east of Morning estate of Federal Mining & Smelting Co. **Development:** No. 1 crosscut tunnel 1200 ft. in length, supposed to have encountered vein, but showed nothing of commercial value. No. 2 tunnel reached total length of possibly 2000 ft., but so far has not uncovered anything of value. **History:** Capitalization originally \$1,250,000, increased to present figure in 1915. Original prospectus of company claimed that No. 6 tunnel of Hunter Gold Mining & Smelting Co. intersected American-Commander vein at depth of 1200 ft., showing 7 ft. of high grade milling ore. These statements were made by former employes of Hunter Co., but vigorously denied by officials. Development financed by assessments since 1915, but nothing of value has been uncovered. Assessment February, 1918, 5 mills.

AMERICAN DEV., MINING & REDUCTION CO.**Waxahachie, Texas**

Directors: W. F. McQuarrie, pres.; R. C. Johnson, secy.-treas., Waxahachie, Texas; E. E. Edwards, mgr., Gibbonsville, Idaho. Stock non-assessable. **Property:** 400 acres quartz and placer and mill-sites at Gibbonsville. **Class of Ore:** Gold. **Equipment:** 15-stamp mill, 3 concentrating tables and 10-ton cyanide plant. **Development:** Thousands of feet of tunnels and 100-foot shaft. **Informant:** Manager E. E. Edwards.

AMERICAN EAGLE CON. GOLD MINES CO.**Spokane**

Ed O'Shea, secy., Granite Bldg., Spokane. Dixie district, Idaho.

AMERICAN METAL CO., LTD. (THE).**New York**

Capital: \$25,000,000. Par, \$100; \$7,000,000 issued. Incorporated 1887, as refiners, exporters, importers, and dealers in metals and chemicals. Controls consolidated Interstate-Callahan Mining Co. and holds ten-year contract, beginning September 22, 1916, for treatment of all its zinc ore and concentrate. **Main Office:** 61 Broadway, New York.

AMERICAN MINING CO.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** Wm. Stimson, pres., Spokane; John Dolan, secy.-treas., Wallace. **Annual Meeting:** June 29. **Property:** 2 unpatented claims in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver.

AMERICAN MINING CO., LTD.**Helena, Mont.**

Capital: \$50,000. Par value, \$1.00. Non-assessable. **Directors:** A. H. Kleinschmidt, pres.; Maria Kuphal, secy.; Louis Hillehecht, all of Helena. **Annual Meeting:** First Monday in January. **Property:** A $\frac{1}{2}$ interest in the patented mining properties known as the Peacock and White Monument mines; a $\frac{1}{2}$ interest in the patented Helena mines, and a $\frac{1}{2}$ interest in the patented Blue

Jacket, Blue Jacket No. 2, Calumet, Copper Crescent, Copper Queen, Legal Tender and Norma mines, all in Seven Devils district, Adams Co., Idaho. **Class of Ore:** Copper, gold, silver. Peacock mine said to be largest producer in district, producing 15,000 tons of high grade ore, and showing 200,000 tons of $4\frac{1}{2}\%$ copper ore. **Equipment:** Pumps, hoists, etc., but property now idle, owing to litigation, and in dilapidated condition. **Development:** Over 3000 ft. of tunnels, 400 ft. of shafts. Company also owns extensive mining properties in Montana.

AMERICAN PLACER MINING CO.

Spokane

Capital: \$500,000. Par value, \$1.00. Assessable. **Directors:** J. M. Porter, pres.; D. W. Porter, secy.-treas., Spokane; R. L. Wilkinson, Colfax, Wash.; E. W. Miller, Kellogg. **Property:** 230 acres patented and 90 acres unpatented ground along Oro Fino creek, near Pierce, Idaho. **Equipment:** 1000-yard Risdon dredge. **Development:** Hydraulic and ground sluicing, 1895 to 1901; hydraulic elevator operated in 1916-1917. **Informant:** Pres. J. M. Porter, Spokane.

AMERICAN SMELTERS SECURITIES CO.

New York City

Capital: \$77,000,000—6% cumulative "A," \$17,000,000; 5% cumulative preferred "B," \$30,000,000; and \$30,000,000 common. Par value, \$100.00. **Property:** Owns control of common stock of Federal Mining and Smelting Co., which operates properties in Coeur d'Alene and Hailey districts.

AMERICAN SMELTING AND REFINING CO.

New York City

Capital: \$115,000,000, in \$65,000,000 common and \$50,000,000 cumulative 7% preferred. Par value, \$100.00. Owns control of American Smelters Securities Co., through ownership of entire common stock issue of \$30,000,000. In 1905, immediately after control of common stock of Federal Mining & Smelting Co. had been transferred to American Smelters Securities Co., dummy directors were placed upon the directorate of Federal Mining & Smelting Co. and 25-year smelting contract entered into, upon such basis that millions of dollars have been lost by Federal during the past 12 years. Legality of contract attacked by minority stockholders in 1913, case being heard the following year in Supreme Court of the county of New York, and decision adverse to plaintiff rendered by Justice Philbin in July, 1914. Appeal taken to Appellate Division and verdict of lower court upheld in October, 1917. No further appeal will be taken.

ANY-MATCHLESS MINING & MILLING CO.

Mankato, Minn.

Capital: \$1,250,000. Par value, \$1.00. Assessable. **Directors:** Geo. Wiedeman, pres.; Carl J. Holman, secy.; W. A. Beach, treas., Mankato, Minn. **Annual Meeting:** Sept. 1. **Property:** 5 patented claims and mill-site, and 12 unpatented claims in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-zinc. **Equipment:** Electric air compressor, tank, fan, etc., small house and pump for sinking. **Development:** 4000 ft. tunnel, 200-ft. shaft. **Informant:** Manager G. A. Smith.

ANACONDA COPPER CO.

New York City

Capital: Authorized 3,000,000 shares, outstanding 2,331,250. Par value, \$50.00. Funded debt \$16,000,000 2-year 6% bonds. **Property:** Operating Douglas mine on Pine creek, Coeur d'Alene district, under lease. **Shipments:** During 1917 shipped 7900 tons averaging 15.5 zinc, 6.5 oz. silver. **Development:** 1300 ft. of tunnel, 140-ft. winze, and several hundred ft. of drifts. Average number of men employed, 67. Work during last two months of 1917 interrupted by bad roads, but development work continued by driving tunnel west of Pine creek on the vein. On January 24, 1918, had been advanced about 100 ft. Vein opened up 100 ft. below mine tunnel level for a distance of about 690 ft. **Informant:** John Gillies, Butte, Montana. [See also Douglas Mining Co.]

ANCHOR MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Evan Evans, pres., Burke; J. L. Prickett, secy.-treas., Spokane. **Annual Meeting:** Second Monday in April. **Property:** Group of claims in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver.

ANNADORA MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** John Hayes, pres., Missoula, Mont.; John P. Sheehy, secy.-treas., Wallace, Idaho. **Annual Meeting:** Dec. 15.

ANTIMONY-SILVER MINING CO.

Wallace

Capital: \$100,000. Par value, 10c. **Directors:** H. J. Rossi, Theo. Brown and John Fimmel. **Property:** Claims on Pine creek, Coeur d'Alenes. Said to show

silver-antimony ore in vein 10 to 36 inches wide, exposed by tunnels and a shallow shaft.

AROTIC MINING AND MILLING CO., LTD.

Wallace
Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** H. Lalonde, pres.; W. H. Keating, treas., Wallace; Geo. H. Heller, secy.-mgr., Osborne. **Annual Meeting:** Last Saturday in August. **Property:** 5 unpatented claims and 2 fractions on Placer creek, 6 miles south of Wallace. **Class of Ore:** Lead, silver. **Equipment:** Cabins, blacksmith shop, tools and car track. **Development:** 580 ft. of workings. No shipments. **Informant:** Secy.-Manager Geo. H. Heller, Osborne.

ARGENTA MINING CO., LTD.

Mullan
Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** F. Lindsley, pres., Mullan; C. D. Brock, secy.-treas., Wallace; W. C. Richardson, Mullan; A. L. Duncan and D. C. Smith, Missoula, Mont. **Annual Meeting:** Second Monday in January. **Property:** Three patented claims in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead, silver. No shipments. **Development:** 671 feet of tunnel. **Informant:** Secy.-Treas. C. D. Brock.

ARGENTINE MINE (Co-partnership).

Wallace
Owners: Coeur d'Alene Hardware Co., $\frac{1}{2}$; White & Bender, $\frac{1}{4}$; Finch and Campbell estates, $\frac{1}{4}$ interests. **Property:** One patented claim, $1\frac{1}{2}$ miles west of Wallace. **Class of Ore:** Grey copper.

ARKANSAW LEASING CORP.

Landore
Capital: \$50,000. Par value, \$100.00. Non-assessable. **Directors:** W. A. Maguire, pres.; Wm. K. MacNamara, treas., Huntingdon, Pa. **Property:** Leases, bonds and options on patented claims in Seven Devils district, Idaho. **Class of Ore:** Copper-bearing sulphides and carbonates in garnet epidote gangue. **Informant:** Manager Fred D. Smith.

ARLINGTON MINING CO.

Wallace
Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** C. T. Fisher, pres., Wallace; M. J. Mahoney, secy.-treas., Burke; Wm. Fisher, Spokane; Joseph Ruly, Mullan, and Otto Freeman, Wallace. **Annual Meeting:** First Tuesday in December. **Property:** 400 acres unpatented ground in Mountain House district, Coeur d'Alenes. **Equipment:** Water power compressor plant, cabins, blacksmith shop, tools, etc. **Development:** 2000 ft. of tunnels. **Informant:** Pres. C. T. Fisher.

ARMSTEAD MINES, INC.

Talache, Bonner Co.
Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** Henry H. Armstead, pres., Talache, Idaho; A. H. Burroughs, vice-pres.; Karl Jungbluth, vice-pres.; H. L. Brown, secy. and asst. treas.; all of 200 Fifth Ave., New York; H. D. Kingsbury, treas., 511 Fifth Ave., New York; C. C. Dula, 215 Fifth Ave., New York; J. Peterson, 1107 Broadway, New York. **Annual Meeting:** Second Monday in March. **Property:** 35 claims, 12 of which are patented, on Black Tail mountain, west side of Lake Pend Oreille. **Class of Ore:** Silver, lead, copper, zinc and gold. **Equipment:** One steam-driven duplex compressor, storage battery, Leyner drills, 100-h.p. boiler, generator, 60-in. fan. **Development:** 3400 ft. cross-cut tunnel has just been completed, striking vein at vertical depth of 550 ft. below No. 2 tunnel. Drifting on the vein now in progress, latter said to be over 5 ft. wide, with good values. Ore in sight said to reach 70,000 tons, assaying about \$30. Management contemplates concentrator this year (1918), if development proves up to expectations. During the past year about 100 men have been employed. Accommodations of all kinds are of the best, including manager's house, superintendent's house, cashier's house and eleven dwellings for employees. All buildings lighted by electricity and heated by steam. **Informant:** I. F. Thomas, cashier. **Note:** Property formerly known as "Little Joe" group, owned for many years by F. O. Berg, Spokane. Three years ago (1915) taken under bond by Volney D. Williamson, Spokane, and operated by him under Keystone Mines Corporation, when it passed to Henry H. Armstead. **Note:** President Armstead wired from New York March 14, that he has raised \$200,000 with which to build a 100-ton mill in April, 1918.

ATLANTA MINES CO.

Pittsburg, Pa.
Capital: \$2,000,000. Par value, \$1.00. Non-assessable. **Directors:** Robt. Law, pres.; James A. Dunn, secy.-treas., Pittsburg; Daniel Kirby, mgr., Atlanta. **Property:** Ten patented claims, six mill-sites and water rights, in Middle Boise district. **Class of Ore:** Gold, silver. **Equipment:** 60-horsepower hoist, 6-drill

Ingersoll air compressor, aerial tramway, 200-ton mill, 18 Johnson vanners, roaster, two 300-h.p. dynamos. **Development:** 600-foot shaft, with levels at each 100 feet. **Informant:** Manager Daniel Kirby.

ATLANTA MINING CO.**Wallace**

Incorporated in Sept., 1915, by Henry L. Lillienthal of Spokane, Jas. A. Baxter and M. E. Ingram of Wallace. **Capital:** \$1,250,000. Par value, \$1.00. **Property:** Bald Knob group of 4 claims in Coeur d'Alene mining district. **Class of Ore:** Zinc, lead, silver and copper. **Development:** 400 ft. of underground workings.

ATLANTIC MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Herman J. Rossi, pres.; Otto A. Olsson, secy.-treas.; E. Jackson, managing director, Wallace. **Annual Meeting:** Second Tuesday in June. **Property:** 7 unpatented claims in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead-silver.

BALTIMORE & VICTORIA^A MINING CO.**Terre Haute, Ind.**

Warm Springs district. William K. Hamilton, secy., c/o United States Trust Co., Terre Haute, Ind.

BANNER AND CROWN POINT MINES.**Boise**

Owners: A syndicate represented by Chas. H. Hussey, of Spokane. Each of the two mines credited with production of \$3,000,000; again producing after 25 years of idleness, with Mr. Wyman in charge of operations. An ore body disclosed in Banner 600 ft. long, stoped to surface 500 ft., had content of 102 ozs. silver to ton. Two parallel shoots, 35 and 200 ft. distant, respectively, show ore bodies 18 inches to 2½ ft. wide, containing 30 and 100 ozs. silver, while 8 inches contain 240 ozs., and slabs of ruby silver are found in favored sections. **Equipment:** 20-stamp mill, treating 50 tons daily; 3 Wilfley tables and Callow cells replacing the five amalgamating pans. **Development:** 1500 ft. of crosscut from 650-ft. shaft, 375 ft. below Banner tunnel. The 7 veins of the two properties believed to converge in the Banner.

BANNER-IDAHO MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Assessable after all stock issued. **Directors:** L. H. Snyder, pres.; Clarence J. Smith, secy.-treas., Spokane; J. H. Stilp, vice-pres., Eau Claire, Wis.; Frank D. Allen, R. H. Finley, Spokane. **Annual Meeting:** February 5. **Property:** Five patented claims, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead and silver. **Equipment:** Hand drilling tools, steel car, track, 700 ft. air pipe, blacksmith shop. **Development:** 1500 ft. tunnels, crosscuts and open cut work. **Informant:** Manager R. H. Finley.

BANNER MINING AND MILLING CO.**Silver City**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Peter Slute, pres.; August Grete, secy.-treas., Silver City. **Annual Meeting:** June 24. **Property:** At Silver City. **Class of Ore:** Gold quartz. **Equipment:** 4-stamp mill, compressor, electric power. **Development:** By tunnel.

BASIN MINING CO.**Wallace**

Capital: \$75,000. Par value, 5c. Assessable. **Directors:** E. R. Day, pres.; Jas. J. Murphy, vice-pres.; Percy Maggy, secy.-treas.; Herman J. Rossi, Jerome J. Day, all of Wallace. **Property:** 5 patented claims, Lalande district, Coeur d'Alenes, adjoining Hercules. Not working. **Development:** Shaft and two tunnels. **Class of Ore:** Lead-silver. **Informant:** Herman J. Rossi. **Note:** 840.854 shares owned by Hercules Mining Co., at a cost of \$22,662.45, according to sworn statement in case of Cardoner vs. Day.

BASSLER MINING & MILLING CO.**Rocky Bar**

Independence and other claims in Near Creek district. Wm. A. Nixon, mgr., Rocky Bar, Idaho.

BEAR CREEK MINING CO.**Wallace**

Capital: \$250,000. Par value, 25c. **Directors:** Patrick Burke, pres.; R. E. Dunlap, vice-pres., Wallace; Joseph F. Morton, secy.-treas., Spokane. **Property:** Orofino group of 11 claims, Summit district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Development:** 300-foot tunnel, 300-foot drifts. **Equipment:** Drills, buildings, power plant, etc., acquired from Bear Top-Orofino Consolidated Mining Co. when sold by receiver. Also has use of Bear Top concentrator in conjunction with Henrietta Exploration Co., privilege having been obtained from estate of Moses

Symons. Flotation system now being installed. **Informant:** Secretary-Treasurer Joseph F. Morton.

BEAR TOP MINE.**Murray**

Owned by estate of Moses Symons and under lease to Henrietta Exploration Co. (q. v.).

BEAR TOP-OROFINO CONS. MINING CO.**Murray**

This corporation, capitalized for \$4,000,000 in 2,000,000 shares of par value of \$2.00, owned Bear Top-Orofino groups on Bear creek, near Murray. Went into hands of receiver in 1913 and mine under lease for some time subsequent to that year. Equipped with concentrator, power plant, etc. Development reached 2205 feet of tunnels, 1445 feet of drifts and 400 feet crosscuts with numerous raises. Total output said to have been \$135,000. Indebtedness was approximately \$162,000 when business was placed in hands of receiver. A. G. Kennedy, Wallace, receiver, in 1917 sold Orofino group to Patrick Burke at receiver's sale with some of the smaller equipment, Bear Top group and mill reverting to estate of Moses Symons, as terms of lease and bond had not been complied with. Property is now under lease to Henrietta Exp. Co. (q. v.). [Also see Bear Creek Mining Co.]

BEAVER GROUP.**Carbonate**

Partnership: Calvin T. Hunt, Wm. Adams, Jesse Heneck and Charles Pearson, owning 9 claims on branch of Beaver Creek between Dobson and Duluth creeks. Crosscut tunnel advanced 150 ft. by hand. **Informant:** Mrs. C. T. Hunt.

BELLE OF THE WEST MINING CO.**Wallace**

Capital: \$75,000. Par value, 5c. Assessable. **Directors:** George R. Trask, pres.; M. E. Trask, secy.; Chas. F. Keating, treas., Wallace. **Annual Meeting:** Oct. 30. **Property:** 2 patented claims and 2 fractions, adjoining Success, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 2 200-ft. tunnels each, and 400 ft. of crosscuts. **Informant:** Pres. Geo. R. Trask.

BELL MINING CO.**Spokane**

Capital: \$50,000. Par value, 10c. Assessable. **Directors:** M. J. Flohr, vice-pres.; E. H. Moffitt, treas., Wallace; Chas. Hussey, secy., Spokane. **Annual Meeting:** January. **Property:** 8 patented claims and 2 fractions, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Compressor and water power. **Development:** 7000 ft. of tunnels, drifts and crosscuts. Shipments, 200 tons. **Informant:** Treas. E. H. Moffitt.

BELMONT-BANNER MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** Conrad Wolfe, pres.; M. E. Poole, secy.-treas., Spokane; E. A. Wolfe, vice-pres., Chewelah, Wash.; A. J. Davis, Colfax. **Annual Meeting:** First Monday in May. **Property:** 10 unpatented claims, Beaver district, Coeur d'Alenes. **Class of Ore:** Silver, lead, copper. **Equipment:** Buildings, blacksmith shop, machinery, 500 ft. of flume. **Development:** 350 ft. tunnel, and winze. **Informant:** Pres. Conrad Wolfe. Now idle.

BELMONT MINING CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Wm. Scheave, pres.; Frank P. Hess, secy.-treas., Wallace; D. C. Nicholson, vice-pres., Spokane; Ida Scheave, Wallace; John Nickels, Osborne; Christ Anderson, Burke; T. C. Wither- spoon, Butte, Mont. **Annual Meeting:** Third Saturday in April. **Property:** 9 unpatented claims and a fraction, Evolution district, Coeur d'Alenes. **Class of Ore:** Lead, silver, copper. **Equipment:** Tools, water air blast, cabin, blacksmith shop. **Development:** 1800 ft. of tunnels, drifts and crosscuts. **Informant:** Secy.-Treas. Frank P. Hess.

BENTON MINING CO., LTD.**Wallace**

Capital: \$1,250,000. Par value, \$1.00. Assessable. **Directors:** John Callahan, pres.; F. P. Candee, secy.-treas.; E. G. Gnaedinger, all of Wallace; Fred Richardson, Burke; N. E. Nuzum, Spokane. **Annual Meeting:** Last Saturday in March. **Property:** Benton, Darlington, Silver Chief, Dump and Ward claims, all patented, ¼ mile from Burke, Gorge Gulch, Coeur d'Alenes. **Class of Ore:** Lead, silver, copper and antimony. **Equipment:** Compressor. **Development:** Property being operated with small force, driving on good vein at tunnel level and gaining depth fast. Some lead showing but none worth saving. First development by shaft, abandoned owing to insufficient pumping capacity. Vein left shaft at 60

feet and O'Neill fault was encountered at 200 ft. At latter level about 2 tons antimony taken out and some 12.5% copper found. Vein upon which shaft was started not yet picked up at depth. No shipments. **Informant:** Secretary-Treasurer Candea.

BERNICE MINING CO.

Kellogg

Capital: \$200,000. Par value, \$1.00. **Directors:** Murdock Cameron, pres.; E. C. Moore, treas., Kellogg.; A. O. Larson, secy., Kellogg, Idaho. **Annual Meeting:** August 1. **Property:** 2 unpatented claims, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** Only assessment work. No shipments.

BEST CHANCE MINING CO., LTD.

Spokane

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Chas. H. Bell, pres.; Chas. A. Gram, secy.-treas., Spokane; W. A. Cox, vice-pres., Yakima, Wash.; Chas. Horr, Wallace, and John A. Scott, Calgary, Alta. **Annual Meeting:** First Monday after first Sunday in May. **Property:** 12 unpatented claims in Evolution district, Coeur d'Alenes. **Class of Ore:** Lead, silver, copper. **Equipment:** Compressor plant. **Development:** 2800 ft. crosscut tunnel. Non-productive. **Informant:** Secy.-Treas. Chas. A. Gram.

BETHLEHEM GOLD MINES, LTD.

Spokane

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** Harry Dudman, pres.; Frank H. Watson, vice-pres.; G. H. Van Dusen, secy.-treas., all of Spokane; Z. T. Parker, Copeland, Idaho; Dr. E. A. Smith, Latah, Wash. **Annual Meeting:** Third Wednesday in January. **Property:** 7 unpatented claims in Yahk district, Idaho. **Class of Ore:** Gold, silver, lead and zinc. Not working. Total shipments to date, 20 tons. Will resume operations as soon as weather permits. Co. free from debt. **Informant:** Vice-Pres. Watson.

BIG BALDY MINING & MILLING CO.

Spokane

Capital: \$1,000,000. Par value, 50c. Non-assessable. **Directors:** Jas. Petikan, pres.; Geo. W. Sommers, secy.-treas., Spokane. **Property:** 21 unpatented quartz and 3 unpatented placer claims, in Buffalo Hump district. **Class of Ore:** Gold. **Development:** 600 ft. underground workings. No shipments. **Informant:** Pres. Jas. Petikan.

BIG CREEK LEASING CO.

Kellogg

Capital: \$50,000. Par value, \$10. **Directors:** D. W. Price, pres.; O. A. Larson, secy.-treas.; Thos. Fluke, R. R. Price, W. A. Beaudry and Elmer Brown, Kellogg. **Annual Meeting:** Second Saturday in July. **Property:** Lease on Yankee Boy mine, Evolution district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Motor, compressor, hoist, cars, machines, wagons, horses and sleighs. Working 35 men. Shipments last year, \$52,000, one carload of less than 30 tons returning over \$6,000. Property in good condition, shipping steadily. On Dec. 3, 1917, company paid its third monthly dividend of 50c per share. **Informant:** Pres. D. W. Price.

BIG CREEK MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** G. Scott Anderson, pres.; W. W. Smith, secy.-treas.; A. H. Featherstonè, Irving Anderson, Wallace; Dr. C. E. McCoy, Bozeman, Mont. **Annual Meeting:** First Tuesday in June. **Property:** 6 claims 1½ miles up Big creek in Evolution district, Coeur d'Alenes. Patent pending. **Class of Ore:** Silver, copper. **Equipment:** Compressor and air drills. **Development:** 2000 ft. tunnel, and 150 ft. drifts. Working 10 men. A strike of good ore, at 2350 ft. in the tunnel, reported Jan. 15, 1918. Good grade of milling ore with streaks of high grade, assaying 72½% lead and 73½ ozs. silver to the ton. New equipment, costing \$20,000, is being added. **Note:** Two large but apparently independent bodies of gray copper ore were uncovered in the workings in February, 1918, and another shift has been found necessary in running the drift. Sample of ore from east drift assayed 2010 ozs. silver and 38.7% copper.

BIG CREEK SILVER MINING CO.

Coeur d'Alene

Capital: \$100,000. Par value, 10c. **Directors:** E. S. Crane, John P. Gray, J. C. White, A. A. Crane and W. F. McNaughton, all of Coeur d'Alene. **Property:** On Big creek, Shoshone county.

BIG DIVIDE MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** Alexander Murphy, pres.; Frank P. Markwell, vice-pres., Wallace; Everett H. Pattison,

secy.-treas., Spokane. **Annual Meeting:** First Monday in September. **Property:** 9 patented claims and 2 fractions in Placer Center district, Coeur d'Alenes. **Equipment:** Motor-driven air compressor. **Informant:** Secy.-Treas. Pattison.

BIG ELK MINING CO.

Wallace

Capital: \$2,000,000. Par value, \$1.00. **Directors:** E. L. Praebstin, pres.; A. H. Featherstone, secy.-treas., Wallace. **Property:** 21 unpatented claims, St. Joe district, Coeur d'Alenes. **Class of Ore:** Copper. Considerable ore has been shipped. **Development:** Driving new tunnel—old tunnels in slide.

BIG FIVE MINING CO.

St. Maries

Capital: \$2,000,000. Par value, \$1.00. Assessable. **Directors:** F. E. Goude, pres.; W. F. Sargent, secy.-treas.; John W. Kersey, Wm. H. Young and T. B. Hay, St. Maries. **Annual Meeting:** Third Monday in September. **Property:** 40 acres unpatented ground St. Maries district, Coeur d'Alenes. **Class of Ore:** Gold, copper, lead. **Equipment:** Bunk house, cook house, blacksmith shop. **Development:** 700 ft. of tunnel. **Informant:** Secy.-Treas. Sargent.

BIG IT MINING AND MILLING CO.

Beeler

Capital: \$150,000. Par value, 10c. **Directors:** H. S. Davenport, pres.; Chas. Walker, vice-pres.; C. M. Beeler, secy.-treas.; W. L. Grant and Chas. Korcle, Beeler. **Property:** Group of claims in Pine Creek district, Coeur d'Alenes. **Class of Ore:** Gray copper, galena. **Development:** 140-ft. tunnel.

BITTER ROOT MOUNTAIN MINING CO.

Spokane

Capital: \$75,000. Par value, 5c. Non-assessable. **Directors:** F. A. Edgerton, pres., Rochester, N. Y.; Mrs. F. A. Noteware, secy.-treas., Spokane. **Annual Meeting:** April. **Property:** 3 patented claims in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 800-ft. tunnel. **Informant:** F. A. Edgerton.

BLACK BARE MINING CO.

Halley

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** Raymond Guyer, E. M., pres., Spokane; William Black, vice-pres., Bellevue, Idaho; J. M. Bengel, secy.-treas., Spokane; J. G. Sawyer, E. M., supt., Halley, Idaho; E. J. Clark, Spokane; K. H. Dixon, Spokane. **Property:** 3 patented claims and mill-site, and 9 unpatented claims, Mineral Hill district. **Class of Ore:** Lead, silver, zinc; of first class ores, galena assays as high as 60% to 80% lead, and 70 to 100 ozs. silver; zinc sulphide, 49% to 52% zinc and ½ oz. silver; pyrites, \$3.50 to \$4.00 in gold. **Development:** 2700 ft., mainly tunnel workings; 1474 ft. drifts on vein. Ore blocked out and in sight, 10,000 tons above 441-ft. level; raising on ore and blocking out just begun. Main vein recently crosscut on 550-ft. or main tunnel level; drifting and stoping now under way. Shipments of high-grade ore to be made direct to smelter this spring. Arrangements completed for installation of power equipment; ore mined being stored in meantime. **Informant:** Pres. Raymond Guyer.

BLACK BEAR CONS. MINING CO., LTD.

Wallace

Capital: \$1,250,000. Par value, \$1.00. Assessable. **Directors:** Peter Bernier, pres.; L. L. Brainard, secy.-treas., Wallace; S. D. Lemieux, vice-pres., Black Bear; Otto Grice, Portland, Ore.; M. J. Sweeney, Spokane; E. P. Howard, New York City. **Annual Meeting:** First Saturday in August. **Property:** 4 patented claims and mill-site, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Compressor, 85-h.p. motor, blacksmith shop, sheds, drills, steel, cars, track, ventilator pipe, air pipe, blower and tools. **Development:** 2900 ft. of tunnels, 1100 ft. drifts and 125-ft. shaft. **Informant:** Secy.-Treas. Brainard. **Note:** Reorganized as Black Bear Mines Co. Control taken under option by Rex Consolidated in 1916, and \$10,000 paid thereon. Subsequently option expired by limitation.

BLACK BEAR MINES CO.

Wallace

Capital: \$2,000,000. Par value \$1.00. Assessable. **Directors:** Peter Bernier, pres.; L. L. Brainard, secy.-treas.; F. C. Daney, all of Wallace; Otto Grice, Portland, Ore. **Annual Meeting:** Last Wednesday in February. **Property:** 4 patented claims and mill-site, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Compressor, blacksmith shop, pipe lines, cars, tools, etc. No shipments. Now shut down. Is successor to Black Bear Consolidated Mining Co. (q. v.).

BLACKBIRD COPPER-GOLD MINING CO.

DuBois, Pa.

Capital: \$2,000,000. Par value, \$1.00. Non-assessable. **Directors:** John E. Du Bois, pres., Du Bois, Pa.; Chas. J. North, vice-pres., Buffalo, N. Y. **Annual Meeting:** Fourth Tuesday in January. **Property:** 33 patented claims, in Blackbird district, Lemhi county. **Class of Ore:** Cobalt, copper, gold, nickel. **Development:** \$100,000 spent in development and experimenting with concentrating systems some years ago. **Informant:** Vice-Pres. North. Company also owns 87 patented and 10 unpatented claims in San Francisco district, Utah, with considerable development.

BLACKHAWK LEASING CO.

Kellogg

Capital: \$25,000. Par value, 50c. **Directors:** Wm. A. Beaudry, pres.; Jos. Beaudry, vice-pres., Kellogg; Thos. Fluke, secy.-treas., Wallace. **Property:** The Blackhawk mine, under 3-year lease. In Government Gulch, Coeur d'Alenes. **Class of Ore:** Lead, zinc. **Note:** Property controlled by Federal M. & S. Co., leasers shipping under exorbitant smelting rates in force between Federal and Smelting Trust.

BLACK HAWK MINING AND DEVELOPMENT CO.

Wallace

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** Alfred Page, pres., Spokane; Fredk. Burbidge, vice-pres.; D. R. Treat, secy.-treas., Wallace. **Annual Meeting:** Second Tuesday in July. **Property:** 13 patented claims in Government Gulch district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About 3700 feet of tunnels, crosscuts, raises, etc. Mine under 3-year lease to Blackhawk Leasing Co. (q. v.). **Informant:** Vice-Pres. Burbidge. **Note:** Controlled by Federal Mining & Smelting Co.

BLACK PINE COPPER MINING AND MILLING CO.

Kansas City, Mo.

Capital: \$40,000. Par value \$1.00. **Directors:** F. J. Fetter, pres.; J. F. Sathoron, secy., Kansas City. **Property:** 3½ patented claims, Blackbird district, Lemhi Co., Idaho. **Class of Ore:** Copper. **Development:** 3000 ft. of workings.

BLACK PINE MINING CO.

Philadelphia, Pa.

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** S. J. Rieben, pres.; R. T. Moyer, secy.; Wm. H. Kinch, treas., Philadelphia. **Annual Meeting:** Third Tuesday in January. **Property:** 41 unpatented claims in Elk City district. **Class of Ore:** Gold, silver, zinc, lead. **Equipment:** 5-stamp mill, 2 Wilfley tables, 2 Johnson vanners, air compressor, drills, stopers, etc. Output, 40 tons daily. **Informant:** Pres. Rieben.

BLACKSTONE MINING CO.

Boise

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** James H. Hawley, pres.; Chas. W. Mack, secy.; Jess B. Hawley, S. J. Rich, W. H. Puckett, Boise. **Annual Meeting:** December. **Property:** 5 patented claims in Volcano district. **Class of Ore:** Gold, silver, copper. **Development:** 400-ft. tunnel, 60-ft. winze. Idle for past 5 years. **Informant:** Pres. Hawley.

BLACKTAIL-GROUSE MOUNTAIN-KING'S SPUR MINES.

Spokane

Not incorporated. F. O. Berg, Spokane, owner of 3 claims on Blacktail Mt., 1-3 of 2 claims on Grouse Mt., and ½ of 3 claims south of King's spur, in the Coeur d'Alenes. **Class of Ore:** Silver and copper. Working 2 men on each property. **Informant:** F. O. Berg, owner and part owner.

BLACKTAIL MINING CO.

Spokane

Capital: \$200,000. Par value, \$1.00. Non-assessable. **Directors:** R. E. Wakeley, pres., Greenacres, Wash.; N. L. Wakeley, secy.-treas., Spokane; M. E. Wakeley, vice-pres.; W. L. Wakeley, Grangeville, Idaho; O. W. Nelson, Moscow. **Annual Meeting:** First Tuesday after first Monday in December. **Property:** 6 unpatented claims on Clearwater river, 9 miles from Grangeville. **Class of Ore:** Copper, gold, silver. **Development:** About 300 ft. of tunnel, to cut ledge 10 ft. wide on surface. **Informant:** Secy.-Treas. N. L. Wakeley.

BLAINE AND EMMETT MINING CO., LTD.

Murray

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Merrill Heblethwaite, pres., Union, Idaho; Robt. Skeman, secy.-treas., Murray. **Annual Meeting:** Last Saturday in July. **Property:** 4 unpatented claims in Eagle district, Coeur d'Alenes. **Class of Ore:** Copper, lead.

BLUE BELL MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** M. J. Weber, pres., Chicago; Axel Swan, vice-pres., Burke; E. Hedin, secy.-treas., Wallace. **Annual Meeting:** First Tuesday in June. **Property:** 11 unpatented claims in Yreka district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Ventilating machinery, buildings and tools. No shipments. **Development:** 2500-ft. tunnel. **Informant:** Secy.-Treas. Hedin.

BLUEBIRD MINING AND REDUCTION CO.

Soldier

Owners: L. J. Raef and P. E. Fletcher, Soldier, Idaho. Cannon Ball mine, Little Smokey district. Taken over by United Mines Co. (q. v.)

BLUE GROUSE MINE.

Spokane

V. W. Brasch, Spokane, owner. **Property:** Unpatented claims in Orogrande district, Idaho county. **Class of Ore:** Gold and silver. **Equipment:** Ore car, rails, blacksmith shop. **Development:** 600 ft. of tunnels and drifts. Only assessment work has been done. **Informant:** V. W. Brasch, owner.

BLUE GROUSE MINING CO., LTD.

Moscow

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** D. F. Staley, pres., Pullman, Wash.; F. L. White, vice-pres.; Chas. W. Shields, secy.-treas., Moscow; Joseph R. Grinsfelder, Jas. Neilson and S. R. Grinsfelder, Spokane; W. F. Zumhoff, Moscow. **Annual Meeting:** First Monday in May. **Property:** 4 patented claims, Beaver district, Coeur d'Alenes. **Class of Ore:** Lead and silver. **Informant:** Secy. Shields.

BLUE JACKET COPPER CO., LTD.

Landore

F. H. Kleinschmidt, Landore, Idaho. Queen, Blue Jacket and other claims, in Seven Devils district.

BLUE JACKET MINING CO.

Lucile

Capital: \$50,000. Par value, \$1.00. **Directors:** W. B. Clark, pres., Baltimore, Md.; B. N. Baker, vice-pres.; J. M. Lawford, secy.-treas.; F. T. Homer and Frank E. Johnesse. **Annual Meeting:** First Monday in January. **Property:** 7 unpatented claims in Crooks Corral district, Idaho county. **Class of Ore:** Copper, silver, gold. **Development:** 3400 ft. of workings, blocking out 33,000 tons of ore. Reserves estimated at 542,000 tons. **Note:** 40 miles from transportation; believed to be closed down.

BLUE RIBBON MINING CO.

Spokane

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** F. T. McCormick, pres.; Jas. Keeth, secy.-treas.; C. A. Lindsay and W. L. Tribble, Spokane. **Annual Meeting:** First Tuesday in September. **Property:** 7 unpatented claims, in Hunter and Lalande districts, Coeur d'Alenes. **Class of Ore:** Copper, silver and galena. **Equipment:** Bunkhouse, blacksmith shop, car, track, ventilating system. **Development:** 1200 ft. tunnels, 45-ft. shaft, 800-ft. drift. **Informant:** Secy.-Treas. Keeth.

BLUE STAR MINING AND MILLING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Not now assessable. **Directors:** Frank Blendenhofer, vice-pres.; August Gren, mgr., Pine Creek; G. W. Dougherty, secy.-treas., Wallace; G. B. Dresher, Spokane. **Annual Meeting:** June. **Property:** 160 acres unpatented ground, Yreka district, Coeur d'Alenes. **Class of Ore:** Silver, lead and zinc. **Equipment:** Engine house and hoist, blacksmith shop, boarding, lodging, ware and dry houses, barns, manager's house, tracks, cars, hoist, pumps, drills, cables, compressors, horse, wagons, boilers. **Development:** 520-ft. 2-compartment shaft, 3000 ft. drifts and crosscuts. **Informant:** G. B. Dresher, director.

BLUE WING MINING CO.

Wallace

Capital: \$150,000. Par value, 10c. **Directors:** Peter Zanetti, pres.; Herman J. Rossi, secy.-treas., Wallace. **Annual Meeting:** Second Tuesday in April. **Property:** 3 unpatented claims, opposite Marsh mill (old California mill), on Nine Mile. Only assessment work done.

BOBBY ANDERSON GROUP MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Theodore Brown, pres., Beeler; Herman J. Rossi, secy.-treas.; A. H. Featherstone, W. J. Baker, Wallace; Phil Bowman, Kingston. **Annual Meeting:** December 1. **Property:** 70 acres unpatented ground, Yreka district, Coeur d'Alenes. Not working. **Class**

of Ore: Silver, copper, zinc. **Development:** 180-ft. shaft, 100-ft. tunnel. **Informant:** Pres. and Gen. Mgr. Brown.

BOISE KING PLACERS CO.

Boise

Capital: \$1,250,000. Par value, \$1.00. Non-assessable. **Directors:** Wm. MacLeod, pres., Boise; H. A. deMattos, vice-pres., Cardiff, Wales; G. H. Manchester, secy., New Westminster, B. C.; Jas. Yoakam, treas., Ogden, Utah; E. E. Stella, Piedmont, Calif. **Annual Meeting:** November 1. **Property:** 740 acres unpatented land, 535 being auriferous gravel, Middle Fork Boise river, Elmore county. **Class of Ore:** Gold. **Equipment:** 2 Evans elevators and 4 hydraulic giants. **Development:** 4-mile flume, 5 ft. 8 in. by 6 ft.; have opened up a pit and installed elevator. **Informant:** Pres. MacLeod.

BOISE-ROCHESTER MINING CO.

Rochester, N. Y.

Capital: \$500,000. Par value, \$1.00. **Directors:** Leo J. Falk, pres., also treas., Boise; J. N. Beckley, vice-pres.; Josiah Anstice, secy., Rochester, N. Y. **Annual Meeting:** Second Tuesday in May. **Property:** Bagdad-Chase Group, at Atlanta, Idaho. **Class of Ore:** Gold and silver. **Equipment:** 40-stamp mill, tramway, electric power plant. Working 50 men. **Development:** 600 ft. crosscut, 310 ft. tunnel on vein and 200 ft. of raises. **Informant:** Pres. Falk.

BONANZA AND EMANCIPATOR GROUP.

Elk City

Not incorporated. **Owners:** Frederick, Ernest and Mrs. E. Gribl, Elk City. **Property:** 12 unpatented claims in Elk City district. **Class of Ore:** Gold and silver. **Informant:** Frederick Gribl, principal owner, who reports having uncovered 25 quartz veins from 4 to 10 ft. Equipment practically all destroyed by fire in summer of 1917.

BONANZA MINING CO.

Montpelier

Capital: \$5,000,000. Par value, \$1.00. **Directors:** E. J. Parrish, pres.; E. M. Stewart, vice-pres.; A. D. Young, secy.; H. H. Hoff, treas.; Chas. Sweet, M. F. Whitman and Ira Chaffin. **Property:** 25 unpatented claims, 500 acres, 9 miles southwest of Montpelier. No well-defined ore body; average values of samples very low. **Development:** 400 ft. of shafts.

BONANZA MINING CO.

Wallace

Capital: \$100,000. Par value, \$10. **Directors:** J. J. Promell, pres., Mullan; Jas. F. Whelan, secy.-treas., Wallace. **Annual Meeting:** First Wednesday in July.

BONNER MINING CO.

Spokane

Directors: R. A. Hutchinson, pres.; H. M. Martin, vice-pres.; Chester C. Robbins, secy.-treas.; Harvey Robbins and Samuel Keith, Spokane; John P. Kussler, Oakesdale. **Property:** Trestle Creek, near Lake Pend d'Oreille. **Class of Ore:** Silver, lead and zinc.

BOSTON-IDAHO GOLD DREDGE CO.

Idaho City

Owners: Etheredge Walker, secy.; W. H. Estabrook, Idaho City. Moore and Elk Creek placers, in Boise Basin district.

BOSTON-IDAHO MINING CO.

Boston, Mass.

Capital: \$1,000,000. Par value \$1.00. Non-assessable. **Directors:** L. Diamond, pres.; E. M. Schwarzenberg, treas.; M. A. Costello, secy., Boston. **Annual Meeting:** April. **Property:** 7 patented and 20 unpatented claims and 2 mill-sites, Warm Springs district, near Ketchum. Taken over by Wood River Mines, Inc. **Class of Ore:** Lead, silver, zinc. **Equipment:** Concentrating mill. **Development:** 6 tunnels, aggregating 2500 ft. in length. **Informant:** Gen. Mgr. C. Fred Howe, Ketchum.

BOSS ZINC MINING CO.

Wallace

Capital: \$50,000. Par value, 5c. Assessable. **Directors:** H. Lieb, pres.; A. F. Lieb, vice-pres. and treas.; T. W. Clayton, secy.; A. H. Featherstone, Wallace; Ben E. Hervey, Spokane. **Annual Meeting:** Sept. 14. **Property:** 5 unpatented claims in Evolution district, Coeur d'Alenes. **Equipment:** Cabin, blacksmith shop, car, track, ventilating system, steel and tools for five men. **Development:** Drifting on vein. **Informant:** Pres. H. Lieb.

BOULDER CREEK MINING & MILLING CO., LTD.

Spokane

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Leo Greenough, pres.; W. D. Greenough, vice-pres.; W. J. Beaton, secy.-treas., Spokane. **Annual Meeting:** First Monday in December. **Property:** Central lode, Hunter dis-

trict, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Air pipe, ore cars, track, blacksmith shop. No shipments. **Development:** 4 tunnels, 1900 ft. in length. **Informant:** Pres. Greenough.

BOULDER CREEK MINING CO.

Boise

Capital: \$5,000. Par value, 1c. Non-assessable. **Directors:** Chas. Silvers, pres.; A. F. Stevens, secy.-treas.; C. F. Weber, Silver City; H. M. Stevens, Triangle; E. Hennis, Portland, Ore. **Annual Meeting:** First Tuesday in August. **Property:** 7 unpatented claims, 12 miles south of Silver City. **Class of Ore:** Gold, silver. No equipment. **Development:** 500-ft. tunnel, 50-ft. shaft. No shipments, but \$4,000 worth of ore on dumps. **Informant:** Secy. Stevens.

BRISTOL MINING CO., LTD.

Wallace

Capital: \$125,000. Par value, 10c. **Directors:** Harry Morrell, pres.; W. A. Tuson, secy.-treas., Kellogg. **Annual Meeting:** Second Monday in April. **Property:** 9 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Silver, lead, zinc.

BROADFORD MINE.

Bellevue

Wm. Snowden, owner. **Property:** Broadford, and Broadford and Hill fractions, patented, in Mineral district. **Class of Ore:** Silver, lead, zinc. No equipment. **Development:** 300 ft. of tunnels, 50-ft. shaft. **Informant:** Wm. Snowden, owner.

BUFFALO HUMP-CRYSTAL LAKE MINING CO.

Spokane

Capital: \$100,000. Par value, \$1.00. Assessable. **Directors:** Arthur D. Jones, pres.; A. M. Jones, vice-pres.; W. B. Chandler, secy.-treas.; Spokane. **Annual Meeting:** November. **Property:** Crystal Lake quartz claim, patented, Robbins district. No equipment. No development except assessment work. **Informant:** The company, Spokane.

BUFFALO HUMP DEVELOPMENT CO.

Spokane

Organized to acquire ground in vicinity of Big Buffalo, Robbins district, which caused stampede 18 years ago and was subsequently taken over by late Charles Sweeny at a big sum. W. S. Norman and James Cameron were chief promoters of the enterprise. Corporation is now dead.

BUFFALO HUMP MINING CO.

Spokane

This is corporation organized by late Charles Sweeny to take over Big Buffalo and other properties purchased by him in Buffalo Hump district 18 years ago. At different times, E. A. Adams, W. J. Hall, now Assistant Mgr. Federal M. & S. Co., Wallace, and Bruce Glendenning, now with Engells Copper Co., San Francisco, have been in charge of corporation's affairs. We are, however, unable to secure further details, although it is believed the entire stock issue is owned in Boston and New York and that approximately 22 claims have been patented in the district.

BUFFALO MINING CO.

Missoula, Mont.

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** A. R. Garman, pres.; R. J. McDugall, vice-pres.; A. K. Anderson, secy.; Geo. Dunham, treas., Missoula. **Annual Meeting:** First Tuesday in May. **Property:** 28 unpatented claims, partly in Mineral Co., Mont., and partly in Shoshone Co., Idaho. **Class of Ore:** Gold, silver, lead. No equipment; working 2 men. **Development:** 2400 ft. of tunnels, 65-ft. shaft. **Informant:** Secy. Anderson. [See Buffalo Mining Co., Montana.]

BULLION MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Wm. Squance, pres.; Jas. H. Taylor, secy.-treas.; Frank Taylor and R. E. Marshall, Wallace; John M. Klingman, Cleveland, O. **Annual Meeting:** Second Monday in November. **Property:** 3 patented and 7 unpatented claims, St. Joe district, Coeur d'Alenes. **Class of Ore:** Copper, silver. A well mineralized vein, 30 ft. wide, at 1200 ft. depth, has been opened by No. 3 tunnel. By agreement in 1914, this tunnel was driven jointly by Bullion and Copper Chief companies. Two other veins were crosscut, 14 and 4 ft. wide. **Equipment:** Compressor of 150 h.p., compressor building, blacksmith shop, powder house, boarding house, cabins, hoist, drills, etc. **Informant:** Secy.-Treas. Taylor. **Note:** A carload of ore shipped from No. 2 level in February, 1918, had copper content of 6%, besides gold and silver values. Diamond drilling proves vein to be 4 ft. wide.

BULLOWAY AND GEN. EXP. CO.**Boise**

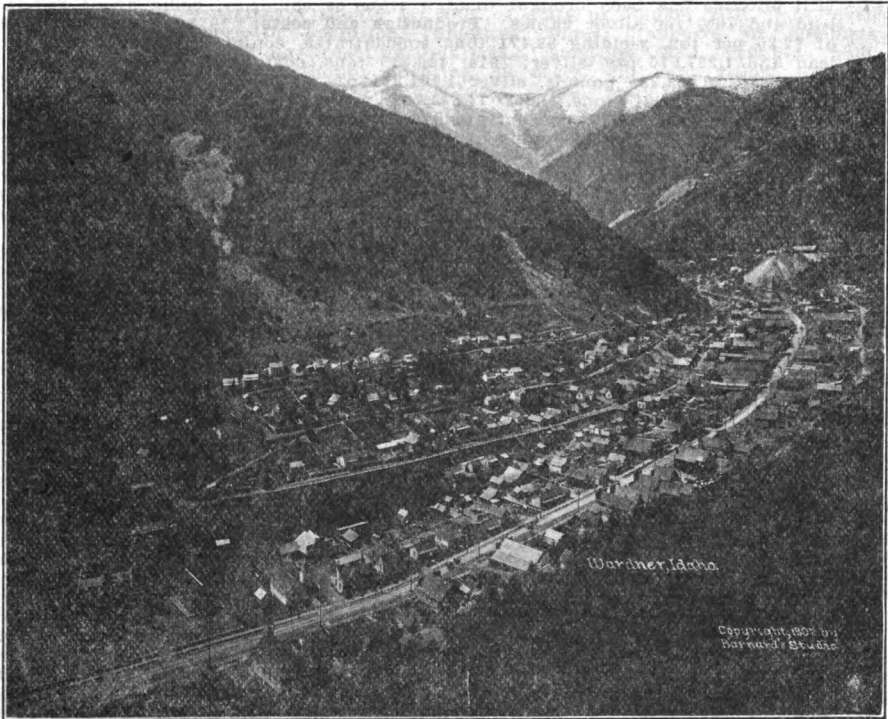
Property: 7 patented claims in Gambrinus district, Boise Co., in name of Vivian A. Thorne. **Development:** 450-ft. shaft, 1500 ft. of drifts. No work being done. **Informant:** Vivian A. Thorne, owner.

BUNKER HILL & SULLIVAN EXT. MINING CO.**Kellogg**

Capital: \$1,500,000. Par value, \$1.00. **Property:** 9 claims adjoining Bunker Hill & Sullivan Co., on southeast. **Development:** 900 ft. of tunnel, small shafts and open cuts.

BUNKER HILL & SULLIVAN MINING & CONC. CO.**Kellogg (Mine Office).**

Incorporated: Under laws of Oregon, July 29, 1887, by S. G. Reed, N. S. Kellogg and Martin Finch, about two years following discovery. **Capital:** Originally \$3,000,000, in 300,000 shares of par value of \$10; increased, April 29, 1910, to \$3,270,000, in 327,000 shares, of par value \$10. Increase followed settlement of litigation between company and Federal M. & S. Co., latter taking increased



Wardner, Idaho, Scene of the Discovery of Bunker Hill & Sullivan Mine in 1885.

capital and agreeing to abandon Last Chance mine, conflicting with Bunker Hill, at any time that profit be not shown in operation for five consecutive months. **Main offices:** 1022 Crocker building, San Francisco, Cal. **Officers:** F. W. Bradley, pres.; J. W. P. McFall, vice-pres.; William H. Crocker, treas.; George F. Holman, sec.; G. D. Abbott, asst. secy.; Curtis H. Lindley, counsel; Myron A. Folsom, executive head Bunker Hill smelter; J. Labarthe, consulting engineer, all of San Francisco, except McFall and Holman, of Portland. Additional director, W. H. Wallace, Portland. Manager, Stanly A. Easton, Kellogg. **Bankers:** Crocker National Bank, San Francisco; National Park Bank, of New York. **Stock transfer office:** 1022 Crocker building, San Francisco. Company is practically close corporation, with control held by Nevada Bunker Hill & Sullivan Co. **Property:** Approximately 5000 acres, around Kellogg and Wardner, Yreka district, Coeur d'Alenes, and smelting plant one mile below Kellogg, completed in 1917. Ore pyrite and zinc

blende, and occasionally argentite, rich in silver. Zone of ore occurrence has maximum width of 300 feet. In places, ore-bodies, mined to great depth, have width of from 40 to 50 feet. **Development:** Main development by Kellogg tunnel, which is 8x9 ft. and about 2 miles long. Above this tunnel, ore-bodies have been defined to surface, while below, a main working shaft, 1600 feet deep, follows the fissure, with drifts each 200 feet. Development in 1916 was 3944 feet, costing \$9.37 per ft., compared with 4783 in 1915, costing \$7.32. Exact figures for 1917 not available, but estimated in excess of development for 1916. In January, 1917, reserves officially placed at 3,453,146 tons, with milling ore average of from 9 to 12% lead, and from 3.7 to 4.5 ozs. silver per ton. Crude ore runs from 15 to 73% lead and about 15 ozs. silver. Mine has now been in operation continuously for 32 years, and is largest dividend-payer among silver-lead mines of the world. Total production to beginning of 1918 was 7,836,000 tons, valued at about \$80,000,000. Work employs over 1200 men, of whom 62% are married and 70% Americans. Over 70% of married men own their homes, sold on easy terms by company, and situate on ground laid out for that purpose. **Equipment:** In addition to smelter, described fully below, equipment includes 3 concentrators, power plant, water power, machine shops, saw mill and everything possible to most economical operation. Mill practice has been brought to high state of efficiency, being about 80% for lead and 70% for silver values. **Production and costs:** 1913, 436,060 tons, cost of \$2.25 per ton, yielding 59,471 tons concentrates, containing 71,860,773 pounds lead and 1,227,076 ozs. silver; 1914, 440,819 tons, cost \$1.98, concentrates 56,163 tons, lead 70,663,236 pounds, silver 1,161,324 ozs.; 1915, 452,142 tons, cost \$1.99; concentrates 59,901 tons, lead 74,584,741 pounds, silver 1,298,284 ozs.; 1916, 475,784 tons, cost \$2.26, concentrates 76,284 tons, lead 77,298,879 pounds, silver 1,406,260 ozs.; 1917, 493,030 tons of milling ore, regarding which details not yet available. **Dividends:** Up till January 1, 1918, company had paid \$20,533,500 in dividends. Since then, while official announcement has not been made, distributions of at least \$163,500 monthly have been added, bringing grand total to around \$21,024,000 in April, 1918. Dividends by years are as follows, fiscal periods running from June 1 to May 31: 1890, \$150,000; 1894, \$60,000; 1895, \$15,000; 1896, \$36,000; 1897, \$90,000; 1898, \$183,000; 1899, \$246,000; 1900, \$201,000; 1901, \$252,000; 1902, \$240,000; 1903, \$45,000; 1904, \$309,000; 1905, \$1,200,000; 1906, \$3,480,000 (including sums received from sale of interest in Tacoma smelter to Smelting Trust); 1907, \$2,340,000 (also including some proceeds from Tacoma smelter sale); 1908, \$1,380,000; 1909, \$825,000; 1910, \$668,100; 1911, \$1,062,750; 1912, \$1,209,900; 1913, \$817,500; 1914, \$981,000; 1915, \$1,062,750; 1916, \$1,716,750; 1917, \$2,043,750; 1918 (4 mos.), est., \$490,500 at least, possibly a great deal more. **General Balance Sheet:** Statement of December 31, 1916, showed property and plant, \$46,180,979; supplies, \$125,976; cash, ore and concentrates, \$977,395; dividend reserve, \$1,029,409; miscellaneous, \$226,889; total, \$48,540,648. Liabilities by same statement were placed at \$48,540,648, including capital stock, \$3,270,000; surplus account, \$2,761,946, and mine re-valuation, \$42,290,265. The item of mine valuation was scaled up from \$4,977,268 in 1915 to \$46,180,979 in 1916, no explanation being made public. It is supposed, however, that it had some bearing upon war taxation question. **Smelting Contracts:** In 1905, company entered into twenty-five year contract with Smelting Trust, by which latter agreed to treat all mining company's ores, and purchased from it an interest in Tacoma Smelting Co. for \$1,500,000. This was at time of formation of Trust and immediately following purchase of control of Federal M. & S. Co. by same interests. Smelting contract called for settlement for lead in ores at 90% of content, for 90% of New York price, so long as that price stood at \$4.10 per hundred pounds or less. When price advanced above \$4.10 per hundred pounds, smelting company and mining company divided difference between \$4.10 and New York market price. Contract covered all ores running between 30 and 75% lead, smelting company having option to take product below 30% lead and above 75%, if it cared to meet prices of competitors, after giving due notice to mining company. Provision for revision every five years was made, revised rates to be based upon price paid to shippers of a majority of Coeur d'Alene ores. In 1910, Bunker Hill demanded better prices and was granted a retroactive rebate of 85 cents per ton, without prejudice to smelting company. Friction became more acute in succeeding years, until, in 1915, Bunker Hill demanded that it be given price received by Hercules for period ended May 31, 1915, which provided for settlement at 90% of lead content, at full New York price for lead, with freight and treatment rate of \$14 per ton. This contract expired the day before Bunker Hill revision date arrived, and was not renewed, Hercules purchasing old Northport smelter, at Northport, Wash., which has since been placed in commission. Smelting company took the position that majority ores of Coeur d'Alenes were being treated at rate provided in Federal M. & S. Co.'s contract, originally the same as that of Bunker Hill, and refused to accede to Bunker Hill's demands. Latter then announced that it would build its own smelting plant, and commenced operations in 1916. Plant was completed and placed in commission in June, 1917. Smelting Trust protested in writing

against diversion of ores covered by its contract with company and, failing to receive assurances, brought injunction suit against Bunker Hill to restrain it from disposing of ores covered by contract. Proceedings in Federal Court occurred in November, 1917, and in January, 1918, Judge Wolverton rendered a decision ordering Bunker Hill to maintain shipments as provided for in contract, under same methods of production as previously pertained, at same time placing Smelting Trust under bond of \$250,000. In April, 1918, a compromise of all litigation was reached, by which the old contract was cancelled and a new one made, by which approximately one-half of the mine's output is to be shipped to the Smelting Trust under settlement rates providing for full New York price for lead for 90% of the lead in the ore. Remainder of production will be smelted by Bunker Hill itself, the Smelting Trust having relinquished all claim. The compromise insures continuous operation of the Kellogg smelting plant. The old contract was entered into in 1905, and would not have expired by limitation until 1930. Bunker Hill's saving thus covers the difference between full New York price and lower rate set by contract, for approximately 12 years. Assuming that Bunker Hill can treat its own ores at the same rate as the Smelting Trust, the per-ton difference is figured at around \$16.50. However, the product of Bunker Hill, with entire output of Hecla and other smaller production under contract, should tax full capacity of Bunker Hill plant, even with three furnaces in operation. **Smelting Plant:** Consists of complete equipment for sampling, roasting, sintering, smelting and refining gold, silver and lead ores, buildings covering 30 acres, one mile below Kellogg, on spur track of O.-W. R. & N. Co. Ore and concentrate is delivered in standard-gauge cars at receiving bins, from which it is removed by belt-conveyors to crushing and sampling departments, with capacity of 50 tons per hour, equipped with Blake crusher, 2 sets rolls, trommel and Vezin samplers. Material then transferred by belt-conveyors to eight storage bins, provided with apron feeders, by which correct proportion can be fed to belt-conveyors and delivered to roasting department. Latter of steel construction, 112x57 ft., containing four 42-in. standard Dwight & Lloyd machines. There is also one multiple-deck Wedge roaster, used to give a pre-roast to lead matte, or material carrying high percentage of sulphur. Estimated capacity of D. & L. furnaces is 100 tons each per day; capacity of Wedge furnace, 50 tons. Sintered material from D. & L. machines falls into standard-gauge hopper-bottom steel cars unloading into concrete storage bins. Blast furnace building is of steel construction, 80x126 feet, containing 3 steel-jacketed blast furnaces 42x180 in. at the tuyeres. Estimated capacity each furnace, 200 tons daily. Furnace building provided with 20-ton 4-motor traveling crane, serving blast furnaces and refinery. Bullion delivered to lead-pots handled by crane directly to refining department, under same roof. Lead refinery is an extension, 105x108 ft., of the blast furnace building and served by 20-ton crane, which also operates above two 80-ton softening furnaces and four 50-ton desilverizing kettles. Molten lead is removed by centrifugal pumps to the moulding machines of the type designed by John F. Miller and in use at Trail smelter, B. C. Silver refinery is of brick construction, 60x82 ft., containing 8 large Faber du Faur furnaces, two cupelling furnaces, 1 fine silver furnace and complete equipment for parting and precipitating silver. Crucible furnaces are used to melt gold. Power plant building is of steel and brick construction, 35x40 ft., electric power being supplied by Washington Water Power Co., of Spokane, at a 2200-volt potential. There are 2 Ingersoll-Rand turbo-blowers, each with capacity of 12,000 cu. ft. of air per minute, at 48-oz. pressure. Three blowers are geared to 2 General Electric 200-h.p. induction motors. In addition, two 75-k.w. motor generator sets are provided, one to serve as auxiliary unit. These sets supply direct current for trolley locomotives and electric cranes. **Fume Treatment:** Blast furnace gases delivered to bag house through 600 ft. of brick dust chamber. Bag house is of brick and steel construction, 56x130 ft., divided into 3 separate chambers above thimble floor. Each chamber contains 400 bags, or total of 1200 bags. Below thimble floor are 12 divisions to facilitate removal of collected fume. There are 2 electrically-driven fans, of 60,000 cu. ft. capacity each, one fan held in reserve. Gases from Dwight & Lloyd sintering machines and Wedge roasters delivered through 400-ft. balloon-flue to Cottrell tubes, with capacity of 60,000 cu. ft. of gas per minute. Building is entirely of steel. All gases, after passing through bag house and Cottrell tubes, delivered to Custodis brick chimney of 15 ft. internal diameter, 200 ft. high. Other equipment includes brick assay office and laboratory building, warehouse, machine shop, dry house, office, high pressure fire system, complete electrical system and sewerage connections. Entire plant designed and built by Bradley, Bruff & Le Barthe, San Francisco, under supervision of Jules Le Barthe, and in actual charge of Walter K. Mallette. The plant is the only complete mining, milling, smelting and refining enterprise in the West. The mine was discovered September 10, 1885, and smelting plant placed in operation in June, 1917, thirty-one years and nine months later. **Note:** Sworn statement to assessor of Shoshone county, made May 1st, 1918, shows 493,030 tons extracted; gross value, \$9,584,-

963; cost of extraction, \$1,473,479; freight and treatment, \$4,641,181; betterments, \$1,056,618; net profits, \$2,413,683. Cost of smelter betterments has been charged off against profit, so that actual net profit during 1917, was \$3,470,301.

BURKE MINING CO.**Burke**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Ernest Brewer, pres., Black Bear; Henry Garber, vice-pres.; John C. Glahe, secy., Burke. **Annual Meeting:** March 18. **Property:** 10 patented claims and 2 fractions, on Canyon creek, 2 miles east of Burke. **Class of Ore:** Lead and silver. No equipment. **Development:** 1500 ft. of tunnel. No shipments. **Informant:** Secy. Glahe.

BURLINGTON MINING CO.**Spokane**

Capital: \$2,500,000. Par value, \$1.00. Non-assessable. **Directors:** John Hall, pres., Grinnell Iowa; B. S. Knudson, vice-pres.; F. M. Gardner, secy.-treas.; A. M. Tate, J. T. Eaton, A. G. Starkey and D. C. Nicholson, Spokane. **Annual Meeting:** Jan. 14. **Property:** 17 unpatented claims, in Evolution district, Coeur d'Alenes. **Equipment:** Cabins, blacksmith shop, water motor and pipes, drill steel, rails, cars, small tools. **Development:** 1600 ft. of tunnel. **Informant:** Pres. Hall.

BURNS MINING AND MILLING CO.**Meridian**

Capital: \$500,000. Par value, \$1.00. Non-assessable. **Directors:** S. M. Burns, pres.; Geo. Parkins, vice-pres.; E. C. Pfaffe, secy.-treas., Meridian; David Farmer, Nampa; W. C. Williamson, Boise; Elmer Sims and D. C. Hedges, Meridian. **Annual Meeting:** April. **Property:** 7 unpatented claims, Sea Foam district. **Class of Ore:** Gold, silver, galena. **Equipment:** Boarding house, tools, etc. **Development:** 7 drifts and tunnels from 35 to 100 ft. long. Property idle. **Informant:** Manager David Farmer.

BUTTE & COEUR D'ALENE MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. 1,000,000 shares in treasury. Assessable to 10c, about 3½c levied. **Directors:** L. C. Lens, pres., Spokane; Peter McGregor, Hooper, Wash., vice-pres.; Joseph Rosslow, Spokane, secy.-treas.; R. C. Dillingham, Spokane, and J. M. Pickrell, Colfax, Wash. **Property:** 8 claims, Gentle Annie Gulch, 1¼ miles from Mullan, Hunter district, Coeur d'Alenes, adjoining Gold Hunter on east. **Class of Ore:** Gray copper, silver, some lead. **Development:** 3820 ft.; main tunnel 1550 ft. long, opening Belvedere vein at depth of 480 ft. from surface, and at about 1600 ft. will cut King Solomon vein at 888 ft. depth. Two-compartment winze sunk within footwall of Belvedere vein, to 400-ft. level and vein prospected with crosscuts at 200 and 400 levels. **Equipment:** Buildings for 35 men, 450 cu. ft. compressor; 75-h.p. dynamo, tanks, air-lines, hoist, and complete mining tools and supplies. Working five men under contract in main tunnel. **Note:** Company organized in 1907, but only assessment work done for many years. Present interests acquired control in summer of 1917.

BUTTE AND KELLOGG MINES CO.**Wallace**

Capital: \$150,000. Par value, 10c. **Directors:** Herman J. Rossi, pres.; A. Wyman, secy.-treas., Wallace. **Property:** 10 unpatented claims, in Cook gulch, 1 mile from Kellogg. **Class of Ore:** Lead-silver.

BUTTE AND KELLY MINES CO.**Wallace**

Capital: \$150,000. Par value, 10c. **Directors:** Herman J. Rossi, pres.; A. Wyman, secy.-treas.; Franklin Pfirman, Wallace; W. H. Nichols, Butte, Mont.; W. A. Barte, Kellogg. **Property:** 10 unpatented claims, in Cook gulch, 1 mile from Kellogg. **Class of Ore:** Lead-silver. **Development:** 350-ft. tunnel. **Informant:** W. H. Nichols.

CALEDONIA DEVELOPMENT CO.**Wallace**

Capital: \$1,500,000. Par, \$1. Treasury originally 800,000, but only 300,000 remaining at time statement was issued in 1917. **Officers:** President, Charles McKinnis, Wallace, who is also secy.-treas.-mgr. of Caledonia Mining Co. (q.v.). Company was organized to operate Jemison Mines, Mohave county, Arizona, McKinnis announcing in letter to stockholders of Caledonia Mining Co., of date April 5, 1917, that 200,000 shares were offered to them in the "wish to perpetuate Caledonia Mining Co." This led to much confusion, owing to similarity of names of two corporations, but they have absolutely no connection, McKinnis being the only interested person among directors of Caledonia Mining Co. At last reports Arizona property was being developed.

CALEDONIA MINING CO. **Main Office: Wallace. Mine Office: Kellogg**
Capital: \$2,605,000. Par value, \$1. Assessable, but no levies made. **Officers:** Stanly A. Easton, Kellogg, president; J. E. Gyde, vice-pres.; Charles McKinnis, secy.-treas.-mgr., both of Wallace, and C. Fred Kratzer, director, of Spokane.
Property: 4 lode claims and 2 water rights, Yreka district, 2 miles S. W. of Kellogg, in Coeur d'Alenes. **Class of Ore:** Lead, silver, copper and gold. **Equipment:** 300-ton mill, leased from Bunker Hill & Sullivan M. & C. Co., under agreement reached in settlement of apex litigation in 1914; hoists, machine drills, etc. **Note:** Company originally capitalized for \$1,500,000, in dollar shares, of which 1,300,000 odd were issued at time litigation began with Bunker Hill. By settlement reached in 1914, capital was increased to \$2,605,000, and Bunker Hill took over bare majority of stock, granting, on its part, certain privileges, including use of one unit of Bunker Hill concentrating plant and right-of-way through certain workings. Since that time company has been a steady dividend-payer, net profit in 7 months of 1914 being \$761,797; 1915, \$760,-324; 1916, \$1,154,762; 1917, \$1,227,155. Gross value of shipments in 1916 was \$1,769,669, resulting in net profit as above, showing cost of production but \$614,907, including excessive smelting charges exacted by Smelting Trust. Gross value of all shipments up to January 1, 1918, reached approximately \$6,200,000. Total dividends to April 1, 1918, reach \$3,214,206, to which may be added surplus of around \$700,000, or grand total profit of close to \$4,000,000. Effect of excess profits tax is expected to bear heavily upon corporation, and this fact, added to failure to locate continuation of rich ore-bodies at depth in the Keating tunnel, incline best authorities to belief that rate of dividends will shortly be reduced and that the property is in the nature of a liquidating concern. Location of ore-bodies on Keating tunnel level would, of course, place a very different complexion upon the situation, but search has been prosecuted diligently for several years and the odds are against it. Reserves in mine are by no means extensive, although there are some old dumps containing large tonnage of questionable value. Owing to similarity of names, there has been some confusion with Caledonia Development Co., of which Manager Charles McKinnis is promoter and president. There is absolutely no official connection between the two corporations. **Note:** Sworn statement to assessor of Shoshone county, May 1st, 1918, shows 38,557 tons extracted; gross value, \$1,949,254; cost of extraction, \$137,110; freight and treatment, \$484,988; net profits, \$1,227,155.

CALIFORNIA CONS. MINING CO. **Wallace**
Capital: \$1,000,000. Par value, \$1.00. **Directors:** H. L. Collins, pres.; S. Severance, secy.-treas., Pittsburg, Pa. **Annual Meeting:** Fourth Saturday in April.
Property: 4 patented claims and 2 mill-sites, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver.

CALIFORNIA MINE. **Bellevue**
 Not incorporated. Wm. Snowden, owner. **Property:** 1 patented and 2 unpatented claims in Minnie Moore gulch, ½ mile west of Bellevue. **Class of Ore:** Silver, lead and trace of gold. **Development:** 50-ft. shaft and some tunneling.. [See Bradford.]

CALLAHAN MINING CO. **Wallace**
Capital: \$1,500,000. Par value, \$1.00. **Directors:** Jas. F. Callahan, pres.; Francis C. Boutin, secy.-treas., Wallace. Holdings transferred to Consolidated Interstate-Callahan, and corporation dissolved.

CAPITAL MINING & MILLING CO. **Wallace**
Capital: \$100,000. Par value, 10c. **Directors:** P. J. Keegan, pres.; Jas. F. Whelan, secy.-treas., Wallace. **Annual Meeting:** Third Tuesday in July.

CAPTAIN CLARK AND COOS BAY MINES. **Chicago, Ill.**
 Chas. R. E. Koch, Chicago; Walter R. Robbins and Judge J. F. Ailshee, of Coeur d'Alene, owners. **Property:** 38 acres, patented, in Robbins district, Idaho county.

CARBONATE CENTER MINING CO. **Mullan**
Capital: \$1,500,000. Par value, \$1.00. **Directors:** Archie Gillis, pres.; John E. Sherrard, Mullan. **Property:** 9 unpatented claims, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper, lead.

CARBONATE HILL MINING CO. **Spokane**
Capital: \$1,500,000. Par value, \$1.00. Assessable to total extent of 11 mills beyond levies already made. **Directors:** George Shiel, pres.; John E. Hoppe, secy.-treas.; George H. Martin, Andrew Hedín and William Ganninger, all of

Spokane. **Annual Meeting:** Second Tuesday in December. **Property:** Carbonate Hill group of 12 claims, 10 patented, 2 unpatented, Hunter district, near Mullan, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Small hoist, 8-h.p. gasoline engine and compressor. **Development:** By adit with approximately 3500 ft. of workings. Some ore found in wide zone. **Note:** Company has given option to W. D. Greenough, Spokane, upon basis of 11 cts. per share, but stockholders have right to accept stock in the consolidated organization, known as Idaho Carbonate Hill Cons. M. Co. (q. v.) First payment under option due April 1st, 1918. **Informant:** Secy.-Treas. Hoppe. **Note:** 2 carloads of machinery have arrived from Atlas mine, at Whitehorse, Alaska.

CARBONATE MINING AND MILLING CO.

Kellogg

Capital: \$250,000. Par value, 25c. Assessable. **Directors:** Wm. M. Riggs, pres.; C. W. Simmons, secy.-treas.; D. P. Campbell, Kellogg; C. Wiese, vice-pres., Wardner; A. P. Bailey, Dudley. **Property:** 8 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead, silver, copper. **Equipment:** Tools, drill steel, cars, etc. No shipments. **Development:** 800 ft. of tunnels, 60 ft. shafts. **Informant:** Secy. Simmons.

CARIBOU GOLD AND COPPER CO., LTD.

Idaho Falls

Capital: \$2,500,000. Par value, \$10.00. Assessable. **Directors:** E. H. Wakeman, pres.; Jos. Empey, vice-pres.; A. V. Scott, secy.-treas.; A. J. Wiperman, Wm. Arave, Idaho Falls; Frank A. Putnam, Gray. **Annual Meeting:** Third Monday in February. **Property:** 7 unpatented claims, in Mt. Pisgah district, Bonneville Co. **Class of Ore:** Gold, copper. No shipments last year. **Development:** 600-ft. tunnel and 160-ft. shaft. **Informant:** Secy.-Treas. Scott.

CARIBOU GOLD MINES CO.

Salt Lake City, Utah

Capital: \$10,000. Par value, 1c. **Directors:** John W. Clark, Jr., pres.; J. P. Fanning, vice-pres. and mgr., Pocatello; C. B. Bates and A. B. Rockhill. **Property:** 2 patented claims and mill-site, and 11 unpatented claims, in Mt. Pisgah district, Bonneville Co. **Class of Ore:** Free milling gold. **Equipment:** 10-stamp mill, 100-h.p. engine, air compressor and hoist. **Development:** 400-ft. tunnel, 280-ft. shaft.

CARMAN CREEK MINING CO.

Salmon City

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** J. W. F. Halcombe, pres.-secy.; John Harlan, vice-pres.; Wm. Wallace, treas. **Property:** 7 claims, of 140 acres, 16 miles from Salmon. **Class of Ore:** Gold, silver, copper. **Development:** Assessment work only.

CARNEY COPPER CO., LTD.

Mullan

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** J. L. Martin, pres.; A. P. McRae, vice-pres.; C. D. Miller, secy.-treas., Mullan. **Annual Meeting:** Dec. 3. **Property:** 11 patented claims, in Hunter district, Coeur d'Alenes. **Class of Ore:** Copper, silver, lead. **Development:** 2500 ft. of tunnels on the 2 claims prospected. Discovery of important body of ore reported in January, 1918.

CASSIDY GOLD MINING AND MILLING CO., LTD.

Wallace

Capital: \$30,000. Par value, 5c. **Directors:** T. N. Barnard, pres.; Nellie J. Stockbridge, secy.-treas., Wallace. **Annual Meeting:** Second Tuesday in January.

CEDAR CREEK MINING AND DEV. CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** J. W. Weyer, pres.; Wm. Becker, secy.-treas., Wallace. **Annual Meeting:** First Monday in June. **Property:** 15 unpatented claims, in Summit district, Coeur d'Alenes. **Development:** 5000 ft. underground workings. **Note:** Drift east from crosscut has been extended 500 ft., showing 18 inches of milling ore, now under shaft. Co. will install electric power from W. W. P. Co.

CENTERVILLE MINING & MILLING CO.

Boise

Maurice H. Myers, mgr., Boise, Idaho; Wm. M. Thorne, lessee, Centerville, Idaho. Boise Basin district.

CENTRAL MINING CO.

Burke

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Maurice V. McName, pres.; H. W. Walser, secy.-treas., Burke. **Annual Meeting:** First Monday in April.

CHARLES DICKENS M. & M. CO.

Spokane

Reorganized as Charles Dickens Mining Co. in 1902. Latter absorbed by Idaho-Knickerbocker M. Co. in 1917 and now Old Charles Dickens M. Co. (q.v.).

CHARLES DICKENS MINING CO.

Spokane

Reorganized as Charles Dickens M. & M. Co. in 1902. Latter absorbed by Idaho-Knickerbocker M. Co. in 1917 and now Old Charles Dickens M. Co. (q.v.).

C. H. GOLD MINES CO.

Mountain Home

Owners: R. P. Chattin, Mountain Home; W. S. Bernethy, Pine. Property: Franklin mine, Pine Grove district.

CHAMPION COPPER MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1.00. Assessable. Directors: Adam O'Donnell, pres.; Wm. J. Coates, secy.; J. H. Wourms, treas., Wallace; Patrick Sullivan, F. C. Robertson. Property: 6 claims, 4 miles south of Mullan. Class of Ore: Copper. Development: About 1000 ft. of tunnels. Idle.

CHAMPION MINING CO.

Salt Lake City

Capital: \$100,000. Non-assessable. Directors: Edw. R. Hall, pres.; C. T. Mixer, vice-pres.; O. D. Mallory and J. E. Frick. Property: 9 unpatented claims, in Alder Creek district. Class of Ore: Silver, lead, copper. Development: 1500 ft. of workings. Idle.

CHEROKEE GROUP.

Wilbur, Wash.

Capital: \$1,500,000. Directors: Wm. Rakestraw, M. E. Bennett, Lloyd Harris and C. G. Edwards, of Wilbur; I. Toner, Spokane. Property: On Eagle creek, adjoining Samson group, Coeur d'Alenes.

CHESTER MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Directors: P. P. Weber, pres., Kellogg; S. P. Fairweather, secy.-treas., Wallace. Annual Meeting: Second Tuesday in April. Property: 6 patented claims, in Evolution district, Coeur d'Alenes. Class of Ore: Lead-silver. Development: Amount expended, \$25,000.

CHICAGO-BOSTON MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. Directors: Cyrus W. Gossert, Wallace, pres. and mgr.; Wm. S. Bangs, Tacoma, secy.-treas.; W. S. Havin and H. M. Mumford, Des Moines, Iowa, and John R. Neely, Spokane. Annual Meeting: Second Saturday in July. Property: 8 claims, part patented; area 140 acres, on Lake Creek, about 2 miles southwest of Wallace. Class of Ore: Lead, silver, iron carbonates and gray copper. Equipment: Compressor, Pelton wheels, penstock, flumes, saw mill, fans, shop equipment, blacksmith shop, cars, bunk and boarding house, superintendent's house, barn, etc. Shipments to date, between 10 and 20 carloads. Development: Opened by 6 tunnels, aggregating approximately 3000 ft. No. 6, the lowest level, driven from Lake creek, distance of 1200 ft., to tap ore body shown in No. 5, 300 ft. above. This tunnel also opened up another lead-silver vein. Note: Property adjoins ground of Kill Buck Mining Co., owned by Ex-Senator W. A. Clark, of Butte, Mont., on the west. (q.v.). Under an arrangement, of which particulars are not obtainable, control of company was taken under option, presumably by the Day family, of Wallace. Much work was done, but option was forfeited late in 1917. Efforts to renew were unavailing and assessment was levied on Nov. 17th, 1917. Informant: Pres. Gossert.

CHICAGO MINING CO., LTD.

Burke

Capital: \$1,000,000. Par value, \$1.00. Directors: Wm. F. Hearn, pres.; M. Maher, secy.-treas., Burke. Annual Meeting: Second Monday in April. Property: 4 unpatented claims in Lalande district, Coeur d'Alenes. Development: Only assessment work. No equipment; no shipments. Informant: Secy.-Treas. Maher.

CHIEFTAIN MINE.

Wellington, Kas.

Not incorporated. Owner: J. E. Kramer, Wellington, Kas. Property: 145 acres of patented land on Fish creek, in Coeur d'Alenes. Equipment: A 5-stamp mill, with concentrating and electric cyaniding plant. Shipments last year, 14 tons, \$1,880. Informant: Henry H. Kramer.

CLARENCE RAY-BUFFALO HUMP GOLD MINING CO.

Spokane

Capital: \$100,000. Par value, 10c. Non-assessable. Directors: Geo. E. Anderson, pres.; Dr. D. A. Graham, vice-pres.; Fred Hasbrook, secy.-treas.; C. S. Barrow, E. A. White, Wm. Hopkins, Spokane. Annual Meeting: First Tuesday in June. Property: Clarence Ray Group, 8 unpatented claims, Robbins district, Buffalo Hump. Equipment: Ore car, 1100 ft. of track and tools. Development: 545 ft. of tunnel. Informant: Asst. Secy. C. S. Barrow.

CLARINDA COPPER MINING CO.**New York**

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** John E. White, pres. and treas.; J. P. Delaney, secy.; Thos. Compton, Percy E. Guard, all of New York, and Jas. E. White, of Clark's Fork, Idaho. **Property:** 5 claims and 3 acres, in Pend d'Oreille district. **Class of Ore:** Gold, silver, copper, lead. **Development:** 450 ft. of tunnels. **Informant:** Delaney & Co., New York.

CLAYTON MINING AND SMELTING CO.**Clayton**

Property: 18 claims near Clayton, Custer Co., with water power and a 50-ton smelter. Reported sold to Idaho Smelting & Mining Co. Under option to Success Mining Co. early in 1916, but bond was relinquished after expenditure of around \$6,000.

CLEAR GRIT MINING CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** F. C. Rood, pres.; P. A. Becker, vice-pres., Walla Walla, Wash.; O. W. Lewis, secy.-treas., Wallace; W. H. Malchette, Prichard, Idaho; L. E. Meacham, Seattle, Wash. **Annual Meeting:** First Tuesday in May. **Property:** 7 unpatented claims, in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Development:** 1400 ft. of tunnel and 200 ft. drifts. Working small force. **Informant:** Secy. O. W. Lewis.

CLEARWATER GOLD AND COPPER MINING CO., LTD.**Wallace**

Capital: \$2,500,000. Par value, \$5.00. **Directors:** Samuel Seidenfeld, pres., Spokane; Herman A. Bush, vice-pres.; John H. Wourms, secy.-treas., Wallace. **Property:** 12 quartz and 4 placer claims, on Niagara creek, Shoshone Co.; a true fissure vein. **Class of Ore:** Gold, silver, copper. **Equipment:** Sawmill, air compressor, pump, hoist, boarding and bunk houses, powder house, 2 blacksmith shops, horses, wagons, tools, etc. Plenty of timber, and water to generate 1000-h.p. **Development:** 2600 ft. of tunnel, besides crosscuts, raises, etc.

CLEARWATER GOLD MINING CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Geo. T. Johnson, pres.; J. P. Rogers, secy.-treas., Wallace. **Annual Meeting:** First Tuesday in March.

CLEVELAND LODE AND GOLDEN BAR CLAIMS.**Boise**

Not incorporated. **Owners:** A. B. Golden, $\frac{1}{4}$ interest; Mrs. G. D. Golden, Boise, $\frac{1}{4}$ interest; Mrs. Mary Ann Lison, Rocky Bar, $\frac{1}{2}$ interest. **Property:** Rocky Bar, Elmore Co. **Class of Ore:** Gold. No equipment; no shipments. **Development:** 500 ft. of tunnels. **Informant:** Arthur B. Golden, part owner, Boise.

CLEVELAND MINING CO.**Grangeville**

Not incorporated. **Owners:** C. W. Goodale, S. W. Smith, Butte, Mont.; A. F. Parker, Grangeville. **Property:** 6 patented claims—Cleveland, Premium, Crystal, Sunrise, Dispatch and Relief quartz claims—and 20 acres of placer ground, on Crooked river, 3 miles west, for power purposes. Eight miles south of Elk City. **Class of Ore:** Mainly gold. **Equipment:** 10-stamp mill, building and ditches. **Development:** Tunnels, upraise, etc. Partnership troubles delaying operations.

CLIMAX SILVER-LEAD MINING CO.**Wallace**

Capital: \$375,000. Par value, 25c. Non-assessable. **Directors:** David C. McKissick, pres.; John Lucas, vice-pres.; H. V. Edwards, secy.-treas.; C. W. Edwards, M. P. Kiebert, Dr. Herbert Mowery and H. V. Edwards, Jr., all of Wallace. **Annual Meeting:** First Monday in November. **Property:** 1 patented claim, the Monday Morning, and 3 unpatented—the Titanic, Red Fin and Majestic—Revenue gulch, $2\frac{1}{2}$ miles northwest of Wallace. **Class of Ore:** Lead and silver. **Equipment:** Air compressor, 5 and 35 h.p. motors, and Sullivan water drills. **Development:** 250 ft. of surface tunnels. N. D. capitalists have put up \$20,000 for further development. **Informant:** Secy.-Treas. H. V. Edwards.

COEUR D'ALENE ANTIMONY MINING CO., LTD.**Kellogg**

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** M. E. Jolley, pres., Coulee City, Wash.; H. J. Hibschan, vice-pres., Spokane; C. M. Powell, secy.-treas., Kellogg. **Annual Meeting:** Jan. 16. **Property:** 2 unpatented claims—Pine Lode and Big 3—and 2 fractions, Yreka district, Coeur d'Alenes. **Class of Ore:** Sulphide of antimony, gold and silver. Some ore said to assay 50% antimony. **Equipment:** "Complete for mining and milling." Will soon install flotation plant at mine, and propose antimony smelter in Spokane. Shipments last year, \$13,000. Present output, 5 tons per day. **Development:** Considerable ore blocked out, besides 33 tons shipped. 150 ft. of shafts and tunnels. **Informant:** Secy.-Treas. Powell.

COEUR D'ALENE CENTRAL MINING AND MILLING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** F. D. Garrett, pres.; A. Herman, secy.-treas., Spokane. **Annual Meeting:** May 28. Non-productive.

COEUR D'ALENE CHAMPION MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** M. A. Doyle, pres.; Jas. Keeth, secy.; J. L. Drummheller; Albert Harper and W. L. Tribble, all of Spokane. **Annual Meeting:** First Monday in December. **Property:** 17 unpatented claims, in Hunter and Lalande districts, Coeur d'Alenes. **Class of Ore:** Silver, lead, showing of copper. **Equipment:** Bunk houses, blacksmith shop, cars and tools. No shipments. **Development:** Nearly 4000 ft. of tunnels. Well-defined ledge, carrying small values. **Informant:** Secy. Jas. Keeth.

COEUR D'ALENE CHECKMATE CONS. MINING CO.**Wallace**

Capital: \$200,000. Par value, 10c. **Directors:** F. Cushing Moore, Roy H. Kingsbury and Therrett Towles, all of Wallace. Non-productive.

COEUR D'ALENE CONS. MINING CO.**Osborne**

Directors: Louis Baldue, pres.; E. M. Cornelius, vice-pres.; C. G. Johnson, secy.; Chas. Williams, treas.; W. G. Parks. **Property:** 4 claims, 2 miles from Wardner. **Class of Ore:** Copper and lead. **Equipment:** 2-drill waterpower compressor. **Development:** 500 ft. of tunnels, 200 ft. of crosscuts. Idle.

COEUR D'ALENE COPPER MINING CO.**Spokane**

Capital: \$50,000. Par value, 5c. **Incorporators:** M. A. Schneider, E. R. Laing and Leonard Harvey, all of Spokane.

COEUR D'ALENE OBESCENT MINING CO.**Spokane**

Capital: \$1,250,000. Par value, \$1.00. Assessable. **Directors:** S. W. Booney, pres., Seattle, Wash.; J. B. Millspaugh, vice-pres.; F. W. Mauser, secy.-treas., Spokane. **Annual Meeting:** Second Tuesday in August. **Property:** 5 unpatented claims and a fraction and 5 acres of mill-sites, in Evolution district, Coeur d'Alenes. **Class of Ore:** Silver, lead and zinc. **Equipment:** 60-h.p. steam boiler, steam hoist, tracks, cars, tools, shaft house, bunk house and blacksmith shop. Working small force. **Development:** 260-ft. 2-compartment shaft, 625-ft. tunnel, and several hundred ft. of drifts. Bunker Hill & Sullivan Mining & Concentrating Co. has leased a 500-ft. block along the vein, in order to secure the large quantities of lime contained therein, for smelting purposes. **Informant:** Secy. Mauser.

COEUR D'ALENE DEV. CO.**Kellogg**

Capital: \$100,000. Par value, 10c. **Directors:** Frederick Burbidge, pres., Spokane; Edgar L. Brackett, secy.-treas.; Wm. E. Benton, Saratoga, N. Y. A subsidiary corporation of the Stewart Mining Co., which took over stock control in 1916. **Properties:** At Kellogg, Coeur d'Alenes.

COEUR D'ALENE EMPIRE MINING & MILLING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** F. D. Garrett, pres.; Frank Johnson, vice-pres.; A. Herman, secy.-treas.; T. H. Holland, all of Spokane. **Annual Meeting:** June 12. **Property:** 9 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Good buildings, waterpower blower and fan. **Development:** 2700 ft. of tunnels, besides open cuts and prospect tunnels aggregating 500 ft. Depth attained, 593 ft. Non-productive; no shipments. Plenty of water power and timber; good road; 4 miles from railroad. **Informant:** Secy.-Treas. Herman.

COEUR D'ALENE EXP. CO.**Wallace**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Otto A. Olsson; F. Bland, secy.-treas., Wallace. **Class of Ore:** Silver-lead. **Property:** 10 unpatented claims, in Yreka district, Coeur d'Alenes. Not working.

COEUR D'ALENE JUMBO MINING CO.**Wallace**

Capital: \$150,000. Par value, 10c. **Directors:** Elmer Johnson, pres.; S. P. Fairweather, secy.-treas., Wallace; E. P. Kelly; Fred M. Prichard, Osborne; E. J. Nelson, Rosalia, Wash. **Annual Meeting:** Third Monday in June. **Property:** 4 unpatented claims in Evolution district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** Some \$15,000 expended; working small force.

- COEUR D'ALENE LEAD AND SILVER MINING CO.** Spokane
Capital: \$250,000. Par value, 25c. Assessable. **Directors:** J. M. Porter, pres.; S. S. Stoolfire, secy.-treas., Spokane. **Annual Meeting:** Sept. 1. **Property:** 4 patented claims—Helen, Hanna, Mary and Kate—and one unpatented claim—the Daisy—Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. **Equipment:** Car, rails, drills, picks, etc. No shipments. **Development:** 1000 ft. of tunnel and several surface cuts. **Informant:** Pres. Porter.
- COEUR D'ALENE MINING AND CONC. CO.** Spokane
Capital: \$2,500,000. Par value, \$5.00. Non-assessable. **Directors:** W. J. C. Wakefield, vice-pres.; Chas. Hussey, secy.-treas.; W. A. Corey, all of Spokane; J. B. Grant, Denver, Colo. **Annual Meeting:** Second Tuesday in May. **Property:** 3 patented claims in Lalonde district—the Union, Bengal Tiger Fraction, and Sherman and Union fractional claims. **Development:** 3000 ft. of tunnels. **Informant:** Secy. Hussey. **Note:** Under lease and bond to Sherman Dev. Co. (q. v.), which is said to have uncovered good ore bodies in 1917. Property one of first placed under development in district by Finch & Campbell. Now controlled by their estates.
- COEUR D'ALENE MINING AND SMELTING CO.** Wallace
Capital: \$1,000,000. Par value, \$1.00. **Directors:** Dennis Goggin, pres.; A. H. Featherstone, secy.-treas.; Walter Sullivan, C. S. Stone and Jas. Cunningham, all of Wallace. **Annual Meeting:** First Monday in January. **Property:** 7 unpatented claims in Placer Center district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Development:** 1200 ft. of tunnel, 60 ft. of shaft.
- COEUR D'ALENE No. FORK MINING & S. CO.** Monarch
 A. G. Kennedy, Monarch, Idaho. Summit district.
- COEUR D'ALENE (PLACER) MINING CO.** Boston, Mass.
Capital: \$1,250,000. Par value, \$10.00. **Directors:** Barton E. Eames, pres.; John P. Wright, secy.-treas., Boston, Mass.; John F. Murphy, managing agt., Murray, Idaho. **Property:** 2800 acres of placer holdings, extending 7 miles west and 4 miles east of Murray, as well as on Eagle Creek and numerous side gulches along Prichard creek. Company's holdings include original locations of Prichard, which caused first Coeur d'Alene boom 35 years ago. **Note:** Property has been idle for 10 or 15 years, until last fall, when it was acquired under agreement not made public, by Yukon Gold Co., controlled by the Guggenheims. One dredge, brought from Alaska, has already been set up and is now in operation. It is said that 3 more dredges will be brought from Alaska this year. Recovery of gold said to be very satisfactory and there is little reason to doubt that a very large enterprise is now under way again. **Informant:** Managing Agent Murphy.
- COEUR D'ALENE SILVER-LEAD DEV. CO.** Spokane
Capital: \$150,000. Par value, 10c. **Directors:** J. M. Johnson, pres.; Earl M. Nielson, Alice M. Antil, R. L. Campbell, all of Spokane, and L. C. Barnes, of Wallace, Idaho. In January, 1917, M. S. Stout asked for appointment of a receiver—only 90c in treasury.
- COEUR D'ALENE SILVER-LEAD MINING CO.** Spokane
Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** Chas. J. Heidenreich, pres.; Stefan Silberman, secy.-treas., Spokane; Roy T. Bull, Redfield, S. D. **Annual Meeting:** May 15. **Property:** 6 patented and 6 unpatented claims and mill-site, Hunter district, Coeur d'Alenes. No equipment and no shipments. **Development:** 900 ft. of tunnels, 535 ft. of crosscuts, at expense of \$24,800 to date. Silver Cable ledge runs through this ground, and ore of same character—silver-lead-zinc. **Informant:** Pres. Heidenreich.
- COEUR D'ALENE VULCAN MINING CO.** Clintonville, Wis.
Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Geo. E. Beedle, pres., Beverton, Ore.; Edward Felshorn, secy.-treas.; C. E. Beedle, Clintonville; Thos. Ryan and Edward Laudenheimer, of Oshkosh; Dr. W. Wallschmidt, Fondulac, Wis. **Annual Meeting:** March 22. **Property:** 7 patented claims and 40 acres of land, 3½ miles west of Wallace, Idaho, Evolution district. **Class of Ores:** Lead-silver. Property now under lease to John R. Neely of Spokane. **Development:** 3500 ft. of tunnel. **Informant:** Secy.-Treas. Felshorn.
- COLONIAL MINING AND MILLING CO.** Wallace
Capital: \$1,000,000. Par value, 25c. Organized to take over the Little Pittsburgh mine, near Kellogg, from G. A. Smith, et al., owners, but default in first

payment led to extensive litigation, resulting in the return of the property to Smith and associates. **Note:** This was one of the most disgraceful promotions in recent history of Coeur d'Alene district. Organized by Beebe Bros. and stock sold at high figures by flagrantly false advertising matter. Company failed with large indebtedness and no part of it has since been paid.

COLUMBIA COPPER MINING CO., LTD.

Wallace

Capital: \$2,500,000. Par value, \$1.00. Assessable. **Directors:** Jos. Huber, pres.; O. D. Houle, Mullan; J. F. Andrieux, secy., Spokane. **Property:** 27 unpatented claims in Hunter district, Coeur d'Alenes. **Class of Ore:** Gold, silver, copper, lead. **Equipment:** Compressor and accessories, rails, cars, fan, etc. Working small force. No shipments. **Development:** 1400 ft. of tunnels and 200 ft. of crosscuts, etc., at an expenditure of \$60,000. Is in center of copper belt, and workings show high grade ore. Plenty of timber and water for all purposes. **Informant:** Secy. Andrieux.

COLUMBUS MINING CO.

Wallace

For a nominal consideration of \$1,000,000, Edward P. Gallagher of Philadelphia conveyed to the Columbus Mining Co., in October, 1916, a group of claims in the Eagle district, the group consisting of the Columbus, Mary, Good Hope, Murray, Wampum, Dinero, Plumbum, Argentum, Good Luck, Gallagher, Col. Bradford and Golden Eagle Nos. 1 and 2.

COLUSA MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Wm. Thyson, pres., Mace; J. W. Wixom, secy.; Paul Leuschel, treas., Wallace. **Annual Meeting:** Fourth Saturday in June. **Property:** 10 unpatented claims—the Atlas, Colusa, West Colusa, Crown, Cobalt, South Atlas, Anchor, West Anchor, Akron and Alton—in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No equipment; no development; no shipments. **Informant:** Secy. Wixom.

COMBINATION MINE.

Boise

Col. Judson Spofford, Boise, owner. Crosscut of 150 ft. has not reached either wall of vein. Has cut 3 veins of galena and chalcopyrites—veins 4 to 5½ ft. wide; values close to \$100 per ton. Three claims in group, fine timber and water. Piling up ore for shipment when state highway to railroad is completed. Making arrangements for extensive development. Not incorporated. Property near Profile.

COMET GOLD AND COPPER MINING CO.

Wallace

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Archie McCallum, pres.; Joseph F. Whelan, secy.-treas., Wallace. **Annual Meeting:** First Monday in July. **Property:** 4 unpatented claims in unorganized district, 4 miles south of Mullan. **Class of Ore:** Copper-silver-lead. **Development:** 1600 ft. of workings, tunnel cutting hematite vein.

COMMONWEALTH MINING CO.

Spokane

Head Office: 401 Empire State Bldg. **Capital:** \$1,500,000. Par value, \$1.00. Non-assessable. In April, 1918, approximately 500,000 shares in treasury. **Directors:** J. F. Sexton, pres.; M. A. Phelps, vice-pres.; C. H. Williams, treas.; L. B. Cornell, secy.; H. W. Wolfe, asst. secy., all of Spokane. Mine supt., W. A. Harvey, Garwood, Idaho. **Annual Meeting:** January. **Property:** 7 full, unpatented claims, 140 acres, on Hayden Creek, about 2 miles from Hayden Lake, Kootenai county, Idaho. **Class of Ore:** Silver-lead-copper. **Development:** Shaft, winze and sump, 577 ft.; tunnel, 740 ft.; drifts and crosscuts, 522 ft. Main work now confined to south shaft at 200-ft. level. Engineer's reports claim 15 ft. of ore, assaying \$30.17, and 8 ft. assaying \$25.48, with total width of milling ore on lower level, 24½ ft.; estimates of reserves running as high as 80,000 tons, with values from \$9.84 to \$36.70. A very strong vein, standing 60 ft. high and 60 ft. wide above the surrounding country, is traceable through 3 claims, engineers pronouncing it a contact fissure between quartzite and chlorite slate. Oxidized zone extends to about 135-ft. level. Ore is quartz, carrying silver, copper, lead and some zinc. One test car-load gave values of \$30.00 per ton. **Equipment:** One 20-h.p. boiler; one Ingersoll-Rand and one Clayton air compressor, with air reservoir and connections; two ¾-ton ore cars and track; two ¾-ton ore buckets; hoist; 4-h.p. Fairbanks-Morse gasoline hoist; No. 7 Cameron sinking pump; No. 5 Knowles sinking pump; duplex station pump; two Ingersoll-Sargent jackhammer drills; complete blacksmith and other equipment, with necessary domestic quarters. **Note:** Operations have been conducted for the past 15 months with a force of from 15 to 30 men. In April, 1918, former number employed. Timbers for new mill have already been cut and foundations laid, but management says no further move will be made until financial conditions have improved. Meanwhile, property will be developed

COMPTON MINES CO.

Capital: \$1,000,000. Par value, \$1.00. **Directors:** O. H. Bennett, pres. and treas., Burke; Therrett Towles, secy., Wallace. **Annual Meeting:** First Tuesday in October. Non-productive.

Wallace

COMSTOCK COPPER MINING CO., LTD.

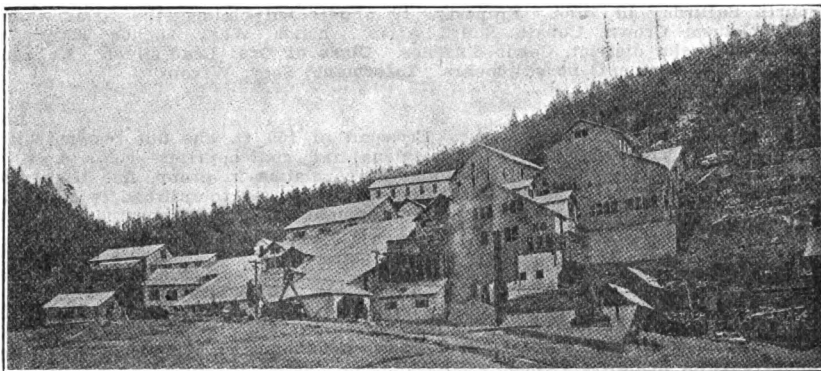
Capital: \$150,000. Par value, 10c. **Directors:** E. S. Amsden, secy.; Otto A. Olsson, treas.; John H. Nordquist, mgr., all of Wallace. **Property:** Claims on Baldy Mt., east of Burke. **Development:** 800 ft. of tunnels and 700 ft. of drifting on veins.

Wallace

CONSOLIDATED INTERSTATE-CALLAHAN MINING CO.

Offices: 61 Broadway, New York City; 513 Sellwood bldg., Duluth, Minn. Mine office, Interstate, Idaho. **Directors:** John A. Percival, pres.; C. M. Loeb, Julian B. Beaty, secy.; Joseph E. Cotton, Otto Sussman, all of New York; Millie Bunnell, treas.; A. L. Warner, Duluth, Minn.; M. G. Rodearmel, first vice-pres., and John S. Macnie, Minneapolis, Minn.; S. S. Titus, Grand Forks, N. D., and James F. Callahan, Wallace, Idaho. **Mine Manager:** C. W. Newton. **Registrar of Stock:** Registrar & Transfer Co., New York. **Transfer Agent:** Title Guarantee & Trust Co., New York. Stock listed on New York stock exchange. **Incorporated:** June 12, 1912, as consolidation of Interstate Silver-Lead Mining Co. and Callahan Mining Co. **Capital:** \$5,000,000. Shares, \$10 par. Outstanding, January 1, 1918, 464,990 shares. **Dividends:** Initial dividend of \$116,360 paid April 1, 1915. Since then \$14 per share distributed, or total of \$6,509,860 to March 31, 1918. **Property:** Total of 1250 acres, embracing holdings of Interstate Silver-Lead M. Co.; Calla-

New York



Consolidated Interstate-Callahan Mill.

han M. Co.; Nipsic M. Co., and majority interests in Blue Grouse M. Co. and Silver State M. Co., forming a compact estate in Nine-Mile district, Coeur d'Alenes. **Geology:** The Prichard slates form the thickest of the various rocks and cover a larger area than any of the quartzites, covering approximately a third of the Coeur d'Alene district, including the Nine Mile district, and extending over almost the entire northeastern portion. The Interstate and Callahan are both fissure veins, cutting the formation in strike and dip, corresponding in course to the general trend of veins of the eastern portion of the district. There are various dip faults encountered in the course of the Interstate vein, generally displacing the ore a few feet to the north, and on No. 5 and No. 6 levels in the east drift was encountered a strong strike fault. The dip faults are more frequent, quite flat, generally dipping to the west, and are not mineralized. Small diabase dykes, from a few inches to three or four feet in thickness, are encountered crossing, but not disturbing, the veins, generally dipping quite strongly to the west. The main development, consisting of tunnels Nos. 1, 2, 3, 3½, 4, 5 and 6, aggregating 20,500 feet, with connecting raises and shafts, has exposed two veins, known as the Interstate and the Callahan, approximately paralleling each other, and both carrying lead and zinc sulphide ores in commercial amounts. The Interstate vein extends in a general easterly and westerly course, varying in width from three to forty feet, its dip varying from vertical to seventy degrees to the north. The wall rock of this vein is the dark, blocky Prichard formation common to the Coeur d'Alene district, with occasional beds of dark quartzite. The vein is continuous and almost unbroken on its westerly course, although there are many small faults extending in a general northeasterly direction. These faults have had little or no displace-

ment effect on the ore body. The ore occurring in the Interstate vein is a remarkably high grade zinc sulphide, carrying small quantities of lead, occurring generally in seams of clean galena. Whenever zinc ore is found in this vein, it is high grade and free from waste. The Callahan vein extends about south sixty-five degrees east and north, sixty-five degrees west, varying in width from a mere knife blade seam to eight feet, and varying in dip from a few degrees to the north to a few degrees to the south, averaging practically vertical. In the upper levels, the main values occurred as a high grade galena ore carrying a high ratio of silver, while in the lower levels the values are more mixed zinc and lead, with the zinc predominating. **Development:** Total, approximately 40,000 ft., and principal working level being tunnel No. 4, about 1200 ft. below the apex of the mountain, where an ore shoot 1200 ft. long has been developed, with width varying from 1 to 54 ft. This shoot has been traced from the uppermost workings to a point 900 ft. below No. 4 level. The main workings from No. 4 level is a vertical, standard, three-compartment shaft, with 2 hoisting compartments and a man-way. First station was cut 450 ft. below No. 4. At a point 200 ft. below No. 6 level, No. 7 level was opened, No. 8 level being 200 ft. lower. At collar of shaft is a station 25x25 ft., and back of it, a hoist-room 40x40 ft. Shaft equipped with combination cage and skip of 46 cu. ft. capacity, operated by an up-to-date Lidgerwood, electrically-driven hoist, good for an ultimate lift of 2000 ft. and load of 12,000 pounds. Hoist equipped with Welch safety device, air brakes and clutches, and driven by 250-h.p. motor. **Equipment:** In every way modern, permitting of operations upon a very large scale. Concentrator, of 450-ton capacity, was completely remodeled during 1917; is now equipped with flotation process. Power for drills and hoists is furnished by three Ingersoll-Rand compressors, which give ample air for all purposes. There are also necessary receivers in the compressor building and in the mine, and approximately 4500 feet of eight-inch air pipe. It has two six-ton mine locomotives, Anaconda type, with three and one-half-ton mine cars. The blacksmith shop and machine shop are fully equipped with modern tools. The timber shed is equipped with circular saws for framing timbers. A sawmill, with 20,000 feet daily capacity, is located near the portal of tunnel No. 4 and connected by track for motor haulage. It has two office buildings, one boarding-house, two modern rooming houses of sixty-five and seventy-five rooms each, with steam heating and lighting plant; a modern dry house, with two hundred lockers for employees; twelve four-room dwelling houses, ten three-room cottages for the families of the employees; also a school-house. The entire camp is served by a modern water system, with sufficient volume to afford ample fire protection. The mine is connected with the power transmission service of the Washington Water Power Co. and of the Montana Power Co., with which company has continuing contracts. **Annual Report for 1917** shows that operations for 18 months, ended December 31, 1917, resulted in net profit of \$2,325,876, which, added to surplus of \$806,710, makes total of \$3,132,587. Out of this amount, \$5.50 per share was paid in dividends, equal to the sum of \$2,557,445. Affairs of the corporation have been readjusted so as to make fiscal and calendar year agree, hence the figures contained in the report are not fully explanatory of the situation without some analysis. Output for 12 months in 1917 reached 67,008 tons, worth \$2,471,130.78. A crosscut is now being run from Interstate No. 6 level across Silver State into Nipsic, which will open up Nipsic vein 1000 ft. below ore-body shown in upper levels of latter. At the same time Silver State holdings will be developed. Stockholders are also advised that Amazon-Manhattan has been relinquished following decree of Supreme Court of Idaho, the sum of \$160,000 having been accepted by the company. Entire lead product, which has increased from about 300 tons monthly, to approximately 1000 tons, is being shipped to Ohio & Colorado S. & R. Co., at Salida, Col. Total zinc product is going to American Metals Co., under ten-year contract entered into in 1914, and which became operative about a year ago. Financial statement shows cash on hand, \$252,541; accounts receivable, \$63,848; ore in transit, \$253,149, and ore and supplies on hand \$96,560, making total of \$666,100, against which are charges of \$114,159, leaving net surplus of \$551,940. Of the 500,000 authorized \$10 shares, 464,990 have been issued. Total receipts for 18 months reached \$4,179,931, the amount including \$4,117,596 received for 104,558 tons of ore shipped. Operating expense, including cost of construction and improvements, was \$1,854,055, leaving surplus of \$2,325,876. New properties cost \$173,945, while \$159,825 was received from Amazon-Manhattan sale, leaving net of \$14,120 invested during eighteen months. Dividends of \$2,557,445 were \$231,569 in excess of net operating profit. Comparison with previous reports shows that surplus June 30, 1915, was \$1,094,862; June 30, 1916, \$806,710, as against \$551,940 on December 31, 1917. Further comparison with former reports shows that company in 1917 received \$26.70 per ton less on zinc concentrates than in 1916, and \$15.42 less than in 1915. Gross per ton value of all classes of ore in 1917 was \$39.38; expenses were \$17.72 and net per ton profit \$21.66. Comparisons for 1915, 1916 and 1917 are as follows:

NORTHWEST MINES HANDBOOK

Shipments, 1915-1916-1917.

Class of Ore.	Tons	Total	Average
1914-1915 (12 mos.)			
Lead Ore -----	246	6,450	\$26.21
Zinc Ore -----	8,473	421,237	49.71
Lead Conc. -----	2,563	90,095	35.15
Zinc Conc. -----	30,681	1,628,498	53.07
	<u>41,963</u>	<u>\$ 2,146,282</u>	<u>\$51.14</u>
1915-1916 (12 mos.)			
Lead Ore -----	781	\$ 20,949	\$26.82
Zinc Ore -----	9,498	611,271	64.35
Lead Conc. -----	3,723	128,414	34.51
Zinc Conc. -----	51,713	3,225,459	62.37
	<u>65,715</u>	<u>\$ 3,986,095</u>	<u>\$60.65</u>
1916-1917 (18 mos.)			
Lead Ore -----	3,469	\$ 125,203	\$36.00
Zinc Ore -----	17,926	824,565	46.00
Lead Conc. -----	8,944	373,527	41.76
Zinc Conc. -----	74,219	2,794,301	37.65
	<u>104,558</u>	<u>\$ 4,117,596</u>	<u>\$39.38</u>
Grand Total -----	212,236	\$10,249,973	\$48.30

(42 mos.)

Report of Manager C. W. Newton shows that 9816 feet of development was completed in all parts of the property. Excavations for stations and skip chutes was 60,000 cu. ft. There was mined during the period of eighteen months, 227,759 wet tons. The amount of ore delivered to the mill was 226,281 dry tons. From the tonnage taken from the mine there were 17,315 dry tons of crude zinc ore assaying 43% zinc, and 3335 dry tons of crude lead ore assaying 47% lead and 18 ozs. in silver, which was sorted from the belt and shipped direct. There were 19,190 dry tons of waste sorted from the belt. The balance, 186,441 dry tons, went through the mill, showing a composite assay for 18 months of 23.4% zinc, 6.0% lead, 2.3 ozs. silver and 6.0% iron. Ore reserves so far developed above No. 7 level, as of December 31, 1917, are approximately 310,000 tons, or at the rate of present production, about two years' ore supply. The big three-compartment shaft has been sunk to the No. 8 level. Development work on this level in the Interstate vein has progressed 120 feet, and high grade zinc ore has been encountered, 7 feet across the full face of the workings, assaying 36% zinc. In addition to 310,000 tons of ore now blocked out in the mine above No. 7 level, there is approximately 225,000 tons of mill tailings stockpiled, which will be retreated in new flotation plant and made ready for shipment. The average assay of this stockpile is 10% zinc. These figures are based on present rate of production, i. e., approximately 14,000 tons per month of mine run, or 6000 tons per month of shipping product.

CONSOLIDATED MICA MINES CO.**Spokane**

Capital: \$300,000. Par value, \$100. Assessable. **Directors:** Chas. A. Gram, pres.; E. F. Hull, secy.-treas., both of Spokane. **Annual Meeting:** Second Tuesday in June. **Property:** 3 patented claims—Atlas, Violet and Morning Star—6 miles north of Avon, Idaho. **Class of Product:** Mica only. Shut down Jan. 1, 1915. **Equipment:** For hand work only. No shipments. **Development:** 1,100 ft. of tunnel, a number of open cuts. **Informant:** Secy. Hull.

CONSTITUTION MINING & MILLING CO.**Spokane**

Head office: 212 Columbia bldg. **Capital:** \$1,500,000. Par value, \$1.00. Assessable. **Directors:** George Turner, pres.; Frank H. Graves, vice-pres.; B. H. Kizer, secy.-treas.; Thomas Thwaite, Frank T. Post, R. W. Nuzum, all of Spokane. **Annual Meeting:** First Monday in March. **Property:** 12 claims, 9 miles up Pine Creek, about 7 miles S. of Kellogg, Yreka district, Coeur d'Alenes. 10 claims patented. **Class of Ore:** Zinc-lead-silver. **Development:** By two adit levels and main working shaft, now 200 ft. below lowest adit level, which is driven south where vein crosses Gilbert creek, and has reached total length of over 1200 ft. At 500-ft. mark, developed first ore shoot, 300 ft. long, raking to southeast. Stopes upon this ore-body from 12 to 14 ft. wide in places and showing from 6 to 7 ft. high grade shipping ore, running around 30% zinc, with

lead and silver values. Second shoot, encountered at 900 ft. mark, is 75 ft. long, and a third shoot, at 1000-ft. mark, is approximately 125 ft. long. Face of drift about 600 ft. vertically below surface out-crop; top of big stope on shoot No. 1 being possibly 525 ft. from surface. Shaft sunk just north of portal of main tunnel. Drift from 200-ft. level cut top of an ore shoot about 30 ft. long, while at 250-ft. it encountered another shoot that persisted a distance of approximately 700 ft., showing both clean and milling ore. A connection has been made with main adit level by raise put up 700 ft. out. Average width of ore shoot developed on 200-ft. shaft level conservatively placed at 4 ft., although in places shows width of 10 ft. Estimated by Albert Burch, of San Francisco, some months ago, that reserves, now in sight, run to approximately 150,000 tons. Composite samples of all ore showings in the mine, recently made by Oscar Hershey, show 16.8% zinc; 7.8% lead and 4.9 ozs. silver per ton. **Shipments:** Since August 1st, 1917, when milling plant was completed, 2100 tons have been shipped, including 700 tons of concentrates averaging 33% zinc, 16% lead, 12 ozs. silver, and 1400 tons of crude ore averaging 27% zinc, 12% lead and 9 ozs. silver. Output of 35 tons daily was maintained last year up until time of serious flood, which destroyed means of transportation. Time has been utilized by improving milling equipment, and it is expected that mine will be large producer upon completion of Pine Creek branch road. **Equipment:** 100-ton concentrator, including flotation process; 5-drill compressor; 4x8 Hallidie hoist; three water Leyner drills; two jackhammers and five stopers; saw mill, capable of producing 20,000 ft. per day, run by 50-h.p. motor, 100-h.p. motor for hoist and compressor, 100-h.p. motor for mill. Power derived from Pine Creek line of Washington Water Power Co. Buildings include assay offices; offices; bunk house, stables, store and private dwellings. **Note:** Property is generally considered one of the big prospective mines of the Coeur d'Alene district. Ore is complex, requiring careful milling practice, but it is believed difficulties of that nature have been largely overcome.

COON DOG GROUP.**Carbonate**

Partnership: Calvin T. Hunt, Jake Bentley, George Bentley and George Bentley, Jr., owning 3 claims and mill site on Beaver Creek. **Developed:** By 3 crosscut prospect tunnels, longest, 60 ft., and 10 ft. shaft. **Equipment:** For hand work. **Informant:** Mrs. C. T. Hunt.

CO-OPERATIVE MILLING CO.**Kellogg**

Capital: \$5,000. Par value, \$500. Non-assessable. **Directors:** Richard Roberts, pres., Wardner; W. J. McCullough, vice-pres.; Wm. I. Hall, secy.-treas., Burke; A. McIntosh, Chas. La Favre, all of Kellogg; F. M. Arbogast, Wardner. **Annual Meeting:** Aug. 10. **Property:** 150-ton concentrating plant, near Wardner, working 7 men. Mining some old upper workings of the Bunker Hill & Sullivan M. & C. Co. Concentrates shipped through that company. **Informant:** Secy.-Treas. Hall.

COFFEE AND URANIUM MINING CO.**Beauxburg**

Directors: N. P. Hansen, pres.; M. H. James, vice-pres.; Alfred J. Cole, secy.-treas.; James Shail. **Property:** Known as Automatic mine, Hamilton district, Blaine Co. **Development:** 125-ft. shaft on contact vein, between limestone and quartzite, showing copper and uranium ores.

COFFEE BASIN MINING CO.**Salt Lake City, Utah**

Capital: \$1,000,000. Par value, \$1. **Directors:** John Pingree, pres.; H. W. Weller, vice-pres.-supt.; R. P. West, secy.-treas.; F. H. Vahrenkamp, mng. dir.-cons. engineer. **Property:** 15 claims and 3 fractions, 24 miles from Mackay, Idaho. **Class of Ore:** Copper, 10%; iron, 13%, and some silver.

COFFEE BELL AND BLUE BELL.**Merrill, Wis.**

Not incorporated. Harry R. Allen, Merrill, Wis., owner. **Property:** 2 patented claims, or 28 acres, in Camp Howard district. **Class of Ore:** Copper. No equipment, and no development, except assessment work.

COFFEE CHIEF M. & M. CO.**Troy**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Robert Olson, pres.; P. Johanson, vice-pres.; Alex. Johanson, secy.-treas.; C. A. Broman and Oscar Olson, all of Troy, Idaho. **Annual Meeting:** First Monday in January. **Property:** 2 claims, approximately 37 acres and 10 acres of homestead, 7 miles east of Troy, Idaho; unpatented. **Development:** Some work done last year and arrangements made for prospecting with core drill this summer. **Informant:** Pres. Robert Olson.

COPPER CHIEF MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** John H. Nordquist, pres.; C. Rey Ireland, vice-pres.; Jas. H. Taylor, secy.-treas.; D. E. Wickward, Emil Pfister, all of Wallace. **Property:** 7 unpatented claims in St. Joe district, Coeur d'Alenes. **Class of Ore:** Copper. **Equipment:** Interest in that of Bullion Mining Co., adjoining, as follows: Compressor, water wheel, pipe line and buildings. No shipments; no development. **Informant:** Secy.-Treas. Taylor.

COPPER FALLS MINING CO.**Eastport**

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** Chas. Redpath, pres.; Spencer Lewis, secy.-treas., Eastport; Albert Mutz, vice-pres., Fernie, B. C. **Annual Meeting:** Third Wednesday in June. **Property:** Five unpatented claims—the Copper Falls, Copper Falls No. 2, Black Bear, Grouse and Black Grouse—and a mill-site, Yahk district, 3 miles from Eastport. **Class of Ore:** Gold, silver, lead, copper. Small force doing only hand work. **Development:** 300-ft. drift on vein, 200-ft. crosscut tunnel, and 40-ft. winze. **Informant:** Pres. Redpath.

COPPER GIANT MINING CO.**Clark's Fork**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Steven B. Howes, pres.; P. D. Young and Walter Sutton, all of Hope; H. B. Thibadeau, secy.-treas., Clark's Fork; Geo. H. Doerr, vice-pres., Spokane. **Property:** 3 miles west of Clark's Fork, adjoining right-of-way of N. P. R. R. **Development:** 1120 ft. of tunnels, with a 45-ft. winze in tunnel No. 1. Will complete spur track, 497 ft. to N. P. R. R., and install compressor. **Class of Ore:** Gold, silver, copper.

COPPER KING MINING & SMELTING CO.**Mullan**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Samuel Edelstein, Spokane, pres.; Fred J. Stone, Spokane; H. W. Ingalls, Mullan, secy.; R. C. Vanderford, Spokane, and H. Bilberg, Mullan. **Property:** 6 unpatented claims north of Gold Hunter and west of National and Missoula Copper, 4 miles from Mullan, Coeur d'Alene district. **Class of Ore:** Silver-lead, some copper. **Development:** Lowest workings approximately 1000 ft. vertically below upper workings, crosscut and drifts at that point aggregating several thousand feet. Vein, which showed some ore in upper levels, is badly faulted, and most of the more recent work appears to have been in a crushed zone, in which some ore was found, but in no regular occurrence. Within first few months of 1918, believed that main vein has been located and is said to show some good ore. **Note:** Stock has been grossly manipulated upon Spokane stock exchange for over two years, resulting in serious scandals, involving failures and one death. Palpably false reports have been given out by management, although it is only fair to say that some of the most flagrant statements originated with officers who have since severed connection with company. Erection of milling plant to treat low grade ore said to be contemplated, but so far nothing definite has been decided. Best opinion is that property has some prospective merit, but that, under most favorable conditions, much more work will be necessary to place it upon producing basis.

COPPER PLATE MINING CO., LTD.**Mullan**

Capital: \$125,000. Par value, 10c. **Directors:** J. H. Hendrickson, pres.; Jas. W. Hutchins, secy.-treas., Mullan. **Annual Meeting:** Fourth Monday in January. **Property:** 6 unpatented claims, in Hunter district, Coeur d'Alenes. **Class of Ore:** Silver, lead, zinc.

COPPER PRINCE CONS. MINING AND MILLING CO.**Herrick**

Capital: \$4,000,000. Par value, \$1.00. Non-assessable. **Directors:** Samuel B. Halbert, Herrick; S. R. Hite, vice-pres., Fairmont, W. Va.; Boyd Hamilton, secy.-treas.; Wm. M. Ramsey, Sam'l M. Dooley, Wm. Hankins, Hal C. Crampton and John W. Wood. **Annual Meeting:** Second Monday in September. **Property:** 37 unpatented claims—the Copper Prince Group of 13 claims and the Idaho-Virginia, 24 claims, all in St. Joe district, Coeur d'Alenes. **Class of Ore:** In Copper Prince, copper, gold, silver; in Idaho-Virginia, lead-silver. **Equipment:** In Copper Prince, gasoline engine, duplex compressor, piston drills, stoper, sinkers, 15-h.p. air hoist. In Idaho-Virginia, water tube boiler, steam hoist, pneumatic compressor, sinkers, sinking pump—equipment complete in both. No shipments. **Development:** On Copper Prince, 550-ft. tunnel. Idaho-Virginia, 160-ft. shaft, 150 ft. of crosscuts. Continuing sinking. **Informant:** Pres. Halbert.

COPPER QUEEN MINE.**Digby, N. S.**

Owner: T. E. G. Lynch, Digby, Nova Scotia. **Property:** Near Tenday, Lemhi Co., Idaho. **Class of Ore:** Copper, silver, gold. Lessees in 1911 shipped 448 tons of sorted ore to smelter at Salt Lake City that averaged 29.4% copper, 5.2 ozs. silver, and 0.81 oz. gold. Mine reported leased in 1915 to Idaho-Seattle Mining Co.

COPPER QUEEN MINING AND SMELTING CO.

Duluth, Minn.

Capital: \$500,000. Par value, \$1.00. Non-assessable. **Directors:** Geo. H. Crosby, pres.; Emerson Hill, vice-pres.; A. J. McLennan, secy.-treas.; C. W. McFadden; W. M. Harrison, all of Duluth, and E. F. Clarke, Buffalo, N. Y. **Annual Meeting:** First Tuesday in June. **Property:** 17 unpatented claims, 7 miles northwest of Salmon. **Class of Ore:** Gold. Has been idle for some time. **Equipment:** 15-stamp mill, electrically driven, electric hoist and compressor, stoping and piston drills, pumps, cars, etc. About \$3,000 gold bullion extracted during few weeks of test. **Development:** 4500 ft. of crosscuts and drifts, opening property to 300-ft. vertical depth. **Informant:** A. F. Bennett, engineer in charge.

CORBY MINE (Co-partnership).

Kellogg

Owners: John B. Steffes, W. C. Boyle and C. W. Simmons, all of Kellogg. **Property:** 5 unpatented claims—the Corby Lode, B. & B., B. & B. Extension, Protection and John—adjoining Federal ground on west. **Class of Ore:** Gold, lead-silver. **Equipment:** Car and track, blacksmith shop, bunk house, etc. **Informant:** Manager John B. Steffes.

CORRIGAN GROUP.

Kellogg

Owned by Federal M. & S. Co. Consists of 40 claims operated under long lease by Kellogg United Mines Co. (q.v.), which is building 50-ton mill. Latter company directed by S. A. McCoy, Spokane. Much development, including 600-ft. shaft done by Federal years ago, but unproductive, owing to inability to separate zinc-lead content.

COVE PLACERS.

Grangeville

Not incorporated. Owned by George Bunell and M. B. Geary, Grangeville. **Property:** In Big Cove, 10 miles east of Grangeville. **Equipment:** 3500 ft. of steel pipe, 2 No. 3 Giants, sawmill and buildings. **Development:** Only assessment work. **Informant:** M. B. Geary, part owner.

C. & B. MINING CO.

Wallace

Capital: \$1,250,000. Par value, \$1.00. Assessable. **Directors:** Edwin Roberts, pres., Cheney, Wash.; Herman J. Rossi, secy.-treas., Wallace; Dr. I. S. Collins, Russell F. Collins and Mrs. J. M. Smith, Spokane. **Annual Meeting:** First Tuesday in April. **Property:** 5 patented and 3 unpatented claims, in East Nine-Mile district, Coeur d'Alenes. Not working. **Class of Ore:** Silver-lead. **Equipment:** Compressor, blacksmith shop, bunk and boarding houses. **Development:** 3540 ft. of tunnels and shafts. Showing in upper workings very similar to that of the Hercules, which property adjoins. **Informant:** Pres. Roberts.

CRESCENT MINING AND MILLING CO.

Kellogg

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** D. B. Ingram, pres.; W. H. Stokes, vice-pres.; Dan Price, Louis W. Haefell, all of Kellogg; Dennis P. Woods, secy.-treas., Spokane. **Annual Meeting:** First Monday in Jan. **Property:** 5 unpatented claims—the Half Moon, David B, Josephine, Western and Bessie—on west fork of Moon creek, 6 miles from Kellogg. **Class of Ore:** Silver, lead, zinc, copper. Working small force; no shipments. **Equipment:** 1500 ft. of tunnels and drifts, exposing 4 well mineralized veins, carrying good milling ore. **Informant:** Secy.-Treas. Woods.

CROESUS MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1.00. **Directors:** F. C. Robertson, pres.; C. R. Irvin, vice-pres.; H. A. Devlin, secy.; S. Hanauer, treas.; Dr. R. J. Kearns, all of Spokane. **Property:** The old Croesus mine, 4 miles west of Hailey, Blaine Co., Idaho. **Developed:** By 800 ft. 3-compartment vertical shaft, on 20 to 60 ft. fissure vein of nearly vertical dip, in granite. Values mainly gold. **Equipment:** 100-ton concentrator, not modern, and air compressor. **Note:** Property purchased by F. C. Robertson, Spokane, late in 1915, from Croesus Gold & Copper Mining Co. of Beatrice, Neb. Understood that arrangements have just been completed to finance proposition through Chicago capitalists and that operation is to be resumed this year.

CROWN POINT LEASING CO.

Kellogg

Capital: \$25,000. Par value, 50c. **Directors:** Arthur Cooper, F. L. Rowley and C. R. Teel, all of Kellogg. Lease abandoned on sale of property by Coeur d'Alene Dev. Co. to Stewart M. Co. in 1916.

CURA MINING CO.**Wallace**

Capital: \$1,000,000. **Par value,** \$1.00. **Directors:** D. L. Hopkins, pres., Stewart; John Dolan, secy.-treas.; C. W. Betts, Fred Kratzer, Spokane. **Annual Meeting:** April 30. **Property:** 2 patented claims, 2 miles from Wallace, in Nine Mile canyon. **Class of Ore:** Lead-silver. **Development:** 1600 ft. of underground workings. Non-productive.

CURTIS & GRINDE GROUP.**Warren**

Not incorporated. **Owners:** Chas. Curtis and Wm. R. Grinde, Warren. **Property:** 13 unpatented claims, 260 acres, near Warren. **Class of Ore:** Gold. **Equipment:** Hydraulic pipe and sluices. Total shipments to date, \$1,200, in gold dust. Not being worked extensively.

CUSTER SLIDE MINING & DEV. CO.**Bonanza**

Directors: R. L. Holland, pres.; J. L. Nichols, secy.; Wm. H. Fitts, gen. mgr., all of Colorado Springs, Colo. **Property:** 530 acres, Yankee Fork district, including Montana, Lucky Boy and Sunbeam groups, also Lucky Boy and Sunbeam mills, and power plant of Sunbeam Cons. Mines Co. An aerial tram connects mine with mill. **Class of Ore:** Gold. Now operated under bond and lease by present management.

DADDY MINING CO. (Co-partnership).**Murray**

Not incorporated. **Owners:** A. D. Coplen and M. S. Bentley, Spokane; Robt. T. Horn, Murray. **Property:** 3 patented claims—the Daddy, Mead and Mead Fraction—in Coeur d'Alene district, near Murray. **Class of Ore:** Gold, copper, lead, zinc, silver. **Equipment:** 10-stamp mill, concentrating plant, assay office, blacksmith shop, mess house, bunk house, manager's house, barns, trackage, cars, tools, etc. **Development:** About one mile of tunneling. Output altogether, about \$200,000; 4 well mineralized veins.

DAISY MINING CO., LTD.**Mullan**

Capital: \$1,500,000. **Par value,** \$1.00. **Assessable.** **Directors:** Jos. Carson, pres.; J. A. Bean, vice-pres.; C. D. Miller, secy.-treas., all of Mullan; O. B. Nelson, Valleyford, Wash.; H. Jockey, Missoula, Mont.; W. D. Greenough, Spokane, Wash. **Annual Meeting:** Dec. 10. **Property:** 2 unpatented fractions at Larson, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper, lead, silver. **Equipment:** Prospecting outfit. No shipments. **Development:** 100-ft. shaft, 800 ft. of crosscuts and drifts. **Informant:** Vice-Pres. Bean.

DAVID COPPER MINING CO.**Tekoa, Wash.**

Capital: \$500,000. **Par value,** \$1.00. **Non-assessable.** **Directors:** P. L. Steen, pres.; Charles Hinton, vice-pres.; Martha Hinton, secy.-treas.; James Nolan and Mary Steen, all of Tekoa, Wash. **Property:** 13 unpatented claims, Port Hill district, Idaho. **Class of Ore:** Copper, gold and silver. **Development:** Small force on hand work; shaft, 235 ft.; tunnel, 100 ft.; vein showing 3000 ft. on surface. **Informant:** Vice-Pres. Chas. Hinton.

DEEP WONDER MINING CO.**Spokane**

Capital: \$2,000,000. **Par value,** \$1.00. **Assessable.** **Directors:** James H. Taylor, pres., Wallace; D. L. Filer, secy.-treas.; F. P. Greene, vice-pres.; C. J. Capps and Chas. R. Howard, all of Spokane. **Annual Meeting:** First Monday in September. **Property:** 12 patented and 2 unpatented claims, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** 12-h.p. compressor. **Development:** 3400 ft. of development tunnel; total depth, 970 ft. No shipments. **Informant:** Secy. Filer.

DEER CREEK MINING AND MILLING CO.**Forest**

Capital: \$1,500,000. **Par value,** \$1.00. **Directors:** W. J. Orr, pres., Forest; Phillip Myers, vice-pres., Van Wert, O.; E. C. Orr, secy.-treas., Spokane; B. F. Pool, De Graff, O.; S. O. Orr, Belfontaine, O.; W. K. Noble, Ft. Wayne, Ind.; A. J. Smith, Decatur, Ind.; W. B. Fry singer, Rockland, O.; J. P. Lorang, Spokane; D. L. Withers, Coifax, Ill., and W. S. Boyd, Chicago, Ill. **Property:** 17 unpatented claims, 11 miles southwest of Forest, on north slope of Salmon River canyon. **Class of Ore:** Copper, gold and silver. **Equipment:** A 10-drill compressor, with 550 ft. of surface tram, new \$100,000 concentrator, modern bunk and boarding houses, office and storage buildings; new mill being completed to replace the one burned in August, 1916. Will also install oil flotation system. Machinery equipment very complete. **Development:** 1400 ft. of tunnel and numerous drifts; veins 2½ to 3 ft. wide, carrying values of \$70 to \$75 per ton.

DENNING MINES CO.

Capital: \$15,000,000. Par value, \$5. **Directors:** W. L. Kellogg, pres.; M. T. Rowland, vice-pres.-mgr.; E. A. Gilbert, secy.-treas.; P. A. Alquist, Geo. Wagner. **Property:** 38 claims, 38 miles southeast of Murphy, Owyhee Co. **Class of Ore:** Gold and silver. **Equipment:** 100-ton ball mill, flotation machines, filter, compressor, trucks, etc. **Development:** Several hundred ft. of tunnels and shafts. **Nampa**

DENVER CREEK CONS. MINING AND MILLING CO.

Capital: \$50,000. Par value, 5c. **Directors:** M. H. Scott, pres.; H. P. Osborne, secy.-treas., both of Kellogg. **Property:** 7 unpatented claims on Pine creek, adjoining Hilarity group. **Kellogg**

DEWEY MINING AND MILLING CO.

F. T. Hamshaw, Seattle, Wash., said to have purchased property for \$500,000, and installing modern machinery in new mill. Sensational strikes of gold-copper ore, assaying over \$130 to ton, reported on this property; 5 miles east of Grangeville. **Grangeville**

DIANA MINES CO., LTD.

Capital: \$2,000,000. Par value \$10.00. Non-assessable. **Directors:** R. J. Watters, pres.; Geo. E. De Golla, secy.-treas.; Wm. Simon, Jr., Buffalo, N. Y.; Frank T. Day, vice-pres.; J. A. McCubbin, Boise. **Annual Meeting:** Second Monday in June. **Property:** 14 groups, containing about 2000 acres, or 90 claims, 15 being patented, in Pioneer district, Boise Co. **Class of Ore:** Copper, gold, silver and lead, averaging \$75 to \$100 per ton. Working 80 to 100 men. **Equipment:** Concentrator, compressor plant and sawmill, all electrically operated. New headquarters building, 32x90 ft., strictly modern; new barn, cottages, electric light, telephones, steam heat, etc., besides many miles of good roads connecting company's various properties at Diana, Charlotte and Grimes. Contemplating a 1000-ton-per-day plant. Property is very extensively developed. Exhaustive report issued by Gen. Mgr. Frank T. Day. **Informant:** Gen. Mgr. Day. **Boise**

DICE AND VIRGINIA CLAIMS.

Not incorporated. **Owner:** Edward M. Griffith, Grangeville. **Property:** About 35 acres, patented, in Buffalo Hump district. **Class of Ore:** Free gold. **Development:** 400-ft. drift. **Grangeville**

DOBSON PASS MINING CO.

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Walter Frank, pres.; J. P. Rogers, secy.-treas.; A. N. Rogers, Chas. Goulding and Andrew Frank, all of Wallace. **Annual Meeting:** First Monday in March. **Property:** 6 unpatented claims—the Glengary Boy, Hidden Treasure, Blue Bird, California, Independence and Mingo Chief—in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Car, track, blacksmith shop and other buildings. **Development:** 1000 ft. of crosscuts and drifts. **Informant:** Secy.-Treas. J. P. Rogers. **Wallace**

DOMINION MINING CO.

Capital: \$1,000,000. Par value, \$1.00. **Directors:** C. E. Poor, pres., Los Angeles, Calif.; W. H. Hanson, secy.-treas.; W. W. Woods, Wallace. **Property:** Three patented claims in Summit district, Coeur d'Alenes. **Development:** 1000 ft. underground workings. Not working. **Wallace**

DORA MINING CO., LTD.

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** J. C. Broad, pres.; C. E. Mallette, secy.-treas.; D. B. Fotheringham and C. J. Orland, all of Spokane. **Annual Meeting:** First Monday in April. **Property:** 1 patented and 8 unpatented claims in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Concentrator, tramway, compressor, etc. No shipments. **Informant:** Secy.-Treas. Mallette. **Spokane**

DOUGHERTY MINE.

Not incorporated. **Owner:** E. A. Dougherty, Challis. **Property:** 7 unpatented claims—the Colorado Kid, General McClellan, North Star, Hufty-Guffy, Mother Munnyrick, Meggug, Polly D—9 miles west of Challis. **Class of Ore:** Copper, silver, lead, gold. No equipment. Shipments, 250 tons, averaging \$65 per ton. **Informant:** E. A. Dougherty, owner. **Challis**

DOUGLAS MINING CO., LTD.

Capital: \$1,200,000. Par value, \$1.00. Assessable. **Directors:** Frank F. Johnson, pres., Boise; Herman J. Rossi, vice-pres.; A. Wyman, secy.-treas.; Henry E. **Wallace**

Howes, Jesse W. Tabor, H. C. Adams, all of Wallace; D. Gay Stivers, Butte, Mont.; Wm. J. Hall, New York City. **Annual Meeting:** First Tuesday in October. **Property:** 7 patented claims and 3 fractions, in Yreka district, Coeur d'Alenes. Under 3-year lease and bond to Anaconda Copper Co., of Montana, for \$361,000. Lease expires Dec. 15, 1918. Production, although curtailed by labor troubles and bad roads, for 1917 was 7,900 tons, averaging 15.5% zinc and 6.5 ozs. silver. Average number of men employed for year, 67. Dividends declared from \$3 per ton royalty: In May, October and December, 1917, \$23,479. **Class of Ore:** Silver, lead and zinc. **Development:** 1300 ft. of tunnel, 140-ft. winze, and several hundred ft. of drifts. Tunnel being driven west of Pine Creek, in vein, now 100 ft. long, and vein has been opened up 100 ft. below main tunnel level for 690 ft. **Informant:** Herman J. Rossi, vice-pres.

DREADNAUGHT MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1.00. **Incorporators:** Wm. J. J. Smith, Peter Healy and A. H. Featherstone, all of Wallace. **Property:** 7 claims—the Lucky Man, Buckeye, Climax, Beaver, Lookout Fraction, Bessie and Lucky Fraction—on Beaver creek; a group of 4 claims adjoining the Amazon-Manhattan, and another group of 3 claims in Beaver Creek district, but work confined to first group. **Class of Ore:** Silver-lead-zinc. **Equipment:** Compressor, air-drills, etc. **Development:** 2000-ft. of workings, shafts, tunnels and drifts.

DUBOIS MINING CO.

Du Bois, Pa.

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** H. E. Ginter, pres.; Austin Blakeslee; S. J. Shreckengast, Du Bois; J. B. Eberhart, secy.-treas., Punxutawney, Pa.; John Curry, Ridgway, Pa.; John Davis, Harrisburg, Pa.; J. W. James, Glassford, Pa.; J. H. Tilsley, Spokane, Wash., and Geo. W. Coleman, of Kellogg. **Annual Meeting:** First Monday in June. **Property:** 130 acres, patented, 2 miles east of Kellogg. **Class of Ore:** Principally gold. **Equipment:** 10-stamp mill and buildings. Idle since 1911. No shipments. **Development:** 1500 ft. of tunnel, 600 ft. of shaft. **Informant:** Secy.-Treas Eberhart. Property formerly known as the New Jersey.

DULUTH-LEMHI MINING CO.

Duluth, Minn.

Capital: \$250,000. Par value, \$1.00. Non-assessable. **Directors:** J. H. Lanyon, pres.; A. R. Anderson vice-pres.; W. T. Locker, secy.-treas.; C. H. Bird, H. P. Gill and P. J. Blais. **Annual Meeting:** First Tuesday in August. **Property:** 6 claims in Wimpey Creek district, also a 7-acre mill-site. **Class of Ore:** Copper, silver, gold. **Development:** 140-ft. tunnel. Former secy.-treas. writes, 1917, that Co. is out of business.

DULUTH MINING CO.

Wallace

Capital: \$375,000. Par value, 25c. Assessable. **Directors:** James J. Murphy, pres.; Chas. A. Andrews, Burke; O. A. Olin, vice-pres.; E. Hedin, secy.-treas., Wallace. **Annual Meeting:** First Saturday in May. **Property:** 7 unpatented claims—the Duluth, Minnie, Lillie, St. Louis, Selma, Lillie Fraction and Duluth Fraction—Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Boarding and bunk houses, shop, cars, rails, tools, etc. No shipments; working small force. **Development:** 400 ft. of crosscut tunnel. **Informant:** Secy.-Treas. Hedin.

DULUTH-MINNEAPOLIS SYNDICATE.

Minneapolis, Minn.

Directors: Geo. W. McClelland, pres., Minneapolis; R. M. White, vice-pres.; Dr. J. J. Ecklund, treas.; P. M. Olson, secy.; J. S. Graves, all of Duluth; O. B. Wallace, Wallace. **Property:** 7 unpatented claims on Grouse gulch, Placer Center district, Coeur d'Alenes. **Development:** 1850 ft. of tunnel, with numerous crosscuts. **Class of Ore:** Lead and zinc, some silver.

EAGLE GOLD AND COPPER MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** John H. Nordquist, pres.; W. W. Smith, secy.-treas.; H. E. Howes, G. Scott Anderson, all of Wallace; Chas. Jackson, Burke. **Property:** 3 unpatented claims, just west of Bullion, near Idaho-Montana line. Not working. **Informant:** Secy.-Treas. Smith.

EAST ALAMEDA MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** Walter Graham, pres.; E. H. Pattison, secy., Spokane; Alex. Murphy, treas.; Sam Bowers, J. P. Markwell, all of Wallace. **Annual Meeting:** Second Monday in September. **Property:** 1 patented and 3 unpatented claims, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No equipment. **Development:** About \$5,000 expended. Expect to resume work at once. **Informant:** Secy. Pattison.

EAST CALEDONIA MINES CO.

Wallace

Capital: \$1,000,000. Par value, 25c. **Directors:** Herman J. Rossi, pres.; Franklin Pfirman, secy.-treas., Wallace; W. A. Bartee and Wm. I. Hall, Kellogg. **Annual Meeting:** April 1. **Property:** 2 patented and 5 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Electrically-driven machinery, hoist, 60-hp. engine, air compressor, pump, shaft house, blacksmith shop. **Development:** 600-ft. shaft, 520 ft. of drifts, 130 ft. of crosscuts, 30 ft. of raises. **Note:** March 16, 1918, shaft, skip pocket and sump were completed on 600-ft. level; 230-ft. crosscut and 275 ft. of drifting have been done. Showing improves with every foot, officers report.

EAST HECLA MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1.00. **Directors:** John P. Gray, pres., Coeur d'Alene; A. H. Featherstone, secy., Wallace. **Annual Meeting:** Second Monday in December. Non-productive.

EAST HERCULES EXT. MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** J. B. Millspaugh, pres.; C. G. Crawford, vice-pres.; W. H. MacFarlan, secy.-treas.; W. O. Applequist and Lester P. Edge, all of Spokane; W. H. Reeves, Cheney, Wash. **Annual Meeting:** July 1. **Property:** 8 unpatented claims—the Spokane Nos. 1, 2, 3, 4, 5, 6, 7 and Eugene Lode—and 5 acres of mill-site, in Lalande district, Coeur d'Alenes, a total of 176 acres. **Class of Ore:** Silver, lead, gold, copper. **Equipment:** Car, rails, tools, etc. No shipments. **Informant:** Secy.-Treas. MacFarlan.

EAST STANDARD MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Assessable by vote of two-thirds of stock. **Directors:** Jos. Matt, pres., Burke; Jas. Whelan, secy.; August Matt, treas., Wallace. **Annual Meeting:** First Friday in August. **Property:** 4 patented claims, or 38 acres, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Blacksmith shop, 900 ft. of track, 900 ft. of air pipe line, 300 ft. of water pipe, ventilating system. No shipments. Non-productive. **Informant:** Pres. Matt.

ECHO MINING CO., LTD.

Wallace

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** O. A. Olin, pres.; G. B. Harrington, secy.-treas.; O. E. Anderson, all of Wallace; Chris Anderson, Burke; J. A. Bowers. **Annual Meeting:** First Friday in March. **Property:** 8 unpatented claims, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Cabins, blacksmith shop, ventilating fans, etc. No shipments. **Development:** 2000 ft. of crosscut and drift tunnels. A small area of surface recently sold to Oom Paul Mining Co. for tunnel site, dump and building site. **Informant:** Pres. Olin.

ECLIPSE MINING CO. (Formerly Lead-King Mining Co.)

Wallace

Capital: \$1,500,000. Par value, \$1.00. **Directors:** E. W. Conrad, pres.; Geo. W. Wood, vice-pres.; M. Mitting, secy.; John Pattison, Dr. J. W. Dunning, all of Spokane. **Annual Meeting:** July. **Property:** 15 unpatented claims, in Evolution district, Coeur d'Alenes. **Class of Ore:** Gray copper-lead. **Development:** 800-ft. tunnel.

EDNA MAY MINES CO.

Wardner

Capital: \$500,000. Par value, \$1.00. **Directors:** J. M. Scott, pres.; R. P. Scott, Wardner; D. W. Peeples, secy.-treas.; Geo. Edmiston, Wallace; Al Page, Spokane. **Annual Meeting:** Sept. 20. **Property:** At head of Big creek, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 400 ft. of underground workings.

EGAN COPPER MINING CO.

Wallace

Capital: \$125,000. Par value, 10c. **Directors:** Roy A. Henkle, pres.; I. L. Brainard, secy.-treas.; John W. Dickinson, vice-pres., Wallace; Frank E. Rice and Frank C. Blakeley, Saltsee, Mont. **Property:** 10 lode claims, St. Joe district, Coeur d'Alenes. **Development:** 1000 ft. of tunnels and crosscuts. Leased for a period of 18 months to practical miners, and development going on rapidly.

ELDORADO MINING AND SMELTING CO., LTD.

Wallace

Capital: \$125,000. Par value, 10c. Assessable. **Directors:** John Hamlin, pres.; G. W. Dougherty, secy.-treas., Wallace; J. A. Patterson, vice-pres., Kellogg. **Annual Meeting:** Second Wednesday in July. **Property:** 4 unpatented claims—the Mother Ledge, Copper King, Iron Crown and Copper King Fraction—also 12

acres of patented ground, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver-copper. **Development:** 8000 ft. of underground workings. **Equipment:** Blacksmith shop, bunk house, dwelling house, car, track, root cellar, etc. **Informant:** Secy.-Treas. Dougherty.

ELK MINING CO.**Mullan**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Jos. Carson, pres., Mullan; **Annual Meeting:** Second Monday in Nov. **Property:** 3 claims—the Lucia, Contact and Stillwater Fractions—adjoining the You Like claim belonging to the Federal. **Development:** 1000 ft. of underground workings. An option by Ingalls & Ingram, of Mullan, has been transferred to Wm. A. Nicholls, of Spokane.

EL PASO MINING AND MILLING CO.**Hope**

Capital: \$500,000. Par value, \$1.00. Non-assessable. **Directors:** Ignatz Weil, pres., Sandpoint; John Nagle, vice-pres.; W. V. Roth, secy., Clark's Fork; John Larson, treas., Hope. **Annual Meeting:** Third Wednesday in May. **Property:** 5 unpatented claims—El Paso, Florence, Transvaal, Victor and Marietta—100 acres, in Pend d'Oreille district, Coeur d'Alenes. **Class of Ore:** Copper, gold, silver, lead. Non-productive. No shipments. **Development:** 200 ft. of tunnel, 30-ft. shaft. **Informant:** Treas. Larson.

EMPIRE COPPER CO.**Spokane**

Capital: \$150,000. Par value, 10c. **Directors:** Alfred Page, pres.; Bruce Clendenning, secy.-treas.; S. W. O'Brien, Spokane; A. J. Devlin, treas.; Geo. R. McDonald, Coulee City, Wash. **Annual Meeting:** First Monday in October. **Property:** 4 patented and 7 unpatented claims on Little North Fork, Coeur d'Alenes. **Class of Ore:** Copper, carrying some gold and silver. **Equipment:** 150-ton mill, to be enlarged to 300 tons. Complete machinery equipment, electrically driven—200-h.p. motor. Flotation system installed. A 22-drill compressor and 250-ton filter press. **Development:** 1100 ft. of tunnels, 250-ft. shaft, and numerous raises. The old Horst-Powell group, operated under bond and lease, the same having been extended by owners for 2 years from Dec., 1916, with arrangements to apply 90% of profits to payment of company's debts, approximately \$75,000.

EMPIRE COPPER CO.**New York City**

Capital: \$1,200,000. Par value, \$1.00. **Directors:** L. R. Eccles, pres.; J. M. Eccles, vice-pres., Mackay. **Property:** 39 claims—18 patented—700 acres, also mill and smelter sites of 480 acres, and railroad right-of-way, in Alder Creek district, Custer Co., Idaho. **Class of Ore:** Copper, silver, gold. **Equipment:** Steam, electric, gasoline and air power—152 h.p.; 6 hoists, 2 air compressors, 20 buildings, machine shop, sawmill, carpenter and blacksmith shops; also a smelter with 250-ton water jackets, blast furnaces, blowers, etc. **Development:** 1500-ft. tunnel, 700-ft. main shaft, there being about 6 miles of underground workings. Estimated 20,000 tons of ore blocked out. Mine is dry, and on a good paying basis. Reported sold to U. S. S. Co. in February, 1918. **Note:** Several stringers of copper ore, 1 ft. wide, encountered while cutting station at Cossack level, about Feb. 22, 1918. Shipping 4 cars a day.

EMPIRE MILLING AND DEV. CO.**Wallace**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** R. A. Hutchinson, pres.; C. E. Mallette; Wm. S. Lewis, Spokane; Ida Scheave, secy.-treas.; D. C. Nicholson, Wallace. **Annual Meeting:** Second Tuesday in June. **Property:** 12 unpatented claims, in Evolution district, and 14 unpatented claims and 160 acres, patented, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver in claims, antimony on 160-acre tract.

EMPIRE TUNGSTEN MINING CO.**Spokane**

Capital: \$15,000. Par value, 1c. Assessable. **Directors:** J. G. McMacken, pres.; W. V. Garrett, secy.-treas., Spokane; Wm. Horn, vice-pres., Ritzville, Wash.; R. F. Peterfish, Columbus, O.; L. J. Brendel, Lakeview. **Annual Meeting:** Second Saturday in August. **Property:** Rainbow and Empire Lode claims—19½ acres patented—surface area, 50 acres, in Lakeview district, Coeur d'Alenes. Company also holds tungsten claims near Deer Park, Wash. **Class of Ore:** Silver, gold, lead. **Equipment:** 1000 ft. of tunnels and 150-ft. shaft, ore being exposed in all openings. **Informant:** Secy.-Treas. Garrett.

ENTERPRISE MINING CO.**Falouse, Wash.**

Capital: \$12,500. Par value, \$1.00. Assessable only for necessary financing. **Directors:** N. E. Gunn, pres., Collinwood, O.; E. N. Conrad, vice-pres.; G. B. Garrett, secy.-treas., Cleveland, O. **Property:** 21 claims, surveyed for patent, in

Hoodoo district, Northern Idaho, known as Old Mizpah group, later operated by Merger Mining Co., whose properties the Enterprise Mining Co. has been organized to work. **Class of Ore:** Copper. **Development:** 900 ft. of tunnels, 655 ft. of crosscuts, 75 ft. of drift, and 225 ft. of raises. Ore averages 3% copper.

ENTERPRISE MINING CO.

Kellogg

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Fred Donaldson, pres.; W. L. Penney, secy.-treas.; Gust Samuelson, Ole Larson and J. J. Wilson, all of Kellogg. **Annual Meeting:** Third Monday in June. **Property:** 6 unpatented claims, Yreka district, Coeur d'Alenes. **Class of Ore:** Gold, silver, copper, lead. **Development:** 1500 ft. of tunnels. Non-productive.

ESSEX LEAD & SILVER MINING CO.

Portland, Ore.

Capital: \$200,000. Par value, \$1. **Directors:** Geo. L. Story, pres.; Chas. Hutchins, secy., both of Portland, Ore. **Properties:** In Beaver district, Shoshone Co., Idaho.

EUREKA DEV. CO., LTD.

Salt Lake City

Capital: \$100,000. Par value, 50c. Assessable. **Directors:** W. A. Wilson, pres.; Causten Browne, secy.; E. R. Critchlow, W. M. Bradley and A. C. Ellis, all of Salt Lake City, Utah. **Annual Meeting:** Second Wednesday in February. **Property:** Eureka, Eureka Fraction, November, July, Thanksgiving, 1/2 Idahoan, 1/2 Richmond leases and bonds, patented, 250 acres, in Mineral Hill district, Blaine Co. **Class of Ore:** Lead-silver. **Equipment:** 2 boilers, steam hoist and concentrating mill. **Development:** 12,000 ft. of workings, including 1135 ft. of shafts, 2200 ft. of tunnels. **Informant:** Pres. Wilson.

EUREKA MINING AND MILLING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** W. D. Prowell, pres.; C. B. Fly, vice-pres.; C. A. Sterling, treas., Wenatchee, Wash.; A. D. Marshall, secy., Wallace. **Annual Meeting:** Second Tuesday in July. **Property:** 7 unpatented claims, 2 miles from Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver.

EVERGREEN MINES.

Grangeville

Not incorporated. **Owner:** Carolyn Wagner, Grangeville. **Property:** Six miles east of Grangeville, in Clearwater River canyon. **Class of Ore:** Gold, copper. **Development:** 1500 ft. of tunnels and crosscuts, a 200-ft. shaft, and a number of surface cuts. Not working. **Informant:** Martin Wagner, for the owner.

EVOLUTION KEYSTONE MINING CO.

Wallace

Capital: \$250,000. Par value, 50c. Assessable. **Directors:** Robt. E. McCormick, Helena, Mont.; W. W. Woods, vice-pres.; John H. Nordquist, Wallace; A. E. Robinson, secy.-treas., Boise; Ed. Linsley, Mullan. **Annual Meeting:** First Monday in January. **Property:** Keystone Lode, unpatented, Evolution district, Coeur d'Alenes. **Class of Ore:** Silver. **Equipment:** Car, tools, 500 ft. of track. No shipments. **Development:** 520 ft. of tunnel. **Informant:** Secy.-Treas. Robinson.

EVOLUTION MINING CO.

Osborne

Property: Near Osborne, leased to Bunker Hill & Sullivan Mining Co., on royalty basis. Owned by Crescent Mining Co. Fred Mauser, Jamieson Bldg., Spokane, one of directors, makes statement to that effect. **Class of Ore:** Lead, silver, gold and zinc. Located 30 years ago by A. J. Prichard, and is oldest lode claim of the Coeur d'Alene region.

EXCELSIOR MINING CO., LTD.

Burke

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** Thos. Ryan, pres., Wallace; Chas. Eckel, vice-pres.; Chas. Criswell, secy., Burke; Fred Kratzer, Spokane. **Annual Meeting:** First Monday in May. **Property:** 6 unpatented claims, in Lalande district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Cabins, blacksmith shop, tools, cars, trackage, etc. **Development:** 1000 ft. of tunnel. Non-productive.

FAIRVIEW MINING CO., LTD.

Mullan

Capital: \$1,000,000. Par value, \$1.00. **Directors:** J. E. Quinlan, pres., Luning, Nev.; Mary Quinlan, secy.; Katherine Dooling, treas., Mullan. **Annual Meeting:** Second Monday in February. Non-productive.

FALLS CREEK MINING CO.

Sandpoint

Capital: \$500,000. Par value, \$1.00. Assessable. **Directors:** W. C. Ames, pres.; Orville S. Frazier, secy.-treas.; P. O. Ruen, W. D. Howard, T. A. Thomason, J. R.

Boyd, all of Sandpoint. **Annual Meeting:** Third Wednesday in November. **Property:** 4 unpatented claims and a mill-site, total, 85 acres, in Lakeview district. **Class of Ore:** Silver, lead, copper. **Equipment:** Car, rails, hand tools. 50-ton mill built by Oscar Nordquist, completed in April, 1918. **Development:** Three levels, 200 ft. apart. Lower drift in 600 ft. on vein said to be from 18 to 20 ft. wide. Raise to second level.

FANNY GREMM MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** P. P. Weber, pres.; Alfred J. Dunn, secy.-treas., Wallace; R. N. Dunn, Coeur d'Alene; W. G. Newbury, Prichard; Ed J. Clark, Spokane. **Annual Meeting:** March 8. **Property:** Fanny Gremm claim, Twenty-short Fraction, patented, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No equipment; no shipments. **Informant:** Secy.-Treas. Dunn.

FARMER JONES MINE.

Spokane

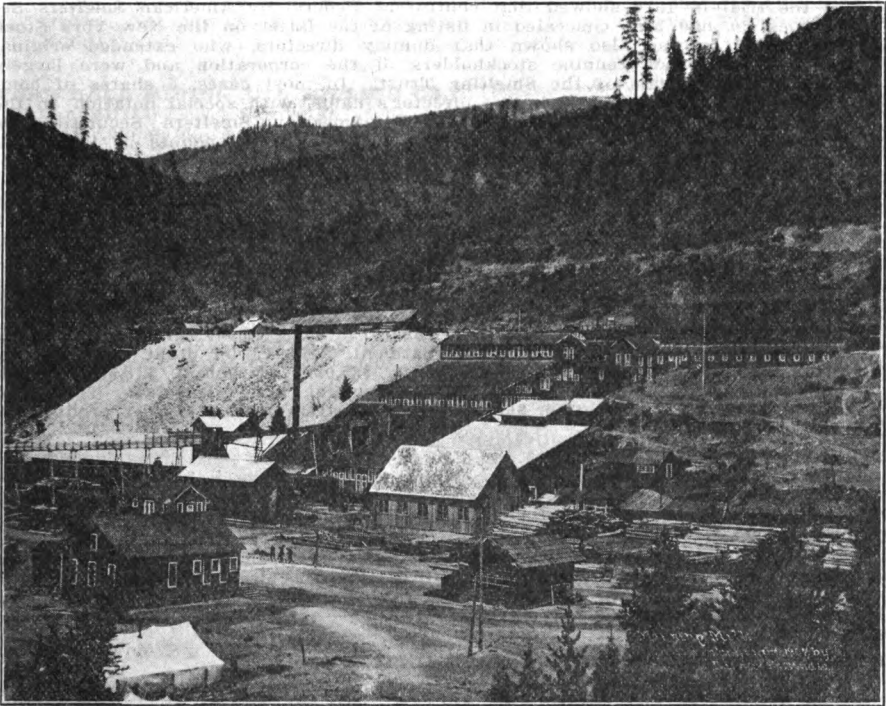
Property: 200 acres, patented, in Priest River district, 8 miles from Priest river. Produced considerable gold years ago, but now tied up in litigation. Non-productive.

FEDERAL MINING & SMELTING CO.

New York

Main Office: 32 Broadway, New York. **Mine Office:** Wallace, Idaho. **Corporate Office:** Dover, Delaware. **Capital:** Incorporated 1903, in Delaware, under perpetual charter, with authorized capital of \$30,000,000, divided into \$20,000,000 7%, cumulative, preferred and \$10,000,000 common stock, par value, \$100. **Outstanding:** \$12,000,000 preferred and \$6,000,000 common. Preferred stock has no voting power, except in matters pertaining to increase or decrease of capital stock, but is preferred as to assets. Common stock carries all voting and administration power, a safe control being held in the name of American Smelters Securities Co., whose common stock is owned by American Smelting & Refining Co., which, in turn, is controlled by the Guggenheim family. **Transfer Office:** Federal Guarantee Trust Co., New York. **Registrar:** U. S. Mortgage Co., New York. **Annual Meeting:** Second Monday in April. **Listed:** New York Stock Exchange. **Property:** Morning mine and 100-ton mill at Mullan, Coeur d'Alenes; Standard-Mammoth and Greenhill-Cleveland mines, with Standard-Mammoth mill at Mace, Coeur d'Alenes; Last Chance mine, Wardner, with milling plant at Sweeny, Coeur d'Alenes; North Star-Triumph and Independence mines, Wood river district, near Halley, Idaho, former equipped with 300-ton concentrator, flotation system and electric separator; control of Government Gulch Development Co., Wardner district, Coeur d'Alenes; control of Black Hawk Mining & Developing Co., Ltd., also of Coeur d'Alenes. Standard-Mammoth, Greenhill-Cleveland and Last Chance mines are exhausted, or on the verge of exhaustion, annual report for 1917 stating that two former are closed down and that latter will be closed in 1918. Under settlement of litigation between Federal and Bunker Hill in 1910, Last Chance must revert to Bunker Hill if operations fail to show profit during any five consecutive months. Operation of North Star-Triumph group has been exceedingly disappointing, investment having reached almost \$450,000, with loss of nearly \$100,000 in 1917. Snowslide, which occurred in February, 1917, caused death of 11 men and injury to many others, suits filed against company for damages, aggregating \$485,000. Independence group was taken under option in 1917, and first payment of \$25,000 made. Property promising prospect, but cannot be expected to aid materially in carrying loaded capitalization. Option has also been secured on Malta group, adjoining Independence, while some diamond drilling has been done on Sternwinder and Ontario groups at Kimberly, B. C., also under option, but which have, so far, failed to develop ore bodies of value. During last few years, company has been extremely unfortunate in its purchases, losing well over \$1,000,000 in unprofitable operations in Helena-Frisco property, Coeur d'Alenes, and Iron Mt. Tunnel Co., at Superior, Mont. Two latter enterprises now abandoned. Potential mining assets of the corporation are represented by Morning mine, at Mullan, which shows very large bodies of ore, but of lower grade than produced by other properties of the district. Litigation over Morning ore bodies, alleged to have been removed from within lines of Star Mining Co., owning property adjoining on the West, was decided in favor of Federal in district court early in 1918. Appeal taken to Circuit court will probably be heard during 1918. Outcome is of great importance to Federal, involving practically the only reserves of magnitude now in its possession. **Shipments:** During 1917, production reached 130,097 tons, comparing with 137,390 tons in 1916 and 75,449 tons in 1915. Production of 1917 was derived as follows: Morning, 469,079 tons; Wardner, 143,347 tons; Mace, 55,700 tons; Greenhill-Cleveland, 50,500 tons; North Star, 7,360 tons; and leasers, 2,373; a total of 728,359 tons, indicating an average concentration ratio of around 6 tons into 1. **Ore Reserves:** Reserves in the Coeur d'Alenes, on January 1st, 1918, were estimated at 737,870 tons,

comparing with 807,100 tons, January 1st, 1917; a decrease of 169,230 tons. Ore bodies in disputed ground to the west are estimated to contain 654,000 tons, making a net increase of 484,770 tons over previous year. Even if Star ore bodies are confirmed to Federal, total reserves are only equal to approximately 1½ years' operations at last year's level. **Financial Statement:** Full report was omitted from official statement of 1917, but quick assets are scheduled as follows: 28,000 shares Bunker Hill & Sullivan Mining & Concentrating Co., carried at par value of \$10, \$280,000; Liberty bonds, \$420,000; sundry mining stocks, \$36,262; materials and supplies, \$276,745; accounts receivable, \$415,697; cash, \$1,601,157; making total of \$3,029,861, with liabilities of \$467,593, or net total of \$2,562,268. Preferred stock is, however, approximately \$1,500,000 in arrears, thus reducing net quick assets to \$1,062,268. Bunker Hill stock is carried at figure far below its real value, so that these figures need revision in event of sale of these securities. **History:** Company was organized in 1903, by the late Charles Sweeney of Spokane, to take over Empire State-Idaho Mining & Development Co., Standard Mining Co. and Mammoth mines, in the Coeur d'Alenes. Mr. Sweeney interested John D. Rockefeller in the venture and latter turned in



Morning Mill of Federal M. & S. Co., Mullan, Idaho.

old smelting plant at Everett, Wash., in exchange for capital stock. Later, the Morning mine, at Mullan, was purchased from Larson & Greenough, of Spokane, for \$3,000,000. About that time, the Guggenheims had organized American Smelting & Refining Co., generally known as the Smelting Trust, and fearing competition from Federal, opened negotiations which resulted in purchase of Everett smelter for \$600,000, and execution of a smelting contract by which the Trust agreed to treat Federal ores until 1909. Contract provided for lead settlement rates as follows: 90% of the lead in the ore, at 90% of New York price, so long as that price stood at \$4.10 per hundred lbs. or less. When price advanced above \$4.10, the difference between \$4.10 and market price to be divided equally between smelting and mining companies; thus, with lead at 7c. as at this date, Federal received but \$5.14 per hundred lbs., a difference of \$1.86 per hundred lbs., or approximately \$16.74 per ton on ore carrying 50% lead. As lead advanced, loss to the company was proportionately greater, until, when market price stood at \$11.00 per hundred lbs., the difference was approximately \$35.00 per ton. In 1905, the Trust entered into 25-year contract with Bunker

Hill & Sullivan Mining & Concentrating Co. (q.v.), at same rates, and immediately thereafter purchased control of common stock of Federal Mining & Smelting Co., paying approximately \$3,000,000 to John D. Rockefeller, George J. Gould and Charles Sweeny, and borrowing \$2,000,000 from John D. Rockefeller to complete the transaction. Dummy directors were then placed upon the Federal board and the original smelting contract, which still had four years to run, was extended 21 years, making it expire by limitation upon approximately the same date as that of Bunker Hill in 1930. By its control of Federal, the Trust was able also to control a majority of the shipments from the Coeur d'Alene district, and thus hold Bunker Hill & Sullivan under the same terms by a provision of its contract. Production of Federal was increased or decreased to suit the needs of the controlling factors and the mines have been gutted without proper returns to stockholders. The transaction constitutes the most flagrant violation of stockholders' rights that has ever occurred in the history of Northwest mining. In 1913, minority stockholders, represented by Sidney Norman, of Spokane, brought suit in the supreme court of New York, for abrogation of the contract and recovery of \$2,000,000 damages, alleged to have been sustained by the company up until that time. Evidence at the trial in 1914 showed that control of Federal by American Smelters Securities Co. had been concealed in listing of the latter on the New York Stock exchange. It was also shown that dummy directors, who extended original contract, were not genuine stockholders of the corporation and were largely employes or officials of the Smelting Trust. In most cases, 5 shares of common stock had been placed in the director's name, with special notation on the stock ledger ordering dividends paid to American Smelters Securities Co. Judge Philbin, however, rendered decision in favor of defendants in July, 1914, and in October, 1917, decision was upheld by the appellate division. **Note:** Sworn statement to assessor of Shoshone county, May 1st, 1918, as follows: **Wardner mines:** 147,347 tons extracted; gross value, \$626,685; cost of extraction, \$401,344; freight and treatment, \$170,457; net profit, \$54,884. **Morning mine:** Tons extracted, 469,079; gross value, \$4,620,344; extraction, \$1,668,771; freight and treatment, \$1,463,366; betterments and repairs, \$168,247; net profit, \$1,319,962; **Mace mines:** Tons, 55,806; gross value, \$708,563; extraction, \$325,372; freight and treatment, \$154,363; net profit, \$223,827; **Helena Frisco mine:** Tons, 1260; gross value, \$62,480; extraction, \$36,106; freight and treatment, \$19,649; net profits, \$6723; **Black Hawk mine (leasers):** Tons, 15,600; gross value, \$117,125; extraction, \$66,947; freight and treatment, \$46,304; net profit, \$3873; **Burke (Marsh) mines:** Tons, 5271; gross value, \$35,023; extraction, \$18,535; freight and treatment, \$9739; net profits, \$6748; **Wyoming mine (leasers):** Tons, 127; gross value, \$854; extraction, \$601; freight and treatment, \$237; net profits, \$15.

FIDELITY CO., LTD.**Monarch**

Capital: \$500,000. Par value, 20c. Non-assessable. **Directors:** Oscar B. Bergstrom, pres., New York; A. G. Kennedy, secy.-treas., Monarch; C. T. Priest, vice-pres., San Antonio, Texas; C. J. Cathill, St. Paul, Minn.; W. H. Hanson, Wallace. **Annual Meeting:** First Tuesday in September. **Property:** 6 patented and 30 unpatented claims, in Summit district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** 150-ton concentrator, 10-drill compressor, blacksmith shop, etc. Shut down in June, 1917. Shipments to date, \$164,984. Is successor to Monarch Mining Co. **Informant:** Secy.-Treas. Kennedy.

FLORENCE MINING AND MILLING CO., LTD.**Kellogg**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Chas. B. Steffes, secy.-treas.; Jas. Ezekiel, John Haaland, O. O. Hanberg, J. J. Oland, all of Kellogg; J. D. Chisholm, Wardner. **Annual Meeting:** Second Tuesday in July. **Property:** 6 full and 4 short claims, 170 acres, surveyed for patent, Yreka district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Car, track, bunk house, blacksmith shop, tools, etc. **Development:** 850 ft. of tunnel. **Informant:** Secy.-Treas. Steffes.

FLYNN GROUP.**Wallace**

Property: Consists of 20 claims lying west of Morning group of Federal M. & S. Co. and east of Helena-Frisco group of same company, some of property being among earliest locations in Coeur d'Alene district. **Development:** Has been but superficial, though ground believed to contain extension of great fissures of big properties lying on both sides. Owners are William Flynn, of Wallace; Thomas Flynn, of Dillon, Mont.; C. B. Nolan, of Helena; Frank Murphy, Spokane; Mrs. Murphy, Burke, and Mrs. Poreuer, Spokane. In March, 1918, reported that option for \$500,000 had been given to Ed. Ehrenburg, well-known operator of Coeur d'Alenes, identified with Alcides, Silver Moon and other companies. No information available as to identity of associates, though rumor says Federal M. & S. Co. has hand in matter.

FLYNN GROUP MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** John Hayes, pres., Gem; Jas. F. Wheilan, secy.-treas.; J. J. Cronin, B. W. Kern, Wallace; Timothy McCarthy, Lane. **Annual Meeting:** Second Monday in July. **Property:** 1 patented claim, $\frac{1}{2}$ interest in patented claim, and 15 unpatented claims, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 2500 ft. of underground workings. Property taken over in July, 1917, by eastern interests. Property reported under \$75,000 bond to D. F. Haley, identified with Cons. Interstate-Callahan M. Co., in July, 1917, but no development was done and option is believed to have been forfeited. Three well known veins, the Morning, You Like and Hunter, traverse the group.

FORMOSA LEAD MINING CO., LTD.**Spokane**

Capital: \$1,500,000. Par value \$1.00. Assessable. **Directors:** E. H. Moffitt, pres.-treas., Wallace; Chas. Hussey, secy.; W. A. Corey, Spokane. **Annual Meeting:** First Monday in December. **Property:** 3 patented claims, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Shipments to date, 60 tons concentrates. Not now working. **Development:** 2000 ft. of tunnels. **Informant:** Pres. Moffitt.

FORT HALL MINING AND MILLING CO.**Pocatello**

Capital: \$350,000. Par value \$1.00. Assessable. **Directors:** Wm. A. Hyde, pres.; C. W. Pomeroy, secy.; L. Fargo, treas.; M. A. Hendricks, Wm. H. Witty, all of Pocatello; Thos. H. Doane, Chicago, Ill. **Annual Meeting:** November. **Property:** 20 unpatented claims, 6 miles from Pocatello, in Fort Hall district. **Class of Ore:** Copper, silver. Working 4 men. **Equipment:** Crusher, costing \$10,000. No shipments. **Development:** About 1 mile of workings, including 1000 ft. of tunnel, small shafts and inclines. **Informant:** Pres. Hyde.

FORTUNATE MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Chas. Heim, pres.; Frank Olsen, Andrew Kennie, all of Kingston; R. E. Eeysler, secy.-treas., Wallace. **Annual Meeting:** Oct. 10. **Property:** 6 unpatented claims, in Yreka district. **Class of Ore:** Lead-silver. **Development:** About \$12,000 worth of work.

FORTUNE GROUP.**Grangeville**

Not incorporated. **Owner:** Frank Rice, Grangeville. **Property:** 5 patented claims, in Robbins district, Idaho Co. **Class of Ore:** Gold, silver. **Equipment:** 10-stamp mill, hoist and engine, boiler and engine for sawmill use, buildings, etc. No shipments. **Development:** 500 ft. of tunnels, 55-ft. shaft. **Informant:** Frank Rice, owner.

4 S. GROUP.**Osborne**

Not incorporated. Sold in 1917 to E. S. Crane, of Spokane, for \$30,000, by the E. Heller estate. Claims were taken several years ago for a \$40 board bill. Located on Big creek, in Yreka district, Coeur d'Alenes. Being developed by power from Big Creek Leasing Co., operating on Yankee Boy.

FOUR TIMBERS MINING CO.**Wallace**

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** John Benson, pres.; S. E. Kilham, secy.-treas.; Dr. G. A. Chapman, Wm. Lippitt, all of Colfax, Wash.; Wm. Shannon, Wallace. **Annual Meeting:** Last Monday in June. **Property:** 5 unpatented claims, in Beaver district, Coeur d'Alenes. Adjoin Amazon-Manhattan on west. **Class of Ore:** Lead and zinc. **Equipment:** Sullivan drill and water compressor; power by W. W. P. Co. No shipments. Working small force. **Development:** 600 ft. of tunnel and considerable open cut work. **Informant:** Secy.-Treas. Kilham.

FOX MINES.**Grangeville**

In Marshall Lake district, near Elk City. Operated by J. C. Fox, who reports a clean-up of \$100,000 gold from plates in three months. Mill treating 18 to 20 tons every 24 hours.

FRIDAY GROUP.**Wallace**

Not incorporated. **Owner:** Thomas Bunnell, Wallace; manager, E. M. Smith, Murray. **Property:** 5 unpatented claims, in Summit district, Coeur d'Alenes. **Class of Ore:** Gold-tungsten. Working 4 men; operating small mill. (Known as the Golden Winnie.)

FRIEND MINING CO.**Spokane**

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** Wm. Schierding, pres.-treas.-mgr.; T. F. Havens, vice-pres.; David Barth, secy., all of Spokane; Geo. Baxter, Wallace. **Annual Meeting:** First Wednesday in August. **Property:** 8 unpatented claims, and 2-3 interest in another claim, in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Compressor, electric motor, machine drills, bunkhouse, blacksmith shop, etc. Working small force. No shipments. **Development:** 1650 ft. of tunnels. **Informant:** Pres. Schierding.

GARFIELD MINING & MILLING CO.**Garfield, Wash.**

W. L. Carson, Garfield, Wash. Goldbug mine, Blackfoot district. **Class of Ore:** Copper. **Equipment:** Small steam plant. **Development:** By shaft.

GERTIE MINING CO.**Spokane**

Capital: \$250,000. Par value, 10c. Non-assessable. **Directors:** L. W. Hutton, pres.; G. N. Crawford, secy.; John Harvey, treas.; Mrs. J. H. Travers and A. A. Booth, all of Spokane; M. J. Maher, vice-pres., Burke. **Annual Meeting:** Second Tuesday in October. **Property:** 3 patented claims, east of Burke—Gertie, Iron King, Calumet—in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Compressor, Leyner drills and drill sharpener, lighting system, electric haulage, etc. **Development:** About 7000 ft. of tunnels. **Informant:** Manager Booth. **Note:** Much work done during past 3 yrs., in effort to find extension of Hecla ore bodies, but so far unsuccessful.

GIANT LEDGE MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** John H. Taylor, pres., Murray; Jas. Erikson, vice-pres.; W. W. Johnston, secy.-treas.; D. S. Prescott, all of Spokane; A. B. Shelton, Walla Walla, Wash. **Annual Meeting:** Second Tuesday in May. **Property:** 36 unpatented claims, in Summit district, Coeur d'Alenes. **Class of Ore:** Lead, copper, gold, silver. Working 20 men. **Equipment:** 700-ft. compressor, hoist, pumps, water wheel, engine, boilers, etc. Installing electric hoist, electric station pump, also building mill. No shipments. **Development:** 747 ft. of shafts, 173 ft. of crosscuts, 535 ft. of drifts. **Informant:** Manager Taylor.

GIANT MINING AND DEV. CO., LTD.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** Albert Rechsteiner, pres., Portland, Ore.; E. R. Turk, secy.-treas.; Paul Liever, Nat Liter, Geo. Malacrida, all of Wallace. **Annual Meeting:** Third Saturday in August. **Property:** 1 unpatented claim in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About 1600 ft. of underground work.

GILMORE MINING CO.**Gilmore**

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** Edgar C. Ross, pres., Gilmore; Harry R. Hyde, secy.-treas., Ridgway, Pa. **Annual Meeting:** January. **Property:** 12 patented claims, 240 acres, Texas district, near Gilmore. **Class of Ore:** Gold. Working 25 men. **Equipment:** Gasoline engines. Shipments to date, \$100,000. **Development:** 1 mile of tunnels, 2000 ft. of drifts, 400 ft. of shaft; vertical depth, 1200 ft. **Informant:** Bernard Allhands.

GOLD BACK CO. (Co-partnership).**Murray**

Not incorporated. **Owners:** John Dockett, John F. Murphy, Murray; Mrs. John Sheehy, Wallace, and A. L. Scofield, Los Angeles, Calif. **Property:** 3 unpatented claims, ½ mile east of Murray. **Class of Ore:** Gold-copper. **Development:** 700 ft. of tunnel; doing annual assessment work.

GOLD COIN MINING CO.**Wallace**

Incorporated in March, 1917, with a capital of \$375,000, by A. J. Matthiesson, J. G. Smith and H. E. Rogers, all of Saltese, Mont., and Chas. A. Solberg and Morton Webster, of Wallace, as the incorporators.

GOLD CREEK MINING & MILLING CO.**Spokane**

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** E. V. Thompson, pres.; Atwood A. Kirby, secy., both of Spokane; A. G. Crum, vice-pres., Potlatch, Idaho; Paul Bockmier, mgr., Palouse, Wash. **Annual Meeting:** Jan. 5. **Property:** 13 unpatented claims, in Gold Creek district, Latah Co. **Class of Ore:** Gold and silver. Working small force. **Equipment:** Compressor, 2 drills. **Development:** 832 ft. of tunnel and 50-ft. shaft. About 500 tons of ore ready for shipment. **Informant:** Manager Paul Bockmier.

GOLD DEEP GROUP.**Elk City**

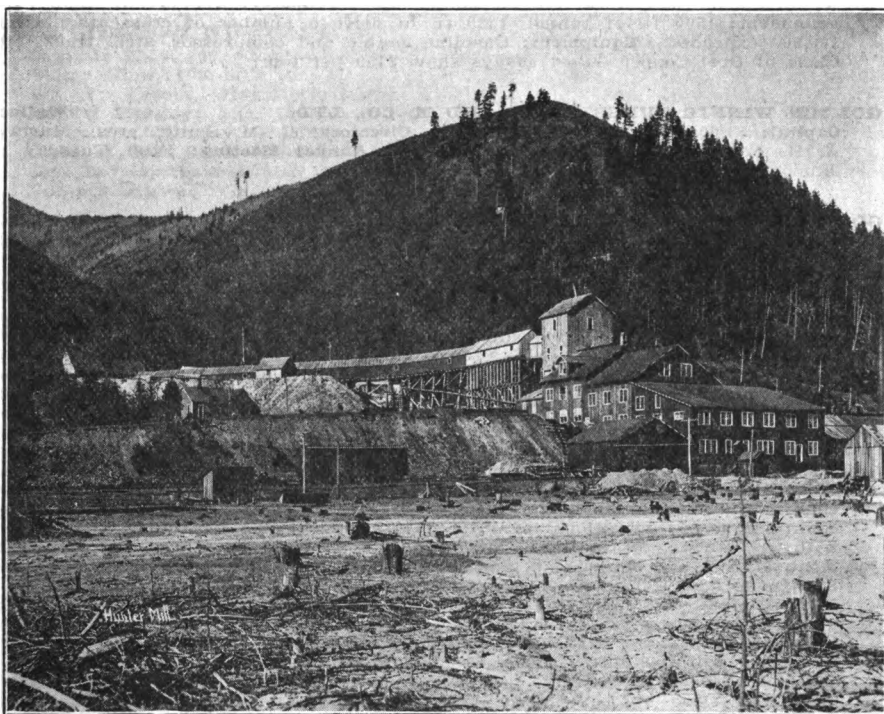
Six claims owned by Wright & Widmeyer, 6 miles from Elk City, bonded, July, 1917, to H. L. Herkalrath and others, of Spokane, for \$15,000, who propose to erect a 15-ton mill. Property is developed with over 1000 ft. of workings, and an ore shoot 270 ft. long opened up.

GOLD HILL AND IOWA MINES CO.**Quartzburg**

Property: Gold Hill and Iowa groups, Boise Basin district, at Quartzburg. **Class of Ore:** Gold. **Equipment:** 20-stamp mill, cyanide plant, compressor, stamps, electric power. Working 35 men. **Development:** 6000 ft. of tunnel and shaft. **Production claimed,** \$5,000,000.

GOLD HILL MINE.**St. Louis, Mo.**

Privately owned by Martin Shaughnessy, St. Louis. Property consists of 1 patented claim in the Pine district, Elmore Co., Idaho, and has been worked intermittently for 26 years, with no returns. Limited development work still going on.



Mill of Gold Hunter M. & S. Co., Mullan, Idaho.

GOLD HILL MINE (Co-partnership).**Elk City**

Owners: Thos. Davis, Seattle, Wash.; Edward, Henry and John Massam, Elk City. **Property:** 120 acres, patented, 1½ miles west of Elk City. **Class of Ore:** Placer gold. **Equipment:** No. 4 Giant, 9-mile ditch from American river. **Informant:** Henry Massam, part owner.

GOLDEN AGE JUNIOR MINING CO.**Lansing, Mich.**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** F. M. Seibly, pres.; John Hawks, vice-pres.; F. B. LeClear, secy.-treas.; Frank Smith, all of Lansing. **Property:** 300 acres in Pioneer district, Boise Basin. **Class of Ore:** Gold, silver. **Equipment:** 15-stamp mill, 2 concentrating tables, sawmill, air compressor, pump, hoist, boarding house and smaller buildings. Installing cyanide mill. **Development:** 1700 ft. of crosscut tunnel, numerous upraises, etc.

GOLDEN CHEST MINE.**Murray**

Sole owner: Vivian Green, Murray. **Property:** 42 patented and 10 unpatented claims, in Summit district, Coeur d'Alenes, 1 mile east of Murray. **Class of Ore:** Gold-tungsten. Was big gold producer in early '80s; chief value now, scheelite. **Development:** About 13,000 ft. of workings; employing about 40 men. Small tungsten shipments being regularly made. New mill has been completed to treat the tungsten ore.

GOLDEN GLOW MINING CO.**Portland, Ore.**

T. Papworth, pres.-secy.-treas., 403 Commercial Bldg., Portland, Ore. Ophir, Trapper and Bazouk mines, in Warm Springs district.

GOLDEN MARGUERITE SILVER AND COPPER MINING CO.**Mullan**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Jos. Huber, pres.-treas.; M. J. McHugh, secy., both of Mullan. **Annual Meeting:** First Tuesday in December.

GOLDEN SCEPTRE MINING CO.**Spokane**

A. Anderson, E227 Nora Ave., Spokane, mgr. **Property:** At Porthill, Idaho. **Development:** 1500 ft. of tunnel, 1220 ft. of drift, a number of crosscuts. About \$65,000 expended. **Equipment:** Gasoline engine and compressor, steel track, etc. **Class of Ore:** Copper. Best assays show \$159 per ton.

GOLDEN WINNIE TUNGSTEN M. AND M. CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** E. M. Smith, pres., Murray; A. H. Featherstone, secy.-treas., Wallace. **Annual Meeting:** First Tuesday in January. [See Friday Group.]

GOLD HUNTER MINING & SMELTING CO.**Mullan**

Capital: \$2,000,000 in 200,000 shares at \$10.00 par. A close corporation. **Directors:** P. J. Hennessy, pres.; E. C. Hennessy, secy.; T. F. Keeley, treas., all of Chicago. During 1917, Dennis Ryan of St. Paul, Minn., vice-pres., who acquired property in 1886, died, and as far as we are advised, his place on the directorate has not been filled. T. M. Brennan, assistant manager, and son-in-law of Mr. Ryan, also died during the year. **Property:** 7 claims and a fraction, all patented, with 20-acre mill site at Mullan, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver, occurring in fissured vein in quartzite and shale. **Development:** By tunnels and shafts; main tunnel being 4800 ft. long. Winze from tunnel-level supposed to have reached 1500 ft. Two shoots have been developed; one known as the "north", 12 ft. wide and the other known as the "south", 20 ft. wide. **Equipment:** 150-h.p. electrical hoist; two 3000 cu. ft. compressors; 100 g. p. m. pump, and 350-ton mill, to which flotation process was recently added. **Note:** Requests for information concerning present physical condition, have been ignored. In sworn statement to assessor of Shoshone county, covering operations for 1915, it is shown that 118,764 tons were mined, with gross value of \$614,590. Mining costs were \$368,613; freight and treatment, \$77,992, and betterments and repairs, \$136,323, leaving net profit of \$32,663. Statement for 1916 shows shipments of 119,490 tons, with gross value of \$815,779. Mining costs were \$482,275; freight and treatment, \$180,187, and betterments and repairs, \$8044, leaving net profit of \$161,361, an increase of \$128,698 over 1915. Prior to 1915, the company had reported consistent losses due to large expenditures for betterments and repairs. **Note:** Sworn statement to assessor of Shoshone county, dated May 1st, 1918, shows 116,562 tons extracted; gross value, \$994,407; extraction, \$525,493; freight and treatment, \$293,202; betterments and repairs, \$44,892; net profits, \$130,812.

GOVERNMENT CONS. MINES CO.**Wallace**

Capital: \$50,000. Par value, 5c. **Directors:** Gust Witkowski, pres.; Chas. Criswell, secy.-treas., Wallace; S. A. Rimelstaugh, vice-pres.; Jas. McNamee and Patrick McKenna, Burke; R. P. Criswell, Stewart; Joe F. Francis, Portland, Ore. **Annual Meeting:** First Wednesday in May. **Property:** Lease on 4 patented claims belonging to Spokane Mining and Milling Co., in Government gulch, 2 miles west of Kellogg. **Class of Ore:** Silver-lead, a tailings dump of 100,000 tons, to treat which lessees will erect a 300-ton mill. **Equipment:** 2 concentrating tables, minerals separator, flotation unit and gasoline engine. Shipments, 27 tons concentrates, value \$1,710. **Informant:** R. P. Criswell, manager.

GOVERNMENT GULCH MINING AND DEV. CO.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** Frederick Burbidge, pres.; D. R. Treat, secy.-treas.; E. L. Vanderwerken, Oscar Dull, all of Wallace; B. Flaig,

Wardner. **Property:** Group of claims in Government gulch, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** Assessment work being done.

GRAY COPPER MINING CO., LTD.

Osborne

Capital: \$375,000. Par value, 25c. **Directors:** E. F. Hall, pres.; W. H. Herrick, secy. **Property:** 7 claims, in McFarren gulch, 12 miles from Osborne. **Class of Ore:** Copper, silver, gold.

GREAT EASTERN MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** John Carlson, pres.; Edwin Erickson, Gem; Chas. A. Solberg, vice-pres.; Wallace; John C. Furst, secy.-treas., Spokane; Christ Grassbush, Iron Mountain, Mich. **Annual Meeting:** April 15. **Property:** 14 patented claims—Great Eastern, Great Eastern Fraction, Colorado, Slat, Garfield, Garfield Fraction, Western, Jumping Jack, Jumping Jack Fraction, Gladiator, Liberty Bell—in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Development:** 4000 ft. of tunnels and drifts; vertical depth, 1000 ft. Non-productive. **Informant:** Secy.-Treas. Furst.

GREAT WESTERN MINING CO., LTD.

Duluth, Minn.

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Jesse Norton, Duluth, pres.; Victor Hunt, vice-pres.; F. T. Robinson, Duluth; Wm. S. Bowie, Duluth, secy.; W. K. Karnes, Royalton, Minn., and J. J. Jenkins, Manchester, N. H. **Annual Meeting:** Aug. 27. **Property:** 7 patented claims—the Jumbo, Merrimac, Lucky Pat, Monday, Oro, Spider and B. C.—in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead, silver, copper, gold. **Equipment:** Compressor plant, drills, etc. **Development:** 4000 ft. of drifts and crosscuts, 50-ft. raise and 150-ft. winze. Non-productive.

GREENHILL-CLEVELAND MINING CO.

Wallace

Capital: \$320,000. Par value, \$1.00. **Directors:** F. H. Brownell, pres., Seattle, Wash.; John H. Wourms, secy.; Dana R. Treat, treas.; A. H. Featherstone, Wallace. **Property:** Group of claims at Mace, in Burke canyon; one-half of stock owned by Federal Co. An old property, and very large producer for years, being the foundation of many fortunes. Contained extension of famous Standard-Mammoth ore bodies. Had been employing 360 men, but, being worked out, closed down in December, 1917, and was abandoned. Reputed to have yielded approximately \$5,000,000 during last 5 years of operation.

GREEN MOUNTAIN MINING CO.

Wallace

Capital: \$5,000. Par value, 1c. **Directors:** C. L. Cowell, pres., Missoula, Mont.; Edward Pohlman, secy.-treas., Spokane. **Property:** 5 patented claims, in Burke, adjoining Marsh mine. Controlled by Marsh Mines Cons.

GREYHOUND MINING AND MILLING CO., LTD.

Boise

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** W. C. Arnett, pres.; P. I. Smith, vice-pres.; Edward Smith, secy.-treas.; Fred R. Day; Andrew Dowling, all of Boise; Geo. F. Groves, Storm Lake, Iowa. **Annual Meeting:** Second Monday in January. **Property:** "General Grant" group of 7 claims, being patented, in Seafoam district. **Class of Ore:** Silver-lead. **Equipment:** 10-stamp mill, 4 vanners, 2 classifiers, slime tanks, gravity water power system, circular blast furnace, blacksmith shop, assay office, store, sawmill, boarding and bunk houses, residence, etc. No shipments. **Development:** Several hundred ft. of crosscuts, drifts and raises. Non-productive. **Informant:** Secy.-Treas. Smith.

GROUSE CREEK-YOU LIKE MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** S. P. Domer, pres.; W. B. Rhodes, vice-pres.; J. P. Abrahamson, secy.; J. A. Mitchell, Spokane. **Property:** Several unpatented claims, west of Morning mine, at Mullan, Idaho, supposedly on continuation of You-Like vein system. **Development:** 600 ft. of tunnel.

GUELPH MINING AND MILLING CO., LTD.

Kellogg

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** B. Coyle, pres.; W. I. Jay, Walla Walla, Wash.; A. B. Corby, secy.; John B. Steffes; W. H. Rhodes; Eliza H. Steffes, treas., all of Kellogg; T. J. Yarbrough, Spokane. **Annual Meeting:** May 6. **Property:** 5 patented claims and 4 fractions—Guelph, Syrona, Waterloo, Battle of Waterloo and New Jersey claims; Coye, Ridge Lode,

Ute and Piute fractions—in Lalande district, Coeur d'Alenes, adjoining Hercules and Ambergis mines at Burke; also the Sunset and original Ajax on the east. **Class of Ore:** Silver-lead. **Equipment:** Sullivan compressor, Cameron pump, hoist, shaft house, bunk house, blacksmith shop, electric motor power from W. W. P. Co. **Development:** 2300 ft. of tunnel, 180 ft. of shaft. No shipments last year. **Informant:** Secy. Corby.

HAMBURG-AMERICAN MINING CO.

Kellogg

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Wm. Schaefer, pres.; Elmer Brown, vice-pres.; Frank P. Jones, secy.; W. W. Papesh, treas., all of Kellogg. **Annual Meeting:** Second Tuesday in July. **Property:** 7 claims, patent applied for, on Little North Fork, Kootenai Co. **Class of Ore:** Copper, No shipments. **Development:** 1100 ft. of tunnel, 40 ft. of crosscut. **Informant:** Treas. Papesh.

HAMILTON COPPER MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Dr. J. E. St. Jean, pres.; Norman Ebbley, secy.-treas., Wallace. **Annual Meeting:** First Monday in March.

HAMILTON MINING CO.

Portland, Ore.

Capital: \$2400. Par value, \$1. **Directors:** R. E. White, pres.; A. N. Hamilton, secy. **Property:** On south fork of Salmon river, Idaho Co., Idaho. Co. also said to have purchased, in October, 1917, 2 claims near Sumpter, Ore. **Development:** 500 ft. of tunnels.

HAPPY DAY MINING CO., LTD.

Wallace

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Daniel Morgan, pres.; F. M. Rothrock, Spokane; E. R. Day, vice-pres.; E. Hedin, secy., Wallace; J. J. Burphy, John Dunphy and Otto E. Dubach, Burke. **Annual Meeting:** First Wednesday in October. **Property:** 6 patented claims, near Burke, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Buildings and tools. Working small force. **Development:** Extensively explored by tunnels and drifts. **Informant:** Secy. Hedin.

HARMONY MINES CO.

Chicago, Ill.

Capital: \$1,000,000. Par value, \$1. **Directors:** A. W. Nieman, pres.-mgr.; C. Nickelson, vice-pres.; Gladys Nieman, secy.; J. W. Reihman, treas.; E. F. Nieman, supt.; C. V. Nieman, H. Cohen, A. C. Skafgard and G. Prasche. **Property:** 11 unpatented claims, in Whithington Creek district, Lemhi Co., Idaho. **Class of Ore:** Copper, 8%. **Development:** 880 ft. of tunnels, 200 ft. of crosscuts.

HARTFORD MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** James Fumerton, pres.; W. J. Fumerton, secy.-treas.; W. F. Goddard, Wm. Schafer, Vido Marich and Sidney L. Shonts, all of Wallace. **Annual Meeting:** March 10. **Property:** 5 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc, copper. No shipments. **Development:** 700 ft. of tunnel and 40-ft. shaft. **Informant:** Secy.-Treas. Fumerton.

HARTWIG MINING CO.

Pollock

Capital: \$72,000. Par value, \$25. **Directors:** Wm. Hartwig, pres.; G. W. G. Geiger, secy.; W. J. Moore, treas.; C. Brinkman, Fred Goldsmith, Gustave Peters. **Property:** 5 patented claims and 5-acre millsite, at Pollock, in Rapid River district, Idaho Co. **Class of Ore:** Copper, 14%; silver, 3 ozs.; gold, \$10 per ton. **Development:** 1000 ft. of tunnels, 75-ft. shaft. Idle, for lack of transportation.

HAYDEN CREEK MINING & MILLING CO.

Colfax, Wash.

Formerly owned property two miles from Hayden Lake, Kootenai County, Idaho, purchased in 1916 by Commonwealth Mining Co. (q.v.), under which operations are now being conducted. Hayden Creek company was a close corporation, controlled by Charles McKenzie, pres., First National Bank, Colfax; property having been operated in small way by his relatives for 25 years.

HAYES CO.

Kellogg

Capital: \$50,000. Par value, \$1.00. **Directors:** Arthur Hayes, pres.; Martin Nicholson, secy.; Stanly A. Easton, treas., all of Kellogg. **Annual Meeting:** First Tuesday in May. Organized for purpose of working over tailings of Sierra Nevada and other dumps, and to do a general mining business. Company has installed a flotation plant, costing \$50,000, just above Pine creek, for recovery of values from slimes in bed of south fork of Coeur d'Alene river, and has leased

some 1200 acres, including 3 miles of river bed, now being worked over at a satisfactory profit. Plant is designed to treat 150 to 200 tons daily. First nine cars of slimes shipped ran about 22 ozs. in silver and 30% lead. "Feed" is pumped from river to 500-ft. flume, thence to trommels, then through a drag classifier to a thickener, and on into sulphidizing tanks and treated with sodium sulphide to remove effects of sewage; then into a Handy flotation machine, through a Zeigler machine, and into Callow cells, after passing through a 20-mesh screen to remove accumulations of wood pulp, etc. An American continuous filter has just been installed. Controlled by Coeur d'Alene Mineowners' Association, which owns many thousands of acres on Pine Creek, bought in settlement of farmers' damage suits years ago.

HEADLIGHT MINING CO.**Wallace**

Capital: \$1,800,000. Par value, \$1.00. Non-assessable. **Directors:** Frank P. Markwell, pres.; Alexander Murphy, vice-pres.; Oscar Nordquist, treas.; Angus Sutherland, all of Wallace; Everett H. Pattison, secy.; J. Fred Markwell, both of Spokane, and C. A. Markwell, Los Angeles, Cal. **Annual Meeting:** First Monday in August. **Property:** Patented claims immediately west of and adjoining Standard-Mammoth mine of Federal Mining & Smelting Co., and south of Greenhill-Cleveland claims of same company; in all about 125 acres; Lalande district, Coeur d'Alenes. **Development:** Many hundred ft. of tunnels, drifts and raises, although specific information is not given by secretary. **Note:** This property unquestionably contains surface continuation of great Standard-Mammoth vein, and has developed same for many hundred feet in a westerly direction from the latter's lines. Efforts have been made to prove the apex for the purpose of securing injunction to prohibit Federal from working vein at depth, but lack of capital has militated against completion of the work. Four or five years ago, a drift had been carried on the vein to within 12 ft. of big stopes of Standard-Mammoth, but injunction was obtained by Harry L. Day, then manager of Federal Mining & Smelting Co., prohibiting Headlight from prosecuting further work in that direction. Federal obtained half interest in Greenhill-Cleveland Mining Co., about same time, and has removed ore bodies at depth under alleged apex rights of that company. Greenhill-Cleveland has now been gutted, and work was discontinued last winter.

HECLA MINING CO.**Wallace**

Mine office: Burke. **Capital:** \$250,000, in 1,000,000 shares. Par value, 25 cts. All issued and fully paid. A Washington corporation, which succeeded Hecla Mining Co., of Idaho, in July, 1898, latter capitalized at \$500,000 in shares of \$1.00 par value. **Registrar:** Metropolitan Trust Co., New York. **Transfer Agent:** Security Transfer & Registrar Co., New York. Listed on New York curb and Spokane stock exchange. **Annual Meeting:** April. **Directors:** James F. McCarthy, pres., mgr. and treas., of Wallace; Frank Upman, vice-pres., Los Angeles, Cal.; Mrs. Sarah Smith Wilbur, W. J. C. Wakefield and H. C. Lambach, Spokane; Carl Landsee and F. J. Kipp, Milwaukee, Wis.; secy., L. E. Hanley, Wallace. **Property:** 29 claims, of which 27 are patented, about 351 acres, at Burke. **Class of Ore:** Lead-silver in Hecla vein, with average of 5 ozs. silver and 9% lead from mill run ore, which is sorted and concentrated to a shipping product of about 25 ozs. silver and 47% lead. Ore-Or-No-Go vein produces zinc-lead-silver, the former predominating; concentration ratio, about 13 into 1. **Development:** By tunnels and shafts; working shaft now approaching 2000 ft. level, with 20,000 ft. of drifts and crosscuts. Lowest working level, at 1600 ft., above which four years' supply of ore is in sight. Ore shoot at this level said to be fully as good as on any levels above. Development work in 1916 reached 6421 ft., while in 1917 it reached 12,386 ft. A 1400-ft. raise was made from No. 3 level to surface in 1917, and another from the 900 ft. level to No. 3 level,—the lowest adit—is in progress and should be completed by June 1st. **Equipment:** Property is one of the most completely equipped in the state of Idaho, with electrical hoist, capable of operating to 2400 ft. depth; complete electrical pumping equipment, compressors, drills, machine and blacksmith shops, ore-sorting plant, 700-ton concentrator at Gem. Company also holds lease upon Black Cloud mill from Marsh Mines Consolidated, and there treats ore from the Ore-Or-No-Go vein, which carries a higher percentage of zinc than Hecla vein. Capacity of plant, 200 tons daily. During 1917, a change room, equipped with all modern conveniences, was completed, together with new ore bins and sorting plant. **Smelting Contract:** For several years prior to July, 1917, entire product was shipped to International Smelting Co., at Tooele, Utah, on basis of 90% of the lead in the ore at full New York price, less freight and treatment charge of \$18. In 1917, contract was entered into with Bunker Hill & Sullivan Mining & Concentrating Co. for treatment of entire product for period of five years at the Kellogg smelter of the latter. Settlement rates result in saving of \$2.00 per ton when compared with International rate. **Dividends:** Since March, 1904, the sum of \$6,955,000 has been distributed in con-

secutive monthly payments, thus establishing a record unique in the mining history of the West. Owing to fear of effect of excess profits tax, dividends were discontinued in January, 1918, but it is expected that they will be resumed as soon as full effect of war taxation is known. The following table gives full information regarding shipments and dividends up until January 1st, 1918:

Year Ending	Shipments and Dividends to Jan. 1, 1918.			
	Tons Shipped.	Lbs. Lead.	Ozs. Silver.	Dividends.
Up to Aug. 1, 1905-----	54,180	59,137,421	1,779,172	\$ 420,000.00
August 1, 1906-----	16,870	18,337,702	566,855	340,000.00
August 1, 1907-----	18,371	19,354,539	558,222	540,000.00
August 1, 1908-----	9,917	10,041,659	286,058	290,000.00
August 1, 1909-----	18,226	18,395,752	478,777	250,000.00
August 1, 1910-----	18,714	18,555,979	517,037	170,000.00
August 1, 1911-----	17,999	17,908,786	478,375	210,000.00
January 1, 1912-----	8,102	7,627,458	197,092	130,000.00
January 1, 1913-----	20,122	19,137,960	491,745	300,000.00
January 1, 1914-----	19,937	18,832,534	507,236	320,000.00
January 1, 1915-----	20,052	18,957,823	509,200	220,000.00
January 1, 1916-----	26,214	24,917,867	692,444	565,000.00
January 1, 1917-----	40,831	40,217,573	1,195,841	1,550,000.00
January 1, 1918-----	45,517	44,363,559	1,366,960	1,600,000.00
	335,053	335,786,612	9,625,014	\$6,905,000.00

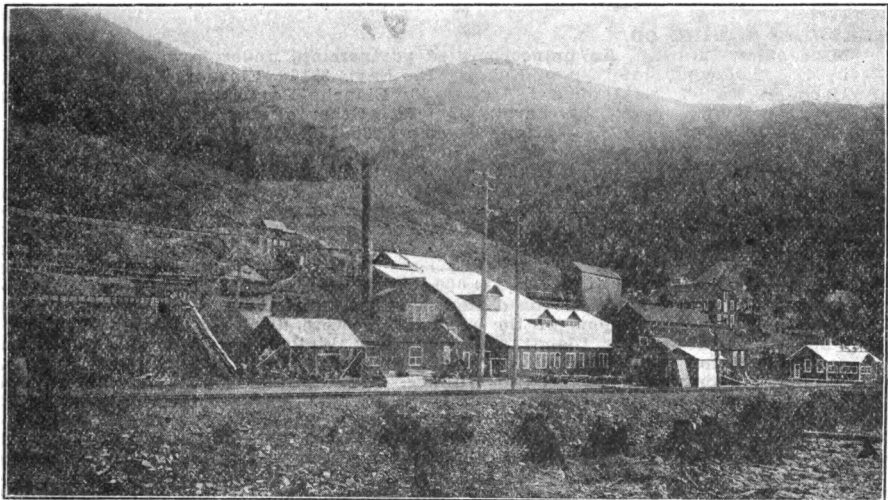
Official Report for 1917: Annual report for 1917 was issued minus the usual statement of assets and liabilities, President McCarthy explaining that latter information is withheld because company is unable to determine with certainty amounts necessary for income and excess profits tax. Total receipts for the year were \$3,671,820, with dividend disbursements of \$1,600,000. This would indicate surplus of \$563,950 for the year, but there is no data upon which to figure cost of betterments. Surplus carried forward from 1916 was \$639,396, so that surplus on January 1, 1918, was presumably around \$1,203,346—less amounts expended in improvements. Inquiry at the company's office elicits the reply that no particulars will be given out, as the management believes interests of stockholders demand secrecy until excess profits tax demands have been finally ascertained. During the year, 12,386 feet of development was accomplished—3473 feet on the Ore-Or-No-Go vein, and 8913 on Hecla vein. Main shaft was sunk 210 ft. and a new level is to be opened at the 2000-ft., a point which it is believed the workings have nearly reached. A raise from the 900-ft. level, in ore, to the No. 3 adit level, is in progress and should be completed in June. Ore reserves are estimated at 1,326,399 tons, including 70,000 tons above water-level on Ore-Or-No-Go vein—sufficient supply for four years and one month at the production rate maintained last year. Betterments during the period included a modern change room, equipped with showers, toilets and drinking fountains, in a building of reinforced concrete construction. New ore bins and sorting plant were completed last month. Shipments are going forward to Bunker Hill smelter, under what is described as a favorable contract continuing for five years. During the year, 326,344 tons were raised from the Hecla vein, of which 249,477 were milled at Gem; 14,474 shipped as crude ore, and 62,393 tons waste. This indicates that of total material raised, approximately one-fifth was waste. Total costs were \$3,473 per ton, as follows: Mining, \$2,506; development, \$0,361; sorting, \$0,203, and miscellaneous, including ordinary taxation and administration, \$0,403. Milling costs reached \$0.484. Per ton gross receipts were \$10.271 and gross operating expenses, \$3.843, leaving net per ton profit at \$6.428. Crude ore was worth \$80.588 per ton and concentrates \$79.804. Year's production of lead was 40,979,729 pounds and silver 1,223,420 ounces. One ton of concentrates was equal to 9.00 tons of milling ore, while 7.73 tons of material raised produced one ton of shipping product. Ore-Or-No-Go vein yielded 47,869 tons, of which 4620 tons was waste. Mining costs reached \$3.629 and milling costs \$1.850. Gross per ton receipts were \$6.679, and total gross expenses, \$5.301, leaving \$1.378 net per ton profit—a figure that compares with \$6.428 for ore from Hecla vein. Production of lead was 3,383,830 pounds; zinc, 507,888 pounds, and silver, 143,540 ounces. From both veins 374,213 tons were raised, of which 292,726 tons were milled in Gem and Black Cloud mills; 14,474 tons shipped crude and 67,013 tons classified as waste. Combined mining costs reached \$3.493 and milling costs, \$0.686. Per ton gross receipts were \$9.811 and gross expenses \$4.029, leaving net per ton profit of \$5.782. Total production was 1,366,960 ozs. silver, 44,363,559 pounds lead and 507,888 pounds zinc. Average silver quotation was \$0.829; lead, \$8.474, and zinc \$9.060. One ton of con-

concentrates was produced from 9.43 tons of milling ore, while one ton of shipping product was made from every 8.22 tons of material raised. The report shows that almost one-half of all the product shipped during the year was crude ore, worth \$80.588 per ton. The figures are: Dry concentrates, 30,334.39 tons; crude ore, 14,474.38 tons, and zinc slimes, 708.54 tons. While 123,654 tons more were mined in 1917, production contained only 2072 tons of lead more than in 1916. This, in part, is attributable to the fact that content of Ore-Or-No-Go ore is considerably less than Hecla. During the entire year an average of 1025 tons was raised daily, resulting in 125 tons of shipping product. Attached to the report is the following comparative statement from 1913 to 1917, inclusive:

**Comparative Statement of Production, Assays and Prices.
Combined Hecla and Ore-Or-No-Go.**

	1913	1914	1915	1916	1917
Tons Mined -----	141,930	123,857	146,675	250,559	374,213
Tons Shipped -----	19,937	20,052	26,214	40,832	45,517
Pounds Lead Produced----	18,832,534	18,957,823	24,917,867	40,217,573	44,363,559
Ounces Silver Produced----	507,236	509,200	692,444	1,195,841	1,366,960
Pounds Zinc Produced-----					507,888
Pounds Lead Per Ton-----	945	945	951	985	975
Ounces Silver Per Ton-----	25.40	25.40	26.40	29.30	30.00
Pounds Zinc Per Ton*-----					153
Average Lead Quotation--	\$4.364	\$3.866	\$4.866	\$6.936	\$8.474
Average Silver Quotation--	0.595	0.550	0.504	0.673	0.829
Average Zinc Quotation--					\$9.0608
Dividends -----	\$ 320,000	\$220,000	\$565,000	\$1,550,000	\$1,600,000

*Ore-Or-No-Go Tonnage Shipping Product.



Mill of Hecla Mining Co., Gem, Idaho.

According to sworn statement to assessor of Shoshone county, filed May 7th, 1918, operations for last year were as follows: Tonnage, 374,213; gross value, \$4,462,032; extraction, \$1,506,639; freight and treatment, \$798,165; betterments and repairs, \$262,160; net profit, \$1,895,065.

HECTOR MINING CO.

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** Arthur F. George, pres., Wallace; L. W. Pelham, Jr., vice-pres., Boston, Mass.; H. R. Campbell,

Wallace

secy.; Everett H. Pattison, treas., Spokane; H. H. Ross, John H. Nordquist, Wallace; Eugene Conrad, Newhouse, Utah. **Annual Meeting:** First Monday in January. **Property:** 21 unpatented claims, in Placer Center and Hunter districts, Coeur d'Alenes, a consolidation of the properties of the Little Sister Mining Co. and the Abraham Lincoln Mining Co. **Class of Ore:** Lead-silver. **Development:** 4525 ft. of tunnel and some crosscuts. **Informant:** Treas. Pattison.

HELVETIA MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Paul Leiver, pres.; Herman Bergman, vice-pres.; Thos. Nicholson, secy.-treas.; Ella Nicholson, Geo. Molocard, all of Wallace. **Annual Meeting:** April 4. **Property:** 5 unpatented claims, in Placer Center district, Coeur d'Alenes, 3 miles from Wallace. **Class of Ore:** Lead, silver, zinc. **Equipment:** Drills, hammers, shovels, etc. **Development:** 350 ft. of tunnel. No shipments. Non-productive.

HENNESSY-BURNS MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** J. S. McInnes, pres.; Jos. F. Whelan, secy.-treas.; T. H. Whelan, all of Wallace. **Annual Meeting:** Second Tuesday in July. **Property:** 10 unpatented claims on Idaho-Montana divide, in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 1500 ft. of workings.

HENRIETTA EXP. CO.

Kellogg

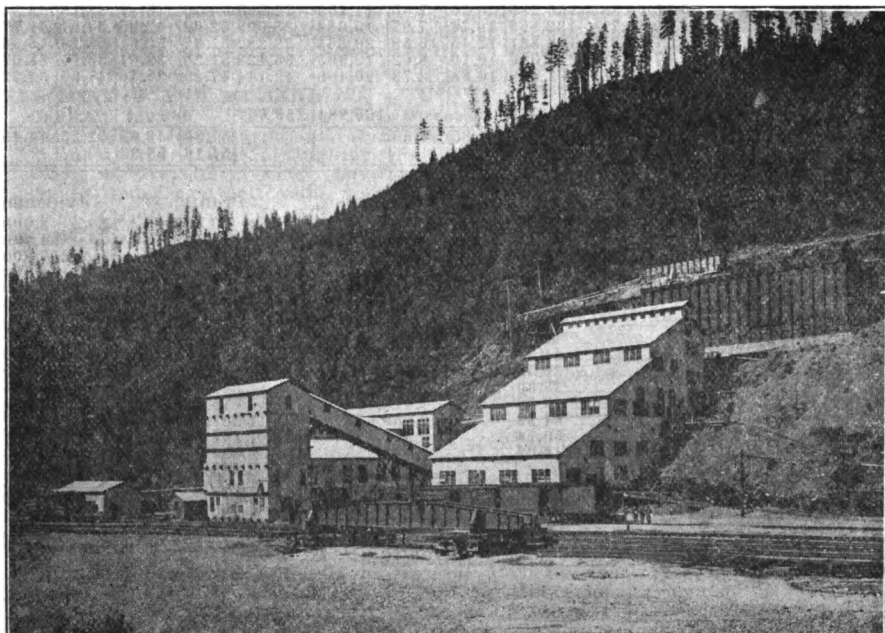
Capital: \$50,000. Par value, \$10.00. Assessable. **Directors:** Wm. Beaudry, pres.; B. G. Harmon, vice-pres., Kellogg; Sidney Shonts and Frank H. Skeels, Wallace. Organized in December, 1917, to work Bear Top mine, near Murray, Summit district, Coeur d'Alenes, under lease and bond, with 5-year option, for \$80,000, including Bear Top mill of 150 tons capacity, in conjunction with Bear Creek M. Co., owning Orofino Group adjoining. Lease on royalty basis. Flume has been rebuilt; 15 men are employed, and several cars of ore have been shipped, though operations retarded by floods. **Ore:** Runs 65% to 70% lead, and lessees are stopping on good ore body. Shipments, 100 tons per month; smelter returns, \$41 per ton, net. **Informant:** Pres. Beaudry. [See also Bear Top, Bear Top-Orofino Cons. Mining Co., and Bear Creek Mining Co.]

HERCULES MINING CO.

Wallace

Mine office: Burke. **An unincorporated partnership,** under laws of Idaho, held in the following interests: Eugene R. Day, 3/16; Eleanor Day Boyce, 1/4; Harry L. Day, 3/32; Jerome J. Day, 3/32; Blanche Day Ellis, 1/64; thus giving the Day family control by margin of 1/64. Other owners are August Paulsen, Spokane, 66/256; L. W. Hutton, Spokane, 25/256; F. M. Rothrock, Sprague, Wash., 8/256; Markwell family, Ocean Park, Cal., and Spokane, Wash., 25/256. Harry L. Day and Eugene R. Day reside at Wallace; Jerome J. Day, at Moscow; Eleanor Day Boyce and Blanche Day Ellis, at Portland, Oregon. Following usual policy of Day family, no official information had been given out regarding operations of the mine, until 1917, when answers to interrogatories in the suit of Cardoner vs. Day conveyed definite information to the public. It is known, however, that heavy dividends have been paid since 1901, and the mine is credited with total of over \$14,000,000 to March, 1918, making it the bonanza mine of the entire Coeur d'Alene district. Through interrogatories in the same suit, the possessions of the partnership were disclosed as follows: Hercules group at Burke, Idaho; mill site near Wallace, upon which has been erected 700-ton concentrator; 2021 shares Press-Times Publishing company, owning the only daily paper at Wallace, and capitalized for \$25,000 in \$1.00 shares; 500,000 shares Northport Smelting & Refining Co., owning smelter at Northport and capitalized for \$1,000,000 in \$1.00 shares (remainder of capitalization owned by Tamarack & Custer Consolidated Mining Co., also controlled by Days); 168 shares Pennsylvania Smelting Co., capitalized for \$45,000 in 450 shares of par value of \$100, owning smelting and refining plant near Pittsburgh, Pa. (equal number of shares held by Tamarack & Custer Cons. Mining Co., also controlled by Days); 9800 shares Hidden Treasure Mining Co.; 720,330 shares Idaho & Eastern Mining Co., a control; 912,779 shares Humming Bird Mining Co., a control; 505,333 shares Ambergis Mining Co., a control; 840,854 shares Basin Mining Co., a control; and some other holdings of lesser importance. **Development:** Hercules mine is developed to total depth of approximately 2500 ft. from surface; work and production confined to one vein, in which only one dyke has been encountered and but two faults. Main working level, known as No. 5, or Humming Bird, tunnel, equipped with electrical traction, and through it a great part of the mine's output has been brought during the past 8 or 10 years. Main shaft has been sunk from No. 5 level to a depth of 800 ft., where station is being cut at present time. Lowest working level is 600 ft. below No. 5, where discovery of an immense body of ore

was recently reported in east drift. It is also understood that same ore body was later developed by extending main No. 5 level in an easterly direction. It is said that the mine produces approximately one ton of crude ore to three tons of mill ore; sworn statement in Cardoner suit shows that concentration ratio of milling ore for 16 years was 3.8863 tons into 1. Average per-ton receipts, after deducting freight and treatment charges, was \$55.86, from 1901 to 1915, inclusive. **Equipment:** Mine is as well and completely equipped as any property in the West, including 700-ton concentrator, with flotation equipment, at Wallace; Ilgner type electric hoist, said to be first plant of kind installed in America, and largest direct motion electric hoist working under ground; electric traction system on No. 5 level; machine shops, blacksmith shops and other buildings, all fitted with most modern machinery. Mine is timbered closely where necessary; in places stopes being as much as 40 ft. wide. **Note:** Operations upon this property were commenced approximately 25 years ago, and it was several years before anything of value was discovered. In 1901, however, dividends were commenced, and since then profits have been steady and large. In 1903, being dissatisfied with smelting arrangements, the partnership



Hercules Mill, Wallace, Idaho.

purchased an interest in Selby Smelting and Lead Co., at Vallejo Junction, Cal., at a cost of \$125,623. In 1905, the interest was transferred to the Smelting Trust for \$398,300, distributed in form of a special dividend that year. Since that time, up till 1916, product was shipped to Smelting Trust, although much friction developed in later years. The last contract with Smelting Trust went into effect August 20, 1912, and expired May 30, 1915. It provided for full New York price for 90% of the lead in the ore, with freight and treatment of \$14.00 per ton. Renewal of this contract was refused by Smelting Trust in 1915. The partnership then decided to enter the smelting business on its own account. The old plant of Northport Smelting & Refining Co., erected 20 years ago to treat the output of LeRoi mine at Rosslund, B. C., was purchased for approximately \$60,000, and entire plant renovated for lead smelting practice. Two furnaces have been in operation continuously on Hercules and Tamarack & Custer ores since the summer of 1916; a third furnace being held in reserve for contingencies. The management is extremely efficient, and all improvements are made upon a generous plan, which indicates owners believe in a long life for the property. The following statistical report was prepared by Northwest Mining Truth, of Spokane, Wash., following filing of sworn answers to interrogatories in Cardoner vs. Day, in September, 1917:

Hercules' Record from 1901 to October 28, 1916.

Year	Lead Average	Silver Average	Tons Mined	Content Milling Ore		Shipments		Content Crude Ore		Content Concentrate	
				Lead	Silver	Crude	Concen- trate	Lead	Silver	Lead	Silver
1901	4.36	58.95	362			362		59.84	132.13		
1902	4.10	52.16	5,003			5,003		62.34	83.92		
1903	4.28	53.57	10,043			10,043		62.34	89.69		
1904	4.32	57.22	12,266			12,266		56.40	77.55		
1905	4.70	60.35	14,691			11,384	38	55.47	69.81		
1906	5.66	66.79	74,998	7.34	6.90	9,379	8,178	57.53	58.55	57.53	58.55
1907	5.36	65.32	90,683	7.82	7.54	9,537	10,929	54.20	54.29	54.20	54.29
1908	4.23	52.86	90,087	9.53	9.32	6,395	13,050	56.61	52.55	56.61	52.55
1909	4.30	51.50	61,820	10.07	9.43	6,076	11,874	54.16	47.01	54.16	47.01
1910	4.49	53.49	161,550	10.70	9.86	6,627	19,138	46.00	38.87	46.00	38.87
1911	4.46	53.30	176,325	9.49	8.32	8,459	22,940	49.79	44.89	47.23	37.52
1912	5.16	60.83	180,286	9.20	7.90	11,402	22,595	44.06	40.44	48.18	39.34
1913	4.39	59.78	132,955	10.76	7.97	15,684	25,008	52.02	42.65	54.91	41.77
1914	3.87	54.81	192,361	12.45	10.58	20,364	39,282	57.32	52.61	55.76	46.56
1915	4.67	49.69	215,089	10.10	8.02	12,603	36,428	51.20	39.61	53.14	38.67
1916	6.85	65.66	231,568	10.88	8.73	20,400	49,144	47.29	35.40	47.95	34.33
Total			1,650,087			165,984	258,604				
Ave., 11 yrs.				9.85	8.60			51.33	46.08	52.33	44.49
Ave., 16 yrs.	4.70	57.27						54.16	59.93		

	Value Per Ton	Receipts	Profits	Dividends
1901	\$84.53	\$ 27,810	\$ 20,567	\$ 8,000
1902	55.12	266,785	169,527	94,200
1903	69.75	667,616	438,746	257,800
1904	63.55	731,107	430,418	544,000
1905	66.87	725,218	375,348	228,000
1906	74.51	1,272,000	787,534	880,000
1907	65.62	1,296,328	765,160	800,000
1908	48.46	907,071	383,751	448,000
1909	44.70	798,245	325,305	352,000
1910	38.52	874,955	418,542	384,000
1911	38.30	1,148,574	544,429	329,227
1912	43.36	1,415,462	715,763	704,000
1913	51.83	2,055,633	1,207,326	1,024,000
1914	50.76	2,991,148	1,868,761	2,176,000
1915	44.03	2,108,955	1,096,019	320,000
1916	54.22	3,690,703	2,368,682	1,432,000
Total		\$20,972,610	\$11,915,878	\$ 9,981,227

By decision rendered by Judge Dietrich of the U. S. District Court, handed down on January 25, 1918, sale of 1/16 interest in Hercules by Mathilde Cardoner, widow of Damien Cardoner, one of the original owners of the property, was confirmed at price of \$370,000. Purchasers were Eugene R. Day and Eleanor Day Boyce, the transfer giving the Day family control of the property. Mrs. Cardoner alleged that Eugene R. Day, who had been administrator of her husband's estate, had misled her regarding value of mine. The court absolved Eugene Day of any fraudulent act, and confirmed the transaction. So far as known, appeal in case has not been taken. **Note:** Sworn statement to assessor of Shoshone county, dated May 1st, 1918, shows tons extracted, 108,052; gross value, \$9,880,978; extraction, \$2,140,052; freight and treatment, \$3,765,024; betterments and repairs, \$285,500; net profits, \$3,690,400.

HIDDEN TREASURE MINING CO.

Wallace

Capital: \$5,000,000. Par value, \$10.00. **Directors:** Frederick Burbidge, pres.; D. R. Treat, secy.-treas.; Oscar Dull, W. S. Bergland and A. H. Featherstone, all of Wallace; Chas. Hussey, Spokane; F. H. Brownell, Seattle. **Annual Meeting:** Fourth Wednesday in November. **Property:** Group of claims in Burke canyon, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. An old property, with considerable work done on it, but now idle. **Note:** Hercules Mining Co. owns 9800 shares, at a cost of \$392, according to sworn statements in suit of Cardoner vs. Day.

HIGHLAND-SURPRISE CONS. MINING CO.

Kellogg

Capital: \$1,200,000. Par value, \$1.00. Assessable. **Directors:** W. W. Papesh, pres.; Chas. Weigand, secy.-treas.; M. J. Sinclair, vice-pres.; Geo. Lamewell, C. W.

Simmons, all of Kellogg; Chas. Hussey and Al Page, Spokane. **Annual Meeting:** Second Tuesday in April. **Property:** 3 patented and 19 unpatented claims, 9 miles up Pine creek, 2 miles south of Wardner. **Class of Ore:** Zinc, lead, silver. Consolidation of Highland Chief and Surprise mines. **Equipment:** Concentrator of 150 tons daily capacity, 6-drill compressor, 2 80-h.p. boilers, 75-h.p. engine, 2 drifting machines, 5 stopping machines, sawmill, boarding house, blacksmith shop, a recently installed system of monorail cars for hauling. Mill operated by electric power. Production to date, netting \$150,000, expended in equipment and development. When under full headway, monthly output 200 tons zinc concentrate and some lead. Drop in price of spelter and lack of economical transportation caused cessation of shipments in fall of 1917. Resumed in small way April, 1918. **Development:** 4750 ft. of tunnels and drifts, and 300 ft. of shafts and raises. **Informant:** Pres. Papesh.

HILARITY MINING CO., LTD.

Wallace

Capital: \$100,000. Par value, \$1.00. Assessable. **Directors:** Jacob Lockman, pres.; Nampa; E. H. Moffitt, secy.; Geo. Stewart, treas., Wallace; F. F. Johnson, Boise. **Annual Meeting** Third Monday in January. **Property:** The Fay, Famous, and Fawn claims, unpatented, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Ordinary prospecting outfit. **Development:** About 600 ft. of tunnels. Non-productive. No shipments.

HILL MINING AND MILLING CO.

Kellogg

Capital: \$20,000. Par value, 2c. **Directors:** Josiah Hill, pres.; R. T. Morgan, secy.-treas.; John Carter, all of Kellogg. **Annual Meeting:** June 4. **Property:** 2 unpatented claims, Slaughter House gulch, Yreka district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Development:** Several hundred ft. of tunnel being driven under contract; veins very promising.

HOMEBUILDER MINING AND DEV. CO.

Spokane

Directors: Walter C. Brower, John Brown, Mr. Harker, Spokane; Oscar Nelson, W. C. Halliday, Coeur d'Alene. **Property:** Between Coeur d'Alene and Kingston. Extravagant claims and promises said to have been made by company, and much dissatisfaction expressed at stockholders' meeting in Spokane, Dec. 11, 1917. Vigorous demands made for report as to use made of receipts for stock, and why large mill promised had not been built. Owing to remarkably lurid literature issued by company, proposition looked on with suspicion. President Brown objects to publicity and refuses details.

HOMESTAKE MINE.

Elk City

Group of claims owned by Jas. Penman, bonded to Sacramento (Cal.) men for \$30,000 in February, 1917. Ore body has been opened to depth of 800 ft.; 4 levels run on vein, and go od milling ore exposed in each.

HONOLULU MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Jessie W. Taber, pres.; John P. Mahoney, secy.-treas., Wallace. Non-productive.

HOPE MINING AND MILLING CO.

Hope

Capital: \$1,500,000. Par value, \$1.00. Assessable after treasury stock exhausted. **Directors:** G. H. Martin, pres.; A. W. Bowen, treas.; Edward Driesbach, all of Sandpoint; John Larson, secy.; F. S. Hayes, mgr.; H. E. Miller, all of Hope; A. P. McMurray, Deer Park, Wash. **Annual Meeting:** Nov. 6. **Property:** 11 unpatented claims and a fraction, with mill-site, east side of Pend d'Oreille Lake district, 1½ miles from Hope. **Class of Ore:** Copper, silver, lead. No equipment; no shipments. **Development:** 400 ft. of tunnel, and surface cuts. Working small force. **Informant:** Gen. Mgr. Hayes.

HORNSILVER MINING CO.

Wallace

Capital: \$100,000. Par value, 10c. **Directors:** John F. Metz, pres.; M. L. McNeill, secy.-treas.; James Taylor, Otto Freeman and Claus E. Anderson, all of Wallace. **Property:** 2 unpatented claims on Placer creek, just west of Idaho-Nevada, 2½ miles from Wallace. **Development:** 1100 ft. of tunnel and 60-ft. shaft.

HORSE SHOE COPPER CO., LTD.

Mackay

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** J. C. Fox, pres.; D. V. Archibald, secy.-treas.; G. L. Morgan, C. V. Hansen and S. K. Paxton, all of Mackay. **Annual Meeting:** First Tuesday in October. **Property:** 17 unpatented claims (5 surveyed for patent), near Mackay, Custer Co. **Class of Ore:** Copper, gold, silver, lead. **Equipment:** Houses, blacksmith shop, cars, track, tools, etc. **Development:** 1600 ft. of tunnels, several hundred ft. of shafts. Non-productive.

HORSESHOE MINING CO.**Mullan**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Lawrence Hollywood, pres.; P. J. Scbles, secy.-treas.; J. B. Scoles, M. D. Needham and John Gunning, all of Mullan. **Property:** 3 unpatented claims, south of National mill, in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver-copper. **Development:** 1000 ft. of underground workings.

HORST-POWELL COPPER MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** S. W. O'Brien, pres.; M. F. Mendenhall, secy.-treas., Spokane. **Annual Meeting:** First Tuesday in December. **Property:** 7 claims and 5-acre mill-site on Little North Fork river, Coeur d'Alenes. **Class of Ore:** Copper. **Equipment:** Steam and gasoline power, hoist, mine buildings, 150-ton mill, etc. Taken under lease and bond by Empire Copper Co. (q.v.) with agreement to pay indebtedness of approximately \$75,000. Operations unsuccessful and closed in 1917. Affairs badly tangled.

HUB GOLD MINING AND MILLING CO.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** Claus E. Anderson, pres.; M. L. McNeil, secy.-treas., both of Wallace. **Annual Meeting:** August. Non-productive.

HUMMING BIRD MINING CO.**Burke**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** H. L. Day, pres., Wallace; F. M. Rothrock, secy.-treas., Spokane. **Property:** 19 patented claims, in Lalande district, Coeur d'Alenes. **Annual Meeting:** Third Wednesday in November. **Note:** Hercules Mining Co. owns 912,779 shares, at a cost of \$207,272.43, according to sworn statements in suit of Cardoner vs. Day.

HYPOTHEEK MINING & MILLING CO.**Wallace**

Capital: \$200,000, in 2,000,000 shares. Par value, 10 cts. Assessable. Issue of 200,000 7% 12-year bonds authorized in 1914. According to statement March 27th, 1918, bonds outstanding, \$58,200. **Directors:** J. H. Kern, Moosejaw, Saskatchewan, pres.; Otto A. Olsson, Wallace, secy.-treas.-mgr.; W. W. Davidson, J. H. Kirk and S. A. Covert. **Property:** 9 claims, located in 1886, 6 miles from Enaville, Coeur d'Alenes, a station on Wallace branch of O.-W. R. & N. Co. Property most westerly now operated in district. Ground traversed by 2 parallel veins in slate, outcropping prominently across high ridge. **Development:** Vertical shaft sunk 700 ft., with numerous drifts and cross-cuts, disclosed only meagre showing of copper ore, and workings were abandoned. Crosscut had, however, tapped a third or blind vein containing lead carbonates. New vertical three-compartment shaft was then sunk and drifts on new vein run at 700, 900 and 1100 ft. levels. Ore shoot said to be 400 ft. long and from 1 to 5 ft. wide, averaging possibly 3 ft. Ore largely lead carbonate, with occasional bunches of galena. Carries no zinc and but little iron. **Equipment:** Includes 100-ton mill, apparently doing satisfactory work. Concentrates said to average 60% lead, 7 ozs. silver and \$5.00 gold per ton. Power supplied by Washington Water Power Co. Mine connected with shipping terminal at Kingston, by 3-mile aerial tramway. **Ore Reserves:** No official statement of reserves has been given out by management, but private report made in March, 1917, gave estimate of 20,000 tons. Shipments have been maintained since completion of milling plant in 1916; net earnings for quarter ending January 31st, 1917, being placed at \$14,154; quarter ending April 30, 1917, \$14,730; reports for subsequent quarters not available, but statement issued February, 1918, places net smelter returns, from November 1st, 1916, to February 11th, 1918, at \$207,911. Expenses during same period reached \$211,829, with cash in bank, \$983, to meet bank loan of \$4500. Owing to break in hoist cable, production was temporarily suspended early in 1918, but resumed in April. Assessment of 5 mills levied to retire indebtedness. **Note:** In latter part of 1917, reported by Manager Olsson that shoot on 900-ft. level had been proven for 700 ft., with average width of 8 ft. Shipments, prior to recent shut-down, ran to approximately 300 tons per month. Requests for special report have been ignored by management. In April, 1918, 1,100,000 shares reported under option to J. K. George, of New York, at 15 cts. a share, according to circular letter issued by J. H. Kern of Moosejaw, Sask., president of the company. Option runs until August 15, 1918, stockholders having opportunity of accepting same figure up until May 1st, 1918.

IBEX MINING CO.**Mullan**

Controlled by Amalgamated Stock Holding Co., of Wallace. **Property:** 4 claims adjoining Boulder Creek, Idaho and Bitter Root mines, ¾ mile south of Mullan. **Development:** 2 tunnels. In "comatose" condition.

IDAHO ANTIMONY CO.**Seattle, Wash.**

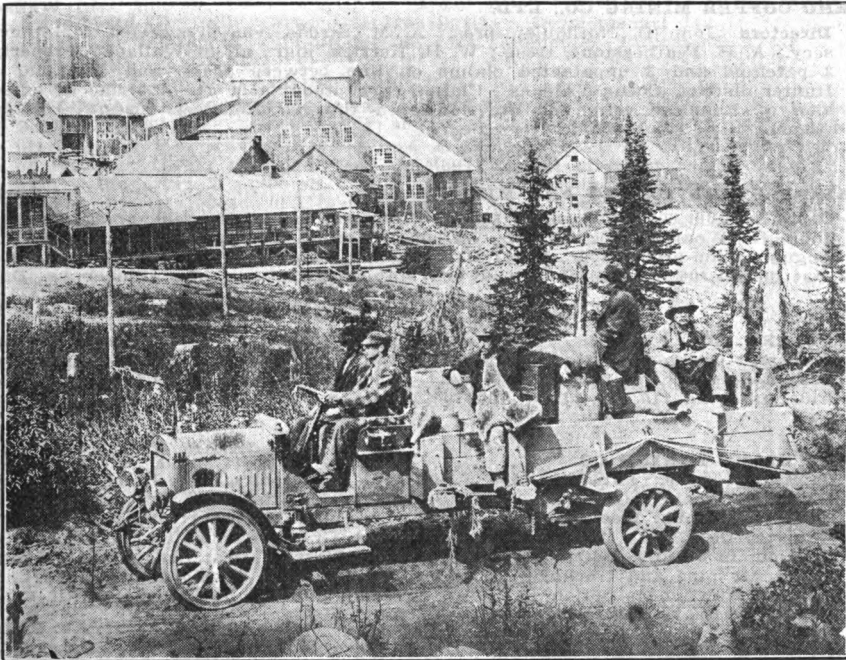
Property: In Yellow Pine district, Idaho Co. **Class of Ore:** Stibnite, 18 to 30 inches wide. Shipments, 2 carloads, 1915-1916, reported to yield 47% antimony. **Development:** 4 tunnels. H. L. Williams, Seattle, mgr.

IDAHO BUSTER MINING CO., LTD.**San Francisco, Calif.**

Capital: \$300,000. Par value, \$1.00. Non-assessable. **Directors:** F. W. Bradley, pres.; M. L. Requa, vice-pres.; J. S. Wallace, secy., all of San Francisco, Calif. **Annual Meeting:** Third Wednesday in November. **Property:** 7 patented and 4 unpatented claims, near Elk City. **Equipment:** 10-stamp mill. Property idle since 1909. **Informant:** Secy. Wallace.

IDAHO-CARBONATE HILL CONS. MINING CO.**Spokane**

A consolidation of the Idaho Giant and the Carbonate Hill Mining companies, perfected in 1917. **Capital:** \$750,000. Par value, 25c. Non-assessable. **Directors:** W. D. Greenough, pres.; A. W. Witherspoon, secy.-treas., Spokane; Lt. Col. Alfred Thompson, M. P., vice-pres., Ottawa, Ont., Canada; Herbert Wheeler, Seattle; Dr. R. A. Griffith, Chicago. **Annual Meeting:** First Tuesday in January. **Property:** 14 patented and 20 unpatented claims, a total area of 473 acres, Hunter district, Coeur d'Alenes, 2½ miles southeast of Mullan. **Class of Ore:** Lead-silver-zinc. Working 20 men. **Equipment:** Using Snowstorm air compressor,



Idaho-Continental Mill, Porthill, Idaho.

2000 cubic ft., connected by 12,000 ft. of 4-inch pipe with Carbonate Hill tunnel. Also equipping for shaft, starting Jan. 1, 1918. Machinery to be shipped from White Horse mine, Alaska, for use in this property, and explorations at great depth will be made. First payment of ½ cent a share made on capital stock of both corporations absorbed by the consolidated company in April, 1918. Total purchase price, \$275,000, with main payments October, 1919, and 1920.

IDAHO CONS. MINES CO.**Boise**

Incorporated January, 1917, with a capital of \$1,000,000, by J. L. Eberte, M. F. Morrow, J. H. Richards and M. C. Hix, of Boise, and D. S. Miller, of Kansas City, Mo. The company has options on mines in Utah, as well as in the Hailey and Warren districts in Idaho.

IDAHO CONTINENTAL CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** A. Klockmann, pres.; Richard Schacht, secy.-treas.; E. M. Robinson, all of Spokane; J. B. Whitehill and Wm. Wraith, Salt Lake City, Utah. **Annual Meeting:** Second Tuesday in February. **Property:** 17 patented and 3 unpatented claims, 26 miles east of Porthill, and 4 miles south of international boundary line, Boundary Co. **Class**

of Ore: Lead-silver. **Equipment:** New 250-ton daily capacity mill, to replace one burned in 1915; an 800-h.p. hydro-electric plant, with flumes, dams, penstock, etc.; electric lighting and steam heating systems; a 15-mile transmission line; a 15-drill compressor plant, complete; 3 blacksmith shops, machine shop, commissary, office, bunkhouse, assay equipment, residences, barns, a sawmill with a daily capacity of 10,000 ft. Total shipments, 10,775 tons. **Development:** Several thousand ft. of tunnels, crosscuts, drifts and raises; vertical depth, 1000 ft. Ore transported by teams to Porthill, and shipped to smelter at Tooele, Utah. Working 150 men. Property a very large silver-lead producer, having been brought to its present position of prominence through almost insurmountable difficulties and discouragements. Secretary's report for 1917 shows royalties to the company of \$114,000, from lease to Klockmann Bros., up to middle of November. Average number of men employed during year, 200. About 8760 tons of ore and concentrates were shipped, and new plant and other improvements installed by leasers.

IDAHO COFFEE MINING CO., LTD.

Wallace

Directors: John H. Nordquist, pres.; A. M. Strode, vice-pres.; Geo. F. Stoney, secy.; A. H. Featherstone, treas.; W. H. Herrick, mgr., all of Wallace. **Property:** 3 patented and 3 unpatented claims on line between Idaho and Montana, in Hunter district, Coeur d'Alenes. Claims carry about 4500 ft. of strike of extension of Reindeer vein, and ore developed through Reindeer 3000-ft. crosscut tunnel.

IDAHO-EASTERN MINING AND MILLING CO.

Burke

Capital: \$1,000,000. Par value, \$1.00. **Directors:** Sam Seidenfeld, pres., Spokane; John H. Wourms, secy.-treas., Wallace. **Annual Meeting:** Third Monday in August. Non-productive. **Note:** Hercules Mining Co. owns 720,330 shares, at a cost of \$25,206.39, according to sworn statements in suit of Cardoner vs. Day.

IDAHO EXP. CO.

Hailey

Property: Group of patented claims in Kelly gulch, west of Hailey. **Class of Ore:** Lead-silver. Strike in 1915 said to have disclosed ore body several feet wide, assaying 110 ozs. silver and 70% lead per ton.

IDAHO GIANT MINING CO.

Spokane

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Geo. H. Martin, pres.; D. K. McDonald, vice-pres.; W. J. Beaton, secy.-treas.; Leo Greenough, all of Spokane. **Annual Meeting:** First Monday in June. **Property:** 4 patented claims—the Little Giant, Iron Crown, Castor and Grand Pacific—and 1 unpatented fraction, in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Air pipe and trackage. Working small force. **Development:** 1100 ft. of tunnel. Now under option to W. D. Greenough, of Idaho-Carbonate Hill Cons. Mining Co. (q.v.). **Informant:** Secy.-Treas. Beaton.

IDAHO GOLD COIN CO.

Weiser

Controlled by Salger Seed Co., La Crosse, Wis. S. W. Ford, supt., Landore, Idaho. **Property:** In Black Lake section of Seven Devils district. **Class of Ore:** Gold. **Equipment:** 50-ton cyanide plant. **Development:** Represents expenditure of \$250,000 in past 12 years. Output treated at mine.

IDAHO GOLD & RADIUM MINING CO.

Spokane

[See Idaho Gold and Ruby Mining Co.]

IDAHO GOLD AND RUBY MINING CO.

Spokane

Capital: \$4,000,000. Par value, \$1.00. Non-assessable. **Directors:** John M. Schnatterly, pres.; S. A. Deardorf, vice-pres.; M. L. McCormick, secy.-treas.; A. B. Babb, all of Spokane. **Property:** 2500 acres of placer ground, 1300 acres being gold-bearing; also a number of quartz claims, near Leonia. **Class of Ore:** Gold and some platinum. **Equipment:** A 56-ton steam shovel for digging canal and diverting water from Boulder creek, to handle about 300,000,000 cubic yards of gravel, containing values of 30c to 50c per cubic yard; hydraulic plant with 3000 ft. of pipe line, and several hydraulic giants. Over \$300,000 expended in development and equipment.

IDAHO-KNICKERBOCKER MINING CO.**Spokane**

Absorbed Charles Dickens M. & M. Co. in 1917. Later reorganized as Old Charles Dickens Mining Co. (q.v.).

IDAHO LEAD AND COPPER CO.**Spokane**

Capital: \$200,000. Par value, 10c. Common stock, 1,000,000 shares, assessable. **Directors:** E. J. Merrin, pres.; Storey Buck, secy.; Dr. N. M. Baker, all of Spokane; J. E. Callahan, vice-pres., Leonia; L. N. Brown, Bonners Ferry. **Annual Meeting:** First Monday in November. **Property:** 5 patented claims and mill-site and 3 unpatented claims and mill-site, 1 mile from Leonia, on G. N. R. R. **Class of Ore:** Silver-lead-copper. Working small force. No shipments. **Development:** 1600 ft. of underground workings. **Informant:** Pres. Merrin.

IDAHO-LEADVILLE MINES CO.**Spokane**

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** Thos. Fahey, pres.; A. W. Codd, vice-pres.; H. W. Sanders, secy.; J. E. Codd, treas., all of Spokane. **Annual Meeting:** Second Monday in January. **Property:** 8 unpatented claims, in Evolution district, Coeur d'Alenes. **Class of Ore:** Small amount of silver. **Equipment:** Car, rails, furnace for ventilation. **Development:** 748 ft. of tunnel; vertical depth, 250 ft. Non-productive. No shipments. **Informant:** Treas. J. E. Codd.

IDAHO-LOS ANGELES MINING AND MILLING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** John W. Flink, pres.; H. E. Howes, vice-pres.; Alfred J. Dunn, secy.-treas.; John Callahan, all of Wallace; Hiram Leithead, Los Angeles. **Annual Meeting:** Second Monday in June. **Property:** 7 patented and 7 unpatented claims, in Placer Center and Beaver districts, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. **Equipment:** Only adapted to hand work; employing 3 men. **Development:** 250-ft. tunnel. No shipments. **Informant:** Secy.-Treas. Dunn. **Note:** Reported Feb. 20, 1918, that crosscut from main tunnel is nearing vein, as indicated by large volume of water. Over 400 ft. of crosscutting and drifting was done during the winter of 1917.

IDAHO-MONTANA AMALGAMATED CO.**Spokane**

Property: Near Kalka station, on G. N. R. R., Bonner Co., Idaho. **Class of Ore:** Lead-silver. **Equipment:** 50-ton concentrator. **Development:** 400-ft. inclined shaft.

IDAHO-MONTANA MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** Walter H. Hanson, pres.; E. H. McConnell, vice-pres., Burke; Harry Harris, treas., Mullan; J. H. Wixom, secy., Wallace; E. P. Miller, Spokane. **Annual Meeting:** First Saturday in September. **Property:** 10 unpatented claims, on line between Idaho and Montana. **Class of Ore:** Lead-silver-copper. **Equipment:** Air drills, 4-drill compressor, bunk houses, blacksmith shop. Non-productive. **Development:** 800 ft. of tunnel and crosscuts. **Informant:** Secy. Wixom.

IDAHO NATIONAL MINE.**Elk City**

Co-partnership. **Owners:** Edward, Henry and John Massam. **Property:** 200 acres of placer, unpatented, American river, 1 mile from Elk City—old American Hill property. **Class of Ore:** Coarse placer gold. In late '90s ground produced \$186,000 in one season. **Development:** Assessment work only. **Informant:** Henry Massam, part owner.

IDAHO-NEVADA EXP. CO., LTD.**Wallace**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** M. L. Mahoney, pres., Burke; Jos. Piela, vice-pres.; E. R. Turk, secy.-treas.; A. J. McDonald, A. B. Livingston and August Holts, all of Spokane. **Annual Meeting:** First Saturday in August. **Property:** 3 unpatented claims and mill-site, Placer Center district, 2½ miles from Wallace. Holds lease on Castle Rock claim. **Class of Ore:** Copper. **Equipment:** Compressor, hoist, etc. **Development:** 1000 ft. of underground workings. Closed down in January, 1918, being unable to obtain extension of bond and lease.

IDAHO NORTHERN MINERAL CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. **Directors:** Frank Swanson, pres., Spokane; E. W. Burton, secy.-treas., Murray. **Annual Meeting:** Third Saturday in January. **Property:** 18 unpatented claims, in Summit district, Coeur d'Alenes. **Class of Ore:** Copper, lead, silver and gold. **Development:** 1500-ft. tunnel; vertical depth, 400 ft.

IDAHO PLACER MINES CO.**Spokane**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** J. V. Pohlman, pres.; R. H. Bailey, vice-pres.; Edw. Pohlman, secy., all of Spokane; E. W. Bailey, Naches, and F. A. Jones, Pasco, Wash. **Annual Meeting:** Second Monday in December. **Property:** 13 unpatented placer claims and 3 water rights on Newsome, Baldy and Pilot creeks, 32 miles southeast of Stites. **Class of Ore:** Gold, 5c to 8c per cubic yard. **Equipment:** 2½ miles ditch, capacity 1200 miners' inches; 2000 ft. 8 to 20 inch hydraulic pipe in place; 2 No. 1 and 1 No. 3 Giants; blacksmith shop, cook house, bunk house, tools, etc. **Informant:** Secy. Pohlman.

IDAHO POWER AND CONCENTRATING CO., LTD.**Spokane**

Capital: \$500,000. Par value, \$1. **Directors:** A. S. Knudsen, pres.; R. M. Odegaard, vice-pres.; A. L. Doran, secy.-treas; Dr. J. D. Windell, L. G. Meiberg and E. T. Lensegraff, all of Spokane; Geo. L. Spears, Sandpoint. **Annual Meeting:** Third Tuesday in June. **Property:** Water right to Trestle creek, Idaho, near Hope. No equipment; no development. **Informant:** Pres. Knudsen.

IDAHO-SEATTLE MINING CO.**Seattle, Wash.**

Capital: \$1,000,000. Par value, \$1.00. **Directors:** F. R. Van Tuye, pres.; L. E. Eymann, vice-pres.; R. V. Horsha, secy.-treas.; F. A. Linford, L. R. Margetts. **Annual Meeting:** Second Monday in January. **Property:** 2 patented and 1 unpatented claims, 8 miles from Tenday, Lemhi Co., Idaho, held under bond and lease. **Class of Ore:** Copper, gold, silver. **Equipment:** Small concentrator. **Development:** 1600 ft. of underground workings.

IDAHO SMELTING AND REFINING CO.

Mortgage foreclosed and title held by Union Trust & Savings Bank, as trustee for bondholders. Erected small smelting plant at Sandpoint, Idaho, 15 years ago, but operations unsuccessful. Plant idle since that time.

IDAHO STANDARD MINES CO.**Spokane**

Capital: \$50,000. Par value, 5c. **Directors:** A. D. Marshall, pres.; E. H. Becker, vice-pres., Wallace; J. L. Spangler, secy.-treas.; J. T. Omo and C. W. Peterson, Spokane. **Property:** Renown Group of 9 claims, on Black Cloud creek, tributary of Nine Mile, near Wallace. **Development:** Several short tunnels and crosscuts.

IDAHO STANDARD MINES CO.**Boise**

Directors: A. R. Cruzen, pres.; Jno. M. Haines, secy.-treas. **Property:** 5 unpatented claims—Standard, Standard Extension, Rambler, Rambler No. 2 and Outlet—Warren district. **Class of Ore:** Gold, with small amount silver. Working 33 men. **Equipment:** 5-ft. Huntington mill, Dodge rock crusher, feeder, vanner, 30-h.p. boiler, 30-h.p. old engine. Rate of output, \$4,000 per month. **Development:** 712 ft. of crosscuts, 975 ft. of drifts, and 61-ft. shaft. **Informant:** Gen. Mgr. E. H. McAuly.

IDAHO, THE (Co-partnership).**Kellogg**

Owners: E. D. Booth, Kellogg; Chas. McKinnis, Wallace. **Property:** 3 unpatented claims on East Pine creek, northwest of Nabob, with easement to work through Nabob tunnel. **Class of Ore:** Lead-silver. Considerable exploration work done, but none being done now.

IDORA MINING CO., LTD.**Spokane**

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** J. C. Broad, pres.; C. E. Mallette, secy.-treas.; J. B. Carson, vice-pres.; D. B. Fotheringham, all of Spokane; C. J. Orland, Moscow, Idaho. **Annual Meeting:** First Monday in April. **Property:** 1 patented and 6 unpatented claims and a fraction, in Beaver Creek district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** 50-ton concentrator and flotation process, electric power, ore cars, tracks, bins, aerial tramways to mill, drills, drill sharpeners, etc. Shipments, about 100 tons per month. **Development:** Between 7000 and 8000 ft. of tunnels, raises and drifts. Is a reorganization of the old Idora Hill Mining Co. **Informant:** Secy.-Treas. Mallette.

IDRA CONS. MINING AND MILLING CO.**Salt Lake City, Utah**

Warren Zeigler, supt. **Property:** 21 patented claims, southwest of Landore, Idaho. **Class of Ore:** Tungsten, mainly hubernite, with some wolframite, in white quartz fissure veins; gangue also shows lead, zinc and iron. Shipped about 12 tons of 60% tungsten concentrates in 1915. **Equipment:** 50-ton concentrator, with flotation unit. Under 7-year lease to Idaho Tungsten Co.

IMPERIAL MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** J. H. Nordquist, pres.; J. N. Thennes, vice-pres.; Homer G. Brown, secy.-treas.; E. R. Day, P. J. Gearon, all of Wallace. **Annual Meeting:** Nov. 21. **Property:** 10 patented claims, in Burke canyon, Lalande district, Coeur d'Alenes—the Star, Bluff Fraction, Bluff, May, Hilde, Angelsite, Platternite, Star Fraction, Hilde Fraction and May Fraction. **Class of Ore:** Lead-silver. **Equipment:** 4-drill compressor, 40-h.p. motor, boarding and bunk houses, blacksmith shop, 3 ore cars, air pipe, track, tools, etc. Electric power connection. **Development:** 4000 ft. of tunnel and several crosscuts. **Informant:** Secy.-Treas. Brown.

INDEPENDENCE LEAD MINES CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** M. W. Bacon, pres.; W. E. Cullen, secy.; R. A. Carnochan, all of Spokane; John H. Wourms, vice-pres.; C. E. Ordstrand, Wallace. **Annual Meeting:** Second Wednesday in August. **Property:** 10 patented claims, 150 acres, 1 mile from Mullan, Hunter district. **Class of Ore:** Lead-silver. Vein system believed to be extension of ore bodies in Morning mine, adjoining. No shipments. **Equipment:** Tracks, cars, air pipe, etc. **Development:** 4000 ft. of tunnels and drifts; vertical depth, 1000 f. About \$50,000 has been spent in developing the property, formerly owned by F. Augustus Heinze. **Informant:** Secy. Cullen.

INDEPENDENCE MINING CO.**Hailey**

Mrs. Harry J. Allen, owner and mgr. **Class of Ore:** Lead-silver. Shipments in 1915 showing 45% lead, 95 ozs. silver. Operations hampered by apex litigation and lack of water supply for mill.

INDEPENDENCE PLACER CO.**Wallace**

Placer claims located on Moose and Independence creeks, formerly worked by Wm. Fahle, Emil Pfister, M. Vinas, Otto Trajonowsky, M. L. McNeil, L. L. Sweet and others. Taken over in 1916 by Joseph Peeper and L. L. Sweet. Consists of 7 claims in Elk River district.

INDEPENDENT COPPER MINING AND MILLING CO.**Wallace**

Capital: \$1,250,000. Par value, \$1.00. Assessable. **Directors:** John H. Nordquist, pres.; Otto A. Olsson, secy.-treas.; Chas. McKinnis, J. N. Thennes, August Matt, all of Wallace; Jas. A. Bean, Henry Billberg and Forest Clark, Mullan. **Annual Meeting:** First Monday in July. **Property:** 3 patented claims above Mullan, in Hunter district, Coeur d'Alenes. **Class of Ore:** Copper, lead. **Equipment:** 100-h.p. electric motor. **Development:** 1300 ft. of tunnels, 200-ft. shaft, and a number of drifts.

INDEPENDENT DEVELOPMENT CO.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** G. L. Richardson, pres.; W. A. Smith, secy.-treas.; Jas. A. Wayne, Meade Sharp, all of Wallace; W. H. Teel, Los Angeles, Calif. Organized in 1916, to recover values from slimes in the bed of the south fork of the Coeur d'Alene river, from Kingston, to Dudley, riparian rights to which were leased from farmers owning the land, on a royalty basis. **Plan of operations:** To dredge deposits of tailings from river into barges, and treat by flotation process. Good values in silver, lead and zinc reported.

INDEPENDENT MINING CO.**Kellogg**

Directors: P. J. Gearon, Wallace; A. T. McRae, Geo. McKinnis, Kellogg; D. E. Keyes, Mullan; Wm. McKinnis, St. Joe, Mo., who purchased the property, 9 claims and some fractions, in Yreka district. Lies between East Caledonia and the Alhambra, near Wardner. **Development:** 300 ft. of tunnel, 65 ft. of shaft.

INDEX MINING AND MILLING CO.**Kellogg**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** H. T. Gilbert, pres.; Thos. Gilbert, treas.; W. E. Gilbert, secy., all of Kellogg. **Annual Meeting:** Third Saturday in April. **Property:** 6 patented and 1 unpatented claims, in Yreka district, Coeur d'Alenes, 1½ miles from Kellogg. **Class of Ore:** Lead, silver, zinc. **Equipment:** Boarding house, blacksmith shop, car, tools, etc. No shipments. **Development:** About 1500 ft. of tunnels and drifts. **Informant:** Secy. Gilbert. Control of property has been taken over by Butte and San Francisco capitalists, through W. H. Nicholls, of Butte.

INLAND EMPIRE MINING AND MILLING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Mrs. Mary Madar, pres.; John Madar, treas., Burke; Frank Bath, vice-pres., Salem, Ore.; Geo. Clair, secy.; Alex. Anderson, Spokane; Chas. Waxman, Missoula, Mont.; A. C. Schir-

mer, Hibbing, Minn. **Annual Meeting:** Second Monday in January. **Property:** 1 patented claim, 12 acres, and a fraction, in Lalande district, Coeur d'Alenes, near Burke. **Class of Ore:** Gold, silver, lead, zinc. **Equipment:** Compressor, electric hoist, pumps, air-pumps, 3 drilling machines, blacksmith shop, etc. **Development:** Two tunnels, one being 400 ft., 175-ft. shaft, 200 ft. of drifts. **Informant:** Pres. Mary Madar.

INTERNATIONAL GOLD MINING AND MILLING CO.

Spokane

Capital: \$10,000. Par value, 1c. Assessable. **Directors:** James Tyra, pres.; D. Miloradovich, vice-pres.; L. Tyra, secy.; J. Mazno, treas.; Frank Sackalick, all of Spokane. **Annual Meeting:** Jan. 2. **Property:** 2 unpatented claims near Orogrande. **Class of Ore:** Gold. **Equipment:** Bunkhouse, blacksmith shop, rolls, 2-stamp mill. **Development:** 2,000 ft. of tunnels, 1,000 ft. of surface cuts. **Informant:** Vice-Pres. Miloradovich.

INTERNATIONAL MINES, LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** Jas. White, pres.; John Clark, Burke; A. H. Featherstone, secy.-treas.; E. L. Hale, W. R. Miller, Wallace. **Annual Meeting:** Last Saturday in June. **Property:** 8 patented and 8 unpatented claims, adjoining Oom Paul, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. About \$25,000 expended in development work.

INTERNATIONAL MINING CO.

Kellogg

Capital: \$1,000,000. Par value, \$1. **Directors:** W. C. Arnold, pres., Dubuc, Sask.; W. T. Simons, secy.-treas.; D. W. Price, Kellogg; W. F. Robertson, Rolett, N. D. **Annual Meeting:** Third Monday in July. **Property:** 8 unpatented claims in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. Working small force. **Development:** 600 ft. of underground workings. Non-productive.

IBENE MINING CO.

Wallace

Capital: \$100,000. Par value, 10c. **Directors:** F. N. Barnard, pres.; Nellie J. Stockbridge, secy.; J. P. Mahoney, treas., all of Wallace. **Annual Meeting:** Second Tuesday in March. Non-productive.

IRON KING MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1. **Directors:** Herman J. Rossi, pres.; Otto A. Olsson, secy.-treas., Wallace. **Annual Meeting:** Second Friday in November. **Property:** 4 unpatented claims in Evolution district, Coeur d'Alenes. **Development:** 1560 ft. of cross-cuts, drifts, raises and winzes.

IRON MASK MINE.

Spring Mountain, Gilmore

Co-partnership. **Owners:** P. H. Clark, E. J. Clark, Gilmore; C. H. Oakley, Dubois; Ted Ellis and W. A. Coulson, of Eddie; Walt Coulson, Small, Idaho. **Property:** 8 unpatented claims in Spring Mountain district, Lemhi Co. **Class of Ore:** Lead, copper, gold, silver. **Equipment:** 1500-ft. aerial tramway. **Development:** 600-ft. tunnel; vertical depth, 800 ft. Non-productive. **Informant:** Supt. W. E. Clark.

IRON MASK MINING CO.

St. Maries

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** T. B. Hay, pres.; Leon Demers, vice-pres.; Pesley Martin, secy.-treas.; Felix Peonier, all of St. Maries. **Annual Meeting:** Second Monday in May. **Property:** 6 unpatented claims at Falls Creek, Coeur d'Alenes. **Equipment:** 15-h.p. gasoline air-compressor. **Development:** 1300-ft. tunnel, 200-ft. cross-cut, 70-ft. shaft. Non-productive. **Informant:** Secy.-Treas. Martin.

IRON SPAR COPPER MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Wesley Everett, pres.; A. L. Honeker, vice-pres.-treas.; W. W. Bixby, secy.; Morton Webster and J. J. Curran, all of Wallace. **Annual Meeting:** Fourth Tuesday in May. **Property:** 4 unpatented claims—London, Bitter Root, Iron Spar and Molly Bawn—partly in St. Regis district, Montana, and partly in Hunter district, Coeur d'Alenes. **Class of Ore:** Gold, silver, lead. **Equipment:** Car, track, ventilating pipe, cabin and blacksmith shop. No shipments. **Development:** 800-ft. tunnel, opening to vertical depth of 350 ft. Non-productive. **Informant:** Vice-Pres. Honeker.

IVANHOE MINING CO.

Mullan

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** J. A. Bean, pres., Mullan; C. D. Brock, vice-pres.; C. D. Miller, secy.-treas.; S. C. Bean, J. H. Foss and J. H. Nordquist, all of Wallace. **Annual Meeting:** Nov. 1. **Property:** 2 patented claims, 35 acres, just west of Star mine, in Hunter district, Coeur

d'Alenes, having what is believed to be the Morning vein system. **Class of Ore:** Silver-lead. **Equipment:** Cars, track, tools, etc. No shipments. **Development:** 1250 ft. of tunnel, 900 ft. of cross-cuts, and 35-ft. shaft. All development work now being done through Star tunnel, 4200 ft. Discontinued diamond drilling in January, 1918, to await result of litigation between Star and Federal companies. **Informant:** Pres. Bean.

I. X. L. GOLD MINING CO.**Caldwell**

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** D. B. Fleming, pres., Des Moines, Iowa; W. H. Kalbach, vice-pres., Oskaloosa, Iowa; L. S. Miller, secy.; H. W. Dorman, mgr., Caldwell. **Annual Meeting:** Second Tuesday in June. **Property:** The I. X. L. group of patented claims, 120 acres, Westview district, near Pearl. **Class of Ore:** Gold and silver. **Equipment:** 40-ton concentration and amalgamation plant, high-speed rolls and Bartlett tables. No shipments; property idle. **Informant:** Manager Dorman.

JACK WAITE EXTENSION CO., THE.**Murray**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Chas. Melroy, pres.; J. T. Ellarson, secy.-treas., Murray; Geo. Scheulmann, vice-pres., Kellogg; Theo. Bedard, Thompson, Mont. **Annual Meeting:** First Monday in July. **Property:** 52 unpatented claims in Eagle district, Idaho, and in Sanders Co., Mont. **Class of Ore:** Lead-silver. **Equipment:** Compressor plant and ventilating system. Working 10 men. No shipments. **Development:** 1,000 ft. of tunnels. Mill site located and water right secured. Abundance of timber and water. Traversed by Jack Waite ore-bearing lead, proven to depth of 1,000 ft. **Informant:** Secy.-Treas. Ellarson.

JACK WAITE MINING CO., LTD.**Union**

Capital: \$1,500,000. Par value, \$1. **Directors:** E. Winsby, pres., Oakland, Calif.; Robt. Sheffels, vice-pres., Govan, Wash.; C. E. Chamberlain, secy.-treas.; Fritz Marchante, A. E. Hag, W. H. Bell and B. B. Adams, all of Spokane. **Property:** 3 patented claims and 2 fractions, in Eagle district, near Union. **Class of Ore:** Lead-silver. **Equipment:** Well supplied with machinery, but plans for new 100-ton mill postponed. Shipments run about 150 tons per month, but in July, 1917, 300 tons were shipped in four days. Working about 35 men. **Development:** 4470 ft. of tunnels and cross-cuts, 465 ft. of raises.

JANUARY MINING CO.**Portland, Ore.**

Capital: \$1,000,000. Par value, \$1. **Directors:** C. E. McBroom, pres.-treas.; F. T. Post, secy., Spokane. **Annual Meeting:** First Tuesday in June. Non-productive.

JIM BLAINE GROUP.**Kellogg**

Co-partnership. **Owners:** Harry Morrell and Chas. Lafavre, Kellogg. **Property:** 8 unpatented claims—Jim Blaine Nos. 1, 2, 3, 4, 5, and 6, and Jim Blaine and Jesse—in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead and silver. **Development:** Assessment work only—about 600 ft. of tunnel and drifts.

JUMBO MINING CO.**Wallace**

Incorporators: John Carlson, John Wood, C. E. Conn and Chas. Minch, all of Gem; J. N. Morgan, of Mace. **Capital:** \$1,000,000. Par value, \$1.00.

JUMBO MINING CO.**Osborne**

Directors: Elmer Johnson, pres.; Fred Prichard, vice-pres.; S. P. Fairweather, secy.-treas. **Property:** 4 claims east of the Nellie, at Osborne. **Class of Ore:** Silver, copper, zinc, lead, gold. **Development:** 500 ft. of tunnel.

JUMBO MINING AND MILLING CO.**Buffalo Hump**

Directors: J. C. Jansen, pres.; S. D. Stouffer, secy.-treas., Nez Perce; Frank E. Wyatt, Grangeville; W. E. Howard, Clarkston; L. K. Brown, Asotin; J. J. Baerlacher, Green Creek. **Property:** In the Buffalo Hump district. Leased to Ben E. Schultz in July, 1916, for 1 year, with privilege of 2, on royalty basis. **Equipment:** Fine mill and power site; has been extensively developed, but idle for several years.

KAMIAH ASBESTOS MFG. CO.**Kamiah**

Large deposits of asbestos, 12 miles east of Kamiah, controlled by Geo. Waterman, pres. State Bank at that place. Plant, costing \$7,000 or \$8,000; product, an amphibole fibre, 85% pure. Sells for about \$25 per ton. Also used in making calcimine.

KELLOGG GALENA MINING CO.**Spokane**

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** C. C. McEachran, pres.; S. A. McCoy, vice-pres.; H. F. Aldrich, secy.-treas.; Jas. A. McEachran, J. K. Smith, all of Spokane. **Annual Meeting:** Second Tuesday in February. **Property:** 7 claims northeast of Sweeny mill, and 7 claims on Elk creek, southwest of Kellogg—80 acres of same being patented—in Yreka district. **Class of Ore:** Lead-silver. Working small force. **Equipment:** Ordinary hand tools, car and track. No shipments. **Development:** 675 ft. of tunnel. Bunker Hill & Sullivan Alhambra mill is located on this property. A 65-ft. vein of iron carbonate has been cut in lower tunnel, 325 ft. from portal. **Informant:** Vice-Pres. McCoy.

KELLOGG-SUNNYSIDE MINING CO.**Spokane**

Capital: \$150,000. Par value, 10c. **Directors:** Geo. H. Wilson, pres.; J. A. McEachran, secy.-treas.; S. A. McCoy, all of Spokane; Bert Swartz, Jacob Thorpe, Kellogg. **Property:** Group of unpatented claims, 1½ miles north of Kellogg. **Class of Ore:** Zinc-lead. [Included in holdings of Kellogg United Mines Co. q. v.]

KELLOGG UNITED MINES CO.**Spokane**

A consolidation of the Brown Leasing Co, the Kellogg-Sunnyside Mining Co. and the Coeur d'Alene Atlas Mining Co. **Capital:** \$500,000. Par value, 25c. Non-assessable. **Directors:** Sam'l A. McCoy, pres.; Jas. A. McEachran, secy.; Geo. W. Sommer, treas.; Q. D. Chapman, all of Spokane; Theo. Brown, Beeler, Idaho. **Annual Meeting:** Second Tuesday in May. **Property:** Coeur d'Alene Atlas Group of 10 unpatented and undeveloped claims on Pine creek, adjoining Constitution mine; also a lease from the Federal of the Corrigan group of patented claims, in the Yreka district, Coeur d'Alenes, containing in all about 1000 acres. **Class of Ore:** Silver-lead. Shipments to date, 471 tons concentrates, value \$20,000. Working small force. **Equipment:** Ordinary hand tools, cars, track, gasoline hoist, engine and fan. Building a 50-ton mill. **Development:** About 5000 ft. of drifts on various levels, several hundred ft. of shafts. **Informant:** Pres. McCoy.

KENNAN MINING CO.**Wallace**

Capital: \$250,000. Par value, \$1. **Directors:** Robt. Scott Ord, pres.-treas., Spokane; Chester T. Kennan, vice-pres.-secy.-mgr., Murray; E. J. Roberts, Spokane. **Property:** 36 claims, 700 acres, north side Coeur d'Alene Mts., Shoshone Co.

KEYSTONE MINES CORP.**Spokane**

Property: The Little Joe group, on Blacktail Mt., Pend d'Oreille district. Sold to Harry H. Armstead in March, 1917, and Co. discontinued. Now operated by Armstead Mines Co. (q.v.)

KEY WEST GROUP.**Orogrande**

Co-partnership. **Owner:** E. H. Hansen, Orogrande. **Property:** 60 acres, patented, near Orogrande. **Class of Ore:** Gold, running \$2.50 per ton. **Equipment:** Car, track and tools. No shipments. **Development:** 285 ft. of tunnels, open cuts and test pits. **Informant:** E. H. Hansen, owner.

KILL BUCK MINING CO., LTD.**Butte, Mont.**

Capital: \$100,000. Par value, 10c. **Directors:** J. L. Templeman, pres.; W. D. Mangam, treas., Butte; Cyrus W. Gossert, secy.; Herman J. Rossi, both of Wallace; John D. Ryan, New York. **Annual Meeting:** Second Saturday in July. **Property:** 6 patented claims 2 miles southeast of Wallace, in Evolution district, Coeur d'Alenes. Controlled by Senator W. A. Clark, of Montana. **Class of Ore:** Lead-silver. Employing 10 men. **Development:** About 2000 ft. of underground workings. Being worked through the Coeur d'Alene Vulcan Mining Co.'s tunnel. Adjoins Chicago-Boston property on west. Gross receipts of \$80,000 from shipments.

KING DAVID CO.**Spokane**

Capital: \$1,500,000. Par value, \$1.00. Non-assessable. **Directors:** A. R. Immisch, pres.; Jas. A. Brown, F. C. Dolke, all of Spokane; W. L. Smith, vice-pres., Bovill; P. A. Hughes, secy.; L. A. Smith, treas., Neva. **Annual Meeting:** Second Monday in August. **Property:** 6 unpatented claims—Ruby, King David, Granite Lode, Mabel, Midas, Zion—1 mile from Neva station, on Ruby creek, Clearwater county. **Class of Ore:** Zinc, silver, lead and some copper. Working 5 men. **Equipment:** Steam boiler, Flory steam hoist, Sullivan compressor, two power drills, electric light plant, electric mine exhauster, blacksmith shop, tools, cars, 2 bunk houses, and other substantial buildings. No shipments. Ground heavily timbered. **Development:** Shaft, 70 ft., and will sink to 200. **Informant:** Pres. Immisch.

KING OF PINE CREEK MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** J. H. Otto, pres., Beeler; Martin Webster, treas.; Ed C. Young, secy.; Chas. Salbury, Walter Hanson, all of Wallace. **Annual Meeting:** Fourth Monday in August. **Property:** 6 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. **Equipment:** Car and track. **Development:** 520 ft. of underground workings. No shipments. **Informant:** Pres. Otto.

KIRKHAM GROUP.

White Bird

Owners: H. L. and O. E. Kirkham, White Bird. **Property:** 30 acres, patented, in Camp Howard district, Idaho Co. **Class of Ore:** Copper, silver, gold. No shipments. **Informant:** H. L. Kirkham, manager.

KIRTLY CREEK GOLD DREDGING CO.

San Francisco, Cal.

Directors: John Martin, pres.; H. Malich, secy., San Francisco. **Property:** 643 acres, patented, in Kirtley Creek district, Lemhi Co. **Class of Ore:** Gold and some silver. **Equipment:** 1 placer dredge, Bucyrus type. No shipments. **Informant:** Supt. Liskow.

KITTLE BURTON GOLD MINES CO.

Houghton, Mich.

Capital: \$500,000. Par value, \$1.00. **Directors:** R. M. Edwards, pres.; J. H. Rice, treas.; J. H. Hodgson, Wm. A. Hodgson, G. C. Edwards, secy., all of Houghton; Jas. McNaughton, Calumet, Mich.; Kenneth K. McLaren, Jersey City, N. J. **Property:** 16 patented claims, or 300 acres, at Ulysses, Lemhi Co., Idaho. Being worked by leasers. **Class of Ore:** Gold, and small amount of silver. **Equipment:** 15-stamp mill, gravity tramways, air compressor, concentrator, cyanide plant; water power. Shipments to date, \$731,262. Dividends paid, \$36,000. **Development:** A number of tunnels. **Informant:** Manager R. L. Edwards.

KUSA SPELTER CO.

Kusa, Oklahoma

Price & Smith group of 6 claims, in Lake Creek district, near Halley, taken on bond of \$31,500 by Newton W. Emmens, agt. **Class of Ore:** Zinc.

LACLEDE MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** C. Fred Kratzer, pres.; E. H. Knight, both of Spokane; Jas. A. Wayne, secy.-treas.; O. W. Lewis, Wm. Weir, Wallace. **Annual Meeting:** September. **Property:** 9 patented claims, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 5500 ft. of underground workings. Control taken over by Day interests, of Wallace, in March, 1917. Ore occurs irregularly, and thus far is not of commercial value.

LAKE CREEK PLACER CO.

Spokane

Capital: \$500,000. Non-assessable. **Directors:** D. K. McDonald, pres.; M. S. McDonald, vice-pres.; M. E. Seelye, mgr., all of Spokane. **Property:** 6 claims—the Gold Standard Nos. 1, 2, 3, 4, and 5, and Seelye No. 2, 6 miles from Resort, Idaho. **Class of Ore:** Gold. Working small force. **Equipment:** 2 giants, boarding outfit and other buildings. **Development:** Securing water right, making ditches, etc., for placer operations. Gravel runs about 20 cents per yard. **Informant:** Bookkeeper Jas. Newlands.

LAKE KILLARNEY MINING CO.

Wardner

Capital: \$1,000,000. Par value, \$1.00. **Directors:** D. Bonham, pres.; G. G. Bonham, secy.-treas., Wardner. **Annual Meeting:** First Tuesday in June.

LAKEVIEW METALS CO.

Spokane

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Bob Mabry, pres.; J. P. Dillard, vice-pres.; E. A. Moye, secy.-treas., all of Spokane. **Property:** Formerly Conjecture mine, owned by Col. Ridpath and associates, who, under previous ownership, shipped \$70,000 from the property—2 patented claims, 4½ miles east of Lakeview, Idaho. **Class of Ore:** Silver, with small quantities of lead, zinc and gold. Working 8 men. **Equipment:** Steam hoist sufficient for 500 ft. depth; compressor and machine drills. Not shipping now. **Development:** 232-ft. shaft and over 2000 ft. of tunnels. Late operations encountered a body of silver ore averaging \$33 per ton, in a vein 5½ ft. wide. Assays ran as high as \$167 per ton. Ore blocked out, estimated at 40,000 tons. **Informant:** Pres. Mabry.

LAKEVIEW MINING AND MILLING CO.

Lakeview

Capital: \$600,000. Par value, \$1.00. Assessable. **Directors:** Wm. E. Cloyes, pres., Chicago; S. P. Donnelly, secy., Lakeview; Albert H. Conner and Ignatz Weil,

Sandpoint; R. E. M. Strickland, Spokane. **Property:** 4 patented claims at Lakeview. **Class of Ore:** Gold and silver. No equipment. No shipments. Property idle. **Informant:** Secy. Donnelly.

LAKEVIEW MINING, POWER AND DEV. CO.

Sandpoint

Capital: \$25,000. Par value, \$1.00. Assessable. **Directors:** Geo. Faust, pres.; Ignatz Weil, vice-pres., Sandpoint; Carl Shappel, Lakeview; Leo Faust, Libby, Mont. **Annual Meeting:** Jan. 1. **Property:** 10 claims, being patented, with water power and mill-site, in Lakeview district, Bonner Co., Idaho. **Class of Ore:** Silver, lead. Now idle. **Equipment:** 2 blacksmith shops, ore cars, tracks, drills, etc. **Development:** 900 ft. of tunnels, crosscuts and drifts, all showing ore. **Informant:** Gen. Mgr. E. D. Faust.

LAKINA COPPER CO.

Spokane

Capital: \$3,000,000. Par value, \$1.00. Non-assessable. **Directors:** E. A. Patrick, pres.; E. J. Coleman, vice-pres.; T. E. Coleman, secy.; G. W. Dickinson, H. R. Waters, Wm. L. N. Koonz, all of Spokane; J. S. Ross, treas., Kellogg, Idaho. **Annual Meeting:** First Saturday in August. **Property:** 5 unpatented claims, about 4 miles north of Lowman, Boise Co. **Class of Ore:** Free-milling gold, running from \$48 to \$86 per ton. Working small force. **Equipment:** Only enough for men at work. No shipments. **Development:** 250 ft. of tunnel, with some drifts. Company also owns several highly mineralized copper claims at the head of Lakina river, Southeastern Alaska, not yet developed. **Informants:** Directors.

LANSING SILVER-LEAD MINING CO., THE.

Wallace

Capital: \$250,000. Par value, 25c. **Incorporators:** Emma Stansfield, R. M. Lewis, A. H. Featherstone, Jonathan Hoal and Frank L. Spangler, all of Wallace; the purpose being to develop the Albion group of claims on Nine Mile creek.

LATAH COPPER MINING CO., LTD.

Bovill

Capital: \$2,000,000. Par value, \$1. Assessable. **Directors:** T. P. Jones, pres.; A. W. Laird, vice-pres.; Chas. W. Sanderson, secy.-treas.; Jas. Costello, Wm. O'Meara and Andrew Deary, all of Bovill; J. E. Gardner, Potlatch. **Annual Meeting:** Second Tuesday in September. **Property:** 9 unpatented claims, 180 acres, at head of Palouse river, Hoodoo district, Latah Co. **Class of Ore:** Copper. **Equipment:** Cabin, blacksmith shop, power house, hoist, boiler, 2 Burligh drills, small compressor, exhaust fan, cars, 50 ft. steel, steel ore car, tools, etc. Total shipments, 1 car carbonate copper ore. **Development:** 3 tunnels, aggregating 388 ft. **Informant:** Secy.-Treas. Sanderson.

LATEST OUT MINING AND SMELTING CO.

Gilmore

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** Ralph Nichols, pres.; D. L. Nichols, vice-pres.-secy.; F. A. Nichols, treas., all of Gilmore; A. C. Cherry, Salmon; F. B. Watson, Aurora, Ill. **Annual Meeting:** First Tuesday in June. **Property:** 1 patented claim—Latest Out—and 1 unpatented—Big Fraction—about 20 acres, in Texas district, near Gilmore, Lemhi Co. **Class of Ore:** Lead, gold and silver. Working 20 men. **Equipment:** 40-h.p. hoist, 12, 15 and 4 h.p. gasoline engines. Shipments to date, 30,000 tons. Rate of output now, 400 tons per month. **Development:** 10,000 ft. of workings. **Informant:** Vice-Pres.-Secy. Nichols. **Note:** Worked by lessee in 1915-16.

LAWRENCE MINING AND MILLING CO., LTD.

Spokane

Capital: \$75,000. Par value, 5c. Non-assessable. **Directors:** Jos. Reed, pres., Clark's Fork; W. W. Wood, vice-pres.; S. Hilliard, secy.-treas., Spokane; A. Loding, Uniontown, Wash.; O. A. Turnbow, Palouse, Wash. **Annual Meeting:** Third Tuesday in August. **Property:** 9 unpatented claims—the Apex, Daniel, Ada I, Iron Cap, Tokio, Inez R, Lawrence, Paul Reed and Los Angeles—and mill-site, in Bonner Co., Idaho. **Class of Ore:** Lead, silver, gold, copper. **Equipment:** 60-ton mill and compressor, hoist and pump. Total shipments to date returned, net, \$42,488. **Development:** 3000 ft. of tunnels and drifts. **Informant:** Secy.-Treas. Hilliard.

LEAD AND SILVER MINING CO.

Wallace

Corporation held lease and bond on "16 to 1" property, later known as "Rex," now owned by Rex Cons. Mining Co. Moving spirits were Glass and Thornton. Property was handled in an extravagant manner, but promoters were unable to raise payments on bond, thus forfeiting all interest in the property. Inquiries as to present whereabouts of Glass, the principal promoter, have been unproductive. It may be safely assumed, however, that the stock is absolutely worthless and that the company has passed out of existence.

LEAD CRYSTAL MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** John E. Steen, pres., Salem, Ore.; Geo. S. Leshner, secy.-treas., Kellogg; Otis Fisher, Murray; Mrs. Fred Merriam and W. W. Bixby, Wallace. **Property:** 7 claims 7 miles from Union, Eagle district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 1250 ft. of tunnel work.

LEAD KING MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** Geo. W. Wood, pres.; E. W. Conrad, secy.-treas., both of Spokane. **Property:** 15 unpatented claims on McFarren gulch, Evolution district, Coeur d'Alenes. **Class of Ore:** Gray copper-lead-silver. **Equipment:** Compressor, electric motor, buildings, etc. **Development:** 2000 ft. of underground workings. Company dormant since 1913. Taken over by Eclipse M. Co. (q.v.) in 1918.

LEESBURG GOLD DUST MINING CO.

Salt Lake City, Utah

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** R. A. Hasbrouck, pres.; W. P. Burton, vice-pres.; Wm. S. Burton, secy.-treas., all of Salt Lake City; Edward Stefel, Wheeling, W. Va. **Annual Meeting:** First Tuesday in October. **Property:** 2 patented claims, about 36 acres, near Leesburg, Lemhi Co., Idaho. **Class of Ore:** Gold, from \$2.80 to \$7.40 per ton. No shipments. **Development:** 310 ft. of drifts and shafts. **Informant:** Pres. Hasbrouck.

LEESBURG MINING AND POWER CO.

Fremont, Neb.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Nils Johnson, pres.; S. S. Van Horn, vice-pres., both of Fremont; Geo W. Phillips, treas.; Max Rothlittner, both of Columbus, Neb.; W. H. Carleton, secy., Leigh, Neb. **Annual Meeting:** Second week in May. **Property:** 29 unpatented quartz claims, in Mackinaw district, Lemhi Co., Idaho. **Class of Ore:** Gold and silver. **Equipment:** 350-h.p. hydro-electric power plant, 1 30-stamp mill, 1050-lb. stamps; 1 10-stamp mill, 750-lb. stamps; 1 50-h.p. steam hoist; 1 sawmill, steam power. Shipments to date, \$125,000. **Development:** A 165-ft. shaft, a 200-ft. shaft and 2500 ft. of drifts. **Informant:** Milton H. Phillips, supt.

LEGAL TENDER MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value \$1. Assessable. **Directors:** J. W. Hutchins, admr. Elise Heller estate; A. H. Featherstone, secy.-treas., Wallace; Robt. Mangler, Los Angeles, Cal. **Annual Meeting:** July. **Property:** 17 unpatented claims and 120 acres patented ground, 2 miles west of Osborne. **Class of Ore:** Gold, copper, silver. **Equipment:** 30-h.p. boiler, hoist, compressor plant, water-power plant, tramway and 1000-ft. flume. **Development:** 900 ft. of tunnel, 100-ft. shaft. Only assessment work done for past 3 years. No shipments. **Informant:** Geo. H. Heller, manager Heller estate.

LEWIS AND CLARK MINING CO.

Mullan

Capital: \$1,250,000. Par value, \$1. **Directors:** Wm. Grismer, pres.; J. R. Bean, secy.-treas.; Abe Hutton, John B. Grismer, all of Mullan; Dr. L. B. Manchester, Wenatchee, Wash. **Annual Meeting:** First Monday in May. **Property:** 2 patented and 7 unpatented claims, 2½ miles east of Snowstorm. **Class of Ore:** Copper, lead. **Development:** 500 ft. of underground workings. **Notes:** Company owns 50-year tunnel site on south fork of Coeur d'Alene river, giving 1600 ft. vertical depth with length of 2160 ft.; also water right on river, with mill-site and standing timber; second water right on Brushhook creek, with 800-ft head, carried in 2600-ft., 12-inch flume.

LIBERAL KING GROUP.

Kellogg

Co-partnership. **Owners:** Leslie Lamb, E. D. Booth, Kellogg; Magnus Cheyne, Beeler; W. P. Swinnerton, Wardner. **Property:** 5 unpatented claims, 3 fractions and a mill-site, immediately east of Beeler. **Class of Ore:** Zinc-silver-lead-copper. **Development:** 500 ft. of tunnel. Two ore shoots have been opened sufficiently to warrant stoping.

LIBERTY BELL GROUP.

Grangeville

Edward M. Griffith, owner, Grangeville. **Property:** 3 unpatented claims—the Liberty Bell, Australia and Rob Roy—40 acres, in Buffalo Hump camp, Idaho Co. **Class of Ore:** Principally gold, a little lead, silver and copper. Assay values, \$14 to \$126. No shipments. **Development:** \$7,000 expended in tunnels and drifts, tunnel being about 600 ft. **Informant:** Edward M. Griffith, owner.

LIBERTY GROUP (Co-partnership).**Wallace**

Owners: Ed Godfred, Mel Merkhaiser, Peter Peterson, Herman J. Rossi, Wesley Everett, Herman Wickert, R. A. Greer, Chas. Bollinger, Frank Wagner, all of Wallace. **Property:** 8 unpatented claims near the Amazon-Dixie, East Coeur d'Alene district. **Development:** About 900 ft. of tunnel; not working at present.

LIGHTNING CREEK SILVER-LEAD MINING CO.**Spokane**

Capital: \$200,000. Par value, 10c. Assessable after treasury exhausted. **Directors:** A. F. Hemenway, pres.; M. C. Arndt, secy.; J. R. Gimm, treas.; G. L. Farnham, Eugene A. Barnes, all of Spokane. **Annual Meeting:** Fourth Tuesday in March. **Property:** 6 unpatented claims—Hidden Treasure Nos. 1, 2, 3, 4, 5 and 6—4 miles east of Clark's Fork, Idaho. **Class of Ore:** Silver-lead. Working small force. No shipments. **Equipment:** Only the usual hand tools. **Development:** 90-ft. tunnel, cutting several stringers, with values of from \$18 to \$120 per ton in silver and lead. **Informant:** Pres. Hemenway.

LIQUIDATOR MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Wm. Nimdorf, pres.; Thos. Sullivan, vice-pres., both of Chicago; L. E. Hanley, secy.-treas.; O. D. Jones, both of Wallace. **Annual Meeting:** Fourth Wednesday in July. **Property:** 13 unpatented claims on summit between Burke and Mullan, in Hunter and Lalande districts, Coeur d'Alenes. **Class of Ore:** Lead-silver. No shipments. **Development:** 1000 ft. of crosscut tunnel. Idle since March, 1915. **Informant:** Secy.-Treas. Hanley.

LITTON MINING CO., LTD.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Matt Baumgartner, pres.; John Gray, vice-pres., both of Spokane; Dan Krehbell, secy.; John Krehbell, both of Lind, Wash.; H. W. Wells, Portland, Ore. **Annual Meeting:** Second Monday in March. **Property:** 17 patented and 19 unpatented claims, on Big creek, Evolution district, Coeur d'Alenes. **Class of Ore:** Lead-silver-copper. No shipments. **Equipment:** 3-drill compressor, 40-h.p. boiler, cook house, bunk house, boiler, compressor and machine shops, blacksmith shop, stable and other buildings. **Development:** 2900 ft. of tunnels and 50-ft. shaft. At annual meeting, March 11, 1918, treasurer's report showed expenditures for 1917 of \$11,567. Main tunnel, more than ½ mile in length, was extended 500 ft. during year. **Informant:** Pres. Baumgartner.

LITTLE BUTTE MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Mack Cyr, pres., Burke; A. Wyman, R. S. Clough, Bernyce Rossi, Herman J. Rossi, secy.-treas., all of Wallace. **Annual Meeting:** Third Monday in October. **Property:** Little Butte group of 28 unpatented claims, 2 miles east of Burke. **Class of Ore:** Lead-silver. **Development:** Only assessment work being done. **Informant:** Secy.-Treas. Rossi.

LITTLE CHIEF MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** Jacob Lockman, pres.; Homer G. Brown, secy.; Richard Daxof, treas., all of Wallace; Wm. Sundstrom, vice-pres.; Chris Goosebush, Iron Mountain, Mich.; Dr. C. S. Stone, Boise. **Property:** 2 claims—the Little Chief and Free Coinage—adjoining Hunter mine on south, at Mullan. **Class of Ore:** Silver, gold, lead. **Development:** 1100 ft. of tunnels.

LITTLE NORTH FORK COPPER M. AND M. CO.**Kellogg**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** T. R. Mason, pres.; J. E. Jones, secy.; W. J. Locke, treas.; Archie McDonald, all of Kellogg; J. Koldenbaugh and H. S. Savage, both of Wardner. **Property:** 110 acres unpatented land, Little North Fork, Kootenai Co., in unorganized district, 12 miles from railroad. **Class of Ore:** Copper, silver, gold. No equipment. No shipments. **Development:** A 2321-ft. upper tunnel, showing up to 28.8% copper, 1 oz. silver and \$1.20 gold per ton; lower tunnel, 1500 ft., showing 12 to 18 inches argentiferous copper ore, running \$8 to \$30 per ton.

LOG CABIN MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** S. H. Linn, pres.-treas.; Walter H. Hanson, secy.; Andy Linn and John W. Flink, all of Wallace; O. H. Linn, Corralitas, Calif. **Property:** 11 claims, surveyed for patent, on Nine Mile, 3 miles from Wallace. **Class of Ore:** Lead-silver. Working small force. **Development:** 900 ft. of underground workings; no shipments.

LOMBARDY MINING AND MILLING CO.**Kellogg**

Capital: \$1,000,000. Par value, \$1. **Directors:** Peter Albinola, pres.; Ed Albinola, vice-pres.; Robt. Albinola, asst. secy.; H. O. Beemis, mgr., all of Kellogg; Herman J. Rossi, secy.-treas.; A. Wyman, both of Wallace. **Annual Meeting:** September. **Property:** 320 acres unpatented land, 1 mile north of Kellogg. **Class of Ore:** Lead-silver-gold. Vein estimated 27 ft. wide, traced for 800 ft. **Equipment:** Blacksmith shop, bunk house, cook house, car, track, etc. New machinery just installed, and shaft sunk 200 ft., from which 620 ft. of drifting and crosscutting has been done. No shipments. **Development:** 1500 ft. of tunnels and drifts. **Informant:** Pres. Albinola. **Note:** Idle, except for assessment work.

LONE PINE AND IDAHO CLAIMS.**Kellogg**

Co-partnership. **Owners:** A. L. Sorenson, Wallace, and Jas. Murphy, Kellogg. **Property:** 2 unpatented claims on west fork of Pine creek, 4 miles above Douglas mine. **Development:** Confined to exploration work. **Class of Ore:** Zinc.

LONE YELLOW PINE MINE.

Property owned by John Harmon and Doit Morrow. Taking out \$40 to \$50 per day with a 1-stamp mill. Is in Central Idaho, 45 miles southwest of Sites.

LOOKOUT MT. MINING AND MILLING CO.**Kellogg**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** R. L. Brainard, pres.; W. L. Penny, secy.-treas.; Wm. Boro, vice-pres., all of Kellogg. **Annual Meeting:** First Monday in June. **Property:** 140 acres unpatented ground, 7 claims, on Pine creek, Yreka district, Coeur d'Alene, near Beeler. **Class of Ore:** Lead-silver. **Equipment:** Hand tools. No shipments. Assay returns from grass roots show 56% lead and 98 ozs. silver to the ton. **Development:** 2 short tunnels; driving crosscut to cut ore body at 300-ft. depth. **Informant:** Pres. Brainard. **Note:** March 15, 1918, Co. arranged to expend \$10,000 for additional work on the lower level, installation of power line, electric compressor and air-power drills.

LOST PACKER MINING CO.**Salt Lake City, Utah**

Capital: \$150,000. Par value, \$1. Assessable. **Directors:** Jas. Ivers, pres.; Henry Welsh, secy.-treas.; J. Frank Judge and Henry A. McCormick, all of Salt Lake City; Jas. T. Finler, vice-pres., Butte, Mont. **Annual Meeting:** Second Monday in October. **Property:** 4 patented and 30 unpatented claims, 640 acres, 112 miles west of Mackay, Idaho, the nearest shipping point. **Class of Ore:** Gold, silver, copper. Vein 2 to 18 ft. wide, carrying ore averaging 9% to 16% copper, 2.8 ozs. gold; pay streak 2 to 5 ft. wide. **Equipment:** 100-ton blast smelter, 60-ton concentrator, 50-ton flotation plant, etc. Working 80 men and 400 horses. About \$225,000 expended in equipment. Total production, about \$800,000. **Development:** About 6000 ft. of adits, winzes and upraises. Ores reduced to matte for shipment. **Informant:** Secy.-Treas. Welsh.

LOST PACKER MINING AND SMELTING CO.**New York, N. Y.**

Capital: \$3,000,000. Par value, \$5. John T. Clarke, treas. and managing director. Incorporated in Wyoming to acquire outstanding stock of Lost Packer and other mining companies.

LOUISE GROUP.**Palo Alto, Cal.**

Owners: C. Neff and G. S. McBride, of Palo Alto. **Property:** 5 patented claims—the Louise, Viking, Vandal, Orogrande and Yellow Metal—79 acres, in Thunder Mountain district, Idaho. **Class of Ore:** Gold and silver. Not working—shut down in 1912. No shipments; no equipment. **Development:** 850 ft. of tunnels, 50 ft. of shafts. Is 600 ft. from the property of the Dewey company.

LUCKY BOB MINING CO., LTD.**Spokane**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Chas. H. Bell, pres.; Chas. A. Gram, secy.-treas.; J. R. Richards, all of Spokane; R. V. Gibbons, vice-pres.; O. T. Lathrop, both of Lethbridge, Alta. **Annual Meeting:** First Monday in May. **Property:** 5 unpatented claims in Evolution district, Coeur d'Alene. **Class of Ore:** Silver-lead. No equipment. No shipments. **Development:** Confined to assessment work only. **Informant:** Secy.-Treas. Gram.

LUCKY BOY GOLD MINING CO.**Boise**

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** Thos. Brown, pres.; Fred V. Tinker, manager; T. E. Rippey, secy.-treas.; E. W. Barry, F. E. Highnote, F. E. Johnesse, all of Boise. **Annual Meeting:** Second Tuesday in January. **Property:** 7 unpatented claims, or 120 acres, in Gambrinus district, Boise Co., 6 miles northeast of Idaho City. **Class of Ore:** Principally free gold,

averaging \$5 to \$7.50 per ton. Working 21 men. **Equipment:** 10-stamp mill, Norwalk compressor, 50-h.p. hoist, boarding and bunk houses, office, assay office, timber sheds, private houses, etc. **Development:** 2400 ft. of tunnels, crosscuts, shafts and raises. Production to date, \$131,000. Present rate of output, 30 tons daily. **Informant:** Dir. Johnesse.

LUCKY BOY MINING CO.**Mullan**

Capital: \$1,000,000. Par value, \$1. **Directors:** N. D. Needham, pres.; H. G. Loop, secy., both of Mullan; Margarite Carruthers, treas.; F. O. Morrison, P. J. Scoles, all of Wallace. **Annual Meeting:** June 2. **Property:** 5 unpatented claims, 2 miles east of Mullan, Hunter district, Coeur d'Alenes. **Note:** Tunnel extended 200 ft. further up to March, 1918, making 1500 ft.

LUCKY CALUMET COPPER MINING CO., LTD.**Wallace**

Capital: \$1,500,000. Par value, \$1. **Directors:** John H. Nordquist, pres.; Otto A. Olsson, secy.-treas.; Chas. A. Solberg, all of Wallace; Allen J. Olson, Missoula, Mont. **Annual Meeting:** First Saturday in October. **Property:** 10 patented claims between National and Snowshoe, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper. **Development:** About 8000 ft. of tunnels. **Equipment:** Electric power, with 2 motors and 5-drill air compressor.

LUCKY FOUR MINING CO.**Portland, Ore.**

Capital: \$50,000. Par value, 5c. Assessable. **Directors:** C. Hyde, pres.; Henry Wingert, vice-pres.; Otto Keil, secy.; Otto Kulig, treas.; Wm. DeVerry and Henry Bradenbeck, all of Portland. **Annual Meeting:** First Wednesday in August. **Property:** 90 acres, unpatented, in Summit district, Coeur d'Alenes. **Class of Ore:** Lead, silver and zinc. No equipment; no shipments; working small force. **Informant:** Pres. Hyde.

LUCKY FRIDAY MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. **Directors:** Franklin Pirman, pres.; Jas. A. Wayne, secy.-treas.; Alice W. Wayne, all of Wallace; J. H. Wade, Mullan. **Property:** 4 unpatented claims and mill-site, 1 mile east of Mullan, in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver-copper. **Development:** About \$20,000 expended; 1325 ft. of tunnels, 90-ft. shaft, developing a 10-ft. vein, with 4-ft. paystreak, giving assays up to 3.5% copper, 29% lead and 89 ozs. silver to the ton. **Equipment:** Electric drilling plant, track, ore cars, etc.

LUCKY JIM MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. **Directors:** C. M. Johnson, pres.; W. W. Bixby, secy.-treas.; Jas. Kaufman, Geo. Champagne and P. J. Gearon, all of Wallace; C. L. Dawson, Los Angeles, Calif. **Property:** 3 patented claims between the Rex and Dobson gulch, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 700 ft. of tunnel, 50-ft. shaft.

LUCKY STONE MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** C. L. Russell, pres.; Dr. C. C. Brown, vice-pres.; Geo. H. Walters, secy.-treas.; Don F. Kizer, all of Spokane; H. F. McGuire, Perry Sound, Ont. **Annual Meeting:** Second Tuesday in October. **Property:** 14 unpatented claims, near Osborne, in Coeur d'Alene district, Idaho, and 7 unpatented claims in Granite Co., Mont. **Class of Ore:** Gray copper and silver-lead. Working 8 men. Shipments just begun from Montana claims. **Equipment:** Cars, rails and tools for hand work. **Development:** 1000 ft. of tunnel in Idaho property, and 600 ft. on that in Montana, where two well-defined veins have been opened up. **Informant:** Secy.-Treas. Walters.

LUCKY SWEDE GOLD AND COPPER MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** Morris Pearson, pres.; Harry Pearson, both of Falcon; Otto A. Olsson, secy.-treas.; Dr. L. E. Hanson, both of Wallace; H. E. Riegel, St. Paul, Minn. **Annual Meeting:** First Monday in July. **Property:** 14 unpatented claims in St. Joe district, Coeur d'Alenes. **Class of Ore:** Gold-copper. **Development:** About 600 ft. of tunnels and crosscuts. No shipments. **Equipment:** Compressor and Pelton wheel. **Note:** On March 14, 1918, Co. commenced to drive tunnel 600 ft. further, to cut vein.

LYNN AND IDAHO MINING CO., LTD.**Burke**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** John J. Finley, pres.; Jack Finley and Bessie Finley, all of Burke; Hugh Toole, secy.-treas., Wallace; Wm. Sellers, Spokane. **Annual Meeting:** Second Tuesday in September. **Property:** 6 unpatented claims, 120 acres, 3 miles northeast of Burke. **Class of Ore:** Lead-silver. Not working now. No equipment; no shipments. **Development:** 150 ft. of tunnel. **Informant:** Secy.-Treas. Toole.

McCULLOUGH GROUP.**Newport**

Owners: Henry McCullough and E. Alger, Newport. **Property:** 6 unpatented claims in Newport district. **Class of Ore:** Silver, gold and copper. Working small force—no shipments. **Equipment:** For hand work only. **Development:** 720 ft. of tunnel, 130 ft. of drifts. **Informants:** McCullough and Alger, owners.

McKINLEY GOLD MINES CO.**Kansas City, Mo.**

Capital: \$1,000,000. Par value, \$1. M. F. Smith, secy., Kansas City. **Property:** 700 acres on Jupiter mountain, Boise Basin, Idaho, 6 miles from Idaho City. Shows big vein carrying erratic values. **Development:** Cross-cut tunnel not yet reaching vein. \$75,000 said to have been spent, without return. Now idle.

McKINLEY GOLD MINING CO., LTD.**Kellogg**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** P. P. Weber, pres.; G. D. Lamielle, secy.; John Holm, treas.; A. R. Dunn, Alex Polson, Wm. Riggs and Geo. Braham, all of Kellogg. **Annual Meeting:** Last Saturday in December. **Property:** 4 patented claims—the McKinley, May Day, True Blue, and Lulu No. 2—and 2 unpatented—the Weber and the Lamielle—about 100 acres, in Simpson district, Coeur d'Alenes. **Class of Ore:** Gold, 50c to \$20 per ton. **Equipment:** 10-h.p. gasoline engine, Wilfley concentrator. Shipments about \$700. **Development:** 500 ft. of tunnel with cross-cuts and drifts, aggregating 1200 ft. Doing assessment work only; 40 miles to nearest railroad. **Informant:** Secy. Lamielle.

MAGIC COPPER MINING CO.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** Joseph Turner, pres.; Dan Haydon, secy.-treas.; Wm. Fahle, Harry Turner and Jas. H. Taylor, all of Wallace. **Annual Meeting:** 3rd Monday in November. **Property:** 4 patented claims $3\frac{1}{2}$ miles southwest of Mullan, in Hunter district, Coeur d'Alenes. **Development:** 700 ft. of underground workings.

MAINE STANDARD MINING CO., LTD.**Wallace**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Alexander Murphy, pres., Wallace; Everett H. Pattison, secy., Spokane. **Property:** 5 unpatented claims on Moon creek, Yreka district, Coeur d'Alenes, viz.: The McKinley, Maine, Summit, M. S. and Standard No. 2. **Class of Ore:** Silver-lead. Working small force. **Development:** About \$13,000 expended in work. No shipments. **Informant:** Secy. Pattison.

MAJESTIC GOLD AND SILVER MINING CO.**Dixie**

Under bond and lease to A. H. McKnight, of Washington, D. C., who has purchased the mill of the Penn-Dixie property, and will install it on the Majestic.

MAJESTIC MINING CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Jas. Dunne, pres., Burke; J. L. Courtright, vice-pres., Yakima, Wash.; Therrett Towles, secy.-treas.; Thos. McCabe and John R. Rogers, all of Wallace; Chas. Labes, Sr., Lind, Wash. **Annual Meeting:** Second Saturday in June. **Property:** 13 patented claims—the Victor, Belfast, Fortune, Lewis, Teutonic, Majestic, Clark, Equitable, Panama, Daisy, Florodora, and Florida and Ohio lodes— $1\frac{1}{2}$ miles northeast of Burke, in Summit and Lalande districts, Coeur d'Alenes. **Class of Ore:** Lead-silver. Working small force. **Equipment:** 2 cabins and blacksmith shop. No shipments. **Development:** 1525 ft. of tunnel, 20 ft. shaft, and 14 surface cuts. **Informant:** Secy.-Treas. Towles.

MARCO MINE.**Spokane**

Directors: Dr. W. T. Phy, Norman Hooper, J. R. Hughes, John Balfour and J. B. Decker. **Property:** 2 claims and 2 fractions, on old Sullivan Hill, adjoining the Alhambra and the East Caledonia, Coeur d'Alenes. **Class of Ore:** Galena. No shipments.

MARSH MINES CONSOLIDATED.**Spokane**

A reorganization of the Marsh Mining Company. **Capital:** \$500,000. Par value, 25c. Assessable. **Directors:** M. W. Lee, pres., Duluth, Minn.; Edward Pohlman, vice-pres.; J. V. Pohlman, treas.; Joseph McCarthy, secy., all of Spokane. **Annual Meeting:** Last Monday in March. **Property:** 8 patented claims southwest of and adjoining the town of Burke, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. Gross shipments, \$1,000,000; net, \$750,000 to July 1, 1917. **Equipment:** Compressors, buildings, tramway, electric hoist for 2700-ft. level, 5 other hoists, pumps, ore cars, drills, 3 150-h.p. motors, 1 100-h.p. motor, several smaller motors, electric lighting and phone

systems, water system, sorting plant, 1000-ton ore-bin, pumping plant, flotation system, new improvements costing \$100,000. **Development:** 1300 ft. of shafts, 665 ft. of tunnels, 650 ft. of drifts. In December, 1917, 4843 tons of ore were produced and treated, and 2000 tons the first 15 days in January, 1918. Estimated smelter returns on 19 carloads of lead-silver concentrates shipped, \$30,000, from continuous run at Black Cloud mill from Dec. 1 to Jan. 15. Development work past year mostly confined to drifting on new vein on 900-ft. level. Development contract with Federal, for expenditure of \$40,000, has been completed. Deepening of main shaft abandoned, and operations to be confined to exploring east vein of shaft from adit, affecting a saving of \$1,500 to \$2,000 per month. Value of plant estimated at \$75,000, in addition to ground owned outright. Assessment No. 5 for 1c per share, levied Feb. 1, 1918.

MASCOT MINING AND MILLING CO.

Salt Lake City, Utah

Capital: \$1,000,000. Par value, \$1. **Directors:** Chas. Peters, pres.; John W. Choate, vice-pres.; J. M. Stevens, secy.-treas.; M. Barnett, W. R. Calvert and Paul Vallinck, all of Salt Lake City. **Annual Meeting:** First Monday after first Tuesday in October. **Property:** 4 patented and 4 unpatented claims at Peter, near Halley, Idaho, in Warm Springs district. **Class of Ore:** Gold, silver, lead. **Development:** 110-ft. vertical shaft and 400-ft. tunnel.

MAYFLOWER MINING AND DEV. CO.

Mullan

Capital: \$1,250,000. Par value, \$1. Assessable. **Directors:** John H. Foss, pres.; H. G. Loop, secy.-treas., both of Mullan; Jas. F. McCarthy, vice-pres., Wallace. **Annual Meeting:** First Tuesday in June. **Property:** 13 patented claims and 1 fraction—Hattie, Klondike, Gold Drop, Surprise, Sunshine, Sunshine Fraction, Cape Nome, Snow Drift, Juneau, Alaska, Snowflake, Missing Link, Cove and Mayflower—in Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Not working now; no shipments. **Equipment:** Ore car, blacksmith outfit and tools. **Development:** About 4000 ft. of tunnels, crosscuts and drifts. **Informant:** Pres. Foss. **Note:** Announced Feb. 21, 1918, that work will be resumed at once, with probable use of Hector compressor by Co. Plans for 1000 ft. of crosscutting and drifting.

MAYFLOWER MINING CO., LTD.

Wallace

Capital: \$50,000. Par value, 5c. **Directors:** G. Scott Anderson, pres.; W. W. Smith, secy.-treas.; Irving Anderson, D. N. Hayden, Wallace; W. B. Hervey, Los Angeles, Calif. **Annual Meeting:** Last Tuesday in May. **Property:** 1 patented claim, 1 claim, patent applied for, and 1 unpatented claim, in Placer Center district, Coeur d'Alenes. **Development:** Over 5000 ft. of underground workings.

MAEDA MINING CO.

Bonners Ferry

Incorporated by A. P. Hughes, Barons, Alta; O. S. Davis, Bonners Ferry; Jack Moore, Paul Dugal, Carl Schumacher, Gene Wilson, Robt. Nelson and Clarence Nelson, all of Naples, to operate a group of claims 6 miles east of Naples.

MELCHER MINING AND MILLING CO.

Salt Lake City, Utah

Capital: \$1,000,000. Par value, \$2. **Directors:** Samuel McIntyre, Sr., pres.; R. M. Wilkinson, secy.; P. McIntyre. **Property:** 37 claims, including former holdings of Cumora Mining Co., Stokes district, 38 miles from railroad. **Class of Ore:** Copper, lead, silver and gold. **Equipment:** 200-h.p. steam and water power plant, 5-drill air compressor, and 6 small buildings. **Development:** 3290 ft. of tunnels, 2 shafts.

MERCURY LEAD AND SILVER MINING CO., LTD.

Wallace

Capital: \$1,250,000. Par value, \$1. **Directors:** J. N. Thennes, pres., Wallace; J. B. Wilcox, secy.-treas., Mullan. **Annual Meeting:** First Monday in October. Non-productive.

MERGER MINES CO.

Palouse, Wash.

Capital: \$3,750,000. Par value, \$1. Assessable for annual labor only. **Directors:** J. C. Northrup, pres.; W. E. McCroskey, secy.; G. A. Weldon, asst.-secy. and treas.; J. A. Saylor, all of Palouse; C. E. Frederick, vice-pres., Spokane. **Annual Meeting:** April 16. **Property:** Purchased from Mizpah Mining Co., 20 claims, surveyed for patent, in Hoodoo district, Latah Co., Idaho. **Class of Ore:** Copper, silver, gold. Working 8 men. Property now being worked under lease to Enterprise Mining Co. (q.v.) and a few cars of ore have been shipped, averaging 17½% copper and 1½ ozs. silver. **Equipment:** 60-h.p. gas engine, 12x14 air compressor, machine drills, electric lighting system, tools, ore cars, steel rails, air pipe, etc. **Development:** 5 tunnels, aggregating 1550 ft., with 375 ft. of drifts and 225 ft. of raises. **Informant:** Pres. Northrup.

METALS RECOVERY CO.**Wallace**

Employing concentrating tables and flotation process in recovery of values from tailings, principally those from Morning and Hunter mills, near Mullan. C. L. Hewett and associates conducting operations.

METTA MINING CO.**Blackfoot**

Capital: \$300,000. Par value, \$1. Assessable. **Directors:** A. E. Christensen, pres.; Jas. Christensen, vice-pres.; J. G. Patterson, all of Shelley; E. T. Malcom, Blackfoot. **Annual Meeting:** First Monday in February. **Property:** 4 unpatented claims, in Hamilton district, Butte Co. **Class of Ore:** Lead-silver. Working 5 men. Shipments last year, 2 cars; returns, \$2,500.

MIDLAND MINING CO.**Yakima, Wash.**

Capital: \$1,000,000. **Directors:** John Sawbridge, pres.; Frank McCurdy, vice-pres.; Wm. Wade, Oscar Wood and Harry P. Houghton, all of Yakima. **Property:** 10 claims near Wardner, Idaho, surrounded by Bunker Hill & Sullivan holdings, and having what is believed to be the main Bunker Hill fissure. Taken under bond and lease from Andrew Goddard and G. Bevan, of Kellogg. Property being explored by two tunnels.

MIDNIGHT MINING CO.**New York, N. Y.**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Raymond Guyer, pres.; E. J. Clark, secy.-treas., both of Spokane; W. A. Scully, W. R. Jones, Bert B. Barker and E. F. Carlson, all of New York. **Annual Meeting:** Last Tuesday in February. **Property:** 2 patented claims—the Midnight and Sumner Fraction—in Hunter district, Coeur d'Alenes. **Class of Ore:** Galena, lead-silver. Working 25 men. No shipments. **Equipment:** Bunk and cook houses, stable, powder magazine, etc. **Development:** Being done through Morning tunnel No. 6 of the Federal and the Fannie Gremm tunnel, of the Midnight company. Upraise to connect the two tunnels discloses ore of excellent commercial value. **Informant:** Pres. Guyer.

MIDWAY SUMMIT MINING AND MILLING CO., LTD.**Spokane**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** W. D. Scott, pres.; J. T. Logan, vice-pres.; W. W. Waltman, secy.-treas.; Wm. G. Traub, all of Spokane; Geo. Herron, Burke, Idaho; Norris Wallace, Chewelah, Wash.; O. S. Olson, Coeur d'Alene. **Annual Meeting:** Last Thursday in September. **Property:** 11 claims and fractions—154 acres—surveyed for patent, 1 mile south of Burke, Lalande and Hunter districts, Coeur d'Alenes. **Class of Ore:** Lead-silver. Working 2 to 6 men for past 6 years; no shipments. **Equipment:** Compressor, run by 45-h.p. gas engine. **Development:** 6000 ft. of tunnels; vertical depth, 1000 ft. A 4-ft. body of ore, 2 ft. being rich galena, reported struck in property May 1, 1917. **Informant:** Secy.-Treas. Waltman.

MILITARY MINING AND MILLING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Geo. Renkert, pres., Spokane; Fred. L. Bergen, vice-pres., Kingston; L. H. Hays, secy.-treas., Wallace; Axel Swan, Burke. **Annual Meeting:** Second Monday in June. **Property:** 2 unpatented claims on Military gulch, 2 miles northeast of Burke, Hunter district, Coeur d'Alenes. Showing 5-ft. vein, traceable 2000 ft. **Class of Ore:** Copper. No shipments; no equipment. **Development:** Annual assessment work only. **Informant:** Secy.-Treas. Hays.

MILO CREEK LEASING CO.**Wardner**

Capital: \$2,500; a close corporation, organized by F. L. Rowley and two associates, to work over tailings in creek just above town of Wardner. Machinery was ordered for plant, but freshet in spring of 1917 washed out dams and work was abandoned.

MINERAL FARM MINING CO., LTD.**Burke**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Carl J. Carlson, pres.; Dr. Wm. Sellers, vice-pres.; J. H. Pelletier, John Kammer and J. H. Greiner, Spokane; C. D. Miller, secy.-treas., Mullan. **Annual Meeting:** First Monday in September. **Property:** 8 patented and 1 unpatented claims, 1 mile west of Mullan, in Slaughterhouse gulch. **Class of Ore:** Silver-lead. **Equipment:** Engine, blower, ore car, track, ventilation pipe, mining and blacksmith tools, compressor, hoist, sinking pump, mine buildings, cabins and small gravity water system. **Development:** About 3700 ft. of underground workings.

MINERAL POINT MINING CO.**Wallace**

Capital: \$1,200,000. Par value, \$1. **Directors:** S. V. Osborne, pres., Osborne; Paul Leuschel, secy.-treas.; Glenn McDonald and Jas. F. McCarthy, Wallace. **Annual Meeting:** First Tuesday in June. **Property:** 1 patented and 7 unpatented claims, $\frac{3}{4}$ mile south of Osborne, in Evolution district. **Class of Ore:** Gray copper, with a production of \$100,000. Not shipping now. **Development:** Over 3000 ft. of underground workings.

MINERAL SOWE MINE.**Elk City**

Property: 6 claims, 2 miles north of Elk City, under management of G. L. L. Baskett. **Class of Ore:** Gold. **Equipment:** 3-stamp mill, steam hoist and good buildings. **Development:** 2000 ft. of tunnels, shafts and drifts. Working 10 men. Treating 200 tons of ore per month, while 3 tons of concentrates give smelter returns of \$200 per ton, over the \$41 per ton parcel post charges.

MINGO CHIEF MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** John H. Van Dorn, pres.; L. L. Sweet, secy.-treas.; Walter Graham, all of Spokane; M. J. Maher, vice-pres., Burke. **Annual Meeting:** First Monday in May. **Property:** 7 claims, head of west fork of Nine Mile, Coeur d'Alenes. No shipments. Taken over by Robt. A. Koontz, of Spokane, under lease and bond upon control in 1917. Efforts to finance not successful. **Development:** 500 ft. of tunnel. **Informant:** Secy.-Treas. Sweet.

MINNIE MOORE MINES CO.**Bellevue**

Capital: \$500,000. Par value, \$1. **Directors:** I. E. Rockwell, pres.; J. A. Blomquist, vice-pres.; Lalla Roohk White, secy.-treas., all of Bellevue. **Property:** In Mineral Hill district, was bought at receiver's sale, being the property of Idaho Cons. Mines Co. In 1914, mill-site and onyx claims were bought for \$5,000. **Class of Ore:** Lead and zinc; concentrates shipped in 1915.

MISSOULA COPPER MINING CO.**Mullan**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** A. M. McLeod, pres.; J. R. Bean, secy.-treas.; R. J. McLeod, T. M. Brennan, L. Dooling, all of Mullan; C. A. Barnes, vice-pres.; H. E. Chaney, Missoula, Mont. **Annual Meeting:** First Monday in November. **Property:** 9 claims and a fraction, being patented, between Lucky Calumet, Copper King and National, in Hunter district, Coeur d'Alenes. **Class of Ore:** Copper, silver. Maximum width of vein, 85 ft. Not working now. **Equipment:** 100-h.p. motor, 6-drill air compressor, bunkhouse, tools, cars, etc. **Development:** \$140,000 expended in almost a mile of workings, as tunnels, crosscuts, drifts, shafts and raises. Snowstorm Mining Co. took a \$600,000 option on this property in 1914, and spent \$35,000 in prospecting, then relinquished the option. **Informant:** Secy.-Treas. Bean.

MONARCH MINING CO., LTD.**Monarch**

Capital: \$1,000,000. Par value, \$10. **Directors:** Oscar E. Bergstrom, vice-pres., New York City; John J. Stevens, secy.-treas., San Antonio, Texas; controlled by Otto Koehler estate, San Antonio. **Property:** 5 patented and 31 unpatented claims, in Summit district, Coeur d'Alenes, 5 miles east of Murray. **Class of Ore:** Lead-silver. Net smelter returns of ore shipped, \$170,000. **Equipment:** 150-ton mill, run by own waterpower. **Development:** 15,000 ft. of underground workings. **Note:** Taken over in 1917 by Fidelity Co., Ltd. (q.v.)

MONITOR CONS. COPPER MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Otis Hill, vice-pres.; W. J. Kirby, secy., both of Spokane. **Annual Meeting:** First Tuesday in October. **Property:** 10 patented claims on Idaho-Montana line, near Adair. **Class of Ore:** Copper and gold. Shipments to date, \$73,000. **Note:** Sold to Montana-Idaho Copper Co. (q. v.).

MONMOUTH MINING AND MILLING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. **Directors:** Dan W. Price, pres., Kellogg; Myron A. Folsom, secy., Spokane; Jas. E. Gyde, treas., Wallace. **Annual Meeting:** June 1. Non-productive.

MONTANA-IDAHO COPPER CO.**Spokane**

Capital: \$600,000. Par value, \$100. Non-assessable. **Directors:** H. F. De Bower, pres., New York, N. Y.; John L. Dirks, vice-pres.; W. J. Kirby, secy.-treas.; Otis Hill, Spokane; Geo. B. May, Tekoa, Wash. **Annual Meeting:** January. **Property:** 10 patented claims, taken over from the Monitor Cons. Copper Mining Co., and 34 unpatented claims, at Adair, on Milwaukee railroad, Idaho. **Class of Ore:** Copper and gold. Working 25 men three shifts. **Equipment:**

100-h.p. Pelton-Doble water wheels, belted direct to air compressors; water Leyner machine drills, 1 Leyner steel sharpener, 10 cars, 18-inch gauge. Not producing. **Development:** A 4100-ft. tunnel to open Monitor vein at 1000-ft. vertical depth, also to cut Richmond and St. Lawrence vein, at about 1800-ft. vertical depth. **Informant:** Secy.-Treas. Kirby. **Notes:** A 10-ft. vein was cut in February, 1918, 3865 ft. from portal of tunnel, and at vertical depth of 1000 ft., well mineralized with copper and iron. Co. has acquired 10 additional claims, adjoining Monitor, on the east.

MONTANA STANDARD MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** J. J. Chester, pres.; O. A. Schenck, secy.-treas., both of Columbus, O. **Annual Meeting:** Second Monday in August. Non-productive.

MOON CREEK MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** H. F. Traub, pres., Winona, Wash.; Otto A. Olsson, secy.-treas.; Julius P. Hall, Wallace; W. J. Bailey, Burke. **Annual Meeting:** June 25. **Property:** On Moon creek, Evolution district. **Class of Ore:** Silver-lead. **Development:** 1510 ft. of tunnel and shaft. Not working.

MOONLIGHT MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Eugene R. Day, pres.; E. Hedin, secy.-treas.; Jas. J. Murphy, vice-pres., all of Wallace; W. C. Robinson and Alexander McBean, Duluth, Minn. **Annual Meeting:** First Saturday in May. **Property:** 9 patented claims—141.30 acres—near Burke, adjoining Hercules, Lalande district. **Class of Ore:** Lead-silver, but not in commercial quantities. Working 6 men. No shipments. **Equipment:** Waterpower and compressor plants, mine buildings, etc. **Development:** 5000 ft. of crosscut tunnel and drifts; about 1000 ft. vertical depth. **Informant:** Secy.-Treas. Hedin.

MOOSE MINING AND MILLING CO.

Butte, Mont.

Capital: \$75,000. Par value, 5c. **Directors:** T. W. Clayton, pres., Wallace; Thos. W. Bailey, vice-pres.; John Eliopoulos, secy.-treas.; C. Lukis and Fenner Tidball, all of Butte. Incorporated December, 1917. **Property:** Group of 6 claims on east slope of Two Mile canyon, 1 mile north of Osborne, Idaho. Ledge, said to be from 20 to 30 ft. wide, outcrops for 2000 ft., and shows assay values of 1% lead, 1 oz. silver, some copper and \$3 in gold per ton. **Development:** 200-ft. crosscut to cut the vein at 150 ft. depth.

MORNING STAR GROUP.

Hope

Not incorporated. John Larson, trustee for shareholders, pending organization: O. C. Granger, fiscal agent; W. A. McMurray, F. S. Hayes. Capital to be 1000 shares, at \$5 per share. **Property:** 4 unpatented claims—Morning Star, Lone Star, East Hope and Faith— $\frac{3}{4}$ mile from East Hope, Bonner Co. **Class of Ore:** Lead-silver, zinc, copper; general average values being \$37 per ton. Working small force. **Equipment:** None, except car and rails. No shipments. **Development:** 135 ft. of tunnel. **Informant:** Fiscal Agent Granger, Hope.

MOSCOW MINING AND MILLING CO., LTD.

Moscow

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Dr. W. A. Adair, pres.; M. A. Anderson, vice-pres.; J. S. Thompson, secy.; J. G. Gibson, treas.; T. E. Cornwell, all of Moscow; Eliner Des Vaigne, Bonners Ferry; Emma B. Curtis, Los Angeles, Calif. **Annual Meeting:** Jan. 26. **Property:** 12 unpatented claims, Vendetta group, in Summit district, Coeur d'Alenes. **Class of Ore:** Gold, silver and lead, averaging \$19.50 per ton. Working small force. No shipments. **Development:** 200 ft. crosscutting 1250 ft. on ledge $6\frac{1}{2}$ ft. wide and well mineralized.

MOTHER LODE MINE.

Murray

Property in Ophir gulch, near Murray, taken over and being worked for tungsten by C. T. Porter and Alonzo D. Coplen, of Spokane. Showing said to be 15 ft. wide and 75 ft. long, from which chunks of scheelite ore have been taken weighing 10 to 15 pounds of this metal. Ore well distributed throughout ledge. Assays 70% scheelite. These men have leased and bonded the property, and put men to work stripping the surface. Owned by John F. Murphy, Murray, and consists of 1 patented and 9 unpatented claims, with 6000 ft. of tunnels, and a 10-stamp mill, with a reported production of \$3,000,000 in gold.

MOUNTAIN GULCH MINING AND MILLING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Chas. G. Taylor, pres.; Chas. J. Shoemaker, secy.; F. A. McMaster, all of Spokane; W. E. Thompson, vice-pres.; Jos. Schnurr, both of Farmington, Wash. **Property:** 4 patented

claims—Mother Lode, Mother Lode Extension, Canary and Tenderfoot—Hoodoo district, Latah Co., Idaho. **Class of Ore:** Gold, \$15 to \$20 per ton, some silver. Not working. **Equipment:** 2-stamp mill, Card table, boiler and engine. **Development:** 600 ft. of tunnel, and 125 ft. incline shafts. **Informant:** Secy. Shoemaker.

MOUNTAIN QUEEN MINING CO., LTD.

Murray

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Wm. Wylie, pres.; Walter M. Keister, secy.-treas.; E. W. Burton, W. P. Joy and Thos. E. Edwards, all of Murray. **Annual Meeting:** Third Wednesday in September. **Property:** 10 unpatented claims, in Eagle district, Coeur d'Alenes. **Class of Ore:** Lead, 20%, and 25 ozs. silver to the ton. Working small force. No shipments. **Equipment:** Cabin, car, track, blacksmith tools, etc. **Development:** 450 ft. of tunnel. Are drifting on ledge. **Informant:** Secy.-Treas. Keister.

MOUNTAIN ROSE MINING CO.

Kellogg

Capital: \$500,000. Par value, 50c. Assessable. **Directors:** D. W. Knudson, pres.; Henry Tiepen, vice-pres.; A. O. Larson, secy.-treas.; Chris Hanson, August Larson, Jack Olson, Henry Colleck and Nels Eggi, all of Kellogg. **Annual Meeting:** Feb. 8. **Property:** 5 unpatented claims, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Working small force. **Development:** 100 ft. of tunnel and shaft; work being pushed on drift.

MOYIE GOLD-COPPER MINING AND MILLING CO., LTD.

Bonnars Ferry

Capital: \$1,250,000. Par value, \$1. Assessable. **Directors:** A. J. Kent, pres.; M. P. DeWolf, treas.; G. E. Crocker, secy.; H. L. Medbury, vice-pres.; W. H. Price, all of Bonnars Ferry; J. D. Thomas, Spooner, Wis. **Annual Meeting:** First Monday in September. **Property:** 7 unpatented claims, the Damon group, in Yahk River district, gold-bearing, and 5 unpatented in Moyie River district, 2 miles from S. I. R. R., carrying silver, lead, copper and gold. Working small force; all hand work. No shipments. **Development:** About 800 ft. of tunnels, drifts and shafts. **Informant:** Secy. Crocker.

MULLAN MINING CO.

Wallace

Capital: \$50,000. Par value, 5c. Assessable. **Directors:** C. M. Baillie, pres.; Hugh Ross, vice-pres.; L. Leighty, secy.-treas.; C. W. Anderson, all of Mullan; Jas. Thennes, Wallace. **Property:** 2 patented and 1 unpatented claims on Deadman gulch, Hunter district. **Class of Ore:** Lead-silver. **Development:** 1000 ft. of tunnel, 1000 ft. of drifts, 60-ft. crosscut and 80-ft. winze. Working small force.

MURRAY HILL MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** C. E. Mallette, pres.; Miss W. I. Irvin, secy.-treas., of Spokane; J. C. Feehan, vice-pres. and treas., of Murray, Idaho. **Annual Meeting:** November 16th. **Property:** Formerly known as Black Horse mine, 7 unpatented claims, on Paragon gulch, 5½ miles east of Murray, Summit district, Coeur d'Alenes. **Class of Ore:** Zinc, lead, silver. **Equipment:** Compressor, concentrator, etc. **Development:** 2000 ft. of underground workings. **Informant:** Pres. Mallette. **Note:** New company has shipped sufficient ore, since taking property over, to pay for it in full.

MUSCOVITE MICA MINING CO.

Spokane

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** H. E. Elliott, pres.; Dr. E. J. Betton, vice-pres.; Geo. H. Doerr, secy.-treas.; Harry J. Turner, all of Spokane. **Annual Meeting:** Nov. 1. **Property:** 120 acres, fee simple title from state, in Robinson district, Latah Co., Idaho. **Class of Ore:** Muscovite variety of mica. **Equipment:** Rails, cars, bunk house, cook house, mica storehouse, etc. Shipments, 50,000 lbs., averaging 50c per lb. Rate of output now, 1000 lbs. per day. Working 7 men. Ore from face of tunnel to surface, 186 ft. on third level. **Informant:** Pres. Elliott.

NABOB MINING CO.

Kellogg

Capital: \$2,000,000. Par value, \$1; 1,500,000 shares issued. **Directors:** D. W. Price, pres.; Harvey M. Ross, secy.-treas., both of Kellogg; W. Y. Clark, vice-pres.; E. J. Lippert, Herbert T. Irvine, all of Spokane. **Property:** Formerly owned 28 claims, of which two are patented, on Pine Creek, Yreka district, Coeur d'Alenes. Engaged for many years in development work, which proved more or less unsatisfactory, and in 1917 transferred entire holdings to Nabob Consolidated Mining Co. (q.v.), a subsidiary of Stewart Mining Co. (q.v.), which is now operating the property extensively.

NABOB CONSOLIDATED MINING CO.**New York**

Capital: \$3,500,000. Par value, \$1; 2,600,000 shares issued; 900,000 shares in treasury. Incorporated in Idaho. Subsidiary of Stewart Mining Co. **Directors:** Hiram C. Todd, Saratoga Springs, N. Y., pres.; Charles A. Saacke, New York, vice-pres.; Charles T. Lark, New York, secy.-treas.; William A. Beaudry, Kellogg, managing director; Judge Nash A. Rockwood, New York. **Property:** Holdings of Nabob Mining Co., 28 claims, on Pine Creek, Yreka district, Coeur d'Alenes. Acquired in 1917 for 750,000 shares of Nabob Consolidated, with advances of approximately \$65,000 cash, to retire \$50,000 bond held by Nabob Mining Co. on Denver-Mascot group and outstanding indebtedness of approximately \$15,000. Agreement also included provision that funds to total of \$150,000, including above amounts, should be supplied for development of property, mill equipment and tramway from mine to Pine Creek branch of O.-W. R. & N. Co. Stewart Co. took 1,750,000 shares in return for these considerations; 750,000 shares were allotted to Nabob stockholders, in the proportion of one for two, and 100,000 shares went as commission to brokers and others who effected the sale. Under management of William Beaudry, long crosscut tunnel from Nabob No. 4 level has been driven to intersect Denver vein at vertical depth of 850 ft. and approximately 250 ft. below Denver No. 2 tunnel. Tunnel reached objective in March, 1918, and is said to have uncovered good body of milling ore. Old Stewart tramway has been removed from Stewart mine at Kellogg, and now connects Nabob No. 4 with shipping terminals on Pine Creek. Tunnel No. 1 of Denver, in Denver gulch, followed an ore body varying from 18 inches to 10 ft. wide, averaging possibly 4 ft., and carrying 18% zinc, 12% lead and 5 ozs. silver. At 220 ft., ore body split into several stringers, which continued for 80 ft. From 220-ft. mark, tunnel was run on a stringer south of main stringer and a crosscut to south picked up 2 ft. of good mixed ore. At 320-ft. mark, crosscut was run to south and cut three stringers of from 8 to 12 inches wide, one carrying as high as 40% zinc. One car of sorted ore, sent as a sample to smelter, showed approximately 39% zinc, 10% lead and 7 ozs. silver. No. 2 tunnel is 92 ft. vertically below No. 1, and is a crosscut for 450 ft., where it picked up a vein showing from 1 to 1½ ft. of mixed ore. From that point, for 150 ft., an ore shoot averaging 3 ft. was followed, carrying 15% zinc, 15% lead and 7 ozs. silver. Raise was put up on this ore body to No. 1 level, which it connects at about 100 ft. from portal. This connection shows ore body 4 ft. wide from top to bottom. At 150 ft. from first point at which vein was picked up, ore body was missed and drift continued 100 ft. to south. It was gradually turned to north and again picked up one ft. of good ore for 75 ft. Vein then pinched for 75 ft. and widened out to 4½ ft. Face of drift is over 400 ft. from point where vein was picked up by last crosscut, and has followed ore shoot over 220 ft., with between 2 and 3 ft. showing in face. No. 4 tunnel of Nabob, which is now main working level, is started 4000 ft. north-easterly from Denver workings, over a ridge, in Nabob gulch. It had previously been driven 1900 ft. to intersect Nabob vein and a raise put up 400 ft. to surface. It is expected that development in 1918 will result in important production and possible removal of old Stewart mill to Pine Creek millsite. Ore reserves in Nabob workings are said to approximate 10,000 tons, with average value of 8% lead and 2 ozs. silver to the ton, with probable ore of at least equal tonnage and value. Ore contains absolutely no zinc. Ore in Denver vein has not been estimated by Mgr. Beaudry, but should result in heavy tonnage above Nabob No. 4 level. It is believed that at least 50,000 tons is available above No. 2 tunnel. This ore carries high percentage of zinc, as shown in assay results given above. Raise started from Nabob tunnel to Denver No. 2 level, April, 1918. Manager Beaudry anticipates that mine will be on producing basis within three months.

NATIONAL COPPER MINING CO.**Portland, Ore.**

Capital: \$3,000,000. Par value, \$1. Non-assessable. **Directors:** Wm. Trevor, pres.; Dr. R. J. Marsh, vice-pres.; Edward H. Hays, secy.; W. J. Coffey, treas.; Jas. Wolfs, Frederick Hagstrom and Chas. H. Skewes, all of Portland. **Property:** 33 patented claims, in Seven Devils district, Idaho, and 2 patented claims—Gold Bar and Coad Placer—in Southern Oregon, total area about 700 acres. **Class of Ore:** Copper, silver, gold, lead. Shipments to date, 150 tons, net returns being \$100 per ton. **Equipment:** Steam-driven compressor plant and hoist. **Development:** 3500 ft. of tunnels and shafts, opening property to a vertical depth of 160 ft.; also several open cuts, exposing good ore. Ditch completed, which will furnish 200 h.p. for milling, power and lighting purposes. **Informant:** Pres. Trevor.

NATIONAL COPPER CO., LTD.**Wallace**

Capital: \$2,500,000. Par value, \$1. Assessable. Originally \$1,200,000, but in 1913 increased to \$2,000,000, stockholders subscribing for additional 800,000 shares at 50 cts. cash, to erect mill, equip main level with electric haulage system, and pay for further development. Capital further increased to present dimensions

August, 1914, additional 500,000 shares being issued to Eugene R. Day, in payment for Nellie claim adjoining. Listed on Spokane stock exchange. **Directors:** August Paulsen, pres., Spokane; A. P. McRae, vice-pres., Mullan; Charles McKinnis, secy.-treas.; Henry White and James F. McCarthy, all of Wallace; H. H. Stambaugh and R. C. Steese, Youngstown, Ohio. **Property:** 10 claims and 2 mill sites, 165 acres, near Mullan, Hunter district, Coeur d'Alenes. **Class of Ore:** Silver-copper-lead. **Equipment:** 250-ton concentrator, 3 miles electric railroad, 2 air compressors, capacity 2000 cu. ft. per minute; 3 drill sharpeners, 2 Milwaukee gasoline locomotives, car hoists, etc. **Development:** Approximately 7000 ft., to total depth of 1550 ft. Main working level is crosscut at depth of 1200 ft. **Shipments:** 1916, \$86,659; total to November 1st, 1917, \$109,267. Since latter date, shipments of concentrates have been going forward at rate of 6 or 8 carloads per month. **Informant:** Secy.-Treas. McKinnis. **Note:** Ore body is lowgrade, official report for 1915 showing average of but 0.83% copper and 1.99 ozs. silver per ton. Several attempts have been made to operate property profitably, the last being started in 1917. It was believed that value of ore might increase with depth, and winze was therefore sunk from main tunnel level to 550 ft. below that point, with some encouragement. Operations since that time appear to have shown some profit, but future of proposition is by no means sure at this time.

NATIONAL LEAD MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** P. J. Gearon, pres.; Ida Scheave, secy.-treas.; Wm. Scheave, Thos. Jay, all of Wallace; Paul Lucia, vice-pres., Mullan. **Annual Meeting:** Second Saturday in September. **Property:** 7 unpatented claims—Cliff, Tom Boy, Irone, L & H, L & H Fraction, Elk Fraction, Elk tunnel-site—Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Not working. No shipments. **Development:** Annual assessment work only. **Informant:** Vice-Pres. Lucia.

NATIONAL MINING & DEV. CO.**Placerville**

Capital: \$1,000,000. Par value, \$1. **Property:** Mountain Chief mine, at Placerville, Boise Co., showing gold-silver ore in fissure vein one-third ft. wide, with values of \$20 to \$25 per ton. **Equipment:** 5-stamp amalgamation and concentration mill, with cyanide unit. **Development:** 3 tunnels.

NAY AUG MINE.**Spokane**

Property in Wood River district, purchased in 1916 by Raymond Guyer, of Spokane, and J. J. Baker. Credited with a previous yield of \$750,000 in silver and lead, a large body of zinc, untouched by early operators, remains. Developed by tunnel of 2200 ft. and 100-ft. shaft from bottom of tunnel. With the purchase by Guyer and Baker, the Nay Aug Co. passed out of existence.

NELLIE BLOOM MINING CO.**Horseshoe Bend**

M. E. Hopkins, supt. Shows a shoot of oxidized gold ore, 3-5 ft. wide and 500 ft. long, at depth of 300 ft., with average milling values of \$10 per ton. **Equipment:** 10-stamp mill, with electric power. Working 16 men.

NELLIE MINING CO.**Osborne**

Owners: Jack Alger and A. P. Horton, of Osborne, and O. R. Young, of Wallace. **Property:** 1½ miles from Osborne, on O.-W. R. & N. R. R., with fissure vein showing gray copper, said to carry 100 to 240 ozs. silver to the ton. **Equipment:** Waterpower pumping plant and hoist, and small mill. **Development:** 3 tunnels, shafts, and 10,000 ft. of stoping and raises. Crosscut on 500-ft. level opened up a vein 3 ft. wide, showing good milling ore.

NELLIE MINING AND MILLING CO.**Spokane**

Capital: \$60,000. Par value, 10c. Non-assessable. **Directors:** C. E. Benedict, pres.; Ollie E. Cushing, vice-pres.; W. Frank Cushing, secy.-treas., all of Spokane. **Annual Meeting:** First Saturday in October. **Property:** The Coeur d'Alene Nellie and Emma Nevada group of claims near Osborne, in Evolution district, Coeur d'Alenes. **Class of Ore:** Copper, silver. **Informant:** Secy.-Treas. Cushing. **Note:** Nellie claim taken over by Portland capitalists in October, 1916, and shaft of 150 ft. has been sunk from lower tunnel, 600 ft. from portal. About 60 tons of ore shipped recently returned some 20 ozs. silver to the ton. Ore treated in Silverado mill.

NEVADA-STEWART MINING CO.**Wallace**

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** Chas. R. Mowery, pres.; Herbert C. Mowery, H. M. Hueman, secy.-treas., all of Wallace; Andy Devlin, Spokane; M. J. Sinclair, Kellogg. **Annual Meeting:** April. **Property:** 6 unpatented claims, on east fork of Pine creek, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. No shipments. **Equipment:** 2-drill compressor,

electric motor, power from W. W. P. Co.'s transmission line. **Development:** About 1000 ft. of underground workings. **Informant:** Pres. Mowery. **Note:** Operations suspended Nov., 1917, account of excessive cost of supplies.

NEVER MISS MINING CO.

Wallace

Property adjoining Gold Hunter, being operated by J. W. Bubler, mgr., and M. Huffman, of Spokane, pres. Reported continuous values exposed in drifting 980 ft. on 50-ft. vein. Sample from across 6 ft. of body had content of 19.6% lead and 3 to 6 ozs. silver to ton. Reached by 1000-ft. crosscut, 100 ft. from Gold Hunter line, in Coeur d'Alenes.

NEW CHICAGO MINING AND MILLING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** J. W. Hutchins, pres., Mullan; Geo. H. Heller, secy., Osborne; Walter H. Hanson, treas.; L. E. Hanson, Wallace; Frank Heller, Iron Mountain, Mont. **Annual Meeting:** Last Saturday in August. **Property:** 2 unpatented claims and mill-site, 1½ miles above Prichard, in Coeur d'Alenes. **Class of Ore:** Copper, gold, silver. **Equipment:** Cabins, blacksmith shop, car, track, drill steel, tools, etc. No shipments. **Development:** 500 ft. of tunnel, 40-ft. shaft, 1 mile of good wagon road and 2 miles of trail. Doing only assessment work. **Informant:** Secy. Heller.

NEW CONSTITUTION MINE.

Spokane

Seven claims adjoining Constitution mine, on Pine creek, in the Coeur d'Alenes, located by C. W. Van Horn, of Spokane, and sold by him to P. W. Clark, April 1, 1916. Believed group covers one and possibly both Constitution veins.

NEW HOPE MINING CO., LTD.

Wallace

Capital: \$50,000. Par value, 5c. **Directors:** Eugene Thomas, pres., Osborne; Otto A. Olsson, secy.-treas.; Chas. A. Solberg, O. A. Olin and E. F. Gentry, all of Wallace. **Annual Meeting:** Second Tuesday in April. **Property:** 3 unpatented claims on Two Mile creek, near Osborne, Evolution district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Working small force, drifting on vein. **Development:** 1400 ft. of underground workings.

NEW JERSEY MINING AND MILLING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. **Directors:** H. E. Guiter, pres., DuBois, Pa.; D. G. McMullen, secy.; J. W. Jones, treas., Glassport, Pa.; Geo. W. Coleman, agent, Kellogg, Idaho. **Annual Meeting:** May.

NEW YORK MINE.

Newsome

Property near Newsome, being worked by Smith Bros., who treat the ore at a 5-stamp mill they own, 2 miles distant. Claim to have plenty of ore that will plate \$20 a ton in gold, and that mill will treat 8 tons per day. Operations curtailed by bad roads. **Note:** Have since installed 10-stamp mill.

NICKEL PLATE MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** L. Oriard, pres., Marshall, Wash.; J. R. Fordyce, vice-pres., Opportunty, Wash.; C. George, Medical Lake, Wash.; David Leitch, Davenport, Wash.; Z. A. Moore, S. A. Wells, secy., Spokane. **Annual Meeting:** First Monday in June. **Property:** 22 unpatented claims, 5 miles northwest of Reeder Creek landing, Bonner Co., Idaho. **Class of Ore:** Copper, gold, silver, zinc. Working 7 men. **Equipment:** 85-h.p. boiler, 65-h.p. engine, 14x16 air compressor, Burleigh-Rand drills, ore cars, air pipe and steel rolls, sawmill and planer. Work shows surface croppings at extreme difference in elevations of 1200 ft. level, main ore body being cut on 65-ft. level, showing vein over 20 ft. wide; values on 350-ft. level reach \$133 per ton. **Development:** 885 ft. of tunnels, 145 ft. of shafts, and 70-ft. crosscut. **Informant:** Secy. Wells.

NINE MILE MINING CO.

Wallace

Capital: \$100,000. Par value, 10c. **Directors:** Ole H. Linn, pres.; J. W. Flink, vice-pres.; C. W. Betts, secy.-treas.; W. W. Woods and Sam H. Linn, all of Wallace. **Annual Meeting:** Second Saturday in October. **Property:** 5 patented claims, east side of Nine Mile canyon, Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About 4000 ft. of underground workings.

NIPSIC MINING CO., LTD.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** R. D. Miller, secy.-treas., Spokane. **Annual Meeting:** First Monday in December. **Property:** 6 patented claims—Father, Nipsic, Brittle Silver, Romola Fraction, Lackawanna

and Kearsage—and 1 unpatented—the Spokane Amended—adjoining Interstate-Callahan and west of Hercules, in Sunset Peak district, Coeur d'Alenes. **Class of Ore:** Silver, lead, zinc; ore shoot, 200 ft. long, averaging 2 ft. wide, averages 40 ozs. silver, 10% lead and 15% zinc. **Equipment:** Air compressor and electric motor. Shipments, 400 tons lead ore, 45%. **Development:** 4000 ft. of tunnels, 130 ft. of raises. **Informant:** Pres. Fredk. Burbidge. **Note:** Property sold in June, 1916, to Consolidated Interstate-Callahan Mining Co.

NONPARIEL COPPER MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** H. C. McAllister, pres.; Jas. A. Wayne, A. C. Blue, all of Wallace; H. G. Loop, secy.-treas., Mullan; J. J. Hennessy, Spokane. **Annual Meeting:** Third Monday in November. **Property:** 3 patented claims and a fraction, west side of Willow creek, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper. Not working now. **Development:** About 400 ft. of underground workings. **Informant:** O. A. Olin Co., Wallace.

NORTH AMERICAN MINING AND MILLING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** John J. Presley, pres., Wallace; L. B. Whitten, secy.-treas.; Alvin Smith, both of Spokane; B. L. Knudson, Benton, Ore.; J. Frank Watson, Portland, Ore. **Annual Meeting:** Second Tuesday in June. **Property:** 25 patented claims on Big creek, Evolution and Yreka districts, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Compressor, water power, drills, buildings, etc. **Development:** Represents an expenditure of \$65,000. By agreement with the Alhambra Co., the North American Co. will continue the Alhambra tunnel into the latter company's claims, giving a depth of several hundred ft. below present workings.

NORTH BUNKER HILL MINING CO., LTD.

Kellogg

Capital: \$1,250,000. Par value, \$1. Assessable. **Directors:** Elmer Brown, pres.; N. T. Hardy, secy.; D. W. Price, treas.; A. W. Vangilder, Lloyd Drais and F. C. Cartwright, all of Kellogg; J. L. Trowbridge, Spokane. **Annual Meeting:** Last Saturday in May. **Property:** 3 patented claims—Daisy, Little Rose and Handy—and 2 fractions, between Caledonia and East Caledonia, in the town of Wardner, Yreka district, Coeur d'Alenes. **Class of Ore:** Silver-lead, copper. Working small force. **Equipment:** Hoist, air compressor, gas engine, blacksmith outfit, buildings, etc. No shipments. **Development:** About \$30,000 expended on work. **Informant:** Secy. Hardy. **Note:** Main shaft reached 200-ft. level late in February, 1918, and station is being cut before sinking to 300-ft. level.

NORTH DAKOTA MINING CO.

Park River, W. D.

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Property:** 66 acres patented ground, on Blacktail mountain, 1½ miles from Lake Pend d'Oreille, Idaho. Under option to F. O. Berg, who assigned the option to the Keystone Mines Corp., which was later succeeded by Armstead Mines Co. (q.v.).

NORTHERN LIGHT MINING AND MILLING CO.

Wallace

Capital: \$75,000. Par value, 5c. Assessable. **Directors:** C. A. Bloomquist, pres., Minneapolis; Benj. E. Harmon, secy., Wallace; Tom H. McGrath, treas.; Fred W. Sachse, all of St. Paul. **Annual Meeting:** Second Saturday in May. **Property:** 1 patented claim, the Northern Light, an option on Bryan and Path claims, adjoining, and a controlling interest in the Bobby Anderson Mining Co., all in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. **Equipment:** Electric power compressor, hoist, pumps, drills, cars, tools, etc. **Development:** 200-ft. shaft, with levels every 100 ft. and 100 ft. of drifts and cross-cuts. No shipments. Well located with reference to water supply, timber, transportation, etc. **Informant:** Ben G. Harmon, secy.

NORTH FORK COPPER MINING AND MILLING CO.

Property: 10 unpatented claims, on Murray branch of O.-W. R. & N. railroad, in Kootenai Co. Dr. T. R. Mason, manager, reports 5 ft. of milling ore. with streaks of high grade, have been opened in cross-cut.

NORTH FRANKLIN MINING CO.

Wallace

Capital: \$5,000,000. Par value, \$5. Assessable. **Directors:** Norman Ebbley, pres.; J. F. Whelan, Wallace; Gary C. Burke, secy.-treas., Kellogg; Thos. McGowan, Spokane; E. L. Chapman, Butte, Mont. **Annual Meeting:** Second Monday in Jan. **Property:** 6 patented claims adjoining Morning mine, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No shipments; not working. **Development:** 3,000 ft. of underground workings. **Informant:** Secy. Burke.

NORTH IDAHO METALS CORPORATION.

Wallace

Capital: \$9,000. Par value, \$10. **Directors:** C. F. Lucas, A. T. Amos and Geo. Crear, all of Spokane, and Chas. L. Hewitt, of Mullan. Organized to "carry on the mining, milling and treatment of ores, and similar kindred lines." Erected flotation plant to treat slimes from Morning mine, Mullan. Operations continuous in 1917, with fair returns.

NORTH IDAHO MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** C. M. Johnson, pres.; W. W. Bixby, secy.-treas.; P. J. Gearon, all of Wallace; C. L. Dawson, Huntington Park, Calif. **Annual Meeting:** 1st Monday in Jan. **Property:** 3 patented claims in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. Not working. No shipments. **Equipment:** Bunk house, boarding house, car, tools, etc. **Development:** About 900 ft. of underground workings.

NORTH STAR MINING AND DEVELOPMENT CO.

Wallace

Capital: \$1,250,000. Par value, \$1. Assessable. **Directors:** D. E. Wherry, pres.; E. L. Wherry, vice-pres.; G. W. Dougherty, secy.-treas.; Chas. Burnett and D. W. Sunderlin, all of Wallace. **Annual Meeting:** First Monday in April. **Property:** 5 unpatented claims on Nine Mile, adjoining Caledonia and Black Cloud, Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. Been operating steadily for 2 years, but closed down Oct., 1917. No shipments. **Equipment:** Blacksmith shop, car, track, etc. **Development:** 900 ft. of tunnel. **Informant:** Secy.-Treas. Dougherty.

NORTH STAR MINING & MILLING CO.

Spokane

Capital: \$100,000. Par value, \$1. Non-assessable. Organized 1897 under laws of Washington. **Directors:** W. B. Roberts, pres.-secy.; J. H. Boyd, Fred B. Grinnell, all of Spokane; John S. Baker, Tacoma. **Property:** Hickory patented claim, adjoining You Like of Federal M. & S. Co., Mullan, Coeur d'Alenes. **Development:** Shaft 80 ft. deep; nothing done for 18 years. **Note:** 3-year option at \$50,000 given to F. C. Bailey, Spokane, in February, 1918, and by him turned over to Conrad Wolfe, Spokane, who has also bonded We Like group, north of You Like. Consists of 7 claims developed by 700-ft. tunnel. Wolfe proposes to explore ground and if development be satisfactory, will convey to Belmont-Banner Mining Co., which he controls. Important discovery of clean and milling ore made in April, 1918.

NORTHWEST MINING AND MILLING CO.

Spokane

Capital: \$50,000. Par value, 5c. Organized in March, 1917, by Martin J. Burns, Patrick F. McGovern, J. A. Johnston, all of Spokane, and Julius P. Hall and Jos. N. Thennes, of Wallace, Idaho. **Property:** A 50-year lease from the N. P. Ry. Co. on 8 claims on Nine Mile, $\frac{1}{2}$ mile from Wallace, also similar lease on Radical group, adjoining, on royalty basis of 10% on net smelter returns. Ore body 2 to 7 ft. wide on Inca claim of Radical group, 350 ft. on drift from cross-cut, shows 2 to 40% lead, and 1 to 15 ozs. silver. A 400-ft. extension of drift on Inca claim will give vertical depth of 1,000 ft. Ledge is well defined fissure.

"O. K." CONSOLIDATED MINING AND MILLING CO.

Kellogg

Property: 7 surveyed lode claims, known as the O. K., O. K. Western, Manilla, Whippoorwill, Sunny, Mabel, and Lydia Fraction, on west side of Government Gulch, $2\frac{3}{4}$ miles from town of Kellogg. **Class of Ore:** Silver, lead. **Equipment:** Hoisting plant, engine house, blacksmith shop, boarding and bunk houses, etc. **Development:** Several hundred ft. of tunnels, cross-cuts, shafts, upraises and drifts. Inactive.

OLD CHARLES DICKENS MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Mrs. Ella T. Morrison, Clarkston, Wash., pres.; F. D. Garrett, Spokane, vice-pres.; G. E. Bowman, Spokane, secy.-treas.; D. W. Alton, Spokane, and S. J. Sargent, Asotin, Wash. Clean sweep of old directorate made at meeting in January, 1918. **Property:** 17 unpatented claims at head of Moon creek, east of Kellogg, in Evolution district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** 150-ton mill, fine-grinding machinery, flotation plant, compressor, etc. **Development:** Extensive to 850-ft. level, some stoping having been done upon vein which has yielded good ore. **Note:** Property has had a varied career. Originally taken over by Charles Dickens Mining Co. fifteen years ago and succeeded by Charles Dickens M. & M. Co. in 1902. Latter company lost its title through foreclosure of mortgage held by parties represented by A. D. Gritman, Spokane, who in 1908 organized Idaho-Knickerbocker Mining Co. and conducted operations under that name until early

in 1917, when Old Charles Dickens Mining Co. took over former company's assets. Frequent requests for information under Gritman regime were ignored and there has been no chance of securing facts, although favorable publicity appeared from time to time in local papers. There has been much comment upon conduct of affairs of successive corporations and not to credit of controlling interests. In October, 1917, explosion wrecked compressor plant at mine, but it has been replaced. Present management believed to be in favor of keeping stockholders fully advised of facts, but so far nothing of very tangible nature has been given out. Stock has been manipulated for several months on local exchange.

OLD SPANISH TOWN MINES CO.**Rocky Bar**

Property: 6 claims on Quartz creek, near Rocky Bar, where Old Spanish workings are being re-opened by Wm. D. Ebbert of Idaho Falls, and others. Said to be very rich in gold. Vein from 2 to 20 ft. wide said to have been opened up for 140 ft. A newly discovered vein yielded assay values of \$110 to \$160 in gold to the ton.

OLD VETERAN MINING CO.**Wallace**

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** M. J. Farrell, pres., Burke; Allan G. Kennedy, vice-pres.; L. L. Brainard, secy.-treas.; B. J. Farrell, all of Wallace. **Annual Meeting:** First Tuesday in March. **Property:** 10 unpatented but surveyed claims, 2 miles northeast of Burke, Coeur d'Alenes. **Class of Ore:** Lead-silver-copper. **Equipment:** Tools, cars, track, pipe, blower, blacksmith shop and tools, bunk and boarding houses, etc. **Development:** 1700 ft. of crosscuts and drifts. On Jan. 24, 1918, the ledge had been crosscut 30 ft., with neither wall encountered; copper ore, followed for 300 ft. in drift, constantly growing stronger. **Informant:** Secy.-Treas. Brainard. **Note:** Secy's report in February, 1918, states drift in tunnel proves ledge to be 36 ft. wide, assaying 1.84% copper and ½ oz. silver.

OLIVIA GROUP.**Dixie**

Owned and operated by Hazlitt & Trader, Dixie. **Property:** 11 unpatented claims in Dixie district. **Class of Ore:** Gold, silver, copper, in veins from 8 ft. to 40 ft. wide. **Equipment:** New 10-ton Huntington mill. **Development:** 100-ft. tunnel, 100-ft. vertical shaft, and drifts, totaling 1,000 ft. of underground workings.

OLYMPIA GROUP.**Wallace**

Property: 12 patented claims, in Lalande and Placer Center districts, Coeur d'Alenes. **Owner:** A. G. Kerns estate, Wallace. **Class of Ore:** Lead-silver. **Development:** 1500 ft. of underground workings.

OLYMPIA MINING AND MILLING CO., LTD.**Wallace.**

Capital: \$1,000,000. Par value, \$1. **Directors:** Clarence Cunningham, pres., Spokane; E. C. MacDonald, secy., Seattle; E. H. Moffitt, treas., Wallace. **Annual Meeting:** First Tuesday in January. Non-productive. **Note:** Reported that Secy. MacDonald died in 1915.

OMAHA GROUP.**Spokane**

Owner: August Paulsen, Spokane. **Property:** 4 claims on east side of Canyon creek, south of Burke. Extensive development being carried on.

ONTARIO MINE.**Grangeville**

Owners: Geo. Blaine and Frank McGrane, Grangeville. **Property:** 20 acres, patented, near Dixie. **Class of Ore:** Gold, with trace of silver. Shut down in 1911. No shipments. **Development:** 325 ft. of drift on vein, 4 ft. wide, with values of \$16 to \$20 in gold, and 2 ozs. silver to the ton. **Informants:** Blaine and McGrane, owners.

ONTARIO MINING CO.**Kellogg**

Capital: \$25,000 in dollar shares. **Directors:** Myron A. Folsom, formerly of Spokane, now of San Francisco, Cal., pres.; M. Nicholson, Kellogg, vice-pres.; Stanly A. Easton, Kellogg, secy.-treas. **Property:** Leaseshold, Ontario and Ontario Fraction, adjoining Stewart on south and Sierra Nevada on north, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** 300-ton concentrator, compressor and usual machinery. **Note:** A close corporation, generally believed to be subsidiary of Bunker Hill, which owns property leased by company. Last available statement shows that shipments reached 34,000 tons, running 8.29% lead and 7.36 ozs. silver per ton, up till late in 1915, of which 8209 tons, worth \$712,666, was shipped during that year. When operations were under

full headway, rate of output was 240 tons daily. Outlet through Silver King tunnel in Government gulch. In 1915 company won apex suit against Stewart Mining Co. and was awarded damages of \$48,245. Operations were then directed in disputed ground and mine completely dug out in October, 1917. Believed that operations resulted in large profit, with estimates running from \$500,000 to \$1,000,000. Exact information not available. **Note:** Sworn statement to assessor of Shoshone county, May 1st, 1918, shows: Tons extracted, 1201; gross value, \$32,811; cost of extraction, \$16,974; freight and treatment, \$8200; net profits, \$7636.

OOM PAUL CONS. MINING CO.

Wallace

Capital: \$1,600,000. Par value, \$1. Assessable. **Directors:** Jas. F. McCarthy, gen. mgr. Hecla Mining Co., pres.-treas.; L. E. Hanley, secy.; Edward Ryan, all of Wallace; F. A. Richardson, vice-pres.; J. B. Sloan, both of Burke, and Walter Mackay, Portland, Ore. **Annual Meeting:** First Monday in May. **Property:** Ten patented claims north and east of Burke, about 6000 feet easterly from Hercules mine. Believed that vein exposed on Oom Paul ground was continuation of latter's vein system. Prospecting to depth of 400 feet revealed some values, but nothing of commercial importance. In 1915, long crosscut tunnel was started from workings of Echo Mining Co. to intersect vein at depth. After running about 4000 feet, management decided to come back 150 feet from face and prospect vein cut at that point, but work was abandoned in July, 1917. It may safely be said that project has failed. Crosscut tunnel is now being used by Ajax Mining Co. under arrangement of which we are not advised.

OREANO MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Roy H. Kingsbury, pres., Kellogg; J. C. Gahe, vice-pres., Burke; F. P. Candee, secy.-treas.; Al Honcker and H. M. Peterson, all of Wallace; LeRoy Hooper, Osborne. **Annual Meeting:** 2nd Saturday in October. **Property:** 5 patented claims, Burke canyon, Lalande district, Coeur d'Alenes, adjoining Mammoth, Custer and West Hecla. **Class of Ore:** Lead-silver. No shipments. **Equipment:** Car and track. **Development:** About 3000 ft. of tunnel and crosscuts. **Informant:** Secy.-Treas. Candee. **Note:** So far as known, development has been temporarily discontinued. Property adjoins Union mine, of Sherman Dev. Co., and work was done in 1917 to locate ore-body developed by latter. Some encouraging indications were found, but nothing of permanent value.

OROGRANDE GOLD MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** J. N. Pickrell, pres., Colfax, Wash.; M. A. Sherman, vice-pres., Endicott, Wash.; Jas. E. Pickrell, secy.-treas.; Judge Geo. Turner, Spokane; Archibald McGregor, Hooper, Wash.; E. T. Drake, Walla Walla, Wash., and A. O. Jomeland, Mead, Wash. **Property:** Orogrande mine, on Crooked river, 64 miles southeast of Stites, Idaho, the nearest railroad point. **Class of Ore:** Large deposit of low grade gold ore. **Equipment:** 300-ton mill, idle for lack of water, but will resume early in 1918. Company owns both quartz and placer claims, aggregating about 200 acres, and has several carloads of machinery, in addition to the mill. This includes cyanide plant, classifiers, tube mills, thickeners, agitators, compressor, and 20 pumps. **Development:** About 1000 ft of workings, mainly adits and cross-cuts.

OSCEOLA MINING CO.

Wallace

Capital: \$100,000. Par value, 10c. **Directors:** Dennis Reardon, pres.; Geo. Miner, secy.-treas.; Chas. F. Ruddy, Chas. Miner, all of Wallace. **Annual Meeting:** Second Saturday in December. **Property:** 9 unpatented claims on west fork of Placer Creek, 1½ miles from Wallace. **Class of Ore:** Copper. **Equipment:** Compressor, machine drills, drill sharpening outfit, necessary buildings, etc. **Development:** About 2000 ft. of underground workings.

OVERLOOK MINING & DEVELOPMENT CO.

Walla Walla, Wn.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. N. McCaw, pres., Bellingham, Wash.; J. J. Gross, vice-pres.; M. J. Lowden, treas.; Walter Upington, secy.; M. Toner, T. S. Steele, all of Walla Walla, Wash.; J. T. Flathers, Prescott, Wash.; M. B. Goldstein, San Diego, Calif. **Annual Meeting:** Second Monday in June. **Property:** 16 unpatented claims in Black Warrior district, Elmore Co., Idaho. **Class of Ore:** Free milling, carrying gold and a little silver; assays run from \$1.50 to \$1500 per ton; average \$10. Working 28 men. **Equipment:** 20-stamp mill, 1 3-stamp mill, sawmill, boarding and bunk houses, blacksmith shop, assay office, stables, teams, wagons, etc. Three clean-ups netted \$12,000. **Development:** 1600 ft. of tunnels, 1400 ft. of drifts, cross-cuts and raises. **Informant:** Secy. Upington.

PANDORA COPPER MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Walter H. Hanson, pres.; J. C. Weatherhead, secy.-treas.; C. M. Baillie, all of Wallace; John P. Gray, Coeur d'Alene, and Martin Dunn, Butte, Mont. **Annual Meeting:** Fourth Wednesday in October. **Property:** 10 unpatented claims adjoining Snowstorm, in Hunter district, Coeur d'Alenes. **Class of Ore:** Copper. No shipments. **Development:** 1800 ft. of tunnels, opening property to 1100 ft. vertical depth. Non-productive.

PANHANDLE COPPER MINING & SMELTING CO.

Coolin

Capital: \$1,200,000. Par value, \$1. Non-assessable. **Directors:** A. Coolin, pres.; A. J. Martin, vice-pres.; Carl Cool, J. F. Malcom, all of Coolin; M. A. Ulbright, secy., Spokane. **Annual Meeting:** June 15. **Property:** 6 unpatented claims, near Priest Lake. **Class of Ore:** Copper, silver, lead, zinc. Not working. **Equipment:** 100-h.p. boiler, 14-h.p. hoist, pump, etc. **Development:** 150-ft. tunnel, shallow shaft. **Informant:** Pres. A. Coolin.

PANHANDLE MINING & MILLING CO., LTD.

Wardner

Capital: \$100,000. Par value, 10c. **Directors:** Geo. W. Harris, vice-pres., Burke; Franklin Pfirman, secy., Wallace; P. P. Weber, treas., Kellogg; Albert Burch, San Francisco, Calif. **Annual Meeting:** First Monday in March. **Property:** Two patented claims on Nine Mile, Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Has not been worked for a number of years. **Note:** Merged with the Pittsburg Lead Mining Co. in July, 1916.

PARAGON CONSOLIDATED MINING CO.

St. Paul, Minn.

Capital: \$1,500,000. Par value, \$10. Non-assessable. **Directors:** Geo. S. Monson, pres.; F. O. Hammer, secy.-treas.; R. C. Patterson, W. W. Dunn and Geo. J. Rank, all of St. Paul; L. W. Stedman, Paragon, Idaho. **Annual Meeting:** November. **Property:** 19 patented and 24 unpatented claims in Summit district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc, gold. Working small force, using mill of Murray Hill Mining Co. (q.v.) part of time, Paragon furnishing power for both properties. **Equipment:** Compressor, hoist, water power and steam plant, electric light plant, drills, tools, etc. No shipments now. **Total shipments,** 30 cars. **Development:** About 16,000 ft. of workings. **Informant:** Secy.-Treas. F. O. Hammer.

PARK COPPER MINING & MILLING CO., LTD.

Wallace

Capital: \$150,000. Par value, 10c. **Directors:** Nellie Stockbridge, secy.-treas., Wallace; A. J. Geis, Butte, Mont.; H. F. Samuels, Samuels; Thos. Keeley, Chicago. **Annual Meeting:** Fourth Tuesday in August. **Property:** 5 patented claims on Stevens Peak, above Mullan, Hunter district, Coeur d'Alenes. **Development:** 3000 ft. of underground workings.

PATUXENT MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** Jas. F. Callahan, pres.; Frank C. Boutin, secy.-treas., both of Wallace; J. Wemes, Greenacres, Wash. **Property:** 3 patented claims on Nine Mile, between Interstate-Callahan and Murray road, Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. **Development:** About 3600 ft. of cross-cuts and drifts. Operating through the tunnel and shaft of Rex Consolidated, adjoining.

PAYMASTER GROUP.

Milwaukee, Wis.

Not incorporated. **Owner:** W. H. Timlin, Milwaukee. **Property:** 21 patented and 3 unpatented claims, in Skull Canyon district, Fremont Co., Idaho. Idle for over 5 years. **Development:** Some exploration work, as test pits, tunnels, and shaft 95 ft. deep. **Informant:** W. H. Timlin, owner.

PENN DIXIE GOLD MINING CO.

Philadelphia, Pa.

S. R. Gayton, G. M., 4414 Locust St., Philadelphia, Pa. Dixie district, Idaho.

PEND D'OREILLE MINING & REDUCTION CO., LTD.

Chicago, Ill.

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** John E. Windsor, pres.; Geo. Lill, treas., and Wm. E. Cloyes, secy., all of Chicago; Simon P. Donnelly, Lakeview district, Bonner Co. **Class of Ore:** Silver, lead. Shut down 2 years ago. No shipments. Operation prevented by litigation. **Equipment:** Compressor, boiler, and machinery used for prospecting, a 10-stamp mill with tables and vanners. **Development:** 1,000 ft. of cross-cuts and drifts, opening the property to a vertical depth of 500 ft. **Informant:** Secy.-Treas. Cloyes. **Note:** Company took over old Weber mines, but has been in litigation for some years. Old milling plant destroyed by fire in summer of 1917.

PENN-IDAHO MINING CO.**Murray**

Capital: \$1,000,000. Par value, \$1. **Directors:** A. P. Berlin, pres.; Thos. Zellner, secy.-treas.; H. H. Misson, J. W. Hoke, all of Slatington, Pa.; R. C. Berlin, mgr., Murray. **Annual Meeting:** First Monday in May. **Property:** 23 unpatented claims in Butte and Bonanza gulches, 3 miles east of Murray. **Class of Ore:** Lead-silver. **Equipment:** Tools for hand work, blacksmith shop, car, tracks, air blast, flume, etc. **Development:** 742-ft. tunnel. **Informant:** Manager Berlin.

PETE KING MINING CO.**Kamiah**

Capital: \$25,000. Par value, \$1. **Directors:** J. G. Davis, pres.; E. F. Gruenwald, vice-pres.; T. H. Greenlee, secy.-treas.; Wm. Linder, all of Kamiah. **Annual Meeting:** Second Saturday in Feb. **Property:** 12 unpatented claims, on Pete King creek, Blackhawk district, Idaho Co. **Character of Formation:** Wash gravel, carrying placer gold. No equipment; no shipments; no development. Doing only assessment work. **Informant:** Secy.-Treas. Greenlee.

PHEDORA SILVER-LEAD MINING CO.**Kellogg**

Capital: \$1,500,000. Par value, \$1. **Directors:** Wm. Schaefer, pres.; Geo. Molsion, vice-pres.; M. Rosauer, Al Bland, Wm. Weyer and Chas. Balinger, all of Kellogg. **Annual Meeting:** April 15. **Property:** 12 unpatented claims and a fraction, adjoining the Jack Waite, in Eagle district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Development:** About 700 ft. of underground workings. Unproductive.

PHOENIX MINING & MILLING CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Norman Ebbley, pres.; Jos. F. Whelan, secy.-treas.; Roy H. Kingsbury, all of Wallace; Wm. Roberts, Gem. **Annual Meeting:** Second Monday in May. **Property:** 14 unpatented claims, head of Cedar and Granite creeks, Lalande district, Coeur d'Alenes. **Class of Ore:** Silver-lead. No shipments. **Development:** About 1,500 ft. of tunnel.

PINE CREEK DEVELOPMENT CO.**Kellogg**

Incorporated in 1916, by W. W. Papesh, Geo. H. McKinnis, J. A. Rock, and others, to operate Sherman group, owned by Sherman Mining Co., on Pine Creek, under 2-year bond and lease. **Property:** 6 claims, developed by 1000 ft. of underground workings, and said to show zinc and lead values.

PINE CREEK MINING & MILLING CO.**Wallace**

Capital: \$100,000. Par value, 10c. **Directors:** Dr. C. S. Stone, pres.; O. W. Lewis, secy.-treas., both of Wallace. **Annual Meeting:** First Tuesday in May. **Property:** 14 claims on Denver gulch, on Pine creek, Yreka district, Coeur d'Alenes, including 7 claims acquired by consolidation with the Hilarity Mining Co. Jan. 1, 1917, the stockholders of the Hilarity Co. receiving an equal number of shares in the consolidated company. **Class of Ore:** Lead, running 12%. Considerable development work has been done on the original claims of the Pine Creek Co., but comparatively little on those formerly held by the Hilarity Mining Co. (q. v.)

PIONEER MINING CO.**Wallace**

Capital: \$250,000. Par value, 25c. Assessable. **Directors:** O. A. Olin, pres.; G. B. Harrington, secy.-treas.; S. H. Linn, O. H. Linn and Wm. Shannon, all of Wallace. **Annual Meeting:** First Monday in December. **Property:** 10 claims, surveyed for patent, adjoining the Ray-Jefferson, Beaver district, Coeur d'Alenes. **Class of Ore:** Lead, silver and zinc. Not working; no shipments; no equipment. **Development:** Only surface cuts and a few short tunnels. **Informant:** O. A. Olin Co., Wallace.

PITTSBURG-IDAHO CO., LTD.**Pittsburg, Pa.**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** A. S. Ross, pres., Gilmore, Idaho; W. A. McCutcheon, secy.-treas.; Geo. W. Provost, J. I. Alexander, Pittsburg, Pa.; Irvan Neckerman, Annapolis, Md. **Annual Meeting:** First Monday in July. **Property:** 5 patented and 21 unpatented claims, 523 acres, at Gilmore, Lemhi Co., Texas district, Idaho. **Class of Ore:** Gold, .003 ozs.; silver, 14 ozs.; lead, 27%. **Equipment:** Air compressor, drills, blacksmith shop, cars, tools, etc. Net smelter returns on shipments of 71,345 tons, \$1,686,480.15. Usual rate of output, about 2,000 tons per month. **Development:** To depth of 600 ft., with productive levels at 400, 500 and 600 ft. **Informant:** Secy.-Treas. McCutcheon. **Note:** After payment of generous dividends in 1917,

property was closed down late in year, owing to fact that sufficient surplus was not available to finance operation under unfavorable metal conditions. Believed that operations will be resumed in spring of 1918.

PITTSBURG-IDAHO MINING & MILLING CO.

Kamiah

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** A. S. Ross, pres. Inc. Jan., 1903, as successor of Pittsburg-Idaho Mining Co. **Annual Meeting:** Last Monday in January. **Property:** 19 claims, 380 acres, in Lo Lo district, near Montana line. Said to show 6 contact veins, two being 50 to 70 ft. wide, giving assays up to 12% copper, 14 ozs. silver, and \$20 gold per ton. **Development:** To 600-ft. level, by shafts and tunnels of 40, 200 and 600 ft. A winze sunk from 600-ft. level on a 3-ft. vein showed lead carbonate ore with high lead and silver values. Several hundred ft. of tunnels, one 1400 ft., others 50 to 300 ft. No shipments.

PITTSBURG LEAD MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. **Directors:** H. L. Collins, pres.; S. Severance, secy.-treas., both of Pittsburg, Pa. **Property:** Merged with California Consolidated Mining Co. and Panhandle Mining and Milling Co., in July, 1916. Properties of all three companies are in Nine Mile Creek section, Placer Center district, Coeur d'Alenes. The Pittsburg Co. owned a small group; the California Consolidated's holdings included the Black Cloud group, 4 patented claims, and a mill 2 miles above Wallace; the Panhandle, 2 patented claims. A new syndicate, organized to handle these properties, and composed of Stanley A. Easton of Kellogg; S. Severance, Henry L. Collins and B. Oberall, of Pittsburg; W. M. Rumley and Christopher Murphy, of Chicago, contributed fund of \$150,000 for development.

PITTSBURG MINING & MILLING CO.

Rocky Bar

Not incorporated. Property owned by W. N. Frew, address not given. Consists of 1 patented claim and 1 held by location, in Bear Creek district, near Rocky Bar. Formation, porphyry and granite. Shut down several years ago. Shaft on one of the claims, 250 ft. deep, and is said to have produced many hundred thousands of dollars. **Informant:** Eugene Lison, Rocky Bar.

PLACER CREEK MINING & MILLING CO.

Spokane

This corporation, organized in Washington with capital of \$1,000,000, has been absorbed by Placer Creek Silver-Lead Mining and Milling Co., an Idaho corporation (q.v.).

PLACER CREEK SILVER-LEAD MINING & MILLING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** J. W. Wentworth, pres.; G. A. Yancey, vice-pres.; R. E. Bigelow, secy.-treas.; J. Elmer West and J. B. Campbell, all of Spokane; G. W. Renkenberger, Phoenix, B. C. **Annual Meeting:** Oct. 2. **Property:** 5 unpatented claims in Placer Center district, near Wallace, Coeur d'Alenes. **Development:** 1100 ft. of tunnel, 40-ft. shaft. **Informant:** Secy.-Treas. Bigelow. **Note:** An Idaho corporation, which recently took over Placer Creek Mining & Milling Co., a Washington corporation, of same capitalization. Practically close corporation which develops to extent of \$1,000 to \$1,500 each year by assessment. Same amount will be expended this year.

POCAHONTAS MINING CO.

Wallace

Capital: \$10,000. Par value, \$1. **Directors:** W. H. Hanson, pres.; L. E. Worstell, secy.; Irving Anderson, treas.; D. N. Haydon and W. W. Smith, all of Wallace. **Property:** 5 unpatented claims in Idaho gulch, 2 miles from Murray, Summit district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** Only assessment work and preliminary improvements.

POCATELLO GOLD & COPPER MINING CO.

Pocatello

Capital: \$500,000. Par value, 50c. **Directors:** H. W. Lockhart, pres. **Property:** 7 claims in Fort Hill district, 12 miles east of Pocatello. Vein 3 ft. wide, reported to give assays of 30% copper, 13.8 ozs. silver and \$1 gold to the ton. Ore mainly milling grade. **Development:** 1000 ft. of workings, mostly short tunnels.

POLARIS DEVELOPMENT & MINING CO.

Wallace

Capital: \$50,000. Par value, 5c. **Directors:** W. E. Mann, pres.; Peter Schmitz, H. M. Davenport, all of Spokane; P. J. Gearon, vice-pres.; L. C. Wilson, secy.-treas., Wallace. **Annual Meeting:** Third Wednesday in December. **Property:** 3 patented and 2 unpatented claims, adjoining Yankee Boy, 4 miles east of Kellogg, Evolution district, Coeur d'Alenes. Formerly owned by U. S. Senator W. B. Heyburn and associates, and then known as Polaris Mining Co. Taken

under 5-year lease and bond by Polaris Development and Mining Co., and subsequently purchased outright. **Class of Ore:** Lead-silver. **Equipment:** Complete, and machinery driven by electric power. Considerable crude ore of a good grade has been shipped, netting over \$4000 per car. Shipments of 7 car-loads in 1916 netted \$25,163. **Development:** 1100 ft. of drifts, 500 ft. of shafts, winzes and raises.

POLARIS MINING CO.

Wallace

Directors: John P. Gray, pres.; Florence Mead, secy.-treas.; W. H. Batting, all of Coeur d'Alene. **Property:** 3 patented claims in Evolution district, Coeur d'Alenes, now owned by the Polaris Development & Mining Co. (which see).

PONDERA MINING & POWER CO.

Spokane

R. C. Reinertson, president. Pondera group, in Pend d'Oreille district.

PONDERAY MINING & SMELTING CO.

Sandpoint

Capital: \$500,000. Par value, \$100. Non-assessable. **Directors:** Geo. S. Brooke, pres.; Leo Greenough, secy.-treas.; A. B. Lee, all of Spokane; G. H. Martin, Sandpoint. **Annual Meeting:** 2nd Tuesday in July. **Property:** 4 quartz lode claims near Lakeview, and 4 lime placer claims, patents pending, near Bayview, Idaho. **Class of Ore:** Silver, lead, gold, in quartz group; lime, copper, vein in Bayview group. Not working now. **Equipment:** Air pipe, track, cars, etc., on quartz claims. No shipments. **Informant:** Secy.-Treas. Leo. Greenough.

PONDERAY SMELTER.

Sandpoint

Owned by Idaho Smelting & Refining Co. (q.v.), whose properties were sold at sheriff's sale to "Union Trust Co.," of Spokane. Company built smelting plant on Pend d'Oreille Lake, near Sandpoint, 10 or 12 years ago. Operations were unsuccessful and assets passed to bondholders. Plant has since been idle.

PORTOMA MINING CO.

Portland, Ore.

Capital: \$100,000. Par value, 5c. **Directors:** D. C. O'Reilly, pres.; F. A. Knapp, secy.-treas.; R. H. Fleming, all of Portland; F. L. Jones, Seattle, and F. B. Sharpstein, Walla Walla, Wash. **Property:** 3 patented and 1 unpatented claims on Dobson gulch, Beaver district, Coeur d'Alenes, formerly known as the Silver Eagle. **Class of Ore:** Lead-zinc. **Development:** 1300 ft. of tunnels and cross-cuts.

POWHATTAN MINING CO., LTD.

Wallace

Capital: \$100,000. Par value, 10c. **Directors:** Jos. Turner, pres.; Otto Freeman, secy.-treas.; Chas. Rundquist, L. L. Leighty, Wm. Fishinger and Hugh Toole, all of Wallace. **Property:** 4 unpatented claims on Big Creek, Evolution district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Development:** 900 ft. of tunnel.

PRIEST LAKE COPPER MINING & MILLING CO.

Hillyard, Wash.

Capital: \$2,500,000. Par value, \$1. Non-assessable. **Directors:** F. S. Moore, pres.; Mrs. A. J. LePage, vice-pres.; S. A. Wells, secy.; Thos. Kehoe, treas.; D. Leitch and C. George, all of Hillyard. **Property:** 22 lode claims, 440 acres, title transferred by original owners, on Nickel Plate mountain, Priest Lake district. Early in 1917, all assets sold by vote of stockholders to L. Oriard, for approximately \$6000. While corporation still in existence, has no assets.

PRIEST LAKE MINING & SMELTING CO.

Fenton, Michigan

C. D. McLean. Woodrat mine, Priest Lake district, Idaho.

FROBIGLO MINES CO.

Profile

Capital: \$200,000. Par value, \$1. **Directors:** I. P. Miller, pres.; S. B. Vincent, treas.; E. L. Hice, secy., all of Portland, Ore.; J. H. Richards, Boise; H. T. Abstein, Profile. **Property:** 8 quartz claims and 80 acres of placer ground, in Big Creek district, Idaho Co. **Class of Ore:** Gold, silver.

PRUDENTIAL LEAD & SILVER MINING CO., LTD.

Wallace

Capital: \$375,000. Par value, 25c. **Directors:** John J. Curran, pres.; A. L. Nicholson, secy.-treas., both of Wallace. **Annual Meeting:** June 15. Non-productive.

FURITAN MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** Frank Boutin, pres.; Chas. Elmgreen, Sunset; Chas. A. Solberg, secy.-treas., Wallace; O. B. Olson, Burke; Theo. Anderson, Los Angeles, Calif. **Property:** 5 patented claims on west side

of Burke Canyon, above Burke, in Lalande district, Coeur d'Alenes. **Development:** About 3000 ft. of underground workings.

QUARTZ CREEK GOLD DREDGING CO.

Spokane

Capital: \$200,000. Par value, \$1. Non-assessable. **Directors:** W. J. Harris, pres.; Mrs. W. J. Harris, both of Spokane; Alex. Kasberg, Lewiston, Idaho. **Annual Meeting:** Feb. 12. **Property:** On Quartz Creek, Pierce district, Idaho. Patented. Placer ground. Working small force. **Equipment:** Saw mill, Wicks scraper, 30-h.p. winding engine, centrifugal pump, 6-h.p. gasoline engine, 1500 ft. of cable, 100,000 ft. logs on skids at mill. **Development:** Ground drilled and pitted to extent of 5,000,000 cubic yards of gravel, averaging 14c per cubic yard. **Informant:** Pres. W. J. Harris.

RABBIT FOOT MINING CO.

Winchester, Ind.

Property: 15 unpatented quartz and 16 placer claims, 620 acres, near Farney, Lemhi Co., Idaho. **Class of Ore:** Gold and silver. **Equipment:** 10-stamp mill, small cyanide plant, 50-h.p. steam hoist. Shipment of 50 ozs. gold netted \$500. **Development:** 2000 ft. of tunnels and 50-ft. shaft; working on the glory hole system. Ore bodies range from 10 to 212 ft. in width. **Informant:** R. E. Lee Ramey, Farney, Idaho.

RAILROAD GROUP CLAIMS.

Pocatello

Property: Three patented claims—the Herald, Athens and Ridgeway—in Washington Co., about 20 miles from railroad. **Class of Ore:** Gold, copper, silver. No shipments. Ledge 35 ft. wide, 100 ft. on surface. Assays from 6% to 54% copper, 5 to 20 ozs. silver and \$1.50 to \$35 in gold. Working under bond and lease. **Development:** 600 ft. of tunnels and drifts. **Informant:** F. G. Lane, secy.

RAINBOW MINING & MILLING CO., LTD.

Spokane

Capital: \$500,000. Par value, 25c. Assessable. **Directors:** Geo. Austin, pres.; R. P. Woodworth, secy.-treas., both of Spokane; Sig Hofslund, vice-pres.; A. H. Nourse, both of Coeur d'Alene; Therrett Towles, Wallace, and A. E. Bronson, of Gibbs. **Annual Meeting:** First Tuesday in June. **Property:** 4 patented claims, in Shields' gulch, 3 miles west of Wallace; also 2 patented claims, 1 by warranty deed and 2 by location, Kootenai Co., Idaho. **Class of Ore:** In group No. 1, gray copper; in No. 2, silver, lead and zinc. Working small force. **Equipment:** Rails, cars, air pipe, flume for air-blast, blacksmith shop, 2 cabins, tools, etc. No shipments. **Development:** On No. 1 (near Wallace), 2200 ft. of tunnels, cross-cuts, raises and shafts. On No. 2 (Kootenai Co.), 600 ft. of tunnel, few ft. of drift, disclosing ore that, from picked samples, gave assay returns of 11.25 ozs. silver, 26% lead and 30.8% zinc. No. 1 group covers 4500 ft. of two well-defined veins, showing heavy oxidized iron capping. No. 2 group covers 6000 ft. of vein, in places 20 ft. wide, on surface. **Informant:** Pres. Geo. Austin.

RANSBORN MINING & SMELTING CO.

Salt Lake City, Utah

Property at Bay Horse, Custer Co., Idaho, and said to be the largest dry-silver ore mine in the state. Shows well-defined fissure veins in black altered slate. Vein from few inches to several ft. wide, and carries quartz and spathic iron, with ore shoots containing streaks and spots of tetraedrite, carrying high copper and silver values. **Note:** Controlled by Salisbury Bros., Salt Lake City.

RAVEN MINING CO.

Wallace

Capital: \$1,500,00. Par value, \$1. **Directors:** W. M. Rakestraw, pres., Spokane; Franklin Pfirman, secy.-treas., Wallace; J. J. Toner and W. T. McLachlin, Wardner. **Annual Meeting:** Second Monday in July. **Property:** 4 unpatented claims at Raven, above Murray, in Summit district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 1400 ft. of underground workings.

RAY-JEFFERSON MINING CO.

Wallace

Capital: \$2,000,000. Par value, \$1. **Directors:** Eugene R. Day, pres.; Harry L. Day, vice-pres.-secy.-treas.; D. L. McGrath, Jas. J. Murphy and Geo. K. Garrett, all of Wallace. **Annual Meeting:** Third Monday in May. **Property:** 38 claims, 600 acres, a majority being patented, adjoining Interstate-Callahan, and reported to show the Interstate-Callahan and Amazon-Manhattan veins, one with an ore body 400 ft. long. The Carlisle, a cross-vein running northerly and intersecting the Interstate, is supposed to be the Hercules vein. **Class of Ore:** Lead, zinc, silver. **Equipment:** 8-drill compressor plant and 400-ton mill, at Carbon and Beaver creeks, the terminus of the Beaver Creek branch of O.-W. R. & N. R. R.; buildings, electric power. **Development:** About 6000 ft. of underground workings. **Note:** Controlled by Day family, which refuses official information. Milling plant now being used to reduce ores of Amazon-Manhattan mine (q.v.), which

is also controlled by Days. **Note:** Work suspended March 1, 1918, as bins were full of ore, and no transportation available until railroad tracks, washed out by floods, have been repaired. Work resumed in April, 1918.

RED BIRD SMELTING CO.

Clayton, Ill.

Blue Bird, Silver Rule and Skylark claims, in Bay Horse district, Idaho. **Note:** Direct information unobtainable, but believed to be subsidiary Clayton M. & S. Co. (q.v.).

RED CLOUD MINING CO., LTD.

Wallace

Capital: \$250,000. Par value, 50c. Assessable. **Directors:** A. L. Honaker, pres.; Herman J. Rossi, secy.-treas.; Lyman Wood, all of Wallace; Jacob Lockman, Nampa; J. B. Cameron, Seattle, Wash. **Annual Meeting:** Second Tuesday in July. **Property:** One patented claim on Pine creek, near Beeler, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No shipments. No equipment. **Development:** Very limited. **Informant:** Secy.-Treas. Rossi.

RED HORSE MINING CO.

Harrison

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** M. W. Frost, pres.; E. E. Goodwin, vice-pres., both of Harrison; R. A. Jonas; Mrs. Serepta Jonas, secy.-treas., Spokane; E. C. Ribatein, D. R. Frost, John Demay, Otto Borchardt and G. F. Gilbert. **Annual Meeting:** First Monday in July. **Property:** 16 unpatented claims, 5 miles northeast of Springston, on forest reserve. **Class of Ore:** Copper, gold and silver. Not working. **Equipment:** 40-h.p. gasoline engine, 3-drill compressor, several tanks, blower, ventilating pipe, 1200 ft. of steam pipe, engine room, compressor and blacksmith shops, good buildings, etc. No shipments. **Development:** 1700 ft. of tunnel, and preparing to drive 150 ft. more, to cut large ore body. **Informant:** Pres. Frost.

RED LEDGE MINE.

Landore

Property: 10 miles north of Landore, Adams Co., in Deep Creek canyon. Large outcrop of red and yellow-stained quartz-porphry, 1 mile long, 2000 ft. wide, permeated with fine grained copper-bearing pyrite, and stained with green carbonate of copper. Indications that ore body is an anticline or saddle fold of bedded porphyry schist, 100 ft. thick. **Class of Ore:** Gold and silver, \$7 per ton, and a section carrying 4.6% copper. Would warrant development, except for being 17 miles from a railroad, at Homestead, Ore. **Development:** 400-ft. crosscut tunnel.

RED MONARCH CONS. MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Assessable up to 5c per share only. **Directors:** Conrad Wolfe, pres.-mgr.; M. E. Poole, secy.-treas.; G. I. Toevs, E. A. Wolfe, A. J. Davis, D. Ackerman, Spokane; W. G. Collins, Moritz Thomsen; Seattle. **Annual Meeting:** First Tuesday in April. **Property:** 38 unpatented claims, in Beaver Creek district, Coeur d'Alenes, adjoining the Consolidated Interstate-Callahan on the west. **Class of Ore:** Lead-silver-zinc. Working 15 men. No shipments. **Equipment:** 10-drill compressor, power drills, 10 2-ton ore cars, 1 mile of 24-in. gauge track of 20-lb. rails, mules for tunnel tramping, electric power, 200-h.p. motor, tools, etc. **Development:** A long lower tunnel, being driven from creek level, to tap at depth several veins showing on surface, is now in over 3500 ft., and a number of stringers have been cut, showing content of \$21 to \$122 per ton. A shorter tunnel is to be driven from opposite direction. Over 800 ft. of drifting has been done since fall of 1917. Last two assessments were levied about Feb. 1, 1918. **Informant:** Pres.-Mgr. Conrad Wolfe.

REINDEER-QUEEN MINING CO.

Mullan

Capital: \$200,000. Par value, 10c. Assessable. A reorganization of the Copper Queen Mining & Milling Co., Ltd., and the Reindeer Copper & Gold Mining & Milling Co., Ltd., whose holdings are contiguous and cover extensive copper exposures. **Directors:** John C. Glahe, pres., Burke; A. P. McRae, vice-pres.; James R. Bean, secy.; Dr. D. E. Keyes, all of Mullan; S. D. Lemieux, treas., Black Bear. **Annual Meeting:** First Monday in October. **Property:** 15 claims in Mullan copper belt, at head of Willow creek, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper. **Equipment:** Air compressor, blacksmith shop, bunk house, cook house, etc. No shipments. Working 12 men. **Development:** About 6000 ft. of tunnels and drifts, opening the property to a vertical depth of 1000 ft.

REPUBLIC LODE, ET AL.

Rocky Bar

Owned by Eugene Lison, Rocky Bar. **Property:** 12 claims—7 held by location—in Bear Creek district, Elmore Co. **Class of Ore:** Gold. **Equipment:** 20-stamp mill, small sawmill, 2 Johnson vanners, boarding house, bunk house, blacksmith shop, other buildings, a good water right and plenty of timber. No shipments. **Development:** 5 tunnels, aggregating 1550 ft., 100-ft. shaft and 300 ft. of raises. **Informant:** Eugene Lison, owner.

REVENUE MINING & MILLING CO.**Spokane**

Capital: \$500,000. Par value, \$1. Assessable to amount of \$2,000 per year. **Directors:** J. E. McCormack, pres.; E. F. Cartier Van Dissel, vice-pres.; Walter Guthridge, secy.-treas.; H. Crommelin and O. Lundgren, all of Spokane. **Annual Meeting:** Last Saturday in May. **Property:** 8 patented claims in Elk City district, Idaho. **Class of Ore:** Antimony, silver, gold. Not working now. **Equipment:** Ore car and hand tools. No shipments. Cannot work property profitably, for lack of transportation. **Development:** 700-ft. tunnel, exposing ore body 500 ft. long and 10 to 24 inches wide, assaying from \$3 to \$60 per ton. **Informant:** Secy.-Treas. Guthridge.

REX CONS. MINING CO.**New York**

Capital: \$1,250,000. Par value, 25c. Non-assessable. **Directors:** L. E. Whicker, pres.; R. M. Atwater, Jr., treas.; C. C. Burger, all of New York; Raymond Guyer, vice-pres.-mgr., Spokane, Wash.; Harold Pierce, Philadelphia, Pa. **Annual Meeting:** Aug. 6. **Property:** 2 groups of claims in Nine Mile section, Coeur d'Alenes, including Sixteen-to-One mine of 7 claims, near Interstate-Callahan and Success. Formerly operated by Finch-Campbell interests of Spokane. Claims contain 2 strong veins, Rex and Okanogan; a strike on the latter shows a 3-ft. body of ore, 1 ft. of which assays 35% lead and 6.3 oza. silver. Negotiations now in progress have in view the absorption of all holdings of old Rex Mining Co. Company also holds small stock interest in Black Bear Mines Co., upon which it at one time held an option. **Equipment:** One 1500-ft. compressor, with 200-h.p. motor; 300-ton mill, electric hoist of 2000 ft. capacity, mine pumps, machine drills, etc. Output for 1917, \$494,827; net returns, \$225,921. **Development:** About 6000 ft. of underground workings. **Note:** In March, 1918, N. G. Sheridan took a 3-year lease on No. 2 and No. 3 levels, and will sort and ship the high grade ore the Co. found it inconvenient to handle. Shaft will be sunk 300 ft. deeper in April, 1918. Reported, March 6, 1918, that high grade silver-lead ore has been opened on No. 2 level, some of it containing 60% lead. In March, 1918, transfer of Rex Mining Co. was completed on stock basis.

REX MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. **Directors:** Herman J. Rossi, pres., Wallace; Chas. Hussey, secy.-treas.; Dana Child, W. J. C. Wakefield, all of Spokane. **Annual Meeting:** Aug. 1. **Property:** 5 patented claims on Nine Mile, Placer Center district, Coeur d'Alenes, now under option to Rex Cons. Mining Co. (q.v.), for \$200,000. **Equipment:** Concentrating mill, tramway, air compressor, dynamo, pumps, etc. **Note:** In March, 1918, arrangements perfected for absorption by Rex Consolidated on the basis of 1,000,000 shares of latter for 1,500,000 shares of Rex, and agreement of Consolidated to retire all indebtedness and place \$338,000 in treasury for development purposes. Property one of earliest projects of late John A. Finch and A. B. Campbell. At one time under bond to Lead & Silver M. Co. (q.v.).

RHODE ISLAND MINING CO., LTD.**Wallace**

Capital: \$50,000. Par value, 5c. Assessable. **Directors:** A. G. Webb, pres.; C. E. Clarke, secy.-treas.; Dr. W. A. Smith, Dan Russell and Chas. Bolinger, all of Wallace. **Annual Meeting:** Second Tuesday in August. **Property:** 2 unpatented claims on Terror creek, a tributary of South Fork, $3\frac{1}{2}$ miles north of Osborné, Evolution district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 500 ft. of tunnel.

RICH GULCH MINING CO.**Silver City**

Capital: \$60,000. Par value, 1c. Assessable to limit of \$25,000. **Directors:** Donald McDonald, pres., Salt Lake City, Utah; A. F. Stevens, secy.-treas., Silver City; A. H. Barnes, Tacoma, Wash.; J. D. Good, Minneapolis, Minn.; F. G. Paulmer, Elkhart, Ind. **Annual Meeting:** First Tuesday in January. **Property:** 14 unpatented claims—Edna, Iowa, Rich Gulch, Utah, Hough, Edna Fraction, Darr, Hall, Crown Point, Butte, Iron Butte, Chamberlain placer, Tacoma placer, Ray placer—and 5 mill-sites, on Florida Mountain, Silver City. **Class of Ore:** Gold, silver. On 800-ft. level, gold \$35, silver \$50 per ton. Not working. **Equipment:** 1½ miles electric power line, compressor plant, blacksmith shop, 100-ton mill, boarding house, store, including 10 buildings. No shipments. **Development:** 7500 ft. of tunnels, opening property to vertical depth of 700 ft. **Informant:** Secy. Stevens.

RICHMOND MINING, MILLING & REDUCTION CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. E. Codd, pres.; Chas. J. Heidenreich, vice-pres.; B. C. Redhead, secy.-treas.; W. S. Norman, all of Spokane. **Property:** 2 patented claims and four for which patent has been applied, on Idaho-Montana line, $1\frac{1}{4}$ miles from Adair, Idaho, on C. M.

& St. P. Ry., with which it is connected by tramway. **Class of Ore:** Copper, gold, silver. Working 15 men. Shipments, 10 tons daily, netting about \$14,000 per month. Car shortage in December, 1917, retarded shipments, and resulted in freezing of ore in upper and lower terminals, necessitating suspension of shipments. Dividends amounting to \$84,000 have been paid, but ceased temporarily in October, 1917, owing to war taxation. **Development:** About 1500 ft. of work in pay shoot. **Informant:** W. S. Norman. **Note:** In 1917, 187 carloads were shipped; gross value, \$292,117; surplus, above dividends and expenses, over \$10,000, or a net profit of \$93,360.

RIDLEY PLACERS.

Detroit, Mich.

Property, held under partnership agreement, embraces about 100 acres of gravel bank on west side of Salmon river, opposite Slate creek, but has not been worked for a number of years, on account of road conditions, and inability to transport machinery. **Informant:** J. R. Ridley, 129 Columbia St., West Detroit, Mich.

RITZVILLE MINING & MILLING CO.

Ritzville, Wash.

Capital: \$500,000. Par value, 50c. Assessable to limit of \$250 per share annually. **Directors:** W. O. Miller, pres.; Mary McChesney, secy.-treas.; W. O. Lewis, L. D. Emerson and E. L. Allen, all of Ritzville; W. P. Hofstetter, mgr., St. Maries, Idaho. **Annual Meeting:** Last Saturday in October. **Property:** 12 unpatented claims on divide between St. Joe and Coeur d'Alene rivers. **Class of Ore:** Copper, 2.5%; lead, 6.2%; gold, \$1.20; zinc, 2.6%. Working 6 men. No shipments. **Equipment:** 2-drill compressor, 30-h.p. boiler, 2000 ft. pipe, car, 1500 ft. of 20-lb. steel rails, 2 blacksmith outfits, 3 machine drills. **Development:** 700 ft. of tunnels. Have opened a body of ore 90 ft. long, averaging 2 ft. in width, at depth of 130 ft. **Informant:** Manager W. P. Hofstetter.

RIVERSIDE COPPER MINING CO., LTD.

Kellogg

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** T. R. Mason, pres.; Henry Barnhart, S. W. Simmons, Mike Batinelli, all of Kellogg; S. S. Bonham, secy.-treas., Wardner. **Annual Meeting:** Sept. 10. **Property:** 5 claims, patents pending, on Little North Fork river, Kootenai Co. **Class of Ore:** Lead-silver-zinc. Not working now. **Equipment:** 80-h.p. boiler, 556-ft. compressor, hoist and necessary machinery for sinking. No shipments. Property shows a 7-ft. vein, with 18 inches high grade silver-lead ore. **Development:** 460 ft. of crosscut. **Informant:** Pres. T. R. Mason.

ROANOKE MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** W. J. Baker, pres.; F. E. Stone, secy.-treas.; A. J. Devlin, A. Willmot, Dr. J. E. St. Jean, all of Wallace. **Annual Meeting:** First Tuesday after first Monday in January. **Property:** 2 patented and 6 unpatented claims, ¼ mile from Wardner, Yreka district, Coeur d'Alenes. **Development:** 700 ft. of tunnel, 350 ft. of shaft. Under lease to John Grenfell, who last year was working 6 men, and making occasional shipments.

ROBERTA MINING & MILLING CO.

Butte, Mont.

Capital: \$1,000,000. Par value, \$1. **Directors:** Jos. Lutey, Jr., pres.; John A. Shelton, secy.; Chas. Youlden, treas.; Curtis Lewis, all of Butte; Alex. Penaluna, Wallace. **Property:** 12 patented claims at Gem, Idaho, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Equipment:** Car, track, blacksmith shop. Not working. No shipments. **Development:** 4000 ft. of tunnels. One of 4 veins shows lead and silver carbonates at surface, assaying up to 6% copper, 10% lead, 16 ozs. silver and \$3 gold per ton. **Note:** Feb. 21, 1918, lower tunnel, recently started, now in 250 ft., and stringers of galena encountered.

ROB ROY MINING CO.

Wallace

Capital: \$150,000. Par value, 10c. **Directors:** S. D. McDonald, pres.; Hugh Toole, secy.-treas.; C. J. Lyman and A. McLachlin, all of Wallace; R. J. McLeod, vice-pres., Mullan. **Annual Meeting:** First Wednesday in January. **Property:** 7 unpatented claims, head of Beaver creek, Beaver Creek district, Coeur d'Alenes, adjoining Senator Clark group on Sunset Peak. **Class of Ore:** Lead-silver. **Development:** 700 ft. of tunnel. Small force driving crosscut in 1917.

ROCKFORD MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** John Carlson, pres.; Ed. Erickson, treas.; Chas. Hyland, John Wood, Chas. Garanson, all of Gem; Walter H. Hanson, secy., Wallace. **Property:** 11 claims, patents pending, adjoining Bunker Hill & Sullivan on southeast, 2 miles from Kellogg, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About \$40,000 has been expended, and approximately 2500 ft. of tunnels and drifts have been run. Non-productive.

ROSE CLARINE MINING CO.

Rose of Killarney mine, in Priest Lake district. No details.

Priest River

ROSE MINING CO.

Capital: \$1,000,000. Par value, \$1. **Directors:** Ed. Laujrud, pres.; C. H. Anderson, both of Enaville; W. H. Hanson, secy.-treas.; Thos. Tweeds, Wallace; H. P. Smith, Flatriver, Mo. **Property:** 6 unpatented claims, about 10 miles from Enaville, Beaver district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 600 ft. of tunnel work; small force drifting on vein in 1917.

Wallace

ROYAL MINING CO.

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** A. E. Bronson, pres., Gibbs; L. T. Severson, vice-pres.; C. M. Fosmark, secy.-treas.; R. L. Black, Chas. Ewer, all of Coeur d'Alene. **Annual Meeting:** First Wednesday in May. **Property:** 14 claims—the Rochester, Nos. 1 to 11, and 3 other claims—the Hematite, Aurus and Alice—in St. Joe unorganized district, Shoshone Co. **Class of Ore:** Silver, lead, and a trace of gold. Assays show values from \$10.34 per ton and up. One assay as follows: Lead, 65%; silver, 52.2 ozs. Not working now. **Equipment:** Engine, compressor, drill, blacksmith shop, horse, wagon and well-equipped camp. No shipments. **Development:** 375 ft. of tunnel. No indebtedness on property. **Informant:** Secy.-Treas. Fosmark.

Coeur d'Alene

RUTH CONS. MINING & MILLING CO.

Capital: \$1,500,000. Par value, \$1. Assessable up to 10c per share. **Directors:** C. M. Crego, pres.; G. D. Crego, secy.-treas.; M. H. Hoare, vice-pres., Tekoa, Wash.; O. B. Wallace, Wallace, Idaho; J. F. Thompson, Long Beach, Calif. **Property:** 7 claims and fractions—Dayton, Ruth, Lucky Strike, Temple, Bonnie, Walter Boy and Walter Boy Fraction—about 115 acres, recently surveyed for patent, in Placer Center district, Coeur d'Alenes, 3 miles from Wallace. **Class of Ore:** Lead-silver. **Equipment:** Laidlaw-Dunn-Gordon feather valve compressor, 20-h.p. motor, Waugh Dreadnaught drill, steel rails, air pipe, ore cars, blacksmith tools, etc.; also water right, being used for power purposes, for running fan, taking air underground, etc.; also compressor house, bunk house, blacksmith shop, and flume to carry water from creek to fan house. **Development:** 2225 ft. of tunnels, 1900 ft. of crosscuts and drifts. **Informant:** Secy. G. D. Crego.

Spokane

SABINA MINING & MILLING CO.

Capital: \$1,000,000. Par value, \$1. **Directors:** E. J. Duff, pres.; E. E. Hatch, secy.-treas.; J. R. McDonald, Reggie McDonald and Henry Moore, all of Wallace. **Annual Meeting:** First Tuesday in November. **Property:** 11 unpatented claims, Summit district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Hand equipment. **Development:** 700 ft. of tunnel. **Informant:** Secy.-Treas. Hatch.

Wallace

SAMSON MINING & DEV. CO., LTD.

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** D. W. Raines, pres.; Spokane, Wash.; L. A. Brainard, vice-pres.; R. L. Brainard, secy.-treas., both of Wardner. **Annual Meeting:** October. **Property:** 8 unpatented claims, in Eagle district, Coeur d'Alenes. **Class of Ore:** Silver, 126 ozs.; 50% lead, 2% copper. Not working. **Equipment:** 40-h.p. steam boiler, pumps, and hand equipment for tunnel and shaft work. No shipments. **Development:** 1500 ft. of crosscutting and drifting. Sinking shaft to develop strong ore body uncovered on tunnel level. **Informant:** Secy.-Treas. R. L. Brainard.

Wardner

SAN FRANCISCO MINING CO., LTD.

Capital: \$1,000,000. Par value, \$1. **Directors:** T. R. Mason, pres.; J. E. Jones, secy.-treas.; Clyde Barnhart, Wm. M. Riggs, Andy Barnhart, all of Kellogg. **Annual Meeting:** Nov. 15. **Property:** 5 unpatented claims on Pine creek, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 600 ft. of underground workings.

Kellogg

SANTA CLARA MINING CO.

Capital: \$50,000. Par value, 10c. Incorporated October, 1917, by E. O. Stinson of Kellogg, H. O. Dahl and E. Carlson of Gem, Harry Anderson of Spokane and W. H. Hanson of Wallace. **Property:** Group of claims near Chas. Dickens mine, in Moon Creek section, Coeur d'Alenes. **Class of Ore:** Lead-silver.

Wallace

SEMINOLE MINING CO.

Capital: \$1,250,000. Par value, \$1. Non-assessable. **Directors:** Frank Funkhouser, pres.; H. L. Lillienthal, vice-pres. and gen. mgr.; John E. Blair, secy.; Hal J. Cole, treas. **Property:** 4 unpatented claims on Moon creek, Yreka district, Coeur d'Alenes. **Development:** Small force has been engaged since last summer on exploration work. Expense met by sale of treasury stock to small eastern syndicate. No stock offered to public. **Informant:** H. L. Lillienthal.

Spokane

SEVEN DEVILS COPPER CO.

Ithica, N. Y.

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** Wm. K. McNamara, pres., Huntingdon, Pa.; Chas. F. Riddle, vice-pres., Elmira, N. Y.; Fred D. Smith, treas., Ithica, N. Y.; Chas. H. McColloch, secy., Baker, Ore. **Annual Meeting:** Second Tuesday in March. **Property:** 15 claims, 134 acres, mostly patented, including the Arkansaw and Margaret mines; also bond and lease on Decorah mine, at Landore, Adams Co., Idaho, Seven Devils district. **Class of Ore:** Copper, 5.2%; gold, \$1, and silver, 1 oz. to 2 ozs. to the ton. Operating under leasers. Company stopped work in 1913. Total shipments, 600 tons, averaging 11% copper. **Equipment:** Blacksmith and timber-framing shops, cars, tracks, tools, etc.; also 125-h.p. electric plant. **Development:** About 2800 ft. of workings—tunnels and drifts exclusively. **Informant:** Treas. Fred D. Smith.

SHERMAN DEVELOPMENT CO.

Carson City, Nev.

Capital: \$500,000. Par value, 25c. **Directors:** Jas. F. Callahan, pres.; Edward F. Ryan, vice-pres.; Harry R. Allen, secy.; Chas. McKinnis, Axel Swan, Wallace; L. W. Hutton, Spokane. **Property:** Old Union group of claims, taken under bond and lease from the Coeur d'Alene Mining & Concentrating Co., adjoining the Tamarack & Custer, in Lalande district, Coeur d'Alenes, just above Burke, Idaho. A body of good milling ore, 14 ft. wide, was struck in an upraise, in November, 1917, and a contract has been let to drift 600 ft. on the Tamarack vein passing through the property. **Class of Ore:** Lead-silver. **Development:** Now being pushed vigorously. March 14, 1918, reported Co. has lead-zinc ore shoot 17 ft. wide, and is getting out carload of highgrade ore.

SHERMAN MINING CO.

Kellogg

Sherman group of 6 claims, on West Pine creek, near Kellogg. Surface shows immense iron outcrop, and crosscut has been run 800 ft. to explore vein. Contract let to drive 200 ft. to cut ledge. Prominent stockholders are: W. W. Papesh, Geo. McKinnis, John Rock, John E. Jones, and others of Kellogg.

SHOSKONE MINING CO.

Mullan

Capital: \$1,000,000. Par value, \$1. **Directors:** P. J. Gearon, pres., Wallace; Sadie Lucia, secy.-treas., Mullan. **Annual Meeting:** First Tuesday in January. Non-productive.

SHOSKONE MINING & MILLING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. **Directors:** P. F. McGovern, pres.; Jos. F. Whelan, secy.-treas., both of Wallace. **Annual Meeting:** First Monday in July. Non-productive.

SIDNEY MINING CO.

Kellogg

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** E. S. Gay, pres.; W. T. Simons, secy.; L. W. Gay, treas.; E. H. Baker, vice-pres.; A. E. Hemphill, all of Kellogg. **Annual Meeting:** First Tuesday in June. **Property:** 19 unpatented claims, 380 acres, 4 miles south of Bunker Hill & Sullivan, adjoining Denver group of Nabob Consolidated, in Yreka district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. Assays show 25% lead, 35% zinc and 16 ozs. silver to the ton. No shipments. **Equipment:** Only hand-working tools, air pipe, etc. **Development:** About 800 ft. of underground workings. **Informant:** Secy. L. W. Gay. **Note:** Now under lease and option to J. P. Acoam, of Spokane. Operations to begin May 1, 1918, and 1200 shifts to be done during first year. Option covers 900,000 shares at 10c, with larger payments in one and two years. Treasury contains 300,000 shares.

SIERRA NEVADA CONS. MINING CO.

Kellogg

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Stanly A. Easton, pres.; C. W. Simmons, secy.-treas.; Wm. McDougall, all of Kellogg; J. E. Gyde, Wallace; Geo. F. Holman, Portland, Ore. **Annual Meeting:** Second Monday in November. **Property:** 5 patented claims at head of Deadwood gulch, Yreka district, Coeur d'Alenes. **Class of Ore:** Argentiferous galena. Total shipments to date, 13,042 tons; value, \$478,485.64. No output now; production suspended by leasers. **Development:** 4626 ft. of exploration. **Informant:** W. K. Gwin, bookkeeper. **Note:** A subsidiary of Bunker Hill & Sullivan.

SILVERADO MINING CO.

Spokane

Capital: \$2,500,000. Par value, \$1. Assessable. **Directors:** W. B. Pickerell, pres.; W. B. Turner, vice-pres.; C. D. Muxen, secy.-treas.; Wm. Patterson, I. C. Newman, E. G. Ross, A. O. Eyller, Wilbur Wood and H. A. Long, all of Spokane. **Annual Meeting:** Last Saturday in September. **Property:** 21 claims and a fraction, 400 acres, 1000 ft. from O.-W. R. & N. R. R., near Osborne, Evolution dis-

trict, Coeur d'Alenes. **Class of Ore:** Silver, lead and copper. In face of drift from main tunnel are 30 inches of ore, averaging 0.4% copper, 10.4% lead and 13.4 ozs. silver to the ton. **Equipment:** 100-ton flotation mill, 6-drill compressor, electric power and all necessary tools and other equipment. **Development:** About 1½ miles of underground workings, including 4000 ft. of main crosscut tunnel, 1500 ft. in drifts; vertical depth, 1400 ft. **Informant:** Secy. C. D. Muxen. **Note:** Inactive since early in 1918.

SILVER BOW MINING CO.

Sagle

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** T. P. Craig, pres.; T. M. Craig, vice-pres.; James J. Ryan, secy.-treas., all of Sagle. **Annual Meeting:** Second Monday in June. **Property:** 5 unpatented claims at Sagle, Pend d'Oreille district, Coeur d'Alenes. **Class of Ore:** Gold, silver, lead, copper, zinc. Working small force. No shipments. **Development:** 113-ft. tunnel, 35-ft. shaft. **Informant:** Secy.-Treas. Ryan.

SILVER CITY MINING CO.

Silver City

Near Silver City, Owyhee Co. Adjoins the Trade Dollar Consolidated, and has system of parallel fissures containing gold-silver ores. Old Blaine mill remodeled by Co. Mill has 10 stamps, classifiers, concentrating tables, and a 25-ton cyanide plant.

SILVER CLIFF GOLD & COPPER MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Jas. D. Young, pres.; Ed. C. Young, secy., both of Wallace; Gust Oberg, Mullan; Dr. J. A. McLachlan, Dayton, Wash. **Annual Meeting:** Oct. 2. **Property:** 20 unpatented claims in Hunter district, Coeur d'Alenes, 7 miles east of Mullan. **Class of Ore:** Copper, 27%; 2½ to 65 ozs. of silver, and from \$5 to \$20 gold per ton. No shipments for 6 years. **Equipment:** Compressor, ventilating fan, etc. **Development:** 3000 ft. of tunnels. **Informant:** Pres. J. D. Young.

SILVER DALE & BIG HILL MINING CO.

Kellogg

Directors: Ernest Johnson, pres.; Richard Neimeir, vice-pres.; H. E. Evans, secy.-treas.; A. Erickson and Henry Teijen. **Property:** 20 claims on Big Creek, Coeur d'Alenes. Co. has just completed installation of a compressor, driven by water power, and is in readiness to begin extension of cross-cut, already driven several hundred ft.

SILVER EAGLE MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** John J. Hogus, pres.; Aron Norling, vice-pres.; C. W. Betts, secy.-treas.; Mrs. John J. Hogus, Knute Skibstad, Axel Stalhammer and Otto Freeman, all of Wallace. **Annual Meeting:** Nov. 19. **Property:** 13 unpatented claims, 200 acres, 1½ miles north of Wallace, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Silver-lead. No shipments. **Development:** 800 ft. of tunnels. **Informant:** Secy. C. W. Betts.

SILVER HILL MINING CO.

Spokane

Directors: H. Mabry, pres.; Dan J. Whalen, vice-pres.; C. W. Greenough, secy., all of Spokane. **Property:** Evans group of 5 claims, adjoining Armstead mines, on Lake Pend d'Oreille. Some surface ores said to run high in silver. Shipments of \$70,000 worth have been made, and \$100,000 worth of ore said to be still on the dump, as former operators selected only the very highest grade for shipment. Held under bond only. Working 6 men in May, 1918.

SILVER KING GOLD MINING & MILLING CO.

Savannah, Ga.

Owner: Sigo Myers, Savannah, Ga. **Property:** 1 patented claim, and 10 lead and 3 placer claims held by annual assessment, under deed to all property and stock, at Warren, Idaho Co., Idaho, 60 miles east of McCall, nearest railroad station. **Class of Ore:** Gold, \$5; silver, 15 ozs. to the ton. Shut down 10 years ago. **Equipment:** 10-stamp Frazer & Chalmers mill, steam plant and good buildings. No shipments. **Development:** 2500 ft. of cross-cut tunnels, drifts and raises. Depth on vein, 350 ft. **Informant:** State Mine Inspector R. N. Bell.

SILVER-LEAD MINING CO.

Newport, Wn.

Incorporated in December, 1917, to operate on Moonlight group of 4 claims, adjoining the Conjecture, 5 miles from Bayview, Idaho. **Directors:** W. H. Cline, pres.; Chas. Gileforst, vice-pres.; Edward Maas, secy.-treas., and Andrew Burlick. Lead has been followed by tunnels for 300 ft., in ore entire length. Ore body 36-inches wide said to show silver-lead content of \$55 per ton. 7 inches said to contain 46% lead, and 191 ozs. silver.

SILVER MOON MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Eugene Sage, pres.; Burke; Gus Ehrenberg, secy.-treas.; Dr. H. C. Lambach, Ed. Ehrenberg,

all of Spokane; Geo. Steward, Wallace. **Annual Meeting:** 3rd Tuesday in February. **Property:** 9 unpatented claims on west side of Burke Canyon, at Black Bear, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead and silver. Not working now. **Equipment:** Air compressor, driven by electric motor, drills, blacksmith shop, tools, etc. **Development:** About 3500 ft. **Informant:** Secy. Gus Ehrenberg.

SILVER MOUNTAIN MINING CO., LTD.

Potlatch

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** L. Tice, pres.; E. D. Wilkins, vice-pres.; W. E. Horstkotte, secy., all of Potlatch. **Annual Meeting:** 1st Monday in June. **Property:** 4 patented and 5 unpatented claims, 3½ miles from Mullan, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper, lead. No shipments. **Equipment:** Steam driven compressor. **Development:** 970 ft. of cross-cut tunnel. **Informant:** Manager S. J. Tennel, Wallace.

SILVER REEF GROUP.

Wallace

Co-partnership. **Owners:** Herman J. Rossi, Wallace; L. Randle, Beeler. **Property:** 7 unpatented claims on Pine Creek, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc.

SILVER STANDARD MINING CO.

Spokane

Capital: \$125,000. Par value, 25c. Assessable. **Directors:** S. L. Shaw, pres.; P. A. Lawrence, secy.-treas.; H. J. Hibschman; T. T. Bjordal, all of Spokane; J. E. LeFever, Wallace; J. A. Hill, Creston, Wash.; A. H. Knox, Valleyford, Wash. **Annual Meeting:** June 5. **Property:** 12 unpatented claims, Evolution district, Coeur d'Alenes. **Class of Ore:** Copper, silver, lead. No shipments. **Equipment:** Water power compressor, machine drills, tools, etc. **Development:** Short tunnel with 600-ft. drift, 45-ft. shaft. **Informant:** Vice-Pres. LeFever.

SILVER STAR MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** John Kammerer, pres., Spokane; Wm. Devan, secy.-treas.; Norman Ebbley, both of Wallace. **Annual Meeting:** September. **Property:** 6 unpatented claims on Gentle Annie gulch, Coeur d'Alenes. **Class of Ore:** Silver-lead. No shipments. **Development:** 1500 ft. of tunnel, through which both this Co. and Lucky Boy Mining Co. conduct exploration.

SILVER STATE MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. **Property:** 6 claims—Chloride Queen, Girard, Diamond Fraction, Hill, Switchback, etc.—all patented, adjoining Interstate-Callahan, in Placer Center and Beaver districts, Coeur d'Alenes. **Development:** About 4000 feet. Absorbed by Consolidated Interstate-Callahan M. Co. in 1917.

SINKER TUNNEL MINING CO.

Nampa

Directors: Jacob Lockman, pres.; W. G. Adams, secy., both of Nampa; P. A. Sorenson, vice-pres., Salt Lake City, Utah. **Property:** Golden Chariot and other claims near Silver City, Owyhee Co., in which an important strike of free gold, at a depth of 2000 ft., was reported in February, 1917. Stock closely held by not more than 30 persons. Developed by a tunnel now 6700 ft. in length.

SISTER MINING & MILLING CO.

Wallace

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** Frank P. Markwell, pres.; Morton Webster, J. Fred Markwell, all of Wallace; E. H. Pattison, secy.-treas.; Paris Renshaw, both of Spokane. **Annual Meeting:** 1st Monday in June. **Property:** 7 patented claims in Burke canyon, Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 1 mile cross-cuts and drifts, 600-ft. tunnel, 200-ft. shaft.

SLATE CREEK CONS. MINING & MILLING CO.

Tekoa, Wash.

Capital: \$200,000. Par value, \$1. Non-assessable. **Directors:** Chas. Hinton, pres.; M. J. Hinton, secy.-treas.; Edward J. Thompson, D. J. Penman, Jas. Nolan, John F. Jones, A. E. Penman, all of Tekoa. **Property:** 16 unpatented claims in St. Joe district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Not working; no shipments; no equipment. **Development:** 318 ft. of tunnels, 12-ft. crosscut and 12-ft. shaft. **Informant:** Pres. Chas. Hinton.

SLAVONIAN MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Risto Kajovich, pres.; Christ Kajovich, Geo. Bietich, all of Wardner; G. W. Dougherty, secy.-treas., Wallace; John Lucas, Wallace; Mike Savage, Kellogg. **Annual Meeting:** Jan. 2. **Property:** 3 unpatented claims near Wardner, east of Last Chance, and adjoining Bunker Hill & Sullivan on north. **Class of Ore:** Lead-silver. **Equipment:** Blacksmith shop, car, rails, tools. **Development:** 900 ft. of tunnel. No shipments. **Informant:** Secy.-Treas. Dougherty.

SMALL HOPE LEASE.**Kellogg**

Capital: \$100. Par value, \$1. **Directors:** F. Arbogast, pres.; W. F. Smith, secy.-treas.; Peter Mason, W. I. Hall, Chas. Lafevre, B. A. McIntosh, all of Kellogg. **Property:** Lease on part of upper workings of Bunker Hill & Sullivan, on Sullivan side.

SMOXY BULLION GROUP.**Lovelocks, Nev.**

E. A. Norswick, manager, Lovelocks. **Property:** 3 patented claims, 57 acres, on headwaters of Smoky river, near Hailey, Idaho. Contains large deposit of low grade concentrating ore, opened for 4200 ft. on a contact between granite and limestone. Ore carries galena, chalcopryite and zinc. **Equipment:** Milling plant erected by eastern syndicate, which spent \$100,000 on the property, and allowed it to be sold for taxes. **Development:** About 2000 ft. of tunnels.

SNUGGLER MINING & MILLING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** John E. Chapman, pres.; Harry K. Adams, vice-pres., both of Lewiston; Fred A. Adams, secy.-treas., Spokane. **Property:** 17 unpatented claims at head of Placer creek, Placer Center district, Coeur d'Alenes. No shipments; no equipment.

SNOWSHOE MINING CO.**Mullan**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** P. J. Gearon, pres., Wallace; H. G. Loop, secy.-treas.; A. P. McRae, Jas. A. Bean, Wm. Wallace, Paul Lucia, all of Mullan. **Property:** 7 patented claims on Gentle Annie gulch, 2 miles from Mullan, in Hunter district, Coeur d'Alenes. Adjoins Snowstorm. **Class of Ore:** Copper, silver, lead. No shipments. **Equipment:** 3-drill compressor, boarding house, blacksmith shop, machine shop. **Development:** About 5000 ft.

SNOWSTORM APEX MINING CO.**Spokane**

J. H. McIntyre, M. E. Delgrove and B. V. May, trustees, Spokane. **Capital:** \$1,500,000. Par value, \$1. **Property:** On Snowstorm mountain, east of Mullan; shows 2 veins opened by shallow shaft and 130-ft. tunnel, with about 200 ft. of workings.

SNOWSTORM EXT. COPPER MINING CO.**Los Angeles, Cal.**

Incorporated 1909, as successor to Snowstorm Ext. Mining Co., Ltd. **Property:** 9 claims, adjoining Snowstorm on east. Pits and trenches show ore about 3% copper, similar to that of Snowstorm. **Development:** By drift, 2000 ft. long, planned to secure eventual backs of 1630 ft. on dip of vein.

SNOWSTORM MINING CO.**Larson**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Leo Greenough, pres.; J. W. Greenough, vice-pres.; R. E. Walters, secy.-treas.; J. B. Greenough, J. C. Broad, M. D. Hall and H. E. Chaney, all of Spokane. Dividends paid to end of fiscal year 1914, \$1,169,640. Ore reserves exhausted and exploration suspended in 1915, the Co. still owning complete surface and underground equipment, and having \$160,000 cash on hand. In 1916, the Co. dissolved, and was merged into and succeeded by the Snow Storm Mines Consolidated, operating at Troy, Mont. (q.v.)

SNOWY PEAK MINING CO.**Wallace**

Capital: \$1,000,000. Par value \$1. **Directors:** Eugene R. Day, pres.-treas.; John H. Wourms, secy., both of Wallace. Non-productive.

SONORA MINING & MILLING CO., LTD.**Wallace**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** A. H. Featherstone, pres.; W. A. Smith, secy.-treas.; Mel Werkheiser, O. A. Dubach, H. S. Tofte, John T. Boyle, all of Wallace; Chas. P. Lund, Spokane. **Property:** 12 patented claims, northeast of Burke, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About 4000 ft. of underground workings, and contract let for driving another crosscut. Unproductive.

SOUTH END MINING CO.**Idaho Falls**

Capital: \$500,000. Par value, \$1. Assessable. **Directors:** David Dowd, pres.; O. A. Johannesen, secy., both of Idaho Falls. **Annual Meeting:** January. **Property:** In Birch Creek district (unorganized), 65 miles northwest of Idaho Falls. **Class of Ore:** Lead-silver. Not working; no shipments. **Equipment:** Small hoist. **Development:** Prospect. Only assessment work. **Informant:** Secy. Johannesen.

SOUTHERN CROSS MINING & REDUCTION CO.

Dillon, Mont.

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Geo. Woodworth, pres., Wisdom, Mont.; F. A. Hazelbaker, secy.-treas., Dillon. **Property:** Patented claims, near Larson, Idaho. **Class of Ore:** Silver, lead, zinc. Not working—shut down in 1909. No shipments; no equipment. **Development:** 35-ft. shaft, 60-ft. tunnel, 35-ft. winze, 30-ft. raise. **Informant:** C. A. Maynard, mgr., Mullan.

SOUTHERN IDAHO DEV. CO.

Pocatello

D. J. Mahoney, supt., Pocatello; **U. B. Sollie** and **Dr. J. C. Arnout**, directors. **Property:** Group near Pocatello, showing vein of copper ore, from which a carload, shipped in 1916, returned 17.7% copper and 4 ozs. silver per ton.

SOUTH FORK MINING & MILLING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable up to 5c per share, limited to 1c in any one year. **Directors:** W. H. Stowell, pres.; J. W. Higgins, secy.-treas.; W. D. Scott, all of Spokane; H. C. Kreysler, vice-pres., Latah, Wash.; Wm. Hoare, Tekoa, Wash. **Annual Meeting:** Second Monday in October. **Property:** 11 unpatented claims—South Fork Nos. 1 to 4, Buttin Nos. 1 and 2, Gilt Edge, Candlestick Nos. 1 and 2 and Gilt Edge Fraction—in Elk City and Ten Mile districts. **Class of Ore:** Gold. Part under lease. **Equipment:** 5-stamp mill, James concentrator, Frue vanner, electric light plant, 35-h.p. boiler, 30-h.p. engine, waterpower plant. **Informant:** Secy.-Treas. Higgins.

SPOKANE METALS RECOVERY CO.

Mullan

Capital: \$100,000. Par value, \$1. **Directors:** C. L. Hewitt, pres.; H. W. Ingalls, both of Mullan; Sam Edelstein, secy.; M. H. Eggleston, vice-pres.; David Holzman, treas., all of Spokane. Organized to recover values from tailings of Rex, Interstate-Callahan, Success and other Coeur d'Alene mines, with flotation plant, flume and other equipment located on a flat on Nine Mile, leased for that purpose. Tailings from properties mentioned said to contain more than \$6 in values, yielding a profit of \$1.50 per ton. Slimes conveyed to plant by 500-ft. flume, elevated to top of plant, and operations thereafter conducted by gravity. A 100-ton plant has already been installed, 3½ miles from Wallace. Operations to date said to show small profit.

SPOKANE MINING & LEASING CO.

Wardner

Capital: \$10,000. Par value, \$1. Non-assessable. **Directors:** G. D. Crego, pres.; F. W. Tuetting, vice-pres.; E. Kendrick, all of Spokane; W. J. McCalough, secy.-treas.; C. A. Williams, both of Wardner. **Annual Meeting:** Third Tuesday in August. **Property:** Barnhart lease on portion of Bunker Hill & Sullivan upper workings, 500 ft. west of Cedar Chute, on Reid tunnel level, and extending up to No. 3 level. **Class of Ore:** Lead, 45%; silver, 20 ozs. Working 8 men. Output for year ending Jan. 1, 1918, \$16,000. Rate about 50 tons concentrates per month. **Informant:** Pres. G. D. Crego.

SPOKANE MINING & MILLING CO.

Spokane

Capital: \$25,000. Par value, 5c. Non-assessable. **Directors:** M. E. Wees, pres., Los Angeles, Calif.; G. W. Stocker, secy.-treas., Spokane; Mrs. Margaret Presley, Kellogg. **Annual Meeting:** Last Friday in May. **Property:** 4 patented claims—Alfred, Maggie, Goodenough and Lambert Fraction—in Government gulch, Yreka district, Coeur d'Alenes. **Class of Ore:** Silver-lead. Not working. No shipments. No development work being done. **Informant:** Secy.-Treas. Geo. W. Stocker.

SPOKANE TUNNEL MINING CO.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** A. C. Blue, pres.; C. A. Richlie, secy.-treas.; A. B. Livingston, W. B. Lively, C. C. Richlie, John I. Johnson, all of Wallace. **Annual Meeting:** Second Friday in November. **Property:** 3 unpatented claims on Placer creek, 6 miles from Wallace. **Class of Ore:** Copper. **Development:** Assessment work only.

SPRINGFIELD MINING CO., LTD.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** O. E. Anderson, pres.; Chris Anderson, both of Burke; Tillie Zeitfuchs, secy.-treas.; E. Hedin, A. H. Featherstone, Wallace. **Property:** 4 patented and 3 unpatented claims on Stevens Peak, Hunter district, Coeur d'Alenes. **Class of Ore:** Copper-silver-lead. **Development:** Assessment work only.

SQUARE DEAL MINING CO.

Coeur d'Alene

Capital: \$1,000,000. Par value, \$1. **Directors:** Boyd Hamilton, pres., Spokane; Ross Black, secy.-treas.; J. Boughton, both of Coeur d'Alene; John Smith, H. E.

Howes, Wallace; W. L. Stirling, Walla Walla, Wash. **Property:** 9 unpatented claims, 3 miles from Wallace, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About 1500 ft.

ST. JAMES MINING CO., LTD.

Wallace

Capital: \$50,000. Par value, 5c. **Directors:** Mrs. Theresa James, pres., Spokane; Jos F. Whelan, secy.-treas.; Peter Grant, both of Wallace. **Property:** 2 patented claims on Sunset Peak, Beaver district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Development:** 1000 ft. of tunnel, in which, 800 ft. from the portal, stringers of ore were cut in December, 1917.

ST. LOUIS & IDAHO MINING & MILLING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** R. F. Collins, pres., Spokane; E. Roberts, E. Hedin, Wallace; I. S. Collins, secy., Spokane. **Annual Meeting:** First Tuesday in January. **Property:** 2 claims and 3 fractions, 1 being patented, in Burke district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc, copper, gold. Not working. No shipments. **Equipment:** 1200 ft. of double track, car, steel, etc. **Development:** About 1500 ft. of tunnels. "Only a prospect." **Informant:** Pres. R. F. Collins.

STANDARD MINING & MILLING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. **Directors:** S. L. Shaw, pres., Spokane; C. C. Gillen, secy.-treas., Wallace. **Annual Meeting:** First Monday in June. Non-productive.

STANLEY CONS. MINING & MILLING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** John H. Wourms, pres., Wallace; W. A. Halteman, vice-pres.; John H. Pelletier, secy.; Harry Goetz, all of Spokane. **Annual Meeting:** Third Monday in June. **Property:** 12 patented claims, ½ mile from Burke, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead, antimony, gold. One car of antimony, shipped in 1916, said to have netted company \$1,900. Using part of equipment of Hercules, adjoining. **Development:** About 2000 ft. of tunnel, besides shaft and open cuts. Co. is operating through No. 5 tunnel of the Hercules. **Informant:** Secy. J. H. Pelletier. **Note:** Main crosscut tunnel of Hercules passes through ground. Control of company acquired by Hercules several years ago.

STAR ANTIMONY MINING CO.

Kellogg

Capital: \$10,000. Par value, 1c. **Directors:** B. A. McIntosh, pres.; J. S. Ross, secy.; W. F. Smith, treas.; W. I. Hall, L. H. Timpe, E. W. Miller, all of Kellogg; T. Henwood, Theo. Brown, Beeler. **Property:** 8 unpatented claims, on Pine creek, Yreka district, Coeur d'Alenes. **Class of Ore:** Antimony, gold. Three carloads shipped in 1916, running from 55% to 59% antimony. Operations suspended, but resumed in 1917. **Development:** 1000 ft. of underground workings.

STAR MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** E. H. Moffitt, pres., Wallace; Chas. Hussey, secy.-treas.; Dr. J. G. Cunningham, Austin Corbin, 2nd, all of Spokane. **Annual Meeting:** Second Monday in January. **Property:** 9 patented and 7 unpatented claims adjoining Morning mine on west, 2 miles from Mullan, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. Lay dormant for several years, but resumed early in 1917, under management of Rush J. White, engineer. **Equipment:** 2½-mile power line, compressor, 5 drills, cars, track and equipment for 30 men. **Development:** About 8000 ft. of workings, including 2 tunnels, 5200 ft. of drifts, etc., opening up property to vertical depth of over 800 ft. **Informant:** Secy. Hussey. **Note:** Company brought suit against Federal M. & S. Co. in 1917, alleging illegal removal of large quantities of ore at depth through Morning workings and claimed \$500,000 damages. Case was tried by Judge Dietrich at Wallace and argument completed at Coeur d'Alene in January, 1918. Many famous experts were employed on both sides, evidence being conflicting. Stanly A. Easton, general manager Bunker Hill & Sullivan M. & C. Co., admitted on stand that his company had taken over control of Star property. Decision adverse to Star handed down in March, 1918, and case taken to Circuit Court of Appeals.

STAR SILVER-LEAD MINING CO.**Butte, Mont.**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** W. H. Hanson, pres.; E. S. Slemmons, secy.; Jas. A. Murray, all of Butte. **Property:** 13 unpatented claims—Star Nos. 1 to 13, incl., near Mullan, Idaho. Not working. No shipments. No equipment. No development. **Informant:** Secy. Slemmons.

STECKNER GOLD MINING CO.**Great Barrington, Mass.**

Capital: \$2,000,000. **Directors:** Henry Tator, pres.; F. H. Cornell, vice-pres. **Property:** Gold Dollar group, 10 lode and 5 placer claims, near Orogrande, Idaho Co., Idaho. Show fissure veins in granite. Veins 2 to 4 ft. wide, carrying gold ore, \$3 to \$13 per ton. **Development:** 3000 ft. of tunnels; vertical depth, 1000 ft.

STEEN GROUP.**Spokane**

Owner: P. L. Steen, Spokane. **Property:** 9 unpatented claims in Port Hill district, Boundary Co., Idaho. **Class of Ore:** Gold, silver, copper, lead. No shipments. **Development:** 2385 ft. of tunnels, 545 ft. of shafts. **Informant:** P. L. Steen, owner.

STERLING MINING CO., LTD.**Wallace**

Capital: \$1,500,000. Par value, \$1. **Directors:** John J. Presley, pres.; Alexander Murphy, W. W. Woods, all of Wallace; J. Frank Watson, secy.-treas., Portland, Ore. **Annual Meeting:** Feb. 6. **Property:** 13 unpatented claims, in Lead gulch, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About \$10,000 expended; not working now.

STEWART MINING CO.**New York**

Mine office: Kellogg, Idaho. **Capital:** \$1,250,000. Par value, \$1.00. Increased July, 1916, to \$3,000,000, par value, \$1, to provide for acquisition of property at Tuscarora, Nev. While there is no direct information on the subject, it is believed that entire increase is still in escrow awaiting completion of agreement under which Tuscarora option was obtained. Listed on New York curb. **Annual Meeting:** August. **Directors:** Hiram C. Todd, pres., Saratoga Springs, N. Y.; C. W. Saacke, vice-pres.; Charles T. Lark, secy.-treas.; Nash Rockwood, all of New York; and William A. Beaudry, managing director, Kellogg, Idaho. **Property:** The Stewart group at Kellogg, Idaho, consisting of 8 claims, patented, 150 acres; control of Coeur d'Alene Development Co.; 1,750,000 shares Nabob Consolidated (q.v.), and property at Tuscarora, Nevada. **Equipment:** Through Coeur d'Alene Development Co., Stewart also controls old milling plant on Government Gulch, which is to be removed to Nabob Consolidated on Pine Creek, in 1918. Also held, under lease, Mammoth-Standard mill near Wallace, but lease expired in 1916. Surface tramway from Stewart mine to railroad has been removed to Nabob Cons., on Pine Creek. **Note:** First locations made in 1896, and property developed on small scale until 1906. Between that date and 1910, about 10,000 tons of ore extracted. Property then passed to control of late F. Augustus Heinze, of Butte and New York. Development was vigorously pushed and large dividends paid, total being \$2,043,296. Of this amount, \$402,467 was paid in 1913; \$773,976 in 1914 and \$866,853 in 1915; payments aggregating 165% of capitalization. Last disbursement was at the rate of 5%, December 31, 1915. Since then, Stewart mine has been operated in a small way and is merely a liquidating proposition, with strong probability that work will be discontinued at an early date. Company's most important holding in the Coeur d'Alenes at this time is control of Nabob Consolidated (q.v.). It also holds option upon property at Tuscarora, Nev., of indefinite value. In April, 1915, Stewart Mining Co. was defeated in lawsuit with Ontario Leasing Co., involving apex rights. Decision cut off production and really marked the beginning of the end of the company's profitable career.

SUCCESS MINING CO.**Wallace**

Capital: 1,500,000 shares. Par value, \$1. Assessable. Listed New York curb and Spokane stock exchange. **Directors:** Franklin Pirman, pres.; James F. Callahan, vice-pres.; Herman J. Rossi, secy.-treas.; W. R. Mullen, all of Wallace, and W. L. Mahoney of Burke. **Property:** The old Granite group of 8 claims, on Nine Mile creek, 2 miles N. W. of Wallace, Coeur d'Alenes. **Annual Meeting:** First Monday in April. **Class of Ore:** Mainly zinc sulphide, with some lead-silver. Ore occurs in masses of irregular form and size; chiefly replacement of quartzite. **Development:** By tunnel to 700-ft. level and by shaft from 700- to 1600-ft. levels. **Dividends:** First and last, property has paid \$1,940,000 in dividends, of which \$710,000 was paid prior to 1910; \$60,000 in 1911; \$180,000 in 1912; \$90,000 in 1913; \$555,000 in 1915, and \$345,000 in 1916. **Note:** In 1915, control of company was taken over from H. F. Samuels, who

had operated property since 1905, by Wallace brokers, who succeeded in working off approximately 1,000,000 shares, with the aid of other brokers in New York, Duluth, Spokane and Butte. Prior to outbreak of war, company had entered into a two-year smelting contract with Grasselli Chemical Co., of Cleveland, Ohio, which resulted in enormous profits during the period of high spelter prices in 1915 and 1916. Net earnings were large, although management was extremely extravagant. Under control of P. J. Gearon, then president of the company, and the late James F. Howarth, secy.-treas., who operated as J. F. Howarth & Co., brokers, stock was scandalously manipulated for the benefit of the brokerage concern. Information as to the true physical condition of the mine was denied to stockholders, and meanwhile grossly erroneous reports were circulated to inflate or depress quotations. Early in 1916, Northwest Mining Truth, of Spokane, started an investigation of the company's affairs; published details of favorable smelting contract, which was to expire May 1st, 1916, and advised stockholders that it would be impossible to secure terms as advantageous after that date. Directors refused to acquaint stockholders with nature of new contract, and Northwest Mining Truth sought writ of mandate compelling them to disclose records. In June, 1916, court order was issued compelling disclosure, but appeal was taken to Supreme Court, and final decision was not rendered until March, 1917. Meanwhile, flagrant manipulation had been maintained, and surplus of company dissipated. Annual meeting of 1917 was enjoined by court order, and old management remained in control until December, 1917, when the present officials were elected. On December 31, 1915, corporation's balance was \$251,110; by December 31, 1916, it had dwindled to \$137,150, partly owing to the fact that \$123,817 in excess of earnings had been paid out in dividends to aid the stock manipulations of the brokerage management. On August 31, 1917, the cash balance was but \$42,700. In other words, under the management of P. J. Gearon, dissipation of the company's surplus had been carried on at the rate of \$10,420 per month during 18 months after January 1st, 1916, to August 31, 1917. The new management found that mine had been practically gutted, and that by December, 1917, the surplus had been further reduced to around \$32,000, against which expenses for the month had accumulated. Since the new management assumed control, all possible economies have been placed in effect, and during January and February, 1918, a net profit of approximately \$24,000 was made. A new ore-body of some dimensions has been developed upon the 1500 and 1400-ft. levels, containing a larger percentage of lead than has been usual in former shipments. Under present smelting contract with Grasselli Chemical Co., it is not believed, however, that profit can be maintained, and the future of the property is very uncertain. **Note:** Mine closed in April, 1918. Believed to be about exhausted. Levels below 1400 allowed to flood, but pumping maintained above that level at expense of \$1650 monthly. Surplus probably less than \$10,000.

SULLIVAN MINING CO.**Kellogg**

Capital: \$1,500,000. Par value, \$3. Incorporated in May, 1917, by F. W. Bradley, J. Labarthe and J. S. Wallace, all of San Francisco, Calif., and Stanly A. Easton, of Kellogg, "to do a general mining and milling business," and "with the consent of two-thirds of the stock may sell, lease or otherwise dispose of the property of the corporation, and they may transact business within or without the state of Idaho."

SUMMIT FLAT MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. W. Turner, pres.; Kenneth Murray, vice-pres.; Ralston McCaig, secy.-treas.; E. R. Fraser, J. E. Valentine, all of Spokane; W. B. Phillips, Rosalia, Wash.; Thos. E. White, St. John, Wash. **Annual Meeting:** Second Tuesday in February. **Property:** 5 unpatented claims—Summit Flat Nos. 1 and 2 and Tango Nos. 1, 2 and 3—in Ten Mile district, Idaho Co., Idaho. **Class of Ore:** Gold. **Equipment:** Steam-driven compressor, machine drills and accessories, 20-h.p. boiler, 2-cylinder steam hoist, No. 7 Cameron sinking pump. No shipments last year. Total shipments to date, \$3000. **Development:** 2000 ft., including tunnels, shafts, crosscuts; 2 ft. on foot-wall show values of \$60 per ton; on hanging wall, \$10. **Informant:** Secy.-Treas. McCaig.

SUMMIT MINING & MILLING CO.**Wallace**

Capital: \$200,000. Par value, 10c. Assessable. **Directors:** C. H. McLean, pres.; W. H. Robinson, vice-pres.; Samuel Myers, secy., all of Wallace. **Annual Meeting:** December. **Property:** 5 unpatented claims—Good Hope Nos. 1 and 2, Dolly, Duncan and Ground Squirrel—4 miles east of Wallace, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Gold, silver and lead. Not working. Equipped only for hand work. No shipments. **Development:** Started tunnel to tap vein at 400 ft. depth. Propose to give away 1,000,000 shares of stock and assess each share one mill a month until \$9,000 or \$10,000 can be raised to drive tunnel. **Informant:** Pres. McLean.

SUNRISE MINING CO., LTD.

Wallace
Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Bruce G. Worstall, pres.; O. C. Smith, secy.-treas., both of Wallace. **Annual Meeting:** Second Saturday in October. **Property:** 9 claims, adjoining Sunset, owned by Senator Clark, and apparently on the same vein, in Beaver district, Coeur d'Alenes. **Class of Ore:** Copper and galena. **Development:** Several hundred ft. of tunnels, crosscuts, drifts and open cuts.

SUNSET-BANNER MINING CO.

Wallace
Capital: \$375,000. Par value, 25c. Assessable. **Directors:** A. L. Honaker, pres.; D. L. McGrath, vice-pres.; Herman J. Rossi, secy.-treas., all of Wallace. **Annual Meeting:** Fourth Thursday in November. **Property:** 4 unpatented claims—Sunset-Banner, Flagstaff, Sundown and Sunbeam—in Beaver district, Coeur d'Alenes. **Class of Ore:** Zinc and lead. No shipments. **Development:** 5 tunnels, aggregating about 1500 ft. **Informant:** Secy.-Treas. H. J. Rossi.

SUNSET DEVELOPMENT CO.

Spokane
Capital: \$500,000. Par value, 25c. Assessable. **Directors:** Wm. Schierding, pres.-treas.; A. H. L. Meyer, secy., both of Spokane; P. J. Scoles, vice-pres., Mullan; Ernest Sack, Wallace; Wm. J. Brown, Bow, Wash; J. A. Weed, Pocatello, Idaho. **Annual Meeting:** First Wednesday in September. **Property:** 5 unpatented claims—Emma, Erica, Anna, Lora and Senora—in Beaver district, Coeur d'Alenes, and 71,000 shares in Sunset-Banner Co., owning Sunset-Banner group of claims. **Class of Ore:** Lead-silver-zinc. No shipments. **Development:** About 400 ft. of tunnels and crosscuts. **Informant:** Pres. Wm. Schierding. **Note:** In April, 1917, the directors filed an application in the district court of Shoshone Co., Idaho, at Wallace, for voluntary dissolution of the company.

SUNSET GROUP.

Butte, Mont.
Property: Owned by ex-Senator W. A. Clark, of Montana, is located on Sunset Peak, in Beaver district, Coeur d'Alenes, Idaho. Small force employed for some time in development, and in December, 1917, a large body of ore containing lead, zinc and silver was struck at a depth of 1000 ft., by a winze sunk 200 ft. from the 800-ft. level, attained by shaft. Reported, March 7, 1918, that Senator Clark is preparing to drive a tunnel on property this year, attaining a depth of 2000 ft.

SUNSET MINING CO.

Leadore
A silver-lead property at Leadore, Lemhi Co., in which, according to report of Irvine Margetts, mining engineer, 98% of the lead and 90% of the silver contents may be removed without adoption of flotation process. Mine said to contain much ore of shipping grade and a large volume susceptible to concentration. Co. contemplating construction of a 200-ton mill.

SUNSHINE CONS. MINING CO.

Wallace
Organized in January, 1918, by representatives of five large Coeur d'Alene mining corporations, having in view consolidation into one strong company, for economic and other reasons. The companies embraced in the consolidation are the Sunshine, Tuscumbia, Parrot, Tough Nut and Idora. The Day family, of Wallace, are identified with three of the companies; D. L. McGrath is president of the Sunshine; Dr. E. G. Ellis, of Missoula, Mont., is a director in the Sunshine, and Whaley Bros., of Missoula, are principal owners of Tuscumbia; Jas. C. Broad and C. E. Mallette, of Spokane, are identified with Idora. A tunnel through which all the companies may operate, at more than twice the depth now attained in any of them, is among the items of development planned, the properties all adjoining each other. The payment of the indebtedness of member companies, and an equitable distribution of stock, has been decided upon, and the ore exposed in all the mines will be handled economically and advantageously, while overhead expenses will be borne by a single management.

SUNSHINE MINING CO., LTD.

Wallace
Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** D. L. McGrath, pres.-mgr.; D. C. Smith, vice-pres.; G. W. Dougherty, secy.; J. R. McGrath, Eugene R. Day, all of Wallace; Dr. E. G. Ellis, treas.; Matilda Ellis, both of Missoula, Mont. **Annual Meeting:** Fourth Saturday in September. **Property:** 6 patented claims, on Beaver creek, Beaver district, Coeur d'Alenes. **Class of Ore:** Lead, silver, zinc. Working 6 men. **Equipment:** Compressor, with buildings, boarding and bunk houses, cars, track, etc. **Development:** Several hundred ft. of tunnel, with open cuts, etc. **Informant:** Secy. Dougherty. **Note:** One of the five companies to be absorbed by Sunshine Cons. Mining Co. (which see). **Note:** Capital increased to \$2,700,000, March 25, 1918, preparatory to consolidation.

SYNDICATE MINING & EXP. CO., LTD.**Wardner**

Capital: \$375,000. Par value, 25c. Assessable. **Directors:** David Floberg, pres., Kéllogg; Louis Stevens, secy., Wardner. **Annual Meeting:** January. **Property:** 7 unpatented claims in Evolution district, Coeur d'Alenes. No ore; no equipment; no shipments. **Development:** About 1000 ft. of tunnel. **Informant:** Secy. Stevens.

TAHOMA GOLD MINES CO.**Boise**

Capital: \$1,250,000. Par value, \$1. Non-assessable. **Directors:** Robt. L. Owen, pres., Washington, D. C.; Wm. B. Milliken, vice-pres., Denver, Colo.; Willey O. Cox, secy.-treas., St. Joseph, Mo. **Property:** Tahoma gold mine, Atlanta, Idaho, Elmore Co. No further information obtainable.

TAMARACK & CUSTER CONS. MINING CO.**Wallace**

Capital: \$2,000,000. Par value, \$1; issued, 1,775,000 shares. A Nevada corporation. **Directors:** Jerome J. Day, pres.-treas.-mgr.; Eugene R. Day, vice-pres.; Harry L. Day, secy.; Ramsey M. Walker, all of Wallace; E. H. Knight, F. M. Rothrock, Spokane. **Property:** Consolidation of properties formerly owned by Tamarack, Chesapeake and Custer companies, covering about 40 claims and fractions on Nine Mile, Coeur d'Alenes. **Annual Meeting:** March 13. **Equipment:** Complete concentrating plant formerly owned by Helena & Frisco Mining Co., purchased by Tamarack for \$150,000 in 1916; 2½-mile tramway connecting mine and mill; half interest in 400-ton smelter at Northport, Wash., and ⅓ interest in Pittsburgh Smelting & Refining Co., at Pittsburgh, Pa. **Note:** Corporation controlled by the Day family, which maintains a policy of strict secrecy regarding operations. Practically all stock is in the hands of members of the family, with possible total of 40 small stockholders. Property believed to be one of the most potential in the Coeur d'Alenes, although operations have not been conducted with the same degree of energy that has characterized operation of Hercules and other mines owned by the same family. It is said that continuous shoot of ore 1600 ft. long has been developed—possibly the longest yet found in the Coeur d'Alene district. Company is believed to have cash surplus in excess of \$500,000. Dividends to March 1, 1918, \$177,624, of which \$71,050 was paid in 1916; \$53,287 in 1917, and \$53,287 in 1918. **Note:** Sworn statement, to assessor of Shoshone county, May 1st, 1918, shows tons shipped, 16,916; gross value, \$1,338,321; extraction, \$518,799; freight and treatment, \$441,019; betterments and repairs, \$27,645; net profits, \$350,857. Paid dividends of 3c, May 20, 1918, amounting to \$50,287, bringing total to \$230,911.

TEDDY MINING & MILLING CO., LTD.**Kellogg**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** T. R. Mason, pres.; J. B. Cox, secy.-treas.; Geo. Westcott, C. W. Brown, Geo. Coleman, all of Kellogg. **Annual Meeting:** Second Tuesday in January. **Property:** 7 claims and a mill-site, 2 miles east of Kellogg, Evolution district, Coeur d'Alenes; 19 acres patented ground at O.-W. R. & N. Ry. **Class of Ore:** Lead-silver-zinc, assays showing 44% to 51% lead; zinc, 21% to 25%; silver, 8 ozs. to 11 ozs. per ton. **Equipment:** Shop, car, track, etc. No shipments. **Development:** About 1200 ft. of underground workings. **Informant:** Secy.-Treas. J. B. Cox. **Note:** Reported under bond to A. H. Featherstone and associates, of Wallace. Upper workings leased to Kellogg Leasing Co.

TEMPLE MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Henry J. Koch, pres.; J. C. Glahe, Jay Ostrander, all of Burke; Geo. T. Edmiston, secy.-treas.; Dana R. Treat, Wallace; John Stambaugh, Youngstown, O. **Property:** 5 patented claims on Canyon creek, 2½ miles east of Burke, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead, silver, copper. **Development:** About 1700 ft. of underground workings. Idle.

TERRIBLE EDITH MINING CO.**Murray**

Owner: Washington Snyder, Murray, who recently purchased the interests of co-partners, is developing the property, 4 unpatented claims, 1½ miles east of Murray. **Class of Ore:** Lead-zinc. Gross receipts from ore shipped said to be \$100,000 up to 1916. **Development:** About 3000 ft. of underground workings.

TEXAS CONS. MINES CO.**Boise**

Capital: \$25,000. Par value, \$10. Assessable. **Directors:** E. M. Sunthdeal, pres.; Harry Beck, secy.-treas., both of Dallas, Texas; Frank E. Johnesse, mgr., Boise. **Annual Meeting:** First Tuesday in January. **Property:** 7 unpatented claims in Rough Mountain district, Owyhee Co. **Class of Ore:** Gold and silver. Working 20 men. **Equipment:** Gasoline hoist. Shipment last year, \$38,500, ore averaging \$175 per ton. **Development:** An extensive system just started; will install reduction plant. **Informant:** Manager Johnesse.

TEATUMA MINING CO.**Moscow**

Property: White Cross mine, a small property near Moscow, of which Geo. Weber, of Moscow, is secy. Examined by Francis A. Thomson, dean of mining, University of Idaho, who reports that he considers it a legitimate and rather promising enterprise, though not to be classed as a "bonanza" in its present stage of development. Equipped with 5-stamp mill, but operations discouraging and plant for sale in May, 1918.

TIBERIUS MINING CO.**Moscow-Spokane**

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Wm. Hunter, pres., Moscow; Ira B. Anderson, vice-pres.; G. O. Bump, treas.; Marshall L. Lewis, secy., all of Spokane. **Annual Meeting:** First Monday in March. **Property:** 40 acres, patented, on Ross gulch, near Pine creek, Yreka district, Coeur d'Alenes, adjoining Hypotheek on south. **Class of Ore:** Zinc, lead, silver, copper. Not working now. No equipment. No shipments. No development. **Informant:** Secy. Lewis.

TIGER MINING CO.**Priest River**

Owner: Mrs. Annie Judge, Priest River. **Property:** 2 unpatented claims, in Priest Lake district, 8 miles north of Priest River. **Class of Ore:** Lead, silver, gold. Not working. No shipments. **Equipment:** 3 buildings. **Development:** Crosscut tunnel, 275 ft., 30-ft. shaft, 4 open cuts. **Informant:** John Judge, Spokane.

TOLEDO GROUP.**Wallace**

Owners: Herman J. Rossi, Geo. Steward, Wallace; M. J. Farrell, Burke. 3 patented claims near Burke. No equipment. No shipments. **Development:** About 1000 ft. of tunnel work. **Informant:** H. J. Rossi.

TORINO MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** Jos. Peila, pres.; Jos. F. Whelan, secy.-treas., both of Wallace. **Annual Meeting:** Second Monday in July. **Property:** 15 unpatented claims, ½ mile south of Morning mill, Hunter district, Coeur d'Alenes. **Class of Ore:** Silver-lead. Inactive.

TRADE DOLLAR MINING CO., LTD.**Wallace**

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Frank P. Markwell, pres., Oakland, Calif.; Morton Webster, vice-pres., Wallace; Everett H. Pattison, secy.-treas.; Paris H. Renshaw, both of Spokane. **Annual Meeting:** First Saturday in February. **Property:** 6 patented claims, in Lalande district, Coeur d'Alenes, near Burke. **Class of Ore:** Lead-silver. **Development:** About 3000 ft. of tunnels. Shut down in 1907. No shipments. **Informant:** Secy. Pattison.

TRAPPER MINING & SMELTING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** H. E. Howes, pres.; Herman J. Rossi, vice-pres.; F. P. Candee, secy.-treas., all of Wallace; Thos. McGowan, Spokane. **Annual Meeting:** Feb. 12. **Property:** 8 patented claims on Trapper creek, west of Douglas, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead, 20%; silver, 10 ozs. to the ton. Not working. No equipment. No shipments. **Development:** About 700 ft. of tunnel, and considerable open cut work. **Informant:** Secy. Candee.

TRASK DEVELOPMENT CO.**Wallace**

Capital: \$75,000. Par value, \$1. Non-assessable. **Directors:** Geo. R. Trask, pres.; M. E. Trask, secy.-treas.; Geo. T. Edmiston, vice-pres., all of Wallace. **Annual Meeting:** Aug. 3. **Purpose:** To lease, bond and develop mining properties and purchase the same. **Informant:** Pres. Geo. R. Trask.

TREASURE-VAULT MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** E. R. Day, pres.; Geo. Miner, secy.; C. M. Johnson, treas.; Hugh Ross, all of Wallace. **Annual Meeting:** Second Tuesday in June. **Property:** 3 patented claims and a fraction, west of Success, in Placer Center district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 290 ft. of shaft, 100 ft. of tunnel.

TRI-METALLIC MINING CO., LTD.**Pardee**

Capital: \$250,000. Par value, \$1. Non-assessable. **Directors:** H. F. Bethmann, pres.; F. M. Bethmann, secy.; E. F. Bethmann, treas.; A. C. Jack, vice-pres., all of Pardee. **Annual Meeting:** Oct. 15. **Property:** 7 claims and mill-site, patent applied for, at Pardee, 1000 ft. from N. P. Ry. **Class of Ore:** Copper, gold and silver. Working 4 men. **Equipment:** Small 2-drill compressor plant. Rate of output now, 10 tons. **Development:** 225 ft. of tunnel, 250 ft. of drifts. **Informant:** H. F. Bethmann, pres.

TROJAN MINING CO.**Spokane**

(Formerly the Coeur d'Alene Standard Mining & Milling Co.) **Capital:** \$150,000. Par value, 10c. Assessable. **Directors:** John R. Cassin, pres.; Theo. A. Huetter, secy.-treas.; John T. Huetter, all of Spokane; Thos. Sheppard, vice-pres., Wallace. **Annual Meeting:** Second Saturday in March. **Property:** 6 unpatented claims on Revenue gulch, Evolution district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No equipment. **Development:** About 900 ft. of underground workings. **Informant:** Secy.-Treas. Theo. A. Huetter.

TROY GOLD & COPPER MINING CO.**Troy**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** E. J. Gemmill, pres.; T. H. Christie, secy.-treas., both of Troy; Oscar Larson, vice-pres., Spokane; C. A. Broman and G. G. Pickett, both of Moscow. **Annual Meeting:** June 19. **Property:** 20 acres, patented, 3½ miles east of Troy, Latah Co. **Class of Ore:** Copper, 2%; gold and silver, \$1.50 to \$2 per ton. Not working; shut down in 1915. No shipments. **Equipment:** Ordinary hand-working tools. **Development:** 28-ft. shaft, and 16-ft. open cut. **Informant:** Pres. Gemmill.

TROY MINING & MILLING CO., LTD.**Lewiston**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** B. H. Hilliard, pres.; W. O. Bond, vice-pres.; C. A. Hilliard, all of Clarkston, Wash.; Jas. S. Jacks, secy.-treas.; W. W. Gardner, both of Lewiston. **Annual Meeting:** Second Tuesday in December. **Property:** 28 acres, patented, 3½ miles east of Troy. **Class of Ore:** Copper, 7½%; gold, \$2.50, and silver, 4 ozs. to the ton. Not working. Shut down in 1915. **Equipment:** Gas engine, 2-in. pump and whim hoist, blacksmith shop, barn, bunk house, etc. No shipments. **Development:** 107-ft. shaft, 78-ft. crosscut. **Informant:** Secy. Jacks.

TUCKER MINING & MILLING CO., LTD.**Gem**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** P. Bahn, pres.; John Pearson, vice-pres.; W. Turner, secy.-treas., all of Gem. **Annual Meeting:** Second Tuesday in June. **Property:** 120 acres, unpatented, between Snowstorm and Silver Cable mines, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Average assays, \$8 silver, \$1 in gold. **Equipment:** Boarding house and blacksmith shop. No shipments. **Development:** About 1200 ft. of tunnel.

TUNGSTEN HILL MINING CO.**Spokane**

Capital: \$50,000. Par value, 5c. Assessable. **Directors:** Austin Ready, pres.; G. A. Henkel, vice-pres.; C. D. Muxen, secy.-treas., all of Spokane. **Annual Meeting:** February. **Property:** 7 unpatented claims, in Moyie-Yahkt district, Boundary Co. **Class of Ore:** Scheelite, gold, silver, lead. **Equipment:** Installing gas engine, compressor, and will add concentrating plant when snow permits. No shipments. **Development:** 8-ft. vein opened for 200 ft., showing scheelite, 25-ft. shaft, all in ore, with high-grade galena coming in at bottom. General sample shows \$8 gold per ton. Driving tunnel to cut vein below shaft. **Informant:** Secy.-Treas. Muxen.

TURNER, MARY C., MINE.**Bellevue**

Owner: Mary C. Turner, Bellevue. **Property:** 3 unpatented claims—Modoc Chief, Modoc Fraction and Niagara—in Mineral Hill district, near Bellevue. **Class of Ore:** Lead, silver and zinc, with average value of \$100 per ton. Not working. No shipments. No equipment. **Development:** 400 ft. of tunnel, and several hundred ft. of crosscuts. **Informant:** Mary C. Turner, owner.

TUSCUMBIA LEASING CO. (Co-partnership).**Wallace**

Composed of Gus Ehrenberg, of Spokane, and Albert Nelson, of Wallace, who held lease on holdings of the Tuscumbia Mining Co., on a royalty basis, until July, 1917.

TUSCUMBIA MINING CO., LTD.**Wallace**

Capital: \$750,000. Par value, 50c. **Directors:** Geo. May, pres.; D. J. Whaley, Stevensville, Mont.; Morton Webster, secy.-treas.; D. L. McGrath, Wallace; A. A. Whaley, Kellogg. **Property:** 4 claims, 76 acres, adjoining the Idora, in Beaver district, Coeur d'Alenes. **Class of Ore:** Lead-silver, zinc. Has shipped 1000 tons of ore. **Development:** Over 4000 ft. of tunnels. Property was under lease to Gus Ehrenberg, of Spokane, and Albert Nelson, of Wallace, who surrendered the lease in 1917, and sold equipment to the company. **Note:** Company will enter consolidation with Sunshine, Idora, Parrott and Toughnut companies, as Sunshine Consolidated M. Co. (q.v.).

TYLER MINING & MILLING CO., LTD.**Burke**

Capital: \$1,000,000. Par value, \$1. **Directors:** Jacob Frank, pres.; Albert Hansaman, secy.-treas.; August Nelson, Anton Swanson, Geo. Hronak, Andrew West, all of Burke; Otto E. Dubach, Wallace. **Annual Meeting:** Second Monday in October. **Property:** 8 unpatented claims, 17 miles from Burke. **Development:** About 700 ft. of workings. **Class of Ore:** Lead-silver. Assays show 20% lead and 7 ozs. silver to the ton.

UMATILLA MINING CO.**Chicago, Ill.**

Capital and directors unknown. Promoted by Schlosser Bros., 9140 Baltimore Ave., South Chicago, in 1905. **Property:** 8 unpatented claims, 2 miles northwest of Orogrande, Idaho; 3 strong veins running east and west, from 2 to 16 ft. wide. **Development:** 2300 ft. of tunnels and 135 ft. of shafts. Only assessment work has been done for past few years. Financial condition of company, and physical condition of property, said to be good. **Informant:** Orrin Lamb, mgr., Orogrande, Idaho.

UNA MINING CO.**Spokane**

Capital: \$1,250,000. Par value, \$1. Assessable to 1 mill per annum. **Directors:** J. W. Turner, pres.; Ralston McCaig, secy., both of Spokane; Wm. Lynch and Walter W. Nott, Duluth, Minn.; J. E. Kennedy and Dr. W. B. Phillips, Rosalia, Wash. **Annual Meeting:** Third Tuesday in January. **Property:** 3 unpatented claims—Woodrow Nos. 1, 2 and 3—4 miles west of Orogrande, Idaho. **Class of Ore:** Gold. Working one shift. No shipments. **Equipment:** Gasoline engine. **Development:** 1100-ft. crosscut driven to vein, said to be 100 ft. wide. Vein said to carry paystreaks from a few inches to 5 ft. wide.

UNION COPPER MINING & SMELTING CO.**Lewiston**

Capital: \$100,000. Par value, \$10. Non-assessable. **Directors:** F. S. Rice, pres.; R. B. Henley, treas.; E. P. Adkinson, secy., all of Lewiston; Richard Eke, vice-pres., New York City; Geo. W. Wilkin, Grangeville, Idaho. **Property:** 11 unpatented claims in unorganized district on Snake river, Idaho Co. **Class of Ore:** Copper, gold, silver. **Equipment:** Propose to install electrolytic smelter. **Informant:** Pres. F. S. Rice.

UNITED AMERICAN MINES CO.**Wallace**

Capital: \$3,000,000. Par value, \$1. **Directors:** Frank P. Markwell, pres.; Morton Webster, Jas. A. Wayne, all of Wallace; E. H. Pattison, secy.-treas., Paris Renshaw, both of Spokane. **Annual Meeting:** June 15. A holding company, not developing any properties.

UNITED LEAD MINING CO.**Spokane**

Capital: \$2,500,000. Par value, \$1. Absorbed by Silverado Mining Co. in 1913.

UNITED MINES CO.**Spokane**

Capital: \$250,000. Par value, 25c. Non-assessable. **Directors:** Thos. S. Griffith, pres.; Dr. E. J. Peterson, vice-pres.; L. J. Raef, secy.; Chas. Uhden, treas.; J. C. Lawrence, all of Spokane; Victor A. Johnson, Portland, Ore.; Jack Wallace, Fairfield, Idaho; E. A. Worswick, Salt Lake City, Utah. **Annual Meeting:** Dec. 31. **Property:** 13 unpatented claims—Bluebird Nos. 1 to 13, incl.—10 miles northeast of Fairfield, Idaho, in Little Smoky district, Sawtooth range. **Class of Ore:** Copper, galena and zinc. **Equipment:** 100-ton concentrator, 10 stamps, amalgamation plates, K. & K. flotation mill, sawmill, assay outfit, buildings, rails, cars, etc. No shipments. **Development:** About 1800 ft. of work, tunnels, crosscuts and raises. **Informant:** Secy. Raef.

UNITED PLACER MINES CO.**Portland, Ore.**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Walson Eastman, pres.; M. S. Hart, secy.-treas.; H. I. Keeny, Jas. Muckle, vice-pres., all of Portland; W. N. Scales, Grangeville, Idaho. **Annual Meeting:** Third Tuesday in January. **Property:** 420 acres, patented, near Lucile, on Salmon river. **Class of Ore:** Gold, from 5c to \$1 per cubic yard, average 25c. Not working. No shipments. **Equipment:** Pumping plant. **Informant:** Secy.-Treas. Hart.

UNITED STATES SILVER-LEAD MINES CO.**Spokane**

Capital: \$100,000. Par value, 10c. Assessable to limit of 4c per share. **Directors:** M. E. Bennett, pres.; W. M. Rakestraw, both of Wilbur, Wash.; C. J. Diebel, vice-pres.; Jos. McCarthy, secy.-treas., both of Spokane; A. M. Nash, Sandpoint, Idaho. **Annual Meeting:** First Monday in March. **Property:** 5 unpatented claims in Eagle district, Coeur d'Alenes. **Class of Ore:** Silver-lead. **Equipment:** Small compressor, cabins, machinery, tools, etc. No shipments. **Development:** About 500 ft. of work. **Informant:** Manager A. M. Nash.

UNITY GOLD MINES CO.

New York

Capital: \$2,500,000. **Par value,** \$5. **Directors:** Jas. H. Hawley, pres.; L. M. Hart, vice-pres.; Geo. W. Fletcher, treas.; J. A. Czizek, mgr., Boise. **Property:** 2 groups of claims, 120 acres, including Little Giant and Charity mines, in Warren district, Idaho Co., 49 miles from railroad. Idle for several years. Claims said to cover two distinct veins, for 4500 ft. along outcrop. Co. also owns mill-site and 4½ miles ditch and pipe lines, with water rights. **Class of Ore:** Gold. **Development:** By tunnels and shallow shafts. Little Giant, said to have yielded \$1,000,000 in the past, is claimed to show ore body 4 ft. wide, assaying over \$40 per ton, with \$20 dump ore. No work below 200-ft. level. Present management driving tunnel to cut vein 400 ft. below present workings. Charity mine developed by shallow tunnels and 100-ft. shaft. 10-stamp mill contemplated. The old Reiboldt mine, in Warren district, will be among the first properties to be worked by the Co. Discovery of important bodies of highgrade ore reported April, 1918, at Little Giant.

UTAH BELLEVUE MINES CO.

Bellevue

Capital: 500,000 shares. **Directors:** A. W. Kelley, pres.; T. H. Saxman, vice-pres.; L. H. Goulet, secy.-treas.; J. E. Naylor and M. Cullinson. **Property:** 3 claims in Wood River district, Blaine Co., said to show silver, lead and zinc.

V GROUP (Co-partnership).

Kellogg

Owners: E. D. Booth, Kellogg; Chas. Lynch, Sunset. **Property:** 8 unpatented claims on east fork of Pine creek, adjoining the Nabob, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 1000 ft. of workings.

VENDETTA CHIEF (Co-partnership).

Murray

Owners: Mrs. Wilhelmina Kincannon, Murray; C. F. Lillie, Gem. **Property:** 3 unpatented claims in Vendetta gulch, ¾ mile from Raven, in Summit district, Coeur d'Alenes. **Development:** 350 ft. of underground workings.

VERDE-MAY MINING CO.

Wallace

Capital: \$1,000,000. **Par value,** \$1. **Directors:** Leander Linston, pres., Gem; W. H. Hanson, secy.-treas.; Fred Magnusson, Ed Erickson, Louis Nelson, all of Wallace. **Property:** 5 unpatented claims below Gem, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** About 800 ft. of workings.

VIENNA-INTERNATIONAL MINING & MILLING CO., LTD.

Wallace

Capital: \$1,500,000. **Par value,** \$1. **Directors:** A. H. Featherstone, pres.; Geo. Moison, vice-pres.; R. A. Marshall, secy.-treas.; A. B. Livingston, mgr., and W. B. Lively. **Property:** 3 patented, 2 unpatented claims on Placer creek, 6 miles from Wallace, Coeur d'Alenes. **Annual Meeting:** First Tuesday in September. **Development:** 400-ft. shaft and two tunnels of 700 ft. **Note:** In June, 1916, control of capital stock was taken under option by F. C. Bailey of Spokane, but forfeited late in 1917, after expenditure of a few thousand dollars. Company then did some work, driving west from bottom of shaft and some stringers of galena and oxidized iron were found. Work was, however, discontinued last winter, owing to difficulty in raising funds.

VIENNA MINING & SMELTING CO.

Vienna

Property: Webfoot mine, at Vienna, in Wood River district, in which ruby silver, said to assay \$50 to \$100 per ton, was struck in May, 1917. Drift of 18 ft. into vein reveals ruby silver, native silver and galena.

VIENNA VEIN MINING CO.

Wallace

Capital: \$1,000,000. **Par value,** \$1. **Directors:** Otto A. Olsson, pres.; F. Bland, secy.-treas.; A. B. Livingston, W. B. Lively, O. A. Olin, all of Wallace. **Annual Meeting:** First Wednesday in September. **Property:** 8 unpatented claims on Placer creek, 3 miles from Wallace. **Class of Ore:** Lead-silver. **Development:** 650 ft. of tunnel.

VILLAGE BLACKSMITH MINING CO.

Silver City

Co. now out of existence, and holdings passed to individual owners, who lease property to Wm. Williams, of Silver City. 5 claims near Silver City. **Class of Ore:** Gold and silver. Values irregular. Average width of vein, 30 inches, and greatest depth 150 ft. No equipment, ore being mined by hand and treated at custom mills. **Development:** 100-ft. crosscut and 200 ft. of drifts, mostly done by lessee.

VINDICATOR MINING CO.**Mullan**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Mrs. K. Powers, pres.; Wm. P. Flood, vice-pres.; A. P. McRae, all of Mullan; Thos. A. Powers, secy.-treas., Mace; Jos. Thennes, Wallace. **Annual Meeting:** First Monday in January. **Property:** 3 unpatented claims and 1 fraction, 1½ miles east of Mullan, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Not working. **Equipment:** Blacksmith shop, waterpower fan, tools, car, track, etc. No shipments. **Development:** 1830 ft. of tunnels, 350 ft. of crosscuts and drifts; vertical depth, 420 ft. **Informant:** Secy.-Treas. Powers.

VIRGINIA CONS. GOLD MINING CO.**Salt Lake City, Utah**

Capital: \$500,000. Par value, \$1. Assessable. **Directors:** L. M. Byers, pres., Salt Lake City, Utah; W. A. Byers, secy.-treas., Baker, Idaho; John Clark, Junction, Idaho. **Annual Meeting:** Second Monday in August. **Property:** 10 patented and 10 unpatented claims, and mill-site, in Sand Creek district, Lemhi Co., 17 miles southeast of Salmon. **Class of Ore:** Gold, copper, and a little lead, one vein carrying as high as 42% copper, though free milling gold predominates throughout the property so far developed. Said to have produced \$100,000 in gold to date. **Equipment:** Small 3-stamp mill, cars, tools for hand work, etc. **Development:** About 6000 ft. of workings. **Informant:** Secy.-Treas. W. A. Byers. **Note:** Mine being operated under lease by Lemhi Gold Mining Co.

VIRGINIA MINING CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** Patrick Burke, pres.; Elizabeth Burke, L. L. Sweet, R. E. Dunlap, all of Wallace; Jos. F. Morton, secy.-treas., Spokane; Richard McBreen, Walter Law, Hillyard, Wash. **Property:** 1 unpatented claim on west side of Sunset peak, Beaver district, Coeur d'Alenes. **Class of Ore:** Lead-silver-zinc. **Development:** 1000 ft. of underground workings.

WALLACE MINING CO.**Wallace**

Capital: \$500,000. Par value, \$1. **Directors:** D. C. McKissick, pres., Wallace; J. M. Porter, secy.-treas., Spokane. **Property:** 2 patented claims on east side of Burke canyon, at Frisco, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Considerable development work has been done, but not in recent years.

WALLACE MINING, MILLING & REALTY CO.**Wallace**

Capital: \$1,000,000. Par value, \$1. **Directors:** Louis Dahl, pres.; Wm. Fagan, both of Spokane; D. G. Evans, secy.; H. J. Rossi, treas., both of Wallace; Henry Sanders, Hatton, Wash. **Property:** 1 patented and 8 unpatented claims, adjoining Wallace, on Placer creek. **Class of Ore:** Large vein showing disseminated galena. **Development:** 2400 ft. of underground workings.

WALL STREET MINING CO.**Wallace**

Capital: \$1,250,000. Par value, \$1. **Directors:** C. A. Pooley, pres., Wallace; C. Fred Kratzer, secy.-treas., Spokane; Geo. K. Garrett, E. A. Gnaedinger, O. W. Lewis, all of Wallace. **Property:** 17 claims surveyed for patent, and 17 unpatented, between Morning and Hunter mines, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. No shipments; no equipment. **Development:** About 1200 ft. of tunnel.

WARDNER LEASING CO.**Wardner**

Capital: \$500,000. Par value, \$1.00. **Directors:** Wm. A. Beaudry, pres.; D. W. Price, vice pres.; J. D. Owen, secy.-treas., Wardner; R. A. Carnochan, Spokane. **Property:** Rights to mine under approximately 200 lots in the townsite of Wardner, Idaho, in the hope that Caledonia vein may be picked up west of the Osborne fault. Shaft has been sunk to a depth of 230 ft. and a cross-cut run out in a southerly direction. Some lead-silver values have been found, but nothing of well-defined character up until March 1st, 1918.

WARDNER MINING & MILLING CO.**Kellogg**

Capital: \$250,000. Par value, 25c. **Directors:** Jacob Dunn, pres., Wardner; A. O. Larson, secy.-treas.; E. C. Moore, T. P. Wormwood, F. M. Bedell, all of Kellogg. **Property:** 5 unpatented claims on Haystack peak, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Not working.

WASHBURN GOLD & COPPER MINING CO.**Kamiah**

Directors: El Atkinson, pres.; G. Jarbo, vice-pres.; J. I. Pierce, treas.; J. M. Shaw, secy.; Daniel Laverty, W. A. Dissmore, Kamiah. **Property:** The Greeley group of 6 claims, in Lolo district, near Kamiah. **Class of Ore:** Gold, copper, silver. **Development:** Several short tunnels and open cuts.

WASHINGTON MINING CO.**Burke**

Capital: \$1,500,000. Par value, \$1. **Directors:** John J. Finley, pres.; Dr. Evans, vice-pres.; Dr. Chas. A. Dettman, secy.-treas.; J. C. Glahe, Thos. Mann, Chas. Pearson, all of Burke; Hugh Toole, Wallace. **Annual Meeting:** 1st Wednesday in August. **Property:** 6 unpatented claims, 3 miles north of Burke, Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. In December, 1917, encountered a vein 6 ft. wide. About 350 ft. of tunnels.

WEIMER COPPER CO.**Provo, Utah**

Jesse Knight, Provo. **Property:** 18 claims, 360 acres, on Birch creek, Skull Canyon district, near Dubois, Fremont Co., Idaho. Shows crushed zone 100 to 200 ft. wide, between quartzite and limestone, carrying high grade ore in pockets and cross fissures, of 3 inches to 2 ft. wide. **Development:** By open cut and 2 tunnels of 300 ft. each. Idle for several years.

WEST BELL MINING CO., LTD.**Wallace**

Capital: \$50,000. Par value, 5c. Assessable. M. J. Maher, vice-pres., Burke; J. Fred Markwell, secy., Spokane. **Annual Meeting:** 2nd Monday in July. **Property:** 6 patented claims above Gem, in Burke canyon, Lalande district, Coeur d'Alenes. **Class of Ore:** Silver-lead. Not operated for several years. **Development:** 2300-ft. tunnel. **Informant:** Acting Secy. Everett H. Pattison, Spokane.

WEST COAST MINES CO.**Spokane**

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** Wm. L. Hoag, pres.; C. E. Stabler, secy.-treas., both of Lansing, Mich.; H. J. Hibschan, vice-pres., Spokane; Geo. H. Wyman, Sr., Geo. H. Wyman, Jr., Boise. **Property:** 8 patented and 5 unpatented claims, near Pearl Gem Co. **Class of Ore:** Gold and silver, running from \$10 to \$200 per ton. **Equipment:** Steam hoist, whim, tools, etc. No shipments. **Development:** 200 ft. of shafts, 450 ft. of cross-cuts and drifts. **Informant:** Vice-Pres. Hibschan.

WESTERN MICA CO.**Spokane**

Co-partnership. **Owners:** E. F. Hull, Chas. A. Gram, C. R. Young, all of Spokane, and O. T. Lathrop, Lethbridge, Alberta. **Property:** 80 acres, owned in fee simple, 6 miles north of Avon, Idaho. No shipments. **Development:** 1 exploratory tunnel of 15 ft. and one 100 ft. to deposit, at depth of 75 ft., at which point sheet mica in valuable sizes is being mined. **Informant:** E. F. Hull, part owner.

WESTERN SILVER-LEAD MINING CO., LTD.**Stewart**

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** O. B. Hathaway, pres., Vancouver, Wash.; M. M. Miller, vice-pres., Spokane; Jeremiah Miller, secy.-treas., Stewart. **Annual Meeting:** Second Tuesday in April. **Property:** Double Four and Hathaway groups (12 claims), on Butte creek, near Murray; the O. K. mine (7 claims and fractions, patented), and Miller group, near Kellogg; the Odd Fellow group (8 claims and fractions, 1/2 owned, 1/2 bonded, near Kellogg, in Yreka and Summit districts), Coeur d'Alenes. **Class of Ore:** On O. K., high in silver, lead, zinc; in others, values are silver-lead only. **Equipment:** Hoist, compressor, electric equipment. Railroad on O. K. and near Odd Fellow and Miller groups, which adjoin Last Chance, Sierra Nevada and Bunker Hill & Sullivan. **Development:** 7000 ft. of underground workings. **Informant:** Secy. Jeremiah Miller.

WESTERN STAR MINING CO.**Wallace**

Capital: \$150,000. Par value, 10c. **Directors:** S. P. Fairweather, pres.; Elmer Johnson, secy.-treas.; Geo. Sparenberg, Jas. A. Wayne, all of Wallace; Larry Dooling, Mullan. **Property:** 6 unpatented claims, lower forks Big creek, Evolution and Yreka districts, Coeur d'Alenes. **Class of Ore:** Lead-silver-copper. **Development:** 3000 ft. of tunnel and open cuts.

WESTERN UNION MINING CO.**Spokane**

A consolidation and reorganization of the Aurora-Sampson and the H. E. M. companies. **Capital:** \$200,000. Par value, 10c. Assessable. **Directors:** D. H. Anderson, pres.; Ben. L. Collins, secy.-treas.; Russel F. Collins, Spokane; J. E. Burbank, Cheney, Wash.; P. A. Bounds, H. D. Winchester, Yakima, Wash.; Wm. Holm, Wm. Bjorklund and Erick Hagman, vice-pres., Wallace. **Property:** 20 claims, comprising the holdings of the Aurora-Sampson and H. E. M. companies, 2 1/2 miles northwest of Wallace, in the Coeur d'Alenes. **Class of Ore:** Lead,

silver, zinc, copper, gold. **Equipment:** The H. E. M. 100-ton mill at Wallace, with flotation unit. Shipments to date, about \$8000. **Development:** About 8500 ft. of underground workings. Contract let for 500-ft. additional drifting. Vertical depth in Aurora-Sampson ground, 1000 ft. **Note:** Milling plant, which was never put to commercial use, reported sold to Bead Lake M. Co. in February, 1918, for \$20,000 and will be removed to that company's property in Washington.

WEST FLYNN GROUP MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1.00. **Directors:** John Hayes, pres., Gem; Jas. F. Whelan, secy.-treas.; J. J. Cronin, E. W. Kern, Wallace; Timothy McCarthy, Lane. **Annual Meeting:** Second Monday in July. **Property:** 1 patented claim, $\frac{1}{4}$ interest in patented claim, and 15 unpatented claims, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** 2500 ft. of underground workings. Property taken over in July, 1917, by eastern interests. Property reported under \$750,000 bond to D. F. Haley, identified with Consolidated Interstate-Callahan M. Co., in July, 1917, but no development was done and option is believed to have been forfeited. Three well known veins, the Morning, You Like and Hunter, traverse the group.

WEST GEM MINING CO.

Wallace

Capital: \$1,250,000. Par value, \$1. Assessable. **Directors:** Caezer Schneider, pres.; J. S. Deitsch, both of Spokane; Alexander Murphy, secy.-treas., Wallace; Scott Godfrey, Gem. **Annual Meeting:** 1st Saturday in February. **Property:** 3 claims, part patented, in Burke canyon, Lalande district, Coeur d'Alenes. **Class of Ore:** Silver-lead. Not working. No shipments. Co. holds property under bond and lease. Has expended about \$5000 in development.

WEST HECLA MINING CO.

Spokane

Capital: \$150,000. Par value, \$1. Assessable. **Directors:** Morton Webster, pres., Wallace; J. V. Pohlman, secy.-treas.; A. A. Booth and Dr. T. A. Russell, all of Spokane. **Annual Meeting:** Feb. 23. **Property:** 3 patented claims at Burke, in Lalande district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Not working. **Equipment:** Blacksmith shop, powder house, tools, etc. **Development:** 1400 ft. of tunnel, some crosscuts and drifts.

WEST HUNTER MINING CO., LTD.

Mullan

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** A. M. Strode, pres.; Alicia F. Strode, secy.-treas.; W. P. Flood, W. J. McHugh, all of Mullan. **Annual Meeting:** Second Thursday in June. **Property:** 2 patented claims, 10 unpatented, 175 acres; 1 mile north of Mullan, adjoining and south of American Commander and lying in between Morning estate of Federal on west and Gold Hunter Mining and Smelting Co. on the east, Hunter district, Coeur d'Alenes. **Class of Ore:** Lead-silver. **Development:** Strong vein was uncovered by surface work a little south of the south lines of American Commander; cross-cut tunnel was driven to tap the vein at approximately 200 ft. and drifting is now in progress to the east, where maximum depth of 930 ft. will be attained under ridge between Hunter and Mill creeks. So far, work has been financed by sale of treasury stock. Underground development has reached about 800 ft. **Informant:** President Strode.

WEST NINE-MILE MINING CO.

Wallace

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Chas. Heilbronner, pres.; H. C. McAllister, treas.; Jos. F. Whelan, Henry Leib, Chester J. Howarth, all of Wallace; Geo. H. Heller, Osborne. **Annual Meeting:** Last Saturday in August. **Property:** 4 unpatented claims west of Success and Alameda, west fork of Nine Mile, Placer Center district, Coeur d'Alenes. **Class of Ore:** Silver, 12 ozs.; lead, 25%. No shipments; only assessment work being done. **Equipment:** Car, track, blacksmith shop, cabins, tools, etc. **Development:** 700 ft. of tunnel, 40-ft. shaft. Ledge, about 40 ft. wide. **Informant:** Secy. Geo. H. Heller. **Note:** Controlled by heirs of E. Heller estate.

WILBERT MINING CO., LTD.

Salt Lake City, Utah

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** A. S. Ross, pres.; G. W. Morgan, vice-pres.; J. A. Foley, secy.-treas., all of Salt Lake City, Utah. **Property:** 16 patented claims, in Dome district, 40 miles from Arco, Fremont Co., Idaho. **Class of Ore:** Lead-silver. Dividends paid to March 1, 1918, \$100,000. **Equipment:** 100-ton concentrator, small electric plant, etc. For year ending May 15, 1917, 1045 ft. of new work was done, in shafts, drifting and cross-cutting. Net profit for same period was \$36,913. Production, 200 to 250 tons per month. **Informant:** Secy. Foley.

WILD HORSE MINING & MILLING CO.**Kellogg**

Capital: \$150,000. Par value, 10c. **Directors:** W. W. Papesh, N. White, Geo. Beaudan, all of Kellogg. Incorporated in August, 1917.

WILLOW CREEK MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. **Directors:** Andrew Hedin, pres.; John Hoppe, secy.; Wm. Ganninger, all of Spokane; J. L. Martin, Mullan. **Property:** 8 claims between Reindeer Queen and Carney Copper Co., near Mullan, Coeur d'Alenes. **Class of Ore:** Copper and galena. Co. organized in September, 1917.

WISCONSIN MINING CO.**Kellogg**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Louis Bolduc, pres.; P. Mason, vice-pres.; J. S. Ross, secy.; J. V. Thomson, F. Jones, all of Kellogg. **Annual Meeting:** First Monday in March. **Property:** 4 unpatented claims, 2½ miles east of Kellogg, Yreka district, Coeur d'Alenes. Successor to Gold Leaf Consolidated Mines and Coeur d'Alene Consolidated Mining Co. **Class of Ore:** Copper, 1 to 14%; 4 ozs. silver; \$1.40 in gold, per ton. Working small force. **Equipment:** Compressor, machine drills, hoist, pumps, jackhammer. Shipments to date, 13 tons. **Development:** 800 ft. of tunnels and cross-cuts, 90-ft. shaft. In October, 1917, California parties reported to have taken option on large block of stock.

WISE BOY MINES.**Grangeville**

Owner: E. W. Oliver, Grangeville. **Property:** 5 quartz claims in Robbins district, Idaho Co., reached by 2 wagon roads from Grangeville, one 5½ miles and one 80 miles. **Class of Ore:** Gold, assaying from \$56 to \$98 per ton. **Equipment:** 10-stamp mill, steam power. **Development:** 453 ft. cross-cut tunnels, 50 ft. of drifts, 180 ft. raise, and open cuts for distance of 1250 ft.

WOLVERINE MINING CO.**Spokane**

Capital: \$1,250,000. Par value, \$1. Non-assessable. **Directors:** C. Harrington, pres.; Jerome Harrington, secy.-treas.; Mrs. J. R. Lake, P. C. Harrington, Spokane; Dennis Sullivan, Rockford, Wash. **Annual Meeting:** First Monday in January. **Property:** 2 claims, surveyed for patent—May and Rosy Jane—1¼ miles southeast of Kellogg, Idaho, in Yreka district, Coeur d'Alenes. **Class of Ore:** Galena, with a little copper; assays \$40 and \$42 per ton. No shipments. **Development:** 700 ft. of tunnel and drifts; 100-ft. winze, giving 300 ft. vertical depth. **Informant:** Secy. Jerome Harrington.

WONDERFUL MINING CO.**Wallace**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** Dr. W. H. Holden, pres.; M. M. Taylor, both of Coeur d'Alene; A. H. Featherstone, secy.-treas.; Harry E. Howes, Chas. Jackson, all of Wallace. **Property:** 4 patented and 6 unpatented claims, west of the Bullion mine, St. Joe district, Coeur d'Alenes. **Class of Ore:** Copper-lead. **Development:** About 1700 ft. of tunnel.

WONDER GOLD MINING CO.**Grangeville**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** B. F. Pennington, pres.; W. L. Campbell, secy.-treas., both of Grangeville; James M. Martin, Colfax, Wash.; Alexander McRae, Goldendale, Wash.; John E. Mickie, Golden, Idaho. **Annual Meeting:** Second Monday in January. **Property:** 7 unpatented claims and a mill site, in Ten-Mile district, Idaho Co. **Class of Ore:** Gold, free milling, and silver; average value, \$28.64 per ton. Working small force. One test shipment of six tons, netting \$724. **Equipment:** 20-ton mill, crusher, engine, amalgamation and concentration plant. **Development:** About 1700 ft. of workings; vertical depth, 300 ft. **Informant:** Secy.-Treas. Campbell. **Note:** McGregor Bros., of Hooper, Wash., recently purchased 200,000 shares of the stock, for a reported price of 50c per share.

WONDER OF PINE CREEK MINING CO.**Kingston**

Capital: \$150,000. Par value, 10c. **Directors:** T. W. Hunt, pres.; A. C. Morbeck, secy.-treas., both of Kingston; F. E. Brown, Kellogg. **Annual Meeting:** Second Monday in May. **Property:** 4 unpatented claims and 2 fractions, 200 acres of deeded ground on Pine Creek, Yreka district, Coeur d'Alenes, adjoining the Amy-Matchless mill site. F. E. Brown said to hold option on majority of stock, and plans development.

WYOMING LEASING CO.**Wardner**

Operating property of Wyoming Mining & Milling Co., near Kellogg, under lease. Shipment of 425 tons in July, 1916, with returns of over \$3 in silver and \$10 in lead to the ton. Most of ore is coming from stope and raise, and 12 men are employed.

WYOMING MINING & MILLING CO.**Wardner**

Capital: \$100,000. Par value, 10c. **Directors:** Alfred Page, pres., Spokane; D. R. Treat, secy.-treas.; Frederick Burbidge, A. J. Devlin and Oscar Dull, all of Wallace. **Annual Meeting:** Second Tuesday in May. **Property:** 7 unpatented claims on first gulch below Government gulch, Yreka district, Coeur d'Alenes. **Class of Ore:** Lead-silver. Now under lease to Wyoming Leasing Co. (q.v.). Subsidiary of Federal M. & S. Co. (q.v.)

YANKEE BOY MINING CO.**Wallace**

G. Scott Anderson, pres.-mgr., Wallace. In Big Creek section, near Kellogg. **Equipment:** Gasoline engine, compressor, tools, etc. **Development:** About 1800 ft. of tunnels and 500-ft. upraise. **Class of Ore:** Silver-lead, copper, the silver values said to run as high as 200 ozs. to the ton.

YANKEE GIRL MINING CO.**Kellogg**

Capital: \$10,000. Par value, 1c. **Directors:** T. R. Mason, pres.; J. B. Cox, secy.; F. E. Ellis, treas.; Albert Schmidt, C. W. Brown, all of Kellogg. **Annual Meeting:** Second Tuesday in May. **Property:** 10 unpatented claims on Big Creek, adjoining Yankee Boy and Polaris on south, in Evolution district, Coeur d'Alenes. **Development:** About 2500 ft. of underground workings. While at work in an old tunnel on the property, in January, 1918, Albert Schmidt, manager, uncovered a lead of copper and silver-bearing ore very similar to rich ore found in Yankee Boy. Yankee Girl Co. has a tunnel in 700 ft., and is driving 400 ft. more to cut main ledge at a depth of 500 ft. below upper workings.

YUKON GOLD CO.**New York**

Capital: \$17,500,000. Par value, \$5.00. **Directors:** Wm. Loeb, Jr., pres.; C. K. Lipman, secy.; L. Frederick, treas.; all of New York; C. W. Beale, resident agt., Wallace, Idaho. **Property:** Lease on holdings of Coeur d'Alene Mining Co. and other property along Prichard Creek, including original locations of Prichard, made in the early eighties and which caused the original Eagle City boom in the Coeur d'Alenes. Over \$20,000 was expended in preparing for operations, aside from the cost of the big dredge, valued at \$250,000, which was brought from Alaska and set up on the ground. Operations were commenced on Dec. 6th, 1917, with two shifts and it is reported that very satisfactory profits have been made, although official figures are not available. It is expected that operations will cover a period of many years and give employment to a large number of men. Gross content of the ground runs to a high figure, although official information cannot be obtained upon this point. It is understood that several more dredges now in Alaska will be set up on the ground. Company operates three dredges in California and several in Yukon and at Iditarod, Alaska. **Note:** A Guggenheim corporation organized in 1916 to take over residuary assets of dissolved Guggenheim Exploration Co. Resumption of activities on Prichard creek marks revival of project that has been dormant for 20 years.

YUTZY MINING CO., LTD.**Wallace**

Capital: \$1,500,000. Par value, \$1. **Directors:** F. L. Taylor, pres., Jersey City, N. J.; W. W. Bixby, secy., Wallace; Lizzie Y. Taylor, treas., Santa Barbara, Calif. **Annual Meeting:** Last Monday in January. Non-productive.



MR. FRANK A. ROSS.

Born at Terre Haute, Indiana; graduated from Michigan University, scientific course, specializing in mining and metallurgy; supt., Hecla Mining Co., Greenwood, Mont.; supt., Hudson Mining Co., Neihart, Mont.; supt. and metallurgist, Amazon smelter of Helena-Livingston S. & R. Co.; designing engineer, same company's smelting plant, at East Helena, Mont., and its coal-washing and coking plant at Cokedale, Mont.; builder; chief of mining department and then assistant manager of Fraser & Chalmers, Chicago; manager and field engineer for British syndicate in British Columbia and Washington; private interests and consulting work in Chicago; manager, Gould Mines Co., Mont.; managing director, Daly Reduction Co., Hedley, B. C.; mining investigations and reports and private interests, headquarters, Spokane. Club associations: Montana Club, Spokane Club, Rotary Club. Vice-pres., and chairman Mining Bureau, Spokane Chamber of Commerce; vice-pres. Northwest Mining Association; member American Institute Mining Engineers; Montana Society of Engineers; Mexican Institute of Mining & Metallurgy; member and officer, sundry civic organizations of Spokane.

WASHINGTON

Quantity of Ore sold or treated in Washington, 1866-1917, number of mines producing and total output of gold, silver, copper and lead

Year.	Number of producers.	Quantity Short tons	Gold. Value.	Silver. Fine ozs.	Copper. Pounds	Lead. Pounds	Zinc. Pounds	Total value.
Prior to 1866			\$ 9,000,000	120,500				\$ 9,161,108
1866			1,000,000	12,500				1,016,737
1867			400,000	5,000				406,650
1868			400,000	5,000				406,630
1869			300,000	3,750				304,969
1870			300,000	3,750				304,980
1871			320,107	4,000				325,407
1872			260,000	3,250				264,297
1873			206,341	2,355				209,395
1874			154,535	1,925				156,995
1875			81,932	1,000				83,172
1876			26,988	320				27,369
1877			300,000	41,667				350,000
1878			300,000	21,739				325,000
1879			75,000	17,857				95,000
1880			135,800	886				136,819
1881			120,000	1,450				121,639
1882			120,000	1,450				121,653
1883			80,000	387				80,430
1884			73,952	912				74,964
1885			126,172	52,208				182,035
1886			147,548	123,752				270,062
1887			160,503	94,516				253,129
1888			145,000	123,750				261,325
1889			193,709	81,984				270,774
1890			204,000	69,628				277,109
1891			371,897	165,883				536,121
1892			373,553	151,554				505,405
1893			228,394	134,961				333,664
1894			232,761	9,683				238,861
1895			373,148	109,060				444,037
1896			395,490	233,407				554,207
1897			449,664	242,780				595,332
1898			612,118	329,549		857,555		838,968
1899			729,388	289,661	76,410	1,032,069		962,774
1900			732,437	302,570	36,831	1,091,945		973,711
1901			661,240	377,381	29,520	216,841		901,823
1902			374,471	721,450	40,426	242,516		771,408
1903			446,364	305,401	91,441	215,134		632,498
1904	54	59,310	314,463	157,598	350,047	1,760,309		518,019
1905	51	46,650	405,078	125,376	108,709	605,043		526,200
1906	52	27,133	221,648	45,878	235,030	926,100		350,533
1907	53	44,413	269,074	55,359	297,812	820,035		398,635
1908	64	37,633	242,234	88,823	312,030	1,150,429		378,816
1909	46	36,308	362,051	79,488	255,134	288,700		448,966
1910	76	59,209	788,145	205,345	86,918	1,322,287		968,249
1911	60	82,305	847,677	243,781	318,207	848,584	20,590	*1,056,017
1912	46	94,981	680,964	413,538	1,086,010	127,387		1,120,214
1913	57	115,885	696,275	331,239	954,081	202,487		1,053,135
1914	67	95,947	557,173	284,861	778,728	65,507		809,767
1915	104	86,677	391,419	255,837	1,020,926	295,215	244,906	744,033
1916	113	164,998	577,655	335,121	2,645,022	5,399,274	1,693,734	2,048,350
1917 (est.)			486,000	257,000	2,000,000	9,000,000	1,229,000	2,238,000
Total		951,249	\$27,452,368	7,028,120	10,723,282	26,467,417	3,188,230	\$36,436,555

*Contains 20,590 pounds spelter of value of \$1174.

Prepared for Northwest Mines Handbook by Victor C. Helkes, Statistician, Division of Mineral Resources, U. S. G. S., Salt Lake City.



MR. CONRAD WOLFLE.

Has been largely responsible for the position won by the Chewelah mining district within the past few years. President of United Copper Mining Co., of that district, and president and manager Red Monarch Consolidated Mining Co., operated in the Coeur d'Alenes. His experience has taken him through practically every mining district in the West. A director of Fidelity National Bank, of Spokane, and Bank of Chewelah, Chewelah, Washington; member of American Institute of Mining Engineers; American Mining Congress; Spokane Club, and many other local organizations.

Geological History of Washington

(Contributed to Northwest Mines Handbook by Charles E. Weaver, Consulting Geologist, Seattle, Washington.)

TOPOGRAPHICALLY, the western portion of North America is broadly divided into five zones or provinces, all of which have a general parallel north and south elongation. These provinces are commonly designated as the Rocky Mountains; the Great Basin; the Cascade-Sierra Nevada mountains; the Puget Sound, Willamette Valley, Great Valley of California downfold and, finally, the Coast ranges. Parts of the last four lie within the state of Washington.

The eastern half of the state lies chiefly within the Great Basin province, and the Okanogan highlands, which are its northern continuation. The Cascade mountains extend from the Fraser river, in British Columbia, southerly into Oregon. Along the Oregon-Washington state boundary, these mountains have been cut through by the Columbia river almost to sea level. West of the Cascade range, and parallel to it, lies a structural depression, within which is situate the Puget Sound basin and the lower Cowlitz valley. The western division, or Coast range, comprises the low hills of southwestern Washington and the Olympic mountains.

All rocks which form the earth's crust are divided into three broad groups—igneous, sedimentary and metamorphic. These are all abundantly represented. The past history of the state, in common with that in other parts of the world, is divided into epochs. During each, many events were taking place, such as: The elevation and depression of land areas, causing alternate flooding and draining of land areas by water of the ocean; injection into the earth's crust, from below, of large quantities of liquid rock which, when hardened, became granite, diorite or other allied igneous rocks; the rising to the surface of molten rock through fractures in the crust, and consequent formation of surface lava beds and the folding, faulting and crushing of the various rocks composing the crust of the earth. Directly associated with all these events, was the creation of all ores and rocks of commercial importance.

Beginning with the oldest, the several epochs into which the history of the state is divided are the Archaean, the Palaeozoic, the Mesozoic, the Tertiary and the Quaternary.

Very little is known concerning geological conditions within the state during the Archaean epoch. No ore deposits are known to definitely occur in rocks of Archaean age. During the Palaeozoic, the Olympic and Cascade mountains and the Okanogan highlands did not exist. A large part of the state was an embayment of the Pacific ocean. Streams of varying size were draining the land areas existing at places to the north in British Columbia and to the east in Idaho and Montana. The muds and sands brought down from these areas were deposited in oceanic embayments, which occupied a large part of the state. By the end of the Palaeozoic epoch, these sediments had accumulated upon the slowly-sinking sea floor of this embayment, until they finally gained a thickness of as much as 30,000 feet. After consolidation, these sediments became sandstone, shale, limestone and conglomerate. Later on, they were metamorphosed and converted into quartzite, slate, schist and crystalline limestone or marble, and ultimately uplifted and folded so that, at the present time, they no longer lie in a horizontal position, but rather are inclined at an angle or stand vertical. The majority of the quartzites, schists, slates and lime-

stones occurring in Pend d'Oreille, Stevens, Ferry and Okanogan counties, were formed in the Palaeozoic embayment in this manner. The same is true of similar rocks in the northern Cascades and in the Olympic mountains. The magnesite deposits of Stevens county were formed during this epoch, as a result of the precipitation from sea water of calcium and magnesium salts and their accumulation upon the sea floor. The limestone deposits of Whatcom, San Juan and Skagit counties, which are used in the manufacture of lime and Portland cement, were also formed in an embayment of the ocean. The gold, silver, copper, lead and zinc ores found in the quartzites, slates, schists, limestones and igneous rocks of the state, had not been formed at the close of the Palaeozoic epoch.

During the next epoch, known as the Mesozoic, similar seas occupied a large part of the state, and rocks similar to those of the Palaeozoic were formed, including many of the slates occurring in the Olympic and northern Cascade mountains.

Late in the Mesozoic epoch, the entire western portion of North America was subjected to enormous invasion of liquid rock from below. The rocks, deposited in the seas which occupied a large part of the state during the Palaeozoic and early Mesozoic epochs, formed a part of the earth's crust during late Mesozoic time. Into these rocks great quantities of liquid granite were intruded. The heat and pressure accompanying the intrusions caused the baking and metamorphism of all the older sandstones, shales, limestones and conglomerates and their conversion into quartzites, slates, marbles and schists. These rocks were so highly elevated above sea level as to form mountains much higher than any of those now existing. Practically the entire state became a land area.

The larger part of the gold, silver, copper, lead and zinc, as well as many of the metalliferous ores now occurring within the state, appear to have been formed as a result of these granitic intrusions. Originally they were disseminated through and were a part of, the liquid granite. As the granite began to cool and consolidate beneath the crust, the metals were drawn off from the main mass of liquid rock and concentrated into the fractures, along with solutions of silica. These fractures occurred, not only in the already consolidated granite, but also in the overlying metamorphic rocks, such as slate and limestone. As these solutions of silica containing the ores oozed up into the fractures, they were subjected to lower temperatures and pressures, and ultimately became frozen or consolidated.

Soon after uplift above sea-level, the mountainous areas of Washington were subjected to vigorous erosion, and after a time the streams draining them carved canyons down through the slates, quartzites and limestones and reached the underlying granite. In some places erosion has been so great, and has been active for so long, that the entire crust of the earth into which the granites were intruded has been completely removed over large areas. Many veins of ore-bearing minerals, which at one time may have been exceedingly rich and extended far up into the earth's crust, have been completely removed by erosion. Others can only be identified by remaining roots. Still other veins, protected from erosion, are in nearly the same condition as at the time of formation.

Most of the areas or districts containing mineral veins are in the vicinity of igneous intrusive rocks. The nature of the country rock has a direct influence upon the character and extent of the veins. Hard, massive rocks, such as quartzites, have not, as a rule, permitted the development of fractures in which veins could form. Limestones have yielded more easily to fracturing. Ore-bearing solutions, ascending through the

fractures, have dissolved much of the lime with considerable ease. As a result, veins occurring in limestones are more irregular than in other rocks. The ores are commonly found in disseminations or in chimneys along the intersections of fracture zones. In the schists and slates, the ores and veins are often found parallel to the bedding planes.

The areas in which the Palaeozoic rocks and the Mesozoic granites occur are chiefly confined to the northern and central Cascade mountains and the Okanogan highlands. It is with these areas that the metalliferous ore deposits are associated. Granites are absent from the Olympic mountains, although slates, schists and quartzites are abundant. With the exception of deposits of manganese and copper, metalliferous ore deposits are unknown in the Olympics.

During the Tertiary epoch, the mountains were reduced to comparatively low lands by erosion. A large part of eastern Washington, as well as the central Cascades, were covered with great quantities of basaltic lavas. Portions of these areas were being deformed and, as a result, large drainage basins were developed which became fresh water lakes. During this time a large part of Washington west of the present site of the Cascade mountains was depressed below sea-level. It became an arm of the ocean into which the waters from the lakes in eastern Washington were being drained. Tropical conditions prevailed. A dense jungle grew around these bodies of water. As the floors continued to sink, the enormous accumulation of decaying plant life was buried beneath the sands and muds, and ultimately converted into coal. The seams in King, Pierce, Lewis, Cowlitz and Kittitas counties were formed under these conditions.

At the close of the Tertiary epoch, and at the beginning of the Quaternary epoch, a large part of the state underwent elevation. The present Cascade range came into existence. The Olympic mountains were elevated higher than during the Tertiary period. Shortly after, volcanic activity became very pronounced along the Cascade mountains. Mounts Rainier, Adams, St. Helens, Glacier Peak and Baker came into existence. Following these events, the northern part of the state was glaciated. More snow accumulated in the valleys of the mountains than could melt, and began to move down the valleys as ice streams, until finally they spread out into the Puget Sound basin and on the basaltic plains of eastern Washington. The ice in Puget Sound reached a thickness of over 1000 feet. The Cascade mountains, as well as the greater part of the Okanogan highlands, were largely covered with ice. Upon these ice fields were enormous quantities of gravel and sand. Finally, as the ice melted and retreated to the north, this sand and gravel was dropped, and now constitutes a thick veneer of drift over the glaciated areas. The Puget Sound basin is deeply filled with this material.

A knowledge of the different kinds of rock, their distribution and mode of formation, is an aid in the intelligent search for minerals and rocks of economic importance. The great basaltic flows of eastern Washington are the result of flooding with lava to a thickness of many hundreds of feet. Deposits of metalliferous ores are absent from these formations. The sandstones and shales of Tertiary age occurring in the central Cascade mountains and in portions of the Puget Sound and Cowlitz basins, are destitute of metalliferous minerals, but because of conditions of origin are the only rocks within the state which can contain commercial deposits of coal. The metamorphic rocks in the northern Cascade mountains and in the Okanogan highlands, together with the associated groups of granites and other intrusive igneous rocks, afforded conditions for formation of metalliferous veins of economic importance. The character of the underlying rock is also largely responsible for the great variation in the composition of the soils which have been derived from these rocks.

Mineral Resources of Washington

By SOLON SHEDD,

(Head Department of Geology, State College of Washington.)

THE mineral deposits of Washington constitute one of its very important resources. Metallic and non-metallic minerals are well represented and mining of both is a very extensive industry, employing a large number of men and much capital. Among the non-metallic materials, the most important are coal, cement materials, building stone, clay and magnesite, while gold, silver, copper and lead are the principal metals. In addition, however, a large number of others are found in lesser amounts, such as tungsten, molybdenum, antimony, arsenic, zinc and iron.

Metal Mining.

Most of the metalliferous ores mined in Washington demand reduction by a chemical process, which means that the majority of mines are dependent very largely upon transportation companies and custom smelters. Many produce a medium or low-grade ore and hence, to be worked at profit, must be advantageously situated as regards transportation and able to secure comparatively low treatment rates. Unfortunately, some of the counties in which the largest amount of mineral is produced have only a small railway mileage. In spite, however, of the difficulties encountered, metal mining has gradually developed until it is now a very important industry.

Gold.

Gold comes principally from the siliceous ores of Ferry and Stevens counties. Some has been produced at different times, however, in Chelan, King, Kittitas, Okanogan, Snohomish and Whatcom' counties. The largest part of the state's production comes from the Republic district, in Ferry county, where the ore occurs in irregular quartz veins varying in width, the maximum being 50 feet. In many places the gangue material presents a very marked, banded appearance, the different layers being parallel to the walls of the fissure in which the minerals have been deposited. These layers consist of fine-grained quartz, alternating with calcite. In places are narrow, black bands of finely distributed minerals. Large vugs, coated with rich crusts, are not uncommon, in places being filled with coarse calcite. The narrow, black streaks constitute the richest parts of the veins and, in fact, practically all the metallic minerals are there found. They consist mainly of a dark-gray to black tetrahedrite, with minor amounts of chalcopyrite and native gold. Small amounts of gold are produced also in Stevens, Okanogan, Chelan and Whatcom counties.

Silver.

The amount of silver is not large and comes mostly from Stevens, Ferry and Okanogan counties. In Stevens, it is mainly produced with the copper ores of the Chewelah district, while in Ferry county it is derived largely from the siliceous ores of the Republic district. In a number of other places in these counties small amounts of silver have been produced, but usually transportation facilities are very poor and development has been slow.

Copper.

The amount of copper is gradually increasing, most of it coming from Stevens, Ferry, Snohomish and Okanogan counties, with small amounts

from Chelan and Pierce counties. In 1916, Washington produced 2,473,481 pounds of copper, more than double the amount produced in 1915. The most important district is at Chewelah, in Stevens county, the ore yield for 1916 being about 10,000 tons. Other districts from which some copper has been produced are Loon Lake, Northport, Palmer Mountain, Myers Creek, Methow, Blewett, Danville, Conconully, Marcus and Republic. In western Washington the principal districts are Index and Sultan.

Lead.

Lead production has increased very materially in the last two or three years through development of Electric Point mine, in Stevens county, where a number of chimneys of rich lead ore, very low in silver, and in limestone, have been opened. The Bonanza mine at Bossburg, in Stevens county, has been a considerable producer of lead ore. Small amounts are also produced in Okanogan county. One of the very important developments in the lead industry in the last two years, is the resumption of smelting operations at Northport. The smelter, originally built for copper ores, now treats lead ores, three furnaces having been installed.

Zinc.

During the last two or three years a small amount of zinc has been produced in Washington, the production (calculated as spelter) for 1916 being 1,693,734 pounds, an increase of about 600% over 1915. Practically all of it came from the Metaline district in the northern part of Pend d'Oreille county and the Northport district, Stevens county.

Other Metals.

Many minerals, classed as "metallic," besides those mentioned above, are found, including tungsten, nickel, molybdenum, tin, arsenic, antimony, cobalt, manganese, iron, etc. At present, however, the production is in negligible quantity.

Non-Metallic Minerals.

The value of non-metallic minerals is far greater than that of metallic, while the former are also much more widely distributed.

Coal.

Coal mining constitutes the most important phase of the state's mining industry. The deposits are found in King, Pierce, Kittitas, Whatcom, Thurston, Lewis and Cowlitz counties. Coal differs very greatly in appearance and composition. In Whatcom county, anthracite is said to occur, while in places in the southern counties, lignites are found. In King, Pierce and Kittitas counties, various grades of bituminous coals are mined. Very good coking coal occurs in the Wilkeson-Carbonado field, in Pierce county, and in Whatcom and Skagit counties. The largest amount of coal produced in Washington for any one year was in 1910. From the close of 1910 to the close of 1915 there was a marked decrease, the figures for the latter year being 1,482,804 short tons less than in 1910. There was a slight increase for 1916, but whether it has continued through 1917 is not yet known. The larger part of the production comes from King, Pierce, Kittitas and Lewis counties.

Cement Materials.

The manufacture of Portland cement has become a very important industry, the first having been made by the Washington Portland Cement Co., at Concrete, on the Skagit river, in Skagit county, in May, 1907. Since then four other plants have been placed in operation, and a fifth is almost completed. Three plants are west of the Cascade mountains, and three on

the eastern side. Cement materials occur mainly in the northern part of the state—Pend d'Oreille, Stevens, Skagit, Whatcom and San Juan showing the largest deposits. These counties also contain large areas of limestone and in many places large bodies of shale and clay.

Clay Industry.

Clay is widely distributed, there being but few localities where it does not occur. As is natural, the industry is developed as close to market as possible, and the largest plants are near the leading cities of Seattle, Tacoma and Spokane. The clays of Washington are suitable to manufacture of most grades of products, such as paving brick, sewer-pipe, terra cotta, pottery, fire brick and building brick of various kinds. The material from which the best paving brick is made occurs in western Washington, in connection with the coal measures. Fire clay is also found in the same formation. Clays from which common building brick may be made are found in almost all parts of the state. Stevens county has clays especially well suited to the manufacture of architectural terra cotta and a very large part of the state's supply comes from Clayton.

Building Stone.

Washington has some very good stones for building purposes, mainly granites and sandstone. Granites occur on both the eastern and western sides of the Cascade mountains, and are found very abundantly over large areas in Pend d'Oreille, Stevens, Ferry, Okanogan, Chelan, Whatcom, Skagit and King counties, and less abundantly in Spokane and Whitman counties. The rock is of very good quality and quarries have been worked in a number of places at various times.

Sandstone quarries are operated mainly in Thurston, Pierce and Whatcom counties. It is quite common, however, both west and east of the Cascade mountains. Location of the quarries has been determined largely by cheap transportation and there are undoubtedly many other places where the industry could be profitably developed. The sandstones all belong to a very late geological period, and while offering fine building material, are not quite as good as some of the older sandstones.

Lime.

The lime quarried in Washington is used mostly in the manufacture of lime and Portland cement. Small amounts are also used by the smelters as flux and some is used in ground form as fertilizer. The deposits practically all occur in the northern part of Washington and are confined almost entirely to Pend d'Oreille, Stevens, Ferry, Okanogan, Chelan, Whatcom, Skagit, Snohomish and San Juan counties. In composition, the deposits vary from practically pure calcium carbonates, to practically pure magnesium carbonates, with all gradations between, as far as calcium and magnesium are concerned. In color they range from pure white to almost black, with pink and red in some places. In texture they range from very fine-grained to very coarsely crystalline. In places the deposits are being used quite extensively in the production of the ordinary lime of commerce (CaO) and in one place, at least, hydrated lime is being produced.

Magnesite.

West of Valley, in Stevens county, in connection with the limestones, are some large bodies of magnesium carbonate ($MgCO_3$) or magnesite. These deposits were described first by the writer and analyses given in the report on the Building and Ornamental Stone of Washington, issued as Part 1, of the Annual Report, Washington Geological Survey, 1902. At

that time the deposits had been located as marble and some development work was being done. As a result, the deposits were described as marble, even though some of the analyses showed them to be almost pure magnesite. At that time the deposits were of no value as magnesite, on account of location. When the war started, however, and importations ceased, the magnesite of Stevens county at once became valuable, owing to the fact that this is the only place in the United States, so far as known, where it occurs in quantities sufficient to supply the demands of the country.

In the summer and fall of 1916 active development work began and the industry has become very important. Quarries have been opened, a railroad and an aerial tram built to transport the material, and three calcining plants installed, so that a large amount of calcined material, in addition to the very large tonnage of raw material, is shipped.

Other Non-Metallics.

Epsomite, fluorite, silica, mica, asbestos, serpentine, infusorial earth, etc., also occur in the state. Some are being developed, but in most cases value of the output is small. In many directions, however, are opportunities for establishment of profitable industries.

Geology of Chewelah District.

State's Most Important Copper-Producing Area Offers Interesting Features.

(By L. K. Armstrong, Mining Engineer, Spokane, Washington.)

THE GEOLOGY of the Chewelah district bears an intimate relation to that of adjacent areas and has been well interpreted by Howland Bancroft, and in connection with a larger unit, by other geologists.

Sediments presumed to be of paleozoic age, intruded and metamorphosed to the east and west by rocks of igneous origin, which have partially or wholly altered or replaced the older series, to be followed by dikes having their origin in the igneous magma, and which have a close relation to the mineral deposits, constitute the larger geologic features.

In close connection with the intrusives, either within the areas of these rocks or along their boundaries, are found lead, antimony and molybdenum minerals and, because of this relation, the deposits are more likely to be faulted and much disturbed.

The important copper deposits of the camp, on the other hand, are, as a rule, found in the sediments, are related to the dikes and are of a more persistent character. It must not be understood that there are not exceptions to this general rule, for there are; but it will be found that the above rule controls much of the ore deposition.

In the easterly section, the intrusives are granitic in character, while to the west diorite predominates. In both cases metamorphic processes have altered these rocks to such an extent that in some cases the original cannot be identified, except through connecting transitions.

In certain cases it is entirely probable that veins which occur at or near the borders of intrusives appearing very much broken, faulted and crushed, may only be overlaid by shallow tongues or sheets below which the disturbed conditions may disappear.

The principal type of vein occurs in the schists of the sedimentary series, a replacement, with vein filling of quartz, enriched by iron and

copper minerals; the latter being accompanied by silver. Pyrite, isolated occurrences of pyrrhotite, siderite and limonite are the principal iron minerals. Chalcopyrite, chalcocite, tetrahedrite (freibergite var), melacnite, cuprite, malachite, azurite and native copper have been found; chalcopyrite and tetrahedrite being the more common forms in the unoxidized portions of the veins.

A locus of some very interesting geology is the Highgrade mine, formerly Enterprise, and more remotely the Delmonico. There the intrusives have intersected the sedimentaries from the east, producing a very much disturbed zone. One strong vein of the type above mentioned appears to have a strike almost at right angles to that of other veins of the same type, that is, almost E.-W., whereas the strike of the principal veins is N. 20° to 30° E. Another vein on the Highgrade, having a strike more nearly the same as that of the other veins, has produced both lead and copper ores, both of which contain high silver values as well. The property is not yet proven. The E.-W. vein has the usual gossan of its type, carrying 5% to 15% iron, the remainder being principally silica. It has been developed to a depth of about 50 feet with little if any change, but showing small quantities of manganese oxide in addition to the iron.

Except on the United Copper and Copper King, the vein system has not been explored to any extent, although Security Copper is down 500 feet on one of the six veins on that property, all but one of which are of the type above indicated; varying from 60 to 160 feet wide at surface.

United Copper has proven its vein to a depth exceeding 1000 feet on the No. 2 adit level and some distance below. The remarkable persistence of the ore body on that property should encourage others to greater effort. Copper King has developed a vein some 60 feet wide to the 500 ft. level by an adit crosscut. This development is now to be extended energetically through change of ownership and some favorable changes may be looked for within the next few months. Determination of the faulting between these two properties will solve the relation of the vein systems thereon.

Other properties of more than ordinary merit are retarded in their development by reason of the financial conditions; still others are being held for buyers who do not come. Properties on the west side are idle, almost without exception. One, the Checop, has received considerable intelligent exploratory work with a view to developing a vein which cuts the diorite country in a N.-S. direction. A crosscut tunnel, if extended some 50 to 60 feet, will cut the vein at an approximate depth of 50 feet, from which it will be possible to determine some important problems relating to the persistence of the vein and its mineral contents.

This disconnected, sketchy description of the geology of the Chewelah district is written to encourage more systematic study of actual conditions and the development of the mines of the camp.

Below are some of the publications which touch upon the camp or in a general way refer to its geology. In addition, are others not cited and a publication soon to be issued by the Washington State Geological Survey as a result of the work of Dr. Chas. E. Weaver, who spent a part of two seasons studying the geology of Chewelah. His map to accompany the report will be equally interesting, as it ties in all adjacent areas, consolidating the whole into a single unit. This important work will appear early this year. Authorities referred to are found below:

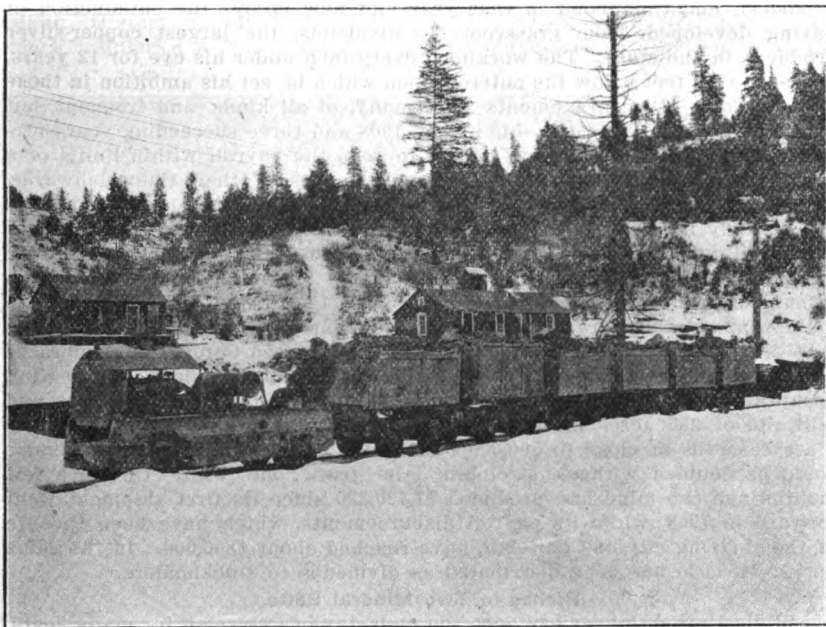
U. S. Geological Survey:
 Bulletin 315. Collier.
 Bulletin 507. Hill-Lindgren.
 Bulletin 550. Bancroft-Lindgren.
 Professional Paper 71. Willis.

Canadian Geological Survey:
 Summary Report, 1915. Daly.
 Bulletin 1072. LeRoy.

Chewelah Mining District

Mineral Belt, Extending South to Loon Lake, Gives Great Promise.—United Copper Pioneer Dividend-Payer.—Loon Lake Copper, at Southern Extremity, in Second Place.—Many Other Properties Insure Continued Activity and Prosperity.

CHEWELAH, while one of the pioneer mining camps of the state, has only recently begun to come into its own as a prominent producer of copper and silver. Notwithstanding its close proximity to Spokane, with its southern producing border within 45 miles of the center of the city, and its excellent transportation facilities, very little development of importance was done prior to 1900. As a matter of fact, strikes in other parts of the Northwest were numerous for ten years preceding that year and, upon the age-old



Ore Train, Drawn by Gasoline Locomotive, Coming From United Copper Mine.

theory that better pasture always lies just over beyond, prospectors and miners neglected the fields nearer home for those a little farther away.

First Shipment From Eagle.

Thirty years ago, the old Eagle had been discovered, but it was not until 1900 that it took place as Chewelah's first shipper, producing in the neighborhood of \$150,000 worth of silver-lead ore, some of which was freighted to Spokane by wagon prior to completion of the Spokane & Northern railroad by the Northwest's greatest empire builder, D. C. Corbin, in the early '90s. About the same time many locations were made and leading spirits in Spokane's evolution as a mining center operated in the district. In 1904 Copper King commenced shipping to Granby and Northport smelters with a record of 6,000 tons of copper-silver ore from the upper levels. Prospecting received another fillip, until now, as may be seen on the accompa-

nying map, over 100 prospects are in various stages of development—some of them with great promise of future potentiality.

In 1905, mining and business men of Chewelah embarked upon a campaign of publicity and at the Lewis & Clark Exposition held at Portland, Ore., exhibited a collection of ores that attracted instant attention. The following year marked the beginning of things which have since grown to the point where Chewelah is the leading copper producing camp of the State of Washington and exceeded by none in any other northwestern state, excepting only the great camp of Butte, leader of all the world, in Montana.

Conrad Wolfe, Pioneer Operator.

There is always one man in every camp to whom must be given credit for later prosperity, and in the case of Chewelah that man is Conrad Wolfe, of Spokane, who had mined in practically every district of the Northwest and whose chief assets were a stout heart and a determination to conquer or go under. How he conquered is written in the history of development of United Copper Co., his creation, his pet and his sole ambition since 1906. With dogged persistence he has stayed with the ground upon which he took a modest, long-time bond in that year and now enjoys the satisfaction of having developed, from grassroots to dividends, the largest copper-silver producer in the state. The workings, every inch under his eye for 12 years, are now 1250 feet below the outcrop upon which he set his ambition in those dubious days. Discouragements were many, of all kinds, and frequent, but Mr. Wolfe stayed with the ship and in 1908 and three succeeding years produced 120 carloads of ore that helped to keep the payroll within limits of a slender purse and at the same time turned the eyes of others Chewelahwards. In 1912 regular shipments were commenced and since that time production has steadily increased as metallurgical problems were overcome and depth gained. Equipment now includes a 400-ton concentrating plant and a 100-ton tallings plant, using the flotation process. The mine is worked through a main crosscut tunnel 4000 feet long, 1000 feet below the surface, with main winze already down 250 feet, and is equipped with gasoline locomotives that give economical service. The property of United Copper now embraces 16 claims and fractions, all patented, and the recently acquired Copper King group adjoining and on the same vein. Timber holdings of 530 acres and mill site of 255 acres more are included in the estate. Recent estimates place reserves at close to 500,000 tons and it is very likely that the figure could be doubled without stretching the truth one whit. Up till a few months ago the mine had produced \$1,420,825 since its first shipment went forward in 1908, while its payroll disbursements, which have been the life of the thriving city of Chewelah, have reached about \$800,000. In the same period \$150,000 has been distributed as dividends to stockholders.

Riches in Two Mineral Belts.

While United Copper has been the mainstay of Chewelah for many years, it is by no means the sole source of the prosperity of the leading city of the Colville valley. Development is being prosecuted on the White Cat, Security Copper (which has reached a depth of 500 feet), the Juno-Echo, Chewelah-Standard, Copper Cliff, Hecla, Washington and many other prospects in various stages.

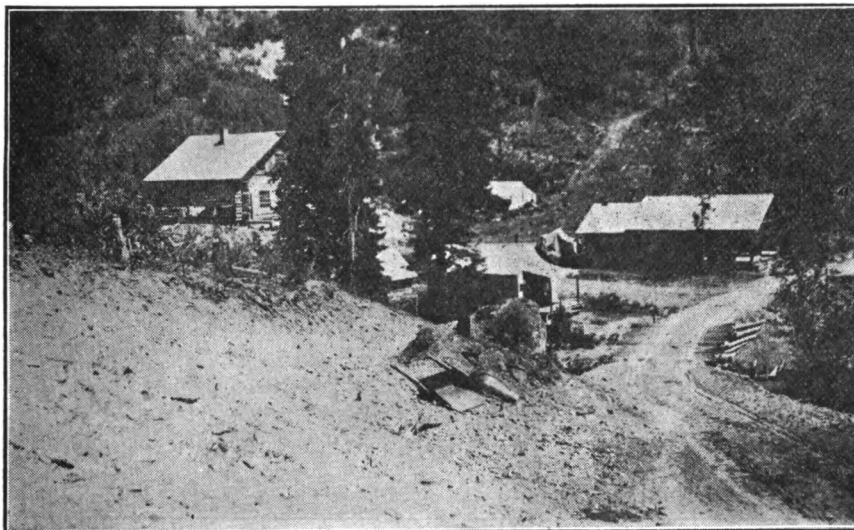
The district, which is among the most accessible and climatically favored in the West, is roughly divided into two belts—the east and the west. The east zone has so far developed the greatest producers, among them the United Copper, while many miles farther south, Loon Lake Copper, at Loon Lake, just 45 miles north of Spokane, has produced steadily in recent years and seems likely to duplicate the success of its more northerly rival.

The west belt also contains some excellent showings, among them those of Krug Copper, to the north, and Liberty Copper, Checop, Buckhorn and Superior Copper, to the south. More than that, the west belt has developed Chewelah's new war baby—magnesite. These deposits are now said to be

the greatest of their kind in the world and within less than two years nearly \$1,000,000 has been spent in development and equipment by three or four leading companies. In 1917, 100,000 tons of magnesite, 65,000 tons of which was crude and 35,000 tons calcined product, has been shipped, making of Chewelah and its southern neighbor, Valley, two of the most important shipping points on the western division of the Great Northern system, of which the Spokane & Northern is now a part.

Loon Lake Copper Co.

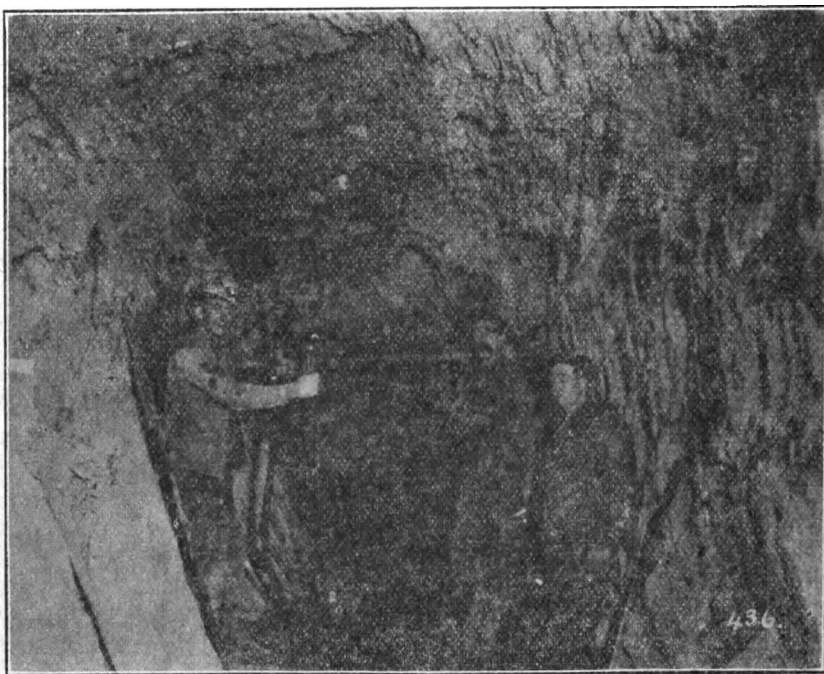
Loon Lake Copper Co. enjoys the distinction of operating the nearest producing mine to the city of Spokane—just 45 miles to the north, over an excellent automobile road, of which 28 miles has been paved. Within an hour and a half the visitor who wishes to see a mine in operation may gratify his wish. The history of the property is closely interwoven with that of the city by the falls. When it was discovered, over 30 years ago, Spokane was but a frontier town, just beginning to rub its eyes and realize that the great discoveries in the Coeur d'Alenes had made it famous overnight. History has it that Loon Lake properties were first located by "Jack" Squier, a well-known saloon-keeper of those early days, but it seems



Loon Lake Copper Co.'s Camp and Dumps.

certain that he relinquished his locations and allowed others to step in. Five years later the brightly-stained surface showings were found by A. W. Kemp, now superintendent of the mine, and his partner, George Komar, who were on their way south from the Colville diggings, where the Old Dominion had recently caused a big noise in the mining world. A little later, these two, in association with L. K. Armstrong, the veteran mining engineer, who knows the Northwest like a book, organized the Kemp-Komar Copper Co. In those days mining capital was not easily obtained and the new corporation had a hard time. Nearly 25 years ago, the late Patrick Clark, the best prospector among all the mining magnates of Spokane's history, took an option on control of capital stock and commenced development work with his usual energy. Before he had run No. 1 tunnel more than 100 feet, he discovered that deed to the land was held by the Northern Pacific rail-

road under its land grant bonus. After many attempts to secure clear title he gave it up as a bad job and the property then lay idle until 1896. In that year George T. Crane and Frank C. Loring, the well-known mining engineer, now of Toronto, were induced to visit the ground on their way from Rossland, where they were then developing the Josie and other properties. They were impressed and made a proposition that was accepted. Under their direction and with capital supplied by them, what is known as the Crane shaft was sunk to the 200-foot level and a drift carried 250 feet easterly on the vein. Crosscuts were also run at the 100 and 200-foot levels. That program exhausted the funds in sight and work was again discontinued. During the period of development, however, four or five carloads of highgrade surface ore were shipped, when copper was selling at 12 cents a pound and hauling and treatment charges ran to \$15 a ton. By just 20 inches, Loring and Crane missed the finest body of chalcocite ever opened



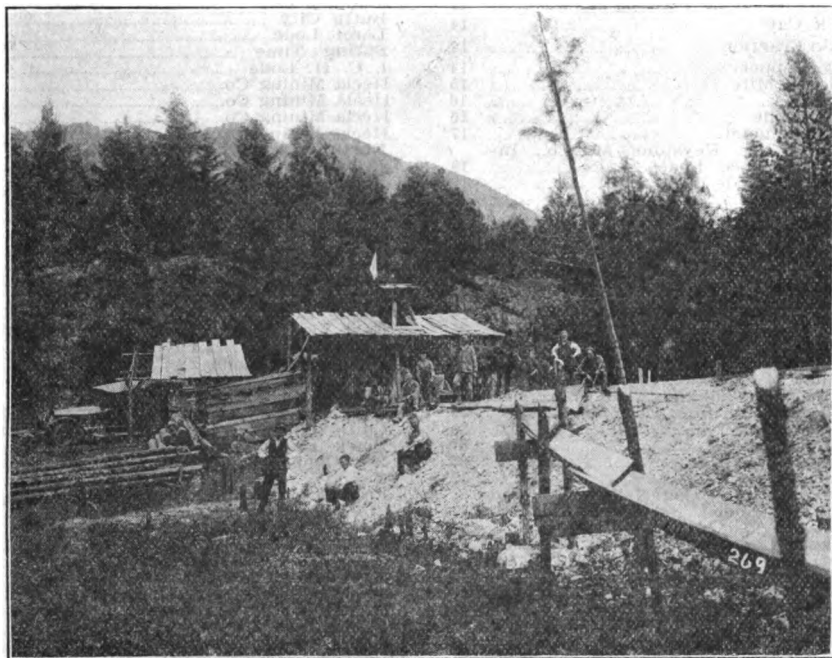
Ore Body at 1250-Foot Level, United Copper Mine.

in the mine. Had they gone that much further towards the hanging wall in the east drift from the Crane shaft it is quite likely that Kemp-Komar would have been in the list of big producers. But fortune was against them and for sixteen years the property was almost forgotten, except by those old-timers who remembered the wonderful samples exhibited in earlier days. In 1915 George T. Crane, who had held on to his interest through intervening years, set about to reorganize the mine's fortunes, with the result that Loon Lake Copper Co., with capital of \$375,000, in 1,500,000 shares of par value of 25 cents, was organized, with Ex-Senator George Turner as president and other well-known Spokane men occupying other official positions. Since that time shipments to the aggregate of \$125,000 have been made and dividends of \$43,352 distributed. The company has just placed a bond of \$40,000 and with that sum will build a 100-ton flotation plant that will permit of profitable reduction of the large reserves of milling ore left in the

mine. Development has been carried to the 500-foot mark in the Crane shaft; the property has been equipped with all necessary mining machinery; a first-class, modern camp has been built and the mine, after over 30 years of vicissitudes, appears to be in condition to render a splendid account of itself.

Spokane Copper Mining Co.

Attracted by the success which has attended resuscitation of Loon Lake venture, several other Spokane corporations are engaged in development in the immediate vicinity, among them Spokane Copper Mining Co., organized in August, 1917, with capital of \$100,000 in ten-cent shares, to develop property within 3500 feet of the main shaft of Loon Lake Copper and undoubt-



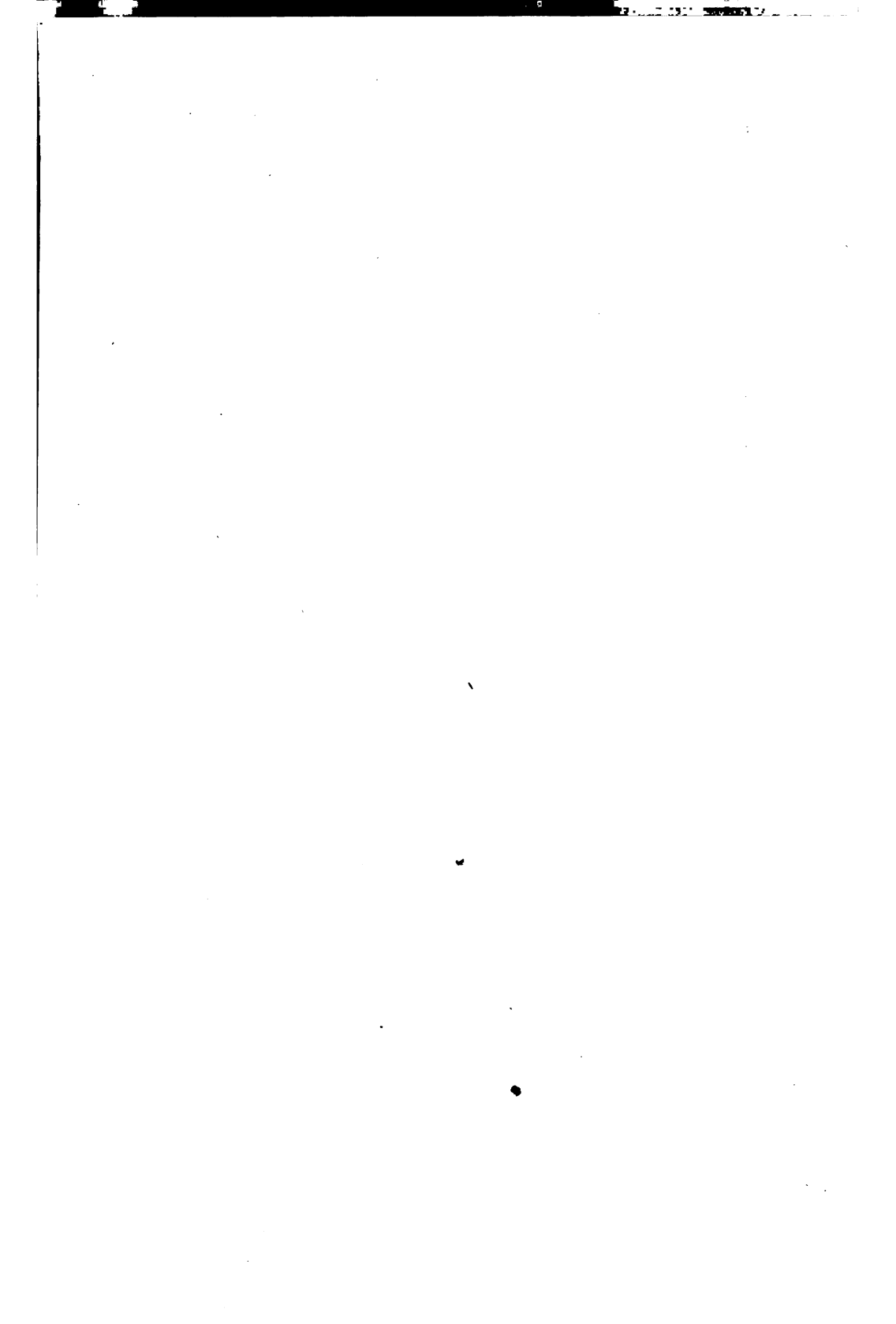
Surface Equipment Silver-Antimony Mining Co.

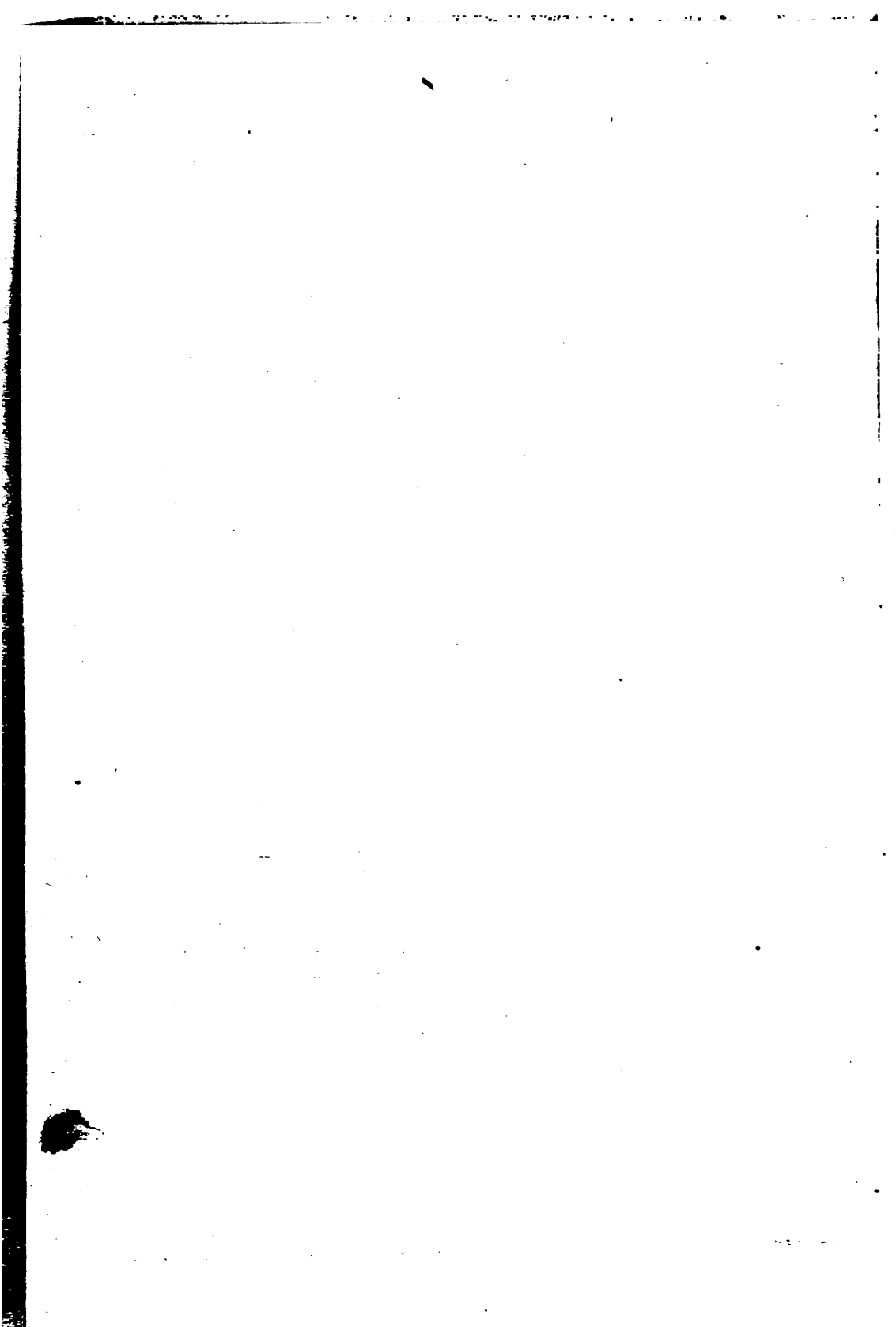
edly upon the same vein. A main working shaft is being sunk in the country rock, outside the hanging wall of the vein and has now reached a depth of about 100 feet. At the 150-foot mark a crosscut will be run to the vein, surface indications leading to the belief that ore of a similar character to that of Loon Lake will be found. Property is equipped with gasoline hoist and all necessary camp buildings.

Silver Antimony Mining Co.

In between the extreme north and south limits of the east belt of the Chewelah district and immediately adjacent to town, are many other prospects that give future promise. The Silver Antimony Mining Co., another Spokane corporation, organized in 1916, is developing a three-foot vein that yields very high values in antimonial silver. The ground was located in 1900, but it was not until 1906 that a second copper-silver-gold vein, which report says had been discovered in the early '90s and then covered up by an itinerant prospector who has not since been heard of, was re-discovered by

Copper Queen M. Co., Mill Site Lode	1	Little Lode	64
Copper Crown	2	Maple Lode	64
North View	3	D. F. Strobeck & O. R. Nestos Joe Dandy, Jim Dandy and Express Fraction Lodes	65
Copper Chief	4	Aunt Kate	65
Hill Side	5	Uncle Dudley	65
Copper Queen	6	I. X. L. Lode	65
Baby's Lode	7	Lucky Boy	65
Chevelah Copper King Co., Banner Lode	8	Royal Copper	65
Copper King	9	Lucky Boy No. 2	65
Shamrock Fraction	9	Royal Copper No. 2	65
Oppenheimer Bros. Amazon	10	Mineral Hill	65
Wild Goose	11	Mineral Hill No. 2	65
Amazon Extension	12	Autumn Lode	65
United Copper Mining Co., Hidden Treasure	13	Minneapolis	65
Black Cat	14	Butte City	65
U. S. Fraction	14	Leroi Lode	65
Gray Copper	14	Spring Time	65
Widow's Mite	15	I. C. H. Lode	65
Hester	16	Hecla Mining Co.	65
New Home	16	Hecla Mining Co.	65
Half Diamond	17	Hecla Mining Co.	65
Independence Keystone M. Co., In- dependence Lode	18	Hecla Mining Co.	65
Keystone Lode	19	North Express	65
Coin Lode	19	Jay Gould	65
Mint Lode	20	North Pole	65
O. K. Fraction	20	Big 4	65
Blue Star Mining Co., Outcast Lode	21	Expert Lode	65
Lookout Lode	22	Grace Lode	65
Eagle Fraction	22	N. P. Lode	65
Odin Lode	23	West Lode	65
C. O. D. Lode	24	Mollie Hertzel	65
Nabob Lode	25	Mammoth Lode	65
Eagle Lode	26	Payne Lode	65
Blue Star	27	East View	65
Belcher Mining Co., Zenith Lode and Second Thought	28	Jones Lode	65
Enos Lode	29	Nickle Fate Lode	65
Dickson Lode	30	Evening Star	65
New Exchange	31	Copper Cliff Mining Co., Mont- gomery	89
Jeanette	31	Edith	65
Honest Top	32	Black Hawk	65
Imperial Mining Co., Nellie Lode and J. W. Lode	33	Big Copper	65
W. W. Dickson Jappo Lode	34	Nabob	65
Lookout Lode	35	Fred O. Lode	65
B. M. Fraction	36	Stella Lode	65
Mack B.	37	White Cap Lode	65
Iron Hoard	38	White Bear	65
Iron Hoard	38	Cube Lode	65
Two Partners	39	B. Voyt Marble	65
Three Sisters	39	John Shonburg	65
T. F. Hertzels Yellow Kid and East Side Lodes	40	Kootenia Bell	65
Black Jack Lode	41	Washington Hope	65
No. 10 Lode	41	Copper Horn	65
J. C. Sears' Daisy and Gray Eagle	42	Copper Crown	65
No. Lode	43	Blue Bell	65
Nos. 2 and 3 Lodes	44	May Flower	65
Oppenheimer and Keilling Snow Storm	45	Gold Copper Wonder	65
Snow Storm Extension	46	Six Shooter	65
Chevelah M. Co., Muldoon and I. O. U. Lodes	47	Iron Cap	65
Spedden Bros.' Iron Crown and I. X. L. Lodes	48	Red Cloud	65
Nellie S. Mining Co., Double Standard and Single Standard	49	Burnt View	65
Jungle Lode	50	Roy Lode	65
A. V. Shepler's Copper Jack	51	Stolph	65
Matterhorn Lode	52	Loon Lake Copper	65
Lolo Morten Fraction	53	Blue Bird	65
A. E. Van Slyke's None Such Lode and None Such Fraction	54	Spokane Copper	65
Leland	55	B. & B.	65
Fraction	56	Northwest Magnesite Co.	65
Vanslyke and Bunker's Echo and Nitt Lodes	57	Northwest Magnesite Co.	65
Juno Lode	58	Northwest Magnesite Co.	65
D. Vanslyke's Tacoma Lode	59	M. Kulzer Magnesite	65
		American Mineral Production Co.	65
		American Mineral Production Co.	65
		Double Eagle	65
		M. Kulzer's Iron Properties, Capitol and Vigilant Lodes	65
		W. B. Stuart's Iron Claim	65
		Liberty Copper	65
		Krug Gold Mining Co.	65
		Checop Copper	65
		Superior Copper	65





John Schoenberg, of Chewelah. He sunk a shaft 30 feet and in 1914 started another with the intention of crosscutting easterly to tap the vein and at the same time make room for shaft house and other necessary buildings, the first shaft, shown in the accompanying photograph, having been started at the base of the hill. The new shaft was sunk to a depth of 40 feet, but funds were then exhausted and it was not until 1916 that the present company was formed, acquiring the original discovery claim from Schoenberg and taking in two others adjoining, thus giving the company 4500 feet on the strike of the vein. Late in the same year work was resumed in the shaft and it has now been sunk to a depth of nearly 200 feet, with two crosscuts to the vein. In the west workings at that level a body of ore has been followed for 30 feet, assays showing \$28 in copper; \$0.95 silver; \$8.26 gold, and some zinc. The property is equipped with complete camp buildings and is favorably situate as to transportation, being but 1¼ miles west of Chewelah.

Many Other Prospects of Merit.

There are many other properties of great prospective merit in the district. Loon Lake-Bluebird is developing ground adjoining Loon Lake Copper and has already uncovered rich ore in the same vein to the east; Denver Copper, Vulcan Copper, Valley Mining Co., and Double Eagle Mining Co. are all prospecting likely-looking ground west of Valley. The prospects for the Chewelah district, in Stevens county, Spokane's neighbor to the north, are exceedingly bright, seeming to promise long life to profitable mining operations, with resultant benefit to Chewelah directly, and, therefore, indirectly, to the city of Spokane.

Cedar Canyon District

Old Dividend-Payer of Quarter Century Ago Is Being Revived and Will Be Equipped With Modern Mill.—Turk Mine on the Shipping List.—Alchan Bee Also Developing.

QUARTER of a century ago, the Deer Trail No. 2 mine, in Cedar Canyon district, in the Huckleberry range, west of Springdale, Stevens county, was the only mine in this immediate vicinity paying regular dividends. In fact, it was the only metal mine in the whole state enjoying that distinction. Monthly disbursements of half cent a share were distributed regularly for many years, and, while no record has been kept, it is quite probable that at least \$250,000 found its way into pockets of Spokane people from that source.

Then the ore became slightly rebellious and the easily-mined ore bodies became more or less exhausted. The cream having been skimmed, the corporation ceased operations and has since passed into memory. Sale of a portion of the ground was made later to a Canadian investor, and the balance reverted to the county for taxes. For many years it lay forgotten, until the war demand for metals and consequent high prices turned attention that way again. Three years ago Alex. Robinson, of Victoria, revived the proposition and began erection of a milling plant to treat the large accumulation of second-grade ore on the dumps and in the old stopes. Heavy machinery was dragged over the mountain roads at big expense and the new plant began to assume shape. Financial arrangements were not, however, commensurate with the promoter's plans and two years ago he folded his tent of endeavor and stillness once more reigned.

In 1917, W. S. Norman and Chas. J. Heidenreich, of Spokane, saw the opportunity afforded by the large, ready-mined reserves, and after many

months succeeded in again untangling the old producer's affairs. A few months ago they disposed of their interest to Clark Bros., also of Spokane, who have interested capital from the Palouse and Big Bend countries. The mill is to be completed this summer, after exhaustive tests have proven just what process should be used, all the heavy machinery formerly conveyed to the ground being available and thoroughly adaptable to economical reduction. It is said that several years' ore supply is available on the old dumps and, in the stopes, so that it will not be necessary to do much development until the necessary capital has been won from milling operations. Estimates run to as high as 200,000 tons, carrying around 12 or 13 ounces in silver to the ton. At the present price of the metal, good profit is assured under ordinary economical methods of reduction. In fact, within very few years, the entire value of the reserves has practically doubled.

Aichan Bee Silver Lead Mining Co.

In the same district, the Aichan Bee Silver Lead Mining Co., a Spokane company, capitalized for \$100,000, in ten-cent shares, and of which one half is treasury stock, is developing eight patented claims, with water rights on Goat creek, about five and a half miles east of the Columbia river, which serves as a means of economical transportation. The property was discovered in 1894 by Henry M. Austin, prospecting under grubstake supplied by H. M. Howard and associates, of Spokane. For 19 years Mr. Austin worked continuously and has done over 400 feet of underground work. The property is 1½ miles southwest from the old Deer Trail mine; the Germania tungsten property lies one mile easterly, while the Gold Seal property, now sending out some small shipments to Trail, B. C., lies in between the Aichan Bee and Deer Trail.

The main working tunnel, now being driven, is at an elevation of 2700 feet above sea-level, the highest point of the property being about 3650 feet. The tunnel takes a northeasterly course from the level of Goat creek, and in 300 feet has reached vertical depth of over 100 feet. The first 144 feet was through white crystalline limestone and then for 45 feet a hard blue lime was penetrated. A drift was run easterly on the contact for 38 feet and shows considerable mineralization, with zinc blende, galena, iron pyrites and some specks of chalcopyrite, over a width of 3½ feet. On the other side of the blue lime another vein was struck in white limestone, carrying values as high as 40% lead and 44 ounces silver, and being 12 feet wide. Eighty feet further on it is expected that a big quartz vein, traced for several hundred feet on the surface, where it shows a width of from 20 to 50 feet, will be intersected.

Cleveland M. & M. Co.

Another old project that has recently been revived is that of Cleveland Mining & Milling Co., a Spokane corporation, which has taken over the old Cleveland mine, operated over 25 years ago by Jay P. Graves, founder of Granby Consolidated M. & S. & P. Co. During 1917 a concentrator and flotation plant were installed and some shipments made. The ore is a complex lead-zinc-silver product, carrying antimony, iron and bismuth in sufficient quantity to make reduction a difficult matter. Lack of capital caused cessation of operations early in 1918, but the showing in the old mine and the accumulation on the dumps give reasonable assurance that under proper management and with necessary capital the proposition can be made successful. The property is at the head of Hunter creek and is approached from Springdale by an 18-mile road, leading over the Huckleberry range. Shipping point is at the terminus of the Phoenix Lumber Co.'s logging road, six miles from the mine.

Electric Point District

Discovery of Phenomenal Lead Deposits in Northeastern Corner of Stevens County Has Brought to Life District Overlooked for Many Years.

Electric Point Now Largest Lead Producer in State of Washington.

DISCOVERY of the great surface deposits of Electric Point mine, in the northeastern corner of the state of Washington and within 125 miles of the City of Spokane, was the most important event in the history of local mining development of the last decade. In a territory largely run over for decades, the property has developed within two years to a point where it is now the largest producer of lead in the state of Washington.

The ground was located in the summer of 1915 by two prospectors, J. E. Yoder and Chris Johnson, in grubstake partnership with R. A. Young, a lumber man formerly of Puget Sound, who has had direction of development since that time. Dividends were commenced in the following year, while considerably over \$350,000 was earned in 1917, when 16,000 tons of lead ore were shipped to Trail smelter. The ore bodies, which occur in irregular pipes or chimneys in limestone, have been developed to the 700-foot level and at that horizon are as impressive in size and value as at the surface.

The discovery galvanized an almost forgotten district and since 1915 the hills in the vicinity have been scoured in search of similar deposits. While nothing approaching the size of Electric Point ore bodies has yet been found, several extremely promising showings are being developed, giving promise of a district of potential shipping power.

Gladstone Mountain Mining Co.

One of the early corporations organized to operate in the district is Gladstone Mountain Mining Co., which, in 1916, acquired eleven claims, adjoining Electric Point on the west. Capital was supplied by well-known Spokane men, including State Senator Harve H. Phipps, H. M. Stephens, formerly corporation counsel of the city of Spokane; Frank T. McCollough, Thaddeus S. Lane, president Chamber of Commerce; Walter J. Nicholls, Richard W. Nuzum and James A. Welch.

The company is capitalized for \$150,000, in 1,500,000 shares of par value of 10 cents, 500,000 shares being placed in the treasury and a fund of \$10,000 being provided by the incorporators. Later the company acquired five more claims and now owns approximately 300 acres on the strike of the ore zone which has made the Electric Point famous throughout this part of the country.

In July, 1916, a permanent camp was established and development commenced with a force of ten men. An irregular fracture, somewhat in the nature of a vein, was disclosed by open cuts for over 1500 feet, showing a width of from 10 to 26 feet, the latter width being attained in an opening on the Setting Sun claim, which immediately adjoins Electric Point on the west. Upon this showing a shaft was sunk to a depth of 275 feet, all in low grade ore, and hoist and other equipment installed. About 700 feet of drifts have been run at different levels from this shaft and practically every foot is in ore, which consists of lead carbonates averaging from 7% to 20% lead, and occasionally producing boulders of high grade crystallized lead, occurring irregularly in the carbonate deposits.

During July, August and September, 1917, 22 carloads were shipped to Northport smelter, with net smelter returns of around \$12,000. Several thousand tons of low grade ore have been blocked out and extension of drifts on the 260-foot level is under way. New ore bodies are encountered

from time to time as development progresses and the company's engineers—A. G. Larson and Arthur Lakes, Jr.—have expressed the belief that as depth is attained the ore will become less oxidized and contain higher lead values.

Three thousand feet west of the Setting Sun workings, another shaft has been sunk to depth of 120 feet, entirely in ore of the same general character, although the deposits do not appear to be oxidized as completely as those disclosed further east.

Shipments from Gladstone Mountain are made over the fine wagon road constructed by Electric Point to Leadpoint, the townsite at the base of Gladstone mountain, and thence by county road to Boundary, a total distance of 13 miles, where the ore is loaded on Spokane & Northern cars. Although Northport smelter is within 20 miles of the mine, this detour is



Electric Point Mine.

necessary, owing to the fact that the wagon haul to Boundary is less by seven miles than direct haul to Northport.

Just Time Mining Co.

Just Time Mining Co., another Spokane corporation, with capital of \$300,000, in ten-cent shares, is developing likely-looking ground about nine miles from Boundary and four miles from Electric Point. This property was formerly known as the "Starr," and was later located as "Big Bob" and "Little Joe," by Reifer Bros., from whom the company obtained title. A shaft has been sunk 70 feet, all in milling ore, carrying lead, zinc and some silver values, in a vein said to be from 20 to 40 feet wide. Equipment consists of Denver double-cylinder hoist, Ingersoll-Rand compressor and complete camp facilities.

Irish Lad Mining Co.

Yet another corporation financed in Spokane, seeking some of the prospective wealth offered by the district, is Irish Lad Mining Co., cap-

italized at \$100,000 in ten-cent shares. It owns ten claims, adjoining Electric Point and Gladstone Mountain ground on the north, and is driving a cross-cut at a depth of approximately 1100 feet in the expectation of encountering the same zone in which Electric Point ore bodies have been developed. Two camps, including bunk houses and blacksmith shops, have been provided and this spring the company proposes to push development with two shifts. Two chimneys similar in surface characteristics to those of Electric Point, but containing no shipping ore, have been found. Engineers advise the management that the property has excellent possibilities and it is hoped that water level will be reached within six months. It is believed that at some point in the ore zone big sulphide deposits will be found.

Bruce Creek Mines Co.

Activity in the immediate vicinity of Electric Point has been slowly but surely extended southerly within the past two years. Bruce Creek Mines Co., holding 120 acres under state lease, is developing very promising showings 16 miles north of Colville, 18 miles from Northport and 6 miles from Williams, a shipping point on the Spokane & Northern railroad. The formation in this locality is granite, lime and shale and sufficient exploratory work has been done to indicate continuous mineralization along the granite contact for at least 900 feet. In places the contact appears to be as much as 50 feet wide, containing commercial ore in several places. In one place an open cut 35 feet long from the contact, shows eight feet of commercial ore. The values are principally in lead, although some zinc and a little silver are also present. A tunnel is being driven that will give vertical depth of 320 feet at the contact and will intersect the ore body shown in open cut if it persists to that depth. By driving 1600 feet, a total vertical depth of 800 feet can be obtained on the contact. Conditions for mining are ideal. Work can be carried on throughout the year and there is plenty of timber and water available. The property was first discovered over 30 years ago, but was relocated recently by C. H. Alban, of Colville, from whom the present company obtained a lease and bond. In April, 1918, an important strike was made in the main tunnel and visitors from Spokane who have seen it pronounce it one of the best showings in Stevens county.

Leadpoint Townsite.

This activity in a district which had slumbered in agricultural peace for a generation has naturally created a demand for modern conveniences in proximity to the center of development. To meet that demand, the townsite of Leadpoint was laid out last year at the foot of Gladstone mountain, on the line of travel from Electric Point, Gladstone, Irish Lad, Iroquois, Just Time and many other prospects and embryo mines. Within a few months it has grown from a peaceful spot in the primeval forest to a bustling little community of around 500 souls, boasting a good hotel, general store with stock valued at \$30,000, a sawmill with capacity of 60,000 feet daily, a blacksmith shop, barber shop, poolroom, several boarding houses and some attractive little pioneer residences. The townsite company owns 160 acres, but so far but 40 acres has been platted. Other acreage will be added from time to time if the enthusiastic prophecies of the community and surrounding districts come true. Whatever the outcome, the present activity in Stevens county carries the mind of the old-timer back to the stirring days of a quarter century ago, when Spokane first found place on the map through the efforts of just such optimistic pioneers as are now writing another history to the north, and thereby also contributing to Spokane prosperity.

Spokane's Mine Power

Washington Water Power Co., Among Largest Hydro-Electric Distributing Concerns in the West, Supplies Mining Regions of Idaho and Washington.—Four Great Stations.—Three High Power Lines to Coeur d'Alenes.

POWER developed from the Spokane river, in the heart of the city of Spokane and at three other stations, energizes many of the great mining operations of the Coeur d'Alenes and the northern districts of Washington. Development of the almost unlimited power furnished by the ceaseless energy of the mountain river has been kept well ahead of consumption, thus assuring economical and modern equipment as mining projects expanded. The present position of the Coeur d'Alene district may, in large measure, be attributed to the liberal policy of the Washington Water Power Co., which has spent millions upon development of its resources and has had the vision to anticipate the great potentiality of surrounding mining districts.

Last year 52,089,899 kilowatt hours were conveyed to the Coeur d'Alenes over two transmission lines. Owing to the congested condition of the service, a third line is now being constructed and will be completed this year. The first line was constructed in 1901, with capacity of 4000 horsepower. A second became necessary shortly after, and a third is now being run parallel to the second, which is carried via Fourth of July canyon to Catakdo, where all lines connect. The first line runs through Rockford, Washington, crossing Coeur d'Alene lake in the vicinity of Chatcolet. Branch lines have been constructed to the newer districts of Nine-Mile and Pine Creek and to the old camp of Murray, where dredging operations are now under way on the first locations on Prichard creek, which caused the original excitement in 1883.

Within the past few months the company has entered into a contract with Stevens County Power & Light Co. by which energy will be distributed to the mining and industrial projects north of Spokane. A large amount will be used at the new plant of Northwest Magnesite Co. and by United Copper Co., near Chewelah.

The career of the power company dates back to days immediately following the Prichard discoveries. Prior to 1890, it met with many reverses and disappointments, but in that year eastern capital was interested and the growth of the company's operations has since been uninterrupted. Demands for power have multiplied rapidly and in 1906 the Post Falls project, at Post Falls, Idaho, was completed with installed capacity of 15,000 horsepower, to augment the original plant, of 12,000 horsepower capacity, in the heart of Spokane, beneath the Monroe street bridge and at the foot of the beautiful falls from which the city derives its name. In 1911 the Little Falls plant was completed, with additional installed capacity of 36,000 horsepower, while in 1915, the Long lake plant, among the greatest in the United States, added 45,000 more horsepower to meet the growing needs of the country. The installed capacity of this plant is 90,000 horsepower, of which an additional 22,500 horsepower will be added during 1918 and 1919.

Spokane's great power company is the pioneer in its field in the Northwest and its enterprise, hand in hand with the optimism of the miner in Idaho and Washington, has had a tremendous effect upon the development of surrounding country.

Washington Mines and Corporations

ADDISON COPPER CO.

Spokane

Capital: \$75,000. Par value, 5c. Assessable by vote of majority. **Directors:** F. E. Wonnacott, Coeur d'Alene, Idaho, pres.; H. J. Hibschman, vice-pres.; C. A. Gray, secy.-treas. and gen. mgr.; L. C. Hammond, all of Spokane; Walter Staser, Ritzville, Wash. Organized in Washington. **Annual Meeting:** Third Tuesday June. **Property:** Five unpatented claims and mill site, approximately 105 acres; Ferry Co., 75 miles N. W. of Spokane, 1 mile N. and 4 miles E. of Keller, 12½ miles from steamer route on Columbia river. **Class of Ore:** Copper-silver-lead-tungsten. Tungsten values 8.2% and 1.4 oz. silver. Wire silver values, \$2000 per ton. Average value of sulphide, \$61.55 ton. **Equipment:** 1-horse whim, ore car, tools, 2 blacksmith shops. **Development:** Over 700 feet, and some shipping grade ore uncovered in apparently continuous ledge for 3000 ft. One shaft 150 feet. Driving crosscut tunnel to tap ledge at greater depth and plan to drift 600 ft. W. to tap ledge and block out additional tonnage. **Informant:** Secy.-Treas. Gray, box 432, Spokane. **Note:** Announced, on March 27, 1918, that tunnel has been extended to 600-ft. point.

ADIRONDACK MINING CO.

Walla Walla

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Mrs. F. A. Mabee, Republic, pres.; John Stack, secy.-treas.; Walter B. Brooke. Organized in Oregon. **Annual Meeting:** First Monday in July. **Property:** One patented and 2 unpatented claims, 80 acres, on Zalla creek, Okanogan Co., about 14 miles northerly from Republic. **Class of Ore:** Quartz lead in porphyry. Ledge 40 ft. wide. Gold \$4 ton. **Informant:** Mark Harris, superintendent, Republic. **Note:** Highly flattering reports have appeared in press from time to time, featuring Mrs. Mabee, president of company. So far as known, nothing of moment has occurred of late.

ADMIRAL MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Shares issued, 1,100,000. Assessable. **Directors:** J. Richard Brown, pres. and mgr.; A. C. Shaw, vice-pres.; Arthur L. Hooper, secy.-treas., all of Spokane; T. R. Tate and T. H. Greenway, Valley. **Annual Meeting:** June 30. **Property:** Six full claims and 2 fractions, unpatented, and 40 acres deeded land, 180 acres, in Stevens Co., 10 miles S. W. from Valley. **Class of Ore:** Copper-silver. Smelter returns, 6 to 10% copper; silver and gold, about \$4 ton. **Equipment:** Gasoline engine, hoist, 1500 feet of air and water pipe, buildings. **Development:** Tunnel No. 1 run 60 feet on vein and some stopping done above and below. Ore body, 2 to 3 feet wide, from which two carloads shipped several years ago brought fair prices. Tunnel No. 2 in ore for 220 feet, ore body as much as 20 feet wide. Tunnel No. 3 struck ore body in 330 feet. Ore body 20 feet wide. In sight, estimated, 80,000 tons. **Note:** Working 5 men May, 1918. Will install machinery this summer.

ADVANCE MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. In treasury, 1,000,000 shares. Assessable. **Directors:** Frank Johnson, pres.; H. I. Parr, vice-pres.; A. M. Campbell, secy.-treas.; W. F. Johnson, C. G. Staples and M. V. Burr, all of Spokane, and O. F. Parmeter, Daisy, Wash., supt.; M. Kulzer, Valley, Wash., and W. H. Wiscombe, Port Orchard, Wash. **Annual Meeting:** Second Monday, February. **Property:** Rising Sun, Cora, Nellie, White Quartz, Saturday, Cabin, Tamarack, Sunbeam and Silver Spray claims, on south half former Colville reservation, in Beulah district, Ferry Co. **Class of Ore:** Assays, 25% lead, 14.8 oz. silver, 13.1% zinc, \$2 gold. **Equipment:** Two steam engines, hoists, track, ore cars. **Development:** No. 1 tunnel about 400 ft.; No. 2 tunnel about 1400 ft.; upraise connecting tunnel; winze 60 ft. from lower tunnel; several crosscuts. \$40,000 expended. **Informant:** A. M. Campbell, secy.

AENEAS VALLEY GOLD & SILVER MINING CO.

Aeneas

Corporation bankrupt, according to statement of Charles W. Clark, mgr. **Property:** Four claims, unpatented, in Aeneas valley, 29 miles S. E. of Tonasket, Okanogan Co. Property closed down since January, 1915, when equipment was washed away. **Informant:** Charles W. Clark, Four Lakes, Spokane Co.

AICHAN BEE SILVER-LEAD MINING CO.**Spokane**

Capital: \$10,000. Par value, 1c. In treasury, 396,000 shares. Non-assessable. **Directors:** H. M. Howard, 401 Jamieson building, pres.; Emma S. Stephan, vice-pres.; B. F. Blosser, secy.-treas.; A. P. Witherspoon and H. G. Twomey, all of Spokane. **Annual Meeting:** August 1. **Property:** 160 acres patented land, in Deer Trail district, Stevens Co. **Class of Ore:** Silver-lead. Three veins, 1 to 5½ ft. wide; highgrade carries 40% lead and 44 oz. silver; lowgrade averages 5% lead, 7 oz. silver and trace of gold. On hill above are extensive croppings of iron cap, open cuts showing a width of 20 ft. of iron-stained quartz, traced for 1000 ft. A sample of cropping assayed .6 oz. silver and \$3.30 free-milling gold. **Equipment:** Ore car, rails, blacksmith shop, house 20' by 40 ft. **Development:** Main tunnel in 260 ft., vein 15 ft. wide. **Informant:** Pres. Howard.

ALADDIN MINING CO.**Spokane**

Defunct. Held bond on Aladdin group, Deep Creek, midway between Northport and Colville. Fifty-ton mill and sawmill partly constructed. Stock jobbing scheme only. Main figures, Frank Earnest, pres.; P. P. Swanson and C. A. Magney.

ALDER CREEK MINING CO.**Tacoma**

Capital: \$1,000,000. Par value, \$1. Stock issued, \$800,000. **Officers:** K. Jensen, pres.; George Kuetesle, secy., 407 S. M. St., Tacoma; E. A. Knoell, trustee. **Property:** Four placer claims and 1 quartz claim, on Alder creek, Kittitas Co. **Development:** Some prospecting on placer claims and 300-ft. tunnel on quartz claims not yet far enough to strike vein.

ALDER GROUP MINING AND SMELTING CO.**Spokane**

Capital: \$6,000,000. Par value, \$1. Non-assessable. **Directors:** R. S. Lewis, pres.-treas., Fargo, N. D.; T. Twichell, vice-pres., Mapleton, N. D.; Addison Leach, secretary, Fargo, N. D.; James Kennedy, Fargo; Fred B. Morrill, Spokane. **Annual Meeting:** March 5. **Property:** Three patented and 1 unpatented claims, 4 miles from Twisp, Okanogan Co., total 60 acres. **Class of Ore:** Gold and copper. **Development:** Developed to total depth of 450 ft., showing fair-sized ore-body carrying \$8 gold per ton. Idle last 3 years. **Informant:** Secretary Leech.

ALLIANCE MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** M. C. Hunter, pres.-mgr., 622 Old National Bank bldg.; F. H. Hunter, vice-pres.; W. W. Gifford, secy.-treas., all of Spokane; John M. Lloyd, Steptoe, Wash., and S. S. Frantz, Ritzville, Wash. **Annual Meeting:** Second Saturday after first Monday in November. **Property:** Princess Maud, Jim Blaine, Jim Blaine fraction, Chico, Butte & Boston, Standard and Emma claims, adjoining Republic mine at Republic, Ferry Co. Great Northern railroad to property. **Class of Ore:** Gold and silver; quartz veins in porphyry. Picked specimens from Princess Maud have shown high values in silver. **Equipment:** 32-h.p. gasoline engine, 3-drill compressor, pumps, ventilating system, 9-h.p. gasoline hoist, half-ton skip, 600 ft. of cable, 5 ore cars and tools. **Development:** On Princess Maud, 385-ft. crosscut tunnel, with drifts north and south at each 100-ft. interval. A two-compartment shaft is down 350 ft. on Chico and on Butte & Boston two-compartment shaft is down 259 ft., cutting the Republic vein. Properties cover 3500 ft. along strike of Republic vein, 12 to 30 ft. wide, and the Princess Maud vein, 2 to 10 ft. wide. Total workings, 5000 ft. Shipments to date, \$10,000. **Informant:** Secy. Gifford.

ALPINE MINING AND MILLING CO.**Seattle**

Capital: \$50,000. Par value, \$100. Non-assessable. **Directors:** J. H. Starbird, pres.-mgr., 323 W. Galer St., Seattle; M. R. Starbird, T. P. Revelle. H. C. Ash is secy.-treas. Company office, Alaska bldg., Seattle. **Property:** Four quartz claims and one placer claim on Negro creek, Chelan Co., about 20 miles from Leavenworth. **Class of Ore:** Well defined ledge on Last Chance quartz claim; 20 inches to 3½ ft. free milling gold ore assays \$3.60 to \$72.80 to the ton. **Development:** On Last Chance tunnel following vein 120 ft. Across creek, crosscut tunnel in 162 ft. **Informant:** Pres. Starbird.

AMALGAMATED GOLD MINES CO.**Seattle.**

Capital: \$2,000,000. Par value, \$1. Assessable to 10 cents. **Directors:** C. R. Hesselting, pres., Seattle; G. W. G. Litherland, vice-pres., Portland; J. E. Reynolds, secy. **Annual Meeting:** First Monday in June. **Property:** Seven claims, 2 millsites and 3 water rights, on E. slope of Cascades, near foot of Mt. Stuart, Chelan Co., 16 miles S. of Leavenworth. **Class of Ore:** Ore bodies occur in irregular but well defined fissure veins, chiefly in serpentine. Vein matter,

quartz, calcite and talc, carrying gold, arsenic, iron, sulphur and very small amount of silver, lead and copper. Average assay is gold, \$3 to \$30; silver, 50c; copper, a trace. **Equipment:** 40-stamp mill, 20 stamps installed. Considerable machinery, compressor, water power, pumps, etc. **Development:** Over 7000 ft. of tunnels, in addition to shafts, upraises and open cuts. Shipments approximately \$1,200,000 in gold. **Informant:** Pres. Hesseltine.

AMAZON MINING CO.**Chewelah**

Not incorporated. J. Oppenheimer, Chewelah, owner. **Property:** The Amazon group, 51 acres, five miles N. W. of Chewelah, adjoining Copper King and United Copper mines. Claims patented. **Class of Ore:** Copper, silver and gold, in vein uncovered 2200 ft. Average assay on vein No. 1, from \$30 to \$50 per ton, and on vein No. 2, about \$12 per ton. **Equipment:** Work done by hand. **Development:** Upper tunnel, in about 30 ft.; another tunnel in 104 ft., with crosscut of 33 ft. Lower tunnel crosses both veins and shows bodies of shipping and milling ore. Property had joint working agreement with Copper King Mining Co. for tunnel and millsite. Vein No. 1, 3 to 5 ft. wide and vein No. 2, 13 to 14 ft., both parallel to Copper King veins. One car ore shipped in 1909. **Informant:** J. Oppenheimer.

AMERICAN FLAG MINE.**Republic**

Co. composed of Aberdeen, Wash., men, with M. V. Snider as pres. and W. D. Hoover as secy.-mgr.; J. S. Stephens, supt. **Property:** In Sheridan district, 11 miles west of Republic, Ferry Co. A Forrester mill, under construction at Tacoma, will be erected on property in May, and a flotation system will be installed. Plans for other equipment being made. **Development** includes 100-ft. sunk on winze the past winter, with good showing of ore of satisfactory values.

AMERICAN MINERAL PRODUCT CO.**Seattle**

Capital: \$50,000. Organized March 15, 1917. **Directors:** Clark Brooke, pres., and Lewis A. Hill, mgr., both of Seattle. **Property:** 320 acres near Burke, Grant Co. **Class of Product:** Diatomaceous earth. Entire acreage said to be underlain. **Equipment:** Machinery and tools, value \$10,000. **Development:** Last fall reported shipping 1 car per day, with total shipments 1000 tons. **Informant:** E. J. Wehley, stockholder, Burke.

AMERICAN MINERALS PRODUCTION CO.**Chicago**

Capital: \$1,500,000. Par value, \$1. Local office, Valley, Wash. **Property:** Four claims of magnesite, total 2000 acres, in Stevens Co., west of Valley. **Class of Ore:** Thomas W. Cole reports that in one claim there is enough magnesite to last 37 years, and that the product is purest in world—a crystalline magnesite. **Equipment:** Four vertical kilns on the Allen quarry and two on the Red Marble quarry. An associated company, the Spokane, Valley & Northern Railroad Co., has built 12-mile railroad from Valley to quarries and is in operation to Allen quarry. **Development:** Three hundred tons of crude and calcined magnesite shipped daily when last reported. **Dividends:** Company paid one dividend of two cents a share, or \$30,000, November 1, 1917. **Note:** H. L. Griswold, mining engineer, is assistant manager of company, with office at Valley.

AMERICAN REDUCTION CO.**Spokane**

Capital: \$250,000, in 500,000 shares; par val. 50c. **Directors:** F. R. Clark, P. N. Clark and G. W. Sommer, all of Spokane. **Property:** Part of holdings of North Washington Power & Reduction Co. with some machinery, mill building and deeded land, at Republic, Wash. Plant built by J. L. Harper to treat ores of Republic Mines Corporation and other enterprises with which he was identified in that district. Company went into hands of receiver in 1913. Part of machinery was sold piecemeal and balance transferred to this corporation. Understood that mill building and remaining machinery is under lease to a man named Lysett, who is conducting some experiments along unknown lines. Corporation engaged in no active enterprise.

AMERICAN-SCOTIA MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Assessable; 2 mills levied. **Directors:** E. J. Merrin, pres.; N. M. Baker, vice-pres.; H. W. Merrin, secy.-treas.; James Stinechest and W. E. Leigh, all of Spokane. **Property:** Enterprise, War Eagle and Morning Star claims, about 60 acres, near Orient. **Class of Ore:** Gold, silver, copper. **Development:** Tunnel, 300 ft.; shaft, 200 ft., open cuts. **Informant:** E. J. Merrin, 503 Eagle blk., Spokane.

AMERICAN TUNGSTEN CONS. CORP'N.**Spokane**

Capital: \$1,000,000. Par value, \$1. Reorganization of Germania Mining Co., owning Germania and Roselle properties, in Stevens County, 25 miles west of Springdale. **Directors:** Unknown. **Class of Ore:** Tungsten. **Development:** Germania Mining Co., said to be composed of German stockholders, including the Krupps, spent money lavishly several years ago under management of Wm. Scheck, an officer of the German army. Expensive equipment, including concentrator and domestic buildings, was provided. In 1911, Germania became financially involved and went into bankruptcy. Immediately after outbreak of war, Scheck left to join his regiment and arrived safely in Germany. Was later taken prisoner by the British and was said to have been exchanged in 1916 and on his way to Spokane to reopen mine. Nothing has been seen of him, however, and it has more recently been hinted that his mining operations were a cloak to occupation as a spy in the German service. Matters are much involved and several efforts to untangle them have proved unsuccessful. There have been suggestions that property should be escheated to U. S., but so far nothing has been done.

ANACONDA GOLD MINING & REDUCTION CO.**Spokane**

Property taken over by Alliance Mining Co. (q.v.).

APACHE MINING CO.**St. Paul, Minn.**

Capital: \$1,000,000. Par value, \$100. Non-assessable. **Directors:** Frank A. Day, pres., Fairmont, Minn.; M. H. Evans, secy.-treas., St. Paul, 1408 Pioneer bldg.; Frank A. Hoyt, vice-pres., Barnesville, Minn.; John C. Wilson, Kettle Falls, Wash., and Gratha B. Hoyt, Iowa Falls, Iowa. Washington corporation. **Annual Meeting:** First Monday in January. **Property:** Apache, Comanche, Nez Perce, Pay Rock, Pay Roll and Silver Tip claims, Moses district, Okanogan Co. **Class of Ore:** Gold and silver quartz. **Equipment:** Bunk house, tool house, 1000 ft. track, cars, tools. **Development:** All but assessment work on Apache claim. First small shipment in 1908 yielded \$187 ton. Since then shipments made of 170 tons averaging \$150, or total of \$25,500. Shipments from assorted ore, leaving several hundred tons lower grade ore on the dump. Tunnels of 300 ft. and shafts of 200 ft. **Informant:** Secy. Evans.

APEX MINING CO.**Chesaw**

James P. Blaine, superintendent, Chesaw, Okanogan Co. **Property:** Ben Harrison mine. **Class of Ore:** Gold, silver, copper in fissure veins. **Development:** Shaft. **Equipment:** Gasoline hoist.

APOLLO CONSOLIDATED GOLD MINING CO.**New Haven, Conn.**

Capital: \$1,500,000. Par value, 50c. Non-assessable. **Officers:** H. D. Clark, pres.; E. C. M. Hall, secy.; H. B. Ives, treas.; all of New Haven, Conn.; T. J. Howell, mgr., Republic. Mine office, Republic, Wash. **Annual Meeting:** January 1. **Property:** Nine claims, patented, about 165 acres, in Ferry Co., 10 miles southeast of Republic. **Class of Ore:** Gold, lead, silver and zinc. Value of shipments to date, \$200,000. **Equipment:** Boarding house, bunk house, office, assay office, 3 dwellings, stable, blacksmith shop, 45-h.p. boiler and hoist. **Development:** About 2000 ft. **Informant:** Mgr. Howell.

ARADIUM COPPER MINING CO.**Tacoma**

Capital: 1,000,000 shares, non-assessable. C. A. Maxwell, Puyallup, Wash., pres.; J. C. Wright, Sumner, gen. mgr. **Annual Meeting:** January 1 to 5. **Property:** Claims aggregating 67 acres in Pierce Co., Carbon river district, headwaters Carbon river; unpatented. **Class of Ore:** Copper, gold and silver. Values from \$20 to \$180 ton. **Equipment:** Stamp mill and electric power plant. **Development:** About 1300 ft. of tunnels. **Informant:** Mgr. Wright.

ARK MINES CO.**Kettle Falls**

Reorganized under laws of Washington, formerly Ark Group Mining & Milling Co., Ltd., of British Columbia. **Directors:** J. J. Budd, Kettle Falls, pres. and mgr.; O. L. Budd, secy.-treas.; D. E. Groby, Seattle, vice-pres.; Dr. H. Hornby, Sioux Falls, S. D.; H. P. Mauer, Colville, Wash., and C. Karlsten, Spokane. **Property:** Claims totaling 140 acres, three miles south of Kettle Falls, Stevens Co., and 120 acres, four miles north of Ymir, B. C. **Class of Ore:** In Stevens Co.—Gold, silver, copper and lead; in British Columbia—Gold. In Stevens Co. values run up to \$400 ton and in British Columbia up to \$60 ton. **Equipment:** 35-h.p. boiler, 2-drill air compressor, pumps, air fan, drilling plant and buildings. **Development:** 1830 ft. in Stevens Co. and 500 ft. in British Columbia. **Informant:** Pres. Budd.

ARLINGTON MINING CO.

Ruby
H. S. Stoolfire, mgr., Sherwood bldg., Spokane. **Property:** Near Ruby, Wash., developed to 450-ft. level. Values, silver and copper. In March, 1918, Co. was re-incorporated as Arlington Silver Mining Co. by H. S. Stoolfire, Dr. H. E. Rhodehamel and others, of Spokane, to take over the 2 original claims with 8 others, most of which are patented, and about 1000 tons of ore shipped in process of development, with as much more ready for shipment. Values about \$30. Co. has drifted 250 ft. on lower levels, and has brought a 22-000 voltage line 12 miles, from Okanogan.

ASH AND OTHER CLAIMS.

Stevens Co.
Owned by Louis W. Hill, St. Paul. Fourteen claims in twp. 31 n., r. 39 e. W. M., in Stevens Co., of value principally for iron they are supposed to contain. Un-developed and inactive.

AURELIA CROWN CO.

Seattle
Capital: \$10,000,000. Par value, \$10. Non-assessable. **Directors:** O. Robert Dahl, pres.-treas., Seattle; A. E. Coxhead, vice-pres., Austin, Minn.; H. M. Dahl, secy., Seattle; Charles E. Horton, Seattle; George C. Whipple, Rochester, N. Y. **Annual Meeting:** Fourth Wednesday in November. **Property:** 36 claims, unpatented, on Railroad creek, Chelan Co., 70,000-h.p. in 2 power sites, and 75% of capital stock of Lucerne & Aurelia Crown Ry. Co. **Class of Ore:** Molybdenite, copper, silver, lead, zinc and gold. In a 30-ft. ledge, six ft. of copper ore goes \$68.20 to ton and balance of ledge concentrating ore averaging \$7.40 to ton. The silver-lead-zinc property carries a pay streak from which assays average \$96.81 ton. The gold-bearing quartz runs from \$3 to \$45 a ton. **Equipment:** Compressor, operated by water power, hydraulic pipe line, crusher and rolls. Shipments made of hand picked molybdenite. **Informant:** Pres. Dahl.

AURORA COPPER MINING CO.

Spokane
Conrad Wolfe, pres., Symons bldg., Spokane. Owns Copper Queen mine, adjoining United Copper, 6 miles northeast of Chewelah. **Class of Ore:** Chalcopryrite with streaks of tetraedrite in vein 25 ft. wide. **Development:** Tunnels and 2 deep diamond drill holes. Inactive.

BALL MINING CO.

Yakima
Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** S. Huntington, pres.; J. Lenox Ward, secy.-treas.; George Ker, vice-pres.; D. A. Ball, supt.; H. Stannislawsky, mgr.; E. P. Sanford, and E. G. Tennant, all of Yakima. Washington corporation. **Annual Meeting:** July. **Property:** Lake View mining claims, in Bumping Lake district, Yakima Co.; unpatented. **Class of Ore:** Gold, running \$1.25 to \$6.25 ton; tungsten as high as 50%. **Development:** Two large open cuts and tunnel 178 ft. long. **Informant:** Secy. Ward.

BARTLETT MINE.

Owners, J. W. Bartlett, Inchillum, Wash.; C. Shumaker, Asotin, Wash., and C. A. Ray. Sixty acres of unpatented land, in Stray Dog canyon, near Covada. **Development:** 615 ft.

BEAD LAKE GOLD-COPPER MINING CO.

Spokane
Capital: \$3,000,000. Par value, \$1. Assessable—16 mills levied. **Directors:** George C. Geisler, pres.; W. E. Allen, secy.; Joseph Rosslow, G. W. Whitaker and A. B. Babb, all of Spokane. **Annual Meeting:** Second Tuesday in March. **Property:** 18 claims in Newport district, Pend Oreille Co. **Class of Ore:** Copper, 3%; lead, 20%; silver, 15 ounces; gold, .03 ounce. **Equipment:** Company has purchased concentrator, including flotation plant, tables, jigs and Hardinge mill, from Western Union Mining Co. (q.v.), Wallace, Idaho. Has power house, air compressor, 60-h.p. boiler, drills, reservoirs, piping and buildings. Expects to have concentrator in operation during summer of 1918. **Development:** Ledge has been opened to depth of 400 ft. About 5000 ft. of tunnels and 600 ft. of shafts. **Informant:** Secy. Allen.

BEAR MOUNTAIN MINING & DEVELOPMENT CO.

Shelbyville, Ind.
Capital: \$50,000. Par value, 5c. Non-assessable. **Directors:** Charles Birely, pres.; H. J. Shelk, treas., both of Shelbyville, and T. E. Newton, secy., and C. E. Serig, both of Colville. **Property:** 14 miles southeast of Colville, in Stevens Co. **Class of Ore:** Gold, silver, and lead. **Development:** Shaft, 38 ft.; tunnel at 332-ft. level is in 900 ft. Crosscut in tunnel from 575-ft. point for 100 ft. shows 8-ft. ledge. **Informant:** Secy. Newton.

BEARD & MYERS MINE LEASING CO.

Deer Park
Reorganized, 1918, as Spokane Consolidated Tungsten Co., of Deer Park (q.v.).

BELOCHER MINING CO.**Spokane**

Capital: \$2,000,000. Par value, \$1. **Directors:** Jos. A. Anderson, pres., Spokane; W. M. Merritt, Rosalia, Wash., vice-pres.; Frank B. Babcock, St. John, Wash.; Will Anderson, Garrison, Mont.; Donald Munroe, Winnipeg; R. P. Turnley, Rosalia. **Annual Meeting:** First Tuesday in June. **Property:** Three patented, 19 unpatented claims, about 300 acres, in Ferry Co., north of Republic. **Class of Ore:** Iron sulphide, carrying 40% iron, 27% sulphur, \$1 gold, 0.6% copper, \$1 silver. **Equipment:** 80-h.p. compressor and drills. **Development:** About 5000 ft. of work done. No. 4 tunnel in about 800 ft. **Informant:** Mr. Anderson, secy. **Note:** Property reported sold to Frank Babcock, of Ewan, Wash., for \$50,000, February, 1918.

BELLA MAY AND OTHER CLAIMS.**Metaline Falls**

Bella May, Bella May Fraction, Bella May Fraction No. 3, Diamond R, Diamond R. No. 2 and Blue Bucket Fraction, in Pend Oreille Co., near Metaline Falls. **Informant:** A. H. Kroll, Spokane. (See Diamond R. Mining Co.)

BENDER METALS MILLING CO.**Oroville**

Capital: \$30,000. Par value, \$25. Non-assessable. **Directors:** Henry Bender, pres.; Ben. W. Johnson, secy., and Robert Baur, treas., all of Toledo, O.; J. W. Douglas, Spokane, vice-pres. **Property:** Company owns a mill and mill-site, quarter of mile from Nighthawk on Great Northern railroad and on Similkameen river. Will be completed and equipped with new machinery early in spring, 1918. It is a customs mill, but under contract to treat ores of the Mines Operating Co. and of the Rich Bar Mining Co. Estimated capacity of mill, 100 tons in 24 hours. **Informant:** Mr. Douglas.

BEN HUR MINING AND MILLING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Assessable to amount of 5 cents per share; assessments to date 11 mills. **Directors:** H. H. Hebert, pres.; S. P. Domer, secy., both of Spokane; Harry Bibbins, Cheney, Wash., treas., and W. G. Estep, San Diego, Calif. **Annual Meeting:** Third Thursday in February. **Property:** Ben Hur mine at Republic, Ferry Co.; patented. **Class of Ore:** Quartz vein in porphyry from which several thousand tons of ore have been shipped. **Equipment:** Modern compressor and hoist. **Development:** Double compartment shaft down 700 ft. with drifts on 100-, 200-, 300-, 400-, and 600-ft. levels. **Informant:** S. P. Domer, 623 Rookery bldg., Spokane.

BENNETT CLAIMS.**Chewelah**

J. E. Bennett, C. O. Perry and W. B. Short, owners of two claims near Chewelah, Stevens Co., in $w\frac{1}{2}$ of $n\frac{1}{4}$ sec. 7, twp. 33 n., r. 41 e. W. M. **Class of Ore:** Copper and silver, giving assay values of \$15, \$17 and \$24. **Development:** Shaft down 25 ft. **Informant:** Mr. Bennett, Chewelah.

BENVENUE MINING & MILLING CO.**Spokane**

Capital: \$1,000,000, with 300,000 shares in treasury. **Directors:** A. C. Shaw, pres.; T. A. Dunn, secy.; Agnes C. Gromish, treas.; John H. Peet, Werner Broberg and E. H. Shaw, all of Spokane; Ben Farrar, Myers Falls, Wash., and Eugene L. Ashley, Glenn Falls, N. Y. **Property:** Near Myers Falls. **Class of Ore:** Gold and silver. Discontinued operations. Equipment purchased but later sold to owner of Bonanza mine, Echo Valley.

BERGESON MINING, SMELTING & TRADING CO.**Silvana**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** A. DeLoucy, pres., Norman, Wash.; Ole Bergeson, vice-pres.; Ole Larson, secy.-treas.; Iver K. Larson, mgr.; L. P. Clauson, John Ness, H. Thorson and H. Larson, all of Silvana, Wash., and H. Thomson of Arlington, Wash. **Annual Meeting:** April 23. **Property:** Twenty unpatented claims on Money creek, in King Co., about 400 acres. **Class of Ore:** Gold and copper. **Equipment:** 2-drill air compressor driven by water power from nearby stream, a 16-h.p. gasoline engine, ventilation fan, rails and car. **Development:** Consists of 1000 ft. of tunnels, and open cuts. **Informant:** Mgr. Larson.

BERLIN MINING CO.**Spokane**

Capital: 500,000 shares, of which 240,000 are in the treasury. **Directors:** Henry Baier, pres.; Thomas Meagher, secy.-treas.; O. P. Wiltermood, supt.; C. R. Smith and Wolford Sensney, all of Spokane except Mr. Wiltermood. **Property:** Two and a half claims, 14 miles southeast of Northport, in Stevens Co. Wash.

ington corporation organized in 1917; has option for two years for \$20,000 on these claims. **Class of Ore:** Vein at the outcrop is four ft. wide, with copper content of 3%. At bottom of 103-ft. shaft vein has width of six ft. Diamond drill shows 35-ft. width at 700-ft. level, with copper content of 48 with copper at 12c pound. Tunnel 330 ft. lacks 200 ft. of being under shaft. **Equipment:** Compressor and machine drills to be installed.

BIG BEAR MINING & DEVELOPMENT CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Officers:** C. H. Alban, pres., Marcus, Wash.; John Merkel, vice-pres., Edwall, Wash.; W. D. Yake, secy., W1604 Carlisle Ave., Spokane, and D. D. McKay, treas., 311 Hyde blk., Spokane. **Annual Meeting:** Second Wednesday in April. **Property:** Eight full, patented claims, 160 acres, in Stevens Co., 2½ miles east of Marcus, Wash. **Equipment:** Engine, air compressor, air drills, blacksmith shop. **Class of Ore:** Copper, gold and silver. Average assays: Copper, \$7.50; gold, \$9, and silver, \$3.50 per ton. **Development:** Work started Sept. 1, 1913, and now includes 105-ft. shaft, 195-ft. tunnel, 35-ft. winze, all in ore body 4 ft. wide. At a point 300 ft. lower is tunnel in 600 ft., cutting stringers of milling ore, from a few inches to 11 ft. wide. A shipment of 15 tons to Granby gave \$37, with charge of \$3.50 for freight and treatment. **Informant:** Mr. McKay.

BIG BEND MINING CO.**Chewelah**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Officers:** J. H. Bramley, pres.; Herbert Bramley, vice-pres., both of Chewelah, Wash.; E. W. Hyde, secy.-treas., Toppenish, Wash. **Annual Meeting:** First Monday in November. **Property:** Three claims and 3 fractions, unpatented, 5 miles N. E. of Chewelah, 3 miles from United Copper mine, Stevens Co. **Class of Ore:** Principally gray copper with some gold and silver values. **Equipment:** Pump, hoist and gas engine. **Development:** 50-ft. shaft, 85 ft. of drifts, and 60 ft. of surface stripped. **Informant:** Secy. Hyde.

BIG CHIEF MINING CO.**Northport**

Capital: \$1,000,000. **Incorporators:** Joseph F. Reed of Marble, Wash.; F. H. Turner, Q. D. Standiford, W. B. Wilber, Jacob Broderius and A. V. Downs, all of Northport, Wash. Reported to have taken a bond on Big Chief group of five claims on Clugstone creek. Washington corporation organized in 1917. **Class of Ore:** Surface showings of lead-zinc. **Development:** 100-ft. shaft and 400-ft. tunnel.

BIG IRON.**Stevens Co.**

Property: Near Pierre Lake, 3 miles S. of international boundary line and 7 miles E. of Kettle river, in Stevens Co. \$30,000 spent in development. General average of ore 1.8% copper and \$3 in gold. Estimated 250,000 tons in sight, ore very desirable for smelters. Some extensive development done twenty-two years ago, but property needs cheap transportation and has been idle since that time.

BLACK BEAR MINING CO.**Spokane**

F. E. Goodall, pres.; W. E. Ufford, secy.-treas., both of Spokane. Holdings comprise 35 acres of patented ground on Palmer mountain, Okanogan Co., near Loomis. **Class of Ore:** Quartzite, carrying gold. **Equipment:** Engine and hoist. **Development:** Shaft down 300 ft. **Note:** No recent record. In early days property was considered one of the most promising in district.

BLAND GOLD MINING CO.**Chewelah**

Capital: \$1,000,000. Par value, \$1. Non-assessable. J. T. Hofaker, pres., and F. W. Cramer, secy.-treas., both of Chewelah. **Property:** Two patented claims, 40 acres, in Stevens Co., near Chewelah.

BLUE GROUSE.**Blueslide**

J. J. Bettencourt owns the Blue Grouse, Grand View and Hercules claims in Pend Oreille Co., in the Metaline mining district. Ore carrying lead, silver and zinc values. **Informant:** J. J. Bettencourt, Blueslide, Wash.

BLUE JIM MINING & MILLING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. Organized in Washington. **Directors:** R. A. Hutchinson, pres.; C. Z. Hubbell, vice-pres.; J. M. Birks, secy.-treas.; F. L. Spangler and C. S. Clute, all of Spokane, except J. M. Birks, Ione, Wash. **Property:** Two full claims, not patented, in Pend Oreille Co., Metaline district, 1 mile from Box canyon, on the Pend Oreille river. **Class of Ore:** Gold, \$7; silver, \$20; copper, about 3%. **Development:** One tunnel 125 ft. with drifts 46 and 22 ft. One short tunnel and drifts, 50 ft. Lower tunnel in 45 ft. **Informant:** Secy. Birks.

BLUE LEDGE MINING & MILLING CO.**Keller**

Capital: \$175,000. Par value, 10c. Assessable. **Directors:** George W. Steele, pres.; George A. Chamook, vice-pres.; William R. Rae, secy., all of San Francisco; George A. Steele, assistant secy., Keller, Wash., and Louis Reiss, treas., Cheney, Wash. **Annual Meeting:** First Wednesday in January. **Property:** Three patented and 2 unpatented claims, in Ferry Co., on Silver creek, $\frac{1}{4}$ miles E. of Keller. Formerly owned by Silver Creek Mining and Milling Co. and later by Gold Cord Mining & Milling Co. **Class of Ore:** Silver, copper and gold. Shipment to Tacoma 10 years ago returned \$23 ton for 5 tons and \$48 ton for 3 tons. **Equipment:** Some machinery and plant. **Development:** Total of 1255 ft. of tunnels and shafts. Ledge exposed on surface for 600 ft., ranging 2 to 6 ft. wide. **Informant:** George W. Steele, president, 355 Head St., San Francisco.

BLUESTAR MINING CO.**Chewelah**

Capital: \$1,600,000. Par value, \$1. Assessable. **Directors:** L. R. Nestos, pres.; H. C. Mottern, vice-pres.; William Boyd, Dr. S. P. McPherson and S. F. Doran. Fred W. Dickey is secretary-treas. All of Chewelah. **Annual Meeting:** Fourth Monday in July. **Property:** One patented and 7 unpatented claims, 2 miles N. W. of Chewelah, in Stevens Co. **Class of Ore:** Silver and lead. Recent shipments about 3 carloads and former shipments at least \$40,000. **Informant:** Secy. Dickey. **Note:** Property closed down indefinitely owing to lack of capital.

BOLSTER MINING CO.**Spokane**

H. S. Stoolfire, pres., Sherwood bldg., Spokane. **Property:** Ten patented claims on Copper mountain, Myers Creek district, Okanogan Co., 4 m. from Chesaw. **Class of Ore:** Copper, gold and silver. Copper, 4%. **Development:** Shaft down 100 ft. and 1000 ft. of crosscut. Has not been worked since 1902.

BONANZA MINE.**Bossburg**

60 a. in Echo Valley, 5 m. S. E. of Bossburg. Lead-silver property, worked at considerable profit 20 yrs. ago, under management late Jack Hanley. Later sold to J. D. Chaplin, St. Catherine, Ont., for reported price of \$35,000. For many years inactive or under lease with little success. Four years ago, Chaplin gave indeterminate bond for \$15,000 to G. Vervaeke, who has equipped property with 50-h.p. gasoline engine, 12x14 Leyner compressor and 25-h.p. hoist. Within 2 yrs. over \$20,000 worth of ore shipped, running around 23% lead and 5 ozs. silver. Ore carries much iron and formerly commanded very low treatment rate. Recently shipments have been consigned to Trail and Northport, but rates not as low as in earlier days. Property developed by 45° incline shaft, to 790-ft. level, following good ore body from surface. Operations continuing under direction of Vervaeke. Stopped above 600-ft. level.

BONANZA QUARTZ MINE.**Castle Rock**

Directors: E. C. Weiler, pres.; C. C. Brown, secy.-treas., Castle Rock. **Property:** 5 unpatented claims in St. Helens district, Skamania Co. **Class of Ore:** Gold, silver, copper. Not working. **Equipment:** Drill, cars, blacksmith shop, barns, bunk and cook houses, etc. **Development:** 120 ft. of tunnel, 120-ft. drift. **Informant:** Secy.-Treas. Brown.

BORNITE MINING & SMELTING CO.**Spokane**

Capital: \$2,000,000. Par value, \$1. Assessable, 2½ mills per year. **Directors:** William I. Adams, 811 N. Lincoln St., Spokane; John J. Skuse, vice-pres., Spokane; Otto Crust, Newport, Wash., and C. Christopherson, Spokane. E. Hohneck, S. 511 Wall St., Spokane, is secy.-treas. **Annual Meeting:** First Wednesday in June. **Property:** 220 acres in Newport district, Pend Oreille Co. Patented property. **Class of Ore:** Gold, silver, copper and indications of lead and scheelite. **Equipment:** 1000 ft. of steel rails, 1000 ft. of 6-inch ventilating pipe, blacksmith shop, 2 cabins, powder house. **Development:** 2600 ft. of tunnels and shafts. Principal tunnel in 900 ft. **Informant:** Secy. Hohneck. **Note:** Operations suspended.

BOSTON-AMERICAN MINING CO.**Bloomington, Ill.**

Capital: \$2,000,000. Par value, \$1. Non-assessable. Stock outstanding, 1,446,000 shares. Mine office, Monte Cristo, Snohomish Co. Washington corporation. H. D. Cowden, pres.; L. E. Engel, secy.; F. W. Boston, treas. **Property:** Consists of 17 unpatented claims, 315 acres, at Monte Cristo. **Class of Ore:** Said to contain dike of low grade ore 300 ft. wide with streaks from a few feet to 4 ft. wide, carrying values in gold, silver, copper, zinc. **Development:** Nine tunnels, the longest, 1850 ft., is 1400 ft. below one next above. Total under-

ground workings about 5000 ft. Management claims 120,000 tons of ore blocked out and to have shipped 18 carloads that assayed \$29 in gold, silver and copper, 8% arsenic and 2¼% zinc.

BOUNDARY GOLD CO.

Seattle

Capital: \$1,000,000. Par value, \$1. Non-assessable. Isaac D. Sperry, pres.-treas., Glacier, Wash.; George G. Gilchrist, secy., Denver, Colo., 747 Gas & Electric bldg. **Annual Meeting:** In January. **Property:** Five patented claims, 100 acres, on southeast slope Bear Mtn., Whatcom Co. **Class of Ore:** Free milling gold quartz. Averages \$20 ton, with small value in silver. **Equipment:** Water wheel of 76-h.p., governor, generator of 60-h.p., 10 stamps, dynamos, sawmill, 3 drill compressor, 2600 ft. aerial tramway, mill and bunk houses. **Development:** About 1000 ft. of tunnels and several open cuts. Total shipments about \$225,000. **Informant:** Mr. Sperry, pres.

BOUNDARY RED MOUNTAIN MINING CO.

Bellingham

R. J. Bonnemarte, supt., Bellingham. Control said to have been bonded in 1916, by George Wingfield and associates, of Goldfield, Nev. **Property:** In Mt. Baker district, Whatcom Co. **Development:** By tunnels, the third on 700-ft. level. **Equipment:** Includes hydro-electric plant and 10-stamp mill. **Note:** No recent information available.

BRUCE CREEK MINES CO.

Spokane

Capital: \$100,000. Par value, 10c. Assessable. **Officers:** Bob Mabry, pres.-mgr.; J. P. Dillard, vice-pres., and E. A. Mabry, secy.-treas., all of Spokane. Washington corporation. **Property:** 120 acres leased from state, in Stevens Co., 16 miles N. E. of Colville. **Class of Ore:** Lead, with some zinc and silver. **Equipment:** Gasoline engine, compressor and machine drills. **Development:** Open cuts for 900 ft. show in places as much as 8 ft. of shipping ore. Now running crosscut to give 300-ft. depth. Crosscut in 200 ft. Six men working. **Informant:** Pres. Bob Mabry. **Note:** Took over C. & A. group, 1917. Contract to drive 100 ft. through the very hard rock awarded to Isaac Love and associates, as drilling had been very slow and difficult. Important discovery reported April, 1918.

BULLION MINING CO.

Spokane

This company formerly owned the patented claims Bullion, Lucky Jim, Marie, Lake Center, Red Lodge, Louise and Edith, in Stevens Co. These claims are now owned by J. F. Thompson, Box 187, Long Beach, Calif. Company has been inactive for years. **Informant:** J. F. Thompson.

BUNKER HILL MINING & SMELTING CO.

New York

Capital: \$3,000,000. Par value, \$1. Property sold to Western Copper Mining Co. (q.v.), June 6, 1917.

BUTTE-CHEWELAH COPPER CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Non-assessable, 500,000 shares issued. **Directors:** J. O. Gallice, pres., Spokane; F. M. Bell, vice-pres. Washington corporation. **Property:** Four claims, 75 acres, in Valley district, Stevens Co. **Class of Ore:** Occurs as mixed sulphides, mainly chalcopyrite and gray copper, in a gangue of quartz, calcite and spathic iron. Said to average 2 to 5% copper, 1 to 5 ozs. silver and 50c to \$1 in gold. **Equipment:** Hoist and compressor. **Development:** Shaft 300 ft., tunnel 125 ft., winze 100 ft.; latter reported all in ore. Believed to be defunct.

BUTTE & WASHINGTON MINING & MILLING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** Fleetwood Ward, pres.; E. C. Fleming, vice-pres.; M. N. Stratton, secy.-treas., all of Spokane; C. C. Wiley, Portland, and W. G. Sutfin, Carpentersville, Ill. **Annual Meeting:** First Monday in June. **Property:** Six unpatented claims east side of Kettle river in Stevens Co., Orient camp, 6 miles south of British Columbia line. **Class of Ore:** Silver-lead. **Development:** Two tunnels, one 100 ft., and one 500 ft., open cuts on top of mountain and half way down, all showing ore. **Equipment:** Cabin and blacksmith shop. **Informant:** Pres. Ward.

C AND A GROUP.

Colville

Taken over by Bruce Creek Mines in 1917 (q.v.).

CABEY MINING & MILLING CO.

Denver, Col.

P. P. Rooney, mgr. **Property:** Lease and bond on Phil Sheridan and other claims in Sheridan camp of Ferry Co., near Toroda. **Equipment:** Includes 60-h.p. boiler and 5-drill compressor. **Development:** Shaft to depth of 400 ft. has disclosed 6-ft. vein containing high values, chiefly in silver, with some gold and copper. One car of 27 tons shipped in summer of 1917 returned the company \$2800. Flotation plant being built 1917; supposed to start in spring of 1918.

CASCADE GOLD & COPPER MINING CO.

Spokane

Directors: J. C. Palmer, pres., Ashland, O.; Harry Robbins, vice-pres., Mansfield, O.; E. J. Worst, treas., Ashland, O.; H. E. Oswald, Spokane; C. R. Winbiger, Ashland, O. **Property:** Five claims in Stehekin mining district, Chelan Co. Tunnel in 1050 ft., shows ore. **Informant:** J. B. Brinton, secy., Ashland, O.

CASCADIA MINING AND DEVELOPMENT CO.

Toledo

Capital: \$6,000,000. Par value, \$1. Non-assessable. **Directors:** E. A. Session, 106 Sixth St., Vancouver, Wash., pres.; W. A. Gray, Toledo, Wash., vice-pres.; W. D. Scott, Portland, secy.; J. P. Finley, Portland, and M. A. Poppleton, Portland. **Annual Meeting:** Sept. 11. **Property:** Consists of 108 claims and 2 mill-sites in St. Helens district, Skamania, Lewis and Cowlitz counties. Total area 2170 acres. Two mill-sites and 16 claims are patented. **Class of Ore:** General formation of district is eruptive, with numbers of fissures filled with quartz, carrying gold, silver and copper. Metal values from 100 assays run from \$8 to \$195 per ton. **Development:** Includes 3500 linear ft. of tunnel and 1500 ft. of prospect work in shafts, tunnels and open cuts. Depth obtained on Polar Star claim is 400 ft. with 850-ft. tunnel. Work suspended awaiting construction of Milwaukee railroad. It is estimated shipments of 100 tons a day can continue three years without further development. **Informant:** Pres. Sessions. **Note:** Information 2 years old. No recent details.

CASTLE CREEK MINING CO.

Republic

Capital: 5,500,000 shares. Par value, \$1. **Officers:** C. P. Bennett, pres.; H. J. Lycett, vice-pres.-treas.; S. H. Richardson, secy., all of Republic, Wash. Eastern office: Room 190, 45 Broadway, New York. **Annual Meeting:** In July. **Property:** Group of claims in Ferry Co., Park City camp, 25 miles south of Republic. **Development:** Prospected by 4000 ft. of tunnels. **Informant:** Secy. Richardson. **Note:** Promoted in 1907 by G. Weaver Loper, whose record may be obtained by reference to Lucky Jim Zinc Mines, Ltd., B. C. He interested men identified with J. G. Brill Car Works, Philadelphia, and was later ousted from all connection with company. Since then Philadelphia owners have erected small experimental plant and done some development work. Nothing more than prospect at this time.

CAYWASH MINING CO.

Kennewick

Capital: \$1,000,000. Par value, \$1. Assessable to 10 mills. **Directors:** Judge L. H. Prather, Tacoma, Wash., pres.; W. R. Weisel, Kennewick, Wash., vice-pres.; S. S. Callahan, Twisp, Wash., secy.; D. L. Taylor, Kennewick, treas., and Wilbur Wood, Spokane. **Annual Meeting:** May 1. **Property:** Two groups near Mazama, Okanogan Co. One group of 3 claims on Methow river. The other group of 5 claims is on Goat and Kid creeks. Unpatented ground; 160 acres. **Class of Ore:** Copper, gold and silver. Average values in 5-claim group, \$54.10 per ton, lowest assay showing copper, \$33.80; gold, \$4.13; silver, \$1.70. In 3-claim group \$8 to \$32 in copper, with some gold and silver. Ore bodies large and easily worked. **Equipment:** Blacksmith shop and general mining tools. **Development:** Shafts and three tunnels. First tunnel, 100 ft.; second, 225 ft.; third, 250 ft. **Informant:** D. L. Taylor.

CENTRAL REPUBLIC MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** F. W. Kiesling, pres.; F. N. Hunter, vice-pres.; J. Anthony Smith, secy.-treas.; W. G. Gray and A. W. Doland, all of Spokane. **Annual Meeting:** First Monday in December. **Property:** Four patented claims, 72 acres, in Republic camp, Ferry Co. **Class of Ore:** Gold. Property idle. **Informant:** F. W. Kiesling, 1204 Old National bldg., Spokane. **Note:** Idle.

CHECOP MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable; 1,000,000 shares issued. **Directors:** George E. Phillips, pres.; John B. Cooke, vice-pres. and mgr.; Chas. A. Shuart, secy.-treas.; F. W. Kiesling and Thomas A. Hayward, all of Spokane. **Annual Meeting:** First Saturday in May. **Property:** Six unpatented claims in West Belt Chewelah district, Stevens Co. **Class of Ore:** Chalcocopyrite with a

great deal of iron, siderite and limonite. **Development:** Numerous cuts and small shafts opening vein on surface and tunnel in 155 ft. **Informant:** Vice-Pres. Cooke. **Note:** Property idle since October, 1917.

CHELAN CONSOLIDATED COPPER CO.

Seattle

Capital: \$12,000,000. Par value, \$10. Non-assessable; issued, \$5,779,140. Operating office, 811 Lowman bldg., Seattle; mine office, Leavenworth, Wash. **Directors:** Michael J. Corcoran, asst. secy.-treas., 180 Broadway, New York; F. D. Wilsey, vice-pres.; Thomas J. Hignins, secy.-treas.; Henry D. Bristol, Edw. W. Kuhn, A. T. La Vallette, J. L. Jurey and Louis Arndt Stein. **Annual Meeting:** First Tuesday in June. **Property:** 14 claims at Index, Snohomish Co., and 130 claims at Red Mountain, Chelan Co., 50 miles north of Leavenworth. **Class of Ore:** On Index property, a six-inch pay streak of high grade bornite and chalcocopyrite ore. Values in copper and gold. **Equipment:** Gasoline power, compressor, 6 or 7 buildings. **Development:** 2000 ft. of main tunnel and 600 ft. of drift, showing a 5-ft. vein carrying copper and gold.

CHEWELAH COPPER KING MINING CO.

Spokane

Capital: Incorporated 1898, capital \$100,000, in 1,000,000 shares of 10c par. In 1909 changed to \$1,000,000, in shares of \$1 par. Increased March, 1912, to \$1,250,000, of which 1,136,230 were issued. Bond issue of \$30,000, bearing 8% interest authorized and \$10,360 issued. **Officers:** S. P. Domer, pres. and gen. mgr.; H. H. Hebert, vice-pres.; E. W. Shively and F. M. Jarvis, directors. Late J. Grier Long, secretary for many years. **Property:** 47 acres, patented, adjoining United Copper at Chewelah, developed by approximately 2000 ft. of tunnels and shaft. Company got into financial difficulties in 1915 and receiver was appointed. Entire holdings transferred to United Copper company late in 1917 under working bond, with royalty payments. United Copper engineers estimate 100,000 tons in sight, containing 1.1% copper and 1 oz. silver ton. Company many years ago erected 100-ton smelting plant, but same was never used commercially.

CHELORE HILL MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. In treasury, 600,000 shares. **Directors:** E. G. Ross, pres., and R. B. McClary, secy.-treas., both of Spokane, and J. T. Young, Hunters, Wash. **Property:** Formerly owned by Santiago Mining Co., is in Stevens Co., 2 miles S. of Hunters. **Class of Ore:** Ledge 5½ ft. wide, with 18-inch ore body said to go 80 oz. silver. On surface is ore shoot said to be 22 inches wide, that goes \$20 to \$35 to the ton in silver. **Development:** Shaft 87 ft. and tunnel 240 ft. **Note:** Small sorted shipments in 1917.

CLEVELAND MINING & MILLING CO.

Spokane

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** C. W. Gilstrap, Bluestem, Wash., pres.; L. Voisin, vice-pres.; John H. Hemphill, secy.-treas.-mgr., all of Spokane, and E. E. Lambirth, Davenport, Wash. **Property:** Eleven patented claims in Stevens Co., 18 miles W. of Springdale, six miles from logging road of Phoenix Lumber Co., 7 miles from Hunters. **Class of Ore:** Ore from old dumps runs 10% zinc, 6% lead, 5 oz. silver, 10% iron. Veins occur in limestone. **Equipment:** Blake crusher, heavy rolls; Hardinge mill, Atkins classifier, trommel, two flotation machines; Wilfley and Deister tables, gasoline engines of 60-h.p.; rated capacity, 72 tons daily. **Development:** No. 1 shaft is down 265 ft. with drifts. Tunnels and other work done extensively, most of it 25 years ago, when \$200,000 was taken from the property. Plant now turning out a lead-silver concentrate running 50% lead and 45 ozs. silver and a zinc-silver product running 35% zinc and 6 ozs. in silver. On dump, 5000 tons of good mill feed. **Note:** Property worked by Jay P. Graves 25 years ago. Revived 3 years ago. First shipment by present company, February, 1918. Financial difficulties caused shut down in March, 1918. Future doubtful.

COLUMBIA-TURK COPPER CO.

Spokane

Directors: C. M. Carroll, pres.; Alex. Robinson, vice-pres.; Oscar Olsen, secy.-treas., all of Spokane. **Property:** 10-year lease and bond for \$100,000, on the High-grade Mining Co. property in Deer Trail district, Stevens Co., formerly owned by Carstens Bros., of Reardan, Wash. Claims said to show 9 ft. of ore, of which some shipments have been made. **Note:** Co. sold property to Granby Consolidated, of Grand Forks, B. C., for \$120,000, but High-grade Mining Co. (q.v.), controlled by Carstens Bros., refused to join in transfer of title, claiming failure to carry out contract, and property reverted to High-grade Co., which is now working it. Columbia-Turk Co. then brought suit against High-grade Co., and secured judgment in small amount.

CONSOLIDATED COPPER CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Assessable to 25% of par value. Assessments levied, 14 mills. **Directors:** W. H. Stowell, pres.; George C. Gates, vice-pres.; V. W. Brasch, secy.-mgr.; Chas. A. Libby and E. R. Traeger, all of Spokane, except George C. Gates, Hillyard, Wash. **Annual Meeting:** January. **Property:** The Togo mine of 160 acres patented ground and 80 acres unpatented, in southeastern part of Stevens Co., in what is known as Springdale, or Cedar Canyon district. **Class of Ore:** Copper, gold and silver. Assays of carload lots, 8½% copper, 3½ ozs. silver and trace gold. Two carloads shipped. **Equipment:** 4-h.p. gasoline engine, air fan, tracks, cars and complete camp. **Development:** Has 2000 ft. of development work done in shafts, drifts and tunnels. **Informant:** V. W. Brasch, secy.

COPPER BUTTE MINING CO.**Orient**

Capital: \$1,000,000. Par value, \$1. **Directors:** J. D. Gumper, pres.; H. J. Miller, secy., and Willis Townsend, mgr. **Property:** Four patented claims in Pierre lake district, south of Orient. **Class of Ore:** Copper-gold ore, in two veins in open cuts 14 ft. and 15 ft. wide, respectively. **Development:** Shaft down 300 ft. with drifts on 100-ft. level. Inactive.

COPPER CLIFF COPPER MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1; issued, \$62,000. **Directors:** T. F. Wilson, pres.; J. O. Blair, vice-pres.; L. C. Dougherty, N. 3040 Lincoln St., Spokane; secy., and L. K. Armstrong. **Property:** Sixty acres and 40 acres of timber land, held under bond and lease, in Chewelah district, Stevens Co. **Class of Ore:** Copper with small silver values in contact deposits between granite and limestone. **Development:** Shaft down 332 ft., another down 730 ft., tunnel in 600 ft., giving depth of 1000 ft. Believed to be closed down.

COPPER CROWN MINING CO.**Spokane**

Capital: \$200,000 in 2,000,000 shares; par value, 10c. **Directors:** John A. Peacock, pres.; E. H. Fearon, secy., Spokane. **Property:** Adjoins United Copper, Chewelah district, Stevens county. Not working. **Informant:** Pres. Peacock.

COPPER KING.**Colville**

Carl Fluegel, Colville, Wash., owns Copper King Nos. 1 and 2 and Anaconda Nos. 1 and 2, 80 acres, in Northport mining district, Stevens Co. **Class of Ore:** Lead-zinc-silver. One carload shipped. **Development:** 1000 ft. of tunnel, and shaft down 200 ft. **Informant:** Owner.

COPPER KING GROUP.**Index**

Formerly owned by Sunset Copper Mining Co., now owned by W. W. Black of Everett, Wash., and Frank L. Bell, Glens Falls, New York. One-half section and 4 additional claims, 6 miles from Index, Snohomish Co. High-grade gold and silver property. **Equipment:** Compressor, water power and electric light plant. **Development:** More than ¼ of a mile of tunnels, more than half of the distances on the vein. One tunnel cuts the vein at 135 ft. depth with upraise to surface, and drifting. Lower tunnel at depth of 300 ft. with drifts and partial upraise all in ore. **Informant:** W. W. Black, Stokes bldg., Everett, Wash.

COPPER KNOB MINING CO.**Laurier**

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** Jacob S. Meyers and John T. Brunskill of Laurier, Wash.; William H. Stevens, pres., Hilliard, Wash.; J. E. Winters and E. O. Connor, Spokane. **Annual Meeting:** August. **Property:** Six unpatented claims near Laurier, Wash., and near Great Northern railroad. **Class of Ore:** Copper, gold and silver. **Equipment:** Cabins, bunkhouses, hoist, machinery and tools. **Development:** Shaft down 65 ft. in ore. **Informant:** Pres. Stevens. Two more claims added to holdings in March, 1918.

COPPER MOUNTAIN MINING & DEVELOPMENT CO.**Tacoma**

Owns 4 claims near Ryan, Stevens Co., Wash., developed by 300-ft. shaft and 115-ft. tunnel, showing a 75-ft. ledge of low-grade ore. (See British Columbia.)

COPPER WORLD EXTENSION MINING CO.**Nighthawk**

Capital: \$1,500,000. Par value, \$1. Walter A. Boyle, pres.; Alfred F. Carman, secy. **Property:** Eight claims, 160 acres, on Palmer mountain, near Nighthawk, Okanogan Co. **Equipment:** 120-h.p. boiler, 40-h.p. hoist, 3-drill compressor, ventilation system, blacksmith and machine shops. **Development:** Ore in a body 18 to 26 ft. wide, said to have been opened for 400 ft. on the 200-ft. and 400-ft. levels. **Class of Ore:** Said to contain 5% copper. **Note:** Under long term lease to C. Dempster & Sons, who are making shipments.

COPPER WORLD GOLD MINING & SMELTING CO.**Spokane**

Capital: \$3,000,000. Par value, \$1. Issued, \$1,800,000. Non-assessable. **Directors:** Jerome L. Drummheller, 401 Columbia bldg., Spokane, pres.; John M. Wentworth, Loomis, Wash., vice-pres., and W. E. Child, Spokane, secy.-treas. **Annual Meeting:** February 27. **Property:** Copper World and Copper King claims on north slope of Palmer mountain, 6 miles from Loomis, Wash. Patented. **Class of Ore:** Sulphide, averaging 3 to 5% copper, with some gold and silver. **Equipment:** Hoist and 50-h.p. steam engine. **Development:** Shaft down 135 ft. and crosscut from bottom 125 ft. Ore zone is 100 ft. wide, with several lenses 8 to 13 ft. wide. Open cuts have proved vein for 3000 ft. **Informant:** Pres. Drummheller. **Note:** These claims have been taken under 10-year lease and bond from Sept. 1, 1917, by New York syndicate headed by Reginald Dempster.

CRESCENT MINING CO. LTD.**Winnipeg, Man.**

Capital: \$3,000,000. Par value, \$1. Non-assessable. **Directors:** D. C. McFee, C. H. McNaughton, J. H. Sutherland, D. D. Young, D. Monroe, and F. J. Carr, all of Winnipeg, and Glen B. Creighton of Spokane. **Annual Meeting:** Feb. 20. **Property:** 48 unpatented claims, 960 acres, near Twisp, Okanogan Co. Copper from 2 to 20% and gold from \$2.25 to \$488.90 ton. **Equipment:** Small sawmill, electric plant and drill. **Development:** Main tunnel is in 910 ft. and driving for the copper vein. It has crosscut 35 ft. of graphite from 60 to 75% pure. **Informant:** Frank R. Creighton, mgr. and stockholder, Spokane.

CROSBY MAGNESITE CO.**Duluth, Minn.**

Capital: \$250,000. Par value, \$1. Non-assessable. Organized in Minnesota. **Directors:** Geo. H. Crosby, H. J. Grannis, and A. J. McLennan, secy., all of Duluth. **Property:** 15 claims, patented, about 12 miles from Valley, Wash. **Class of Ore:** Magnesium carbonate. **Equipment:** Quarry tools and auto truck. **Development:** Quarry in course of development in 1917 with force of 40 men. **Informant:** A. J. McLennan, secy.

CUBA MINING AND DEVELOPING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** J. H. McLellan, Spokane, pres.; William Bryant, Colville, Wash., vice-pres.; William Yake, secy.-treas., Spokane; Thomas Kiloran and Henry Yake. **Annual Meeting:** October 9. **Property:** Five unpatented claims, 100 acres, Covada district, Ferry Co., 10 miles from Kettle Falls, and 1 mile W. of Columbia river. **Class of Ore:** Gold, silver and lead. **Development:** Several shafts, one down 150 ft. said to be in ore all the way, shoot being about 12 ft. wide, carrying values from \$8 to \$30 in gold, silver, lead and zinc, with some showings of copper in the bottom of the shaft. Tunnel has been driven 360 ft. towards point where ore is expected at 300-ft. depth.

CYPRUS MINING CO.**Danville**

Directors: S. J. Neff, pres.; George J. Miller, vice-pres.; B. M. Miller, secy.; Louis Miller, treas.; A. F. Richardson. **Property:** Formerly belonged to Rialty Mining Co., is three miles S. of Danville, in Ferry Co., and includes 4 claims and 2 fractions, on Great Northern railroad. **Class of Ore:** Gold, lead, silver. Outcrop 20 ft. wide, carries gold. **Development:** Crosscut tunnel in 500 ft.

DAISY MINING AND REDUCTION CO.**Spokane**

Capital: \$100,000. Par value, \$10. Non-assessable. **Directors:** W. E. Seelye, 818 Paulsen bldg., Spokane, pres., and C. J. Shoemaker, secy.-treas. **Annual Meeting:** Second Thursday in December. **Property:** One patented and 4 unpatented claims, in Stevens Co., 5 miles E. of Daisy. **Class of Ore:** Lead and silver. **Development:** Tunnel 1700 ft., drift 600 ft., and shaft of 260 ft.

DEER PARK MINING CO.**Deer Park**

Reorganized 1918, as Spokane Consolidated Tungsten Co., of Deer Park (q.v.).

DEER TRAIL NO. 2 MINES.

These properties, which 25 years ago were operated by the Deer Trail No. 2 Mining Co., and were producing profits of \$5000 a month, have passed through different hands in the last three years and at times have been the subject of litigation. In February, 1918, controlling interest passed to new investors represented by Clark Brothers, Paulsen bldg., Spokane. **Property:** In Deer Trail district of Stevens Co. and about 25 miles W. of Springdale. Ore is chiefly silver, with some lead values. Estimated 200,000 tons of ore on dump and in stopes that will average \$10 ton gross. About 2 miles of tunnels run by the early owners, who took out about \$3,000,000. Alex. Robinson nearly three

years ago commenced installation of adequate equipment, but was unable to complete plans. It is said it will require \$15,000 to complete the plant, which already includes building, crusher, boilers, engines, agitators and other machinery. Clark Bros. intend to commence shipments of crude ore from Elephant claim immediately and will work out best treatment plan and complete mill this summer.

DENVER COPPER MINING CO.**Spokane**

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Victor P. Adams, pres.; Arthur L. Hooper, vice-pres., and Harvey M. Ross, secy.-treas.-mgr., 537 Rookery bldg., all of Spokane. **Annual Meeting:** October 9. **Property:** 200 acres 10 miles W. of Valley, Wash., in Stevens Co. Patented ground adjoining Admiral Mining Co. **Class of Ore:** Vein uncovered 1000 ft., averaging 2 ft. wide and assaying 7% copper and 2 ozs. silver. **Development:** Shaft down 15 ft. Adit in about 100 ft.

DIAMOND B MINING CO.**Spokane**

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** R. A. Hutchinson, pres.; W. H. Crawford, Metaline, Wash., vice-pres.; E. S. Campbell, secy.-treas.; Oscar DeCamp, supt., and T. S. Hutchinson, all of Spokane, except Mr. Crawford. **Annual Meeting:** July 23. **Property:** Six patented claims in Pend Oreille Co., one mile from Metaline. **Class of Ore:** Lead-zinc, carrying some silver. The crude lead ore carries better than 60% lead. Milling ore carries average 7% lead, 10% zinc and 1 to 3 ozs. silver. Approximately 15,000 tons of \$20 ore on dump and in mine ready for mill. **Development:** Sinking and drifting on the ore is in progress and a lower tunnel is to be driven to cut the ore bodies 300 ft. deeper. Leasers have shipped more than 100 tons of 60% lead ore. **Informant:** Secy. Campbell, 311 Hyde blk., Spokane.

DOMINION SILVER-LEAD CO.**Spokane**

Capital: \$100,000. Par value, \$10. Non-assessable. **Directors:** W. H. Linney, pres.; Roy C. Lammers, vice-pres. and treas., and Roy H. Clarke, secy., all of Spokane. Washington corporation. **Annual Meeting:** First Saturday in May. **Property:** Old Dominion group, two miles E. of Colville. **Class of Ore:** High-grade silver and 25% lead. **Equipment:** Includes 60-ton obsolete concentrator, 6-drill compressor and 2 boilers. **Development:** Total of 10,625 ft. of tunnels, crosscuts, winzes, raises, shafts and drifts done by former and present owners. Vertical depth attained, 800 ft. Shipments by early day owners, about \$700,000. **Informant:** Secy. Clarke, 643 Peyton blk., Spokane. **Note:** Company organized to work Old Dominion group (q.v.), located in 1885 and operated for many years by G. B. Dennis, Spokane, and Peck Bros., Chicago. Property sold at sheriff's sale in 1916 and bought in by W. H. Linney, formerly manager Nipissing Mines, Cobalt, Ont., now of Spokane, who formed this company. Peck Bros. charged collusion in sale and carried matter to Supreme Court of Washington, where they were upheld. Matters at standstill for nearly 2 years.

DORA MINING CO.**Colville**

Sig Dilsheimer of Colville, chief owner. Property is six miles below Kettle Falls, Wash. **Class of Ore:** Gold and silver-lead. **Development:** Owners said to have expended \$75,000.

DOUBLE EAGLE MINING CO.**Valley**

Capital: \$1,000,000. Par value, \$1. Non-assessable. Some treasury stock still unsold. **Directors:** M. Kulzer, Valley, Wash., pres.; W. S. Rose, Gray, Wash., vice-pres.; E. E. Edwards, Valley, secy.; J. L. Dirks and W. H. Button of Spokane, and A. Morrison, Valley. **Annual Meeting:** Last week in February. **Property:** Four full, unpatented mining claims and 200 acres deeded land in Stevens Co., 12 miles W. of Valley and near terminus of the Spokane, Valley & Northern Railroad company's line. **Class of Ore:** Silver, lead and copper. Two carloads shipped. **Development:** Four tunnels have been run. **Note:** This company is reported to have sold for \$35,000 some surface rights to the Valley Magnesite Co. in February, 1918.

DOUBLE HEADER MINING CO.**Nespelem**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Geo. M. Quinn, pres.-mgr.; L. C. Shuff, secy.-treas.; Edward Moore, C. J. Kennedy and Eugene Smith, all of Nespelem, Wash. **Annual Meeting:** February 16. **Property:** Seven unpatented claims, about 120 acres, at Nespelem, in Moses district, Okanogan Co. **Class of Ore:** Gold and silver. **Equipment:** Tools, power hoist and several buildings. **Development:** About 1000 ft. of work done in shafts and drifts. Three shipments made. One of 32 tons returned \$1877. A small shipment gave \$210 to ton and another \$74 to ton. **Informant:** Pres. Quinn.

DUTCH MILLER MINING & SMELTING CO.

Seattle

Capital: \$2,000,000. Par value, \$1; 1,000,000 shares in escrow for 5 years. H. P. Fogh, pres. and agent, 1403 Howell St., Seattle. George H. Law, secy.-treas. **Property:** Two patented claims, 12 miles south of Skykomish, Wash. Ore is chalcopyrite, and high grade.

EAGLE PEAK COPPER MINING CO.

Tacoma

Capital: \$150,000. Par value, \$1. Non-assessable. R. H. Wheelock, Longmire, Pierce Co., Wash., pres.; M. A. Long, secy.-treas. **Annual Meeting:** April 21. **Property:** Two claims in Tatoosh mountains, Lewis Co. **Class of Ore:** Copper, gold and silver. **Equipment:** 25-h.p. power plant, air compressor and 4 buildings. Developed by shaft and tunnel.

ECLIPSE CONSOLIDATED MINING & INVESTMENT CO.

Silverton

Capital: \$3,000,000. Par value, \$1. Non-assessable. John E. Newell, supt., Silverton, Wash.; O. Robert Dahl, Seattle, pres.; H. M. Dahl, secy. **Property:** Ten unpatented claims in Snohomish Co., carrying gold and silver with some copper. Has 5 tunnels, the longest 1100 ft. Water power of 830-h.p. developed. Concentrator of 300 tons daily capacity.

ELECTRIC POINT MINING CO.

Northport

Capital: \$1,000,000. Par value, \$1. Non-assessable. 793,500 shares issued. Washington corporation with office at Northport. **Directors:** Roy A. Young, pres.; J. E. Yoder, vice-pres.; F. M. Turner, secy., all of Northport; Frank T. McCollough, Spokane, treas., and L. C. Jesseph, Colville. **Annual Meeting:** Second Tuesday January. **Property:** Seven claims, about 110 acres, on Gladstone mountain, Stevens Co., about 20 miles E. of Northport and near new town of Leadpoint. Shipping point, Boundary, on Great Northern, about 12 miles from mine. **Production:** Dividends of \$166,635 paid, all but \$7935 in 1917. Disbursement for last year was heavier than that of any other metal mine in Washington. Shipments in 1915 about 9000 tons, and in 1917 16,310 tons. In addition to disbursements to stockholders, understood company had about \$200,000 surplus January 1, 1918. **Class of Ore:** Carbonate and sulphide of lead, in proportion of approximately six to one, carrying an ounce or more of silver to ton, but not in commercial quantity on shipping scale. Ore-bodies occur in great chimneys of varying size, some developed to 700-ft. level. Exploration now in progress at that level, which is by tunnel from the south, along the general strike of the chimneys. Property at elevation of about 5000 ft. above sea level, between Republican and Silver Creeks, on the divide between Columbia and Pend d'Oreille watersheds. Carbonate ore runs from 20 to 30% lead, while sulphide assays as high as 80%. Region consists of sedimentary rocks, said to be of Paleozoic age, with limestone predominating; some schists and slates in the neighborhood. **History:** Property discovered in July, 1915, by J. E. Yoder and Chris Johnson, grubstaked by R. A. Young. In December, 1916, dividends were commenced and total shipments to end of 1917 were impressive. A Spokane syndicate, represented by Walter J. Nicholls & Co., bought Johnson one-third interest from J. Peepser, who had secured option, the deal involving approximately \$125,000. Discovery among the most important in recent history of Northwest, opening up old-new district that now shows as much activity as any in state. Dividends discontinued following enactment of war taxation and will not be resumed until effect is fully known. Meanwhile, development is being carried on upon a systematic basis and results at greatest depth are said to be extremely encouraging. Property conservatively managed and capable of great record when war taxation measures are understood and steady market for lead secured. So far, product has been going to Trail smelter, but shipments were discontinued a few months ago. **Note:** Annual report, dated Dec. 31, 1917, shows receipts of \$562,122, including \$8600 worth of ore on hand. Costs of operation, \$219,120, with \$243,019 for depletion of ore reserves, and \$7282 for depreciation. Cash in bank and treasury, \$178,792. Total liquid and fixed assets, \$298,454. Net profit, \$80,129, with dividends of that amount paid during year.

ELIZABETH GOLD HILL MINING CO.

Yakima

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** L. L. Matteredson, pres., and Frank X. Nagler, secy.-treas. **Annual Meeting:** Second Monday in March. **Property:** Fourteen unpatented claims, 200 acres, in Summit district, about 65 miles northwest of Yakima. **Class of Ore:** Gold, silver, lead and copper. **Equipment:** Steam and water power, sawmill, and material for 10-stamp mill. **Development:** Total 1600 ft.

EMPIRE MOLYBDENITE MINING & MILLING CO.

Spokane

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** Thomas Le Page, pres.; Daniel J. Whelan, vice-pres.; M. B. LePage, secy.; Fred LePage,

treas., and A. G. Clark. **Annual Meeting:** In December. **Property:** Eight unpatented claims in Metaline district of Pend Oreille Co., on Molybdenite peak, 11 miles from Ione. **Class of Ore:** Molybdenum. Seven tons shipped returned \$850 ton. **Equipment:** Small amount of machinery. **Development:** Property worked in small way for four years. **Informant:** Secy. M. B. LePage, S. 621 Adams St., Spokane.

HUBKA DISTRICT GOLD MINING CO.

Portland, Ore.

Capital: \$2,500,000. Par value, \$1. **Directors:** Jonathan Bourne, pres.; I. M. Arneson, secy., both of Portland. Company holds title to all property of former U. S. Senator Jonathan Bourne in Republic district. Knob Hill, Mud Lake and several other claims have been sold, possessions of company not being important at this time. No active operations undertaken for some years, holdings being all patented.

FAIRVIEW CLAIMS.

Metaline

Owned by E. J. Hoage and W. E. Weltzin. Situated in Metaline mining district, in Pend Oreille Co. **Class of Ore:** Hematite, carrying gold, silver and lead. **Development:** About 150 ft. of tunnel and shafts. **Informant:** E. J. Hoage, Metaline.

FAVORITE GOLD & COPPER MINING CO.

Nighthawk

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** W. R. Calkins, pres.; Henry Loudenslager, vice-pres.-treas.; A. E. Faine, secy.; Edw. Williams, supt. **Property:** 14 full claims and 14 fractions, 300 acres, adjoining Nighthawk mine, Wannicut Lake district, 34 miles from Canadian Pacific railway. **Class of Ore:** Three veins, one 7 ft. wide carrying copper, and two carrying lead with some silver. **Development:** On the lead-silver vein, 1 to 5 ft. wide, tunnel 963 ft. long, and lower tunnel 650 ft. **Note:** No late information; probably dead.

F. H. & C. GOLD MINING CO.

Spokane

Capital: \$250,000. Par value, 25c. Non-assessable. **Directors:** Samuel A. McCoy, pres.; M. J. Luby, vice-pres.; J. J. Hennessy, treas.-mgr.; Mary Hennessy, secy., and Martin Woldson, all of Spokane. **Property:** 53 acres patented, 2½ miles N. W. of Rockcut, Ferry Co. **Class of Ore:** Gold and silver. **Equipment:** Gasoline hoist, air compressor, drills, pump, cars and track. **Development:** Shaft 170 ft.; about 1000 ft. of drifts on 70- and 170-ft. levels. Ten tons shipped returned \$502 in 1917. **Informant:** Pres. Samuel A. McCoy.

FIRST THOUGHT GOLD MINES CO., LTD.

Calgary, Alberta

Capital: \$750,000. Par value, 25c. Assessable, but no assessments levied. **Directors:** P. Burns, Calgary, pres.; Dominick Burns, Vancouver, B. C.; W. J. Wilson, Vancouver, B. C., vice-pres.; Wilfred Corlet, box 380, Calgary, secy.-treas.; W. J. C. Wakefield, Spokane, asst. secy., and Alexander Sharp, Orient, Wash. Mine office, Orient. **Annual Meeting:** In June. **Property:** 94 acres, patented, in Stevens Co., in Pierre Lake district, near Orient. **Class of Ore:** Gold and silver in about equal values. Total shipments, 35,627.28 tons, average smelter return, \$16.88. No shipments since 1910. All the ore was taken from one shoot, about 280 ft. deep, 50 ft. wide and 150 ft. long. This shoot mined out and none other known to exist. **Equipment:** Six-drill compressor, 10-h.p. hoisting engine, tram to railroad 12,500 ft. with 1-inch wire rope and 260 buckets. **Development:** About 10,000 ft. of underground working to a depth of 300 ft. **Informant:** Director Sharp. Property closed on account of alleged excessive taxation by county in 1910. No effort to reopen it has been made, although company won litigation involving tax.

FLATHEAD EXPLORATION & DEVELOPMENT CO.

Spokane

Capital: \$200,000. Par value, 10c. Non-assessable. **Directors:** F. H. Oliver, pres.; W. C. Jones, vice-pres., and D. K. May, all of Spokane. **Property:** Patented claim known as the "Lost Lode", in town of Republic, Ferry Co. **Development:** Tunnel in 60 ft. and shaft down 95 ft. without reaching the veins. **Informant:** D. K. May, financial agent, 226 Rookery, Spokane. **Note:** Inactive.

FOREST MINING & MILLING CO.

Waukegan, Ill.

Capital: \$1,200,000. Par value, \$1. Non-assessable. **Officers:** Alfred E. Stripe, Waukegan, Ill., pres.; John Hart, Bound Lake, Ill., vice-pres. **Annual Meeting:** Second Tuesday Sept. **Property:** Two claims in Pierre Lake district, Stevens Co. **Class of Ore:** Gold, silver and copper, with some lead, zinc and manganese iron. **Note:** No recent information obtainable. Probably defunct.

FORTY-FIVE CONSOLIDATED MINES CO.

Winchester, Mass.

Capital: \$1,000,000. Par value, \$10. Non-assessable. **Officers:** Herman Smith, pres.; S. Earle Haines, vice-pres., both of Philadelphia; Charles A. Burnham, Winchester, Mass., secy.-treas.; Nate B. Jones, Sultan, Wash., mgr. Organized in Washington. **Annual Meeting:** May 11. **Property:** 25 claims, patented, at head of Sultan Basin, Snohomish Co. **Class of Ore:** Gold and silver with average assays of \$35. **Equipment:** Air compressor run by water power, and four Ingersoll-Rand drills. **Development:** About 5000 ft. of underground work done. **Shipments:** 3100 tons. **Informant:** Mgr. Jones.

49TH PARALLEL MINING CO.

Oroville

Capital: \$100,000. Par value, 25c. Non-assessable. **Directors:** S. T. Stanton, pres., Oroville; C. J. McKenzie, secy., Oroville; C. H. Smith, treas., Hillyard, Wash. **Annual Meeting:** January 15. **Property:** On Kruger mountain, 3½ miles north of Oroville. Eighty tons returned \$30 ton. **Development:** One shaft down 55 ft. and one shaft down 90 ft., an incline shaft and surface work. **Informant:** Secy. McKenzie.

FRANK MINING CO.

Chewelah

Capital: \$80,000. Par value, 5c. **Directors:** W. C. Weary, pres., Spokane; W. B. Stuart, secy.-treas., Chewelah. **Property:** Unpatented claims, adjoining the Jay Gould on the east, 3 miles E. of Chewelah, Stevens Co. **Class of Ore:** Lead. Not working. Shut down October 1, 1916. Equipped only for hand work. No shipments. **Development:** 65-ft. shaft. **Informant:** Secy.-Treas. Stuart.

FRISCO-STANDARD MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** G. H. Harrington, pres.; James T. Burcham, Spokane, secy.-treas.; John E. Blair, Office, 803 Sherwood blk., Spokane. **Property:** Seven patented claims 12 miles from Northport, Stevens Co. **Class of Ore:** Copper, silver and gold in slate formation. **Development:** 400 ft. of tunnel has developed 17 ft. of concentrating ore. A 4-ton smelter test last year returned 60 ozs. silver, 9% copper and \$2.50 in gold. **Informant:** John R. Stout, Northport. **Note:** An, old property, developed quite extensively 20 years ago, recently revived.

GALENA FARM MINING CO.

Spokane

Directors: William McCarter, Coeur d'Alene, pres.; Dr. Samuel Kallin, Spokane, vice-pres.; David O'Neil, Northport, Wash., mgr.; Dr. W. J. Keyes, Spokane, secy.; Charles McSperrin and Elmer Mullin, both of Marcus, Wash. **Property:** Six claims in Stevens Co., 16 miles S. E. of Northport. **Equipment:** Compressor and blacksmith shop. **Class of Ore:** From open cuts in an 8-ft. ore body ore has been taken out that carries \$32 to \$82.50 in lead, silver and gold to ton, gold value being \$2.50. Crosscut tunnel in about 200 ft. **Note:** Similarity of names has caused confusion with Galena M. & M. Co., also of Spokane, operating Galena Farm mine, Silverton, B. C., and controlled by estate late Patrick Clark. Believed property now closed down.

GEM MINING CO.

Spokane

Capital: \$150,000. Par value, 10c. **Directors:** Walter L. Jones, Nespelem, Wash., pres.; Otto H. Gerboth, vice-pres., and Grant J. Bowman, secy.-treas., both of Spokane. **Property:** Eight claims in the Stepstone group, 10 miles N. of Nespelem, Okanogan Co. **Class of Ore:** In tunnel, stringer of zinc and galena runs \$25 to \$50 to ton. Another tunnel lower down encountered solid body of iron ore carrying small values in gold, silver and nickel. A shaft down 30 ft. said to show foot of nickel ore and 14 ft. of lower grade matter, containing nickel and cobalt.

GLACIER PEAK MINING & SMELTING CO.

Roslyn

Capital: \$2,500,000. Par value, \$1. Non-assessable. **Officers:** William Adams, Roslyn, Wash., pres.; James J. Wright, Cle Elum, Wash., secy. **Annual Meeting:** November 2. **Property:** Group 1, of 25 copper claims, 2 mill sites and 1 water power; group 2, of 3 copper claims; group 3, of 2 gold claims. Located in N. E. corner of Snohomish Co., 18 miles from Lake Chelan, 35 miles E. of Darlington. Elevation of tunnel No. 2, 5600 ft. **Class of Ore:** Chalcopryrite, copper glance, red oxide of copper, native copper, bornite, molybdenum, gold, arsenical lead, iron, silver and nickel. **Development:** Five tunnels totaling 925 ft. **Note:** No recent information available.

GLADSTONE MOUNTAIN MINING CO.

Spokane

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** Frank T. McCollough, pres.; Thaddeus S. Lane, vice-pres.; James A. Welch, second vice-pres.; Walter J. Nicholls, treas., and R. W. Nuzum. Jesse M. Hall, 201 Sher-

wood blk., secretary. All of Spokane. Washington corporation. **Annual Meeting:** August 20. **Property:** 16 unpatented claims, about 291 acres, on Gladstone mountain, adjoining Electric Point mine, 20 miles E. of Northport, 13 miles S. E. of Boundary on Great Northern, and near new town of Leadpoint. **Class of Ore:** Lead carbonate, averaging 15% lead, found in chimneys, of which three have been discovered to date. One is 120 ft. long and 27 ft. wide. **Equipment:** 15-h.p. Fairbanks-Morse hoist, etc. **Development:** Two shafts, one down 275 ft., with 800 ft. of drifts all in carbonate-lead ore; 68 open cuts, of which 32 show ore at surface in widely separated areas. \$35,000 expended in prospecting and developing since work commenced in July, 1916. **Shipments:** 22 carloads, last year, returning approximately \$12,000. **Informant:** Secy. Hall.

GOAT WALL MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** Frank R. Creighton, S. 628 Oak St., pres.; John Ove., vice-pres.; E. F. Edwards, secy.-treas.; F. L. Spangler, A. M. Creighton, W. L. Singer, all of Spokane, and W. L. Dunham, Mazama, Wash. **Annual Meeting:** January 28. **Property:** Four claims, unpatented, 80 acres, in Methow valley, Okanogan Co. **Class of Ore:** Gold and silver. **Development:** Upper tunnel in 450 ft. with 135 ft. drift on a 3-ft. vein. Lower tunnel in 235 ft. **Informant:** Pres. Creighton.

GOLD AX.

Chesaw

Reported in 1917 under bond to E. S. Campbell. Property near Chesaw, Okanogan Co. Shipments arsenical iron ore made to Granby smelter.

GOLD CORD MINING & MILLING CO.

Keller

Reorganized as Blue Ledge M. & M. Co. (q.v.).

GOLDEN CHARIOT MINING & SMELTING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** W. H. Thomas, Penawawa, Wash., pres.; E. A. Thomas, secy.-treas.; J. M. Watson, L. B. Cornell, L. W. Worthing, all of Spokane. **Annual Meeting:** First Wednesday in January. **Property:** Four unpatented claims in Okanogan Co. **Class of Ore:** Gold, silver, copper. **Equipment:** Hoist and drills. **Development:** Total of 475 ft. underground work, developed vein 6 to 12 ft. wide, carrying some ore. **Shipments:** 125 to 150 tons that returned \$10 to \$22 ton. **Informant:** Secy. Thomas.

GOLDEN CROWN.

Conconully

Patented claim owned by David Gubser and John Isenhardt of Conconully. Two small shafts have been sunk about 50 ft. Idle. **Informant:** David Gubser.

GOLDEN EAGLE.

Blewett

Thurnond & McCarthy reported 1917 to hold lease on this and five other claims, unpatented, half mile west of Blewett, Chelan Co. **Class of Ore:** Gold quartz in serpentine. The average ore milled has gone about \$10 ton. Shipments as high as \$500 a month. **Equipment:** Cyanide plant, with crushing rolls, 25-h.p. gaso-line engine, capacity 100 tons per week. Aerial tram, 1800 ft., connects mine and mill. **Development:** Several hundred ft. of underground work. **Informant:** F. LeRoi Thurnond, supt., Blewett.

GOLD QUARRY MINING CO.

Conconully

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** W. E. Gamble, pres.; J. P. Adams, vice-pres.; Dr. A. M. Polk, secy.-treas.; H. A. Wilder, mgr., all of Conconully, and A. Goldenstein, Portland. **Annual Meeting:** June 1. **Property:** 420 acres, unpatented, on Douglas and Goat mountains, on Sinlahekin creek, Okanogan Co. **Class of Ore:** Gold, silver, copper. **Development:** About 1200 ft. of tunnels, shafts and open cuts. **Informant:** Mgr. Wilder.

GOLD RUN MINING & MILLING CO.

Sumas

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** L. R. Gargett, pres.; J. G. Bonds, vice-pres.; C. L. Gargett, secy.; John Saar, mgr., all of Sumas, Wash.; Alex M. Muir, Bellingham, Wash., treas., and F. F. Gargett, Sumas. **Annual Meeting:** January 1. **Property:** 13 unpatented claims, 260 acres, S. E. side of Red mountain, Whatcom Co. **Class of Ore:** Gold, silver, copper. **Equipment:** Water power plant and compressor. **Development:** About 200 ft. **Informant:** Pres. Gargett.

GRANDVIEW MINING CO.

Grandview

Directors: C. W. Davis, Homer E. Smith, S. B. Harper and R. E. Kermen of

Grandview and R. M. Aistrop of Portland. **Property:** Three miles S. of Grandview on Yakima river, in Yakima Co. Values in gold and silver, with traces of platinum. **Note:** No recent or official information available. Probably defunct.

GRANT CONSOLIDATED COPPER MINING CO.**Spokane**

Capital: \$1,650,000. Par value, \$1. Non-assessable. **Directors:** C. H. Clodius, Ritzville, Wash., pres.; John MacDonald, Ritzville, vice-pres.; J. A. MacLean, Spokane, secy.-treas. **Annual Meeting:** Second Tuesday in August. **Property:** 15 unpatented claims, 300 acres, on southeast side of Copper mountain, 9 miles from Chesaw, Okanogan Co. **Class of Ore:** Copper and silver. Twelve carloads shipped gave 6% copper and \$4 gold and silver. **Equipment:** Two 80-h.p. boilers, 5-drill compressor, tools, buildings and general equipment. **Development:** 1200 ft., to depth of 500 ft. **Informant:** Secy. MacLean. **Note:** Inactive for several years.

GRAY EAGLE.**Chesaw**

A patented claim owned by J. W. McBride, Spokane. Situated in Myers creek district, near Chesaw, Okanogan Co. A quartz vein, in porphyry, carrying gold. Worked in 1916 and 1917 by L. B. Pearce and sons of Chesaw, who obtained returns from Northport smelter of \$8651.78. **Informant:** Mr. McBride.

GREAT METALS MINING & MILLING CO.**Nespelem**

This company is putting in a 100-ton concentrator near Nepelem, Okanogan Co., to handle its own and other ores. Owns Cabin mine and claims formerly owned by the Old Nespelem Mining Co. Properties contain lead-silver ores carrying gold. Emery C. Williamson, manager. **Note:** No recent information obtainable.

GREAT NORTHERN MINING CO.

Owns the Congress group of four patented claims, in Ferry Co., 15 miles up the San Poil river from Keller. **Class of Ore:** Well defined ledge said to be 18 to 40 ft. wide, with ore that carries nickel and cobalt, with gold and copper. **Development:** Have 1850 ft. of underground work. Joseph Rosslow, Hyde blk., Spokane, one of owners.

GREGORY-SAVAGE MINING CO.**Port Angeles**

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** M. J. Gregory, pres.; J. E. Gregory, secy.; L. A. Savage, all of Port Angeles. **Annual Meeting:** In November. **Property:** Ten unpatented claims, 200 acres, in Clallam Co., 11 miles S. W. of Port Angeles, on a tributary of Little river. **Class of Ore:** Zinc, with some values in gold, silver, copper. **Equipment:** Compressor and drills. **Development:** About 400 ft. of tunnels. **Informant:** Lewis Levy, agent.

GWINN MINING CO.**Meteor**

Owns claims in the Meteor, or Covada, district of Ferry Co. Ore carries gold, silver, copper and lead of the reported value of \$16 ton. **Equipment:** 50-ton concentrator and developed water and electric power. Peter Proff, mgr. Operated by Hall Creek Mining & Milling Co. (q.v.).

HAIDER MINING CO.**Spokane**

Capital: \$4500. Par value, $\frac{1}{4}$ of one cent per share. Assessable. **Directors:** Dr. E. T. Richter, A. Rensch, secy.-treas., both of Spokane; T. D. Brosnahan, Kiesel, Wash. **Annual Meeting:** June 15. **Property:** Nine unpatented claims in Okanogan Co., on Goat creek, in upper Methow valley. **Equipment:** Blacksmith shop, bunkhouses, gasoline engine, cars, track and tools. **Class of Ore:** Copper and gold with some silver. Company has 14,000 tons of ore blocked out awaiting transportation. **Informant:** Secy. Rensch.

HALL CREEK MINING & MILLING CO.**Rosalia**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** M. W. Merritt, pres.; Peter Proff, Jr., secy.-treas.-mgr., both of Rosalia, Wash.; W. F. P. Binge, vice-pres., and Samuel Lemley, both of Plaza, Wash.; L. S. Kimm and H. Mundt, Sr., both of Rosalia; George Bailey, Lamont, Wash. Washington corporation. **Annual Meeting:** Third Wednesday in April. **Property:** 240 acres, unpatented, on south half of Colville Indian reservation, formerly owned by Gwinn Mining Co. (q.v.) **Class of Ore:** Copper, silver, gold. **Equipment:** Water wheel and generator of 270-h.p., 75-ton concentrator, electric motor and lights, compressor. **Development:** About 1000 ft. underground work and 3000 ft. car track from mine to mill. **Informant:** Secy. Peter Proff, Jr.

HAMMOND MINING CO.**Bellingham**

Capital: \$500,000. **Directors:** F. C. Hammond, Bellingham, Wash., pres.; Hugh Eldridge, vice-pres.; George C. Fisher, secy.-treas.; Frank Wright and Fred J. Wood. **Property:** 32 claims, including Great Excelsior mine, Whatcom Co. **Equipment:** 100-ton, 20-stamp mill. 150-ton cyanide plant building at last report. **Development:** About 2500 ft. of underground work. **Shipments:** Said to have been 10,000 tons.

HARGROVE MINES.**Conconully**

Owned by R. C. Hargrove, W. T. Belleu, Mrs. Esther Moore and W. A. Hargrove, all of Conconully, Wash. **Property:** Nine unpatented claims in the Salmon river district, $\frac{3}{4}$ mile N. E. of Conconully. **Class of Ore:** Silver, lead, copper, little gold. Fifteen tons shipped returned \$50.40 per ton net. **Development:** Shaft 135 ft., with crosscut of 100 ft. on 45-ft. level. Tunnel in 175 ft. **Informant:** R. C. Hargrove.

HARLEY GOLD MOUNTAIN & SMELTING CO.**Retail**

Charles Burns, pres., Retail, Kitsap Co., Wash. **Property:** Ten claims in Snohomish Co., half mile from station of Darrington, on Northern Pacific, on western slope of Gold mountain. **Class of Ore:** Copper and iron sulphide with pay streaks from 14 to 22 inches wide, assaying: Copper, 8 to 14%; gold, \$5 to \$25; several ounces in silver. Some of the ledges carry molybdenum. **Note:** No recent information available.

HECLA COPPER-SILVER MINING & MILLING CO.**Chewelah**

Directors: J. C. Argall, Spokane, pres.; Howard McPhee, vice-pres.; Virgil R. Hoar, secy.-treas.; Fred F. Foster, supt., and Charles Linscott. **Property:** Eleven claims, $3\frac{1}{2}$ miles N. E. of Chewelah, Stevens Co., S. of United Copper. **Class of Ore:** Four ledges, the chief being 6 to 14 ft. wide, traceable by cuts and pits for about 1 mile. Assays return 5.4% copper, \$1 in gold and \$2 in silver. **Equipment:** 50-h.p. hoist and 4-drill compressor. **Development:** Vertical double compartment shaft down 142 ft. in ore 85 ft. Crosscut from bottom of shaft cut 6 ft. vein in 50 ft.; 15 to 18 inches said to be shipping ore, balance milling. Believed inactive.

HIBERNIAN GOLD MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** F. M. Morris, pres.; H. S. Martin, Empire State bldg., secy.-treas.; E. G. Marston, all of Spokane; C. W. Crowe, Oakesdale, Wash., and Dr. Peter Reid, "somewhere in France". **Annual Meeting:** First Tuesday in March. **Property:** Three unpatented claims, Stevens Co., Pierre Lake district. **Class of Ore:** Gold and copper. **Development:** About 200 ft. **Informant:** Secy. Martin.

HIGH GRADE MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Assessable to 5c per share. Assessments to date, 3c per share. **Directors:** Oscar Carstens, pres.; Henry Carstens, vice-pres.; A. H. Kenyon, secy., all of Spokane; J. A. Hansen, Reardan, Wash., treas. Washington corporation. **Annual Meeting:** First Monday in December. **Property:** Quarter section, 5 mining claims, the Turk smelter and the townsite of Turk, all in Stevens Co., in the Deer Trail district. **Class of Ore:** Copper, with small gold and silver values. Shipments to date have totaled about \$25,000. **Development:** Three tunnels, aggregating about 3000 ft. Lowest tunnel about 190 ft. below surface. **Informant:** A. H. Kenyon, 828 Old National Bank bldg., Spokane. **Note:** Under option to Columbia Turk Copper Co. (q.v.), in 1916, but latter failed to carry out provisions of agreement and property reverted to High Grade M. Co. Suit for damages by latter resulted in small judgment against High Grade Co.

HILLOREST COPPER CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** Andrew Laidlaw, 602 Columbia bldg., pres.; Andrew Raub, vice-pres.; C. F. Clough, secy.-treas., all of Spokane. **Annual Meeting:** First Monday in June. **Property:** The Russia, Japan, and five other lode claims, unpatented, 140 acres, in Camp Gilbert, Methow Valley district, Okanogan Co. **Class of Ore:** Copper, with some gold and silver. **Development:** Tunnel has been driven 170 ft. towards main ledge, 12 to 20 ft. wide. Some high grade copper sulphide opened up in this tunnel, at one place nearly 3 ft. wide, averaging over 15% copper. **Informant:** Pres. Laidlaw. **Note:** No recent information. Believed inactive.

HOLDEN GOLD & COPPER MINING CO.

Spokane

Capital: \$250,000. **Directors:** J. W. Holden, pres., Chelan; A. W. La Chapelle, vice-pres.; O. A. Hoag, secy.-treas.; W. Y. Williams, mgr., and Chas. M. Boone, all of Spokane. **Property:** Three claims, 60 acres, on Railroad creek, near Lake Chelan, Chelan Co., 87 miles N. of Wenatchee. **Class of Ore:** Copper, running 7 to 10%, 2 ozs. silver and from \$5 to \$10 gold per ton. **Development:** Said to have been more extensive than in any other mine in Chelan Co. Has 6 tunnels with about 2000 ft. of work on three levels. Extensive exploration was done in 1917 by diamond drills. Property operated under bond some years ago by Jay P. Graves, of Granby M. S. & P. Co. Believed inactive at this time.

HOMESTEAD COPPER CO.

Seattle

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** C. Dell Floyd, 631 Lyon bldg., Seattle, pres., and Peter McLane, treas. **Annual Meeting:** Jan. 2. **Property:** Nine unpatented claims, in Snohomish Co., Index district, 6 miles from Index. **Class of Ore:** Copper, gold and silver—chiefly copper. Nominal shipments made. **Development:** Two tunnels. **Informant:** Pres. Floyd.

HOPE MINING CO.

Spokane

Capital: Five cents per share. Non-assessable. **Directors:** Peter Marshall, Philip Lober, E. Winters, Casper Mouth. **Property:** One patented and one unpatented claim near Keller, Ferry Co. **Class of Ore:** Silver, lead and copper. **Development:** Tunnel in 120 ft. **Informant:** Peter Marshall, manager. Idle.

HYATT.

Bellingham

G. C. Hyatt of Bellingham and A. S. Lambert, Sumas, Wash., own the Tuesday and Tommy Atkins, patented claims, near Sumas, Whatcom Co. **Class of Ore:** 150-ft. vein of white quartz with chalcopyrite along both walls. Ore carries 10% copper. **Development:** One tunnel 165 ft.; one tunnel, 55 ft., and one tunnel, 20 ft. **Informant:** G. C. Hyatt.

ILLINOIS COPPER & SILVER MINING & MILLING CO.

Pittsfield, Ill.

Capital: \$2,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** J. C. Davis, pres.; J. D. Nighbert, vice-pres.; Otto Offenbacher, all of Pittsfield, Ill.; William Hoover, Milton, Ill., and J. T. Samuels, Keller, Wash. W. S. Clapp, secy., and J. D. Hess, treas., both of Pittsfield. **Annual Meeting:** First Monday in January. **Property:** Ten unpatented claims, 160 acres, in Ferry Co., 3 miles W. of Keller, in San Poll district. Owns $\frac{1}{4}$ interest in 160 acres of granite. **Class of Ore:** Zinc, copper, silver, gold and graphite in porphyry formation. **Equipment:** Two air compressors, 25-h.p. gasoline engine, 16-h.p. gasoline engine, 500 ft. of power pipe, fan, fan pipes, drills, tanks, ore bins and buildings. **Development:** On Oregon claim, 795 ft. of tunnels, assay \$50 to ton; on Washington 84-ft. tunnel, assay \$3.50; Wonder, 250 ft. of tunnels, assay \$8; Golden Crown, 362 ft. of tunnels, assay \$121.94; Last Chance, tunnels 395 ft., assay \$8.30; Conda No. 1, 225 ft. of tunnels, assay \$41.60; East Manilla, 120 ft. of tunnels; on Idaho, Montana and Crown No. 2, open cuts. In 1918, when navigation opens on Columbia river, expect to begin shipments of about 5 cars a month. **Informant:** Treas. Hess.

IMPERIAL COPPER MINING CO., LTD.

Spokane

Capital: \$1,000,000. Assessable. **Directors:** John J. O'Brien, pres.; C. W. Craik, vice-pres.; Edward J. O'Shea, Jr., secy.; Edward Gage, assistant secy.; Dr. Max A. Dorland, treas. Head office, 308 Granite blk., Spokane. **Annual Meeting:** First Monday in March. **Property:** Five unpatented claims in Stevens Co., adjoining property of United Copper Co., near Chewelah. **Class of Ore:** Copper. Assay value about \$14 ton. **Equipment:** Hoist, pumps, 80-h.p. boiler, cars and buildings. **Development:** One double compartment shaft is down 125 ft., with crosscut from the bottom of 500 ft. and drift of 125 ft. from crosscut. In crosscut, 5 ledges were cut with widths of 4 ft., 7 ft., 16 ft., 4 ft. and 13 ft. The 125-ft. drift was on the 13-ft. vein and gave fair values. **Informant:** A. H. Anderson, Turk, Wash., supt. and mgr.

INDEPENDENCE CLAIM.

Twisp

T. Young of Twisp, Wash., and W. Goggins own this property, showing gold quartz on which considerable development work has been done. In Okanogan Co., in the Methow-Squaw creek district. **Informant:** T. Young.

INDEPENDENCE KEYSTONE MINING CO.

Chewelah

Capital: \$1,000,000. Par value, \$1. Washington corporation. **Directors:** J. B. Grove, pres.; H. V. Davis, secy.-treas.; D. F. Strobeck, mgr.; C. M. Grove and

S. P. Domer. **Property:** Four patented and 1 unpatented claims in Stevens Co., 4 miles N. E. of Chewelah. **Class of Ore:** Copper. **Development:** About 1200 ft. of crosscut tunnel cuts two lodes. **Informant:** Mgr. Strobeck.

INSURGENT GOLD MINING CO.

Spokane
Capital: \$100,000. Par value, 10c. Assessable to 3c per share. **Directors:** G. B. Dennis, Spokane, pres.; C. L. Morse, secy.; R. C. Lammers, E. R. Dickson, Richard Merril. Washington corporation. **Annual Meeting:** In December. **Property:** Insurgent claim and "V" fraction, patented, at Republic, Ferry Co. **Class of Ore:** Gold quartz. Total shipments, 12,000 tons; average value, \$19.76 to the ton. **Development:** Shaft down 540 ft. Ledge 15 ft. wide. **Informant:** Pres. Dennis.

INTERNATIONAL EXPLORATION & DEVELOPMENT CO.

Spokane
Capital: \$500,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** Thomas A. Farrell, pres.; S. A. Haynes, secy.-treas.; E. T. Smith, R. L. Smith and J. W. Osborne, all of Spokane. **Property:** Holds claims in Ferry Co., between Danville and Curlew, about 12 miles from Grand Forks, B. C. An 8-ft. ledge with iron capping. Also has option on 7 claims near Paulsen, B. C., on which much development work has been done. On the Paulsen properties, J. W. Osborne reports two 6-ft. free milling veins and two copper veins, with assays from \$2 to \$52 a ton, the values being in gold, silver and copper. **Note:** No recent information available.

INTERNATIONAL GOLD MINING CO.

Spokane
Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Dr. Peter Reid, pres.; Don F. Kizer, vice-pres.; George H. Walters, secy.; C. L. Russell, treas., and H. L. Williams, all of Spokane. **Annual Meeting:** Second Tuesday in January. **Property:** 140 acres of unpatented ground in Stevens Co., Orient mining district, 1½ miles from railroad. **Class of Ore:** Gold and silver. **Equipment:** Includes car, trackage, air and exhaust engine, tools and cabins. **Development:** Prospect shafts from 15 to 110 ft. deep. A prospect tunnel is in 60 ft. on the vein; ore is low grade and vein 40 ft. wide. Tunnel No. 2 is in 525 ft., 300 ft. below the other tunnel and is expected to cut vein when in a total of 600 ft. **Informant:** George H. Walters.

INTERNATIONAL POWER & MANUFACTURING CO.

Spokane
Owns claims along the Pend Oreille river in Pend Oreille Co. Holdings are chiefly lime placer claims running high in lime—from 96 to 98% calcium carbonate. Also three claims carrying a 36-ft. ledge of iron pyrites running 45% sulphur. Deposits can be cheaply worked. **Informant:** Wilbur S. Yearsley, 203 Hutton bldg., Spokane, president.

IOWA MINING CO.

Startup
Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** E. A. Fengler, pres.; O. T. Brackett, secy.-treas.; R. J. Kimbel and F. M. Curtis, all of Startup, Wash.; Charles Newmeister, Sultan, Wash.; Chris. Capritz, Dubuque, Iowa, and J. A. Hemphill, Gariville, Iowa. **Annual Meeting:** May 20. **Property:** Eight unpatented claims in Snohomish Co., in Sultan basin. **Class of Ore:** Copper. **Development:** Well opened up by tunnels, drifts and upraises, with small shipments as work progresses. **Informant:** Secy. Brackett.

IRISH LAD MINING & DEVELOPMENT CO.

Northport
Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** A. R. Moore, pres.; William Coonfare, vice-pres., both of Cummins, Wash.; J. D. Hayes, secy.-treas.; Peter Janni and Antonio Ferry, all of Northport, Wash., and Christian Mellor, Spokane. **Annual Meeting:** In May. **Property:** Ten unpatented claims in Stevens Co., 18 miles E. of Northport, adjoining Electric Point and Gladstone mines on north. **Class of Ore:** Lead. **Development:** Driving tunnel at depth of around 1100 ft., expecting to develop continuation of chimney zone opened in neighboring properties. Surface shows good indications. **Equipment:** Hand tools, bunk houses and blacksmith shop. **Informant:** Secy. Hayes.

IRON CREEK MINING CO.

Spokane
Capital: \$1,500,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** Rolla J. Clarke, pres.; J. E. Angle, secy.-treas., both of Keller, Wash.; John W. Duncan, vice pres.; John E. Kennedy and Charles W. Clark, all of Spokane. **Annual Meeting:** January 2. **Property:** The Herman, Coleman fraction and Anderson group, all unpatented, on Iron creek, about 12 miles N. E. of Keller, in Ferry Co., in the San Poll district, 3½ miles from route of the British Columbia & Spokane railroad. **Class of Ore:** Silver-lead. Shipments

In 1917, 20 tons, value \$490.69. Total shipments, 50 tons, value \$1754.72. **Equipment:** Boiler and hoist. **Development:** About 1200 ft. of tunnels and shafts show a probable and possible 2000 tons of ore. Winze now being sunk and at last report was down 32 ft., in ore all the way. This ore goes 60 to 70 ozs. silver, 6% copper and considerable lead. **Informant:** Secy. Angie.

IRON STANDARD.

Patented claims near Rockcut, in Stevens Co. **Class of Ore:** Gold and silver in iron stained quartz. **Informant:** Mrs. M. E. McCann, owner, W49 Third ave., Spokane.

Rockcut**IBOQUOIS MINING CO.**

Capital: 1,500,000 shares, non-assessable, of which 650,000 shares are in the treasury. **Directors:** C. W. Van Horne, pres.; James A. Crowther, secy.-treas.; H. G. Verich, all of Spokane; John Kalscheuer, St. Paul, and George H. Bessler, Sioux Falls, S. D. **Annual Meeting:** January 1. **Property:** About 200 acres, patented, and 35 acres, unpatented, under bond, about 13 miles N. E. of Northport. **Class of Ore:** Lead, silver and zinc. Zinc ore body is estimated to run 30 to 50%. Lead ore found in chimney formation in dolomite lime. Two ft. solid ore said to contain 70% lead and 1½ ozs. silver. One shipment of 8½ tons returned \$714.07. **Equipment:** Two duplex Gardner compressors, 25-h.p. oil engine, air receiver, piping and large machine drills, buildings, lighting plant and water system. **Development:** Main tunnel, in about 900 ft., attaining depth of 500 ft., crosscut a zinc vein and expects to reach the lead vein a short distance ahead. **Informant:** Pres. Van Horne. **Note:** In April, 1918, company in serious difficulties resulting from resignation of President Van Horn and lack of capital to carry on operations. Upon petition of J. A. Sieglock, a creditor, Charles E. Bisbee was appointed receiver by superior court on May 6th. Machinery is being removed from property, which was held under lease and bond.

Spokane**IVANHOE MINING CO.**

W. B. McChesney, Oroville, Wash., is manager. **Property:** On Palmer mountain, Okanogan Co., 7 miles from Oroville. **Development:** Main ore body was reached by a tunnel 4400 ft. long, which attained a vertical depth of 1559 ft. **Note:** This is one of the oldest enterprises in district, but no recent information is available.

Oroville**JAY HAWKER.**

Owned by George, David, and Will W. Bryant, and Mrs. B. E. Blake. **Property:** Ten acres on Sulphide mountain. Patented ground. **Class of Ore:** Gold, silver, lead and copper. **Development:** 150 ft. of shafts. **Informant:** George Bryant, Orient, mgr.

Orient**JUNO-ECHO COPPER CO.**

Capital: \$150,000. Par value, 10c. Assessable. Washington corporation. **Directors:** Dr. C. A. Hauber, pres., Chewelah, Wash.; C. T. Winslow, vice-pres., Orin, Wash.; H. R. Spedden, Colville, Wash.; F. L. Reinoehl, Chewelah; and F. H. Alm. Albert I. Kulzer, Chewelah, is secy.-treas. **Annual Meeting:** In January. **Property:** Three unpatented claims in Stevens Co., 2 miles N. E. of Chewelah. **Class of Ore:** Copper and molybdenum. An assay across the face of ledge gave \$30.53, of which copper formed almost entire value. **Equipment:** Steam compressor plant and hoist. **Development:** Five men in 1917 were sinking shaft from 250- to 500-ft. level. At 280-ft. 6 ft. of shipping ore encountered. Eighty tons shipped to date. **Informant:** Pres. Hauber.

Chewelah**JUPITER LEAD CO.**

Capital: \$300,000. Par value, \$1. **Property:** Last Chance group, six miles S. E. of Northport. Stockholders principally residents of St. Louis, associated with estate of late Mr. Picher, formerly president of Picher Lead Co. of St. Louis. Property purchased by latter from Larsen & Greenough about 15 years ago and approximately 1400 tons of lead ore, worth \$65,000, shipped from July, 1908, to June, 1910. Lower crosscut tunnel failed to find ore-body, however, and work was discontinued after ore in upper levels had been cleaned up. Since then some leasing has been done, but without much result. In 1916, Norman Mines Co. took lease and bond for \$30,000 and shipped seven or eight carloads of ore running around 60% metallic content, evenly divided between zinc and lead. Nothing new was developed, however, and bond was relinquished in October, 1916. Affairs of company are looked after by Al. Baker, of Spokane, one of the directors and part owner. Total output of Last Chance mine, under operation of Silver Butte M. Co., Larsen & Greenough, and Jupiter Lead Co., estimated \$500,000, from one chimney of irregular shape. Property equipped with tramway.

Spokane

JUST TIME MINING CO.**Spokane**

Capital: \$300,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** F. C. Descent, pres.; A. Anderson, secy., and Dan Danielson, all of Spokane. **Annual Meeting:** May 30. **Property:** Two unpatented claims in Stevens Co., 3 miles from the Electric Point mine. **Class of Ore:** Silver-lead. **Development:** Shaft in ore. **Informant:** Pres. F. C. Descent, 326 Rookery, Spokane.

KATKAKEE MINING CO.**Nespelem**

Capital: \$850,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** H. L. Mayberry, pres., and William Barnard, secy., both of Nespelem, Wash.; J. M. O'Neil, treas., Almira, Wash.; F. M. DeCamp, G. G. Sather, and E. Christensen, all of Nespelem; D. W. Smith, Spokane. **Annual Meeting:** First Tuesday in July. **Property:** Eleven unpatented claims and millsite, in Okanogan Co., 3 miles W. of Nespelem. **Class of Ore:** Zinc and copper sulphide, carrying silver and a little gold. Gangue matter is massive quartz and barite, carrying zinc in the form of zinc blende and calamine with zones of silver-bearing galena. Values said to average \$30 across the face of one tunnel. **Development:** Ore blocked out, 15,000 tons; vein tapped in eight places about 150 ft. apart; vein about 500 ft. wide, according to surface croppings. Can be mined by glory-hole system. **Informant:** Pres. Mayberry.

KAOLIN REFINING CO.**Spokane**

Capital: \$100,000. Par value, \$1. **Directors:** D. C. Neafus, pres.-mgr.; Cyrus Happy, Spokane, secy.-treas.; John J. Kyle, Spokane. **Property:** 40 acres in northern Spokane Co., near Deer Park. **Class of Material:** Kaolin is 10 to 15 ft. thick and overlays 2 to 4 ft. of ochre. Estimates of 1,500,000 tons of kaolin and several hundred thousand tons of ochre. Mineral content is 51.22% silica, 33.52% alumina, 1.72% iron, a trace of magnesia, .62% alkali, fluxes 2.34%; moisture 1.38%, loss in ignition, 11.36%. **Development:** Company expected to install plant of 30 to 40 tons capacity last year, but no recent information of plans is available.

KELLER & INDIANA CONSOLIDATED SMELTING CO.**Keller**

Organized 15 years ago to build 150-ton smelter at Keller, Wash., capital being derived from Indiana and other eastern states. Plant was completed in some kind of shape and is believed to have been blown in. Lack of ore and economical transportation foredoomed the venture, however, and it died aborning. Much litigation has occurred, the last suit, in the Federal courts, seeking to set aside receiver's sale and being eventually successful. Several corporations have held options upon the plant at different times, presumably the last being Northwest Mines Development Co. (q.v.). The history of the corporation and consequent litigation is much involved and exact details are unobtainable. O. C. Moore, attorney, of Spokane, represented plaintiffs in Federal courts in last suit.

KELLER COPPER CO.**Spokane**

Capital: \$50,000. Par value, 5c. Assessable to full face value and not fully paid until assessments reach 5c share. Washington corporation. **Directors:** E. J. Merrin, pres.; F. T. Coleman, vice-pres.; W. G. Boland, secy.; D. E. Newman and Storey Buck, all of Spokane. Office, 503 Eagle blk., Spokane. **Property:** Copper Prince claim, silver-lead-zinc-copper, 1½ miles from Keller, Ferry Co. **Development:** Upper tunnel in 120 ft. and has ore on the dump that carries 1.4% copper, 6 ozs. silver. Lower tunnel in 80 ft. full face of ore carrying high values in copper, silver, lead and zinc. Work to commence early in 1918. **Note:** Croppings first discovered in 1861 by G. W. Runnels and William Hughes, early pioneers. Being on military reserve, property could not then be located and it was not until 1897 that the ground was thrown open to entry.

KETTLE RIVER MINING & LUMBER CO.**Scranton, Pa.**

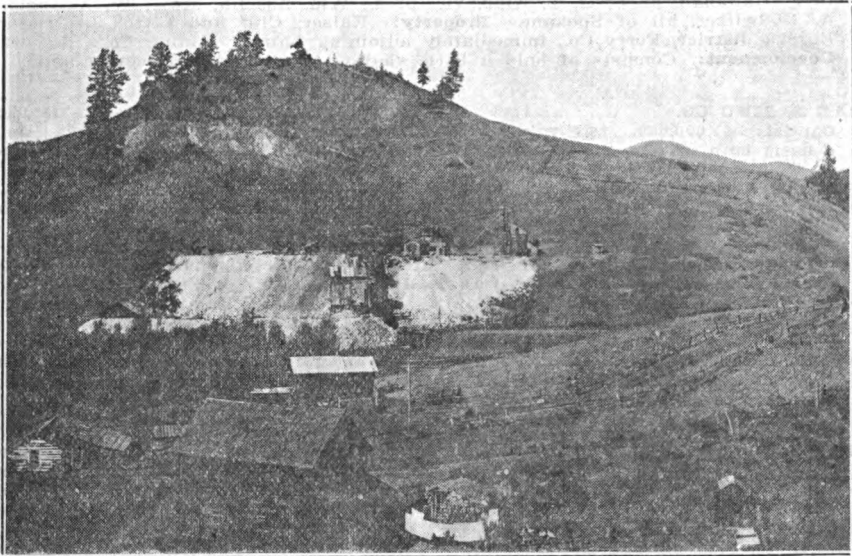
Capital: \$500,000. Par value, \$1. Non-assessable. Delaware corporation. **Officers:** Joshua A. Brown, Honedale, Pa., pres.; John H. Kresge, secy., 304 Miller bldg., Scranton, Pa. **Annual Meeting:** August 31. **Property:** 43 full, patented claims in Ferry Co., 1½ miles from Danville, in Curlew district. Property formerly known as the Mineral Hill group and Lucile Dreyfus group. Company is successor to the Mineral Hill Tunnel & Copper Mining Co. and the Consolidated Mines & Tunnel Co. **Class of Ore:** Copper, gold and silver. Extensively developed. **Equipment:** 250-h.p. boiler, compressor and other machinery. **Informant:** Secy. Kresge. **Note:** Kresge got into serious difficulties here, being charged with misappropriation of funds by a corporation of which he was fiscal agent. Efforts made to extradite him from Pennsylvania were unavailing. While no direct details available, believed safe to assume that this corporation is inactive or defunct.

KING MINING CO.**Spokane**

Capital: \$150,000. Par value, 10c. Non-assessable. Washington corporation.
Directors: H. H. Hebert, pres.; J. W. Douglas, vice-pres.; W. G. Merryweather, secy.; R. L. Webster, treas., all of Spokane. Organized 1916 to take over Copper King group, Chewelah, from receiver. Transfer objected to by stockholders of former corporation and matter taken to courts. Subsequently property sold to United Copper Co., under working bond, and King Mining Co. is defunct.

KNOB HILL CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation.
Directors: John Byrne, pres., Spokane; Chester Shoudy, St. John, Wash., vice-pres.; H. C. Kreyssler, Latah, Wash.; B. E. Amery and Mrs. Maggie Byrne of Spokane; H. V. Chamberlain, Coeur d'Alene, and Thomas A. White, St. John.
Annual Meeting: Second Wednesday in January. **Property:** Three patented claims, the Knob Hill, Mud Lake, and Alpine, in Ferry Co., at Republic. **Class of Ore:** Chiefly gold, carrying some silver. **Equipment:** 50-h.p. compressor plant, 15-h.p. hoist, ore bins, cars, trackage, to a total invoice of \$12,369.58.



Knob Hill Mine, Republic, Wash.

Receipts for 1917 were \$106,515, of which \$102,146 was net for ore. In January, 1918, 11 carloads shipped. Total shipment to November 10, 1917, \$599,476.21, net smelter returns. Rate of output then, 550 tons monthly. **Dividends:** Paid in 1917, \$34,784. Paid in all, to January 1, 1918, \$105,000. **Development:** Double compartment shaft completed to 240-ft. level, crosscut from 200 level to ore body and raise connecting tunnel levels, 200 ft. apart. Other shafts and tunnels. **Informant:** Secretary O. A. Broyles, Spokane. **Note:** Shipments for March, 1918, 12 carloads, values \$250 to \$400 in gold per car.

KROMONA MINING & SMELTING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** C. B. Krom, pres.-treas.; J. F. Krom, vice-pres.; F. M. Williams, secy.; J. P. Shattuck, all of Spokane; Arch C. Krom, Vancouver, B. C. **Annual Meeting:** Fourth Tuesday in January. **Property:** Eight unpatented claims in Snohomish Co., in Sultan mining district. **Class of Ore:** Copper, silver, gold. **Informant:** J. F. Krom, 626 Peyton bldg., Spokane.

LAMBFOOT MINE.**Republic**

Owned by Jacob Goetz and others, of Spokane. Granby Co. took bond several years ago, installed small plant, did diamond drill prospecting, and operated property until slump in copper, which caused smelter at Grand Forks, B. C., to shut down. Property in good condition now, but not working. Property near Curlew Lake.

LAST CHANCE MINING CO.**Keller**

Sold to the Illinois Copper & Silver Mining & Milling Co. (q.v.), and company disincorporated. **Property:** 20 a. San Poll district, Ferry county, developed by 350-ft. tunnel work.

LAURIER MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Dayton H. Stewart, pres.; F. L. McNeil, vice-pres.; E. K. Erwin, secy.-treas.; Grant A. Stewart, J. A. Talkington, all of Spokane; Guy P. Linville, Cedar Rapids, Iowa. **Annual Meeting:** Jan. 2. **Property:** 7 unpatented claims, at Laurier, Ferry Co. **Class of Ore:** Copper. **Equipment:** 1-drill gasoline compressor, 3000 ft. of aerial tramway. Shipments last year, 1100 tons; value, \$25,000. **Development:** 925 ft. of tunnels, 142 ft. of shaft, and several drifts. **Informant:** Secy.-Treas. Erwin.

LAURIER MOTHER LODE MINING CO.**Spokane**

Capital: \$15,000. Par value, 10c. Assessable up to 5c per share. **Directors:** D. F. Hallahan, pres.; H. T. Kipp, vice-pres.; Wm. Asselin, secy.; W. A. Pfeifer, A. I. Switzer, all of Spokane. **Property:** Kaiser, Cliff and Little Joe claims, Eureka district, Ferry Co., immediately adjoining Laurier Mining Co.'s property. **Development:** Consists of only a little shallow work. In prospective stage.

LEAD & ZINC CO.**Metaline**

Capital: \$1,000,000. Par value, \$100. **Directors:** Lewis P. Larsen, pres.; Jens Jensen, both of Metaline; F. C. Robertson, secy.; F. Alsbaugh, both of Spokane; O. S. Pitcher, A. D. Swift, Joplin, Mo. **Property:** Lead and zinc claims near Metaline, Pend d'Oreille Co., owned by Beavis Bros. & Clark, of Spokane, but worked by Co. under lease. Large shipments of ore of a value of more than \$2,000 to the car were being made, and production for 1917 was \$178,000. Butte & Superior Co., of Butte, Mont., former lessee, claimed equipment and stopped payment on shipments to smelters, later asking for appointment of receiver. Referee in bankruptcy appointed D. M. Drumheller, Jr., of Spokane. Machinery sold under order of court March, 1918. Liabilities, \$132,179, including \$7000 for labor; \$7000 Spokane & Eastern Trust Co.; \$10,000 Edgar Zinc Co. and \$72,000 W. R. Sargent, representing Butte & Superior. Looks like practically entire loss to creditors; machinery valued at around \$20,000, at forced sale. **Note:** Sale of assets held at Metaline March 28, 1918, brought \$11,000. Personal property passes to possession of Union Iron Works, of Spokane.

LEAD KING MINES, INC.**Metaline**

Capital: \$1,500,000. Par value, \$1. **Directors:** Lewis P. Larsen, pres.; Jens Jensen, secy.-treas. **Property:** 4 claims and mill-site, 8 miles N. of Metaline Falls, Pend d'Oreille Co. **Class of Ore:** Lead, with small silver values. Inactive.

LEADPOINT MINING & MILLING CO.**Spokane**

Capital: \$60,000 in 600 shares of \$100 par value. **Directors:** G. B. Dennis, pres.; E. C. Owens, vice-pres.; Charles A. Gram, secy.; F. C. Bailey, treas., all of Spokane. **Property:** 12 claims, unpatented, adjoining Electric Point mine on east, Gladstone mountain, Northport district, Stevens Co. **Development:** Surface work only; development will be resumed this year.

LEAD TRUST.**Spokane**

Property in vicinity of Electric Point mine, Boundary district, Stevens Co., Wash., operated for some months in 1917 under lease and bond by syndicate of Spokane, Wallace and Milwaukee men, represented by W. A. Corey, of Finch Investment Co., Spokane. About \$15,000 was spent and 80 tons of high-grade sulphide lead ore shipped in summer of 1917. Development was unsatisfactory, however, and bond was relinquished late in 1917. Now believed to be idle.

LIBERTY COPPER MINING CO.**Spokane**

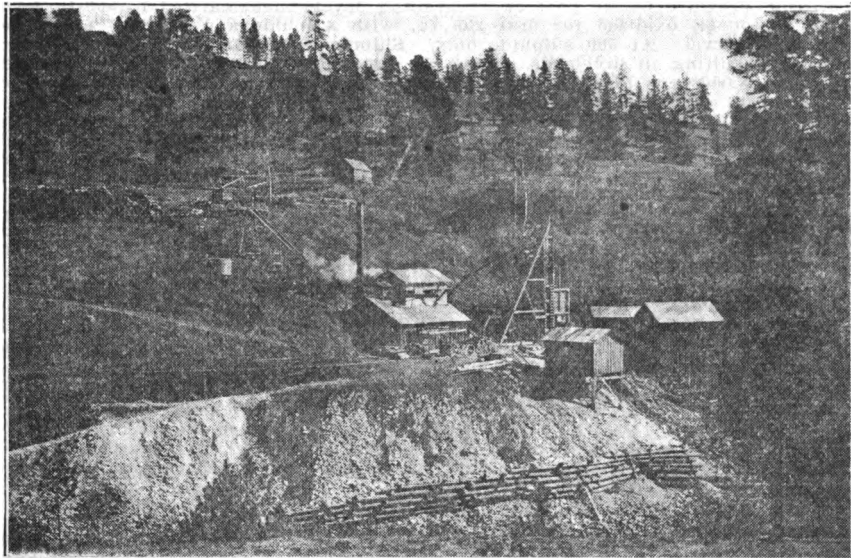
Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. H. Reser, pres.; C. Oldfeather, vice-pres.; A. Hoss, Secy.; S. G. Neff, treas.; R. E. McVicar, Spokane. **Property:** 6 patented claims and a fraction, at Blue Creek, Stevens Co. **Class of Ore:** Copper, gold, some silver. Shut down in 1915. **Equipment:** Engine room, blacksmith shop, bunk houses, cook house, stable, sheds, ore bin, 120-h.p. boiler, 60-h.p. engine, 3-drill compressor, air receiver, pumps, hoist, cable, 2 wood air-drills, ore cars, tools, etc. No shipments. **Development:** 3400 ft. of work. **Informant:** S. G. Neff. **Note:** Announced, Mar. 8, 1918, that Co. will increase capitalization to \$1,500,000, to raise funds for resumption of work.

LITTLE COVE MINING CO.**Republic**

Capital: \$100,000. Par value, 10c. **Directors:** John W. Lloyd, pres.-gen. mgr.; F. W. Cleator, vice-pres.; W. W. Montieth, secy.-treas. Organized in April, 1918, to take lease and bond on Little Cove and Mammoth claims, lying between Pearl, Pine and Knob Hill groups, Eureka gulch, Republic district, Washington. **Property:** Owned by Jonathan Bourne, Jr., formerly U. S. Senator from Oregon. **Development:** By shaft 150 ft. deep, sunk many years ago. Two test car-loads shipped at that time said to have averaged \$14.50 gold per ton.

LONE PINE-SURPRISE CONS. MINING CO.**Spokane**

Capital: \$3,500,000. Par value, \$1. Non-assessable. **Directors:** Chas. P. Robbins, pres.-treas.; Philip Creasor, vice-pres.; Chas. Theis, secy.; W. J. C. Wakefield, Frederick Burbidge, Olaus Jeldness, A. C. Jamieson, all of Spokane. **Annual Meeting:** Second Monday in November. **Property:** Last Chance mine, at Republic. **Class of Ore:** Gold and silver. Working 21 men. **Equipment:** 35-h.p. steam hoist, 520 cubic ft. Ingersoll-Rand compressor. Rate output now, 50



Last Chance Dump and Power House, Republic, Wash.

tons daily. **Development:** 2-compartment shaft to 500-ft. level, 500 ft. drifts, all on vein from 6½ to 9½ ft. wide; other veins outcropping on end line. Shipments in December, 1917, were 23 cars, or 1200 tons, making 72 cars in 3 months. Ore has been followed 284 ft. in east drift on 500-ft. level. **Informant:** Pres.-Manager C. P. Robbins. **Note:** Work of replacing old boiler with one of 100-h.p. having been completed, operations resumed latter part of March, 1918. Shaft from 500-ft. level, sunk diagonally, disclosed a pay shoot of considerable proportions, which, with late extensive stoping, gives a yield of about 6000 tons per month, of average gross value of \$12.50 per ton.

LONE STAR COPPER MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. **Directors:** Oscar De Camp, pres.; Wm. S. Thyng, secy.-engineer; R. C. Reinertson, all of Spokane. **Property:** Group of claims, including Copper Hill mine, near Newport, Pend d'Oreille Co., developed by several shafts and tunnels. Idle for several years, except for assessment work. Probably defunct.

LOON LAKE BLUE BIRD COPPER CO.**Spokane**

Capital: \$375,000. Par value, 25c. Non-assessable. **Directors:** H. D. Trunkkey, pres.; H. H. Shallenberger, vice-pres.-mngr.; Jos. McCarthy, secy.-treas.; J. C. Haas, all of Spokane; A. R. Ammundsen, Duluth, Minn. **Property:** 2 patented claims—Blue Bird and Dupont—6 miles N. of Loon Lake, adjoining Loon Lake Copper Co. on east. **Class of Ore:** Copper, silver, gold. Working

8 men. **Equipment:** Steam boiler, hoist and pump, good camp buildings. No shipments. Now being financed for regular development. **Informant:** Secy.-Treas. McCarthy.

LOON LAKE COPPER CO.**Spokane**

Capital: \$375,000. Par value, 25c. Non-assessable. **Directors:** George Turner, pres.; A. W. Kemp, vice-pres.; Frank G. Crane, secy.-treas.; E. K. Erwin, Peter J. Nevin, all of Spokane; Alfred De Vote, Boston, Mass. Manager, Evan Morgan, Loon Lake; consulting engineer, George C. Stone, Butte, Mont.; superintendent, A. W. Kemp. **Annual Meeting:** First Monday June. **Property:** 310 acres, 6 miles from Loon Lake, Stevens Co., and 45 miles N. of Spokane. Mine is closest dividend-payer to this city. Formerly known as Kemp-Komar mine, operated under bond by late Patrick Clark, Spokane, twenty-five years ago. At that time dispute over title with Northern Pacific caused cessation of development. Project was revived three years ago, under direction of George A. Crane, interested in property from early days. **Equipment:** Includes hoist good for 700 ft., 5-drill Sullivan compressor, extra hoist and small compressor, provided within past two years and development carried to 500-ft. level. Ore is copper, oxidized for first 200 ft., with sulphide and oxidized ore mixed to 400-ft. level. At 500 sulphide only. Shipments up till winter of 1917 were heavy, resulting in dividends of \$43,352, paid since June, 1917. Estimated reserves, 28,000 tons above 500-ft. level. Company, in February, 1918, authorized bond issue of \$40,000 to provide funds for flotation plant, to be erected under direction of George C. Stone. Said that entire issue has been underwritten at satisfactory price in Boston. Management expects plant to be in readiness this summer. A force of 25 men is employed in normal times, but unsatisfactory smelting situation caused curtailment early in 1918.

LUCKY KNOCK MINING CO.**Seattle**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** H. A. Ingham, pres., Tonasket; A. H. Whitther, vice-pres.; Geo. T. Carder, secy.-treas.; W. A. Ingham, manager, all of Seattle. **Property:** 6 unpatented claims, in Galena district, Okanogan Co. **Class of Ore:** Antimony, 25 to 60%. Shut down in February, 1915. **Equipment:** Oxidizing plant. **Development:** 500 ft. of tunnel. **Informant:** Manager Ingham. **Note:** Co. said to have resumed in 1916, increased its force and installed compressor plant, electric lighting system and other equipment, including engine house and large ore bunkers. Co. is subsidiary of Standard Sanitary Mfg. Co. **Note:** No late information available.

MCKINLEY MINING CO.

Dissolved in 1913. Claims relocated Jan. 1, 1914, and Vulcan Mining Co. (q.v.), organized.

MANILA MINING & MILLING CO.**Keller**

Capital: \$1,500,000. Par value, 5c. **Directors:** R. A. Farr, pres.; L. P. Farr, secy., both of Keller. Close corporation. **Property:** Manila group of four claims, located soon after opening of south half of Colville reservation in the 90's. Property had big surface showing of disseminated copper ore. Bonded about 1900 to late Patrick Clark, of Spokane, who expended considerable money in development. Lack of transportation and low price of copper caused relinquishment of bond following year. Since then the Farris, who are the locators, have done some development, both on their own account and through others to whom property was, from time to time, under bond. It was announced late in 1915 that Northwest Mines Development Co. (q.v.) had taken over property and old smelter at Keller and would develop extensively. So far as known nothing important has since occurred and it is probable that bond has been relinquished, although information is unobtainable.

MELROSE MINING CO.**Spokane**

Incorporated in February, 1918, by Joseph Cohn, pres.; Samuel Edelstein, secy.-treas.; J. W. Smyser, all of Spokane; F. M. Ludell and O. M. Matthews, Boundary. **Property:** The Maple Leaf mine, Stevens Co., upon which F. Augustus Heinze is said to have spent \$50,000 without finding the ore body. After his withdrawal, property was located by others, who struck ore in 10 ft. of drifting. **Development:** 2000-ft. tunnel and about 100 ft. of drifts. **Class of Ore:** Copper-silver in body 4 ft. wide, selected samples from which ran 244 ozs. silver to the ton, and 6 to 8% copper.

METALINE ORIOLE MINING CO.**Metaline**

Capital: \$2,000,000. Par value, \$1. Assessable. **Directors:** Fred N. Davis, pres.-gen. mgr.; Stella M. Davis, secy.-treas., both of Metaline; H. W. Green-

burg, vice-pres., Hillyard; Gust Ostrand, A. A. Mitchell, John A. Henry and Wm. Halstead, all of Spokane. **Annual Meeting:** May 1. **Property:** 7 unpatented claims in Metaline district, Pend d'Oreille Co. **Class of Ore:** Lead, zinc, silver, gold, and about 1% copper. **Equipment:** 70-h.p. boiler, Sullivan compressor, pump, hoist, machine drills, etc. **Shipments,** 3 cars. **Development:** 1200 ft. of tunnels, 200 ft. of crosscuts. Five ore shoots within 175 ft., from 15 inches to 10 ft. wide. **Informant:** Pres.-Mgr. Davis. **Note:** A shipment of 36 tons of crude ore to Midvale, Utah, in December, 1917, netted \$912, and money is now being raised to install a 50-ton mill.

METEOR MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Cyrus W. Bradley, pres.; W. A. Halteman, secy.-treas., both of Spokane. **Annual Meeting:** Sept. 15. **Property:** 6 patented claims, 4 miles from Meteor, Ferry Co. **Class of Ore:** Silver-lead, with some copper and gold. Working small force. **Equipment:** Steam pump and hoist, and other machinery. **Shipments** last year, 1 car, net value, between \$500 and \$600. **Development:** Shaft, on ledge, 140 ft. deep, 1000 ft. of tunnels and 300 ft. of drift.

METHOW GOLD & COPPER MINING CO.

Winthrop

Capital: \$1,500,000. Par value, \$1. **Directors:** W. D. Scott, pres.; W. G. Traub, vice-pres.; J. N. Tewinkel, secy.-treas.; N. O. Baldwin. **Property:** 8 patented claims, near Winthrop, Okanogan Co. **Class of Ore:** Copper, 9%; silver, 2 ozs.; gold, \$5.50 per ton. **Development:** 3 tunnels, longest 564 ft., and 52-ft. shaft. Only assessment work being done.

MICHIGAN GOLD MINING CO.

Syracuse, N. Y.

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Cornelius Dorr, Jr., pres.; T. Otto, vice-pres.; T. Bruce Furnival, secy.; Arthur B. Frost, treas.; H. J. Gorke, all of Syracuse; J. H. Weidemiller, Buffalo, N. Y. **Property:** 4 patented claims, 2½ miles from Orient, Wash., formerly known as Chickamun group, adjoining First Thought mine, a former heavy producer. Property was originally purchased from Spokane owners, who took 49% of capitalization in full payment. Peter Proff, Jr., and associates, of Rosalla, Wash., purchased 500,000 shares at from 3 to 5 cents per share, thus providing approximately \$25,000. This sum failed to secure successful result. Syracuse people were then interested and complete change of directors effected. An option upon entire capitalization was secured and new officials, with aid of N. Y. brokers, exceedingly careless of the truth, started buying from Spokane owners and reselling to public at inflated prices. Northwest Mining Truth exposed the scheme in October, 1916, and efforts were abandoned. Some juggling of ownership then occurred and majority interest is now vested in Orient Metals M. & S. Co. (q.v.).

MIDGET GOLD MINING & MILLING CO.

Walla Walla

Capital: \$1,500,000. Par value, \$1. Assessable up to 5c per share. **Directors:** F. S. Dement, pres.; W. D. Church, secy.-treas.; L. F. Anderson, J. G. Stine, all of Walla Walla; Lake Wolford, Portland, Ore. **Property:** Tom Thumb group of patented claims at Republic. **Class of Ore:** Gold, silver. Shut down, spring of 1917. **Equipment:** 100-h.p. boiler, compressor, hoist, 5 buildings, etc. **Development:** 425-ft. double compartment shaft, with drifts of 1200 ft.

MILWAUKEE LIMITED MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** A. J. Albring, pres.-treas.; D. D. McKay, vice-pres.; A. F. Albring, secy., all of Spokane; Fred N. Davis, Metaline. **Property:** 80 acres, unpatented, 1 mile N. of Slate creek, on Pend d'Oreille river. **Class of Ore:** Gold, silver, lead—principally lead. Shut down, 1915. **Equipment:** Log house, bunk house, stable, 2 blacksmith shops, steel car and track, tools, etc. No shipments. **Development:** 535 ft. of tunnels, lower one cutting 18-ft. vein. **Informant:** Pres.-Treas. Albring.

MINERAL HILL MINING CO.

See Washington Consolidated Mines & Reduction Co.

MINERAL HILL TUNNEL & COPPER MINING CO.

Boston, Mass.

Capital: \$2,000,000. Par value, \$1. **Directors:** Lewis A. Crosby, pres.; A. L. Bradley, gen. mgr.; F. E. Houghton, Boston. Successor to Minnehaha Copper & Gold Mining Co. **Property:** 8 groups, of 700 acres, in Curlew district, Ferry Co., Wash. Idle and in process of reorganization. No data obtainable.

MINES OPERATING CO.**Spokane**

Capital: J. W. Douglas, pres.; S. Barghoorn, secy.-treas., both of Spokane. Washington corporation. **Property:** Owns Eloise claim and bond on Caaba claim, neither patented, about 1 mile from Nighthawk, Okanogan Co. Claims about half mile apart and about quarter mile from Similkameen river and Great Northern railroad. **Class of Ore:** Caaba, complex ore containing silver, lead, copper and gold, with diorite footwall and granite hanging wall. Eloise is similar. Values in faces from \$6 to \$17, chiefly in lead. A small 2-inch stringer carries more than \$100 to the ton. Several cars shipped from Caaba several years ago. Estimated \$150,000 in sight. **Equipment:** Compressor, hoist, motors, drills, head frame, skip, cable, machinery, buildings, and electric power. **Development:** More than 500 ft. of underground work, most of it in ore. **Informant:** Pres. Douglas. **Note:** Company has milling contract with Bender Metals Milling Co. (q.v.) in which its stockholders are part owners.

MINNERAHA COPPER & GOLD MINING CO.

See Mineral Hill Tunnel & Copper Mining Co.

MOLSON GOLD MINING CO.**Schenectady, N. Y.**

Capital: \$4,000,000. Par value, \$1. Non-assessable. **Directors:** Walter Wellman, pres.; Geo. Davis, vice-pres.; W. F. Wellman, secy.; F. W. Rankins, treas.; C. F. Rankins, Martin Litzendorf, all of Schenectady; G. A. Cowles, Rochester, N. Y.; G. W. Hawley, Webster, N. Y.; C. A. Blatt, Molson, Wash. **Annual Meeting:** Third Tuesday in August. **Property:** 10 patented quartz and 1 placer claims, between Chesaw and Molson, in Meyers Creek district, Okanogan Co., Wash. **Class of Ore:** Gold and silver, average value, \$7 per ton. Shut down in October, 1914. **Equipment:** 6 stamps, amalgamating plates, 2 Wilfley tables, 50-h.p. gasoline engine, hoist, etc. No shipments. **Development:** 507 ft. of tunnels, 100-ft. shaft, cuts and shafts on outlying claims. **Informant:** C. W. Brown, manager. **Note:** Contests with homesteaders, who took up land covering part of claims, recently decided in favor of Co., and patents issued.

MOLYBDENITE PEAK MINING & MILLING CO.**Ione**

Henry E. Haines, pres. **Property:** 5 miles N. E. of Ione, Stevens Co. A 95-ft. tunnel on one claim, from which shipments have been made, some of which are said to have proven unsatisfactory, the lot running less than ½ of 1%.

MONDAY MORNING MINING CO.**Spokane**

Incorporated in 1917 by Harve H. Phipps, L. M. Weaver and Emery H. Averill, with a capital of \$100,000, to develop property 16 miles from Northport, Stevens Co., on which they had taken a bond for \$30,000. **Class of Ore:** Silver-lead, picked samples sent to Northport smelter returning 91 ozs. silver and 68% lead to the ton. Ledge said to be from 3 to 4 ft. wide. **Note:** No available late information. Presumed to have abandoned option.

MONTANA GOLD MINES CO.**Kennewick**

Capital: \$100,000. Par value, \$1. Assessable to 35% of par value. **Directors:** D. L. Taylor, pres.; P. J. Murphy, vice-pres.; J. H. Grunstund, secy.; J. L. Johnson, treas.; J. M. Holmes, all of Kennewick. **Annual Meeting:** Second Tuesday in September. **Property:** 6 unpatented claims on Goat creek, upper Methow, Okanogan Co., and 2½ claims on Slate creek, Whatcom Co. **Class of Ore:** On Goat creek claims, gold, partly free milling, some silver. Working 5 men. **Class of ore in Slate creek claims, gold.** **Goat Creek Equipment:** Stamp mill, saw-mill, crusher, bunk house, blacksmith shop, assay office, etc. **Development:** On Goat creek, driving lower crosscut to gain 125 ft. greater depth. Slate creek property has about 1200 ft. of tunnel and 105-ft. shaft. Work cost \$40,000. Will install plant in spring of 1918. **Informant:** Pres. D. L. Taylor.

MT. ST. HELENS CONS. MINING CO.**Portland, Ore.**

Capital: \$1,800,000. Par value, \$1. Non-assessable. **Directors:** Thos. Prince, pres.; F. M. Bell, secy.; E. L. Harmon, treas., all of Portland. **Property:** 63 patented claims, 1200 acres, 6 groups, in Mt. St. Helens district, Skamania Co., Wash. **Class of Ore:** Gold, silver, copper. **Equipment:** Compressor, 100-h.p. water wheel, air drills, etc. **Development:** About 1 mile of underground workings. Closed down in 1906, awaiting transportation. **Informant:** H. W. Coe, principal owner.

MUCHACHO, AND OTHER CLAIMS.**Spokane**

Owner: R. H. Evans, Spokane. **Property:** 9 patented claims, between Columbia and Kettle rivers, in Stevens Co. **Class of Ore:** Copper, silver and gold. Shut down over 8 years ago. **Development:** Vertical shaft 200 ft. deep, and numerous shallow shafts. **Informant:** R. H. Evans, owner.

MULTNOMAH MINING, MILLING & DEV. CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** M. J. Hills, vice-pres.-secy.; Dr. F. O. Hudnut, asst. secy., Spokane. **Annual Meeting:** June 1. **Property:** 3 groups of unpatented claims and 3 mill-sites, 3, 4 and 5 miles W. of Nespelem, Okanogan Co. **Class of Ore:** Copper, gold and silver. Shut down in 1915. **Equipment:** Air pipe, blacksmith shop, bunk houses, etc. No shipments. **Development:** 987 ft. of tunnels, 1320 ft. of drifts, 340 ft. of shafts. **Informant:** Dr. F. O. Hudnut.

MYERS CREEK MINING CO.

Bolster

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** J. W. McBride, pres.-treas., Spokane; Dr. F. N. Freer, secy., Seattle; L. B. Pearce, vice-pres. **Annual Meeting:** Second Monday in July. **Property:** 1 patented claim, the Jackpot, in Myers Creek district, Okanogan Co. **Class of Ore:** Copper, gold, silver. Shut down in 1907. No equipment. No shipments. **Informant:** Pres.-Treas. McBride.

NATIONAL INFUSORIAL EARTH CO.

Ellensburg

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** C. F. Denny, pres.; V. C. Denny, vice-pres.; S. Williams, secy.; O. O. Feikner, J. M. Simpson, all of Ellensburg; S. C. Jackson, Seattle. **Annual Meeting:** Oct. 3. **Property:** 640 acres, unpatented, on Squaw creek, Kittitas Co. **Class of Product:** Infusorial earth, value \$20 to \$40 per ton, depending upon purity and fineness of mesh when prepared for use. Working 8 men and auto truck. **Equipment:** 1-ton pulverizing plant, in Ellensburg. Shipments, 500 tons. Output, 50 tons per week. **Development:** Open cuts, from which material is taken. Co. has contracted for 100-ton mill near its holdings, at Weymer, to cost \$20,000. **Informant:** Pres. C. F. Denny, Ellensburg.

NATIONAL LEAD-SILVER MINING CO.

Spokane

Capital: \$100,000. Par value, 5c. Assessable. **Directors:** C. D. Muxen, pres.; E. D. Weller, vice-pres.; Everett H. Pattison, secy.-treas.-mgr.; John E. Orr, asst. secy.; Geo. G. Ingraham, all of Spokane. **Annual Meeting:** Third Tuesday in November. **Property:** 8 claims, in process of being patented, and mill-site, in Curlew district, Ferry Co. **Class of Ore:** Lead-silver-zinc. **Development:** Main tunnel, over 1000 ft. in length, with several hundred ft. of shorter tunnels and shafts at higher levels. **Informant:** Secy.-Treas.-Mgr. Pattison.

NESPELEM CENTRAL MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Wm. Watterson, pres.; Morris Hedstrom, vice-pres.; Fred W. Miller, E. E. Ecklund, Herman Linke, secy., all of Spokane; Walter Linke, treas.-mgr., Greenacres. **Annual Meeting:** First Wednesday in November. **Property:** 11 unpatented claims, in Nespelem district, 6 miles W. of Nespelem. **Class of Ore:** Copper, silver, lead, zinc. Working small force. **Equipment:** Steam hoist, boiler, steam drill, blacksmith tools, ore cars, rails, etc. No shipments. **Development:** 270 ft. of shafts, 290 ft. of crosscuts and drifts. **Informant:** Pres. Watterson.

NEW CRYSTAL MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** John O'Conner, pres.; Fred J. Becker, John Gray, secy.; L. L. Lantry, all of Spokane; M. N. O'Connell, Miles. **Annual Meeting:** May 12. **Property:** 2 patented claims, in Deer Trail district. **Class of Ore:** Silver-lead, gold, copper, zinc, from \$25 to \$60 per ton. Working 5 men. **Equipment:** 55-h.p. boiler, 35-h.p. hoist, compressor, drills, etc. Shipments, 3 carloads. **Development:** 1350 ft. of shaft and drifts, exposing several veins. **Informant:** Pres. O'Conner.

NEW CURRENCY MINING CO.

Chewelah

Organized to take over property of Jay Gould Mining Co. at Chewelah (q.v.), owning some of the oldest claims in the district. Shows surface deposit of silver-lead ore. Development not extensive. So far as known, new company not yet under way.

NORMAN MINES CO.

Spokane

Capital: \$100,000, in 1,000,000 shares of par value ten cents. Organized in 1915 to take over lease and bond on Great Western group, 6 miles S. E. of Northport, Wash. **Directors:** James A. Welch, pres.; H. R. Welch, vice-pres.; Sidney Norman, secy.-treas.-manager; J. W. McBride and O. C. Moore. During 1916 shipped approximately \$20,000 worth of zinc carbonate ore from above 85-ft. level Great Western and sank winze 100 ft. deeper. Also took \$30,000 lease and bond on Last Chance group, adjoining, and shipped seven or eight carloads

of mixed sulphide ore. Winze in Great Western encountered fault which cut off ore-body. Work was abandoned and company's affairs closed up in winter of 1916.

NORTHPORT POWER & LIGHT CO.**Northport**

Organized in 1917 by Lorne A. Campbell, of Rossland, B. C., as pres.; H. R. Williams, vice-pres.; C. B. Smith, secy.-treas., and O. C. Moore, Spokane, to supply power to Northport Smelting & Refining Co., city of Northport, and for other purposes. Right of way begins 3 miles S. E. of Rossland, B. C., and will be 10½ miles in length. Company subsidiary of West Kootenay Light & Power Co. (q.v.), owning hydro-electric plants at Bonnington Falls, near Nelson, B. C., and Cascade City.

NORTHPORT SMELTING & REFINING CO.**Northport**

Capital: \$1,000,000. Par value, \$1. **Directors:** Jerome J. Day, pres.; E. R. Day, secy.; Edward Boyce, E. H. Knight and F. M. Rothrock. **Property:** The Northport smelter, built on site of old Le Roi Mining Co.'s copper plant, at Northport, Stevens Co. **Equipment:** 3 lead furnaces, 42 inches wide and 16 ft. long, of 300 tons daily capacity. Plant cost, as remodeled, \$500,000. Employs 150 men. Treating ores from Hercules and Tamarack & Custer, in the Coeur d'Alene, and the Lone Pine and Surprise mines at Republic, as well as custom ores. Hercules Mining Co. owns 500,000 shares of the stock, costing \$288,289, according to sworn statement of Eugene R. Day, in suit of Cardoner vs. Hercules. On Jan. 1, 1918, Co. placed in operation its new Cottrell smoke-reducing plant, at a cost of \$110,000, which will effect a daily saving of \$700 to \$900. Co.'s estimated surplus at end of 1917, \$300,000. Plant has never suspended operations under present owners. Plant was remodeled and placed in operation in 1916, following refusal of American S. & R. Co. to renew smelting contract by which Hercules product was treated on basis of 90% of lead in ore, at full New York prices, with freight and treatment charge of \$14 ton. Contract expired May 31, 1915. To provide refining facilities and market, same interests purchased controlling interest in Pennsylvania Refining Co., Pittsburg, Pa. Northport is on Spokane & Northern branch of Great Northern system, freight rate on ore and concentrates from Coeur d'Alene points being \$2.75, equal to \$5 per ton of bullion from 50% lead ores. In spite of this handicap, plant is believed to be saving large sums to controlling factors. Company owns large and pure lime deposits a few miles south of smelter, on Spokane & Northern tracks.

NORTH WASHINGTON POWER & REDUCTION CO.**Republic**

Organized by J. L. Harper to provide milling facilities for Republic Mines Corp'n and associated enterprises six or seven years ago. Plant was completed and treated some ore with but indifferent success. Company became seriously involved and passed into hands of receiver in 1913. Some machinery disposed of and balance, with mill building and power rights, sold in 1917, to F. R. and P. N. Clark, Spokane, who formed American Reduction Co. (q.v.).

NORTHWEST CONS. MINING CO.**Everett**

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** J. C. Morton, pres.; Mrs. J. C. Morton, treas.; Marion Crittenden, secy.; R. J. Weken, all of Everett; J. Q. McCanne, vice-pres., St. Louis, Mo. **Annual Meeting:** March 11. **Property:** 12 unpatented claims, 240 acres, in Monte Cristo district, Snohomish Co. **Class of Ore:** Principally copper, with small gold and silver values. Shut down. No equipment, except for hand work. No shipments. **Development:** 1200 ft. of tunnel, 100-ft. winze. **Informant:** Pres. Morton.

NORTHWEST MAGNESITE CO.**Spokane**

Capital: \$1,000,000. **Directors:** R. S. Talbot, pres.; S. F. V. Morse, vice-pres.; Seabury Merritt, secy.; D. J. Murphy, treas.; D. L. Thane, consulting engineer; Roy Bishop, mgr. **Property:** 480 acres, carrying deposits of magnesite, near Brown's Lake, 5½ miles W. of Chewelah, Stevens Co.; 20 acres occupied as a calcining plant, and 10 acres for office buildings, one mile south of Chewelah, quarries and plant being connected by a Riblet aerial tram. Co. is also operating a ferro plant for treatment of iron ores, in connection with calcining of magnesite. Cost of plant, to date, \$468,000. **Class of Ore:** Magnesite. **Equipment:** Large crushing plant at mines, with storage bins of 100 tons capacity per hour; compressor plant and Sullivan compressor, with capacity of 1500 cubic ft.; tram, 5½ miles in length, capacity 30 tons per hour, easily doubled by addition of buckets; 3 rotary calcining kilns at plant, 7½ ft. by 125 ft., capacity of each, 90 tons per day; 10,000-ton storage bins, automatic conveyers; fine crushing plant, all machinery being electrically driven. Many addi-

tions will be made later, increasing cost of plant to \$600,000. Shipments last fall from 4000 to 19,000 tons per month, much of the ore being calcined, while the rest is shipped in crude form. Several California capitalists of prominence are identified with this enterprise.

NORTHWESTERN GOLD & COPPER MINING CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. **Directors:** Wm. P. Ulrich, pres.; Chas. W. York, vice-pres.; Roy Timm, secy.; Chester Edwards, treas. **Property:** Copper Queen and Copper Jack mines, ½ mile from Laurier, Stevens Co., adjoining the Laurier Mother Lode property. **Notes:** No late information. Probably inactive. Prospect only.

NORTHWESTERN MINES CONSOLIDATED.**Spokane**

Capital: \$250,000. Par value, 5c. Non-assessable. **Directors:** N. T. Johnson, pres.; G. W. Dickinson, secy.-treas., both of Spokane; Jas. Howell, vice-pres., Coulee City. Operating under the unit system—taking over of partially developed mining properties and developing them. Co. has acquired properties in Montana and British Columbia, in accordance with its plan, and is developing the same.

NORTHWEST MINES DEVELOPMENT CO.**Spokane**

Capital: \$200,000. Par value, \$100. Incorporated in Washington, December, 1915. **Directors:** Wm. E. Johnson, pres.-supt.; H. J. Lefevre, vice-pres.; Harry J. Neely, secy.-treas.; Harry Osterman, H. J. Earnest, all of Spokane; Wm. E. Malm, mgr., Keller. Company organized to take over property of Manila M. & M. Co. (q.v.), and old smelter at Keller, built by Keller & Indiana Consolidated Smelting Co. (q.v.), and it was understood that the Malm process would be installed at latter plant. Nothing authentic concerning operations has been procurable since that time and it is presumed that options were cancelled and company now defunct.

OHIO STATE MINING CO.**Columbus, O.**

Capital: \$20,000. Par value, \$100. Non-assessable. **Directors:** L. D. Haggerty, pres.; J. R. Atchison, vice-pres.; Earl C. Bates, secy.; W. G. Bowland, treas., all of Columbus, Ohio. **Annual Meeting:** First Monday in February. **Property:** Group of patented claims, 150 acres, and mill-sites on Copper Mt., near Chewaw, Okanogan Co., Wash. **Class of Ore:** Silver, gold and copper. **Equipment:** Concentrator and flume. Shut down 2 years ago. Total shipments, estimated, \$10,000. **Development:** Several hundred ft. of tunnel, 1000 ft. of crosscut, 300-ft. shaft. **Informant:** Secy. Bates.

OKANOGAN COPPER MINING CO.**Concoconully**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** H. W. Gifford, pres.; G. H. Wheeler, vice-pres.; A. P. Wheeler, secy.; W. E. Gamble, treas.; H. A. Wilder, gen. mgr., all of Concoconully. **Annual Meeting:** First Tuesday in July. **Property:** 7 unpatented claims, 147 acres, on south slope of Douglas Mt., Salmon River district, Okanogan Co. **Class of Ore:** Gold, \$2 to \$20; copper, silver, \$2.70; platinum, \$3.60 per ton; iron, 33%; sulphur, 13%. Working small force. **Equipment:** Steel track, 1-ton ore car. Hand work. Rate of output, 10 tons per day—can be increased to 50 tons. **Development:** 700 ft. of tunnels, shafts and drifts. Two large and well-defined ledges through entire group. **Informant:** Gen. Mgr. Wilder.

OLD DOMINION MINING & MILLING CO.**Spokane**

Capital: \$5,000,000. Par value, \$1.00. Non-assessable. Organized 1891. **Directors:** G. B. Dennis, pres.; Paul Blackmar, secy. Two directors, Franklin Head and W. W. Townsend, Chicago, died many years ago and places have not been filled. **Property:** Old Dominion mine, consisting of 10 patented claims, 8 miles from Colville, Washington. Discovered in 1885 by Wm. and Patrick Kearney, causing one of first excitements in Spokane's mining history. **Shipments:** \$600,000 worth of high grade ore, averaging 300 ozs. silver and 25% lead, shipped in earliest days by wagon to Spokane, a distance of 80 miles. Spokane Falls & Northern reached Colville in 1891. **Development:** 17,000 ft., with vertical depth of 800 ft., at cost of \$500,000. At lowest level, fault was encountered and work discontinued in 1907. Since then, only worked in small way by leasers. **Equipment:** In early days property was equipped with 60-ton concentrator, tramway, compressor and other machinery, but through long neglect, same is now worthless. **Notes:** Controlled by G. B. Dennis and Ferdinand W. Peck, Chicago, between whom much friction has occurred of late years. Property was sold to W. H. Linney of Spokane, formerly of Nipissing Mines, Cobalt, Ont., at tax sale in 1915. Validity of transfer was attacked by Peck interests and carried

to Supreme Court of state, which rendered decision cancelling sale in 1917. Title now believed to rest in G. B. Dennis and Cyrus W. Bradley, trustees, but other litigation is pending and threatened and the future of corporation is uncertain.

O-LO-LIM COFFEE CO.

Spokane

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** Jas. Keeth, pres.; F. T. McCormick, vice-pres.; B. R. Riegel, secy., all of Spokane. **Annual Meeting:** First Tuesday in December. **Property:** 25-year lease from U. S. government of 160 acres on Spokane Indian reservation, Stevens Co. **Class of Ore:** Copper, 9.8%; silver, 1.4 ozs. to the ton. Working 5 men. **Equipment:** Gasoline-driven pump and hoist. Work started in 1917. Shipments, 30 tons. Output now, 1 to 4 tons shipping ore, considerable amount of milling, daily. **Development:** 100-ft. shaft, with 25-ft. drift on ledge, tunnel now in 160 ft. **Informant:** Pres. Keeth.

ORIENT GOLDEN ROCK MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. **Directors:** C. E. Gray, pres.-mgr.; Thos. R. L. Harris, vice-pres.; C. E. Ficks, secy., all of Spokane. **Property:** White Elephant group of 6 claims, 3 miles from Rock Cut, Ferry Co. **Class of Ore:** Gold, gray copper. **Equipment:** Steam plant, compressor, saw-mill, etc. **Development:** 225-ft. incline shaft, sunk on vein. Workings on 100-ft. level show disseminated pyrite ore, carrying from \$3 to \$6 per ton. Not working. Believed to be inactive, perhaps defunct.

ORIENT GOLD MINES, LTD.

Spokane

Capital: \$1,500,000. Par value, 75c. Non-assessable. **Directors:** Frank Ansley, pres.; Thos. R. L. Harris, secy.-treas.; E. V. Lambert, all of Spokane; W. T. Beck, vice-pres., Grand Forks, B. C.; C. Ed. Grey, Glengary, Idaho. **Annual Meeting:** First Tuesday after 1st Monday in July. **Property:** 6 unpatented claims, 120 acres, at Orient, 3½ miles from railroad. **Class of Ore:** Gold, silver, copper. Shut down in 1915. **Equipment:** Boiler, compressor, hoist, pumps, engine, saw-mill, etc. No shipments. About 2000 ft. of workings—shafts, cross-cuts, drifts and open cuts. Vein 85 ft. between walls. **Informant:** Pres. Ansley.

ORIENT METALS MINING & SMELTING CO.

Syracuse, N. Y.

Capital: \$1,500,000. Par, \$1. Non-assessable. **Directors:** Cornelius Dow, Jr., pres.-gen mgr.; T. Otto, vice-pres.; T. Bruce Furnival, secy.-treas.; Arthur B. Frost and H. J. Gorke, all of Syracuse; J. H. Weidemiller, Buffalo, N. Y.; A. E. Wilson, Oroville, Wash. **Annual Meeting:** October 9. **Property:** Avondale-Dome group, 11½ miles N. E. of Colville, Stevens Co., Wash., from which 10-ton shipment in 1917 netted \$678; controlling interest in Hudson Consolidated (q.v.), 3 miles N. of Oroville, Okanogan Co., Wash., and controlling interest Michigan Gold Mining Co., Orient, Wash. Officials reported 10 men employed on Oroville property last year, modern equipment being installed and said that mine would be placed on shipping basis immediately. Nothing is known here of methods of company, but in view of scandal attending efforts of practically same directorate in Michigan Gold M. Co. (q.v.) promotion, it might be well to investigate claims closely.

OWASCO GOLD MINING CO.

Oroville

Capital: \$2,500,000. Par value, \$1. Non-assessable. **Directors:** A. C. Brink, pres.; Dr. S. W. Houston, E. A. Riley, all of Wolcott, N. Y.; Lester Lockhart, vice-pres., Hudson Falls, N. Y.; C. W. Smith, secy.-treas., Oroville, Wash.; W. R. Shaw, Syracuse, N. Y. **Annual Meeting:** May 4. **Property:** 5 patented and 3 unpatented claims, 155 acres, 3 miles W. of Oroville, Okanogan Co. **Class of Ore:** Gold and silver. Shut down. **Equipment:** 10-stamp mill, with electric power. No shipments. **Development:** About 3000 ft. of tunnels and drifts. **Informant:** Secy.-Treas. C. W. Smith.

PACIFIC COPPER MINING & SMELTING CO.

Spokane

Directors: M. S. Hosea, pres.; J. D. Olson, vice-pres.; L. A. Hosea, secy.-treas.; Chas. E. Merwin, fiscal agent, all of Spokane. **Property:** 7 claims and a fraction, in West Chewelah district, 3½ miles S. of Blue Creek, on S. F. & N. R. R. **Class of Ore:** Copper, 6%; silver, 18 ozs. to the ton. **Development:** 254-ft. tunnel, cutting veins 6.4 and 12 ft. wide, and 170 ft. of shafts. **Note:** No recent details available. Probably moribund or defunct.

PEACOCK MOUNTAIN MINING & MILLING CO.**Spokane**

Capital: \$6,000,000. Par value, \$1. Assessable to 5c per share. **Directors:** D. K. McDonald, pres.; H. W. Axtell, vice-pres.; R. A. Hutchinson, secy.-treas.; E. G. Taylor and W. F. Delgrove, all of Spokane. **Annual Meeting:** Last Saturday in July. **Property:** 28 claims, surveyed for patent, 560 acres, in Ruby district, Okanogan Co. **Class of Ore:** Copper, 3%; lead, 8%; silver, 14 ozs.; gold, .10 oz. ton. **Equipment:** Flume and power house for 100-h.p., cook house, bunk house, blacksmith shop, tools, 2 ore cars, 4000 ft. of rails and 1000 ft. ventilating pipe. Total shipments, \$20,000. **Development:** 1430 ft. of tunnels, 710 ft. of crosscuts, 325 ft. of shafts, 170-ft. winze, 112-ft. raise. Under one ownership for 28 years. **Informant:** Secy.-Treas. R. A. Hutchinson.

PENN-WASHINGTON CONS. MINES CO.

See Washington Consolidated Mines & Reduction Co.

PHOENIX GOLD & COPPER MINING & MILLING CO.

Succeeded by National Silver-Lead Co. (q.v.).

PLATA FINA MINING & MILLING CO.**Davenport**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Oscar Leipharm, pres.; R. E. Anderson, vice-pres.; M. E. Jesseph, secy.; I. N. Imus, treas.; Jacob Reinbold, all of Davenport; A. H. Stiles, Turk. **Annual Meeting:** March 1. **Property:** 8 unpatented claims, less than 1 mile N. W. of Deer Trail mine, Deer Trail district, Stevens Co. **Class of Ore:** Silver. Working 5 men. **Equipment:** 1-horse whim, cook and bunk house, assay office, log building, 34x34 ft., over shaft. Began operations Sept. 27, 1917. Several cars of ore shipped by former operators. **Development:** 1000 ft. of tunnels and shafts, and development progressing steadily. **Informant:** Secy. Jesseph.

PLATA RECA CLAIMS.**Spokane**

Owned by C. F. Lucas, W. C. Silyver and others, of Spokane; formerly held by Cedar Canyon Smelting & Reduction Co.; later under lease and bond by A. H. Stiles, of Turk, and now by Plata Fina Mining & Milling Co., of Davenport (q.v.) **Property** in Deer Trail district, Stevens Co.

POP AND SILENT BELL.**Chewelah**

Owner: Mrs. S. E. Toner, Chewelah. **Property:** 2 patented claims—Pop and Silent Bell—on Jumbo Mt., 8 miles from Northport, on Colville reservation, Stevens Co. Not working. No shipments. **Development:** 85-ft. shaft, 110-ft. tunnel, crosscutting veins 11 to 20 ft. wide. **Informant:** Mrs. S. E. Toner, Owner.

PROVIDENCE GOLD MINING & MILLING CO.**Northport**

Incorporated in March, 1917, by John Selmer, F. M. Turner, Chas. Johnson, H. L. Bjorklund and C. A. Lillisberg, to develop a group of claims 4 miles W. of Northport, on Colville reservation. **Class of Ore:** Gold, silver and lead. No recent details available. Probably inactive.

PUGET SOUND REDUCTION CO.**Everett**

Company controlled by Rockefeller interests, owned smelting plant at Everett and Monte Cristo mines, in the Cascades. Project was not successful and was closed down some years prior to 1903, when late Charles Sweeny, of Spokane, organized Federal Mining & Smelting Co., to take over important mining property in Coeur d'Alenes. At that time he induced John D. Rockefeller to take Federal stock for Everett plant and latter was conveyed to company. This alarmed the Guggenheims, who were then putting finishing touches to the Smelting Trust, and, after some negotiations, the smelter property and Monte Cristo mines were sold to Guggenheims for \$600,000. Later Rockefeller realized approximately \$1,500,000 for Federal stock acquired in payment for smelter, amount also being derived from Guggenheims. Plant was conveyed to American Smelters Securities Co., which still owns it. So far as advised here, plant has not been operated since its purchase, although Weed's Handbook gives impression that it is a going concern. It was equipped with three 30x180 blast furnaces, one running on copper ores.

PYRARGYRITE MINING CO.**Oroville**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Monroe Harman, pres., Oroville; W. C. Jones, treas.; Chas. D. Bushnell, secy., both of Nighthawk; Jas. A. Hower, Lodi, O.; C. B. Burnham, Mansfield, O. **Annual Meeting:** March 10. **Property:** 5 patented claims, and 46 acres additional for buildings, mill, etc., on Chopaka Mt., 5 miles N. W. of Nighthawk, Okanogan Co., taken over from Ruby Mining Co. (q.v.). **Class of Ore:** Argentite, 70 to 200 ozs.; small values in

copper and gold. Shut down in 1913. **Equipment:** Electric hoist, 1000-gal. pump, buildings, blacksmith shop, etc. **Total Shipments:** About \$26,000. **Development:** 6700 ft. of underground workings—shafts, tunnels, crosscuts, etc. **Informant:** Pres.-Mgr. Harman.

QUEEN AND SEAL MINE.**Davenport**

A well known property in the Deer Trail district, Stevens Co., from which \$250,000 was taken in the early days, but work later suspended, owing to low price of silver. Now being actively developed again by Turner Bros., of Davenport, who have installed a compressor, hoist and other machinery, and are working about 10 men. Shaft is down 200 ft., but crosscutting on 120-ft. level has disclosed new ore bodies.

QUEEN MINE.**Davenport**

An old producer in the Deer Trail district, Stevens Co., from which large amounts of silver-lead ore have been extracted. Renewed activity in this camp is reflected in the fact that the Queen had 5 or 6 carloads of high grade silver-lead ore ready for shipment in December, 1917, while development was being rapidly pushed. Details unobtainable.

QUILP GOLD MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** James Hutchinson, pres., Montreal, Canada; F. J. Finucane, vice-pres.; E. L. Tate, secy.-treas.; Geo. R. Dodson, Thos. Hooker, all of Spokane. **Annual Meeting:** Fourth Tuesday in October. **Property:** Quilp mine and a fraction, patented, at Republic, Ferry Co. **Class of Ore:** Gold and silver. Mine in litigation for 3 years over apex rights with Republic Mines Corporation, decision being finally rendered in favor of Quilp. Under lease to Imperator Quilp M. Co., a J. L. Harper promotion, in 1912. Idle for some years. Total shipments, 39,653 tons of ore, value \$492,843.41. **Equipment:** 100-h.p. boiler, 7-drill compressor, hoist, tools, etc. **Development:** About 6,000 ft. of underground workings; vertical depth, 600 ft. **Informant:** Secy.-Mgr. Tate.

Q. S. COPPER CO.**Spokane**

Successor to Q. S. Mining Co. **Capital:** \$2,000,000. Par value, \$1. Non-assessable. **Directors:** M. E. Jesseph, pres., Davenport; A. M. Dewey, vice-pres., Cuess; J. P. Heckert, secy., Spokane; A. F. Suksdorf, treas., Spangle; Wm. T. Harrah, Niles, Mich. **Property:** 13 unpatented claims, with 10 acres of mill-sites, and water rights, between Loomis and Conconully, Okanogan Co. **Class of Ore:** Copper, 2 to 11.4%, with small silver values. Not working. No shipments. **Development:** About 1600 ft. of tunnels, pit 50x150 ft., open cuts. **Informant:** Vice-Pres.-Mgr. Dewey.

RAMORE MINING CO.**Republic**

Capital: \$100,000. Par value, \$1. Non-assessable. **Directors:** A. C. McCallum, pres., Seattle; D. F. Hallahan, treas., Spokane; W. T. O'Connell, vice-pres.-secy., Republic. **Property:** 4 patented claims near Park City, 20 miles S. of Republic. **Class of Ore:** Copper, silver, lead and zinc. Shut down in 1914. No equipment; no shipments; no development. **Informant:** Treas. Hallahan, Spokane.

RASPBERRY MINE.**Inchelium**

Co-partnership. **Owners:** C. Shumaker, C. A. Ray and J. W. Bartlett, Gifford P. O., Inchellium. **Property:** 60 acres, unpatented, in Stray Dog canyon, Covada district, Ferry Co. **Class of Ore:** Lead, \$15; gold, \$4.65; silver, \$8.20; zinc, \$6 per ton. No equipment, except for hand work; no shipments. **Development:** 450-ft. tunnel. **Informant:** J. W. Bartlett, part owner.

RATHFON REDUCTION WORKS.**Republic**

Capital: \$500,000. Par value, \$1; 400,000 shares common stock assessable up to 50 cents. **Directors:** A. L. Bradley, pres., Danville, Wash.; D. W. Rathfon, gen. mgr., Republic, Wash. **Annual Meeting:** March. **Property:** Republic and adjoining claim, acquired under bond in 1913 from Ferry county, after property had been taken in for unpaid taxes following abandonment by J. L. Harper, who operated as New Republic Mining Co. in 1911. **Class of Ore:** Gold and some silver. **Equipment:** Cyanide plant, with tools for hand work, although machinery on hand for air equipment with electric power. **Shipments:** Last fall daily output was 50 tons, the year's results aggregating between \$7000 and \$8000. Property, first and last, has produced about \$2,000,000. **Informant:** President Bradley. **Note:** Republic mine caused first excitement in district, having been located by James Clark and associates immediately after opening of south half of Colville reservation in 1896. Property subsequently operated by late Patrick Clark of

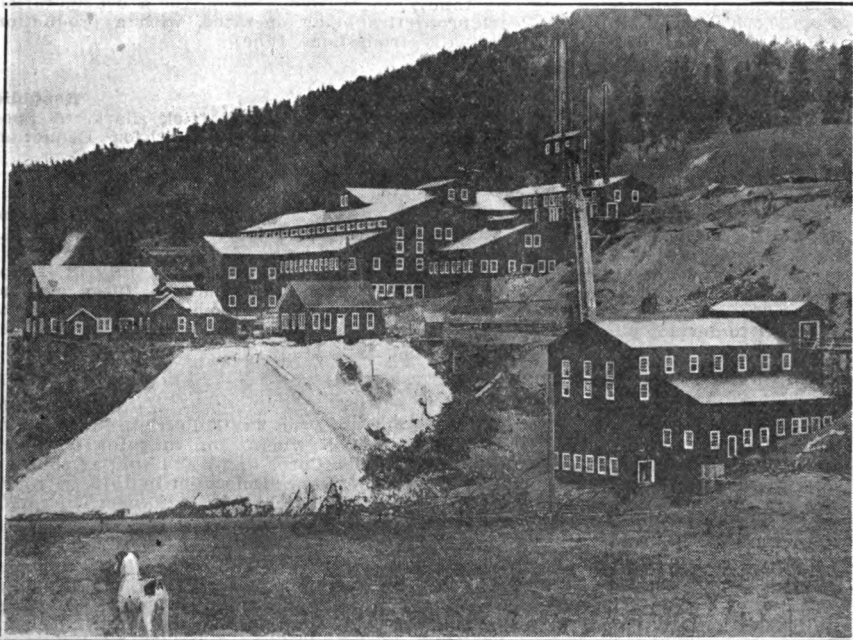
Spokane and dividends of several hundred thousands of dollars paid up till 1899, when property passed to Montreal company. Milling equipment, designed and built by D. C. Jackling, now one of the leading figures in the copper industry of United States, failed to save values, owing to increasing silver content of ores, and company allowed the property to pass to county for taxes. In 1910 revived by leasers, including Jim Casey, former superintendent under Patrick Clark, and purchased by J. L. Harper in 1912. Understood that Ferry Co. realized about \$30,000 from sale to present company and entire amount was derived from shipments.

RAYMOND ALLEN MINE.**Spokane**

Owner: Raymond Allen, Spokane. **Property:** 6 patented and 3 unpatented claims, about 600 acres, 12 miles W. of Valley, Stevens Co., and crossed by new Spokane, Valley & Northern railway. **Class of Ore:** Magnesite and iron. Working small force. **Equipment:** Only for hand work. No shipments. A magnesite "prospect", and only in early stage of development. **Informant:** Raymond Allen, owner.

REARDAN COPPER MINING CO.**Reardan**

Capital: \$50,000 in 1,000,000 shares. Par value, 5c. **Directors:** Oscar Carstens, T. J. Carstens and Henry Carstens, all of Reardan, and A. H. Kenyon, Spokane. **Property:** Near Turk, Cedar Canyon district, Stevens county. A close corporation, working 16 men in April, 1918. **Informant:** A. H. Kenyon, Spokane.



Old Republic Mill, Republic, Wash., Built by D. C. Jackling.

REBATE MINING CO.**Republic**

Capital: \$100,000. Par value, 10 cents. **Directors:** W. J. C. Wakefield, pres.; James B. Clark, sec.; P. W. Clark and J. Heaton, all of Spokane; J. J. Stewart, of New York, and George B. Kittinger, Seattle. **Property:** Rebate and Relief claims, two miles N. of Republic, Wash. **Informant:** J. Heaton, director. **Note:** Company was organized in December, 1898, and for some years was active, performing extensive development and proving large bodies of low grade gold ore. For many years nothing has been done. Bond and lease was given to E. J. Delbridge in 1917, but no information is available. Payment was due March 3, 1918, and not being paid, it is presumed lessee has relinquished option.

RECO MINING & MILLING CO.

Waitsburg

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** R. W. Laundagin, pres.; J. B. Laundagin, secy.-treas.; A. G. Laundagin, all of Waitsburg; T. J. Nopp and Georgia Laundagin, Chesaw. **Annual Meeting:** June 1. **Property:** 2 unpatented claims—Reco and Pendennis—1 mile N. of Chesaw. **Class of Ore:** Gold and silver. No equipment. Shipments, 80 tons; value, \$300. **Development:** 370 ft. of tunnel, 275 ft. of drifts. **Informant:** T. J. Nopp, director.

RED CROSS CLAIMS.

Reiter

Owner: Julius Hanan, Reiter. **Property:** 200 acres, unpatented, at Reiter. **Class of Ore:** Copper, averaging \$12 per ton. Shut down in 1910. No equipment. No shipments. **Development:** 202 ft. of tunnels, 25-ft. shaft, 190-ft. open cut. **Informant:** Julius Hanan, owner.

REPUBLIC CONSOLIDATED MINES CORPORATION.

Republic

Capital: \$1,500,000. Par value, \$1. **Directors:** A. B. Willard, pres.; A. J. Laughon, secy.; J. P. Burson, treas. **Property:** Lone Pine, Pearl and Surprise mines, at Republic, Ferry Co., surface area, 48½ acres. **Class of Ore:** Gold and silver. Average value of ores from Surprise claim, \$21; from Pearl, \$15.97; from Lone Pine, \$9.76. Surprise developed to depth of 700 ft.; Lone Pine to 450 ft.; but little development on Pearl. **Equipment:** 200-h.p. oil-burning engine; 1350-cubic-ft. Ingersoll-Rand compressor; 2 large hoists, and other modern features. This property has passed through many changes of ownership, gone through the bankruptcy courts, and in the fall of 1916 was purchased by the Northport Smelting & Refining Co., owned by Hercules and Tamarack & Custer Cons. Mining Co.'s, and passed into the control of the Day family, of Wallace, Idaho, for a consideration of \$150,000. Lone Pine and Pearl properties being operated, with a production around 3000 tons per month, principally from Lone Pine.

REPUBLIC MINE.

Republic

Formerly owned by Republic Mining Co., controlled by Patrick Clark, of Spokane, and sold in 1899 to Montreal Co. Now owned by Rathfon Reduction Works (q.v.).

RIO TINTO-TREADWELL MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Assessable. **Directors:** G. B. Dennis, pres.; L. C. Morse, secy.-treas.; Hans J. Rice, all of Spokane; J. L. Martin, vice-pres.-mgr., Mullan, Idaho; Stephen Swanson, Curlew. **Annual Meeting:** July 5. **Property:** 7 unpatented claims, 3 miles S. E. of Curlew, Stevens Co. **Class of Ore:** Gold, silver, lead, copper. Shut down in 1914. No shipments. **Development:** Crosscut to develop 3 parallel ledges. "A fairly good prospect." **Informant:** Vice-Pres.-Mgr. Martin.

ROSELLE MINING CO.

Springdale

Property: 5 claims, adjoining the Germania, in Deer Trail district, Stevens Co. Located in 1911 by George, Hans and Werner Newman, for tungsten deposits; afterwards conveyed to American Tungsten Cons. Corp. (q.v.) and sold at sheriff's sale to Henry and Heller Becker and F. C. Robertson. Relocated in 1915 by A. H. Stites, but superior court of Stevens Co. decided title to be in Becker and wife and Robertson.

ROYAL COPPER MINING & MILLING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** L. J. Winslow, pres.; W. J. Nickerson, secy.-treas.; A. L. McMillan, vice-pres.; Dr. N. E. Bergman and E. H. Winslow, all of Spokane; R. E. McCann, Cheney; H. N. Nelson, Sunset. **Annual Meeting:** June 17. **Property:** 6 unpatented claims, 5 miles N. E. of Chewelah, Stevens Co., adjoining Copper King. **Class of Ore:** Gold, silver, copper. **Equipment:** Tools for hand work, car, rails, etc. No shipments. **Development:** 500-ft. crosscut tunnel. **Informant:** Pres. Winslow.

RUBY MINING CO.

Highthawk

Capital: \$1,500,000. Par value, \$1. Succeeded by Pyragyrite Mining Co. (q.v.).

SALMON RIVER BOY.

Loomis

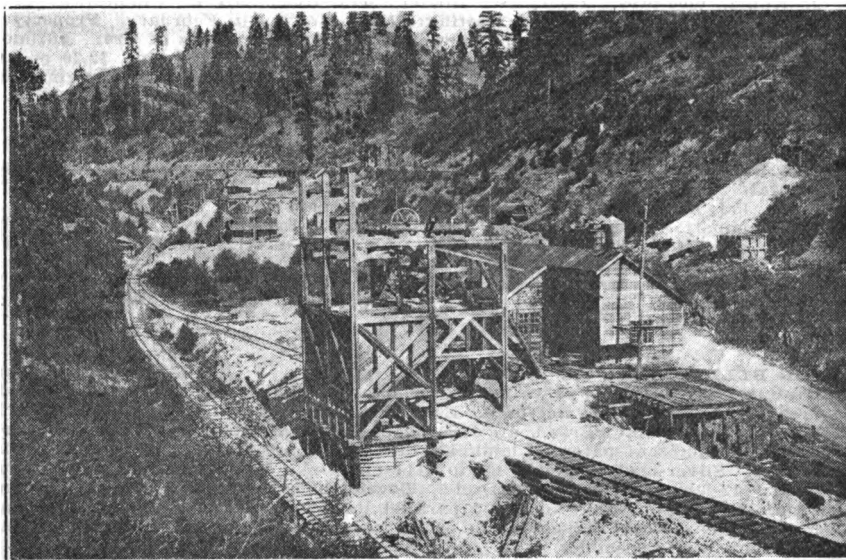
Owner: Wm. McDaniels, Loomis. **Property:** 20 acres, patented, at Conconully, Okanogan Co. **Class of Ore:** Copper, 5%; lead, trace. Not working. No shipments. No equipment. **Informant:** Robt. C. Hargrove.

SAN POIL CONSOLIDATED M. CO.**Republic**

Capital: \$1,500,000 in dollar shares. **Directors:** R. A. Koontz, pres.; J. W. Turner, sec.-treas. **Property:** San Poil group, west side Eureka gulch, Republic district, taken over from Spokane owners in 1911, for reported price of \$90,000. **Class of Ore:** Gold. **Equipment:** 125-ton cyanide plant, erected in 1912, by Hammond Machinery Co., but found deficient in capacity. **Note:** After many troubles, company failed with liabilities of around \$165,000, including \$60,000 due to Traders National Bank of Spokane, secured by note of one of heaviest stockholders. Property at one time bonded to Western Union Mining Co., organized by J. L. Harper, to consolidate many properties in immediate vicinity, but this also failed, after payment of \$5,000 had been made. Heavy stockholders then formed West Hill Mining Co., which operated mill for some time under lease, treating several thousand tons of ore running just under \$5 per ton. Operations were unsuccessful, and whole property was sold in February, 1918, to Consolidated M. & S. Co., Trail, B. C., by Dan Drumheller, Jr., receiver, for \$15,000. Ground is now being diamond drilled by latter corporation.

SAVAGE MINE.**Entiat**

Owner: Grant S. Savage, Entiat. **Property:** 4 claims, state land, held under 30-year lease, 10 miles up Entiat river from town of Entiat, Chelan Co. **Class of Ore:** Free milling gold, with small silver values. No equipment, but will install machinery in near future. **Development:** Small amount of tunneling and drifting, shaft 100 ft. **Informant:** Grant S. Savage, owner.



Surprise Gallows Frame and Power House, Republic, Wash.

SEATTLE ANTIMONY CO.**Seattle**

Capital: \$50,000. Incorporated by Moritz Thomsen, E. J. Matthews and F. W. Shillestad, officials of the Denny-Renton Clay & Coal Co., of Seattle, for purpose of smelting antimonial ores of Northwest, using part of Denny-Renton Co.'s plant.

SEATTLE-ST. LOUIS MINING CO.**Seattle**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. T. Voigt, pres.-treas.; E. J. Watkins, secy.; A. D. Campbell and H. R. Rustad, all of Seattle; Fred Rascher, St. Louis, Mo. **Annual Meeting:** First Monday in December. **Property:** 12 unpatented claims, in Slate Creek district, Whatcom Co. **Class of Ore:** Gold and silver; assay values from \$2 to \$280 per ton. **Equipment:** 4-stamp mill, crusher, plates, concentrator, air compressor, pipe line, 2 power drills, portable saw-mill, 2 80-h.p. turbine water wheels, dam, etc. No shipments. **Development:** 1000 ft. of tunnels, and open cut. **Informant:** Pres. Voigt.

SECURITY COPPER CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** J. F. McGinnis, pres., Hillyard; M. C. Hunter, vice-pres.; A. H. Syverson, secy.-treas.; L. K. Armstrong, manager; F. G. Fulton, all of Spokane. **Annual Meeting:** First Monday in February. **Property:** 120 acres by location, 80 acres state land, under 30-years' lease, 2 miles N. E. of Chewelah, Stevens Co. Not patented. **Class of Ore:** Copper-silver. Working 7 men. No shipments. **Equipment:** 30-h.p. distillate engine and hoist, small air-compressor, 2 Waugh jackhammer drills, office, cook house, men's living quarters, fuel oil house, powder house, framing and storing sheds, ore bunkers, shop, auto and wood houses, store-house, tool house, etc. **Development:** 550-ft. shaft, 400-ft. crosscuts, 250-ft. drifts. **Informant:** Manager L. K. Armstrong. **Note:** At annual meeting, in February, 1918, advisory board of 3 appointed to co-operate with directors in management and development of property. M. M. Beddall, H. E. Mills and A. J. Freeman constitute advisory board.

SHEPPER GOLD MINING CO.

Chesaw

Capital: \$1,000,000. Par value, \$1. **Directors:** J. P. Blaine, pres.-mgr.; H. L. Mooney, vice-pres.; A. C. Blaine, secy.; W. A. Harry, treas., all of Chesaw. **Property:** 3 unpatented claims, $\frac{1}{4}$ mile N. of Chesaw, Meyers Creek district. **Class of Ore:** Gold, averaging \$20 per ton. **Equipment:** 25-ton mill, with rolls, vanners, etc. **Development:** 700 ft. of workings.

SILVER ANTIMONY MINING CO.

Uniontown

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** J. J. Welle, pres.; J. Kuntz, vice-pres.; Henry W. Hofer, secy.-treas., all of Uniontown; C. W. Schlee, Walla Walla. **Annual Meeting:** First Monday in February. **Property:** 3 patented claims, $1\frac{1}{2}$ miles from Chewelah, Stevens Co. **Class of Ore:** Antimony, 41%, \$250.80; copper, 5.3%, \$28.62; gold, \$8.26; silver, 95c, and zinc, \$2.20 per ton. Working 5 men. - No shipments. **Equipment:** Hoist, pump, fan, engine, cook house, bunk house and blacksmith shop. **Development:** 170-ft. shaft, 155 ft. of crosscuts. **Informant:** Harry Dudman, fiscal agent, Spokane.

SILVER BASIN MINING CO.

Davenport

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** C. S. Turner, pres.; Jas. Holland, vice-pres.; W. A. Wilson, secy.-mgr.; J. S. Wells, treas., all of Davenport. **Annual Meeting:** First Monday in January. **Property:** Silver Queen and Snowstorm, unpatented, in Deer Trail district, Stevens Co. **Class of Ore:** Silver. **Equipment:** Steam boiler, 3-ton hoist, 3-drill steam compressor, steam pump, ore cars, tools, etc. Shipments, 1917, 6 cars, 180 tons, value, \$6000. Total shipments, about 7500 tons. **Development:** 400 ft. of shafts, 400 ft. of crosscuts. **Informant:** Secy.-Mgr. Wilson.

SILVER BELL MINING CO.

Spokane

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** E. H. Belden, pres.; R. F. Blackwell, vice-pres.; Estelle McCabe, secy.-treas.; J. M. Fitzpatrick, W. R. Dwyer, Jas. C. Broad, all of Spokane. **Annual Meeting:** March 31. **Property:** 160 acres of patented land, $4\frac{1}{2}$ miles N. E. of Clayton, Stevens Co. **Class of Ore:** Silver-lead, assaying up to \$111 per ton. Working small force. **Equipment:** 12-h.p. gas engine, hoist, etc. **Development:** By shaft 125 ft. deep, now running 100-ft. crosscut to tap 3 parallel ledges shown on surface. **Informant:** Pres. Belden. **Note:** Discovery of ore of good grade reported March, 1918. Early shipments seem possible.

SILVER CREEK MINING & MILLING CO.

Keller

Reorganized as Blue Ledge M. & M. Co. (q.v.).

SILVER HORDE MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. **Directors:** Jas. Johnson, pres., Hatton; A. H. Anderson, vice-pres., Turk; D. W. Alton, secy.-treas., Spokane. **Property:** Silver Horde group of claims in Deer Trail district, Stevens Co. **Class of Ore:** Silver, running from 7 to 32 ozs. to the ton. **Development:** 250-ft. tunnel, 82 ft. of crosscut; vertical depth, 150 ft. **Note:** No recent information. Believed to be idle.

SILVER LEAF MINE.

Spokane

Not incorporated. **Lessees:** J. L. Drumheller, Martin Woldson and Jas. Keeth, all of Spokane. **Property:** 2 unpatented claims, 6 miles S. W. of Gifford, Ferry Co. **Class of Ore:** Silver, 196 ozs.; 4% copper, and 0.3 oz. gold. **Equipment:** Boarding house, blacksmith shop, car, track, tools, etc. Total shipments, 15 tons. **Development:** 300 ft. of tunnel, 35-ft. incline shaft. **Informant:** Jas. Keeth.

SILVER MOUNTAIN MINING CO.**Spokane**

Capital: \$1,500,000. **Directors:** W. E. Seelye, pres.; Boyd Hamilton, secy.-treas., both of Spokane; Dr. John Hunt Shephard, vice-pres., Coeur d'Alene, Idaho. **Property:** Daisy and Wahkiagin mines, 15 miles W. of Addy, Stevens Co., which were worked 20 years ago. **Development:** Between 3500 and 4000 ft. of underground workings. Ore is low grade. **Note:** Property closed down Sept. 1, 1917.

SILVER QUEEN MINING & SMELTING CO.**New York**

Capital: \$1,000,000. Non-assessable. **Directors:** A. S. Durham, pres., Baltimore, Md.; H. D. Williams, secy., New York; W. B. Beals, trustee, Seattle. **Property:** Patented claims in Snohomish and Skagit Co.'s. Property never has been worked.

SILVER QUEEN MINING CO.**Kettle Falls**

J. J. Budd, supt. and owner of claims 2 miles S. of Kettle Falls, developed by shaft and crosscut tunnel, showing silver-copper ore. **Equipment:** Includes steam-power plant.

SILVER TRAIL MINING CO.**Spokane**

Capital: \$125,000. Par value, 10c. Assessable. **Directors:** J. Richard Brown, pres.; Arthur L. Hooper, secy.; W. S. Haish, treas.; Dr. Robt. Bell, Dr. A. J. Bell, Dr. Peter Reid, M. S. Peters, all of Spokane. **Property:** 3 unpatented claims—Jasper, Evergreen and Silver Trail—near Bossburg, Stevens Co. **Class of Ore:** Silver, lead, zinc. **Equipment:** Ore cars, track, cook house, blacksmith shop, tools, etc. Total shipments, about \$62,000. **Development:** About 1800 ft. of workings, including tunnels, drifts, crosscuts and upraises. Property formerly known as Dead Medicine mine. Operated by late Col. I. N. Peyton 25 years ago. **Informant:** Secy. Hooper.

SNAKE RIVER MINING, MILLING & SMELTING CO.**Asotin**

Capital: \$5,000,000. Par value, \$1. Non-assessable. **Directors:** J. W. Rogers, pres.; W. S. Rogers, vice-pres.-treas.; G. A. Rogers, secy., all of Asotin. **Annual Meeting:** First Monday in March. **Property:** About 600 acres of patented ground, including smelter, mill and power sites, on Snake river, in Washington, Oregon and Idaho. **Class of Ore:** Copper. Working small force. No equipment. No shipments. **Development:** About 3000 ft. of work. **Informant:** Secy. Rogers.

SPOKANE-BENTON CO. NATURAL GAS CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. **Directors:** H. C. Harris, pres.; J. M. McGonigal, vice-pres.; E. O. Harris, secy.-treas., all of Spokane. **Annual Meeting:** Jan. 1. **Property:** Leases in Benton Co. **Equipment:** Star drilling rig No. 29. Wildcating for natural gas and oil. Started drilling late in November, 1917. **Informant:** Fred May, fiscal agent, Spokane.

SPOKANE CONSOLIDATED TUNGSTEN CO.**Deer Park**

A consolidation of the Deer Park Mining Co., the Spokane Tungsten Co. and the Beard & Myers mining leases. **Capital:** \$625,000. Non-assessable. **Directors:** F. E. Parks, pres.; E. N. Robinson, vice-pres.; A. M. Winston, O. F. Kelly and A. M. Wood. **Annual Meeting:** First Tuesday in March. **Property:** About 360 acres, under 30-year lease from state, 12 miles N. of Deer Park, Stevens Co. **Class of Ore:** Tungsten. **Equipment:** Steam operating plant. **Development:** Tunnels and shafts by various former owners and lessees. Production, approximately \$30,000 worth of tungsten sold from this property. Active operations begin April 1, 1918. **Informant:** Vice-Pres. E. N. Robinson.

SPOKANE COPPER CO., LTD.**Spokane**

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Bob Mabry, pres.-mgr.; D. K. McDonald, vice-pres.; E. A. Moye, secy.-treas. **Property:** 1 unpatented claim and fraction, 5½ miles N. of Loon Lake, Stevens Co. **Class of Ore:** Copper. Working 5 men. **Equipment:** Gasoline hoist, good for 300-ft. depth; buildings, shops, house and blacksmith shop. No shipments yet. **Development:** Shaft being sunk in country rock, down over 150 ft. At 200 ft. depth will crosscut to vein. **Informant:** Pres.-Mgr. Bob Mabry.

SPOKANE-EDMONTON MINING CO.**Edmonton, Alta.**

Capital: \$3,000,000. **Directors:** W. B. Poucher, pres.; John Cormack, secy.-treas.; W. C. Jones, N. D. Peck, all of Edmonton; J. T. Burcham, A. W. Boyd, Spokane. **Property:** Ivanhoe group, at Palmer mountain, Okanogan Co., Wash. Co. is successor to Alberta & Western Mines, Ltd., from which this property was taken over in 1916. Holdings comprise more than 550 acres. **Class of Ore:** Gold and silver. **Development:** 5020 ft. of shafts, tunnels, crosscuts, open cuts, etc.

SPOKANE TIN MINES CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** C. P. Robbins, pres.; Richard Marsh, vice-pres.; Chas. Theis, secy.-treas.; W. J. C. Wakefield, Wm. Huntley, all of Spokane. **Property:** 132 acres deeded land, 8 miles S. of Spokane. **Class of Ore:** Cassiterite. Shut down in 1907. **Equipment:** Gasoline hoist. No shipments. **Informant:** Vice-Pres. Marsh. **Note:** Reported under bond and lease to F. C. Bailey and associates, Spokane, at \$75,000, in April, 1918.

SPOKANE TUNGSTEN CO.**Spokane**

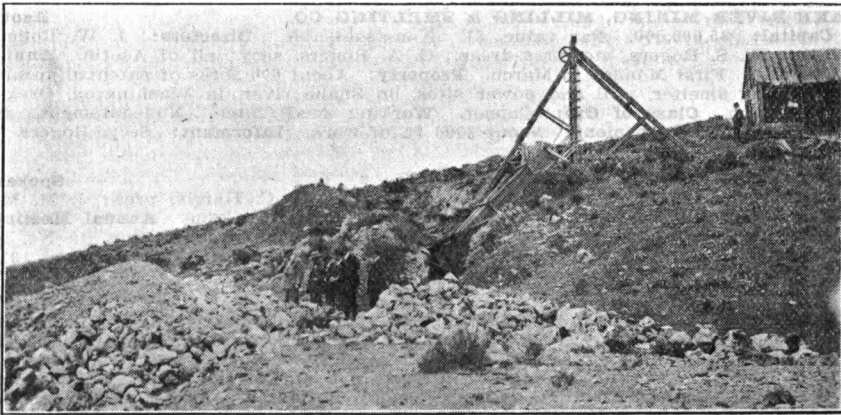
Reorganized, 1918, as Spokane Consolidated Tungsten Co., of Deer Park. (q.v.).

SPOKANE, VALLEY & NORTHERN RAILROAD CO.**Valley**

A subsidiary of American Minerals Production Co. (q.v.), formed to construct 12-mile standard-gauge railroad from Valley, a point on Spokane & Northern railroad, to magnesite quarries of parent company. Road completed to Allen quarries in 1917.

SQUAW SADDLE MINING & MILLING CO.**Wenatchee**

Capital: \$250,000. Par value, \$1. Non-assessable. **Directors:** J. J. Keegan, pres., Douglas; John Kathman, vice-pres.; R. S. Ludington, secy.-treas., both of Wenatchee. **Annual Meeting:** Jan. 3. **Property:** 80 acres, leased from state, 2 miles S. of Wenatchee. **Class of Ore:** Fine clays, gypsum, with traces of other minerals. No equipment; no shipments. Not working. **Development:** 6 or 8 prospect holes, 10 to 40 ft. deep, showing large body of silica, fire and other clays. **Informant:** Pres. Keegan.



Spokane Tin Mine, 11 Miles S. E. of Spokane.

STANDARD CHEWELAH MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** F. R. Clark, pres.-mgr.; P. N. Clark, secy.-treas.; G. W. Sommers, Thos. Bowers and F. M. Jarvis, all of Spokane. **Annual Meeting:** Third Monday in May. **Property:** 4 unpatented claims and fraction—91 acres—in the Chewelah district, Stevens Co. **Class of Ore:** Copper and silver—copper from 2% to 15%; silver, about 5 ozs. Shut down 2 years ago. **Equipment:** 80-h.p. boiler, 2-drill compressor, 25-h.p. engine. Total shipments, 84,515 lbs. **Development:** 320 ft. of shafts, 1100 ft. of crosscuts, 60-ft. tunnel. **Informant:** Pres.-Mgr. Clark.

STERLING SILVER-LEAD CO.**Spokane**

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** Dr. J. W. Cosford, pres.; B. C. Gochenous, secy.-treas.; R. O. Campbell, vice-pres.; Carl Anderson, B. J. Lindsay, all of Spokane; E. Pearson, Hillyard; F. W. Brennan, Metaline. **Annual Meeting:** April 16. **Property:** 12 patented claims near Metaline, Pend d'Oreille Co. **Class of Ore:** 7 claims, silver-lead; 5 claims, silver-lead-zinc, manganese and cobalt. Working small force. **Equipment:** Boiler, 50-h.p. engine, 20-h.p. crusher, table, etc. No shipments. **Development:** 220 ft. of tunnels, 82 ft. of crosscuts, 250 ft. of open cuts. **Informant:** Secy. Gochenous.

STRAWHUN MINE.**Spokane**

Capital: \$2,000,000. **Incorporators:** Richard Strawhun, H. H. Fetters and E. J. Merrin, of Spokane. **Property:** 53 acres near Orient, Stevens Co., a timber claim formerly belonging to J. F. Mears, of Rock Cut, but upon which Mr. Strawhun, in 1916, discovered a large body of ore, mainly gold, much of it running \$200 per ton and over. Incorporators reported to have paid Mr. Mears \$10,000 for his holdings.

STUART CLAIMS.**Chewelah**

Owner: W. B. Stuart, Chewelah. **Property:** 1 80-acre tract, unpatented, in SE $\frac{1}{4}$ Sec. 16, T. 31, R. 41, called North Loon Lake Copper Co., with copper ore; 1 80-acre tract, unpatented, in E $\frac{1}{2}$ of above named quarter, containing copper; 1 80-acre tract, unpatented, in same section, containing talc, all in Chewelah district, Stevens Co. All undeveloped prospects. **Informant:** W. B. Stuart, owner.

SUMMIT MINING & MILLING CO.**Davenport**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** F. E. Wonnacott, pres., Coeur d'Alene, Idaho; Walter Staser, vice-pres., Ritzville; C. A. Gray, secy.-treas., Spokane. **Annual Meeting:** First Tuesday in September. **Property:** 4 unpatented claims and 1 fraction, 5 miles N. E. of Keller, Ferry Co. **Class of Ore:** Gold, silver, copper, lead. Closed March 1, 1915. **Development:** 569 ft., including open cuts, shafts, drifts and tunnels.

SUNFLOWER-JAVA CLAIMS.**Inchelium**

Owners: J. W. Bartlett, Inchelium; D. A. Scott, Ritzville; W. W. King, Spokane. **Property:** 4 unpatented claims in Covada district, Ferry Co. Doing assessment work only. **Development:** 670 ft. of tunnels, 125 ft. of shafts.

SUNSET COPPER CO.**Seattle**

Company, believed to be organized for \$100,000, and of which George H. Stevenson, of 2201 L. C. Smith building, Seattle, is president, refuses detailed information. Said to have erected milling plant in 1917 and to be operating upon a large scale. Property 7 miles from Index, on Trout Creek.

SYNDICATE MINING & MILLING CO.**Spokane**

Capital: \$2,000,000. Par value, \$1. **Directors:** T. J. Coffman, pres.; W. W. King, secy.; E. F. Waggoner, treas., all of Spokane; D. A. Scott and M. A. Carter, Ritzville. **Property:** Claims in Meteor camp, 28 miles S. W. of Addy, Stevens Co. **Class of Ore:** Silver, lead, gold. No shipments. **Equipment:** Cars, track, air fan, etc. **Development:** About \$20,000 expended, mainly in assessment work. **Informant:** Secy. W. W. King.

TACOMA SMELTING CO.**New York**

(A subsidiary of American Smelters Securities Co.) **Capital:** \$500,000. Par value, \$1. **Directors:** F. H. Brownell, pres.; Edward Brush, vice-pres.; F. W. Clark, treas.; L. D. Craig, secy.; L. C. Beyer, H. Y. Walker, gen. mgr. **Property:** Smelting plant, 52-acre site, 6 miles from Tacoma, Wash. Capacity, 1650 tons daily. Treats lead matte, copper, lead, silver and gold ores and concentrates from western coasts of North and South America. **Equipment:** 3 60-ton mechanical roasters, and 2 10-ton hand roasters; 6 blast furnaces, 4 100-ton stacks for lead ores, 400-ton water jacket blast furnace for copper; cupola resmelting furnace, with 144 tilting molds; 350-ton reverberatory furnaces; 1000-ft. dust flues of blast and reverberatory furnaces leading to 306-ft. stack of reinforced concrete. Converter department, with 30-ton electric traveling crane, has 2 stands and 6 72x100-inch shells of barrel type. A 50-ton electrolytic plant. About 2000-h.p. (electric) used in works. Three Connorsville blowers, driven by 200-h.p. induction motor, furnishing blast for lead furnaces. Petroleum used for fuel.

TEXAS MINING CO.**Tacoma**

Capital: \$10,000. Par value, \$1. Assessable up to 25% per year. **Directors:** J. R. Turner, pres.; P. J. Sweener, vice-pres.; C. E. Peterson, secy.; D. McPherson, treas.; Otto B. Roeder and T. W. Heide, all of Tacoma. **Property:** 5 claims, 2 miles N. of Keller, San Poll district. **Class of Ore:** Copper, 3.6%; silver, 2 ozs. per ton, and some gold. Succeeded Iconoclast Cons. Mines Co., whose property was sold for debt. **Development:** 325-ft. shaft, 514 ft. of tunnel. Only annual assessment work since 1908.

THE HOPE CO.**Spokane**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Bob Mabry, Spokane, pres.; E. O. Catlett, vice-pres., Kendrick, Idaho; O. A. Broyles, secy.-treas., Spokane; Ed Armstrong and Ed Bell, directors. **Property:** 20 acres between Surprise and Quilp properties, east side Eureka gulch, Republic district, Ferry county, Wash. **Development:** Between 2000 and 3000 ft. **Class of Ore:** Gold, with small silver values. **Shipments:** \$100,000 worth, some running as high as \$60 ton. Last shipments averaged around \$5 ton. Leasers now working dumps. Company contemplates no early resumption of activity. **Note:** Announced, April 2, 1918, that Co. had disposed of its holdings to Northport Smelting & Refining Co., controlled by Day family, at reported price of \$25,000.

THORPE IRON CO.**Duluth, Minn.**

Capital: \$200,000. Par value, \$1. Non-assessable. **Directors:** Geo. H. Crosby, pres.; A. J. McLennan, secy.; H. J. Grannis, all of Duluth; S. S. Thorpe, treas., Minneapolis, Minn. **Property:** 16 patented claims, 14 miles W. of Valley, Stevens Co., Wash. **Class of Ore:** Iron. Not working. No shipments. **Development:** Just sufficient to obtain patents. **Informant:** Secy. McLennan. **Note:** In November, 1917, Co. bought material for 2 brick kilns, to be used in calcining magnesite on its property, nine claims of which are in the magnesite belt.

TILlicum DEVELOPMENT CO.**Spokane**

(Successor to Palmer Mountain Tunnel Co.) **Capital:** \$300,000. Par value, \$1. Non-assessable. **Directors:** A. E. Elston, pres., Spokane; John Melcher, secy., Loomis; F. G. Burnham, treas., Holyoke, Mass. **Property:** 21 unpatented claims on Wannicut lake, Palmer Mt. district, Okanogan Co. **Class of Ore:** Gold, silver, copper. **Equipment:** 750-h.p. water power and 450-k.w. electric plant, transmission line, 100-stamp mill, machine shop, air and electric drills, etc. No shipments. **Development:** 5000 ft. of tunnels, 2000 ft. of drifts. Vertical depth, 2000 ft. **Informant:** Secy. Melcher.

TOGO MINING & SMELTING CO.

Reorganized under name of Consolidated Copper Co. (q.v.)

TRINIDAD MINING & SMELTING CO.**Tonasket**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Jos. Coleman, pres.; T. W. Brown, secy.-treas., both of Tonasket; T. A. Durkin, vice-pres., Pittston, Pa. **Annual Meeting:** Dec. 26. **Property:** Central group of 12 unpatented claims, 9 miles S. W. of Tonasket, Okanogan Co. **Class of Ore:** Gold, silver, lead, copper. Working small force. No equipment; no shipments. **Development:** 2000 ft. of shafts, tunnels, open cuts and trenches. **Informant:** Secy.-Treas. Brown.

TRIPLE METALS MINING & DEV. CO.**Spokane**

Capital: \$50,000. Par value, 10c. Non-assessable. **Directors:** Wm. Berglund, pres.; Bernard H. Wiesmann, vice-pres.; T. J. Simpson, secy.-treas., all of Spokane. **Property:** 4 unpatented claims, 6 miles W. of Chewelah, Stevens Co. **Class of Ore:** Copper and silver. Working small force. **Equipment:** Car, track, tools for hand work. Total shipments, 17 tons. **Development:** 650 ft. of tunnels, 40 ft. of crosscuts, 40 ft. of drifts, and 150 ft. of shafts. About \$15,000 expended. Won second prize on 150 lbs. copper and silver ore at Interstate fair, Spokane, 1917. **Informant:** Secy.-Treas. Simpson.

TUBAL-CAIN COPPER & MANGANESE MINING CO.**Seattle**

Property: 20 claims in Olympic district, Jefferson Co. **Class of Ore:** Gold, silver, copper, iron and manganese, one vein showing assays of 40% metallic manganese, with some gold. **Development:** About 2800 ft. of tunnels, a number of open cuts, and over 1100 ft. of drifts. **Equipment:** 2 air compressors, with 36-inch Pelton wheel, saw mill, blacksmith shop, 2 machine drills, tools, mess and bunk houses, barns, etc. **Informant:** Frank Hanford, Colman building, Seattle.

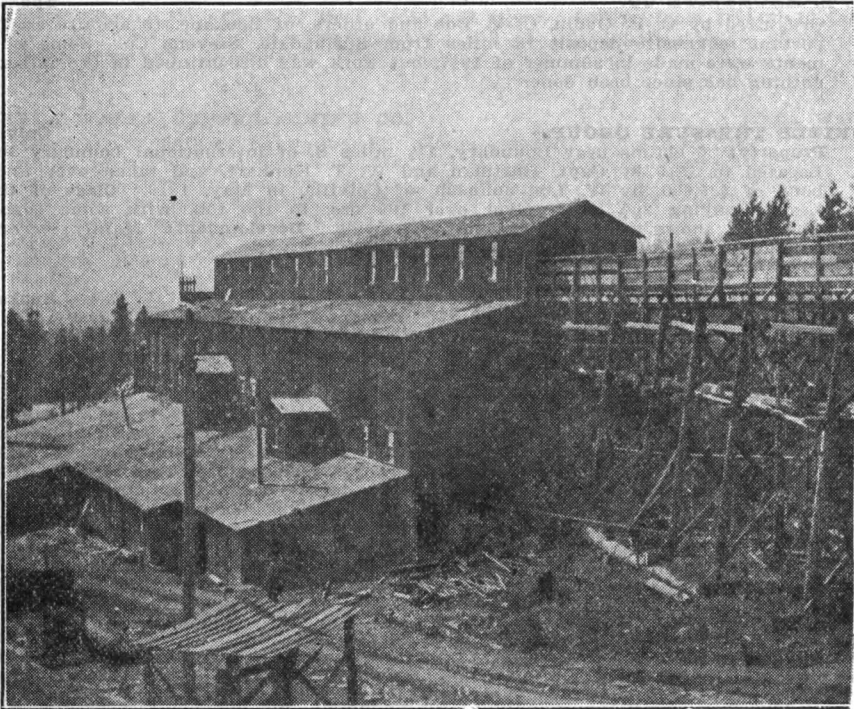
TULARE MINING CO.**California**

Property: 680 acres of land a few miles east of Colville, Stevens Co., Wash., containing large deposits of dolomite, which are being developed for use by the Crown Willamette Paper Co. for paper making, having been found cheaper for such purpose than magnesite. Supt. Bartlett, of the Tulare Co., will put in a field kiln in the Stevens Co. holdings, for calcining the dolomite, which runs 42% carbonate of magnesia and 52% carbonate of lime.

UNITED COPPER MINING CO.

Spokane

Capital: \$1,000,000. Par value, \$1. Assessable only by majority vote. **Directors:** Conrad Wolfe, Spokane, pres.; W. G. Collins, Seattle, vice-pres.; M. E. Poole, secy.-treas.; J. H. Griffith, Dan Hoch, E. C. Blanchard, all of Spokane. **Annual Meeting:** January 28. **Property:** 17 patented claims, with other land, totaling 500 acres, 4½ miles N. E. of Chewelah, Stevens Co. **Class of Ore:** Copper-silver. **Equipment:** 350-ton table concentrating plant, including 2 Power & Machinery 8x9 ball mills and 8 Deister-Overstrom tables; 250-ton slimes plant, using flotation process of Minerals Separation Co.; 25 three-ton ore cars, 1½ miles 24-in. gauge track; gasoline motor haulage system, built by Western Iron Works, Spokane; 16-drill compressor; electric power and battery of motors; machine and blacksmith shops; compressor building; bunk houses; boarding house, office, mill buildings and power house. **Development:** Approximately 45,000 ft. vein being opened to 1000-ft. level by crosscut tunnel, 4250 ft. long. Drifting on vein has proceeded to extent of 1300 ft., heading being about into Copper King group, adjoining, just taken over under lease and bond by United. Gross production



Main Milling Plant, United Copper Co., Chewelah, Wash.

of company to beginning of 1918 was \$1,420,825; freight charges reached \$96,214; treatment charges, \$109,665; development and improvements, \$297,404, and operating expenses, \$767,540. During the period of operation \$150,000 has been paid in dividends—\$100,000 in 1917. Dividends were discontinued late in 1917, owing to uncertainty concerning effect of excess profits tax, but will probably be resumed about the middle of 1918. Operating profit for 1917 was \$113,672, gross smelter returns from shipments being \$354,371, received for 1,147,014 lbs. copper and 147,573 ozs. silver. Operating expenses were \$240,699. Indebtedness at end of 1917, \$61,576. Report upon physical conditions by P. A. Brady, mining engineer, submitted with annual statement, credits United Copper with reserves of 214,785 tons, containing 5,979,392 lbs. copper and 491,270 ozs. silver. Ore broken and lying in stopes estimated at 79,200 tons more, with content of 2,142,000 lbs. copper and 142,920 ozs. silver. Calculations based upon milling ore averages, running 1.5% to 2% copper and from 2 to 5 ozs. silver per ton. Reserves in Copper King, now being operated by United, estimated at 100,000 tons, with general average of 1.1% copper and 1 oz. silver per ton. Total reserves in both properties, 395,985 tons, containing 10,101,320 lbs. copper and 714,190 ozs. silver.

Report takes no notice of oxidized ores above 400-ft. level in United Copper and 300-ft. level Copper King. **Informant:** President Wolfe. **Note:** United Copper is the oldest active dividend-paying mine in immediate vicinity of Spokane, being situated about 65 miles north. In dividend disbursements it is exceeded only by Electric Point. Operations commenced in 1906 and have been continuously under direction of President Wolfe to this date. Copper King was taken under three-year lease and bond in December, 1917, matter involving \$100,000, although it is believed royalty payments will retire the full amount, without calling for capital from operations of United Copper itself. From 80 to 100 men are upon the payroll, the whole enterprise being the most extensive in this neighborhood. **Note:** Shipments for 1918: January, 9 cars concentrates, 1 car crude ore; February, 11 cars concentrates, 3 cars crude ore, one of which, from 1250-ft. level, averaged nearly \$115 per ton; March, 12 cars concentrates, 3 cars crude ore. Expect to ship 20 cars in April. Ore on 1300-ft. level said to be best yet found in mine.

U. S. MAGNESITE CO.

Spokane

Organized by C. P. Oudin, C. V. Bob and others, of Spokane, to acquire an important magnesite deposit 18 miles from Springdale, Stevens Co. Some shipments were made in summer of 1917, but work was discontinued in the fall and nothing has since been done.

UNITED TREASURE GROUP.

Colville

Property: 6 claims near Boundary, 1½ miles S. of international boundary line. Located in 1915 by Capt. Hartman and W. T. Kunhart, and taken over under bond of \$25,000, by W. Lon Johnson, of Colville, in May, 1916. **Class of Ore:** Lead, assaying 20%, and silver over 100 ozs. to the ton, with some copper. Open cut shows a body of galena 4 ft. wide. **Development:** Mainly by open cuts. No late information. Probably idle.

VALLEY MAGNESITE CO.

Spokane

Capital: \$1,500,000. Par value, \$5. **Directors:** F. M. Handy, pres.; B. E. Kehler, vice-pres.; W. J. Matthews, secy.; Robt. Carnochan, treas.; Irving Whitehouse. **Property:** 1030 acres, 300 of which contain magnesite deposits, at Valley, Stevens Co. **Class of Ore:** Magnesite, of two distinct kinds—one a coarsely crystalline material, occurring in immense bodies, in connection with dolomite; the other, a massive, white, non-crystalline variety, occurring in small bunches, stringers and veins in serpentine. A face 50 ft. high has been opened, and extensive shipments of calcined magnesia have been made. A shipment of 20 cars about Dec. 1, 1917, had a gross value of \$26,000, or \$18,000 net profit. Railroad built to within 4 miles of property reduces cost of production to \$6 per ton at cars. **Equipment:** 10 kilns, with accessories, capable of producing 150 tons calcined magnesia daily. **Development:** A depth of 100 ft. said to expose 1,000,000 tons of magnesite. **Note:** Reported, April 11, 1918, that Co. had been awarded contract to deliver minimum of 2000 tons calcined magnesia monthly for duration of war.

VALLEY MINING CO.

Spokane

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** W. R. Tuttle, pres.; Arthur L. Hooper, secy.-treas.; Harvey M. Ross, Victor P. Adams, Sidney Van Hook, all of Spokane. **Annual Meeting:** Jan. 1. **Property:** 3 unpatented claims—the Mother Lode, Mother Lode Extension and Log Cabin—8 miles W. of Valley, Stevens Co. Locally known as the Edna mine. **Class of Ore:** Copper, 15%; silver, 15 ozs., and small values in gold. Working 4 men. **Equipment:** 2 boilers, 1 50-h.p. and 1 60-h.p.; 500-ft. hoist, 3-drill compressor, 2 Sullivan drills, air receiver, sinking and feed pumps, ore car, tracks, cables, cages, mining and blacksmith tools, cook house, bunk house, shaft house, barn, blacksmith shop, etc. Shipped 1 car last year. **Development:** Shaft, 370 ft., sinking 200 ft. deeper; 765 ft. of drifts; 300 ft. of crosscuts. **Informant:** Manager Victor P. Adams. **Note:** Martin Woldson, of Spokane, said to have taken option on large block of stock. Manager Adams, at the mine, increasing the force, and preparing to make shipments.

VIRGINIA MINING CO.

Spokane

Property: 8 claims, known as the Faithful-Surprise group, 1½ miles S. of Danville, taken under lease and bond for \$50,000 by A. A. Dunphy and associates, of Spokane, and managed by Mr. Dunphy. **Class of Ore:** Gold, running from \$6 to \$17 per ton, in a vein 7 ft. wide. Shipments netting \$27,000 were made during 1917, and 800 ft. of work has been done in the lower tunnel. Buildings and ore bins were erected, and an adjoining claim was acquired for \$6000. Formerly known as the Lucile Dreyfus property.

VULCAN COPPER CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** J. Richard Brown, pres.-mgr.; Arthur L. Hooper, secy.-treas.; Dr. Robt. Bell, vice-pres.; Leo M. Chambers and J. A. Henry, all of Spokane. **Property:** 4 unpatented claims, 8 miles W. of Valley, Stevens Co., and ½ mile from line of S., V. & N. Railroad. **Class of Ore:** Gold, \$3; silver, 4 ozs. to the ton; copper, 5%. **Equipment:** Mining tools for hand work, ore car, steel track, ventilating plant, cook house, bunk house, blacksmith shop, etc. Total shipments, about 20 tons, as tests. **Development:** 612 ft. of crosscut, 112 ft. of tunnel, 105 ft. of shafts, and 60 ft. of open cuts. **Informant:** Pres. Brown.

VULCAN MINING CO.**Spokane**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** H. M. Gibson, pres.; P. Lewis, vice-pres.; P. J. Larsen, treas.; A. O. Stuber, secy., all of Spokane; James D. Grimes, Orient. **Annual Meeting:** Second Monday in January. **Property:** 7 unpatented claims, 140 acres, 3½ miles N. E. of Rock Cut, Orient district, Stevens Co. **Class of Ore:** Gold and silver. Assays from \$25 up to \$500 per ton. No shipments. **Development:** 610 ft. of tunnels, 315 ft. of shafts. Some crosscuts. **Informant:** Pres. Gibson.

WALLA WALLA COPPER MINING CO.**Walla Walla**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** John G. Muntinga, pres.; W. H. Meyer, vice-pres.; W. P. Lathrop, secy.-treas.; Henry Osterman, Wm. Pfeiffer, Geo. Bradbury, C. M. McKinney, all of Walla Walla; J. T. Leonard, manager, Spokane. **Property:** 2 patented and 8 unpatented claims and 5-acre mill-site, near Keller, San Poil district, Ferry Co. **Class of Ore:** Copper, silver, gold and molybdenum. **Equipment:** Compressor, boiler, engine, blower, pneumatic drills, etc. **Development:** 1200 ft. of tunnels, 500 ft. of shafts.

WASHINGTON & IOWA COPPER MINING CO.**Seattle**

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** W. D. Gibson, pres.; S. F. Falkenburg, vice-pres.; E. P. Hewitt, treas.; P. R. Screven, secy., all of Seattle; W. V. Anderson, Yankton, S. D. **Annual Meeting:** First Saturday in February. **Property:** 3 claims, mill-site and water right, surveyed for patent, Silver Creek district, Snohomish Co. Adjoins Edison Mining & Dev. Co., both properties being worked under one management. **Class of Ore:** Copper, gold, silver and lead. Working small force. **Equipment:** Air compressor, saw mill, drills, cook house, bunk house, powder house, blacksmith shop, etc. No shipments. **Development:** Several crosscuts and tunnels.

WASHINGTON CONS. MINES & REDUCTION CO.**New York**

Capital: \$225,000. Par value, \$5. Non-assessable. **Directors:** Chas. Lovejoy, pres., Conconully, Wash.; Jacob May, vice-pres., Bridgeport, Conn.; A. R. Lacey, secy.; A. M. Lowery, New York. **Property:** 13 patented claims and mill-site, and 27 unpatented claims and 2 mill-sites, 1½ miles N. W. of Conconully, Okanogan Co., Wash. **Class of Ore:** Gold, silver, copper, lead and zinc. Shut down August 1, 1915. **Equipment:** Small saw-mill, steam air compressor, 4 power drills, blacksmith shop, tools, etc. No shipments. **Development:** 2640 ft. of tunnel. Report of David Gubser, supt., covers Mineral Hill M. Co. (q.v.), Mineral Zone Mining Co., and Penn-Washington Cons. Mines (q.v.), supposed to have been absorbed, although particulars are unavailable.

WASHINGTON COPPER MINES DEV. CO.**Portland, Ore.**

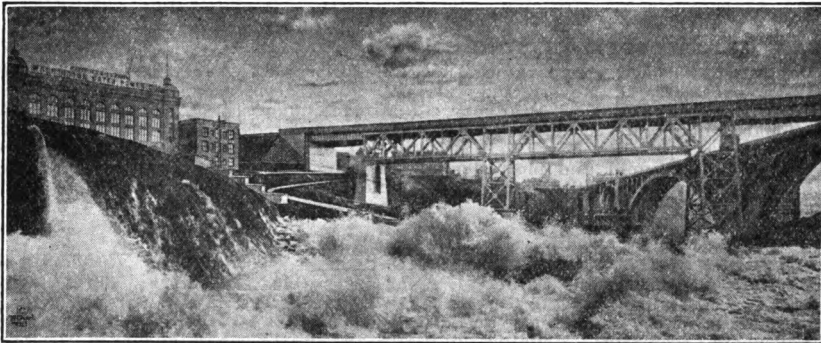
Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** P. H. Nester, pres.; J. L. Linn, vice-pres.; J. N. Hart, secy., all of Portland. **Annual Meeting:** Jan. 8. **Property:** 9 unpatented claims, in Bald Mt. district, Skamania Co., Wash. **Class of Ore:** Copper, gold and silver. Working 10 men. **Equipment:** Mill and concentrator, handling 30 tons of ore per day. No shipments; just ready to begin operations; has large quantity of ore opened up. **Informant:** Secy. Hart.

WASHINGTON GROUP.**Colville**

Owners: Ham Bros., Dick Lorah, Geo. Allen, W. H. Montgomery, Colville. **Property:** 6 unpatented claims and 3 fractions, 4½ miles S. E. of Chewelah, Stevens Co. **Class of Ore:** Copper. No equipment. No shipments. **Informants:** Ham Bros.

WASHINGTON WATER POWER CO.**Spokane**

Head office: New York. **Capital:** \$20,000,000, authorized. Par value, \$100. Issued and outstanding, \$15,490,000. Bonds outstanding December 31, 1917, \$10,277,000. Net earnings: 1913, \$1,109,191; 1914, \$1,094,446; 1915, \$720,207; 1916, \$594,175; 1917, \$637,513. Betterments: 1913, \$1,811,445; 1914, \$2,695,240; 1915, \$420,529; 1916, \$328,937; 1917, \$474,117. **Officers:** Chairman of Executive Committee and vice-pres., W. J. C. Wakefield; pres., D. L. Huntington; vice-pres. and gen. mgr., H. L. Bleecker; secy., A. F. S. Steele; treas., Y. M. White; auditor, P. Hayward, all of Spokane. **Trustees:** D. L. Huntington, J. P. M. Richards, L. M. Davenport, W. J. C. Wakefield, N. Fred Essig and W. S. McCrea, Spokane; W. A. White, Frank Lyman, Francis S. Bangs, Theodore F. Hicks, Harold T. White, Benj. B. Lawrence, Jonathan Bulkley, Oscar F. Zollkoffer, Guy DuVal, Edwin G. Merrill and William I. Frothingham, New York, and Charles Jackson and John Adams, Boston. Largest distributor of electric power in the northwest, operations having been commenced in early '80s. First developed the falls in the heart of the city of Spokane with a capacity of 12,000 h. p. and subsequently improved holdings at Post Falls in 1906, with added capacity of 15,000 h. p. In 1910, Little Falls plant was completed, adding an installed capacity of 36,000-h.p. and in 1915, Long Lake plant was completed with additional capacity of 45,000-h.p. and ultimate capacity of 90,000-h.p., of



Spokane Falls, in the Heart of the City.

which 22,500-h.p. will probably be added in 1918. Coeur d'Alene district in Idaho is served by two transmission lines, the first constructed in 1901, with capacity of 14,000-h.p. Both lines have been taxed to capacity and the company is now constructing third line through Fourth of July canyon, parallel with second line. First line runs near town of Rockford and crosses Coeur d'Alene Lake in the vicinity of Chatcolet. All three lines come together at Cataldo, Idaho. Many of the great mines of Coeur d'Alene are served from this source, while branch lines have been constructed to Pine creek and to the gold dredge in operation on Prichard creek, near Murray. During 1917, Coeur d'Alene district alone consumed 52,089,899 kilowatt hours. Within past few months, contract entered into with Stevens County Power & Light Co. for delivery of energy to be distributed in the towns and mining regions of Stevens county. Company also owns lighting, heating and traction franchises in city of Spokane.

WASHOUGAL GOLD & COPPER MINING CO.**Washougal**

Capital: \$1,000,000. Par value, \$1. **Directors:** F. A. Mabee, pres.; John Scharboer, vice-pres.; J. B. Jordan and T. A. Altman, secs.; Dr. Otto Sutter, treas. **Property:** 160 acres, held under 30-year lease from state, near Mt. St. Helens, Bald Mt. district, on upper Washougal river, Clark Co. **Class of Ore:** Copper, gold, silver, lead and zinc. **Equipment:** Gasoline hoist, 3-drill air compressor, 25-ton concentrating mill. **Development:** 1800-ft. tunnel.

WATER POWER MINING & MILLING CO.**Blue Creek**

Owner: E. A. Humphrey, Blue Creek. **Property:** 2 unpatented claims 6 miles N. W. of Chewelah, Stevens Co. **Class of Ore:** Silver, gold and copper. Shut down March, 1915. **Equipment:** Engine, compressor, hoist, air receiver, tools, etc. No shipments. **Development:** 400 ft. of prospect tunnels. **Informant:** E. A. Humphrey, owner.

WEHE MINE.**Milwaukee, Wis.**

Owner: W. C. Wehe, Milwaukee, Wis. **Property:** 11 patented claims in Wanicut Lake district, Okanogan Co., Wash. **Class of Ore:** Gold, \$50 to \$100; silver, \$20; lead, \$7.75; copper, \$7.65 per ton. Shut down in 1909. No equipment; no shipments. **Development:** Shafts from 20 to 200 ft. deep, tunnels from 20 to 400 ft. **Informant:** A. George Wehe, Pasco, Wash.

WELLS-FARGO MINE.

Springdale

Property: 80 acres, 12 miles W. of Gray station, Stevens Co., sold in November, 1916, by E. M. Hodgson, Jacob Keller, A. E. Bidgood and J. W. Gillingham, of Springdale, to H. R. Vandraten and M. A. Robinson, of Spokane, preceded by one-year option, and agreement for continuous development. **Class of Ore:** High grade antimony of over 55%, and sufficient silver to pay expense of mining. **Development:** 400 ft. of tunnel, with a number of drifts.

WENATCHEE GOLD MINING CO.

Wenatchee

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. P. Bonar, pres.; W. H. Kneemyer, treas., both of Waterville; M. P. Spencer, secy., Wenatchee. **Annual Meeting:** Aug. 1. **Property:** 80 acres state land, under 30-year lease, in Entiat valley, Entiat. **Class of Ore:** Free gold, assaying from \$2 to \$120 per ton. **Equipment:** 2-stamp mill. Operating under 2-year lease to party of stockholders. Shipments to date, \$170,000 in gold. **Development:** About 500 ft. of tunnels and shafts. **Informant:** Secy. Spencer.

WESTERN COPPER MINING CO.

New York

Incorporated in Maine, April 25, 1917. **Capital:** \$2,000,000. Par value, \$1. **Directors:** C. G. Reiter, pres.; Leroy B. Sherman, vice-pres.; J. J. O'Brien, secy.; J. D. Campbell, treas., office 1123 Broadway, N. Y. **Property:** 15 patented and 5 unpatented claims, and 5-acre mill-site, patented; total 400 acres, 5 miles W. of Index, Snohomish Co., Wash. Purchased from Bunker Hill Mining & Smelting Co. (q.v.), June 6, 1917. **Class of Ore:** Copper, silver, gold. **Equipment:** 75-ton smelter, 100-ton concentrator, compressor, hoists and other machinery, all electrically-driven by energy generated from Lake Isabelle. **Development:** 2300-ft. tunnel, numerous crosscuts and drifts, and 686 ft. of shafts. Vertical depth at face, 1000 ft. Ore body of low grade copper, from 10 to 50 ft. wide, and small vein, 2 ft. wide, carrying ore of much higher grade.

WESTERN SILICA & SAND CO.

Spokane

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** James Howell, pres.; John Evans, secy., both of Coulee City. **Property:** 1 patented claim, 6½ miles from Dennison, Stevens Co., 18 miles N. of Spokane. **Class of Product:** Silica, 99½% pure. Working from 1 to 10 men, depending upon demand. Being equipped to furnish silica, crushed and ground, and boulders. Total shipments, about 1000 tons; last year, 500 tons, value \$2000. Said to be from 10,000,000 to 20,000,000 tons of silica above levels. **Informant:** Geo. B. Cole, sales agent, Spokane.

WESTERN UNION MINING CO.

Republic

Organized by J. L. Harper in 1912 to take over San Poil and other groups in Eureka gulch, Republic district. Some initial payments were made upon options, but operations were abandoned and corporation is now defunct. (See San Poil Cons. M. Co.)

WEST HILL MINING CO.

Republic

Leasing company, organized by heavy stockholders of San Poil Consolidated M. Co., in an effort to pull latter out of financial troubles. Several thousand tons of ore running a little less than \$5 were milled, but operations showed loss and were abandoned in 1916. J. W. Turner, Spokane, acted as manager, but other details are not obtainable. (See San Poil Consolidated M. Co.)

WEST VIRGINIA MINING CO.

Republic

Capital: \$250,000. Par value, \$1. **Directors:** C. O. Jarrell, pres., Emerson, W. Va.; J. M. Hopkins, vice-pres., Danville, W. Va.; S. A. Sell, sec.-treas.-mgr., Republic. Organized in 1915 to acquire from J. L. Harper, Lone Pine-Surprise-Pearl group, east side Eureka gulch, Republic. Company expended considerable capital in development and equipment, but got into difficulties in 1916 and relinquished bond. Now defunct.

YELLOW GIRL MINING CO.

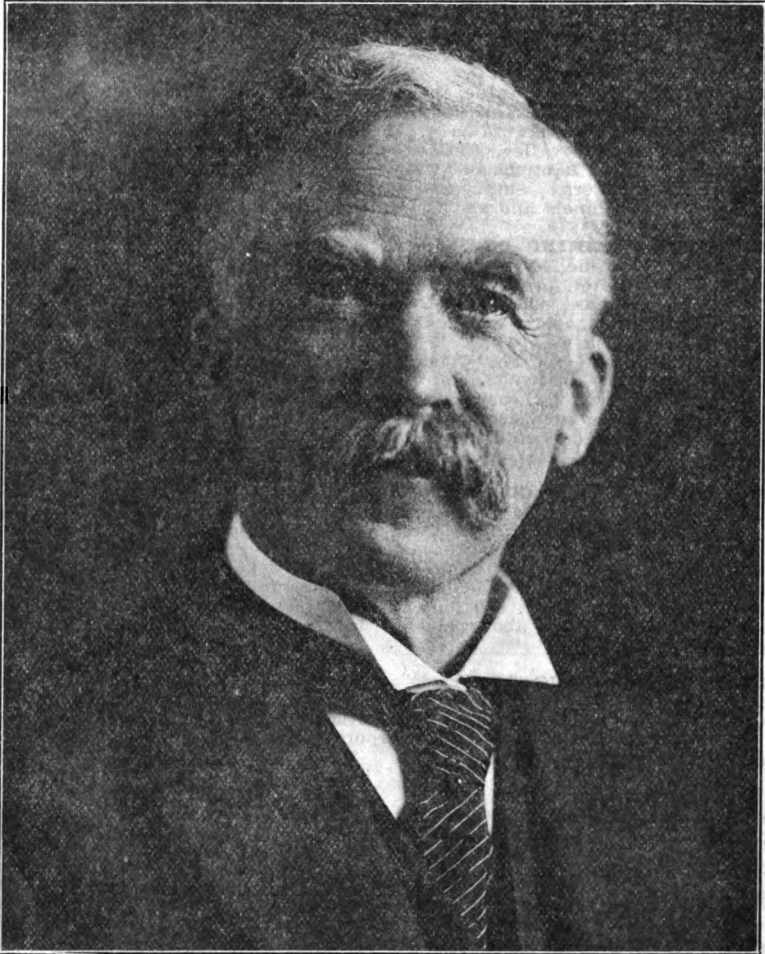
Spokane

Capital: \$625,000. Par value, 25c. Non-assessable. **Directors:** W. E. Mann, pres.; H. M. Davenport, vice-pres.; E. M. Heyburn, secy.-treas.; F. A. Montell, all of Spokane; Dr. H. N. Belgum, Richmond, Calif. **Property:** A ¼ interest in Yellow Girl group of 5 claims, an option on the remaining ¾ interest, and all of 2 adjoining claims, recently located, all in Galena district, Okanogan Co. **Class of Ore:** Copper, silver and gold. **Development:** 45-ft. incline shaft and several shallow shafts and open cuts; 30-ft. tunnel, and another tunnel started, in 40 ft. Inactive.

YOUNG AMERICA MINE.

Bossburg

An old property, worked with some success, 25 years ago, by Spokane owners. Now owned by Mrs. C. W. Connell, of Bossburg. In April, 1918, reported under option to San Francisco and Yakima people, who are expected to reopen at once.



MR. CHARLES F. CALDWELL.

An American by birth and a Canadian by adoption, and among the most widely known mining operators of interior British Columbia. Gaining early experience in the Coeur d'Alenes, he went to the Slocan district with the first rush of 1892 and has since been a resident of Kaslo. Is a heavy stockholder of Utica Mines, Ltd., operating the Sunset and Bell groups, in Jackson Basin, Slocan district; Woodberry Creek Mines and Pontiac Mines, near Ainsworth; and is a stockholder of many other corporations operating in these districts. President of Mineowners' and Operators' Association of the Kootenays and in that position has taken a prominent part in recent efforts to better the condition of the producers.

British Columbia—Production

Table showing production and value of gold, silver, lead, copper and zinc from 1900 to 1917 (inc.)

Year.	Gold, ozs.	Silver, ozs.	Lead, lbs.	Copper, lbs.	Zinc, lbs.	Value.
1900	167,153	3,958,175	63,358,621	9,997,080		\$ 10,069,757
1901	210,384	5,151,333	51,582,906	27,603,746		13,683,044
1902	236,491	3,917,917	22,536,381	29,636,057		11,101,102
1903	232,831	2,996,204	18,089,283	34,359,921		11,571,367
1904	222,042	3,222,481	36,646,244	35,710,128		12,309,035
1905	238,660	3,439,417	56,580,703	37,692,251		15,180,164
1906	224,027	2,990,262	52,408,217	42,990,488		17,484,102
1907	196,179	2,745,448	47,738,703	40,832,720		16,216,847
1908	255,582	2,631,389	43,195,733	47,274,614		14,477,411
1909	238,224	2,532,742	44,396,346	45,597,245	8,500,000	14,191,141
1910	267,701	2,450,241	34,658,746	38,243,934	4,184,192	13,228,731
1911	228,617	1,892,364	26,872,397	36,927,656	2,634,544	11,454,063
1912	257,496	3,132,108	44,871,454	51,456,537	5,358,280	17,662,766
1913	272,254	3,465,856	55,364,677	46,460,305	6,758,768	17,190,838
1914	247,170	3,602,180	50,625,048	45,009,699	7,866,467	15,225,061
1915	250,021	3,366,506	46,503,590	56,918,405	12,982,440	19,992,149
1916	221,932	3,301,923	48,727,516	65,379,364	37,168,980	31,483,014
1917	118,239	3,069,021	38,661,811	61,416,617	33,776,335	27,663,786
Total	4,085,003	57,865,567	782,818,376	753,506,767	119,230,006	\$290,184,378

Yield of Flacer Gold, 1858-1917 (incl.)-----\$ 75,170,103

Total Metallic Yield, 1858-1917 (incl.)----- 393,729,183

Total Coal Production, to 1917 (incl.), (tons)----- 47,055,026

Total Value Coal, to 1917 (incl.)-----\$153,001,800

Total Coke Production, to 1917 (incl.) (tons)----- 3,775,019

Total Value Coke, to 1917 (incl.)-----\$ 21,346,299

Geology of British Columbia

Great Majority of Ore Deposits Associated With Intrusions of Granite or Granodiorite of Mesozoic Age.

(Contributed to Northwest Mines Handbook by S. J. Schofield, and Published by Permission of the Director of the Geological Survey of Canada.)

THE work of the Geological Survey of Canada has shown that the great majority of ore deposits of British Columbia are associated with the intrusions of granite or granodiorite of early Mesozoic age (Jurassic). We have only to mention Britannia, Anyox, Gordon river, Texada island, Tulameen, Hedley, Lillooet, Franklin, Greenwood, Phoenix, Rossland, Salmo, Ymir, Nelson, Ainsworth, Slocan and East Kootenay mining areas, whose mineralization has been ascribed to the intrusion of Mesozoic granites, to appreciate the truth of the above statement. The Mesozoic granite or grano-diorite is called locally by several names, such as the Coast Range batholith, the Nelson granite, etc., but these masses can all be correlated with one period of igneous intrusion.

Geology of British Columbia.

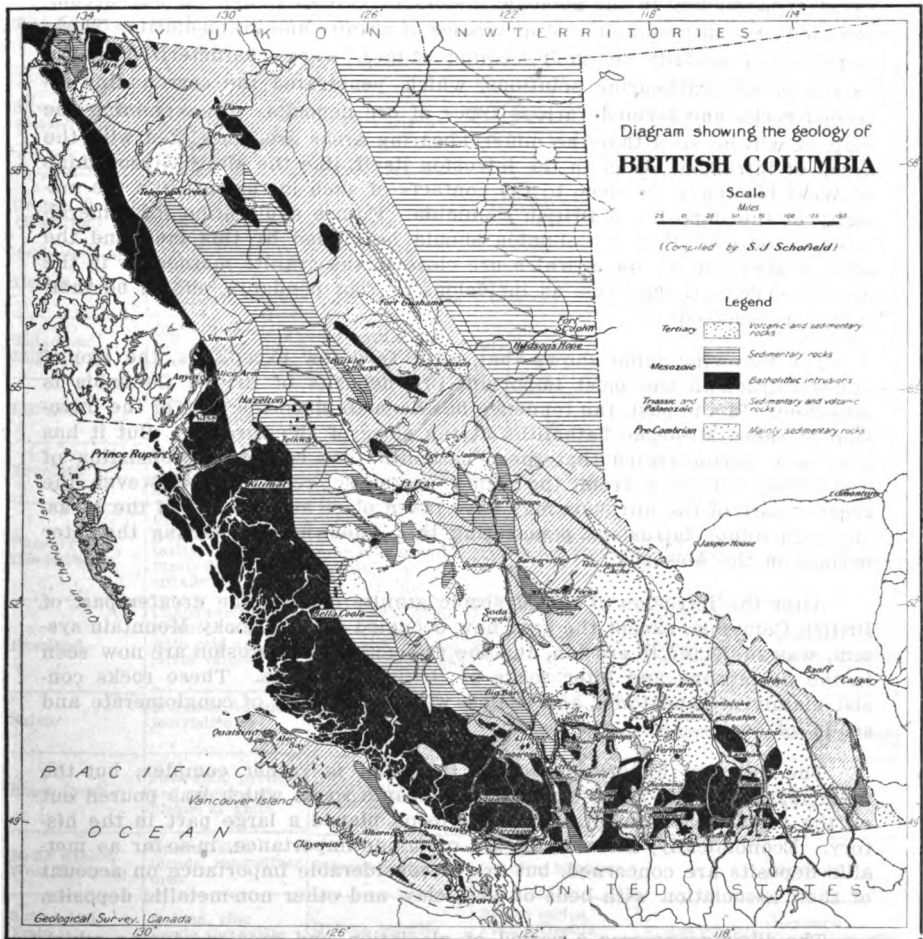
On the geological map which accompanies this article, the rocks are grouped in systems corresponding to eras, the largest division of geologic time. These are the Pre-Cambrian, the Palaeozoic (including Triassic), the Mesozoic and the Tertiary. The Triassic is included in the Palaeozoic, since the deposition of the Triassic sediments took place before the intrusions of the Mesozoic grano-diorite, and hence was affected by it.

The following is the table of formation:

Pleistocene.....	Glacial deposits.
Tertiary.....	Mostly lava flows, rhyolites, andesites, basalts and tuffs; some sedimentaries, sandstones, shales, conglomerates and coal. Kamloops, Tulameen, Similkameen, etc., coal areas.
Mesozoic.....	Mostly sedimentaries, sandstones, shales and conglomerates and coal. Nanaimo, Graham island, Peace river, Crowsnest pass, Flathead river, Groundhog coal areas. Intrusion of batholithic rocks (Coast Range batholithic, Nelson granite of Nelson, Ymir, Ainsworth, Slocan and Franklin, Kootenay granite of East Kootenay). The Trail grano-diorite and monzonite of Rossland, the grano-diorite of the Boundary district (Phoenix camp, Sunset and Mother Lode mines), West Kettle batholith of Beaverdell map-area.
Palaeozoic and Triassic..	Sedimentaries and volcanic rocks. Nicola series, Cache creek series, Slocan series, Ainsworth series, Pend d'Oreille schists and limestones, etc.

Pre-Cambrian.....Purcell series, Summit series, Selkirk series, all characterized by the predominance of quartzites with subsidiary amounts of limestones. Shuswap series, schists, gneisses and some limestones.

An examination of the accompanying map will show the distribution of the various areas. It will be noticed that the general trend of the groups is northwest-southeast, with the oldest rocks forming an axis of elongated masses from the boundary line through the Shuswap lakes to Alaska. These old rocks are flanked on both sides by younger rocks



which, in a broad sense, become younger eastwards and westwards from the axis.

On the eastern side of the axis, the sedimentary rocks form practically a conformable series from the Pre-Cambrian (Beltian) to the Cretaceous. They were not affected by the early Mesozoic orogenic movements, and hence by the intrusion of the Mesozoic granites and grano-diorites. This explains the absence of ore deposits in these rocks. There is no evidence

that they were intruded by batholiths of granite at the close of the Cretaceous, but, if such an intrusion took place, the batholiths are buried far beneath the present surface.

On the western side of the axis, the oldest formations yet recorded in British Columbia, are the late Palaeozoic series (Cache Creek series, the Slocan series, etc.), consisting of sediments and volcanic rocks of considerable thickness. These rocks were mountain-built during the early Mesozoic, the first great period of mountain-building in British Columbia whose age and characteristics are at all definite. This movement, the most important event economically in the geologic history of British Columbia, was accompanied by the intrusion of vast quantities of granite and grano-diorite. These intrusions, especially in their cooling stages, were characterized by the escape of mineral-bearing solutions, which penetrated the surrounding intruded rocks and formed various types of ore deposits. By examining the map, it will be seen that the mineral-bearing areas are associated with the areas of intrusion, either in the intrusion itself, like the Molly Gibson mine of West Kootenay, or close to the contacts of such intrusions, like the majority of the deposits in British Columbia. Future exploration for mineral-bearing rocks of British Columbia should be guided by this fact, and the area of sedimentary rocks which are close to the granite masses, or in the granite masses themselves, as inclusions or roof pendants, should be thoroughly prospected.

The following table shows that, with very few exceptions, the age of mineralization in the most important ore deposits of British Columbia is Mesozoic. In the past, the tendency has been to place the time of the intrusion of these Mesozoic batholiths at the close of the Jurassic. But it has now been demonstrated that these batholiths are composite, consisting of successive intrusions from the same magmatic reservoir. However, the greater part of the intrusion may have taken place at the close of the Jurassic, with minor intrusions penetrating the older masses during the later periods in the Mesozoic.

After the intrusion of the Mesozoic granite masses, the greater part of British Columbia, except the area now occupied by the Rocky Mountain system, was subjected to erosion, and the products of this erosion are now seen in the Cretaceous and later rocks of British Columbia. These rocks consist mainly of sandstones and shales, with minor beds of conglomerate and seams of coal.

The Tertiary history of British Columbia is rather complex, but the main feature is the great quantity of volcanic rocks which was poured out on the surface. Sedimentation and erosion played a large part in the history. Economically, these rocks are of minor importance, in-so-far as metallic deposits are concerned, but are of considerable importance on account of their association with beds of coal, clay, and other non-metallic deposits.

The Pleistocene was a period of glaciation and erosion, during which any oxidized portions of the (Mesozoic) ore deposits, with their accompanying secondary enrichment, were worn away. Most of the ore deposits of British Columbia, therefore, as they are found today, are primary in character and, in distinction to the deposits in the same geological province to the south, show very little evidence of secondary enrichment.

The following is a table showing the principal ore deposits of British Columbia:

MINERALOGY			PETROLOGY AND STRUCTURE		
District	Ores	Gangues	Intruded Rock	Intrusives	Age of Mineralization
Anyox	Pyrite, pyrrhotite, chalcopyrite	Quartz, calcite	Argillaceous limestones, tufts, schists (Palaeozoic)	Granite	Mesozoic (Jurassic)
Britannia	Pyrite, chalcopyrite, zinc blende	Quartz	Slate, diorite, porphyry, chlorite schist (Palaeozoic)	Granite	Mesozoic (Jurassic)
Texada Island	Chalcopyrite, bornite, molybdenite, native silver	Garnet, diopside, tremolite, epidote, calcite	Palaeozoic limestone (pure)	Diorite, porphyrite dykes, and stocks of quartz diorite	Mesozoic (Late Jurassic)
Silver Standard (Hazelton)	Galena, zinc blende, tetraehedrite, some chalcopyrite, arsenopyrite and pyrrhotite	Quartz, siderite	Tufts, Hazelton series (early Mesozoic)	Granodiorite	Mesozoic
Rocher Deboule (Hazelton)	Chalcopyrite, some galena, zinc blende, tetraehedrite	Quartz or actinolite	Granodiorite (Mesozoic)	Granodiorite	Mesozoic
Hedley	Arsenopyrite, pyrrhotite, sphalerite, pyrite	Calcite, garnet, epidote, pyroxene, quartz, amphibole	Banded and impure Palaeozoic limestone	Dioritegabbro	Early Mesozoic (Jurassic)
Tulameen Lilloet	Chromite containing microscopic diamonds	Serpentine, olivine, asbestos	Cadwallader series (Triassic)	Peridotite sill	Mesozoic (Jurassic)
Lilloet	Free gold, pyrite, arsenopyrite	Ribboned quartz	Cadwallader series (Triassic)	Augite diorite, and granodiorite	Mesozoic (Late Jurassic)
Franklin	Pyrite, chalcopyrite, sphalerite, galena, magnetite	Calcite, garnet, epidote, diopside, quartz	Palaeozoic limestones	Granodiorite	Mesozoic (Jurassic)
Phoenix and Deadwood	Chalcopyrite, magnetite, specularite, pyrite, rarely bornite and sphalerite	Garnet, epidote, calcite, actinolite, chlorite	Upper Palaeozoic crystalline limestone	Granodiorite batholith	Mesozoic (Late Jurassic)
Rossland	Chalcopyrite, pyrrhotite, pyrite, with gold and silver values	Silicified and biotitized country rock with chlorite, calcite, garnet and quartz	Augite porphyrite sills	Stocks and tongues of granodiorite and diorite porphyrite	Mesozoic (Late Jurassic)
Salmo	Molybdenite and molybde	Pyrite, epidote, orthoclase, kaolin, quartz mica	Pend o'Oreille schists and limestone	Quartzose biotite granite	Mesozoic (Late Jurassic)
Sheep Creek	Free gold, pyrite; and galena and blende at Ymir	Pyritic quartz (oxidized)	Summit series quartzite, Pend d'Oreille schists at Ymir	Nelson granite	Mesozoic (Late Jurassic)
Molly Gibson West Kootenay	Galena, zinc blende, ruby silver ores	Siderite, quartz	Granite, Mesozoic		Mesozoic
Slocan and Ymir	Galena, zinc blende and pyrite	Quartz, siderite	Slocan series, Pend d'Oreille group	Nelson granite	Mesozoic (Late Jurassic)
Ainsworth Slocan	Galena, sphalerite, pyrite, native silver and oxidized ores	Altered limestone, argillite or quartzite	Limestone, argillite and quartzite, Slocan series	Nelson granite	Mesozoic (Late Jurassic)
Sullivan Mine East Kootenay	Galena, zinc blende, pyrite and pyrrhotite	Garnet, diopside, quartz	Quartzite (pre-Cambrian)	Nelson granite	Mesozoic

British Columbia Mines and Corporations

AJAX MINES, LTD.

Three Forks

Formerly owned Monitor group, at Three Forks and operated extensively for some years, building concentrator at Rosebery, on Slocan Lake, to treat product. Idle for nearly 10 years; all assets sold to Rosebery-Surprise Mining Co. (q.v.), controlled by Congressman Wm. Kent, of California, in 1917.

ALASKA BRITISH COLUMBIA METALS CO.

New York

Capital: \$1,000,000. Par value, \$1. **Directors:** J. C. Eden, pres.; Geo. C. Treat, vice-pres.; Geo. Allen, treas.; S. I. Silverman, secy., all of Seattle; J. D. Trenholme, Seattle, Wash.; Henry J. Mayer, Frank W. Coler, New York. **Property:** 3 groups in B. C., (1) the Stikine group, 3 claims, of the Stikine Mining Co., 115 miles from Wrangell, Alaska, up the Stikine river; claims said to show big mineral zone, running entire length of claims. Average sample said to yield \$25 gold and silver per ton, 12% lead, 16½% zinc; (2) Glenora group, 3 claims, 150 miles up Stikine river from Wrangell, Alaska, said to cover 4500 ft. along strike of vein, carrying gold and silver values; (3) Jumbo group, 4 claims, on Copper creek, end of Tofino Inlet, Clayoquot division, Vancouver Island, B. C., said to show 1 to 4 ft. chalcopryrite in limestone formation, with diabase hanging wall. **Development:** 65 ft. shaft, with 80-ft. drift and several short tunnels.

ALBION MINING CO.

Spokane

Reorganized as Leo Mining Co. (q.v.) in 1916.

AMARGOSA COPPER CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** E. P. Spalding, pres.; C. D. Muxen, vice-pres.; Oscar Cain, secy.-treas.; G. A. Henkel, A. M. Premo, all of Spokane. **Property:** 7 claims on Rocher de Boule mountain, Hazelton district, Omineca division. Surrounded by Rocher de Boule, Highland Boy, Great Ohio, Red Rose, and other prominent properties. **Class of Ore:** Copper, gold, silver. **Equipment:** Bunk house, boarding house, blacksmith shop, etc. **Development:** 365-ft. crosscut, which intersected two veins of good size and well mineralized; also 100 ft. of drifts on these veins. Property shut down in June, 1917. **Informant:** Secy. Oscar Cain.

AMERICAN BOY MINING CO.

Spokane, Wash.

Capital: \$1,500,000. Par value, \$1. Principal stockholders include Maurice Oppenheimer, A. W. Siegel and Sam Hanauer, of Spokane; and C. D. Bibbins, of Oakland, Calif. **Property:** 3 or 4 patented claims adjoining Last Chance, on Reco mountain, near Sandon, Slocan district. Organized 20 years ago by late Tom McGuigan and associates, who shipped considerable ore to Trail smelter, some running as high as 110 ozs. silver to ton, and 60% lead. **Development:** Several thousand feet of drifts. No work done for over 10 years.

ANTOINE CONSOLIDATED MINES.

Kaslo

Controlled by George Alexander, of London, England. Owns Antoine and contiguous ground in Antoine Basin, Slocan district, B. C. Development has been extensive, with shipments of some volume. Property idle for last few years. Agent, James Anderson, Kaslo, B. C. Arrangements being made to develop group through Galena tunnel of Last Chance mine on other side of Reco Mt.

APEX GROUP.

New Denver

Not incorporated. **Owners:** A. J. Becker, New Denver, and W. J. C. Wakefield, Spokane, trustee for estate of late George W. Hughes, one of the pioneers of the district. **Property:** Apex, ¼ Mountain Chief No. 9, and 1-5 Mammoth claim, all crown-granted. Surface area: 130 acres; 1½ miles E. of New Denver, on Carpenter Creek, Slocan district. **Class of Ore:** Silver-lead. **Development:** Work was started in 1911, numerous open cuts locating outcrop of vein. No. 1 crosscut was run 35 ft. to the vein, and drift carried on the vein 150 ft. southerly into the mountain. This work resulted in 85 tons of ore, netting \$6000. No. 2 crosscut is about 132 ft. vertically below No. 1 and struck the vein at 460 ft. from portal. Drift has been carried over 150 ft. along the vein and raise of 235 ft. connects the two levels. In January, 1916, shipment of 30 tons was made. **Note:** No recent information. Assumed that property is now idle.

ARGO MINING & TUNNEL CO., LTD.

Greenwood

Capital: \$125,000. Par value, 25c. **Directors:** Ole Lofstad, pres.; A. S. Black, secy.-treas.; John Williamson, Jerome McConnell and Oscar Hartman. **Property:** Argo mine, near B. C. smelter. **Class of Ore:** 10 ft. quartz vein shows in tunnel a 4-ft. body of concentrating ore, with talc on foot wall. **Development:** 1150-ft. tunnel, with vertical depth of 500 ft. Portal of tunnel 500 ft. from track of C. P. R. R. No late information. Presumably inactive for several years.

ARK GROUP M. & M. CO., LTD.

Kettle Falls, Wash.

B. C. corporation, reorganized 1917 as Ark Mines Co. (q.v.) of Washington.

ASPEN MINE.

Salmo

Owners: P. F. Horton and Agnes Billings. **Property:** 250 acres on Deer creek, Nelson division, West Kootenay district. **Class of Ore:** Silver-lead-zinc. Vein exposed by open cuts for 4000 ft. **Development:** 4 shafts sunk or being sunk; 2 adits started; ore being extracted for shipment. **Informant:** Manager P. F. Horton. **Note:** In January, 1918, R. R. Hedley, of Vancouver, said to have taken 5-year lease, and will begin shipments from the dump, containing several hundred tons, immediately. Assay returns of sorted ore have run 123.4 ozs. silver, 0.68 oz. gold, and zinc, 6%.

BABINE-BONANZA MINING & MILLING CO., LTD.

Vancouver

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** Jas. Cronin, pres.; Chas. Theis, vice-pres.; Wm. Huntley, J. F. Cronin, all of Spokane; A. H. MacNeil, Vancouver. **Annual Meeting:** May 25. **Property:** 300 acres crown-granted land near Babine lake, 25 miles north of Smithers, on G. T. F. Ry. **Class of Ore:** Lead, 40%; zinc, 20%; silver, 80 ozs. No shipments. **Equipment:** Gasoline engine and blower. **Development:** 4 shafts on vein, depth 75, 40, 45, and 50 ft., respectively, and 430-ft. tunnel. There are 5 proven veins on property, and \$40,000 has been expended for development. Co. plans to spend \$120,000 more. **Informant:** Pres. Jas. Cronin, Spokane.

BAYONNE MINE.

Butte, Mont.

Principal Owners: Jas. W. Girard, former U. S. ambassador to Germany, and Thos. Hickey, of Butte, Mont. Reported to have been taken under option by Philadelphia syndicate, for \$300,000. A promising property, but remote from transportation, being located in high mountain range between Salmon river valley and Kootenay lake, west of Sheep creek. Parties bonding property propose to install mill of adequate capacity, the Provincial Government agreeing to contribute liberally to construction of first-class wagon road from mine to highway from Sheep creek to Salmo. Several large ore shoots have been developed, all but 2 carrying free milling gold.

BELMONT-CANADIAN MINES, LTD.

Philadelphia, Pa.

Directors: Clyde A. Heller, pres.; K. Kitto, secy.-treas.; C. S. Verrill, resident director, Vancouver; F. W. Holler, supt. **Property:** Under option from Surf Inlet Gold Mining Co., Surf Inlet. **Class of Ore:** Gold quartz, with iron sulphides. Ore-body proven to depth of 500 ft. Average assays, \$12 per ton. **Equipment:** Power plant, boilers, compressor, office building and bunk houses. **Development:** For year ending March 1, 1916, 4000 ft. of tunnel, and drifting by machine drills. Plans crosscut 2000 ft. Co. spent \$650,000 installing 250-ton mill, hydro-electric power and cyanide plant. Belmont Surf Inlet Mines, Ltd. (q.v.) to operate property under control held by Tonopah-Belmont Dev. Co., owner of 80% of stock.

BELMONT-SURF INLET MINES, LTD.

Philadelphia, Pa.

Capital: \$2,500,000. Incorporated by Tonopah Belmont Dev. Co., to take over properties of Belmont Canadian Mines, Ltd., and Surf Inlet Gold Mines (q.v.), two British Columbia corporations owned by Tonopah Belmont. Of capital, 80% held by Tonopah Belmont, and 20% by Surf Inlet Mines. **Property:** On Princess Royal Island. **Class of Ore:** Gold, copper. Ore reserves estimated at 385,320 tons, averaging \$11.22 per ton. **Equipment:** Hydro-electric plant, with two turbo-driven 468 k. v. a. generators, 5.65 mile power line, railway, 2 compressors, and 300-ton mill begun in Sept., 1917, containing gyratory crusher, ball mills, concentrating tables, and Jones-Belmont flotation machines. **Development:** About 7000 ft. of tunnels.

BIG HORN GROUP (Not Incorporated).

Atlin
 Fred Lawson, mgr., Atlin. **Property:** 6 unpatented claims, 312 acres, on Big Horn Mt., near Atlin. **Class of Ore:** Free gold, averaging \$160, and silver, averaging 8 ozs. to the ton. **Equipment:** Aerial tram, 1-stamp mill. No shipments. **Development:** 145 ft. of tunnels, 15 ft. open cut, 65-ft. trench. Shoot over 200 ft. long, in vein 4 to 24 inches wide, carrying small quantities of galena, chalcopryrite, pyrite and native gold. **Informant:** Manager Lawson.

BIG LEDGE KING.

Nakusp
Lessees: Andrew M. Symons, Nakusp; T. L. Savage, of Ione, Wash.; W. F. Case, Northport, Wash., and Walter Scott, of Nakusp. **Property:** 650 acres, unpatented, on west side of upper Arrow Lake, opposite Halcyon Hot Springs, taken on option from L. L. Tower and W. F. Case, of Northport, Wash. **Class of Ore:** Zinc, 15 to 35%; iron, 10 to 18%, and silver, 2 ozs. to the ton. No shipments. **Development:** Open cuts across vein, showing width of pay streaks average 20 ft. Ore continuous for 1¼ miles; vein visible nearly 4 miles. Claims naturally developed for hundreds of ft. by gulches and ravines, leaving ore exposed from top to bottom, and showing big tonnage, which can be quarried out. Fine naturally developed water power, adapted to reduction works, having a fall of 700 ft. as it emerges from a subterranean channel below the lake which supplies it. **Informant:** Andrew M. Symons, part owner. **Notes:** Some development done by W. J. Harris, of Spokane, over 15 years ago.

BIRCH CREEK HYDRAULIC MINES.

Birch Creek, Atlin
Owners: Hart, Tibbets, Herron & Co., London, Eng. **Property:** 4 leases, each ½ mile in extent, at Birch Creek, Atlin. Worked continuously, May to October, for past 16 years, with 20 years more work in sight. Method of operation, hydraulic. Two reservoirs, used for storage purposes, and 2 No. 4 Giants employed for moving gravel, working under pressure, about 200 ft. head, only 3 to 4 hours daily. **Equipment:** 4 monitors, 2000 ft. of pipe lines, flumes, reservoirs, etc. Working 8 to 10 men. Shipments to date, about \$160,000. Rate of output now, \$10,000 to \$15,000 per year. **Informant:** Manager H. Peplow Pearse.

BLACK PRINCE GROUP.

Slocan City
 Consists of 7 crown-granted claims at the head of Lemon creek and about 7 miles east of Slocan City, in Slocan City division. Discovered about 20 years ago and operated for some time by original locators, by whom shipments of highgrade dry ore were made. Subsequently operated under lease and bond by Ohio Northwestern Development Co., managed by Sidney Norman, Spokane. Bond was relinquished in 1902. Later, property was operated by New Jersey capital represented by a man named Dalgleish, who found rich shoot of ore which yielded approximately \$80,000. Two or three years ago, property was taken under lease by J. A. Tipping, Slocan City, who has made some small shipments and who continues development.

BLUEBIRD GROUP.

Spokane, Wash.
 Consists of Bluebird and Rawdon claims, among the oldest locations in the vicinity, on the west slope of Reco mountain, east and north of Sandon, B. C. Owned by estate of Major J. T. Montgomery, formerly of New York; W. S. Norman, D. C. Corbin, and F. K. McBroom, Spokane. In early days, considerable development work was done and small shipments made. Property has been shut down, however, for past 15 or 16 years. Understood that negotiations for early resumption are under way in May, 1918.

BONANZA MINE.

Salmo
Owners: R. B. Bell, G. D. Bell and E. K. Donaldson, all of Salmo. **Property:** 8 claims, 6 surveyed, and all having sufficient work done to entitle them to crown grant, on Wolfe creek, 1 mile above Sheep creek, and adjoining Queen mine. **Class of Ore:** Principally gold. Assays from a trace to \$160 per ton, and ore shoot averages 17 inches in width, with average assay values of \$33 gold per ton. On shoot 22 inches wide, assay values, \$27 gold per ton. **Equipment:** Cabins, blacksmith shop, tools for hand work, etc. Shipments to date, 31 tons. **Development:** 600 ft. of crosscuts and drifts. Shut down in 1915. **Informant:** M. C. Donaldson, Erie, B. C.

BOWENA COPPER MINES, LTD.

Vancouver
Capital: \$300,000. Par value, \$1.00. Non-assessable. **Directors:** D. McCallum, L. A. Brown, vice-pres.; C. M. Oliver, secy.-treas., all of Vancouver. **Annual Meeting:** March 13. **Property:** 3 crown-granted claims and 3 held by location, east side of Bowen Island, Howe Sound, 12 miles west of Vancouver. **Class of Ore:** Gold-copper. **Equipment:** Gasoline hoist, Klondyke tramway, ore car, etc. **Shipment:** Trial shipment to Ladysmith smelter, consisting of 10 tons, showed values of copper, 3.38%; gold, 12 ozs.; silver, 1.16 ozs. Report of Alec Sharp, M. E., estimates from 8000 to 10,000 tons blocked out, averaging 1.8% copper and small gold and silver values. Property developed with view

to installing mill when sufficient tonnage is blocked out. G. S. Eldridge, provincial assayer, sampled 10 dumps a year ago with average of 2.24% copper and also made flotation tests showing ore amenable to that treatment. **Informant:** Secretary C. M. Oliver.

BRITANNIA MINING & SMELTING CO., LTD.

New York

Mine Office: Britannia Beach, B. C. **Capital:** \$2,500,000. Par value, \$25,000. **Directors:** Evander B. Schley, pres.; G. M. White, secy.-treas.; D. G. Marshall, C. B. McNeil, all of New York; J. W. D. Moodie, vice-pres. and managing director, Britannia Beach, B. C. Organized in 1908, to take over Britannia Mine, Britannia Smelting Co., Ltd., and Britannia Syndicate. Practically entire capitalization owned by Schley family. Title in Howe Sound Co. (q.v.), of New York, a holding company organized by late Grant B. Schley, of New York, who has supplied practically entire amount spent upon Britannia property. **Annual Meeting:** First Monday in March. **Property:** 250 crown granted mineral claims and 17 beach lots, 11,638 acres; 198 uncrowned mineral claims, 9000 acres; 8 timber grants, 4366 acres; also Howe Sound Power Co. (q.v.), owning important water rights on Furry Creek; Britannia Power Co.; 53,000 shares El Potosi Mining Co.'s (Mexico) total issue of 60,000 shares, latter owning large majority of stock of Chihuahua Mining Co. (Mexico). Bond issue of \$5,380,000, 20-year, 6% gold bonds has been reduced to approximately \$5,000,000. **Class of Ore:** Copper-gold-silver. **Shipments:** Statement for 1917 unavailable, but in 1916, shipments were 55,186 tons, containing 791 ozs. gold, 91,905 ozs. silver and approximately 8100 tons of copper. This rate has probably been exceeded in 1917. **Reserves:** 1916 report placed positive ore in Britannia at 6,462,780 tons; broken reserves, 919,322 tons; probable ore, 6,756,350 tons; possible ore, 4,616,050 tons, of average grade of 1.97% copper. **Equipment:** 850-ton mill, first units of 1000-ton mill, electric railway, incline gravity tramway, power from several hydro-electric plants, developing several thousand h.p. to be increased to 5000-h.p.; 13,000 ft. aerial tram of 1000 tons capacity connecting main workings with railway system, and shipping bins at Britannia Beach. **Development:** Very extensive, one tunnel being 4336 ft. long, giving depth of 2200 ft. on main ore body; other tunnels are at 500, 600, 700, 850 and 1050 ft. levels. **Note:** Britannia mine, under heavy development for several years, considered one of most potential copper producers on continent.

BRITISH AMERICAN MINING CO., LTD.

Minneapolis, Minn.

Capital: \$1,000,000. Par value, \$1. **Directors:** H. J. Peterson, pres.; E. E. Harnish, vice-pres.; O. L. Grondahl, secy.; J. D. Smith, L. M. Oleson, treas.; Geo. King, R. C. Payne, A. G. Bylin. **Property:** 3 patented claims on Texada Island, B. C., said to show vein, carrying copper, gold and silver. **Equipment:** Hoist, 3-drill air compressor. **Development:** 160-ft. incline shaft, and Co. plans to sink to 300-ft. level. A prospect.

BRITISH COLUMBIA PHOENIX CO., LTD.

London, Eng.

Successor to old Velvet-Portland Mines, Ltd. (q.v.), owning the Velvet-Portland mines, now under option to A. J. McMillan, of Rossland. **Directors:** Leonard C. T. Robson, Harold Batty. **Property:** 3 contiguous claims, about 5 miles west of Rossland, in valley of Big Sheep creek. **Class of Ore:** Gold, 0.61 oz.; silver, 2.39 ozs.; copper, 13.30%; iron, 27.60%. **Equipment:** 100-ton concentrator, steam hoist, compressor, 5 tables, platform scales, buildings, etc. **Development:** 6 working levels, reached by 500-ft. shaft, and drift of 1400 ft. on No. 4 level. Closed for many years, but worked by 2 men, on lease, in 1915.

BRITISH COLUMBIA MOLYBDENITE CO.

Vancouver

Co. just being organized, and capitalization and official directory not announced. **Property:** 7 claims, on Sheep creek, Nelson division, owned by Ross, Bennett & Benson, but at present under lease and bond to Bell Bros., of Salmo. **Development:** Open cuts at intervals for 1400 ft., all showing ore. A car, shipped in August, 1914, to Denver, netted \$815 above freight and treatment charges. Estimated 1000 tons of low grade ore on dumps, ready for shipment.

BROWN, B. A., CLAIMS.

Grand Forks

Owner: R. A. Brown. **Property:** 52 acres, patented, 2½ miles S. W. of Volcanic. **Class of Ore:** Gold, silver and copper in small quantities, 15% zinc. **Development:** 40-ft. shaft. **Informant:** R. A. Brown, owner.

BULLION MINING SYNDICATE.

Bullion

R. T. Ward, manager and trustee. **Property:** 640 acres crown-granted land, and 600 acres held under 25-year government lease, with right of 25-year renewal, and with extensive water rights, in Caribou district. **Class of Ore:** Gold and platinum. **Equipment:** Portable hydraulic plant, 3 monitors, with 10-inch nozzles, electric light plant, water and steam power, power derricks, stationary retorts, melting plant, 12,000 oz. capacity. **Development:** Estimated expenditures, \$4,000,000; production to date, approximately \$1,750,000. Over 40

miles of canals convey water from lake reservoirs to mine, where delivered to monitors under 430-ft. head. Regarded as one of largest and best equipped hydraulic placer properties in North America, employing 150 men. Moves 13,000 cubic yards of gravel daily. Formerly controlled by Guggenheim interests. **Informant:** Manager R. T. Ward.

BURNETT, AND OTHER CLAIMS.**Nelson**

Owner: R. G. McLeod, Nelson. **Property:** Three crown granted claims, Burnett, Little Montana and Pulaski, head of Lemon creek, 6 miles above Nelson. **Class of Ore:** Gold, 25 ozs.; silver, 75 ozs. to ton; 100 tons on dump that will run from \$10 to \$40 per ton. Shut down in 1915. Total shipments, about 30 tons. No equipment. **Development:** 200 ft. of tunnels. **Informant:** R. G. McLeod, owner.

BUTTE & ROCHER DE BOULE COPPER CO.**New Hazelton**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** W. S. Sargent, pres.; Colin H. Monroe, vice-pres.; Frank C. McKinnon, secy.-treas.; R. W. Thompson, all of New Hazelton; Harrison E. Clement, Tramville, Alta. **Annual Meeting:** June 6. **Property:** Highland Boy mine, 8 claims, patented, with one timber claim adjacent, on Rocher de Boule Mt., 8 miles from New Hazelton. **Class of Ore:** Copper, gold. **Equipment:** 65-h.p. engine, air compressor, 2400 ft. 2-ft. gauge hoisting tram, 15-h.p. hoist, 1800 ft. 2-bucket aerial tram, tool sharpener, small repair shop, cook, bunk and power houses, tools, etc. Total shipments, 76 tons, value \$2,447.20. **Development:** \$35,000 spent past year for development and equipment, work being continued, with view of putting property on permanent shipping basis. Two principal veins, upper being traced by natural exposure for 4000 ft.; 2 to 10 ft. wide. A 140-ft. tunnel on this vein. Lower vein parallels this, and is very similar. **Informant:** Frank C. McKinnon, secy.-treas.

CALEDONIA MINE.**Sinton**

Owner: Geo. E. McCready, Zincton. **Property:** 5 unpatented claims, 250 acres, at Bialock, Slocan district, on Kaslo & Nakusp branch of C. P. Ry. **Class of Ore:** Silver, lead, zinc. **Equipment:** Car, steel rails and hand tools. Shipments, 9 tons; smelter returns, \$783.36. **Development:** 140 ft. crosscut, 300 ft. drifts, 65 ft. raises, 60 ft. shaft and winzes. Three veins cross the property, only one opened by tunnel. All show good milling ore. About \$50,000 worth of ore exposed that will assay 12% lead; 17% zinc, 12 ozs. silver to ton; 12 inches clean lead in winze, assaying over 40%. Vein 30 ft. wide, pay streak 4 ft. **Informant:** Geo. E. McCready, owner.

CALIFORNIA GROUP.**Nelson**

Owner: William Moore, Nelson. Under lease and bond to association of Spokane men, represented by John R. Cassin, trustee; W. R. Orndorff, secy., and William R. Turner, superintendent. Bond taken October, 1916, and has approximately two years to run from May, 1918. **Class of Ore:** Gold, silver. **Equipment:** Five cabins, blacksmith shop, ore-house and small tools. Power drills have just been installed; air being obtained from Athabasca compressor plant, conveyed 4000 ft. Capacity for one big drill and several stopers. **Shipments:** First and last, approximately 1200 tons, carrying \$34 gross value in gold and silver has been shipped. Last two shipments by present leasers, taken from old stopes, ran \$18 per ton. **Development:** Since the fall of 1916 leasers have continued development work with force of 9 men. Tunnel No. 1, commenced in 1910, was run 300 ft. on vein with backs of 150 ft. Estimated milling reserves of 1000 tons above this level, carrying approximately \$10 per ton. Tunnel No. 2 started in 1914 and run 320 ft., with backs of 134 ft., prior to acquisition by present leasers, who have since extended it 300 or 400 ft. Levels Nos. 1 and 2 connected by raise of 134 ft., said to show shipping and milling ore entire distance, thus proving block of ground 300x134 ft. Tunnel No. 3 was started in 1911 and run 100 ft. to vein. Leasers have extended same to 600 ft. and it is now in ore-shoot developed above. Recent average assay over 80 ft., across average of 4 ft. of ore, ran \$19.71. **Informant:** John R. Cassin, Spokane. **Note:** It is unofficially understood that association will shortly provide milling facilities. There is some likelihood that Athabasca plant will be taken under lease.

CANADA COPPER CORPORATION.**New York City**

Capital: \$10,000,000. Par value, \$5.00; Virginia corporation; head office, 42 Broadway, New York; mine office, Greenwood, B. C. Authorized issue of convertible bonds, \$2,500,000, dated Jan. 1, 1918. Shares outstanding, Dec. 31, 1917, 945,694; reserved for conversion of bonds, 833,333 shares. At that time the bond issue entirely underwritten. Bonds are 10-year, 6% sinking fund, first mortgage, convertible gold. Practically all stock of old company has been taken up on basis of two shares of old for one share of new. **Directors:** Lucius

W. Mayer, pres.; Arthur J. Ronaghan, vice-pres.; R. H. Eggleston, secy.-treas.; C. H. Burke, Newman Erb, E. L. Gruver, August Heckscher, Colgate Hoyt, C. A. Starbuck and C. I. Strale, all of New York. Oscar Lachmund, gen. mgr., Greenwood, B. C.; C. S. Norcross, Jr., supt. of mines, now captain in the 27th U. S. Mining Engineers, Expeditionary Force. The Equitable Trust Co., 37 Wall St., New York, is transfer agent, and the Empire Trust Co., 120 Broadway, New York, registrar of stock. Company in March, 1917, purchased all assets and assumed all liabilities of British Columbia Copper Co., Ltd., latter in effect ceasing to exist, although it has not yet passed through liquidation. Bond issue is mortgage on all company's assets, underwritten by Hayden, Stone & Co. and Eugene Mayer, Jr., both of New York. **Property:** Smelter at Greenwood, the Copper Mountain properties and Kennedy Mountain properties in the Similkameen mineral div., 9 miles due S. of Princeton, B. C.; the Mother Lode mine and the Lone Star group in the Greenwood mineral div., near Greenwood; the Queen Victoria mine in the Nelson mineral div., near Nelson; and the Napoleon mine in Washington, Pierce Lake district, 7 miles from Marcus. The properties in the Similkameen division have been recently acquired. Copper Mountain properties include 3000 acres; the Mother Lode mine 340 acres; the Lone Star 3 claims of 52 acres; the Queen Victoria 75 acres and Napoleon about 60 acres. **Class of Ore:** One year ago, estimated that Copper Mountain had 10,000,000 tons of "assured" ore, and 2,000,000 tons of "probable" ore. Since then extensive diamond drill and other development work has indicated additional ore bodies. Ore carries 1.74% copper and 30 cents recoverable values in gold and silver to the ton. Reserves in Mother Lode, believed to be almost exhausted, carry 0.95% copper, 0.034 oz. gold and 0.16 oz. silver. Lone Star has an estimated ore supply of 300,000 tons, more than half of which carries 1.6% copper. Small tonnage in Napoleon mine, light in copper, gold and silver values, but carries about 17% sulphur. The ore of the Queen Victoria mine averages 1.28% copper and 0.77 oz. silver. **Equipment:** 3000-ton mill at Copper Mountain, for which fund secured by the recent financing will be largely used. Kettle Valley railroad has let a contract, said to be around \$1,000,000, for construction of railroad from Princeton, 14 miles to Copper Mountain mines. West Kootenay Power & Light company has agreed to extend line from Greenwood, 110 miles, to Copper Mountain, at a reported cost of \$2,000,000. The Canada Copper company has a 50-ton test flotation plant that promises a 90% recovery, and is otherwise provided with full equipment at the Copper Mountain property and with extensive equipment at other mines. **Development:** The company completed a tunnel, March 12, 1913, which is 2900 ft. long and opens the Copper Mountain mine at additional depth. It is 9x11 ft. in dimensions. The rate of progress was 18.6 ft. a day. From this a raise of 720 ft. will be made to the lowest workings above. The property has been opened by several miles of underground work, extensive surface trenching and a vast amount of diamond drilling. Other mines are well developed, especially Mother Lode. Cost of development, mill and other equipment, from the time the company was reorganized until ready to produce at the Copper Mountain mine and plant, is expected to be approximately \$3,000,000. Nearly half that amount has been expended. The mill probably will not be completed before the summer or fall of 1919. **Smelter:** Smelter at Greenwood, 5 miles from Mother Lode mine, has been in operation many years, handling the company's ore and custom work. Sixteen hundred electric h.p. is used in operating plant. The converter takes matte from 25 to 55% copper and produces blister copper of 99 to 99.5% copper, carrying, in ore from Mother Lode, 20 to 50 ozs. silver and 5 to 10 ozs. gold. In 1917 the smelter was compelled to limit its operations materially on account of coke shortage.

CANADA WESTERN MINES, LTD.

Edinburgh, Scotland

Company owns Idaho-Alamo group (q.v.) between Sandon and New Denver, Slocan district, B. C., now under lease and bond to Clarence Cunningham. No work done on company account since 1902.

CANADIAN GROUP.

Sandon

Consists of several claims adjoining Ivanhoe mine, of Minnesota Silver Co. (q.v.) on summit, between Carpenter and Four-Mile creeks, five miles from Sandon, Slocan district. Controlled by Brandons, of Silverton and Winnipeg. Shows several veins carrying silver-lead ore of high value, exposed by shallow workings on both sides of ridge. Some shipments made, but situate in precipitous country, which renders winter work dangerous. In operation on small scale in 1916 and 1917.

CARMI MINE.

Spokane, Wash.

Owner: F. J. Finucane, Spokane. **Property:** At Carmi, near Phoenix, Boundary district. **Class of Ore:** Gold-silver, in two fissure veins. **Equipment:** Includes stamp mill. **Note:** Property was active some years ago, producing approximately 1000 tons, but excessive transportation charges rendered operation un-

profitable. Since then, however, Kettle Valley branch railroad has been built and runs through property. Two years ago reported under bond for \$30,000 to Salt Lake, Denver, Butte, and Spokane parties. No recent information, but believed that bond was allowed to lapse.

CARNATION GROUP.**Sandon**

Consists of several claims on the divide between Carpenter Creek and Four Mile Creek, west of Sandon, Slocan district. Early locations made by Hugh Mann; still in his possession. Nothing had been done upon the property for some years until 1917, when camp accommodations were built and good trail constructed under the management of George Clarke, of Sandon. Development has been continued since.

CASCADE FALLS MINING CO., LTD.**Victoria**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Chas. Bunting, pres., Stewart; J. J. Caulfield, vice-pres.; Geo. E. Winkler, secy.-treas.; A. Gibson, J. D. McDonald, all of Victoria. **Annual Meeting:** Aug. 18. **Property:** 5 unpatented claims, 11 miles up Salmon river from the sea, in Portland canal district. **Class of Ore:** Gold, silver, lead. Shut down 2 years ago. **Equipment:** \$500 worth of tools. No shipments. **Development:** 600 ft. of tunnels. **Informant:** Secy.-Treas. Winkler.

CASSIAR CROWN COPPER CO.**Spokane, Wash.**

Capital: \$1,500,000. Par value, \$1. In treasury, 400,000 shares. **Directors:** I. W. Anderson, Tacoma, pres.; W. Clayton Miller, vice-pres.; J. V. Pohlman, secy.-treas., both of Spokane; Allen C. Mason, Tacoma. **Annual Meeting:** First Monday in June. **Property:** In Omineca division, 20 miles S. E. of Telkwa; 5 unpatented, 50-acre claims. **Class of Ore:** On Crown claim ore averages 10% copper and about \$3 in gold and silver; on Eureka, 25% chalcopryrite; average value of ore in all workings said to be 7% copper and \$3 gold. **Equipment:** Buildings and 3-drill compressor. **Development:** Shaft down 56 ft. shows ore to that depth. Tunnel in more than 1000 ft. has crosscut several ft. of high grade chalcopryrite, together with a quantity of milling grade. Drifting is in progress. **Informant:** Edward Pohlman, Spokane.

CHAMBERS GROUP.**Cody**

At Cody, Slocan district. Located in earliest days by "Bill" and Charles Chambers. Now owned by eastern parties. Taken under lease and bond in 1916 by J. V. Kessler, one of original owners of Ruth mine, near Sandon. Tunnel was being run to tap ore-body from which shipments were made many years ago, when last report received.

CINDERELLA GROUP.**Three Forks**

Owned by L. B. Keyser, Winchester, Eng., and Geo. B. Dean, Kellogg, Ida. 100 acres of crown granted claims in Slocan division, between Three Forks and Sandon. **Class of Ore:** Shipped 260 tons ore that carried 80 ozs. silver and 70% lead. **Development:** 1500 ft. underground work. **Informant:** Mr. Dean.

CLARENCE CUNNINGHAM MINES.**Sandon**

Clarence J. Cunningham, formerly well-known operator of Coeur d'Alene district and Alaska, is operating Slocan Sovereign (q.v.), Wonderful (q.v.), Queen Bess (q.v.), Idaho-Alamo (q.v.), all near Sandon, and Hewitt-Lorna Doone (q.v.) and Van Roi (q.v.) groups, near Silverton, Slocan district, with total payroll of around 300 men, making him largest employer of labor in Slocan district. In March, 1918, all properties under his management were reported to show clean shipping ore and it is expected that shipments during 1918 will be heavy. Dr. John G. Cunningham, Spokane, is interested to some extent in all his brother's operations, while F. Cushing Moore, formerly State Mine Inspector of Idaho, is an owner in Hewitt-Lorna Doone and Van Roi groups to extent of one-fifth interest, acting as manager of both properties. Lead ore and concentrates from all properties being shipped to United States Smelting Co., Midvale, Utah, under two-year contract, commencing February, 1918. Zinc concentrates shipped to Bartlesville, Okla.

COAST COPPER CO.**Trail**

Capital: \$1,000,000. Par value, \$5. British Columbia corporation. Absorbed Quatsino Copper Co. Consolidated Mining & Smelting Co., of Canada, owns 110,000 shares of total of 200,000 shares. \$750,000 bonds underwritten by latter company, but only portion issued. **Directors:** J. J. Warren, pres., Toronto; T. W. Binyag, secy.-treas., Trail; M. W. Bacon, Spokane; W. E. Cullen, Jr., Spokane; S. G. Blaylock, Trail; W. M. Archibald, mgr., Trail; William Clancy, supt. **Property:** On Elk mountain, near Elk lake, on Vancouver island, Quatsino division. **Class of Ore:** In a recent communication, Manager Archibald is quoted as saying: "Crosscuts were run from both the north and south drifts, and in the footwall a vein 24 ft. wide, composed of magnetite, epidote, garnitite and

chalcopyrite was shown. In the S. crosscut $2\frac{1}{2}$ ft. of this assayed 9.2% copper, while a drift on the N. vein N. from the N. crosscut showed 18.4% copper over a width of 3 ft. This footwall vein is without doubt the vein outcropping prominently on the surface, developed on the crosscut tunnel level, while the vein which the winze followed in later sinking lies in the hanging wall. The demonstration on the lower level, some 700 ft. on the dip of the vein below the outcrop, of the same geological conditions, and the occurrence of the same strong vein, carrying as good, if not better, copper values as on the surface, has materially strengthened the good opinion held of the property. With the increased possibilities of commercial ore at much greater depth, there would seem to be no reasonable doubt that this property will have a long life as a profitable producer, after transportation equipment has been provided." William Clancy in December, 1915, estimated reserves in sight at 957,600 tons. M. W. Bacon, on March 1, 1918, estimates tonnage at 2,940,000 tons, and says: "At 18-cent copper, this will give us a net return of \$2.60 per ton, or an estimated net value, to this level only, of \$7,644,000. Since the development for this main vein has been for half its length only, there are known to be parallel veins upon the property; and as yet there is no indication of diminution of ore bodies or values with increased depth, we have every reason to anticipate a return much in excess of the above estimate." **Development:** 1000-ft. tunnel, 250-ft. winze and other underground workings. Railroad 12 to 15 miles long to tidewater and smelter of 500 tons daily capacity, included in development planned and for which bond issue was authorized. To date \$350,000 expended on property. **Equipment:** Has 6x8-ft. single drum hoist, 300-cu.ft. compressor and water power.

COLONIAL GROUP.

Sandon
Crown granted claims, 45 acres, in Slocan division, 3 miles from Sandon, adjoining Freddy Lee, on divide between Sandon and Cody Crs. **Class of Ore:** Silver, 70 ozs.; lead, 70%; zinc, 40%. **Development:** Several hundred feet of underground work. **Informant:** A. D. Coplen, Spokane, chief owner.

COLUMBIA MINES CO.

Cincinnati, O.
Capital: \$2,000,000. Par value, \$1. Non-assessable. South Dakota corporation. **Directors:** H. W. Meier, pres.; Wm. C. Kennett, Jr., vice-pres.; Julius Greger, treas.; Ernst Troy, secy., 686 Gholson ave.; S. S. Kingery, W. T. Wagner, Gottlieb Hartwig and Jno. B. Wolke, all of Cincinnati. **Annual Meeting:** Third Tuesday in February. **Property:** Six claims and fractions, all crown-granted, in Nelson division, on Sheep creek, near Salmo. **Class of Ore:** Gold in 5 fissure veins in "Beehive" quartzite. Average sample from roof of stope returned \$65.53. **Development:** Extensive open cuts and more than 700 ft. of underground work. Believed to be inactive.

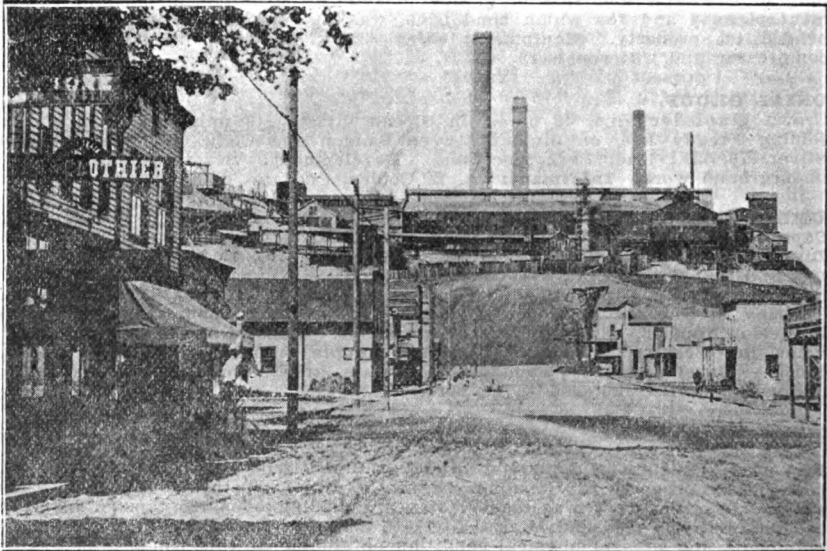
COMFORT MINE.

Biondel
Owned by Ainsworth estate, Portland, A. D. Wheeler, Ainsworth, B. C., agt. **Property:** Consists of 2 claims, adjoining Bluebell on Bluebell peninsula. Surrounded by property of Canadian Metal Co. (q.v.), operating Bluebell. Important surface discovery was made last year, yielding over 125 tons of silver-lead ore, running 40% lead and 15 ozs. silver to the ton. **Note:** No information as to shipments and present physical condition obtainable at this time.

CONSOLIDATED MINING & SMELTING CO. OF CANADA, LTD.

Toronto, Ont.
Capital: \$15,000,000 authorized, in 600,000 shares, par value, \$25. Issued, 419,098 shares, par value \$10,477,450. **Directors:** W. D. Matthews, Toronto, pres.; Geo. Sumner, Montreal, vice-pres.; Jas. J. Warren, managing director; J. Kitto, Toronto, secy.; Sir Edmund B. Osler, H. S. Osler, W. L. Matthews, all of Toronto; Charles R. Hosmer and J. C. Hodgson, both of Montreal; Wm. Farwell, Sherbrooke, Que. Head office, 1202 C. P. R. bldg., Toronto. **Annual Meeting:** Third Tuesday in December. **Dividends:** 1906, \$234,940; 1907, \$480,005; 1908, \$66,940; 1912, \$232,176; 1913, \$232,176; 1914, \$464,376; 1915, \$464,398; 1916, \$776,337; 1917, \$995,013; Jan. 2, 1918, \$261,935; Apr. 2, 1918, \$261,935; total, \$4,470,231. For five quarters dividends have been paid on a basis of 10% of par value, which Mgr. Warren says company expects to maintain. Stock is quoted in March, 1918, on the Spokane Stock Exchange at \$25@28. **Operations:** Company's activities are along three lines—mining, including the operation of 20 of the leading mines of the province; smelting and refining, at the plant at Trail, and power distribution, through its interest in West Kootenay Power and Light Co. **Mine Production:** Principal mines owned by company, with location, superintendent, and production for the year ending Sept. 30, 1917, as follows: "Le Roi", Rossland, Trail division, gold-copper ore, 57,405 tons, F. S. Peters; "White Bear", Rossland, Trail division, gold-copper ore, 724 tons, F. S. Peters; "Centre Star-War Eagle", Rossland, Trail div., gold-copper ore, 47,896 tons, E. G. Montgomery; "Sullivan", Kimberley, Ft. Steele div., lead ore, 29,542 tons, first-class zinc ore, 95,851 tons, second-class zinc ore, 5656 tons, pyrites, 4205 tons,

J. K. Cram; "St. Eugene", Moyie, Ft. Steele div., lead ore, 1137 tons, leasing company 561 tons, J. K. Cram; "Highland", Ainsworth div., lead-silver ore, 1438 tons, lead-silver concentrates, 755 tons, L. W. Oughtred; "No. 1", Ainsworth div.; "Maestro", Ainsworth div., lead-silver ore, 21 tons, lead-silver concentrates, 88 tons; "Molly Gibson", Nelson div., lead-silver ore, 1470 tons, Ronald Stonier; "Richmond-Eureka", Sandon, Slocan div.; "Ottawa", Slocan City, Slocan City div., silver ore, 179 tons, D. Matheson; "Lucky Thought", Silverton, Slocan div., lead-silver ore, 17 tons, silver-zinc ore, 763 tons, D. M. Tattie; "No. 7", Boundary Falls, Greenwood div.; "Emma", Eholt, Greenwood div., copper ore 40,523 tons, Edward Nordman; "Silver King Mines", Nelson. **Financial Statement:** According to annual report for year ending September 30, 1917, liabilities included \$2,081,806, loan and overdraft due to Bank of Montreal; \$261,936.25, dividend due and payable the day following period covered by the report; \$1,092,823.91, accounts payable, and \$995,012.50, amount of four dividends.—Nos. 23, 24, 25 and 26,—paid during the year. Balance brought forward from profit and loss account at the beginning of the fiscal year was \$2,278,458.73, which, added, to net profit for year, left \$2,360,274, after dividends had been paid. Assets included \$4,867,505.25 for mining, smelting, concentrating and refining plants, after deduction of \$648,058.19 as depreciation. Pig lead on hand was worth \$29,242.95, while ores on hand, refinery metals and ore in transit, reached a total value of



Trail Smelter, Trail, B. C.

\$2,615,664. Mine and smelter stores and materials were worth \$970,954.71; accounts receivable totaled \$1,152,801.48; insurance and taxes paid in advance reached \$28,597.75, and cash on hand was \$55,601.91. Profit and loss account shows that \$37,039.97 was brought forward for smelter products on hand at opening of fiscal year, and \$2,645,894 represented ores and metals on hand or in transit at that time. During the year customs ore was purchased to the value of \$5,899,082.10; \$286,972.81 was paid out for freight charges upon consignments from company mines; \$4,530,599 was expended in mining, smelting and general expenses for the fifteen mines operated upon company account and \$380,071.13 spent in development. **Metal Production:** Sales of smelter products during the year reached a total value of \$12,700,971.05, and \$29,242.95 remained on hand when the books were closed. Ore and metals on hand, or in transit to smelter at the same date, were worth \$2,586,421.22, after metal contents had been corrected to market quotations. During the year a dividend of \$150,000 was received from West Kootenay Power & Light Co., which is controlled by Consolidated. **Manager's Report:** Report of Managing Director James J. Warren, says that during the year the electrolytic zinc plant was completed and various improvements made in the process, with the result that a daily production of over 60 tons of pure zinc was reached, with extraction of over 80% of certain classes of ore. The process is now considered to be standardized. So far, there has been no difficulty in disposing of the company's output, which

reached 10,000 tons of pure zinc for the fiscal year, with a value of \$3,000,000. A concentrating mill with capacity of 400 tons per day has been erected to treat Sullivan zinc ores before they are put through the zinc plant proper. The production of refined lead amounted to over 22,000 tons, more than 2000 tons in excess of the product of the previous year. About 50 per cent of this production was sold to the Imperial Munitions Board. The production of gold during the year was less, owing to the fact that Rossland mines were operated during only about half of the year. Production of silver was greater, owing to higher average silver content in lead ores received. Mr. Warren says that operating conditions during the year were unsatisfactory. Supplies and building materials increased in price; while labor, in addition to demanding and receiving a higher wage scale, showed marked decrease in efficiency. The production of the Rossland mines was only about one-third of normal, but the Sullivan mine maintained its position as the largest producer in the dominion. The policy of acquiring and developing gold properties is being pursued to provide against possibility of a decline in demand for base metals after the war. Canadian commercial requirements for these metals have already slackened very considerably, Imperial Munitions Board having absorbed the bulk of the production. "The cost of production in Canada is necessarily higher than in the United States, on account of the more refractory character of the ores treated and the smaller size of operations," says Manager Warren; "besides, all supplies used in connection with Canadian mining, smelting and refining, cost about 40% more than same supplies in the United States, the Canadian price being practically the United States price plus the duty into Canada. This operates as a hardship on the Canadian production of metals when they have to be sold at the United States price. If the company's sales to the Imperial Munitions Board had been made at Canadian commercial prices of the day, instead of the United States prices, the difference in net profits would be very substantial." **Improvements:** Many improvements were installed during the year. In the lead plant the new ore bedding system was completed, new crushing facilities provided and a new unit of the Dwight-Lloyd roasting plant placed in operation. In the silver refinery a flue gas scrubber was installed to recover values previously lost in smoke; a melting retort replaced the old style reverberatory furnace and the new bluestone plant was put into operation. The capacity of the electrolytic copper refinery was doubled. The year's output of sulphuric acid reached 2378.7 tons, of 100% product. The capacity has been doubled and daily output of 30 tons established. Hydrofluosillic acid was produced to extent of 196 tons. Practically all parts of the electrolytic zinc plant were improved at heavy expense. The entire plant is now producing, on a commercial scale, bluestone, sulphuric acid, hydrofluosillic acid, gold, silver, copper, lead and zinc. **Mine Development:** Report of W. M. Archibald, manager of mines, shows that underground development at Center Star-War Eagle has reached 40.10 miles; Le Roi 17.10 miles; St. Eugene, 20.04 miles. Total mileage in all mines operated is 103.49. At Camp McKinney and Fairview some seventy mineral claims were acquired by location and lease. **West Kootenay Power & Light Co.:** Report of L. A. Campbell, vice-president and general manager of West Kootenay Power & Light Co., Ltd., shows net profits of \$30,930.87, after writing off \$99,736.83 for depreciation and providing dividends on preferred and common stock amounting to \$182,666.67. Revenue-producing load for the year was 22,511.5-h.p., showing an increase of 11,359.4-h.p. over the previous year. Company owns plants at Lower Bonnington, Upper Bonnington and Cascade. Balance carried forward to present year was \$433,398.78.

CONTINENTAL GROUP.**Usk**

Owned by J. S. Cowper, Vancouver, B. C.; J. D. Wells, Usk, mgr., and Hamblet Bros., of Kitsoias, B. C. **Property:** Five crown-granted claims, Omineca mineral divisions, 3 miles from Usk. **Class of Ore:** Gold, 0.15 oz.; silver, 4.8 ozs.; copper, 27.1%. **Development:** Surface crosscuts expose vein several hundred ft. and shaft, down 10 ft., shows 40 inches of bornite and chalcopyrite. **Informant:** Mr. Wells.

COPPER MOUNTAIN MINING CO.**Spokane, Wash.**

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** Conrad Wolfe, pres.; F. R. Wolfe, vice-pres.; Sidney Rosenhaupt, all of Spokane. **Property:** 13 claims in Quatsino mineral division, Vancouver island, on N. E. side Elk mountain, near Elk lake. **Class of Ore:** Chiefly copper, carrying some silver and gold. Main vein has been traced N. and S. over 3000 ft., showing a width from 50 to 200 ft. **Development:** Surface prospecting work only. **Informant:** Pres. Wolfe, Symons blk., Spokane.

COPPER MOUNTAIN MINING & DEVELOPMENT CO.

Tacoma, Wash.

Capital: \$200,000. Par value, 10c. **Officers:** B. S. Cowles, pres.; Joseph Hutchinson, secy., 5406 Union Ave., South Tacoma, Wash. **Property:** Five claims in Quatsino mineral division, Vancouver island, near head of Quatsino Sound. **Class of Ore:** 5-ton shipment to Tyee smelter showed 2.18% copper, .63 oz. silver, 80c gold. Contact vein said to be 100 ft. to 300 ft. wide, traceable 3800 ft. through the group. Large amount of ore shown on surface. Company also owns 4 claims near Ryan, Stevens Co., Wash.

CORBIN COAL & COKE CO.

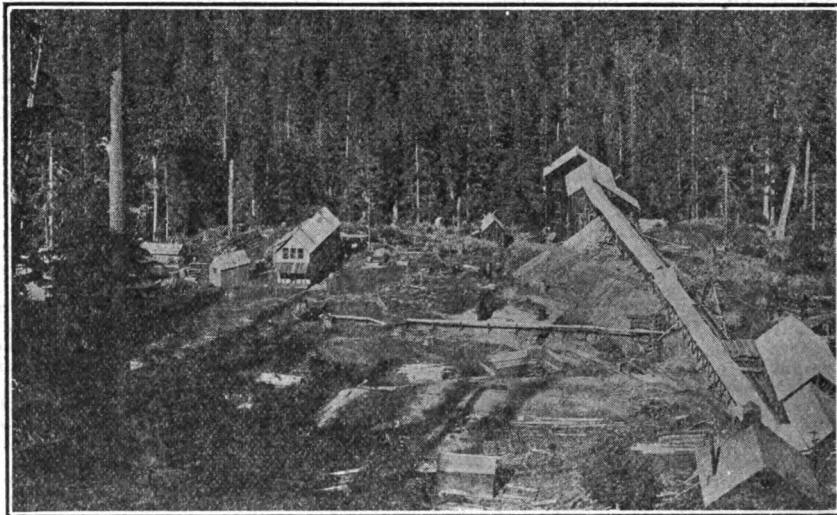
Spokane, Wash.

Capital: \$10,000,000. **Officers:** D. C. Corbin, pres.; E. J. Roberts, vice-pres.; A. M. Allen, secy.-treas.; R. S. Ord, gen. mgr., all of Spokane; Charles Graham, mine mgr. Head office, 409 Empire State bldg., Spokane; mine office, Corbin, B. C. **Property:** In Ft. Steele mineral division, in East Kootenay coal fields. Production in 1915, 62,544 tons; in 1916, 77,301 tons, of which 85% was shipped to the United States. About one-half of 1916 output was from open workings known as the "Big Showing" and was loaded by steam shovel. Balance was from No. 4 mine.

CORK-PROVINCE MINES, LTD.

Kaslo

Capital: \$1,000,000. Par value, 10c. Non-assessable. In September, 1917, 1,500,000 shares in the treasury. B. C. corporation. **Directors:** W. E. Zwickey, pres.-mgr.; H. Giegerich, vice-pres.; W. H. Burgess, secy., all of Kaslo; J. D.



Cork Province Mine, Near Kaslo, B. C.

Sherwood and R. E. M. Strickland, both of Spokane. **Annual Meeting:** Third Wednesday in July. **Property:** Includes 13 claims, 9 of which are crown-granted, total 525 acres, in Ainsworth div., on Mansfield creek, 4½ miles from railroad station of Zwickey; 9½ miles from Kaslo by rail and wagon road, and due W. of Kaslo. **Shipments:** In 1905, 215.4 tons returned \$4,759.58; in 1906, 487.7 tons returned \$21,291.37; in 1909, 508 tons, \$12,169.58; in 1915, 1040.7 tons, \$34,336; in 1917, 414 tons, \$24,623.49. **Class of Ore:** General run of mill product carries 50% lead, 40 ozs. silver and 8% zinc. Laboratory tests of zinc ores give average: 6.9 oz. silver; 2.4% lead; 15.7% zinc; 19.6% iron, with recovery of 86.2% silver; 82.8% lead, and 34.2% iron. Middlings, which will be retreated, show 9.6 oz. silver; 14.8% lead; 5.7% zinc and 19.4% iron. Tailings show 4.2 oz. silver; 2.4% lead; 2.2% zinc; 46.4% iron. **Equipment:** Includes 100-ton concentrator, hydro-electric plant, sawmill, compressor and electric lighting system. Company has secured favorable contract for flotation rights. Plant, and other new machinery has been installed and is in operation May, 1918. Fourteen 12x12 flotation cells, 3 new Wilfley tables, 3 new classifiers, turbine wheel, and ball mill added. **Development:** Chiefly by No. 2 and No. 3 levels, with 239 ft. difference in elevation. No. 2 is a crosscut for 270 ft. started on the Cork claim with about 560 ft. drifts on vein. No. 3, also a crosscut, intersected a lime band at 205 ft., another at 520 ft. and at 700 ft. cut a blind vein 10 to

12 ft. wide, strongly mineralized. Another lime dike was crossed at 800 ft. and the main vein encountered at 900 ft. from portal. The vein is 8 ft. wide at that point, showing galena, siderite and sphalerite, but in places on same level is 30 ft. wide. Large ore reserve developed, most of it still in place. On No. 3 four important ore shoots have been developed—140 ft.; 90 ft.; 100 ft.; and 155 ft. long. No. 3 crosscut is driven 400 ft. past main vein toward a third vein, which will be intersected at depth, giving 800 ft. of backs. Company during 1917 suffered severely from external causes. It was necessary to completely overhaul plant; labor strike closed the Trail smelter, to which it was shipping, and when the latter resumed, new schedule for ore treatment was placed in effect that hit Cork-Province hard because of high zinc content of ores. Company has since made 3-year contract with National Zinc Co., at Bartlesville, Okla., for treatment of entire output of zinc concentrates. Believed this will assure sufficient income to maintain operations at maximum, irrespective of lead output. From zinc concentrates the company expects a monthly income of \$10,000 with spelter at the present level. Operating costs will be under \$6000 a month.

CROW'S NEST PASS COAL CO., LTD.

Toronto, Ont.

Capital: \$10,000,000. Subscribed and paid in, \$6,212,666. **Directors:** Elias Rogers, pres.; E. C. Whitney, vice-pres.; Carmi A. Thompson, H. B. McGivern, W. H. Robinson, Dr. Goldwin W. Howland and Ellis P. Earle. R. M. Young is secy. Head office is 25 Toronto St., Toronto. Organized under Dominion charter; formerly Kootenay Coal Co. **Property:** In Ft. Steele mineral div. Owns Coal Creek Colliery on Coal creek, 5 miles from Fernie, on branch railway, connecting at Fernie with C. P. and Great Northern railroads. Owns Carbonado Colliery, 14 miles from Fernie, on Morrissey creek, on branch railroad with same connections. Owns Michel Colliery on C. P. railroad, 23 miles N. E. from Fernie. **Production:** In 1915 was 790,028 tons. In 1916 was 811,993 tons, of which 567,535 was from Coal Creek and 244,458 from Michel. Largest producer of coal in Dominion of Canada.

CUNNINGHAM, JAMES F., CLAIMS.

Eholt

James F. Cunningham and three partners, owners. **Property:** Mollie, Tredwell, Climax, Lockport, Gem, Emma Fraction, Eclipse and Cordic, crown-granted claims, about 203 acres, Similkameen div., Denoro Summit camp, adjoining holdings of Canada Copper Corporation. **Class of Ore:** Copper and gold, with some silver. Average values in Mollie, \$6; in Eclipse, \$4; Cordic, \$20; Gem, \$7; Climax, \$3. **Development:** On Mollie, shaft down 15 ft. and a crosscut has been run 50 ft., the ledge being 5 ft. wide. On Cordic, two shallow shafts. Gem has a shallow shaft and short tunnel. Similar work on other claims. **Informant:** Mr. Cunningham, Eholt.

DEEP MINE, THE, LTD.

Kaslo

Capital: \$600,000. Par value, \$1.00. Non-assessable. B. C. corporation. **Directors:** J. L. Retallack, managing director; W. H. Burgess, secy.-treas.; O. T. Stone, all of Kaslo; J. W. Stewart, Barclay Bonthron and H. C. Chiene, all of Vancouver. **Annual Meeting:** June. **Property:** Whitewater Deep mine, near Retallack (formerly Whitewater), Slokan district, B. C. All claims crown-granted. **Class of Ore:** Silver-lead-zinc. **Equipment:** Compressor and electric plant. **Development:** Property opened by crosscut tunnel, 2000 ft. in length, and raise of 530 ft. with 3 intermediate levels started from raise. **Informant:** Sec.-Treas. Burgess. **Note:** Company formed by late "Barbarian" Brown, formerly of Spokane, the Coeur d'Alenes and South Africa. Large capital expended in development, but operations unsuccessful, although some shipments were made. Closed down in 1913.

DELLIE MINING & MILLING CO.

Spokane, Wash.

Capital: \$500,000. Par value, 25c. Washington corporation. **Directors:** W. H. Carder, pres.; E. R. Northrop, vice-pres.; L. R. Hawley, secy.-treas. Organized Feb. 18, 1918, to take over Silver Hoard Mining Co. and Hawley Co., the leaser company, stockholders to receive share for share. On that date the absorption had not been perfected. **Property:** Silver Hoard, Ainsworth div., near Ainsworth. Property includes Dellie claim, one of oldest in the district, formerly owned by S. S. Bailey, formerly of Spokane, now of Seattle.

DELTA COPPER CO.

Hazelton

Owens or controls 25 claims, including the Delta, Highland Boy, Chicago, and other groups in Omineca mineral div., Hazelton sub-dist., east of Rocher de Boule mine. In Highland Boy, 2 main veins with 1000 to 1500 tons of shipping ore blocked out. Company has 2-bucket tram from mine to wagon road. Said to have 6 ft. of ore averaging 5½% copper.

DOLLY VARDEN GROUP.**San Francisco, Cal.**

Owned by Ole Evinnsen et al. and under bond to R. B. McGinnis, San Francisco. **Property:** Six claims in Skeena div., 16 miles from head of Alice Arm, on Kitsault river. **Class of Ore:** Silver in form of brittle, ruby and native, and some horn-silver. **Development:** 550 ft. of drifts and crosscuts and 4500 ft. of diamond-drill work. Tunnels on 4 different levels for a vertical depth of 200 ft., and drifting at intermediate levels. Good ore found on all levels. **Informant:** Hugh C. Ingle, supt.

DOMINION GROUP.**Hedley**

Owned by Alex Ford, Collingwood, B. C. Crown-granted claim in Osoyoos mineral division, 4½ miles from Nickel Plate mine at Hedley. Copper, 3½%; silver, 1 oz.; gold from trace to \$2.50; vein 35 ft. wide. **Informant:** Owner.

DRUM LUMMON COPPER MINING CO., LTD.**Vancouver**

Directors: J. Pearse, W. Patterson, J. Robertson, Geo. Kent, J. Bratch, P. Matheson, S. J. Maloney, all of Vancouver. **Property:** Group of claims at Miskaltan bay, Douglass channel, Coast district. **Class of Ore:** Copper, 1.42 to 7.4%; silver, 0.8 to 1.4 ozs. per ton. **Development:** 360-ft. crosscut tunnel; depth, 150 ft. No late information available.

DUNDEE GOLD MINE CO., LTD.**Vancouver**

Capital: \$625,000; 2,150,000 shares issued. Par value, 25c. British Columbia corporation. **Directors:** E. B. Morgan, pres., Vancouver, B. C.; C. G. Major, G. E. Corbould and A. E. Rand, all of New Westminster, B. C. **Property:** Five crown-granted claims in Nelson div., at Ymir. **Class of Ore:** Gold and silver. **Equipment:** Compressor and fan. **Development:** A depth of 1100 ft. has been reached by crosscut 1975 ft. and a drift E. 1000 ft. on the vein. Vein is 14 ft. wide, of which 10 ft. averages \$3.50 per ton. Expended in development, \$75,000. **Informant:** Director Rand.

ECHO GROUP.**Kaslo**

Consists of Echo, Sunlight, United, Almeda, Sir Charles, in Jackson Basin, Slocan district. Controlled by George Alexander, formerly of Kaslo, now of London, England, and James Anderson, of Kaslo. No development for several years, but in 1918 owners intend to resume operations. **Informant:** James Anderson, Kaslo.

ECHO SILVER-LEAD MINING CO.**Spokane, Wash.**

Capital: \$150,000. Par value, 10c; stock issued, 1,217,231 shares. Washington corporation. **Directors:** Martin Welch, Seattle, pres.; John B. Jordan, vice-pres.; L. J. McAtee, Spokane, secy.-treas.; Edward F. Burns and Jack H. Thompson. **Property:** In Slocan div., near Silverton, adjoining the Standard Silver-Lead mine. **Class of Ore:** Values in first shoot run about 150 ozs. silver and 72% lead; in second shoot, about 80 ozs. silver and 74% lead. Shipment of 79 tons made to Trail smelter in 1917. Said to be \$1,000,000 worth of ore available for extraction. **Development:** Drift on lower level has been run 600 to 800 ft., exposing a shoot 140 ft. long and others of less importance. Main shoot has average width of 8 ft. and in places is 12 to 14 ft. wide. It contains 3 to 4 ft. of clean ore and a larger area of milling ore. Access to shoot obtained through Alpha claim of the Standard mine. An upper tunnel further develops the property. Twelve to 14 men employed in 1917.

EDEN-CRESCENT MINING CO.**Spokane, Wash.**

Capital: \$75,000. Par value, 5c. **Directors:** A. L. White, pres.; Walter J. Nicholls, vice-pres.; W. Y. Williams, D. F. Strobeck and Wm. H. Button, all of Spokane. E. B. McBride is secy.-treas. **Property:** In Ainsworth mineral div., on Coffee creek, about 2 miles from Ainsworth. Owns three crown-granted and seven other claims and fractions. **Class of Ore:** Assays from several samples and from one car shipped in 1917 shows 35 to 40% lead, 8 to 35% zinc and 6 to 12 ozs. silver. Annual report of Pres. White says: "Ore 7 ft. wide was disclosed during the year. More than 1000 ft. of work has been done. The car of ore shipped was obtained in deepening shaft No. 1 for exploration purposes. A vein was followed several hundred ft. by tunnel to a point where a crosscut was driven to a parallel vein. Drifts are proceeding in both directions on the latter body. A raise is being made from this level and when up 32 ft. the lead at the face of the raise was a little more than 7 ft. wide. It is filled with a fine grade of milling ore from foot wall to hanging wall." The government in 1917 built a wagon road from Kootenay lake to the mine.

EPANJAY GOLD MINING CO.

Spokane, Wash.

Capital: \$200,000. **Directors:** J. A. Irvine, W. J. McCullough and A. J. Grover, Spokane; J. A. Muir, Wilbur, Wash., and Frank R. Barney, Calder, Idaho. H. J. Hibschnman of Spokane is secretary. **Property:** Has lease on placer ground extending 3½ miles along Tulameen river, Similkameen div., 25 miles from Princeton and 5 miles from Kettle Valley railroad. **Class of Ore:** Gold and platinum. **Equipment:** Flumes, engines, pumping plant and cabins. **Development:** Only small amount of preliminary work has been done. Miniature concentrator has turned out concentrates said to run \$2000 to \$5000 to the ton in platinum. **Informant:** Secy. Hibschnman. **Note:** Company originally formed to take over the Fawn group on Sheep creek, in the Nelson mineral div.

ELLIS SILVER MINING CO., LTD.

Toronto, Ont.

Directors: P. W. Ellis, pres.; M. C. Ellis, first vice-pres.; R. V. Ellis, 2nd vice-pres.; office 31 Wellington St. East, Toronto. Ontario corporation. **Property:** Two crown-granted claims, about 60 acres, in Slocan div., on Ten-mile creek, half-mile from Enterprise mill. **Class of Ore:** Shipments of 1827 tons gave average returns of: Gold, .049 oz.; silver, 169.82 ozs.; lead, 9.39%; total smelter returns, \$165,658. **Development:** Tunnels and stopes on four levels. **Informant:** G. S. Scott, Slocan, B. C., former mgr. **Note:** Owned by manufacturers in East. Property "gophered" for surface ores and no development done since.

EMANCIPATION MINING CO., LTD.

Vancouver

Capital: \$120,000. Par value, \$40. Non-assessable. B. C. corporation formed in 1917. **Directors:** Michael Merrick, Hope, B. C., Wm. Thomson, Herbert Beech, M. A. McDonald, W. G. Ferris. **Property:** Fifteen claims, not crown-granted, in Yale mineral div., 16 miles from Hope. Claims are in Coquahalla valley, a new dist. **Class of Ore:** Vein, sometimes 12 ft. wide, has been traced 2000 ft. on surface. Gold, partly free milling. **Shipments:** Total to date, 64½ tons. In May, 53 tons to Tacoma netted \$18,295, and in September, 8 tons netted \$2828. **Development:** Adit in 200 ft. Three men working and sorting ore to ship to obtain funds for a stamp mill the company expects to build in 1918. **Informant:** Mr. Merrick.

EMMA.

Eholt

Leased to Consolidated Mining & Smelting Co. of Canada. **Property:** In Grand Forks dist., near Eholt. **Class of Ore:** Gold, silver and copper values. About 23,102 tons shipped in 1918 to Trail smelter.

EMPIRE MINING CO.

Moyle

Not incorporated. **Owners:** J. P. Farrell, Mrs. S. Farrell of Moyle, Michael Walsh and others. **Property:** Three claims, not crown-granted, in Ft. Steele division, east of and on same vein as St. Eugene mine. **Class of Ore:** Assay in 1914 returned \$58 to the ton in lead-silver values. **Development:** Tunnel, in 300 ft. and winze. **Informant:** Mrs. S. Farrell.

ENTERPRISE MINE.

Eight-Mile

Property: Now under lease and bond for \$125,000 to Seattle-B. C. Silver-Lead Mining Co. (q.v.), 8½ miles from Enterprise Landing, Slocan Lake, Slocan district. Big producer in early days.

ENTERPRISE MINING, DEVELOPMENT & POWER CO.

Spokane, Wash.

Capital: \$250,000. Par value, 10c. Non-assessable. Washington corporation. **Directors:** Chas. A. Coffin, pres.-mgr.; W. V. Garrett, vice-pres.; N. L. Jackson, secy.-treas., all of Spokane. **Annual Meeting:** December 1. **Property:** Seven claims, of which 2 are crown-granted, at Paulson, Trail Creek div. They adjoin and partly surround the Inland mine. **Class of Ore:** Three gold veins, two silver veins and one large lead-zinc vein. Lead-zinc vein carries 15.6% lead, 10.5% zinc, 1.2 ozs. silver and 1% copper. Three well-defined fissure veins cut in the tunnel give returns of from \$22.96 to \$134. **Development:** Considerable work done, one tunnel being in 300 ft. **Informant:** Secy. Jackson.

EUREKA COPPER MINES CO., LTD.

Nelson

Capital: \$250,000. Par value, 25c. Non-assessable. B. C. corporation. **Directors:** J. J. Malone, pres.; J. G. Runyan, secy.; J. A. Gibson, L. K. Larsen, all of Nelson; S. G. Campbell, Vancouver, B. C. **Annual Meeting:** May 14. **Property:** Seven claims, all but one crown-granted, in Nelson div., on Eagle creek, about 9 miles W. of Nelson. **Class of Ore:** Copper. Several veins on property. **Shipments:** In 1917, 1240 tons, \$20,365. Total shipment to date, 5000 tons, but none since March, 1917. Eight men working and expect to renew shipments in May, 1918. **Equipment:** 75-h.p. boiler, 6-drill compressor, hoist, pumps, 1100-ft. tram and now building 3000-ft. connection to railroad. **Development:** One vein

has shaft, winzes, raises and 900-ft. crosscut tunnel. Other claims developed to lesser extent. Estimated 15,000 tons of ore in sight. **Informant:** Secy. Runyan.

EVA MINING CO.**Nelson**

Capital: \$1,500,000. Par value: \$1.00. British Columbia corporation. When operations were under way, A. H. Gracey, of Nelson, now in Arizona, was managing director and W. C. Bailey, Nelson, secretary. No work has, however, been done for 6 or 7 years. **Property:** At Camborne, on Poole creek, Lardeau district. **Class of Ore:** Gold. **Production:** In 33 working months, 30,595 tons treated, from which was recovered \$147,553, an average of \$4.86 per ton. Average tailing loss, 83 cts., making gross value \$5.69. Ore blocked out has been estimated at 200,000 tons. **Equipment:** 10-stamp mill with all accessories; 250-light dynamo, air compressor and necessary houses. Power supplied from Poole Creek, from which water is conducted in flume 4000 ft. long and 18-in. steel pipe line, 1030 ft. long, developing 400-h.p. under 400-ft. head. Riblet aerial tram, with capacity of 10 tons an hour, connects mine and mill. **Development:** Total of 5570 ft. includes 3130 ft. drifts; 2000-ft. crosscuts; 374 ft. raises and 75-ft. shaft.

EXPANSION GOLD MINING & MILLING CO.**Sidley**

Capital: \$1,000,000. Par value, \$1. Non-assessable. B. C. corporation. **Directors:** Ed. Richter, Keremeos, B. C., pres.; R. G. Sidley, Bridesville, B. C., secy. **Annual Meeting:** In January. **Property:** One full claim and fraction, crown-granted, 90 acres, at Camp McKinney, Osoyoos div. **Class of Ore:** Free milling gold and silver, assays \$4 to \$5. Three parallel veins each 5 ft. wide, traced for 600 ft. **Development:** Five shafts have combined depth of 160 ft. Tunnel in 400 ft., but has not reached veins. **Informant:** A. Mueller, Bridesville, B. C., agent.

FALLS CREEK COPPER MINING CO.**Spokane, Wash.**

Capital: \$1,500,000. Par value, \$1. Assessable after treasury stock is exhausted. Washington corporation. **Directors:** L. H. Snyder, pres.; R. H. Finley, secy., both of Spokane. Office, 63 Ziegler block, Spokane. **Property:** Two crown-granted claims and 4 held by location, 300 acres, in Nelson minl. div., 8 miles below Nelson, adjoining Queen Victoria mine. **Class of Ore:** Copper, 2½%. **Informant:** Secy. Finley.

FEDERAL MINING & SMELTING CO.**New York**

Capital: \$30,000,000. Delaware corporation. See Idaho. Company has bond and lease on North Star, Ontario and Stemwinder groups, Ft. Steele min'l. div., near Kimberly, and is exploring by diamond drill. Property operated 20 years ago by Mackenzie & Mann of Montreal and Toronto, but idle for 15 years. **Class of Ore:** In Stemwinder is fine-grained mixture of galena and zinc-blende, said to resemble Sullivan ore. **Note:** Annual report for 1917 says no new ore-bodies disclosed by diamond drilling and that option will probably not be exercised.

FERGUSON MINES CO., LTD.**Ferguson**

Controlled by George Alexander, of London, Eng., represented by Jas. Anderson, of Kaslo, B. C. Owns Silver Cup, Nettie L. and Ajax groups, in Trout Lake min'l. div. on Ferguson creek, and the south fork of Lardeau creek. Silver Cup is most extensively developed and leads district in production. From 1896 till the end of 1901 1286 tons were shipped with average content of 0.2 oz. gold, 150 ozs. silver and 35% lead. Total underground work about 12,000 ft. Large quantity of ore, too low grade to ship without milling, is on the dumps and stored in the stopes with value of about 0.3 oz. gold, 25 to 35 ozs. silver, 4 to 5% lead and some zinc. Former owners of Silver Cup built a mill at Five-mile said to have cost \$250,000 and which was a failure, because not adapted to ore. Since that time property idle except for the work of some leasers. From Nettie L. 2200 tons were shipped between 1900 and 1904, averaging 0.17 oz. gold, 140 ozs. silver, and 20% lead. About 7000 ft. of work. Property equipped with buildings, compressor and aerial wire tram to Five-mile, where Silver Cup mill is located. Ajax adjoins Nettie L. Shipments in 1912 of 550 tons assayed 40 ozs. silver and 60% lead. Now in hands of receiver, and through him under lease. Properties were important shippers in early days.

FIDELITY GROUP.**Gerrard**

Owned by Mrs. C. G. Cunningham, Sandpoint, Idaho, and Fred C. Elliott, box 914, Victoria, B. C. **Property:** 300 acres of crown-granted ground, in Trout Lake div., head of Horsefly creek, 2 miles from Gerrard. **Class of Ore:** Shipments prior to 1914 of 117,977 pounds of ore averaged 0.22 oz. in gold, 60 ozs. silver, 52.8% lead. **Development:** Only surface work. **Informant:** Mr. Elliott. **Note:** At last report 3 men were working and property was leased to J. C. Rady, of Gerrard.

FIRE VALLEY GOLD MINING CO.

St. Paul, Minn.

Capital: \$1,000,000. Par value, \$1. Non-assessable. B. C. corporation. **Directors:** G. H. MacRae, pres.; C. P. Nash, vice-pres-treas.; Geo. R. Slocum; Geo. W. Markham, all of St. Paul; A. O. Cochrane, Vernon, B. C., secy.; C. A. Carnes, Chicago. Office, 404 Brokerage bldg., St. Paul. **Property:** Three crown-granted claims, 135 acres, in Vernon div., about 47 miles east from Vernon. Company also has bonded the Monashee claim and Silver Bell group. **Class of Ore:** Gold and silver values of about \$7.00 ton. **Equipment:** Includes buildings, compressor and 3 drills. **Development:** At last report about 1700 ft. of underground work; property idle. **Informant:** C. P. Nash.

FISHER MAIDEN MINING CO.

Spokane, Wash.

Capital: \$150,000. Par value, 10c. Stock issued, 1,000,000 shares. **Directors:** J. L. Prickett, pres.; William Huntley, vice-pres.; H. S. Stoolfire, secy.-treas.; John O'Connor, all of Spokane. **Property:** In Slocan div., 7 miles up Four-Mile creek from Silverton. **Class of Ore:** Early day shipment from surface said to have carried more than 300 ozs. silver. A later shipment of 500 tons of picked ore averaged 5 to 7% lead, 90 to 100 ozs. silver, and 15 to 22% zinc. Estimated \$200,000 worth of ore that can be made available by the first 100 ft. of a proposed shaft. **Development:** Four crosscuts have been run and a lower tunnel, in 1600 ft., resulted in shipment of 500 tons. **Note:** Barney Crilly and J. J. Malone of Nelson have taken a 3-year bond and lease. It is said they expect the dump to return not less than \$75,000 gross value.



Florence Mill, on Kootenay Lake, Ainsworth, B. C.

FLORENCE SILVER MINING CO.

Spokane, Wash.

Capital: \$1,250,000. Par value, \$1. 250,000 shares in treasury. Non-assessable. B. C. corporation. Head office, 517 Hutton bldg., Spokane. **Directors:** F. R. Wolfe, pres.-mgr.; D. E. Sanders, secy.-treas.; A. F. Kelly, vice-pres.; J. A. Lavender, W. M. Frost, all of Spokane. **Property:** Eight crown-granted claims, about 400 acres, Ainsworth div., about 3 miles N. from Ainsworth, on W. side of Kootenay lake. **Class of Ore:** Sulphide with mine run of 15% lead, 6 ozs. in silver and 10% zinc. **Shipments:** Concentrates and crude ore to the amount of 1100 tons shipped in 1917, giving a return of about \$100,000. Mine output under normal conditions about 4500 tons a month. In February, 1918, 250 tons of concentrates shipped and it is expected shipments will increase during the spring and summer. **Equipment:** Includes 300-ton concentrator built in 1917, 350-h.p. hydro-electric plant, with direct connection to Pelton wheel; 15-drill Ingersoll Rand compressor also with direct connection; 5000 ft. 6-inch air line, 3000 ft. 16-inch pipe line, 1800-ft. aerial tram, full mine equipment of all kinds, including ample building accommodations. Water power developed on Woodberry creek under 350-ft. head. Gasoline motor of 40-h.p. will haul 10 tons of ore per trip from No. 3 tunnel. **Development:** Includes more than 10,000 ft. of tunnels, crosscuts, drifts and shafts. In February, 1918, the company reported

best ore yet found on lowest level. A full face estimated to contain 30% lead. Ore of this grade was followed for 100 ft. and was preceded by 200 ft. of a lower, but good milling grade. This is at a depth of 700 ft. **Informant:** Pres. Wolfe. **Note:** This company, like Cork-Province and others, suffered severely during 1917 by the strikes at the smelter, weather conditions, the high cost of material, new treatment schedule made by smelter and lack of market for smelter products. In March, 1918, about 40 men were employed in mine and mill and the mill runs one 8-hour shift a day. In April the company added a second shift in the mill and increased pay-roll to 65 or 70 men.

FOG HORN GROUP.**Kamloops**

Geo. Fennell of Chu Chua, B. C., part owner. **Property:** In Kamloops div., on Boulder creek. **Class of Ore:** Lead 50 to 80% and silver 40 ozs. in true fissure vein about 10 inches wide. **Development:** Tunnel in 200 ft., shaft down 40 ft., 400 ft. of open cuts, and 60 ft. of drifts. At last report three men were working, getting out a ton a day and preparing to ship. **Informant:** Mr. Fennell.

FREDDY LEE GROUP.**Sandon**

Owned by A. W. McCune, box 1225, Salt Lake. **Property:** Several claims, including Freddy Lee, from which first shipments were made in 1892 by late Jas. F. Wardner, on Cody Creek, 1½ miles from Sandon, Slocan district. For many years property was idle, but in 1916 and 1917 development was under way with Mr. McCune's son in charge. Some shipments of highgrade silver-lead ore were made, but following troubles at Trail smelter, all operations in Ainsworth and Slocan districts under Mr. McCune's direction were abandoned. **Informant:** Jos. S. Wells, agent, Salt Lake City.

FRENCH COMPLEX ORE REDUCTION CO.**Nelson**

Company organized by Thomas French of Nelson. Government in 1916 guaranteed debentures of \$40,000 with which the company built at Fairview, adjoining the town of Nelson, a small experimental plant for the electrolytic reduction of zinc-lead ores. Plant is practically completed but the company is asking government to arrange credit of \$25,000 with which to buy ores and for working capital. Nelson Board of Trade has asked that the government either do this or to take over plant, patents and processes and operate them under government control. The French process was developed by Mr. French's father, who for some time was connected with Consolidated M. & S. Co. at Trail. Mr. Thomas French alleges that process patents are being infringed both at Trail and Great Falls plant of Anaconda Copper Co. Injunction suits have been threatened from time to time, but so far capital necessary to expensive litigation has been lacking.

GALENA MINING & MILLING CO.**Spokane, Wash.**

Capital: \$2,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** P. W. Clark, pres.; John F. Clark, vice-pres.; J. B. Clark, secy., all of Spokane. **Annual Meeting:** First Monday in April. **Property:** Galena Farm mine, 2 miles from Silverton, on Gold creek, in the Slocan div. Taken over by the late Patrick Clark of Spokane on bond from A. W. McCune of Salt Lake. Understood Clark estate owns 75% of the stock and New York interests the remainder. **Shipments:** In 1917, 1618 tons lead concentrates, valued at \$202,250, and 2015 tons of zinc concentrates, valued at \$60,450; total, \$262,700. Total shipments to date, 7926 tons. Since company was organized in 1916 has paid \$100,000, the cost of the property, and installed equipment and developed the mine at expense of about \$80,000, all of which came from earnings. **Class of Ore:** Average mine run about 12% lead, 18% zinc. Zinc concentrates, 42% zinc, 6% lead and 21 ozs. silver. Lead concentrates, 60% lead, 12% zinc and 60 to 80 ozs. silver. **Equipment:** Mill, with additional tables and flotation machines installed in 1917, of daily capacity of 150 tons; hoist, water power and full mine equipment. **Development:** In 1918 important strike reported in shaft at a vertical depth of 200 ft., ore body being 12 ft. wide. Property opened to the 300-ft. level and development keeps well ahead of milling capacity.

GALLAGHER GROUP.**Ainsworth**

A. D. Wheeler, Ainsworth, owner. **Property:** Three claims, one crown-granted, in Ainsworth div. **Class of Ore:** Iron, manganese oxide, carrying average of 80 ozs. silver and 0.21 oz. gold to the ton. **Shipments:** 51 tons in 1917, total of 280 tons. **Equipment:** Gasoline compressor, machine drills, buildings. **Development:** Opened with 500-ft. tunnel, 250-ft. raise and 500 ft. of drifts, exposing ore in irregular honey-combed bodies. **Informant:** Mr. Wheeler.

GEORGIA RIVER MINING CO., LTD.**Duncan**

Capital: \$250,000. Par value, \$25. **Directors:** C. H. Dickie and T. A. Wood of Duncan, B. C.; J. H. Hemsworth, Vancouver, B. C.; G. M. Perdue and G. H. Meredith of Victoria. **Property:** Eight claims in Portland Canal div., on George river, 20 miles from Stewart. **Class of Ore:** Surface showings give average

assays of 2.9 ozs. gold and 7 ozs. silver, up to 17.16 ozs. in gold and 29.4 ozs. in silver. Other assays gave 8 to 24% lead. **Development:** Company worked during 1917, but was handicapped by lack of transportation. A trail to the property has been recommended, approved by the department, but not built. **Informant:** E. F. Miller, secy., Duncan.

GIBSON GROUP.

Spokane, Wash.

Partnership, in which D. K. May, 226 Rookery bldg., Spokane, is chief owner and mgr. **Property:** Seven claims, not crown-granted, in Ainsworth div., 12 miles from Kaslo, on S. fork of Kaslo creek, 2 miles above Cork Province mine. **Class of Ore:** Silver, lead and zinc. **Equipment:** Good buildings erected in 1917. **Development:** Total of 3000 ft. of work, mostly on the veins, and enough ore developed to justify a mill of 100 tons capacity, which may be installed in 1918. **Informant:** Mr. May.

GILMAN GROUP.

Camborne

Owned by S. and T. J. Hyde and Barclay Crilly. **Property:** Three crown-granted claims in Lardeau div., 12 miles from head of Arrow lake, with 7 miles of wagon road to Camborne and 5 miles of rawhide trail to claims. **Class of Ore:** Gold, \$46; silver, 80 ozs., with considerable copper and lead and some zinc. Another vein contains galena. **Development:** 500 ft. of tunnels, open cuts and a short shaft, in all costing about \$12,000. **Informant:** Wm. E. Smith, 10,602 62d Ave. S., Seattle.

GLACIER CREEK MINING CO., LTD.

Victoria

Capital: \$500,000. Par value, 50c. Non-assessable. B. C. corporation. R. T. Elliot, K. C. pres.; R. M. Stewart, vice-pres.; H. Puckle, H. A. Munn and J. A. Mara, all of Victoria. **Annual Meeting:** In October. **Property:** Five claims and 2 fractions, about 250 acres, all crown-granted, in Portland Canal div., on N. bank of Glacier creek, adjoining Stewart claims on south. **Class of Ore:** Main vein 4 to 10 ft. wide, showing galena and iron pyrites. **Equipment:** Well supplied with buildings. **Development:** Main tunnel 200 ft. long and short drifts from 30 to 100 ft. long. **Informant:** R. M. Stewart, vice-pres., Pemberton blk., Victoria.

GOLD CURE MINING CO.

Spokane, Wash.

Capital: \$1,500,000. Par value, \$1. Non-assessable. Washington corporation; 500,000 shares in treasury. **Directors:** Chas. F. Caldwell, Kaslo, pres.; J. F. Blake, vice-pres., and Clarence Marsh, Sr., secy.-treas., both of Spokane, and A. G. Copeland. **Annual Meeting:** July. **Property:** Seven claims and fractions, crown-granted, in Ainsworth div., on S. fork Kaslo creek and 13 miles from Kaslo. **Class of Ore:** Tunnel, 112 ft., run since August 1, 1917, cut 14 ft. of carbonates assaying 81 ozs. silver, 40% lead. Property also has large body of ore assaying \$80 per ton. Vein 25 ft. wide, foot-wall not yet reached. **Informant:** Secy. Marsh, 325 Eagle blk., Spokane.

GOLDEN CANYON GOLD & SILVER MINING CO., LTD.

Vancouver

Directors: W. J. McMillan, pres.; Peter Hamilton, vice-pres., and R. J. McMillan, all of Vancouver. **Property:** In Slocan div. **Class of Ore:** Antimony, 60%. Total shipments of 100 tons. **Development:** Open cut for 100 ft. showed about 30 inches of ore; tunnel No. 1, in 135 ft., 18 inches; tunnel No. 2, in 150 ft., 7 inches. **Informant:** The president.

GOLDEN CROWN.

Usk

Owned by J. D. Wells of Usk, and Charles Durham of Kitsalas, B. C. **Property:** Five claims, not crown-granted, 250 acres, in Omineca div., S. of Gold creek, 3 miles from Usk and 2 miles from the G. T. P. railway. **Class of Ore:** Gold and silver. In 7 assays the gold values ran from a trace to 0.49 oz.; silver, nil to 5.1 ozs., and copper from nil to 0.5 of 1%. **Development:** Nearly 300 ft. of underground work. **Informant:** Mr. Wells.

GOLDEN BEA GROUP.

Usk

Owned by J. D. Wells, Usk, B. C.; E. C. Chrystal, 219 Keefer St., Vancouver, B. C., and J. E. Dyer, Prince Rupert, B. C. **Property:** Two claims of 100 acres, held in fee simple, 3 miles E. of Usk, on S. slope of Bornite mountain, Kitsalas dist., Omineca div. **Class of Ore:** Gold values, \$16, and silver, about \$5. **Development:** Open cuts and 2 short tunnels. **Informant:** Mr. Wells.

GOLDEN FAWN GROUP.

Salmo

Owned by Thos. Gallon, Pacific club, Victoria; C. E. Bennett, Salmo, B. C.; F. P. Drummond, New York, and W. G. Bevinham, with Canadian forces in France. **Property:** Four claims, not crown-granted, in Nelson div., Sheep creek dist., on Fawn creek, a tributary of Sheep creek and 11 miles from Salmo. **Class of Ore:** Pay streak from 1 to 12 inches, carrying free gold and assaying from \$40 to \$500 to ton. **Shipments:** Bullion to value of \$2500, product of 70 tons run through the mill of Nugget mine, which adjoins. **Development:** Large number

of open cuts and about 340 ft. of underground work. **Informant:** Mr. Gallon.
Note: At last report H. Y. Anderson, of Nelson, B. C., had the property under lease, was working 12 men and putting ore through Nugget mill.

GOLDEN SOVEREIGN GROUP, CINCINNATI GROUP, LIVERPOOL GROUP, BOOMERANG GROUP, BIG DUTCHMAN GROUP AND BIG HORN GROUP.

Aspen Grove

R. J. Armstrong, Chopaka, Wash., owns a fourth interest. **Property:** Includes 37 crown-granted claims in Similkameen div., near Aspen Grove. **Class of Ore:** Golden Sovereign group has large bodies of gray copper, averaging 1½% copper, \$3.50 gold, 11 ozs. silver. Thirty-five tons of ore shipped containing native copper averaged 85% copper, 15 ozs. silver and \$5 gold. All groups carry large bodies of gray copper averaging as indicated, except Liverpool group, which has a lime dike cropping for 300 ft. with highgrade copper ore at intervals. **Informant:** Mr. Armstrong.

GOLDFIELD CONSOLIDATED MINES CO.

Goldfield, Nev.

Capital: \$50,000,000; par value, \$10; outstanding, 3,559,146 shares; Wyoming corporation. Exploration department has option on Higgin's property in Omneca div., Hazelton sub-dist., Babine range, 31 miles from Hazelton. Commenced work September, 1917. Fred Higgin, owner. **Class of Ore:** Several quartz veins, from a few inches to several feet wide, exposed on the surface for considerable distance, carrying galena, zinc-blende and gray-copper. No details available.

GOLD REEF GROUP.

Winlaw

Claims operated under name of Hird & Smith by Geo. A. Hird and P. L. Smith, both of Winlaw. **Property:** Gold Reef Nos. 1 and 2, about 100 acres, not crown-granted, in Slocan City div., near Lemon Creek. **Class of Ore:** Assays show gold and silver from \$11.50 to \$4500 to ton. Five tons shipped in winter of 1913-14 returned \$91 to ton, smelter assay. Free gold frequently in evidence. **Development:** Most of work consisted in stripping surface. Vein faulted badly, but located again 150 ft. lower down. **Informant:** Mr. Hird.

GOODENOUGH MINING CO.

Sandon

Capital and present officers unknown. Owned several fractional claims, immediately adjoining property of Reco M. & M. Co. (q.v.), near Sandon, Slocan district. Extremely rich, though small, vein was developed to some depth and dividends of \$45,188 paid 15 years ago. Vein crosses company's end line into Reco ground, latter taking out large profits at about same time. Mine idle for many years, except for occasional leasing operations. Heavy stockholders of company included late Arthur Goodenough, of Kaslo; J. A. Whittier, of Vancouver and Jack Thompson, of New Denver.

GRANBY CONSOLIDATED MINING, SMELTING & POWER CO., LTD.

Vancouver

Capital: \$15,000,000. Par value, \$100; fully issued; non-assessable; incorporated March 29, 1901, by special act of British Columbia parliament. Bonds authorized Feb. 25, 1913, \$5,000,000, first-mortgage, 6%, 15-year, convertible at par. Series A of \$1,500,000 bonds underwritten Feb., 1912, at 96 by Speyer & Co. Bonds redeemable at 105 plus interest after 10 years, 4% to be retired by purchase at \$110, annually; \$2,514,400 outstanding June 30, 1917. Shares listed on Boston Stock Exchange. **Officers:** Wm. H. Nichols, pres.; E. P. Earle, vice-pres.; Edwin Thorne, vice-pres.; W. H. Robinson, vice-pres.; F. M. Sylvester, vice-pres. and mgr.; Geo. W. Wooster, treas. These, with Henry Bruere, J. B. F. Herreshoff, B. Hochschild, Wm. A. Paine and Sanford H. Steele, constitute the board of directors. H. T. Mahan is assistant treas.; Edward Everett, secretary; Helen Harvey, assistant secy. American Trust Co., Boston, and Title Guarantee & Trust Co., New York, are transfer agents. Boston Safe Deposit & Trust Co., of Boston, and Lincoln Trust Co., of New York, registrars. Title Guarantee & Trust Co., New York, registrar of bonds; Columbia Trust Co., of New York, trustee of bonds. Head office, 718 Granville St., Vancouver, B. C.; branch office, 52 Broadway, New York. **Annual Meeting:** First Tuesday in October. **Dividends:** For the years ending June 30: 1903, \$133,630; 1905, \$339,991; 1906, \$1,620,000; 1907, \$1,215,000; 1908, \$540,000; 1909, \$270,000; 1910, \$248,481; 1913, \$449,955; 1914, \$899,900; 1916, \$899,911; 1917, \$1,349,962; 1918, first half of year, \$750,000. Said to be now on a permanent dividend basis of 10% per annum. Earnings in February, 1918, were approximately \$400,000; in January about the same, and in December, 1917, nearly \$500,000. **Production:** In recent years, for years ending June 30, except for 1916, which is for 9 months ending March 31: 1912, 739,519 tons, mining and smelting cost \$2.90 a ton; 1913, 1,279,869 tons, cost \$2.65; 1914, 1,289,000 tons, cost \$2.73; 1915, 1,098,020 tons, cost \$3.18; 1916, 1,929,205 tons, mining and smelting cost, \$2.29; 1917, 1,490,804 tons, cost \$3.274. **Copper Production:** 1912, 13,231,121 lbs.; 1913, 22,688,614 lbs.; 1914, 23,320,097 lbs.; 1915, 26,638,912 lbs.; 1916, 42,198,083 lbs.; 1917, 37,676,368 lbs.; 1918, first 2 months, 8,053,079 lbs. Prediction is made that 1918 total production will be

50,000,000 pounds. **Property:** Includes original Granby group at Phoenix in the Grand Forks div.; the Hidden Creek mine on Granby bay, Observatory inlet, Skeena div.; Copper Key and Belcher groups at Belcher mountain, Wash., taken over, 1910, under a working bond and lease; the Oversight group; the Bonanza mine on Bonanza creek; 30 quartz claims on Granby Peninsula; Mamie and Dean mines on the Kasaan Peninsula; the Midas mine at Valdez, and an option on the It mine adjoining the Dean on Prince of Wales Island. Also owns a large interest in the coal mine and coking plant at Crows Nest Pass, and a 100,000-h.p. waterpower plant at Kettle Falls, both together valued at \$2,000,000; a smelter at Grand Forks, operated since 1901, and one at Anyox, blown in 1914.

Phoenix Mines: C. M. Campbell, supt., Phoenix, B. C. The Granby or Knob Hill properties at Phoenix, B. C., 43 claims and fractions, 1050 acres, 15 claims being in the mineralized area, include the Old Ironsides, Knob Hill, Victoria, Gray Eagle, Banner, Tip Top, Triangle, Gold Drop, Curlew, Monarch, Tamarack, Monte, No. 13, and others. Claims form a compact tract of about 8000 ft. by 9000 ft. in size, carrying 8000 ft. of the strike of the mineralized zone. The Phoenix property has 2 distinct sets of ore-bodies. The largest and longest worked are those of the Knob Hill-Ironside mines; the other one, one-half mile east, is the Gold Drop. The first named has 3 mines with separate crews and equipment. Development includes 5 shafts and several tunnels. In 1916, 14,608 ft. of underground work and 11,392 ft. of diamond drilling was done.

Hidden Creek or Anyox mines: E. E. Campbell, Anyox, supt., on Granby bay, Observatory inlet, Skeena div., include 9 claims, 2 miles from Anyox. There are 2 deposits, one 25 to 40 ft. wide, traced 1400 ft., that averages 6% copper, the other estimated to be 100 ft. wide. Diamond drilling has shown ore to extend 300 ft. below sea-level, a vertical distance of 1250 ft. below outcroppings. Ore reserves June 30, 1917, were estimated at 18,139,168 tons, averaging 1.61% copper. Company also owns Bonanza group, adjacent to Hidden Creek, containing 904,355 tons, that will average, by estimate, 1.6% copper. Alaska mines include Mamie at Hadley, from which 20,115 tons were shipped in year ending June 30, 1917, and which has reserves of 522,560 tons; the It mine at Kasaan Bay, from which 14,881 tons were shipped, and which has reserves of 7500 tons; and the Midas mine, Valdez, from which 21,019 tons were shipped and which has reserves of 44,487 tons. The Midas tram, made by the Riblet Tramway Co. of Spokane, is the longest in Alaska—28,360 ft. **Total Ore Reserves** of all mines are 13,717,021 tons of highgrade ore and 9,476,560 tons of lowgrade.

Grand Forks Smelter: Has up-to-date smelting, converting and power plants, with 2000 acres of land and 68 town lots. The smelter has 4400 tons daily capacity, the largest in Canada. Steel storage bins hold 8000 tons of coke and 13,000 tons of ore. Ore is handled by 4 electric locomotives, each drawing two 2-ton cars, constituting a single charge; the ore being practically self-fluxing, is charged without concentration, or assortment, just as it comes from the mines, with the addition of limestone and fuel. Power is electrical and equipment includes 9 small blowers and 2 Jumbo blowers, with capacity of 100,000 cubic ft. of free air per minute, driven by 2300-h.p. motors. **Anyox Smelter,** on Observatory Inlet, commenced operations in March, 1914. The plant has 4 furnaces, 52 inches wide and 30 ft. long, and is the largest pyritic smelter in the world. Daily capacity is from 2000-2500 tons. Company has laid out a town, installed waterworks, an electric plant, graded streets, and built stores and hospitals. Extensions to the smelter plant were made in the winter of 1917-1918, and it has now reached an actual capacity of 90,000 tons of ore a month. Ground is being cleared for a coal plant at Nanaimo, B. C., which with docks, coking ovens, the purchase of boats and the building of a town, will cost \$2,000,000, it is said. It owns large coal fields in that district.

GREAT NORTHERN MINING CO.

Vancouver

Capital: \$1,500,000. Par value, \$1. British Columbia corporation. **Officers:** W. F. Cochrane, pres., Vancouver; J. J. Young, vice pres., Calgary; R. Hodge, secy.-treas., Vancouver, now in Seattle. **Property:** Lucky Jack-Swede group, and Oyster-Criterion group at Camborne, Lardeau mining div. **Equipment:** 10-stamp mill at Camborne, capable of treating approximately 30 tons daily. No work has been done for ten years, but during 2 years' run prior to that time ore returned values of \$5.00 gross, with net recovery of around \$1.30 per ton. Company promoted by W. B. Poole.

GREENWOOD-PHOENIX TRAMWAY CO.

Greenwood

Capital: \$100,000; par value, \$1; assessable; B. C. corporation. **Directors:** Thos. Woodruff, pres.; W. H. Pattison, secy.; Alex Shaw, treas., all of Chicago; J. H. Hallett and Duncan McIntosh, Greenwood. **Annual Meeting:** February 12. **Property:** Seven crown-granted claims, about 500 acres, Greenwood div. **Class of Ore:** Gold and silver, carrying some copper, zinc and lead. Early-day shipments said to have returned \$50,000. **Equipment:** A 700-ft. compressor driven by 125-h.p. motor. **Development:** Includes 3000 ft. of tunnels and several shafts from 50 to 250 ft. deep. **Informant:** Duncan McIntosh, supt., Greenwood.

GROBE & BOULIN.**Ymir**

Grobe & Boulin, of Ymir, own 5 claims, not crown-granted, in Nelson div., 3 miles from Ymir and adjoining Hobson Silver-Lead M. & M. Co.'s property. **Class of Ore:** Gold, silver and lead. Silver, 30 to 70 ozs.; gold from \$1 to \$29. **Development:** Includes 600 ft. of underground workings, reaching a depth of 200 ft. At date of report had just cut into the vein, but not enough work done to determine extent of ore body. **Informant:** Mr. Grobe.

GUINDON GROUP.**Moyie**

Frank Guindon and partners, owners. **Property:** Three claims, about 95 acres, in Ft. Steele div., opposite town of Moyie and St. Eugene mine. **Class of Ore:** One assay returned 50% lead and 20 ozs. silver. Also contains zinc. **Development:** Upper tunnel in 40 ft., with 6 in. carbonate and galena. Second tunnel, 75 lower down and 900 ft. above the lake level, is in 200 ft. with silver-lead-zinc ore starting 15 ft. from portal and continuing full length of tunnel, from 6 to 18 inches wide. Ore in face 6 inches wide and in upraise for 10 ft. Third tunnel, just above lake level, struck 3-foot vein returning assays given above, has been continued 250 ft. on vein. About 300 ft. of work. **Informant:** Mr. Guindon, Moyie.

HAWLEY, W. S., CO.**Spokane, Wash.**

Capital: \$100,000. Par value, \$1; 60,000 shares subscribed for by stockholders of Silver Hoard Mining Co. (q.v.) including W. S. Hawley, L. R. Hawley, Dr. E. R. Northrup, W. H. Carter, Guy R. Amsden, and D. T. Fox, all of Spokane. Company holds 2½-year lease upon Silver Hoard property at Ainsworth, Ainsworth district, upon 10% royalty basis. Built 75-ton mill, including flotation process, placed in operation in summer of 1917. Shipped some ore and made important discoveries of ore, but smelter troubles at Trail caused cessation early in 1918. Plans now under way to consolidate interests of parent and leaser company in Delle M. & M. Co. (q.v.).

H. B. DEVELOPMENT CO.**Spokane, Wash.**

Capital: \$3000. Par value, \$1. **Directors:** J. C. Buchanan, pres.; Chester H. Harvey, secy.-treas.; W. A. Buchanan, mgr., all of Spokane. Incorporated in 1917 to construct 5600 ft. tramway, at cost of \$18,000, for Yankee Girl mine, operated by Hobson Silver-Lead Co., Ltd. (q.v.), upon a royalty basis providing for 60 cts. per ton on first 10,000 tons; 50 cts. per ton on second 10,000 tons, and 35 cts. per ton on balance, until entire amount is retired. Company has assets of approximately \$25,000 and is developing mining property. Last year, took over on lease and bond, Silver Cup group of two claims on Bear Creek, 10 miles from Kaslo, Slocan district, B. C., which is now under operation. Also developing old Lily B. mine in Arlington Basin, Slocan City district. **Informant:** Secy.-Treas. Harvey.

HEDLEY GOLD MINING CO.**New York City.**

Capital: \$1,500,000. Par value, \$10. Issued, 120,000 shares. Non-assessable, Delaware corporation. Steps taken to re-incorporate in B. C. **Officers:** I. L. Merrill, Los Angeles, pres.; W. D. Dickson, vice-pres.; J. D. Clarke, secy.-treas.; W. D. Thornton, E. C. Congdon, G. E. Tener, Marcus Daly, and W. E. Corey, all of New York; Gomer P. Jones, gen. supt. Head office, 42 Broadway, N. Y.; mine office, Hedley, B. C. **Annual Meeting:** Second Wednesday in April. **Dividends:** 1909, 30c, \$36,000; 1910, \$1.40, \$168,000; 1911, \$2.50, \$300,000; 1912, \$3, \$360,000; 1913, \$3, \$360,000; 1914, \$2.50, \$300,000; 1915, \$2.50, \$300,000; 1916, \$2, \$240,000; 1917, \$2, \$240,000; 1918, first quarterly dividend paid March 30, 1918, \$36,000, reduces dividend rate to \$1.20 per share, or 12% per annum; total dividends to March 30, 1918, \$2,340,000. **Property:** Nickel Plate and Sunnyside groups of 31 crown-granted claims and a millsite, 1370 acres in all, in Osoyoos div. at Hedley, on Nickel Plate mountain, and in the Similkameen valley; and the Copper Flat property near Silver City, N. M. At the last report, 1916, company had undivided profits of \$443,688. **Equipment:** Includes 40-stamp mill and complete equipment, hydro-electric power plant, cost \$200,000, and generating 1800-h.p., cyanide plant, 2 compressors, each of 2000 cubic ft., and an air hoist. **Development:** Operated through adit tunnel at elevation of 5400 ft. At point 930 ft. from portal intersects beds of lime silicate which dip at angle of 23 degrees. From this tunnel to surface, 800 ft. on the slope, ore is passed down, and from the tunnel to 850 ft. below it is trammed. The ground ahead well tested by diamond drill, assuring long life. Present output about 6000 tons a month.

HEWITT-LORNA DOONE GROUP.**Silverton**

Lessors: Clarence J. Cunningham, Sandon; Dr. John G. Cunningham, Spokane; and F. Cushing Moore, Silverton, B. C. **Property:** 12 crown-granted claims, 1200 acres timber, modern flotation mill of 125-ton capacity and tramway from mine to mill, held under 2-year lease and bond for \$175,000, secured from Silverton

Mines, Ltd. (q.v.) **Development:** Mine opened by adit levels to vertical depth of 1200 ft. below surface, production now coming from lowest level, known as No. 8. Since August, 1917, present owners have shipped 500 tons, of which approximately 100 tons was lead concentrate and 400 tons zinc concentrate. Former runs approximately 60% lead and 250 ozs. silver per ton, while zinc concentrate runs 40% zinc and 60 ozs. silver. In February, 1918, management reported 550 tons of lead concentrate on hand and 500 tons of zinc concentrate, congestion having arisen owing to unfavorable smelting conditions at Trail. Since then, contract for treatment of lead concentrate at U. S. Smelting Co.'s plant, Midvale, Utah, has been made, while zinc concentrate is moving to Bartlesville, Oklahoma. Mine under management of F. Cushing Moore, part owner, formerly State Mine Inspector of Idaho. Partnership locally known as Van Roi Development Co., but is not incorporated.

HIGHLAND MINE.

See Consolidated Mining & Smelting Co. of Canada.

Ainsworth

HIGHLAND VALLEY MINING & DEVELOPMENT CO. (N. F. L.) Spokane, Wash.

Capital: \$1,500,000. Par value, \$1. Non-assessable. Washington corporation. Issue of 7% bonds to the amount of \$35,000, with stock bonus, authorized to provide funds for extending development 150 ft. below present workings, to install a new hoist and compressor and build road and tramway to railroad. **Directors:** Frederic Keffer, pres.-mgr.; Chas. G. Hall, secy.-treas.; J. C. Haas, Joseph McCarthy, S. S. McClintock and E. H. Knight, all of Spokane; Sigmund Dilsheimer, vice-pres., and C. L. Baker, both of Colville, Wash. **Property:** Chat-away group of five claims, owned outright, and Sanson group of 7 claims under bond, with two payments made. **Location:** Arrow Lake div., 25 miles S. of Ashcroft. Crown grants applied for. Claims cover 500 acres. **Formation:** Biotite granite and quartz feldspar formation. Ore occurs in vicinity of contact, along cleavage planes. **Class of Ore:** 3 to 5% copper as mined and small values in gold and silver. **Shipments:** In 1917, 1418 tons concentrates shipped, running 16 to 29%, a total of 423,386 pounds of copper. Shipments are continuing in 1918. Present output, 4 to 6 tons of concentrates a day; about 40 men working. **Equipment:** Concentrator of 50 tons capacity; crusher, rolls, Hardinge mill, tables, flotation plant, 2 boilers and engines, elevators, pumps and hydro-electric power plant. **Development:** Adit tunnel and shaft. Greatest depth about 140 ft. below the surface croppings. About 550 ft. of drifts in ore. The vein, where explored, averages about 7 ft. wide. **Informant:** Mr. Keffer.

HILL TOP MINE.

Kamloops

Owner: O. S. Batchelor, P. O. Box 221, Kamloops, B. C. **Property:** Total area of 113 acres, not crown-granted, in Kamloops div., 4 miles N. W. of Kamloops. **Class of Ore:** Slate and diorite formation, vein carrying \$12 in gold and about \$5 in silver. Five veins, from 1 to several ft. wide, exposed by nature on large dome-shaped hill rising 600 ft. above a lake. Veins exposed on top and down the W. side. The N. vein shows blue oxidized quartz, showing arsenical iron. Sample carload sent to Ladysmith smelter returned \$16 ton, gold and silver. **Equipment:** 5-stamp mill, crusher, 25-h.p. boiler, engine and pump. **Development:** Only assessment work done, several shafts, the deepest 30 ft. **Informant:** Mr. Batchelor.

HINCKLEY AND BLACK COLT.

Three Forks, B. C.

George Petty, locator of the Monitor group, in the fall of 1917, acquired Hinckley and Black Colt claims from Wm. Hastie Adams, of California. **Property:** In Slocan district, near Three Forks, in close proximity to the Batchelor, and on strike of Queen Bess vein, easterly. Development being carried on by owner.

HOBSON SILVER-LEAD CO., LTD.

Spokane, Wash.

Branch office: Fort Worth, Texas. **Capital:** \$1,500,000. Par value, \$1. Non-assessable. A Washington corporation. **Directors:** George T. Reynolds, pres.; W. B. Ward, Jr., secy.-treas.; J. C. Buchanan, all of Fort Worth, Texas. Chester H. Harvey, asst. secy.-treas. and transfer agent; John Murray and W. L. McEachran, all of Spokane, Wash.; W. D. McDowell, Ymir, B. C. **Annual Meeting:** January 8th. **Property:** The Yankee Girl group of 5 patented claims at Ymir, B. C., acquired from the Yankee Girl Gold Mines, Ltd. (q.v.), in 1911, and 4 unpatented claims at Ainsworth, B. C. **Class of Ore:** At Ymir, gold, \$18.00; silver, 4 ozs.; zinc, 6%; lead, 1%. At Ainsworth, silver-lead. Most of the present development is confined to Yankee Girl group at Ymir, where force of 35 men is at work. **Equipment:** Yankee Girl property is equipped with two compressor plants, electric light plant; 56 ft. of tramway from mouth of No. 4 level to Spokane & Northern tracks at Ymir. **Shipments** last year, from October 1st to December 31st, 2500 tons, gross value, \$45,000. Total shipments, about

22,000 tons. Present rate of output, 6 carloads per week. **Development:** Yankee Girl group is developed by three main adit levels, known as Nos. 1, 2 and 4. No. 1 is 1500 ft. long at a vertical depth of approximately 400 ft. No. 2 is approximately 2000 ft. long at additional depth of 100 ft. An ore shoot, approximately 200 ft. long, has been stoped from No. 2 to surface. No. 4 adit is approximately 3300 ft. long at further depth of 600 ft. below adit No. 2, or approximately 1100 ft. from surface out-crop. Stopping is now in progress above No. 4 adit. Shipments approximately 250 tons weekly. Raise is being put up from No. 4 to No. 2 and it is estimated that about 75,000 tons of milling ore is in sight above No. 2 adit, averaging from \$7 to \$8 per ton. Company contemplates erection of a milling plant during 1918.

HOFF, JOHN, PLACER MINES.

Seattle, Wash.

John Hopp, 1617 Fourth avenue, Seattle, owns the Lowhee, Stout's Gulch and Mosquito Creek placer mines in Cariboo and Quesnel divs., near Barkerville. Hydraulic operations. Production governed largely by water supply. Worked about as usual in 1917, producing greater portion of output of district. Lowhee operated in 1917 to full capacity and made a good run, some of ground being richer than usual. Mosquito Creek claim yielded some rich ground, but water supply small. Stout's Gulch mine not worked as much as in former years. It has been worked nearly to the head of the gulch, leaving benches and tributaries still to be worked. The 1916 production from all holdings about \$90,000.

HORSEFLY RIVER GOLD DRUDGE MINING CO., LTD.

Vancouver

Capital: \$100,000; par value, \$1; B. C. corporation, non-assessable. **Directors:** D. A. McDonald, S. P. Dunbery and R. T. Ward. E. J. West, mgr. **Annual Meeting:** In January. **Class of Ore:** Gold and platinum placer ground. **Property:** 1 mile along Horsefly river, about 200 acres, held under government lease, in Cariboo div., Harper's camp. **Output:** To date about \$200,000. **Equipment:** 2 dredges and complete hydraulic plant, including ditches, flumes, monitors, 10,000 ft. of 30-inch steel pipe line and electric light plant. **Informant:** R. T. Ward, Harper's Camp, B. C.

HOWE SOUND CO.

734 Fifth Ave., New York

Capital: \$2,000,000. Par value, \$1.00. Non-assessable. Incorporated in state of Maine; 1,984,150 shares outstanding. Company has outstanding \$5,111,000 of authorized bond indebtedness of \$6,000,000. **Directors:** Evander B. Schley, pres.; J. W. D. Moodle, vice-pres.; E. J. Donohue, secy.-treas.; D. G. Marshall and C. P. Browning, mine supt. **Annual Meeting:** First Monday in March. Holding company, owning all stock of Britannia Mining & Smelting Co. (q.v.), which in turn owns Britannia Power Co. and Howe Sound Power Co. Also owns 53,800 shares of El Potosi (Mexico) Mining Co.'s total issue of 60,000 shares, and Potosi Co. owns a large majority of stock of Chihuahua Mining Co. **Dividends:** Company paid its first dividend of 5%, amounting to \$100,000, in March, 1918. **Reserves:** 1916 report estimates positive, probable and possible ore in Britannia mine alone at 18,754,502 tons, with average content of 1.97% copper. **Shipments:** Concentrates, 55,186 dry tons, containing 16,238,835 pounds copper, 791 oss. gold and 91,905 oss. silver. Average content per ton was .0143 oz. gold; 1.67 oss. silver; 14.76% copper; iron, 25.66%, insoluble 24.87%; zinc, 3.22%. **Note:** Generous sums have been spent in developing and equipping B. C. property, practically entire amount having been provided by late Grant B. Schley. Property now rated among most potential copper producers on continent.

HUDSON BAY KING CO., LTD.

Salmo

Capital: \$5,000,000. Par value, \$5. A British Columbia corporation, formed April, 1916. **Directors:** M. W. Bacon, pres.; W. E. Cullen, secy.-treas., both of Spokane; R. T. McKinnon and Nash Rockwood, of New York. **Property:** Hudson Bay group of 14 claims, 600 acres, on Sheep Creek, Nelson division, 8 miles S. E. of Salmo, on Spokane & Northern R. R. **Property:** Held under lease and bond, upon which last payment of \$46,000 is due August 1st, 1918. Arrangements for extension for three years upon small payment plan said to have been made. **Equipment:** Compressor plant, actuated by water power under 300 ft. head and all necessary camp equipment. **Development:** During 1915 and 1916, very large body of zinc carbonate ore was mined, approximate total yield being 17,000 tons, with smelter returns of 30%. Entire production taken from tunnel 150 ft. deep and shaft therefrom, 130 ft. deep. No. 3 tunnel, or 700-ft. level, was run 3000 ft. to open ore-body at depth of 720 ft. from No. 2, or 1000 ft. from surface. Opening failed to locate ore body, although at 1220 ft., 3 ft. of mixed sulphide was found, which has since been explored with unsatisfactory results. Now believed that big fold occurred in the lime formation in which ore bodies are found, that the body from which previous shipments were made was end of eastern segment of fault and that connection between that segment and the main ore body to west has been eroded. This theory can be proven

by extending No. 3 tunnel approximately 1500 ft., or by running a new tunnel of approximately 1000 ft. on the other side of the ridge and 2 miles nearer Salmo. Understood that arrangements for additional development are about concluded in April, 1918. **Note:** Some years ago, property under option to Consolidated Mining & Smelting Co. for \$500,000, and 3200 tons of carbonate lead ore shipped. Interests identified with Butte & Superior Mining Co. and Hayden, Stone & Co., New York, took option upon control from present corporation in June, 1916, and made heavy payments. Option was subsequently abandoned, but individuals identified with same interests are still heavy owners of stock.

HUMMING BIRD GOLD MINES CO.

Vancouver

Capital: \$2,000,000; par value, \$1; non-assessable; B. C. corporation. **Directors:** Sigmund Dilshelmer, Colville, Wash., pres.; J. C. Williams, Spokane, secy.-treas.; M. F. Webster, Spokane; S. J. Luce, Coeur d'Alene, Idaho; George W. Williams, Polson, Mont. **Annual Meeting:** At call. **Property:** One crown-granted claim in Grand Forks div. on N. fork of Kettle river, about 8 miles from Grand Forks. **Class of Ore:** Gold. **Development:** About 300 ft., from which 600 tons of ore shipped. **Informant:** Secretary.

IDAHO-ALAMO MINES.

Sandon

Acquired in 1917 from Canadian Western Mines, Ltd. (q.v.), of Edinburgh, Scotland, by Clarence J. Cunningham, upon lease and bond for \$45,000, with payments extended over 3 years. **Property:** Consists of 26 crown-granted claims, including mill-site, water rights and 100-ton concentrator built in 1895 by late Captain Nat Moore and associates, of Duluth, who formerly owned property and developed to large extent in the early history of the district. Mines are served by main tramway system to concentrator at Alamo, on the Canadian Pacific branch R. R. completed by Cunningham in fall of 1917. Property opened by 6 adit levels, ranging from 200 to 400 ft. deep and giving vertical depth of 1000 ft. No. 3 level, which has been driven 1000 ft. by present owners, now in clean ore. Presumed to be same body from which shipments worth \$1,500,000 were made in earlier days. Expected that heavy shipments will be forthcoming during 1918 and that concentrator will be placed in condition to handle milling ore.

IKEDA MINES CO., LTD. (Non-Personal Liability).

Ikeda Bay

Capital: \$850,000; par value, \$1; B. C. corporation. **Officers:** R. R. McDennan, pres.; S. J. Castleman, secy.-treas., both of Vancouver, B. C.; Andrew G. Larson, Spokane, consulting engineer. **Property:** 53 claims, 33 crown-granted, total area 1714.6 acres, Queen Charlotte Island div., at Ikeda Bay, at Moseby Island. **Annual Meeting:** April 24. **Class of Ore:** From a stope on No. 3 tunnel level 5900 tons gave average assay of 0.115 oz. gold; 2.2 ozs. silver; 3.94% copper. Net return of \$20,986 received from 590 tons shipped and from 6505 tons, net returns of \$79,808. In 1916, 1060 tons shipped carried 4.8 to 17.48% copper, 0.10 to 0.34 oz. gold, 1.0 to 3.8 ozs. silver. **Development:** No. 1 tunnel 125 ft., No. 2 tunnel 225 ft., first 150 ft. passing through a shoot of ore mined to surface and shipped. No. 3 adit in 940 ft. First ore shoot 189 ft. long. Second shoot encountered 575 ft. from portal and continues to face. **Informant:** Secretary.

INDEX GROUP.

Kaslo

Under bond to Caldwell & Poyntz and management of James Poyntz. **Property:** Ainsworth div. on S. fork of Kaslo creek. Strike reported in December, 1917, vein 20 ft. wide, carrying 50% lead and 200 ozs. silver. Prospect.

INLAND COAL & COKE SYNDICATE.

Vancouver

Officers: Geo. I. Williams, pres.; W. L. Nichol, vice-pres.; Stanley Carr, secy.-treas.; Jas. Graham, vice-pres.-mgr.; Andrew Bryden, mine mgr. Office 530 Seymour St., Vancouver, B. C. **Property:** In the Nicola and Princeton divs. Formerly operated by the Coal Hill Syndicate. **Production:** In 1915, 34,710 tons; 1916, 30,849 tons; 1917, 7439 tons. Only operated during first three months of 1917.

INLAND MINING CO., LTD.

Walla Walla, Wash.

Capital: \$1,500,000; par value, \$1; non-assessable; Washington corporation. **Directors:** Albert Niebergall, pres.; J. F. Talabere, vice-pres.; Alfred Bachtold, 108 S. Third St., secy.-treas.; C. E. Nye, Dan Donovan, Henry Ibberson and A. Magallon, all of Walla Walla. **Annual Meeting:** First Friday in June. **Property:** Ten claims and 3 fractions, 520 acres, nine claims crown-granted, in Trail div., on Grenville mountain, 4 miles by wagon road from Paulson. **Class of Ore:** -Gold, \$3 to \$30; silver, \$2.50 to \$15; copper, trace to 2%, and lead, trace. Shipments of 99¼ tons of concentrates from Berlin vein returned value of \$2621.58, and 23 tons of ore, \$530.68. Two veins run through the property. **Equipment:** Steam power plant, including 2 large boilers, 4-drill air compressor, steam hoist, pumps, sawmill, and 10-stamp mill, equipped with amalgamating

plates, hydraulic classifier, 2 Wilfley tables and 1 Johnston vanner. **Development:** Open cuts and shafts trace Empire vein nearly 6000 ft. Shaft 300 ft. deep, and 2500 ft. of crosscuts, drifts and raises, have opened about 100,000 tons of ore carrying \$4 to \$6 ton. Berlin vein, about 1500 ft. W. of Empire, developed by 100-ft. shaft and 450 ft. of tunnels and drifts, exposing well-defined fissure. Tunnel, 200 ft. below this level, has been commenced. Secy. reported in July, 1917, company has several hundred tons of ore on the dump from which value of nearly \$100 ton in gold and silver can be obtained by sorting. The source of this supply is shoot 5 ft. wide, opened by drift for 170 ft. Of this, 20 inches to 2 ft. is highgrade and the rest ore that will assay \$10 to \$15. **Informant:** Secretary.

INLAND MINING & DEVELOPMENT CO.

Spokane, Wash.

Capital: \$100,000; par value, 10c; non-assessable. **Directors:** Jos. P. Kelly, pres.; Dana Landon, vice-pres.; Paul McHugh, all of Spokane; J. W. Wolverton, Waterville, Wash., and J. P. Flood, Grand Forks, B. C. E. Kelly, secy.-treas. **Property:** King Solomon group, including King Solomon and Queen of Sheba claims, and Jumbo fraction, crown-granted, in Greenwood div., 2½ miles from Beaverdell, on Kettle Valley railroad. **Class of Ore:** Three well-defined parallel veins of 6 ft., 18 inches and 4 ft. width, respectively. Assays from 6-ft. vein run \$2 to \$21 in gold; from the 18-inch vein as high as \$18 gold, silver and copper; and from 3-ft. vein from \$3 to \$72 gold. **Development:** Tunnel being driven to crosscut at depth. **Informants:** Officers of the company by prospectus.

IRON CAP GROUP.

Nelson

Owned by Neil McColeman and associates of Nelson. **Property:** Nine un-crown-granted claims, about 400 acres, in Nelson div., Sheep creek district, on Fawn creek. **Class of Ore:** Lead 40 to 60%, silver, 40 to 45 ozs.; zinc, 1 to 40%. Five and a half tons shipped to Trail smelter gave 45 ozs. in silver and 40% lead. **Development:** Shaft down about 25 ft. from which test shipment was made. Another shaft down about 50 ft. in a different fissure. The latter shows iron and zinc, with galena, coming in. **Informant:** Mr. McColeman.

IRON KING GROUP.

Nelson

Owned by Wm. Moore, of Nelson. **Property:** Three claims, Iron King, Boston and Bodie, crown-granted, 140 acres, in Nelson div., 7 miles W. of Nelson, on Iron mountain, 2 miles N. of C. P. R. track. **Class of Ore:** 64% iron, trace of gold and trace of copper. **Development:** Includes \$7000 spent on surface and in shallow shafts exposing vein for 3000 ft. in length and from 100 to 150 ft. wide, carrying solid iron ore. **Informant:** Owner.

IRON MASK.

See Kamloops Copper Co.

Kamloops

IRON MOUNTAIN CO., LTD.

See Emerald group.

Salmo

ISAAC SILVER-LEAD MINING CO.

Wilmer

H. E. Forster is owner. Property in Windermere div. In fall of 1917, 80 tons said to be ready for shipment. Mine closed for winter. Ore, argentiferous galena.

ISKOOT MINING CO.

Wrangell, Alaska

Partnership of 8 owners, of which Frederick E. Bronson, of Wrangell, is secy.-mgr. **Property:** Twenty-two claims, nine crown-granted, in Stikine div., on S. side of Iskoot river, 7 miles above South Fork and 10 miles below canyon. Smelter test made at Ladysmith, B. C., showed total value of \$44.11 per ton, as follows: Gold, .06 oz.; silver, 44.18 ozs.; copper, 10.45%. Some picked ore from one vein assayed as high as \$320, chiefly in silver. Gold varies from trace to \$300. **Development:** Principally surface work and 3 tunnels. **Informant:** Mr. Bronson.

IVA FERN GROUP.

Nelson

J. Mulholland, owner, worked property in 1917, and has bonded it to the Consolidated Mining & Smelting Co. (q.v.), of Canada. In Nelson div., on Cultus creek, 6 miles from Kootenay lake.

IVANHOE MINE.

Nelson

Group of 3 claims on divide between Carpenter and Four-Mile Creeks, 5 miles from Sandon, Slocan district, owned by Minnesota Silver Co. (q.v.), controlled by W. H. Yawkey, New York.

JACKSON BASIN MINES CO.

Kaslo

This name is generally given to Sunset, U. S., Echo, and Alameda groups, covering 600 acres in Jackson Basin, Slocan district, British Columbia, owned or under option to Charles F. Caldwell of Kaslo, B. C. Early in 1916, Jackson Ba-

sin Zinc Co. of Spokane was organized with capital of \$2,000,000, to operate property, by C. F. Caldwell, Volney D. Williamson, A. L. White and W. Y. Williams. Transfer was, however, never completed and property is still under control of C. F. Caldwell, who has continued development work during 1917 and up until May, 1918. Sunset group formerly worked for silver-lead ores, by late George W. Hughes, title being acquired by Mr. Caldwell from W. J. C. Wakefield, trustee, of Spokane. U. S. and Echo groups were acquired from H. Giegerich, merchant, of Kaslo.

JACKSON MINES, LTD.

Kaslo
Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** George Alexander and H. B. Alexander, formerly of Kaslo, now of London, England; Lorenzo Alexander, Victoria, B. C.; James Anderson, Kaslo. **Property:** Northern Belle, Kootenay Star, Ophir, Labour Day, Congress, and Dublin Queen; Jackson Basin, Slocan district; all crown-granted. **Class of Ore:** Silver-lead-zinc. **Equipment:** Concentrator and tramway. Total shipments to date: 4000 tons. Idle for some years, but development will be resumed when conditions are more favorable. **Informant:** James Anderson, mgr., Kaslo.

JEWEL-DENERO MINES CO., LTD.

Edinburgh, Scotland
Capital: £70,000; par value, 5s; 279,400 shares issued; authorized bond issue, £12,500, 8%, £11,202 issued; Scotland corporation. **Directors:** J. Galloway, chairman; J. E. Rogerson and W. W. Slater. W. Robertson, 71 George St., Edinburgh, secretary. Chas. A. Banks, Greenwood, B. C., gen. mgr. **Annual Meeting:** In June. **Property:** Jewel group, in Osoyoos div., 10 miles N. of Greenwood. **Class of Ore:** Quartz contact vein, from 10 to 14 ft. in width, carrying approximately: Gold, 0.45 oz.; silver, \$3. Has produced 31,345 tons that returned \$269,000. **Equipment:** Includes 15-stamp, tube-milling and cyanide plant of 75-ton daily capacity, electric 50-h.p. hoist and 8-drill 2-stage air compressor. All machinery electrically driven. **Development:** Incline shaft 550 ft., with levels at intervals of 110 ft. **Informant:** Mr. Banks. **Note:** Closed down 1915 on account of war.

JUNIPER CREEK MINES CO.

Tacoma, Wash.
Capital: \$1,000,000; par value, \$1; assessable. **Directors:** Isaac W. Anderson, pres.; Robt. A. McCormick, vice-pres.; Cadwalader Jones, secy.-treas.; Walter Christian, all of Tacoma, and R. P. Trimble, gen. mgr., Portland, Ore. **Annual Meeting:** First Monday June. **Property:** In Omineca div., Hazelton dist., adjoining Rocher Deboule mine, including seven claims, about 230 acres. **Class of Ore:** Gold, silver and copper. **Equipment:** Gasoline engine and fan, for ventilation. **Development:** Includes about 770 ft. of work, part drifting on vein. **Informant:** Mr. Anderson. **Note:** No recent information. Believed inactive.

KALLAPA MINING CO., LTD.

Vancouver
 Closed down at outbreak of war and at last report in liquidation. **Property:** Five claims in Clayoquot div., on Clayoquot Sound, W. coast Vancouver island. **Class of Ore:** Average assays: Gold, 0.45 oz.; silver, 4 ozs.; copper, 2.5%. In 1914 1200 tons shipped, total value, \$21,300. Ore-body from 12 to 60 inches wide, with average of 18. About 45% of drifts in ore of shipping grade. **Equipment:** Ore bunkers of 500 tons capacity on tidewater; road 2000 ft. long, from workings. **Development:** About 1500 ft. of drifting on one vein and 2 others opened by cuts and short tunnels. Drifting in 3 tunnels at 300 ft., 400 ft. and 500 ft. elevation. Condition of workings permit mining in 3 or 4 stopes that would average \$20 a ton smelter returns. Freight rate to Tacoma smelter \$2 a ton; treatment rate, \$1.50 a ton. **Informant:** C. E. Cartwright, former pres., 445 Granville St., Vancouver, B. C.

KAMLOOPS COPPER CO.

Duluth, Minn.
Capital: \$3,000,000; par value, \$10; 128,561 shares issued. Bonds of \$210,000 issued on Iron Mask mine, and convertible notes issued to amount of \$128,500, at 6% interest. Sales of ore last 2 years reported to have netted \$109,330. Surplus, September, 1916, \$77,572. **Directors:** E. G. Wallinger, pres.-mgr.; W. H. Eaton, vice-pres.; S. H. Hudson, F. M. Needham, J. J. Eklund, G. Carlson, Reiner Hoch, Theodore Hichel, Otto Johnson, W. W. Blackshaw, 1412 Townner ave., Superior, Wis., secy. General office, 609 First National Bank bldg., Duluth; mine office, Kamloops. Arizona corporation. **Property:** Ten claims, 228 acres, Kamloops div., 4 miles S. W. of Kamloops. **Class of Ore:** Iron Mask ore body averages 28 ft. wide, 5% copper, 0.2 oz. silver and 0.09 oz. gold. **Production:** In 1917, 2674 tons, but would have been more if Trail smelter had not been closed part of the year. From Oct. 1, 1914, to Sept. 30, 1916, 6290 tons crude ore shipped, averaging 3.96% copper and \$1.31 gold and silver, and 1313 tons of concentrates averaging 10.39% copper and \$1.77 per ton gold and silver, producing 771,199 lbs. of copper, 482 ozs. gold, and 1616 ozs. silver. **Equipment:** 750-ton concentrator, 750-h.p. electrical equipment, 150-h.p. compressor, a 225-h.p. motor and 8 smaller motors, 3 compressors of 1800 cu. ft. capacity good for 15

drills, and 6-ft. double drum hoist. **Development:** Shaft on Iron Mask, 780 ft. On 9 levels 16,500 ft. of work. Erin shaft, 330 ft. with 600 ft. drifts and crosscuts. Shallow shafts on other claims. Company claims nearly 2,000,000 tons of reserves that will average 2½% copper.

KAMLOOPS MINES, LTD.

London, E. C., Eng.

Co. in hands of trustees. Property under lease and bond to Kamloops Copper Co. (q.v.).

KASLO CONCENTRATING WORKS.

Kaslo

Concentrating plant erected on Kaslo Bay, Kaslo, by George Alexander, now of England, 15 years ago. Two years ago, leased by M. S. Davys, Nelson, who added roasting equipment and treated Lucky Jim, Slocan Star and other zinc-lead middlings. Decline in spelter made operations unprofitable and plant was idle during most of 1917. (See Kootenay Ore Co.)

KING EDWARD MINES CO., LTD.

Fairview

Capital: \$500,000; par value, \$1; 300,000 shares originally in treasury; B. C. corporation; non-assessable. **Directors:** R. H. Parkinson, Kelowna, B. C., pres.; C. Janes, vice-pres., and D. Braithwaite, secy.-treas., both of Fairview, B. C., and W. A. Haining, Similkameen, B. C. **Annual Meeting:** December 18. **Property:** Five crown-granted claims, 200 acres, in Osoyoos div., on Suswap creek. **Class of Ore:** Gold, silver, copper and molybdenite. **Development:** An open cut shows 4 ft. of ore on Edward claim; crosscut tunnel shows 4 ft. of ore at 30 ft. depth, and another crosscut 3 ft. at depth of 150. On other claims are 2 tunnels and open cuts. **Informant:** Secretary.

KING SOLOMON COPPER MINING CO.

Philadelphia, Pa.

Capital: \$1,000,000; par value, \$1; eastern office, 206 Hale bldg., Philadelphia; mine office, Cowichan, B. C. **Officers:** A. S. Anderson, pres.; S. B. Colladay, vice-pres., both of Philadelphia; James Humes, Victoria, B. C., 2nd vice-pres. and mgr.; H. A. Nolte, treas.; I. K. Evans, secy., Philadelphia. **Property:** Three claims and fraction, 133½ acres, in Victoria div., Helmicken dist., on Vancouver island. **Class of Ore:** Two large open quarries expose bodies of ore running from 3 to 17% copper and from \$1.50 to \$3.50 gold and silver. **Equipment:** Includes 100-h.p. boiler, 65-h.p. engine, 3-drill compressor and drills, No. 4 American sawmill with 35-h.p. engine, and 90,000 gallon duplex ram pattern pump, which pumps water to a 30,000-gallon wood tank at elevation of 250 ft. above mill. **Development:** Tunnel 400 ft. below quarries, driven about 600 ft., cutting 3 veins, 32, 36 and 45 ft. wide, carrying 1 to 5% copper, with \$1.50 to \$1.80 gold and silver. **Informant:** Secretary.

KITSALAS MOUNTAIN COPPER CO., LTD.

Prince Rupert

Capital: \$500,000; par value, \$1; B. C. corporation; non-assessable. **Directors:** J. D. Wells, pres., Usk, B. C.; Jesse Brooks, vice-pres., Portland, Ore.; S. H. Davis, Vancouver, Wash.; A. J. Thomson, treas., and James Darby, both of Usk. **Annual Meeting:** March 13. **Property:** Six claims, 3000 by 4500 ft., not crown-granted, but enough assessment work done and recorded to secure crown grant at any time; in Omineca div., 1 mile from Usk, 800 ft. from Grand Trunk railroad. **Class of Ore:** Copper, gold and silver. Average sample across a 5½-ft. vein at 100 ft. depth, \$18.60 per ton. **Equipment:** Compressor and drill installed 1918. **Development:** In summer of 1917 company crosscut 2 veins at about 1000 ft. depth, one 1½ ft. wide and other 5½ ft. wide. Tunnel is being run to porphyry dyke showing 60 ft. wide on surface for full length of claims. Tunnel should crosscut 5 veins shown on surface. Nine men working. Government wagon road completed to property in 1917. **Informant:** Paul M. French, 1214 Laddington Court, Portland, Ore., agent and attorney for Co.

KOOTENAY BELLE GOLD MINE.

Nelson

Owned by syndicate, of which Jonathan Rogers, Vancouver, B. C., is trustee, and F. E. Morrison, Nelson, B. C., mgr. **Property:** 5 crown-granted claims and 2 un-crown-granted fractions in Nelson div., Sheep Creek dist., on Sheep creek, 10 miles from Salmo. **Class of Ore:** Gold and silver. **Shipments:** From Nov., 1904, to Feby., '07, 2000 tons of free milling ore, shipped to Hall Mines and Trail smelters yielded \$37,400 gold and 1366 ozs. silver; 773 tons treated in stamp mill yielded 713 ozs. gold. In 1908 ore, concentrates and bullion yielded \$18,954 and in 1909, \$22,000. **Equipment:** Includes tram from No. 1 level to 14-stamp mill on Sheep creek. **Development:** Tunnel No. 1 crosscut reaching smaller vein at 105 ft. and big vein at 205 ft. from portal. On small vein drifts E. and W. total 135 ft. On big vein drifts have been run 60 ft. E. and 130 ft. W. and stoped 100 ft. long and 100 ft. high. W. from tunnel No. 1 130 ft. is stope to surface on small vein, about 65 ft. long by 55 ft. high. W. from stope 155 ft. is a crosscut 70 ft. long to the big vein on which a drift

is run E. 40 ft. Stope about 40 ft. high by 20 ft. long was carried up from this drift. N. 210 ft. from portal of tunnel No. 1 is portal of tunnel No. 2, in 475 ft. southerly, cutting first vein at 380 ft. at depth of 180 ft., and second vein 472 ft. at depth of 340 ft. On first vein 200 ft. of drifts run, but no stoping done. **Informant:** Manager.

KOOTENAY BONANZA MINES CO., LTD.**Vancouver**

Capital: \$3,000,000; par value, \$5. Office 901 Vancouver blk., Vancouver, B. C. **Directors:** W. Finch Page, London, Eng., pres.; A. E. Rand, vice-pres.; R. S. Lennie, secy.-treas.; A. C. Burdick and J. A. Hendry. B. C. corporation. **Property:** Held lease and bond on Silver King or Hall Mines group on Toad Mt., near Nelson, turned over to Consolidated M. & S. Co., in 1916. Still holds $\frac{1}{4}$ of capital stock of Silver King Mines, Ltd. (q.v.), and other property in vicinity.

KOOTENAY CONSOLIDATED MINES CO., LTD.**Nelson**

Capital: \$1,000,000; non-assessable; B. C. corporation. **Directors:** Dr. W. O. Rose, pres.; Fred A. Starkey, vice-pres.; John Bell, R. Smillie, Dr. L. E. Borden, all of Nelson. **Annual Meeting:** In June. **Property:** Royal Flush group, 5 full claims, 1500 by 7500 ft., in the Nelson div., on Hall creek. **Class of Ore:** Silver, copper and gold. Average assay, 175 ozs. in silver, .03 oz. in gold and 7% copper. **Development:** Over 20 open cuts, shafts and tunnels, exposing a vein from 3 to 40 ft. in width, with a well-defined ore-body continuous throughout 5 claims. **Informant:** H. E. Dill, secy.-treas., Nelson, B. C.

KOOTENAY GOLD EXPLORATION CO., LTD.**Nelson, B. C.**

Capital: \$1,500,000; par value, \$1; B. C. corporation. **Directors:** H. I. Wilson, Butte, pres.; A. G. Larson, Spokane, vice-pres. and mgr.; John MacGinniss, Butte, treas.; R. A. Carnochan, Spokane, secy.; T. B. Miller, Helena; W. E. Cullen and Roy C. Lammers, both of Spokane. **Property:** 13 mineral claims and mill site, 355 acres, all crown-granted, constituting what is known as the Granite-Poorman mine, in Nelson div., about 5 miles below Nelson, between Sandy and Eagle creeks, the mill being about a half mile by wagon road from Granite Siding, on the Canadian Pacific. **Class of Ore:** Ore as delivered to mill, after sorting, averaged about \$10 in gold from 1910 to 1912. Hardscrabble vein, as recently opened by the lowest workings, gave average assay value of \$14.66 in gold over 2.2 ft. average width, and assays of other parts of vein on same level gave assays of \$28, \$40 and \$80.40. **Equipment:** 300-h.p. General Electric synchronous motor; a 1500-cubic ft. 2-stage, cross-compound, Sullivan compressor; transformer house, a 20-stamp mill and an aerial tram 1 mile long from mine to mill. Mill treats approximately 43 tons daily, crushing to 40-mesh, with a saving of from 65 to 70% on the plates. Concentration plant includes 3 Diester-Overstrom sand tables and 1 slime table, total saving being 88% on heads running \$8.65 in gold per ton. **Development:** This property has been worked off and on for nearly 30 years and has big production record. Extensively opened by Poorman shaft down to a point within 557 ft. of level of Kootenay river, and by five tunnel levels, with elevations from the river as follows: Poorman-Hardscrabble tunnel, 777 ft.; White tunnel, 1000 ft.; Granite tunnel, 1175 ft.; Beelzebub tunnel, 1177 ft.; Greenhorn tunnel, 1132 ft. Hardscrabble vein has received most attention during past two or three years. The company intended to run a deep-level crosscut tunnel to further prospect six veins known to traverse the property, but outbreak of war caused cessation of operations in 1917. New York capital largely interested.

KOOTENAY ORE CO.**Kaslo**

Controlled by George Alexander, London, England, represented by James Anderson, Kaslo, B. C. Owns Kaslo Concentrating Works, on Kaslo Bay, at Kaslo, Slocan district. Now under lease to M. S. Davys, who has added roasting equipment for treatment of zinc middlings. Plant ran for some time in 1917, on Slocan Star and Lucky Jim ores, but is now closed down.

LADYSMITH SMELTING CORPORATION, LTD.**Ladysmith**

Officers: W. L. Stevenson, mgr.; H. W. Aldrich, gen. supt., Ladysmith, Vancouver Island, B. C. Controlling interests not identified. **Property:** Acquired all assets of Tyee Copper Co. (q.v.), late in 1916, including Ladysmith smelter, at Ladysmith, B. C.; Tyee mine, Mt. Sicker, 11 miles N. W. of Duncans and 80 miles from Victoria, B. C.; in all, 13 claims, 1247 acres; 45-acre mill site and 800 acres timber land. Smelter, built by James Breen, H. C. Bellinger and associates, 15 years ago, has blast furnace capacity of 300 tons, other improvements including 40x120 tidewater wharf on Oyster Bay and complete equipment. Smelter was closed in 1907, but remodeled in 1909-10. Again closed in 1911 and leased in 1913 to Ptarmigan Mines Co., Ltd., H. H. Johnston, mgr. Tyee mine showed rich ore on surface, but deeper development was disappointing, proving property unequal to supplying smelter.

LANARK EXTENSION MINING CO.

Spokane, Wash.

Directors: James Duncan, pres.; Wm. B. Dornberg, vice-pres.-mgr.; F. J. Kilner, secy.-treas.; J. M. Bengel and E. C. Tousley, all of Spokane. Washington corporation. **Property:** The Dorothy group of 3 claims in Revelstoke div., near Illecillewaet, adjoining Lanark mine. **Class of Ore:** Said to be almost identical with that of the Lanark; vein possibly an extension, 8 ft. wide, with 2 ft. of ore, said to net \$45 ton silver and gold. Believed inactive.

LANARK MINING CO.

Yakima, Wash.

Capital: \$200,000; par value, 10c; Washington corporation; non-assessable. **Directors:** Wm. B. Dornberg, Spokane and Revelstoke, pres.-mgr.; Henry H. Schott, Yakima, Wash., secy.-treas.; Ella B. Dornberg, Revelstoke, vice-pres.; E. C. Tousley, Spokane; W. A. Cox, L. L. Thorpe and M. H. Abbey. **Property:** Sixteen crown-granted claims in Revelstoke div., near Illecillewaet. Developed extensively by Horne-Payne Syndicate 20 years ago. **Class of Ore:** One ore-shoot 150 ft. long and 10 ft. wide, averages 10% lead, 10 ozs. silver, and 10% zinc. **Shipments:** In 1917, 207½ tons of concentrates, netting \$132.50 to the ton, and 469.9 tons of crude ore netting \$22.90 to the ton. In 1916, 15 carloads crude ore shipped that netted about \$13,000 in lead-silver. Former owners, including the Horne-Payne Syndicate, said to have produced \$600,000 gross, though close figures are lacking. **Equipment:** Power plant to cost \$30,000, is to be provided in 1918, to generate 200-h.p. for mine and 100-h.p. for mill, equipment of 25-h.p. oil engine, 8x8 compressor and 10-h.p. gas engine proving inadequate. With the new power plant, the mill is expected to handle 100 tons daily that will average 8% lead, 10% zinc and 7 ozs. silver. **Development:** Includes 2000 ft. of underground workings all on vein. Has been opened by adit tunnels to a depth of 1000 ft., with estimated reserves worth \$600,000. Twelve men are working. **Informant:** President.

LASQUETI ISLAND MINING CO., LTD.

Vancouver

Capital: \$500,000; par value, 25c. **Officers:** R. A. Mather, pres.; A. D. Tennant, vice-pres.; John D. Mather, secy.; Geo. E. Winter, treas. **Property:** Three claims in Nanaimo div., on Lasqueti and Texada islands. **Class of Ore:** Average assays 10% copper and 1 oz. in gold. A 20-ft. vein is credited with having several pay-streaks 6 to 24 inches wide. **Development:** Is by tunnel on the vein.

LAST CHANCE MINING CO.

Sandon

Owns Last Chance group on Reco Mt., near Sandon, Slocan dist., capitalization and directorate not obtainable. Operated extensively 20 years ago by company, which included Dr. W. A. Hendryx, of New York; Biggerstaffe Wilson and Louis Pratt as largest owners. No development for many years. Lowest workings and aerial tramway to C. P. R. tracks now being used by Rosebery-Surprise M. Co. (q.v.) Paid \$213,109 in dividends up till 15 years ago.

LEAD QUEEN MINING SYNDICATE.

Calgary, Alta.

Head office, 131 6th Ave. W., Calgary. **Property:** Four claims in Golden div., on Porcupine creek, 2½ miles N. W. of Wapta, on main line Canadian Pacific railway. Porcupine creek runs into Kicking Horse river at Wapta. **Class of Ore:** Four assays show trace of gold, silver from 0.10 to 5 ozs.; copper from trace to 0.75%; zinc 3.1% to 4.22%; lead from 0.75% to 59.72%. High value in silver and lead from sample taken across vein for width of 6 inches from hanging wall. Vein traced on surface 3000 ft. with average width of 20 ft. Chief mineralization is against hanging wall and consists of galena, zinc blende and gray copper. **Development:** All work confined to surface, from which assays were made. **Informant:** Engineer of Co.

LEO MINING CO.

Spokane, Wash.

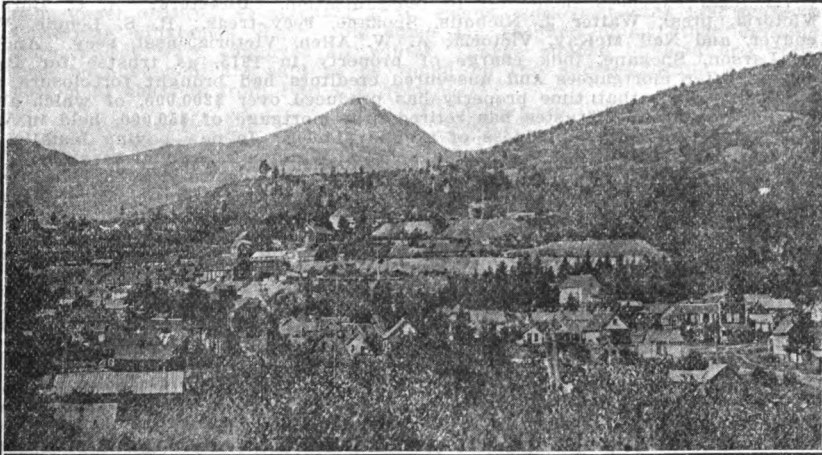
Absorbed Albion M. Co. (q.v.) in 1916. **Capital:** \$50,000; par value, 5c; assessable to \$20,000, not to exceed half mill per month; Washington corporation. **Directors:** Thomas Hooker, pres.; Samuel Hanauer, vice-pres.; G. W. Roche, secy.-treas.; Walter G. Merryweather and W. S. McCrea, all of Spokane. **Annual Meeting:** First Thursday February. **Property:** Albion claim and Pearl fraction, both crown-granted, in Ainsworth div., near Ainsworth. **Class of Ore:** Chiefly lead and silver, with some zinc and a little copper and gold. **Development:** Tunnel in 625 ft., taps vein at depth of 350 ft.; 300 ft. drifts. Co. owns perpetual right to use Black Diamond tunnel, from which a drift runs into property at about 1000 ft. depth. **Informant:** Secretary, W. 1005 11th Ave., Spokane.

LE ROI MINE.**Rossland**

Owned by Consolidated Mining & Smelting Co. of Canada (q.v.) Original discovery in Rossland district. Operated by Spokane company—LeRoi Mining Co.—from the early '90s to 1898, when it was sold to British-American Corporation, of which late Whittaker Wright, of London, was promoter and who was represented by ex-Governor Charles H. Mackintosh in this and other purchases in district. Le Roi brought \$4,000,000, making big fortunes for Judge George Turner, Col. W. W. D. Turner, I. N. Peyton, W. J. Harris, Ed. Sanders, Major J. M. Armstrong, Col. W. M. Ridpath, L. F. Williams and smaller fortunes for another dozen Spokane men. Valentine Peyton, Los Angeles, was also big beneficiary. Mine now developed by 17.10 miles of underground workings. Paid \$1,475,000 dividends prior to sale.

LE ROI NO. 2 CO., LTD.**London, Eng.**

Capital: £600,000; par value, £5; British corporation. **Head Office:** 539 Salisbury House, London Wall, London; Secy., F. A. Labouchere. **Mine Office:** Rossland, B. C. **Directors:** Lord Ernest W. Hamilton, A. B. Dealtry, H. G. T. Hawes, H. W. Morrison and C. H. Campbell. Ernest Levy, Spokane, resident mgr. **Annual Meeting:** First part of March. **Dividends:** To date, \$1,547,577, or \$12.90 per share. **Property:** About 200 acres, crown-granted, in Trail div., at Rossland, the best known claims being Josie, Annie and Number One; also 5 claims in Ymir dist. **Class of Ore:** Hand-picked ore, as shipped, assays: Gold, 0.6062 oz.; copper, 2.62%; silver, 1.7611 ozs. **Formation:** Volcanic and other ig-

**Mines of Rossland, B. C.**

neous rocks; ore occurring in fissure veins, shear-zones and replacement deposits. **Equipment:** 40-drill compressor, leased; 150-h.p. electric hoist, a 60-ton concentrator that makes a product of 59% copper, 0.83 oz. silver and 1.02 ozs. gold to ton. **Development:** About 13 miles of underground workings. Recent exploration has been in northern territory, and on ninth level what is believed to be Number One vein, from which a valuable production was made up to 15 years ago, has been discovered. Good assays have been secured, but no shipping ore at time of last report. Ore shipped both to the Trail and Grand Forks smelters. **Informant:** Ernest Levy, resident mgr., 905 Old National Bank bldg., Spokane.

LIGHTNING CREEK GOLD GRAVELS & DRAINAGE CO., LTD.**New York**

Capital: \$3,000,000; par value, \$5; capital and surplus, \$1,200,000; non-assessable; B. C. corporation; head office, 405 Lexington Ave., New York. **Officers:** Pres. Isaac Loewenstein; vice-pres., J. R. Seal; cashier, J. S. Hill; secretary, Wilson M. Taylor, Md.; treasurer, C. H. Unverzagt, N. Y. **Property:** Twenty miles of placer ground along Lightning creek, Cariboo div. **Class of Ore:** Owing to the narrow gorge-like character of valley, values are highly concentrated in bed-rock gravels which average about 60 ft. wide. Depth of bed-rock from 150 to 175 ft. Chief values are in lower 5 or 6 ft. on bed-rock and also in bed-rock, which is slate and soft for a couple of feet. Mining by shafts and drifts, a blanket of gravel being mined off bed-rock as in coal mining. About \$20,000,000 has been taken from 2 miles of the bed-rock channel at the upper

end. Estimated values run high. **Equipment:** Sawmill, electric light plant, general supplies of pipe, iron and steel, a No. 3 Keystone drilling rig, an overshot and turbine water wheel, 4 engines, 3 steam hoists, total cost, \$125,000. Operations to begin in spring of 1918. **Informant:** Treasurer.

LITTLE BILLY MINING CO.

Van Anda

Property: Fifty-one acres leased, in Nanaimo div., on Texada island, near Van Anda. **Class of Ore:** Assays of carefully sorted ore show 2% copper, about 1 oz. gold and 4 to 6 ozs. silver. Ore body 8 ft. wide. **Equipment:** 80-h.p. boiler, hoist, 5-drill compressor, small concentrator with sorting tables, trestle and tram to tidewater. **Development:** Shaft down 260 ft. **Informant:** H. L. Westcott, secy.-treas., Van Anda, B. C.

LUCKY JIM ZINC MINES, LTD.

Victoria

Capital: \$6,000,000. Par value, \$1. Non-assessable. British Columbia corporation. **Original Capital:** \$2,500,000; increased January, 1918, to \$6,000,000, to cover over-issue of capital stock, made while G. Weaver Loper was managing director and transfer agent, with offices at Spokane, Wash. Present secretary places over-issue at 3,094,000 shares. Expected that 500,000 shares will remain in treasury after over-issue is covered. **Bond Issue** of \$130,000, issued by Loper to himself and held as collateral for alleged advances of company, turned back to company late in 1917 and approximately \$20,000 then issued to cover legal expenses incidental to reorganization. **Directors:** A. C. Burdick, Victoria, pres.; Walter J. Nicholls, Spokane, secy.-treas.; R. S. Lennie, Vancouver, and Neil McKay, Victoria; A. W. Allen, Victoria, asst. secy. Andrew G. Larson, Spokane, took charge of property in 1915, as trustee for B. C. courts, after mortgagees and unsecured creditors had brought foreclosure proceedings. Since that time property has produced over \$200,000, of which about \$80,000 was profit. Trustee has retired first mortgage of \$50,000, held in Winnipeg, and floating indebtedness of around \$14,000. Is now paying installments on second mortgage of \$35,000, also held in Winnipeg. **Annual Meeting:** May 1st. **Property:** 9 full claims and 2 fractions, all crown-granted; at Zincton, near Bear Lake, on the Canadian Pacific branch R. R., Slocan dist. **Class of Ore:** Zinc-blende, with small percentage of galena in lime gangue, ore bodies occurring in association with a series of lime bands. **Equipment:** Steam plant for compressor of four drills and water power plant for another compressor of same capacity. Company has no mill equipment and has thereby been handicapped severely. **Development:** Property worked more or less continuously since discovery of Slocan district in early '90s. At one time under bond to Eugene and William Braden, and later owned by late G. W. Hughes, who shipped extensively 15 years ago. Present company acquired property from Hughes estate in 1909, for \$135,000, first payment being made in February, 1909, and last in February, 1912. Total depth, at this time, is 800 ft., with larger portion of production from No. 5 level, where several very large stopes have been opened. Property generally regarded as largest sulphide zinc mine in B. C. **Note:** Over-issue of stock by G. Weaver Loper, who acted as transfer agent in Spokane, constitutes one of the greatest scandals in history of local mining affairs. Loper failed to cancel certificates sent in for transfer, and defalcations, covering several years, have finally been placed at 3,094,000 shares. Practically all spurious stock was hypothecated with Spokane money loaners, at about ¼ of current market quotatinos, and at exorbitant rates of interest. When situation became known, through loss of control of company by Loper in 1916, money-loaners faced complete loss, unless they could succeed in increasing capital stock and establishing illegal issue upon same basis as genuine stock. This plan was finally adopted early in 1918. In May, 1918, authorities are being pressed to prosecute Loper, who left Spokane immediately following exposure by Northwest Mining Truth. During past few years, stock was grossly manipulated upon Spokane Stock Exchange, which removed issue from official list in 1917. Prior to transfer to present company, mine paid \$16,000 in dividends.

LYNN CREEK ZINC MINES CO., LTD.

Vancouver

Capital: \$2,000,000; par value, \$1; non-assessable; B. C. corporation. **Directors:** W. A. Ward, G. A. Phelps, G. Bower, P. D. Thygesen, all of Vancouver, and V. A. G. Elliot, Victoria. Property held under lease and bond. **Annual Meeting:** Third Wednesday in February. **Property:** Two crown-granted and 7 un-crown-granted claims in Vancouver div., on W. fork Lynn creek, about 10 miles N. of Vancouver. **Class of Ore:** Main vein, zinc, 8 to 45%; Fleming vein, silver, 20 to 25 ozs.; lead, 10 to 12%; zinc, 5 to 25%. **Development:** Open cuts and short adits have opened "main" vein at various points for about 2000 ft., showing a width from 10 to 30 ft. Only open cuts have been made on Fleming vein. **Informant:** Russel Prentice, chief stockholder, P. O. box 580, Vancouver.

MADISON GROUP.**Sandon**

Consists of Argenta, Madison, Great Eastern and Mardon Fraction, on Reco Mt., approximately 1 mile from Sandon, B. C. Owned by Slocan Sovereign Mines, Ltd. (q.v.) No work on company account has been done for approximately 15 years. Property under lease and bond to Spokane company for short time in 1916. Formerly owned by Eaton & Price, some very rich shipments having been made in earlier days.

MANGANESE GROUP.**Kaslo**

Owned by A. J. Curle, of Kaslo, and A. G. Larson, of Spokane. Located 6½ miles from Kaslo, on Kaslo & Nakusp Ry., in Slocan dist. **Class of Ore:** Manganese, assaying 42.06%; iron, 1%; moisture, 13.12%; silica, 4%; phosphorus, 0.01%. Only a small amount of development work done, but property generally believed of great promise. In March, 1918, B. F. Millard, of Seattle, Wash., secured option for \$120,000 and first payment has been made. Understood extensive operations will be undertaken and that payments are to be made monthly until entire purchase price is retired.

MASTODON MINING CO.**Lethbridge, Alta.**

Property: Group of 10 claims, 23 miles N. E. of Revelstoke, between La Forme and Carnes creeks, in Revelstoke division, N. W. Kootenay dist. Formerly known as Noble Three group. **Class of Ore:** Silver, smelter returns, 23.3 ozs. per ton; lead, 46.7%; zinc, 15.7%. Vein from 3 to 6 ft. wide. A force of men, under direction of Manager J. W. Evans, worked steadily last season until Christmas, sinking a shaft, now down 110 ft., and doing other development work, and 6 were employed all winter. Large chunks of lead ore, weighing 1000 pounds each, are said to be found on the surface, while ore shoot at bottom of shaft is from 1 to 4 ft. wide.

McALLISTER MINING & MILLING CO.**Spokane, Wash.**

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** Wm. M. Bennett, pres., Sandon, B. C.; W. G. Clark, vice-pres.; S. W. Hoag, secy.-treas., Spokane. **Annual Meeting:** Second Wednesday in April. **Property:** 3 crown-granted claims and 1 fraction, on north fork of Carpenter creek, 4½ miles from Three Forks, Slocan dist. **Class of Ore:** Dry silver. Closed down in 1914. Total shipments, 6 carloads. **Equipment:** Good buildings—no machinery. **Development:** By 3 tunnels, to depth of 250 ft. **Informant:** S. W. Hoag, secy.-treas.

MCGILLIVRAY CREEK COAL & COKE CO.**Coleman, Alta.**

Capital: \$2,500,000. Par value, \$1. Formerly a Washington corporation, with headquarters at Spokane, but disincorporated, and reorganized 1917 as Canadian corporation, to save payment of taxes in both Canada and U. S. **Directors:** Lorne A. Campbell, pres., Rossland, B. C.; Jas. A. Nowell, vice-pres.; H. L. Simons, Fitzhugh Burns, W. E. Cullen, secy., Spokane, Wash. Stock largely owned by residents of Spokane. Net earnings of Co. for year ended March 31, 1917, \$73,343, and two dividends, totaling \$48,781, were paid in same period. Assets, including cash, accounts, bills receivable, merchandise, inventories, plant, buildings, railway sidings and coal lands, were \$2,899,774. Liabilities, including accrued pay-rolls, accounts payable, townsite reserve, unclaimed dividends, balance at credit, balance carried forward, and in reserve for depletion and stock issued, amounted to \$603,059. **Note:** Extra dividend of 1 cent per share, or \$24,143, declared May, 1918.

MCGILLIVRAY MOUNTAIN MINES, LTD.**Chilliwack**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Samuel A. Cawley, M. P. P., pres.; G. H. Raine, secy.-treas.; J. M. Williams, J. A. Evans, Alex. Johnston, all of Chilliwack; Wm. Taylor, Abbotsford. **Property:** 150 acres, unpatented, on McGillivray Mt., head of Roaring creek, in Bridge River division, Lillooet district. **Class of Ore:** Silver, copper, lead and gold. **Equipment:** Blacksmith shop, cabins, etc. No shipments. In 1916, main crosscut was extended to 135 ft.; footwall of vein was broken through, and drift extended along footwall 75 ft. Said to be 6 ft. of quartz in face of drift. Co. intends to drive 200 ft. further, to intersect main ore shoot. **Informant:** J. M. Williams, mgr.

MILLER CREEK MINING CO.**Spokane, Wash.**

Organized over 20 years ago to acquire property adjoining Wonderful mine (q.v.), near Sandon, B. C. In 1913, 5-year lease and bond given in conjunction with Wonderful Group Mining Co., Ltd. (q.v.), for \$75,000, to Clarence Cunningham.

MINNEAPOLIS & TEXADA COPPERITE CO., LTD. **Minneapolis, Minn.**

Capital: \$1,000,000. Par value, \$1. Arizona corporation. **Directors:** C. F. Stremel, pres.; E. E. Rorem and John Kraft, vice-pres'ts.; A. E. Barker, secy.; Wm. Boffending, treas.; Eden Schmidt, Hilmer Olson, B. F. Laffin and W. H. Curtis, all of Minneapolis. **Offices:** 1311 Washington Ave. N. **Property:** 5 claims, 240 acres, on Texada Island, 47 miles N. W. of Vancouver, showing two main veins, carrying ore of average of 4% copper, 2% lead and \$5 gold and silver. Acquired from Norsemen Exploration Co. (q.v.).

MINNESOTA GOLD & SILVER MINING & MFG. CO. **Detroit, Minn.**

Capital: \$300,000. Par value, \$10. Assessable. **Directors:** R. H. Batty, pres.; G. C. Nunn, secy.-treas., both of Detroit, Minn.; S. G. Trickey, Alvarado, Minn., and Ephraim Johnson, Warren, Minn., vice-pres'ts.; J. G. Lindgren, Hallock, Minn. **Annual Meeting:** Jan. 16. **Property:** Triune mine, 6 claims, 8 miles S. E. of Ferguson; Metropolitan mine, 8 claims, 8 miles N. of Ferguson; Reward mine, 21 claims, 1½ miles E. of Ferguson; Triune Creek timber lot, 400 acres, 7 miles E. of Ferguson, Lardeau district, B. C. All crown-granted. **Class of Ore:** Silver-lead, with \$5 to \$15 per ton in gold. **Equipment:** On Triune mine, 2 tramways, cabins, shop, sorting rooms and store room, steel rails, and 1000-lb. dumping ore cars. Reward mine: steel rails, 4000-lb. ore car, cabins, shops. Shipments, 27 3/5 tons, returns, \$150.92 per ton. **Development:** On Triune: 4000 ft. of tunnels, crosscuts and raises; on Reward: 400 ft. of tunnel work done in 1917; Metropolitan, 250 ft. of tunnels. **Informant:** Pres.-Mgr. Batty. **Note:** Closed down Oct., 1917, owing to smelter troubles at Trail. Resumption promised early in 1918.

MINNESOTA SILVER CO., LTD. **Sandon**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** W. H. Yawkey, pres.; J. M. Low, vice-pres.; F. R. Poss, secy.-treas.; all of New York; W. M. Bennett, Sarah Bennett, Sandon. **Property:** 3 crown-granted claims, near Sandon, Slocan district, known as Ivanhoe group, on divide between Carpenter and Four Mile creeks. **Class of Ore:** Silver-lead-zinc. **Equipment:** Compressor, aerial tramway and milling plant, 1 mile below Sandon, on Carpenter creek, built by Rosebery-Surprise M. Co. (q.v.) to replace Ivanhoe mill, burned in 1915, and used jointly under 2-year agreement. **Development:** Extensive, many hundreds of thousands of dollars having been expended up to 10 years ago by late W. H. Yawkey, Sr., of Detroit. In 1916, mine was re-opened by lessees working in association with W. H. Yawkey, Jr., of New York, who owns practically entire capital stock. Some shipments made last winter and important milling reserves provided. Understood company will begin milling operations at Surprise-Ivanhoe mill this spring, as soon as Rosebery plant of Rosebery-Surprise Mining Co. is completely remodeled.

MONITOR MINE. **Three Forks**

Owned by Rosebery-Surprise Mining Co., Ltd. (q.v.) by purchase in 1917. Located by George Petty in 1894 and \$60,000 worth of surface ore shipped within ninety days. Subsequently passed to Ajax Mines Co., Ltd. (q.v.), controlled in France, which erected concentrating plant at Rosebery to treat ores, which became baser with depth. Dividends of \$27,500 paid in early history of company. Idle for ten years, until taken over as above.

MONTANA CONTINENTAL DEV. CO. **Butte, Mont.**

Capital: \$150,000. Par value, \$1. Non-assessable. **Directors:** J. E. Oppenheimer, pres.; John Cohen, treas.; P. C. Gillis, secy. Took 2-years' lease on property of Rocher de Boule Copper Mining Co., on Rocher de Boule Mt., Skeena district, lease expiring February 12, 1916. Co. was organized mainly by stockholders in Rocher de Boule Co., to help that Co. raise funds for equipment and development, and after installing extensive equipment, including tramway, and doing considerable development work, consisting of 1200 ft. of crosscuts, 1600 ft. of drifts, 700 ft. of raises and 100 ft. of winzes, putting property on production basis of 3000 tons per month, turned it over to Rocher de Boule Co. in January, 1916. About 90 men were employed under direction of Manager Daniel J. Williams. **Informant:** Daniel J. Williams, manager.

MONTEZUMA GROUP. **Kaslo**

H. Glegerich, Kaslo, owner. On south fork of Kaslo creek, about 6 miles from Kaslo, Slocan district. Operated by Montezuma Mining Co., of which L. L. Patrick, of Goldfield, Nev., was manager, 20 years ago. Company built concentrator, which was later destroyed by fire. Present owner acquired title by foreclosure. Shipped some accumulation of zinc ore in 1917.

MOTHER LODGE-SHEEP CREEK MINING CO.**Sheep Creek**

Capital: \$1,250,000. Par value, \$1. **Directors:** John McMartin, pres.; Alex. L. Smith, secy.; Duncan McMartin, John K. Erskine and William Watson, all of New York. **Property:** On Sheep Creek, Nelson district. **Class of Ore:** Gold; ore-body said to be 35 ft. wide on 6th level. **Equipment:** 100-ton mill, cyanide plant, and 3600 ft. aerial tram connecting mine and mill. **Development:** 2093 ft. of drifts, crosscuts, raises and shafts. In 1915, dividend of 11% was declared, but mine closed in 1916. Property proved great disappointment after much stock activity in New York, where John McMartin, of Cobalt and Porcupine, had large following. Generally believed values too low for operation on generous scale outlined. Lack of power for milling equipment also important factor. Mill, designed and constructed by Merrill Engineering Co., San Francisco, among most complete in B. C.

MOUNTAIN CON. MINING CO.**New York**

Capital: \$100,000. Par value, \$1. Non-assessable. **Directors:** F. R. Poos, pres.; J. M. Low, secy., both of New York; W. M. Bennett, treas.-mgr., Sandon, B. C. **Property:** 2 crown-granted claims at head of main Carpenter creek, 7 miles from Sandon, B. C. **Class of Ore:** Gold, \$2.00; silver as high as 800 ozs. per ton; lead, 30%. **Shipments:** Last year, 120 tons, value, \$50,000. **Equipment:** Camp and tools for 10 men. No machinery. **Informant:** Treasurer-Manager W. M. Bennett. **Note:** Property on extreme summit in precipitous country and can only be operated in midsummer months. Shows small, but extremely rich, vein, in granite, from which highest grade ore ever produced in Slocan district has been shipped. Operations for several years have resulted in good profit.

MULTIPLEX MINING, MILLING & POWER CO., LTD.**Revelstoke**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** O. T. Bibb, pres.; F. G. Wrightson, secy.-asst. mgr.; Joseph Stevenson, all of Revelstoke; J. G. Hilberry, Red Willow, Alta.; L. P. Schooling, Standard, Alta. **Property:** Multiplex claims Nos. 1 to 3; ½ interest in Spider, Mabel and American Bible; ¼ interest in Excise and Duty, and hold in own right Gold Standard, Nueva Dinero, New Thought and Cosmic claims, all at Camborne, Lardeau division. **Class of Ore:** Silver, lead, zinc and gold. **Equipment:** Track and dump car, 4 blacksmith shops, 4 sets drills, bunk and cook houses, etc. Only 12 tons shipped for testing purposes. **Development:** About 1500 ft. of tunnels, shafts, open cuts, stopes, etc. Machinery purchased for first unit of concentrator, to be installed near Camborne. **Informant:** F. G. Wrightson, secy.-asst. mgr.

NEW CANADIAN METAL CO.**Nelson**

Control held in France. Mine under management of S. S. Fowler, Nelson. **Property:** Bluebell mine at Riondel, near Ainsworth. **Class of Ore:** Lead-silver. **Equipment:** Mill, with Blake crushers, rolls, jigs, trommels, Huntington mills, Wilfley and Deister tables. Concentrates contain 48% lead, 12 ozs. silver, and 3% zinc. Mine production, 250 tons daily. **Development:** 675 ft. incline shaft of 35 degrees. Vertical depth below level of Kootenay lake, 375 ft.; oxidized ore found at that depth. A force of 100 men employed for 7 months last year. Property worked by the Hudson Bay company as far back as 1825, and it is said that, at even earlier date, Indians there obtained lead for bullets. In '80s mine was acquired and operated extensively by Hendryx family, of Connecticut. Pilot Bay smelter was built to treat ore, but, largely owing to lack of transportation, project was unsuccessful. Under present management and high metal prices, understood good profit has been made.

NEW DOMINION COPPER CO., LTD.**New York**

Reconstruction of Dominion Copper Co., formerly Montreal & Boston Copper Co., now controlled by British Columbia Copper Co., which, in turn, is controlled by Canada Copper Corporation (q.v.). Property includes old smelter at Boundary Falls, mill sites, townsites, and mining property in Phoenix, Deadwood, Wellington and Summit camps, Yale district. All ore-bodies of very lowgrade and unworkable under normal conditions. Little development during past ten years.

NOBLE FIVE GROUP.**Sandon**

Owned by James Dunsmuir, Victoria, who acquired title by foreclosure from Noble Five Mining Co., Spokane, ten years ago. During last three years under systematic development, 3000 ft. crosscut has been driven to cut vein at nearly 2500 ft. below apex of Reco Mt., upon which it shows on surface. Crosscut cut both Noble Five and Last Chance veins and former is said to be developing satisfactorily, with average width of 16 ft. Four-compartment vertical raise of 1300 ft. is being put up to upper workings. **Property:** Consists of Noble Five and Deadman groups, near Cody, Slocan district. **Equipment:** Includes 100-ton concentrator, built by former owners, compressor and aerial tramway from lowest level, built by present owner in 1916. Understood mill

has been overhauled preparatory to extensive operations in 1918. Property among earliest locations in district, having been discovered by "Noble Five" partnership, consisting of "Bill" and "Jack" Hennessey, late Jack McGuigan, late Jack Seaton and Frank Flint. Shipped highgrade surface ores in early days and paid \$50,000 dividends, but ore became baser with depth and company got into financial difficulties.

NOONDAY MINES CO., LTD.

Spokane, Wash.

Capital: \$750,000. Par value, 25c. Non-assessable. **Directors:** Bruce White, pres.; Sandon; Roy C. Lammers, vice-pres.; Jessie M. Scott, secy.; John B. White, treas.; H. S. Burdick, all of Spokane. **Property:** 23 crown-granted claims, including Noonday group at Cody and Slocan King and Hidden Treasure claims, adjoining Slocan Star, near Sandon, Slocan district. **Class of Ore:** Silver-lead-zinc. **Equipment:** Machine drills at Slocan King group, actuated by air from Slocan Star compressor. Hand work at Noonday. **Shipments:** In 1917, 120 tons crude ore from Noonday, netting \$14,000. **Development:** At Noonday, to vertical depth of 700 ft.; Slocan King through Slocan Star No. 4 tunnel. Noonday vein very persistent with large reserves of milling ore. Slocan King prospected to some extent in 1917, strike of good ore being reported in Hidden Treasure claim in December, 1917, at depth of 400 ft.

NORSEMAN EXPLORATION CO.

Minneapolis, Minn.

Capital: \$500,000. Par value, \$1. **Directors:** E. E. Rorem, pres.; W. H. Curtis, vice-pres.; C. A. McKenzie, secy.; A. T. Rorem, treas.; B. F. Loflin, E. A. Barker and Eden Schmidt. **Property:** 20 claims, 1200 acres, 730 patented, on Texada Island. **Class of Ore:** Copper, 14%; gold, \$11 per ton. Vein said to show 10 ft. of ore, carrying silver values also. **Development:** 292 ft. of vertical shafts, 175 ft. of crosscuts. Three claims sold to Minneapolis & Texada Copperite Co., Ltd. (q.v.), of Minnesota, which is developing same. Property only 20 miles from smelter and regarded as promising. No recent report.

NORTH STAR MINING CO.

Toronto

Property: On North Star hill, near Kimberly, East Kootenay district, B. C. The first silver-lead mine in district, having been located in 1892. Operated extensively in '90s by Mann and MacKenzie interests, but idle for many years until 1917, when option was taken by Federal Mining & Smelting Co. (See Idaho), which has since conducted extensive diamond drilling operations. Official report of latter, issued April, 1918, says option will probably be allowed to lapse, as no ore-bodies of importance have been found. Ore similar to that of Sullivan mine of Consolidated Mining & Smelting Co., and complex.

NUGGET GOLD MINES, LTD.

Victoria

Capital: \$500,000. Non-assessable. **Directors:** O. C. Burdick, pres.; N. F. Mackay and G. P. Player, all of Victoria; R. S. Lennie, vice-pres., Vancouver; A. E. Rand, New Westminster; W. B. Pool, Spokane, Wash. **Property:** Nugget group of 3 claims, and Searchlight group of 3 claims and 1 fraction, all crown-granted, on Sheep creek, near Salmo. **Class of Ore:** Gold, free milling, of average value of \$15 per ton. Total shipments, \$283,552.57. Now idle. **Equipment:** 5-stamp mill. **Development:** 5800 ft. of crosscuts, drifts, raises and winzes, opening property to vertical depth of 450 ft. below apex. Property not operated since purchase of Nugget group, in 1913, and Searchlight group, in 1915. **Informant:** R. S. Lennie, vice-pres.

NUMBER ONE MINE.

Sandon

Property adjoining Sovereign, on Reco Mt., Slocan district, near Sandon. Owned by J. M. Harris and F. T. Kelly, now under lease and shipping small amounts. Important strike reported winter of 1917.

OBSERVATORY MINING CO.

Carmi

Owners: Jas. C. Dale and A. S. Black, of Carmi. **Property:** Crown-granted claim, 1500 ft. square, on Observatory Mt., 1½ miles from Kettle Valley Ry., Greenwood division. **Class of Ore:** Gold, \$3 to \$10, and silver, 20 ozs. per ton, with low percentage of zinc. Total shipments, 10 tons, average value \$50 per ton. **Development:** 120 ft. of tunnel, 20-ft. shaft, and numerous open cuts. **Informant:** Jas. C. Dale, manager and part owner.

OHIO MINES DEV. CO., LTD.

Cincinnati, Ohio

Capital: \$1,000,000. Par value, \$5. Non-assessable. **Directors:** Godfrey F. Park, pres.; Theodorie W. Mitchell, secy., both of Cincinnati, O.; A. L. Houston, Ferguson, B. C. **Property:** Broadview group of 12 crown-granted claims, and 160 acres crown land for mill site and timber, on Great Northern Mt., 1 mile N. of Ferguson, Trout Lake district, B. C. **Class of Ore:** Iron, copper, lead, zinc, gold and silver. A 200-ton shipment carried lead, 38%; silver, 44 ozs.; gold, \$2 per ton; copper, 3%; zinc, 9%. **Development:** Over 2000 ft. **Total**

Shipments: 700 tons, smelter returns being from \$9 to \$158 per ton. Idle for want of capital to install proper equipment. **Informant:** A. L. Houston, B. C. representative.

OLALLA COPPER MINING & SMELTING CO.

Paterson, N. J.

Capital: \$8,000,000. Par value, \$25. Maine corporation. **Directors:** Robert Gaede, pres.; Joseph Bamford, Jr., vice-pres.; John E. Tylee, secy.-treas.; F. A. Blauvelt, W. N. Conant, Robert Swinley, H. C. Royce and F. E. Morrison. **Property:** 32 crown-granted claims, 1183 acres, at Olalla, lower Similkameen, and Keremeos camps, Osoyoos division, Yale district; 12 claims adjoining town-site of Olalla, and Dividend group of 7 claims, 17 miles distant. **Class of Ore:** Copper, 1.5 to 5%; gold, \$1 to \$7 per ton, with small silver values. **Development:** 1054 ft. of workings, mainly tunnels. **Note:** Leased for 25 years to Yale Dev. & Construction Co. (q.v.), organized among stockholders of company.

OLIVE A SILVER-LEAD CO., LTD.

Spokane, Wash.

Capital: \$100,000. Par value, 5c. Non-assessable. **Directors:** J. W. Beckett, pres.; Archie McAlpine, vice-pres.; R. E. Porterfield, secy.-treas., all of Spokane. **Property:** Bond of \$40,000, extending over period of 3 years, on 3 claims on Gallagher Mt., 3½ miles from Ainsworth, Ainsworth district. **Class of Ore:** Silver, 90 ozs. to ton. **Equipment:** Gasoline air compressor and machine drills for 20 men, tools, etc. Total shipments, 13 tons, smelter returns, \$1130. **Development:** 180 ft. of shafts, 510 ft. of new tunnel, with upraise to connect with bottom of ore shaft. Upraise encountered ore on footwall, about half-way up, and drift from this point developed 5 ft. of good milling ore. **Informant:** Pres. J. W. Beckett.

ONE HILL MINE.

Minneapolis, Minn.

Owner: Dr. G. G. Eitel, Minneapolis. Under lease to W. B. DeWitt, of Sheep Creek. **Property:** 5 claims at head of Coon creek, in Sheep Creek district, B. C. **Class of Ore:** Gold, \$3 and up; silver, 2 ozs. up; lead, from 6 to 23%; zinc, 6 to 19%. Some ore has run \$76 per ton in gold, silver and lead. **Equipment:** 2-stamp mill, Johnson vanner, 2 pipe-lines, several good buildings. **Development:** 4 short tunnels, and some open cuts. **Informant:** W. B. DeWitt, lessee.

OUTSIDER MINE.

Spokane

Principal Owner: Martin Woldson, Spokane, holding lease and bond from American Savings Bank & Trust Co., Seattle. **Property:** 8 claims, at Maple Bay, Portland Canal. **Equipment:** Compressor plant, tidewater ore bins and docks, Riblet aerial tramway. **Development:** By adits, to depth of 400 ft. **Shipments:** 20,000 tons under former ownership, averaging 3% copper and \$1.00 gold and silver. **Note:** During past winter, lowest tunnel extended 350 ft. on vein. Property formerly owned by Brown Alaska Co., which failed in 1907.

PANAMA MINE.

Kaslo

Owners: H. Giegerich and J. P. Miller, of Kaslo. **Property:** Panama group of 3 unpatented claims, near Bear lake, at Giegerich station, on Kaslo & Nakusp branch of C. P. R., Ainsworth district. **Class of Ore:** Silver, 125 ozs. to the ton; lead, as high as 20%. **Equipment:** Cars, blacksmith shop, and tools for handwork. Shipments, 20 tons, taken out while doing development work. **Development:** 175 ft. of crosscuts, 800 ft. of drifts, 110 ft. of winzes, and considerable stoping. **Informant:** H. Giegerich, part owner.

PARADISE GROUP.

Taken over in 1900 by late H. C. Hammond, of Toronto, and 4733 ft. of development work was done up to 1904, shipments being 1996 tons. Robt. R. Bruce purchased the property from Hammond estate in 1917, and is employing 20 men and 20 teams in taking out and hauling the ore, which averages about 30% lead and 30 ozs. silver to the ton. Shipments about 150 tons per week. Property is on headwaters of Spring creek, Windermere division, Northeast Kootenay district, B. C.

PATFINDER CONS. MINING CO.

Spokane, Wash.

Capital: \$2,000,000. Par value, 10c. Non-assessable. **Directors:** J. W. Hayes, pres.-treas.; A. E. Gallagher, G. Schmasse, A. A. Lewis, secy., all of Spokane; Dr. C. M. Kingston, vice-pres.; W. K. C. Manly, both of Grand Forks, B. C. Organized in Washington, 1918. **Annual Meeting:** April 1. **Property:** 4 crown-granted and 1 unpatented claims, including the Pathfinder and Little Bertha, in Brown's camp, on Kettle Valley R. R., Kettle River, 14 miles N. of Grand Forks. **Class of Ore:** Gold-silver-copper. **Equipment:** 80-h.p. boiler, hoist, pump, 5-drill air compressor, small gasoline hoist. Total shipments by former operators, from 200 to 300 tons. **Development:** Several hundred ft. of

workings, shafts, tunnels and stopes. Company plans driving tunnel to tap veins at depth of 1250 ft. Properties not worked much for past 15 years, owing to low price of metals. Expect to install this season aerial tram from mine to bunkers at railroad. Property all paid for, and 1,000,000 shares in treasury. **Informant:** President-Treasurer Hayes.

PATHFINDER MINE CO.

Grand Forks

Absorbed by the Pathfinder Consolidated Mining Co. (q.v.).

PAYNE MINE.

Sandon

Owned by Payne Mines, Ltd., of Montreal, promoted by Clarence J. McCuaig 13 years ago. Now being operated under lease by W. H. Burgess, of Kaslo. **Property:** Includes Payne, Maid of Erin, Two Jacks and other claims, first locations in the Slocan district, recorded by late Eli Carpenter in 1891, causing the memorable rush of 1892. Property taken over, on grubstake and cash basis, by S. S. Bailey, formerly of Spokane, who interested late Scott McDonald of Spokane and A. W. McCune, of Salt Lake. In late '90s mine was a prolific shipper from a 1200-ft. ore-shoot averaging around 18 inches of clean ore. Bailey disposed of his interests to partners and Payne Mining Co. was formed, including McCune, McDonald, M. B. Brownlee and W. A. Hoge, of Butte, Mont., with several associates. In 1900 or 1901 property was acquired by Payne Mines, Ltd., at price said to approximate \$3,000,000. Ore-bodies were further developed to No. 8 level on McGuigan side of the mountain, but results were disappointing and much trouble was experienced owing to increased zinc content of ore. A milling plant was built on the Kaslo & Slocan railroad tracks below the mine and subsequently a patent magnetic separation process was added. Ore-bodies continued to fail, however, and entire plant was wiped out by forest fires. For many years property lay idle, until 1912, when it was bonded by Slocan-Payne Mines, Ltd., promoted by W. E. Zwicky, who had been superintendent of former operating company. A 4000-ft. crosscut was run 727 ft. below the lowest workings, at total depth of 1600 ft. from surface. Results were disappointing and company retired after expending approximately \$160,000. For past two years property has been worked on small scale by present leaser, some shipments of lead-silver-zinc ore having been made from time to time. First and last, property has yielded \$1,420,000 in dividends, earned at periods when both silver and lead prices were low.

PAYNE MINES, LTD.

Montreal

Non-personal liability. William Hanson, pres.; C. H. Lowe, secy., Montreal. Details of capitalization not available. Owns Payne Mine (q.v.), near Sandon, Slocan district, covering original locations of district, now being worked in small way by W. H. Burgess, leaser. Property paid \$1,420,000 in dividends.

PERKINS GULCH HYDRAULIC.

Van Winkle

Co-partnership. **Partners:** W. S. Sparkes and I. I. Felker, Van Winkle; L. L. Felker, Boston, Mass. **Property:** 3 placer mining leases, 240 acres, in Perkins gulch, at Van Winkle, Cariboo district. **Class of Ore:** Gold, \$18.60 per oz. **Equipment:** No. 1 hydraulic plant, with ditches, reservoir, etc. Total shipments to date, \$4,952.75. Placer gravel deposit, 25 ft. deep and 150 ft. wide. **Informant:** I. I. Felker, co-partner.

FERRIER GROUP.

Nelson

Owned by syndicate composed of R. Young, A. Crossby, C. E. Crossby, R. W. Hinton, P. H. Turner, Fred A. Starkey, of Nelson; J. Lease, of Ymir, and Major C. E. Stewart, of Brighton, Eng. **Property:** 7 unpatented claims, 200 acres, on Cottonwood creek, near Nelson. **Class of Ore:** Gold, \$17; silver, 7 ozs. per ton; lead, in concentrates, 11%; zinc, 6%. **Equipment:** Huntington mill, 2 True vanners, crusher, 3-drill compressor, steam and water power. Total shipments, 400 tons milled. **Development:** 150-ft. shaft, 190-ft. drift, in 2 ft. of ore. **Informant:** Cecil E. Crossby.

PINGREE MINES, LTD.

Victoria

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. L. Stamford, pres., Victoria; Frank E. Pearce, mgr., Nelson. **Property:** Pingree and Eureka groups of crown-granted claims, in Nelson district. **Development:** About 5000 ft. of workings. **Informant:** Frank E. Pearce, mgr.

PORTLAND CANAL TUNNELS, LTD.

Victoria

Capital: \$700,000. Par value, 25c. Non-assessable. **Directors:** R. I. Elliott, pres.; E. J. Hearn, secy.; J. A. Mara, J. R. Waghorn, R. M. Stewart, all of Victoria. **Property:** 10 crown-granted claims, near Stewart, Portland Canal, also tunnel through claims of Portland Canal Mining Co., Ltd., and Glacier Creek

Mining Co., Ltd., on Glacier Creek, Skeena district. **Class of Ore:** Gold, silver, lead, and some copper. **Development:** 3629 ft. of tunnels, 4189 ft. of drifts, besides several crosscuts and raises, but ore bodies of permanent commercial values have not yet been disclosed. Idle since 1914, owing to lack of funds, but being examined in 1917, with view to reopening. **Equipment:** 4-drill water power compressor, 100-ton concentrating mill, leased from Portland Canal Mining Co. **Informant:** Secretary Hearn.

PRINCETON MINING & DEV. CO., LTD.

Princeton

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** Fred F. Foster, pres.-gen. mgr.; Guy E. Murphy, vice-pres.; Perley Russell, secy.-treas., all of Princeton. **Annual Meeting:** Mar. 1. **Property:** 3 full claims, 156 acres, 4½ miles E. of Princeton, on Gt. Northern R. R. **Class of Ore:** Copper sulphide, with silver and gold; assay values, copper, 3 to 30%; silver, 4 to 20 ozs. per ton. **Equipment:** Complete plant of machinery will be installed this season. **Development:** 4 tunnels, aggregating several hundred ft.; vertical depth on vein on completion of lower tunnel, 1500 ft. **Informant:** Pres.-Manager Foster.

QUATSINO COPPER CO.

Absorbed by Coast Copper Co. (q.v.), controlled by Cons. Mining & Smelting Co. of Canada (q.v.).

QUEEN BESS MINE.

Sandon

Owners: Clarence Cunningham, Sandon; Dr. J. G. Cunningham, Spokane. **Property:** 9 crown-granted claims, acquired under lease and bond for \$45,000, in 1915. Royalties upon graduated scale resulted in retirement of bond in 1916. Property formerly owned by Queen Bess Proprietary Co., Ltd. (q.v.), which got into financial difficulties 15 years ago. Suit was instituted by Bank of Montreal and property sold by court to John Powers, who transferred to Queen Dominion M. & M. Co. (q.v.), and latter to present owners. Mine is opened up to a total vertical depth of 1000 ft. by adits No. 1, 2, 3, 4 and 5. Level No. 10 is 500 ft. vertically below No. 5, with raise connecting. Intermediate levels, Nos. 6, 7, 8, and 9 have been run between levels No. 5 and No. 10. Levels No. 5 and No. 6 are in clean ore body, 600 ft. long on latter level and from 2 to 15 ft. wide; same ore-body also developed on No. 5 for 500 ft., and believed to extend to surface 700 ft. on dip of vein. No. 5 level connected by aerial tramway with main tram system, serving both Queen Bess and Idaho-Alamo properties. No. 10 level, 500 ft. below No. 5, is being driven to tap ore-body, believed to be approximately 1000 ft. ahead. Main ore-body being traced down from No. 5 to No. 10 by intermediate drifts known as Nos. 6, 7, 8, and 9. When ore body is developed on No. 10 level, new tramway to be built from that level and all shipments will be moved that way. Since property passed to present ownership, 75 car-loads had been shipped up to the end of March, 1918, carrying 60% lead and 90 ozs. silver, with an average value of approximately \$125 per ton. In the summer and winter of 1917 some car-loads brought as high as \$11,000. Edwin Holter, of New York, was interested as half-owner up till February, 1918, when his interest was acquired by Cunninghams under an arrangement providing for payment of net monthly profits to Holter after deduction of expense of operation. Queen Bess is now the most phenomenal mine of the Slocan district; its shipments under present ownership having been worth around \$500,000 up to March, 1918. Entire product now under contract for 2 years to U. S. Smelting Co. at Midvale, Utah. Property credited with dividends of \$25,000 earned in early days.

QUEEN BESS MINES CO.

Seattle, Wash.

Capital: \$100,000. Par value, \$10. Close corporation—all common stock. **Directors:** O. A. Thomas, pres.; H. W. Schuett, vice-pres.; Oscar P. Dix, secy., all of Seattle. **Property** (acquired by purchase outright): Noonday mines, 6 claims, 6 miles S. E. of Kamloops. Principal ore, gold-bearing. Developed by shafts, drifts and crosscuts. Not operating at present. Formerly owned by O. S. Batchelor et al., Victoria. Canada Copper mine, on Coal hill, 7 miles S. of Kamloops. **Ore:** Copper, 1.3% to 31.7%; gold, \$1.80 per ton. Developed by 100-ft. shaft, 150-ft. drift. Gold Plate group, 3 claims, near Jako lake, 9 miles from Kamloops. **Ore:** Silver-lead, with high gold values. Developed by shafts and tunnels. Canadian Northern mine, on main line C. N. R. R., ½ mile from Mitten station, 3 miles N. W. of Kamloops. Lake Group Copper, 3 claims, 6 miles N. W. of Kamloops. Large deposit lowgrade copper-gold ore under development. Queen Bess Mines, near Blackpool, on main line Canadian Northern R. R. Large veins silver-lead-zinc have been developed; spur will be built to connect with main line of railway, which crosses property. Expect to ship higher grade ores spring of 1918, and will later install mill on property for concentrating milling grade. B. F. Foote, Boulder, B. C., in charge of developments. O. A. Thomas, E. M., Seattle, genl. mgr. C. E. Max, Kamloops, B. C., Co.'s local agent and representative. Co. among most active in district. **Informant:** Oscar P. Dix Co., Seattle.

QUEEN BESS PROPRIETARY CO., LTD.

Edinburgh, Scotland

Formerly owned Queen Bess Mine (q.v.), 5 miles from Sandon, B. C. Got into financial difficulties, and through court proceedings, property went into hands of Queen Dominion M. & M. Co. (q.v.). See Queen Bess Mine.

QUEEN DOMINION MINING & MILLING CO.

Kaslo

Formerly owned Queen Bess mine near Sandon, acquired through court proceedings from Queen Bess Proprietary Co., Ltd. (q.v.), and in 1915 sold property for \$45,000, to Clarence Cunningham. Royalties resulted in retirement of bond in 1916 and company is now presumably defunct. Also see Queen Bess mine.

QUEEN MINES, INC.

Appleton, Wis.

Directors: M. E. Cannon, pres., Appleton, Wis.; E. V. Buckley, mgr., Salmo, B. C. **Property:** 16 full claims and fractions, 400 acres, all crown-granted except about 17 acres in 1 fraction, in Sheep Creek district, B. C. **Class of Ore:** Gold. **Production:** Said to be \$1,200,000. Body of free-milling gold ore, 30 ft. wide, on the 700-ft. level, was reported by Manager Buckley in 1916. **Development:** 800-ft. shaft, with drifts at each 100 ft. **Equipment:** 20-stamp mill, handling 50 tons daily, but said to be saving only 60% of the gold values. Swelling ground caused impairment of main shaft in 1916 and much money was spent in retimbering. Property believed inactive at this time and generally reported to need more modern mill equipment. Loss of values under present control has been heavy.

QUEENS HEAD MINING & MILLING CO.

Rochester, N. Y.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Wm. S. Hale, pres.; L. C. Langle, secy.; J. B. Hamilton, treas., all of Rochester, N. Y.; J. D. McMaster, gen. mgr., Churchill, N. Y. **Property:** 8 crown-granted claims, on Silver Mt., in Slocan district, B. C. **Class of Ore:** Silver, lead, zinc. Not working. **Equipment:** Small concentrating plant, with own water power. Total shipments, \$9000. **Development:** Nearly 1 mile of underground workings, consisting of 6 tunnels, upraises, stopes, etc. **Informant:** J. D. McMaster, gen. mgr.

QUEEN VICTORIA MINE.

Nelson

Owned by British Columbia Copper Co. (q.v.) Closed in 1915, after shipments of 7,920 tons of ore had been made, as mine could not be operated at profit. Property now being worked under lease by Frank Phillips and Jos. Williams, production having been rendered somewhat profitable by high price of copper. Up to Sept. 30, 1917, 1581 tons had been shipped to British Columbia Copper Co. by lessees. Large lowgrade copper deposit near summit of mountain, north of station of Beasley, on Canadian Pacific, and 7 miles W. of Nelson.

RAMBLER-CARIBOO MINES, LTD.

Spokane, Wash.

Capital: \$1,750,000. Par value, \$1. All issued. Listed on Spokane Stock Exchange. **Mine Office:** Three Forks, B. C. **Directors:** A. F. McClaine, pres.; Alfred Coolidge, vice-pres.-secy.-treas.; Dr. J. F. Hall, all of Spokane; Charles L. MacKenzie, Colfax, Wash.; Rev. P. F. Hylebos and Dr. Johnston Armstrong, Tacoma; W. A. Cameron, managing director, Three Forks, B. C. **Property:** 3 crown-granted claims, at head of McGuigan creek, Three Forks, Slocan district. **Equipment:** 100-ton concentrator on C. P. R. tracks; aerial tramway, connecting mine and mill; air compressor and all necessary camp buildings. **History:** Property, among earliest discoveries of Slocan district, shipped considerable ore 20 years ago, under management of late Richard Shea. Subsequently passed to Rambler Mining Co., controlled by C. F. Jackson, F. J. Walker, Wm. Hastie Adams, late Al McClaine and others of Spokane and British Columbia, who transferred to present corporation possibly 10 years ago, for several hundred thousand dollars. **Development:** Main opening through 5000 ft. crosscut, which failed to locate ore bodies at that level. Raises were put up, however, and large ore bodies mined on 7th, 8th, 9th, 10th and 12th levels. Ore at lower horizons contains larger percentage of zinc than in upper levels, from which some of the highest grade silver-lead ore in the district has been shipped. Under normal conditions, mine employs 50 or 60 men. Operations somewhat limited last few months, owing to troubles at Trail smelter. **Dividends:** Property has paid total of \$542,500 in dividends, of which \$385,000 was distributed prior to 1910; \$35,000 in 1915; \$87,500 in 1916; and \$35,000 in 1917. **Financial Statement:** For first 10 months of 1917, yield was 75,074 ozs. silver, 532,676 lbs. lead; 500 tons zinc concentrate, with gross value of around \$100,000. Estimate for entire year, approximately \$110,000. Cash surplus, January 1st, 1918, \$21,682, with other liquid assets bringing surplus to approximately \$35,000.

RAMBLER FRACTIONAL.

Beaverdell

Rambler fractional, crown-granted, and Standard fractional, at Beaverdell, Boundary district, owned by W. H. Rambo, are being steadily developed, with a number of shipments from both, the ore averaging over \$100 silver to the ton.

Ore also contains some zinc. Total shipments over \$11,000 to Trail smelter. Closed down for some time, but has resumed work of driving a tunnel to tap vein, 5 ft. wide, well defined, and traced through both fractions by open cuts. **Informant:** W. H. Rambo, owner.

RECO MINING & MILLING CO., LTD.**Sandon**

Capital: \$1,000,000. Par value, \$1. Non-assessable. British Columbia corporation. **Directors:** J. M. Harris, pres.; F. T. Kelly, secy.-treas.; A. H. Sanderson, all of Sandon; George A. Love, Vancouver; George B. Davis, Vernon Mills, Va. **Property:** 5 crown-granted claims, 186 acres, on Reco Mt., near Sandon, Slocan district. **Class of Ore:** Silver-lead, former running around 300 ozs. per ton, and latter 46%; now being worked by leasers. **Development:** In all about 12,000 ft. of tunnels, crosscuts and raises. Property among early locations of Slocan district, and in 1893 under option to late Patrick Clark of Spokane. Two veins have been mined, the main or Reco vein and what is known as the Goodenough, which is small but extremely rich, having produced a large portion of total shipments valued at \$1,000,000. Property has paid \$321,992 in dividends, in addition to cost of development and over-head expenses. **Informant:** President J. M. Harris.

RECORD MINING CO.**Spokane, Wash.**

Capital: \$100,000. Par value, 10c. **Directors:** John R. Cassin, pres.; W. H. Turner, vice-pres.; W. R. Orndorff, secy.-treas., all of Spokane. Temporary organization formed to define interests under trustee agreement held by John R. Cassin for purchase of California Mine (q.v.) near Nelson. As soon as development warrants, B. C. corporation will be formed and present company discontinued.

RED FOX GROUP.**McGuigan**

Group in Antoine Basin, head of McGuigan Creek, Slocan district. Owned by George H. Aylard, managing director Slocan Silver-Lead Mining Co., Victoria. Considerable development work done and some shipments made. Property is, however, in a very inaccessible spot and working conditions difficult.

R. E. LEE MINE.**Sandon**

Property consists of several claims at head of McGuigan Creek, and extending down Reco Mt. on the other side of the summit, E. of Sandon, Slocan district, upon which much development has been done and which yielded considerable tonnage in earlier years. Main workings from Sandon side of mountain, giving considerable depth. No information as to present ownership, as it has passed through many transactions involving leases and bonds. Believed, however, that it is still controlled by Lorenzo Alexander, of Victoria, one of original owners.

RELIEF MINING CO.**Bayfield, Wisconsin**

Mine Office: Erie, B. C. **Capital:** \$300,000. Par value, \$1. Non-assessable. Arizona corporation. **Directors:** Henry J. Watchmuth, pres.; Frank Stark, vice-pres.; Charles Lehi, treas.; Adolph Nelson, secy., all of Bayfield, and A. D. Westby, of Erie, gen. mgr. **Annual Meeting:** First Tuesday in March. **Property:** Second Relief group, consisting of four claims; surface rights to Big Bump claim and standing timber; one-half of surface and timber rights of Ida D. claim; all crown-granted, area, 186 acres; 13 miles N. W. of Erie, Ymir division, Nelson district. **Class of Ore:** Gold, \$15.00, and silver, \$1.00 per ton, from quartz vein in diorite. **Equipment:** Water and steam power plants; 2-mile flume; 700 ft. steel water-pipe; 3 Pelton wheels; 14-drill compressor; 3-drill compressor; electric lighting plant and milling plant, including ten 950-lb. stamps; Blake crusher; 76-h.p. engine; tube mill and cyanide plant, with capacity of 50 tons daily. **Development:** Opened by 4 adit levels, of which all faces are reported in ore. No. 4, main working level, driven over 1000 ft. on vein. One stope, 110 ft. long, contains broken ore to the height of 90 ft. Estimated tailings pile contains \$150,000 in recoverable values. **Note:** Property operated 15 years ago, upon extensive scale, by Finch-Campbell interests of Spokane; total output estimated at \$500,000. Idle for many years until 1910, when sold to A. W. Cooper, who transferred to present company. About 2600 tons treated in 1917, but operations discontinued during latter part of year, owing to scarcity of chemicals needed in operation of mill. During 1917, new equipment was added, including tables, amalgamator, and 45-h.p. engine.

RETAILLACK, J. L., & CO.**Kaslo**

Private partnership, in which John L. Retaillack, formerly of Kaslo, now attached to General Stewart's forces in France, is principal owner, and W. H. Burgess, mgr. **Property:** Whitewater mine, at Retaillack (formerly Whitewater), B. C. All claims patented. **Class of Ore:** Silver-lead-zinc. **Shipments:** In 1917, 380 tons lead ore and 502 tons zinc ore; aggregate value, \$37,000. Rate of output now, 60 tons monthly, working 50 men. **Informant:** W. H. Burgess,

Kaslo. Note: Property among earliest producers in Slocan district, being owned by J. C. Eaton, of Spokane, and W. C. Price, of Los Angeles. Twenty years ago, property sold to Whitewater Mines, Ltd., of London, England, which erected concentrator, with other equipment, and carried out extensive development. Milling plant burned some years ago. Assumed that Retallack & Co. is operating under lease from London company.

RICHMOND CONS. MINES CO.

Vancouver

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** R. Dalby Markill, pres.; H. W. Windle, vice-pres.; D. Brooks Markill, H. G. Ross, secy.-treas., all of Vancouver; Geo. H. Boulton, Kerrisdale. **Property:** 5 crown-granted claims and 2 fractions, 120 acres, on South Belt, Rossland. **Class of Ore:** Silver, 10 to 100 ozs. per ton; lead, 2 to 25%; copper, from a trace to 30%; gold, from 2 to 12 ozs. Shut down in 1913. **Equipment:** 12-drill electric compressor, electric hoist, pumps, etc. **Development:** About 2400 ft., including shafts and drifts, besides 8 open cuts from 5 to 12 ft. deep. **Informant:** Secy.-Treas. Ross.

ROCHER DE BOULE COPPER CO.

Butte, Mont.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** John F. Cowan, pres.; Herbert Cohen, secy., both of Salt Lake City, Utah; H. Fred Wey, vice-pres., Los Angeles, Cal.; J. E. Oppenheimer, gen. mgr., Butte, Mont.; D. J. Williams, mine manager, Tramville, B. C. **Property:** 6½ crown-granted claims on Rocher de Boule Mt., 10 miles from Hazelton, Omineca division, Skeena district. **Class of Ore:** Copper, carrying gold and silver. Working 80 men. **Equipment:** 225-h.p. hydro-electric plant, 175-h.p. gas engine, 744 cubic ft. air compressor, surface railroad and 4 miles aerial trams. Production to Oct. 1, 1917, 5,000,000 lbs. copper, 45,191 ozs. silver, 2399 ozs. gold; smelter return values, \$1,036,659.92. **Development:** In latter part of 1916 and all of 1917, about 8000 ft. Just finished a 3220-ft. crosscut and starting a 1046-ft. raise to connect lower level with upper workings. **Informant:** D. J. Williams, mgr. **Note:** Largest producer in Skeena district, with large reserves developed, promising long and profitable life.

ROCKLAND COPPER MINING CO.

Spokane, Wash.

Owned Rockland group of 3 crown-granted claims, on Eight-mile creek, Slocan district, under control of Jay P. Graves, founder of Granby Consolidated M., S. & P. Co. Some development done many years ago to open large lowgrade deposit of copper-gold ore. Foreclosure proceedings commenced in 1916 and property bought in by Jay P. Graves, A. L. White, and W. J. Nicholls, of Spokane, who now own it in equal interests. Some probability development will be resumed in 1918.

ROCKLAND GROUP.

Spokane, Wash.

Group of three claims, on Eight-mile creek, Slocan district, acquired in 1916, through foreclosure by Jay P. Graves, A. L. White, and Walter J. Nicholls, of Spokane, from Rockland Copper Mining Co. (q.v.)

ROSALIA MINING CO.

Rossland

Capital: \$600,000. Par value, \$1. Non-assessable. **Directors:** L. A. Carter, pres.; Fritz Marschante, vice-pres.; R. H. Janes, secy.-treas.; L. B. Whitten, Geo. Latshaw, E. L. Tate, all of Spokane; Noble Binns, Trail, B. C. **Property:** Blue Bird mine, crown-granted, at Rossland—about 40 acres. **Class of Ore:** Gold, silver and zinc. Shut down in 1915. **Equipment:** Compressor, hoist, machine drills, etc. Total shipments, 405 tons, value \$29.65 per ton. **Development:** 245 ft. of shafts, 150 ft. of tunnel. **Informant:** E. L. Tate, director.

ROSEBERY-SURPRISE MINING CO., LTD.

Chicago, Ill.

Close corporation, practically entire capital stock owned by Congressman Wm. Kent, of Kentfield, Marin Co., Cal. **Property:** Surprise group near Sandon; Bosun mine, near New Denver; Monitor mine, near Three Forks, and Rosebery mill at Rosebery. Under arrangement with Minnesota Silver Co. (q.v.), milling plant was erected on site of plant owned by that corporation at Sandon and which was destroyed by fire in 1915. Arrangement contemplated partnership use of plant. In 1917, Rosebery-Surprise acquired Rosebery mill, erected by Ajax Mines, Ltd., 15 years ago, and has placed it in condition to start full operations early in 1918. Sandon mill will be relinquished to Minnesota Silver Co. **Class of Ore:** Surprise Mine, to which company's efforts have been confined, produces lead-zinc-silver ore, containing high silver values. **Shipments:** From Nov. 1st, 1916, to Nov. 1st, 1917, 1830 tons of lead concentrates, valued at \$125 per ton, worth \$228,750; 2523 tons of zinc concentrates, worth \$40 per ton, \$100,920; total, \$329,670. **Development:** Property systematically developed under management of Alec. Smith, for nearly 25 years, and recently by J. P. McFadden, total workings being approximately 12,000 ft., with main tunnel,

3000 ft. long, through Last Chance, opening ore bodies at depth of over 1000 ft. from surface. **Informant:** J. P. McFadden, supt., Sandon. **Note:** Surprise mine among largest producers in Slocan district at this time and has paid large profits in the past few years. Alec. Smith, former manager and large owner, disposed of his interests to Congressman Kent in 1916. In early days \$20,000 paid in dividends. No details regarding recent profits:

ROSSLAND-KOOTENAY MINING CO., LTD.

London, Eng.

Mine Office: Rossland, B. C. **Capital:** £150,000; par value, £1. Non-assessable. English corporation. **Directors:** C. Williamson Milne, chairman, 3 and 4 Crown Court, Old Broad St., London; F. A. Labouchere, secy., Salisbury House, London; W. H. Falding, atty. and mgr., Rossland. **Property:** Nickel Plate, Ore-or-No-Go, Golden Chariot, Great Western, Columbia, Kootenay, Tip Top, and Copper Jack claims, with total area of 171 acres, in Rossland district. Also placer ground of indefinite value in West Kootenay, and 2615 shares of Santa Eulalia Development Co., Ltd., owning property in Chihuahua, Mexico. **Equipment:** Rossland property equipped with 40-drill electric compressor; 20-drill steam compressor; 10-drill steam compressor; hoists, etc. **Shipments:** To date estimated at around 80,000 tons of copper-gold ore. Record of values not obtainable. **Informant:** W. H. Falding, mgr., Rossland.

RUFFLED GROUSE MINE.

Ferguson

Owner: J. W. Livingston, Ferguson. **Property:** 4 unpatented claims and 1 fraction, 4 miles from Trout Lake City, Trout Lake division, West Kootenay district. **Class of Ore:** Lead, 16.8%; silver, 359 ozs. per ton. Total shipments, 12 tons. **Development:** Mainly prospect work, with 400 ft. of tunnels and several surface cuts. Large iron cap, 8 to 10 ft. wide, traced for 2000 ft. Vein No. 2 traced for 1000 ft., and said to contain values of 200 to 1500 ozs. silver per ton, 16% lead, and 5 to 12% copper. **Informant:** J. W. Livingston, owner.

RUTH MINES, LTD.

Kaslo

No details as to capital and directors, but company controlled by George and H. B. Alexander, formerly of Kaslo, now of London, England. **Property:** Located in early days, brought fortunes to W. H. McVay, William Clark and J. E. Kessler, formerly of Spokane. Since passing to control of Alexanders, property has been worked almost continuously for many years, and has been equipped with concentrator at Sandon, tramway and other improvements. Company owns both the Ruth and Hope groups, latter adjoining Ruth on the west. Believed now to have been worked out and company has just gone into voluntary liquidation, with no obligations except preference share issue, which is held in England. Milling plant has been leased by Clarence Cunningham, for treatment of Sovereign and Wonderful ores.

SCOTT AND BIG SHOWING GROUPS.

Cranbrook

Owned by John, Thos. W. and Mrs. Margaret E. Leask and Thos. Boyter, all of Cranbrook; Mrs. Annie McKay, Trail, and George Goldsmith, of Beaton. **Property:** 6 claims in Scott group and 5 in Big Showing group, all unpatented, on Goat Mt., in Fish River valley, 14 miles from Beaton. **Class of Ore:** Silver-lead-gold. No equipment; no shipments. **Development:** 650 ft. of tunnels, mainly assessment work. **Informant:** Geo. Goldsmith, part owner, Beaton, B. C.

SCRANTON GROUP.

Woodberry Creek

Property: Between Pontias and Sunrise groups, on Woodberry creek, Ainsworth district, recently purchased by C. F. Caldwell, who is incorporating company. Claims are being actively developed, and a body of highgrade ore has been uncovered on the surface, to a length of more than 150 ft., and having a width of 8 to 10 ft. Ten samples give an average value of \$121.50 per ton. Camp buildings and stable have been erected, a pack train bought, and highgrade ore will be carried out. May install hydro-electric power plant and concentrator. Mr. Caldwell is one of the largest owners of Pontiac group, adjoining, and Utica mine, in Slocan district.

SEATTLE-B. C. SILVER LEAD MINING CO.

Seattle, Wash.

Capital: \$1,000,000. Par value, \$1. **Directors:** B. F. Millard, pres. and treas.; W. R. Millard, vice-pres.; Chas. Simenstad, secy.; Judge Thomas Lyons, all of Seattle, and Frank Higgins, Victoria. **Property:** Enterprise group, Ten-Mile creek, 8½ miles from Enterprise landing, Slocan Lake, Slocan district, under lease and option for \$125,000. **Class of Ore:** Silver-lead-zinc, averaging, according to smelter returns, 126.6 ozs. silver; 20.9% lead and 22.1% zinc. **Equipment:** Water power system, duplex compressor, dynamo for lighting purposes, air pipe on all levels, 1600 ft. aerial tram from No. 2 tunnel to mill, and 100-ton concentrator. **Development:** By 5 levels, totaling 4850 ft. drifts, and 950 ft. raises. No. 0 level driven 900 ft. along vein on ore all the way. No. 1 level 280 ft. in ore, 250 ft. above No. 0. Estimated approximately 10,000 tons

of available ore between these levels. Near portal of No. 0 tunnel, shaft has been sunk 250 ft. **Note:** Property discovered in early '90s by Bob Kirkwood, who sold it in 1894 or '95 to Finch-Campbell interests of Spokane. Later, transferred to B. C. Mines, Ltd., for \$375,000. Property credited with shipments of 10,538 tons of hand-sorted ore up to 1904. Since then, leasing operations have added to that figure, but no accurate record is available. Value of shipments of which record has been kept, was \$725,484, with silver at 51c per oz.; and net price of lead, about 1½c. No recent information concerning operations of present company, but assumed operations will be under way in summer of 1918.

SELKIRK MINING CO.

Spokane, Wash.

Capital: \$200,000. Par value, 10c. Assessable to extent of 1 mill per share, every 60 days. **Directors:** W. B. Parker, pres.; Dr. E. E. Loffler, vice-pres.; W. W. Gifford, secy.-treas.; H. G. Phair, C. W. Butterfield, all of Spokane. **Property:** Park group of claims near Marysville, in Kimberly district, East Kootenay, B. C. **Class of Ore:** Lead and silver. Shipments, 22 tons; returns, \$940. **Development:** Vertical shaft, 110 ft., and crosscutting on 100-ft. level to reach the vein, estimated 35 ft. ahead. Vein is 3 to 10 ft. wide, a true fissure cutting the formation, a very hard diorite, making progress slow and expensive. **Informant:** Secy.-Treas. W. W. Gifford.

SILVER BELL GROUP.

New Hazelton

Owner: Geo. T. Stewart, New Hazelton. **Property:** 120 acres, unpatented, on Nine Mile Mt., near New Hazelton. **Class of Ore:** Lead, silver, gray copper, assaying from 53 to 72.8% lead, 135 to 160 ozs. silver. **Equipment:** 1400-ft. tram. **Development:** 3 short crosscuts, but not much depth attained. **Informant:** Geo. T. Stewart, owner. **Note:** After being inactive for some time, property was reopened last year, and is now being developed.

SILVER CROWN MINING CO., LTD.

Spokane, Wash.

Capital: \$1,250,000. Par value, 10c. Assessable. **Directors:** Fred Hamilton, pres.; A. S. Bartels, vice-pres.; A. Herman, secy.-treas., all of Spokane. **Property:** 2 unpatented claims in Trout Lake division of West Kootenay district, B. C. **Class of Ore:** Silver, 100 ozs. to ton, 7% lead. Total shipments, about \$70,000 by former owners. No equipment. **Development:** 5 tunnels, aggregating 1200 ft., with a depth of 800 ft. Estimated 10,000 tons milling ore blocked out, that will run from \$10 to \$25 per ton. Is 3 miles from transportation, and will need tram and mill to develop it properly. **Informant:** Secy.-Treas. A. Herman.

SILVER GABLE MINING & MILLING CO.

Spokane, Wash.

Capital: \$200,000. Par value, 10c. Non-assessable. **Directors:** Wm. B. Smith, pres.; W. M. Ellis, secy.-treas.; Dr. N. M. Baker, all of Spokane; Ira B. Anderson, vice-pres., Mead, Wash., and A. F. Adams, Kaslo, B. C. **Annual Meeting:** June 12. **Property:** 13 claims, 3 crown-granted, about 600 acres, 30 miles north of north end of Kootenay lake, on Duncan river. **Class of Ore:** Silver, assaying from 4 to 14 ozs. per ton; lead, from 19.8 to 81.6%. **Equipment:** Bunk and boarding house to accommodate 30 men, blacksmith shop, office, store houses, etc. **Informant:** Secy.-Treas. Ellis. **Note:** Co. reported to have bought steamboats and to be building barges for transporting its ores. Small shipments of high grade were made last year.

SILVER HOARD MINING CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** George Chew, pres.; Dr. E. R. Northrup, vice-pres.; L. R. Hawley, secy.-treas.; W. S. Hawley, mgr.; D. T. Fox and A. B. Lee, all of Spokane; W. H. Carder, Carder, Wash. **Annual Meeting:** Second Tuesday in February. **Property:** 2 patented claims and 3 fractions, 3 miles N. W. of Ainsworth. **Class of Ore:** Lead, 3%; zinc, 10%; silver, 15 ozs. **Equipment:** Hydro-electric and steam power plant, 150-h.p.; 75-ton concentrator and flotation mill, 5-drill compressor, machine drills, 5000-ft. sawmill. **Shipments:** Several thousand tons, gross value, \$35 per ton. **Development:** 7500 ft. of drifts, crosscuts and raises. Owns 5,000,000 ft. of mine and saw timber. **Informant:** Manager W. S. Hawley. **Note:** Property under lease to W. S. Hawley Co. (q.v.) and plans on foot to consolidate parent and leaser company interests in Dellie M. & M. Co. (q.v.)

SILVER KING MINES, LTD.

Trail

Capital: \$500,000. Par value, \$1. **Directors:** J. J. Warren, pres.; S. G. Blaylock, vice-pres.; T. W. Bingay, secy.; W. M. Archibald, all of Trail; R. S. Lennie, Vancouver. Controlled by Consolidated Mining & Smelting Co. of Canada, Ltd. (q.v.) **Property:** Silver King group of 5 crown-granted claims on Toad Mt., near Nelson, formerly known as Hall Mines. **Class of Ore:** Silver, copper. Shut down in 1914, remaining closed in 1915-16. **Equipment:** Aerial tram 4 miles long, 2 straight line compressors, electrically driven, 1 double-drum hoist with

steam pistons disconnected, and drive-shaft connected to 150-h.p. variable speed motor. Total shipments by present Co., 17,238 tons. Ore reserves estimated at 100,000 tons. **Development:** Shaft to 10th level, showing 3 well defined veins. **Informant:** Jno. L. Maclochla, accountant. **Note:** $\frac{1}{4}$ of capital stock owned by Kootenay Bonanza Mines, Ltd. (q.v.) Property original discovery of Nelson district, having been located in 1887.

SILVERSMITH MINES, LTD.**Sandon**

Capital: \$750,000, of which \$50,000 is preferred, par value \$5, bearing interest at rate of 7%, and \$500,000 common stock, divided into 2,500,000 shares, of 20c par value, and assessable. **Directors:** A. C. Burdick, Victoria; John M. Harris, Sandon; J. P. McGoldrick, Fred B. Grinnell, Dr. H. C. Lambach, Roy C. Lamers, John B. White, all of Spokane. **Note:** Successor to Slocan Star Mines, Ltd., which went into liquidation in 1917. Present company acquires entire assets of Slocan Star, by assuming bond issue of \$98,000 and floating indebtedness of approximately \$24,000. Shareholders of Slocan Star are given opportunity of taking common shares of Silversmith Mines, share for share, upon payment of $3\frac{1}{2}$ c to treasurer of new company. For every five dollars so paid in, shareholders will also receive one share of preferred stock of par value of \$5.00. Operations are to be resumed in May, 1918, company being free of all debts. **Equipment:** Includes 100-ton concentrator, $\frac{1}{2}$ mile from Sandon; hydro-electric plant developed on Carpenter and Cody creeks; compressor plant; tramway from



Silversmith Mines, Sandon, B. C.

mine to shipping bins in Sandon, on C. P. R. tracks; machine drills, bunk houses, boarding house, office and all necessary tools and mining supplies. Development is extensive, main level, known as No. 10, being at mill level and opening vein at vertical depth of 800 ft., or 1000 ft. on the dip. A working raise, equipped with track and hoist, runs up from No. 10 to No. 6 level. Levels No. 6, 7, 8, and 9 are intermediate levels between No. 10 and No. 5. Vein, striking easterly and westerly through 3 claims, or total distance of 4500 ft. within company's lines, is shear zone in slate, filling being crushed slate, quartz calcite, spathic iron, zinc blende and galena. In some places 10 or 12 ft. of clear galena has been mined. To date property has produced approximately 25,000 tons of crude ore and concentrates, worth \$3,000,000 gross, while zinc concentrates were worth around \$250,000 gross. Dividends of \$542,000 distributed by Byron N. White Co., predecessor of Slocan Star Mines, Ltd. Average of lead-silver shipments has been 80 ozs. silver and 50% lead, zinc concentrates 32% zinc, 4% lead, 12% iron and 15 ozs. silver. From March to August, 1917, shipments reached total value of around \$40,000, proportion being one ton of lead to five tons of zinc concentrates. Former ran 62 ozs. silver and 53.5% lead and latter 13.7 ozs. silver and 37.1% zinc. Operations of Slocan Star Mines ceased in October, 1917.

SILVER STANDARD MINING CO.**Vancouver**

Mine Office: New Hazelton, B. C. **Private Company,** owned by J. W. Stewart, Angus Stewart, D. McLeod and estate of late A. L. McHugh. **Property:** Silver Standard group of 14 crown-granted claims, 700 acres, on Glen Mt., 7 miles N. of New Hazelton, Omineca district. **Class of Ore:** Gold, 0.10 oz.; silver, 30 ozs.; lead, 3%; zinc, 11%; in several veins roughly parallel, varying in width from a few inches to six feet. **Equipment:** Hoist, 75-h.p. distillate engine, 6-drill compressor and all necessary mine and domestic buildings. **Development:** About 4000 ft. of workings, including 1300 ft. tunnel, at vertical depth of 500 ft. **Note:** Property located in 1910 and secured in 1911 by present owners on lease and bond, which was later retired, and the mine has since been operated practically continuously. During last two years, progress under superintendency of W. G. Norrie has been rapid. Crosscut tunnel, started last year, to tap 250 ft. level of main shaft, has been completed and much further development accomplished. Management has concluded to supply milling equipment, and will erect 50-ton Faust system plant on Two-Mile creek, about 3 miles from mine. Plant will be run by steam power with cordwood as fuel. Mill water will be secured from Two-mile creek. Ore delivered by auto truck. It was expected that plant would be in operation in February, 1918, but no recent details have been received. **Shipments** of crude ore have been extensive, and are believed to have taken care of all expenses and provided some profit. It is, however, impossible to secure details. Property is second in importance in the district, being exceeded only by the Rocher de Boule.

SILVERTON MINES, LTD.**London, England.**

Capital: £50,000, in 30,000 7% cumulative, and 20,000 ordinary shares at £1 each; 28,050 preferred and all ordinary shares issued. Profit, £2522, reported for year 1915. **Main Office:** 23 Throgmorton St., London. A. Martin, secy. **Property:** The Hewitt-Lorna Doone group (q.v.) near Silvertown, B. C., now under lease to Clarence Cunningham, at \$175,000, with payments extending over 2 years from middle of 1917.

SIMPSON BROS.' CLAIMS.**Smithers**

Owners: Simpson Bros., Smithers. **Property:** 6 claims, about 250 acres, on Hudson Bay Mt., Skeena district. **Class of Ore:** Silver, 234 ozs.; lead, 28%, with trace of gold; value, \$330 for 3 tons, total shipments. **Development:** 70-ft. crosscut tunnel, tapping highgrade silver-lead vein, at vertical depth of nearly 700 ft. Vein exposed all the way down face of bluff. Other veins on property, one carrying zinc-copper, as well as gold and silver values. **Informant:** Donald C. Simpson, part owner.

SKYLINE GROUP.**Salt Lake City, Utah**

Owned by A. W. McCune, Salt Lake City. **Property:** Three early locations in Ainsworth division, Slocan district, B. C. Closed down in 1896, but recently reopened, and about 800 ft. of drifts and crosscuts and a 230-ft. vertical shaft completed. Bunk and cook houses and blacksmith shop built, and about 12 men employed last year. Extensive development plans under way in 1917 interrupted by smelter troubles at Trail and Mr. McCune abandoned all operations in both Ainsworth and Slocan districts.

SLOCAN-PAYNE MINES, LTD.**Kaslo**

Capital: \$1,500,000. Par value, \$1; \$250,000 preferred. Non-assessable. **Directors:** Henry J. Pierce, pres., Seattle, Wash.; A. J. McClaine, vice-pres.; R. E. Strahorn, G. A. Carlson and N. E. Lindsley, all of Spokane; W. E. Zwicky, secy-treas., Kaslo; G. W. Talbot and J. A. Cranston, Portland, Ore.; A. M. Johnson, Nelson, B. C. **Property:** Company formed to take lease and option upon old Payne mine (q.v.) near Sandon, Slocan district, owned by Payne Mines, Ltd., of Montreal (q.v.). Spent \$160,000 in driving 4000-ft. crosscut to open vein at additional depth of over 700 ft., but results were disappointing and bond was relinquished. Presumed corporation now defunct.

SLOCAN SOVEREIGN MINE.**Sandon**

Taken under lease and bond by Clarence Cunningham in 1916, at \$25,000, with payments extending over 3 years. **Property:** One claim on Reco Mt. adjoining No. 1 west and Noble Five group on east. **Development:** By adit levels, 2 intermediate levels, raises and shafts; No. 3 tunnel, 1200 ft. long. Slocan Sovereign Mines, Ltd., shipped 10 cars of ore prior to 1904, when operations upon company account were discontinued. Under Cunningham's management, 10 carloads, assaying 50% lead and 75 ozs. silver, have been shipped, with approximate value of around \$5000 per carload. In March, 1918, discovery of important body of clean ore reported drifting east on No. 3 level. Development has also disclosed good bodies of milling ore and Ruth mill at Sandon was leased in April, 1918, to provide treatment facilities. About 12 men employed. Understood that requirements of lease and bond have been fully complied with up to this date.

SLOCAN SOVEREIGN MINES CO., LTD.

Montreal

Head Office, 22 St. John St., Montreal, Quebec. Canadian corporation, owning Slocan Sovereign mine (q.v.) and Madison group (q.v.), consisting of Argenta, Madison, Great Eastern and Mardon fraction claims, all on Reco Mt., near Sandon, Slocan district, B. C. Company organized over 20 years ago and for some years operated extensively, principal development being upon Slocan Sovereign. Operations discontinued in early '90s and until 1916 properties were idle. In latter year, lease and bond at \$25,000, covering 3 years, was given to Clarence Cunningham, who has since continued operations. Madison group was, in 1916, under lease and bond to Norman Mines Co. of Spokane. After a few months, operations were discontinued.

SLOCAN STAR MINES, LTD.

Sandon

Main Office: Vancouver. **Capital**: \$2,500,000. Par value, \$1. Non-assessable. British Columbia corporation. **Directors**: R. S. Lennie, pres.; J. Elliott, both of Vancouver; A. C. Burdick, vice-pres.; R. F. Green; T. S. McPherson, all of Victoria; J. M. Harris, O. V. White, both of Sandon. T. B. Hooper, Vancouver, secy.-treas. **Property**: Slocan Star group of 12 crown-granted claims, 225 acres, at Sandon, Slocan district. Formerly operated by Byron N. White Co. of Milwaukee, which paid dividends of \$542,000, between 1893 and 1901. Company then got into litigation with Star Mining & Milling Co., owning adjoining ground, and matter was finally taken to the Privy Council of England, ending in defeat of Byron N. White Co. This litigation consumed ten years, and it was not until 1914 that consolidation was effected under name of Slocan Star Mines, Ltd. Arrangements for re-opening of property were further delayed by outbreak of war, and it was not until 1915 that sale of bond issue of \$90,000 enabled new company to commence development work. New equipment, including hydro-electric plant, developing 400-h.p.; 10-bucket Riblet tramway, delivering product at Canadian Pacific side track in Sandon; and flotation plant added to 100-ton mill, the new plant being put in operation March, 1917. Production was, however, unequal to costs, and company went into liquidation late in 1917. In April, 1918, title passed to Silversmith Mines, Ltd. (q.v.), organized by bondholders, who paid \$24,000 in full settlement of floating indebtedness and assumed bond issue as above. Property to be reopened in 1918.

SOHO CONS. MINES, LTD.

Spokane, Wash.

Directors: F. S. Dement, J. C. Ryan, Jos. McCarthy, A. F. Lewis, W. S. Yearsley, O. W. Brinton and John R. Cassin, all of Spokane. **Capital**: \$3,000,000. Non-assessable. **Property**: 12 crown-granted claims, formerly Old Tom Moore group, near Sandon, Slocan district, B. C., adjoining Cariboo, Surprise and Noble 5. **Class of Ore**: Silver, 156 ozs.; lead, 51%. Working 15 men. Total shipments, \$50,000. **Development**: Several thousand ft. of tunnels, shafts and crosscuts, but operated mainly through Rambler-Cariboo tunnel, which has a depth of 1000 ft. Property has 3 well proven veins of fair size and ore of a high average value. **Informant**: J. C. Ryan, manager.

SPOKANE MINING DEV. CORPORATION.

Nelson

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors**: John A. McLean, pres.; W. F. Baker, treas., both of Moosejaw, Sask.; C. M. Learmonth, secy., Regina, Sask.; Fred A. Starkey, vice-pres.; C. M. Mohr, M. C. Monaghan, all of Nelson; C. F. Caldwell, Kaslo. **Property**: Monarch group of 7 claims—2 crown-granted—on Falls creek, 7 miles W. of Nelson, and 1 mile from Beasley, on branch of C. P. Ry. **Class of Ore**: Copper, gold and silver. **Equipment**: Compressor and tram. Beginning shipments in January, 1918. **Development**: An open cut of 50 ft., with 30-ft. shaft sunk about its center; a tunnel now in over 125 ft., further down the mountain, and intended to cut the ore-bearing zone in a short distance. Samples of ore, assayed in Spokane, showed 7.4% copper and 1.6 ozs. silver. Property lies W. of Queen Victoria, which has yielded large tonnage. Co. has also acquired St. Anthony group of 3 claims, a short distance S. of Nelson, about 1000 ft. from tracks of Spokane Falls & Northern Ry., and has sufficient funds for equipment and considerable development work. **Informant**: Vice-Pres. Starkey.

SPOKANE TRINKET GROUP.

Spokane, Wash.

Owners: Frank T. McCullough and others, Spokane. **Property**: Spokane and Trinket groups, within half mile of Ainsworth, Kootenay Lake, Ainsworth district. Operated since 1916, by James A. Welch, of Spokane, under three-year lease and bond for \$45,000. Some ore-shoots of fair dimensions have been developed and shipments approximating 150 tons made to Trill smelter in 1917. New schedule of latter caused cessation of operations early in 1918, but expected that development will be resumed in summer of 1918.

STANDARD SILVER-LEAD MINING CO.

Spokane, Wash.

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** W. J. C. Wakefield, pres.; J. F. Clark, vice-pres.; Charles Hussey, secy.-treas., all of Spokane. George H. Aylard, gen. mgr. Victoria. **Annual Meeting:** First Tuesday in May. **Property:** 15 crown-granted claims, 600 acres, on Slocan Lake, 2 miles N. E. of Silverton, Slocan district, including Standard and Alpha claims, the latter first location in Slocan Lake region. **Class of Ore:** Sorted, lead, 50%; silver, 85 ozs.; milling ore, lead, 10%; silver, 18 ozs.; zinc, 10%. **Equipment:** Hydraulic compressor; hydro-electric power plant; 150-ton concentrator; 8000-ft. tramway connecting mine and mill; shipping wharf; warehouses; office building, and all necessary domestic buildings. **Shipments:** In 1916, 5384 tons of lead concentrates and \$207,521 worth of zinc concentrates. In 1917, 2363 tons of lead concentrates and \$462,791 worth of zinc concentrates. **Dividends:** Total, \$2,700,000, as follows: 1912, \$425,000; 1913, \$650,000; 1914, \$475,000; 1915, \$250,000; 1916, \$600,000; 1917, \$300,000; aggregating 135% of capital stock. **Financial Statement for 1917** shows total receipts of \$881,616, compared with \$934,312 in 1916. The sum is made up of preliminary settlements for 2363 tons of lead concentrates (comparing with 5384 in 1916); zinc sales of \$462,791.75 (comparing with \$207,521); umpire winnings, \$2410 (comparing with \$3660) and boarding house, \$52,368.15 (comparing with \$58,864). From this amount, \$8431 is deducted for final settlements; \$3705 was paid for zinc penalties on lead ores, and additional treatment charges absorbed \$1926, leaving real gross operating receipts \$867,551, compared with \$905,712 in 1916. Disbursements were as follows, the amounts in brackets being figures for 1916: Ore production, \$251,339 (\$252,755); tramming, \$12,742 (\$9711); milling, \$46,353 (\$42,284); power, \$8367 (\$7052); general expense, \$13,784 (\$11,748); shipping and selling, \$9563 (\$10,416); salaries, \$3600 (\$3600); taxes, \$15,409 (\$15,873); insurance, \$2128 (\$1959); boarding house, \$49,484 (\$51,357); insurance, \$5734 (\$6132); total, \$418,452 (\$517,348). Relative operating profit was \$449,099. Other disbursements included development, \$57,710 (\$43,070); construction, \$22.40 (\$12,129); Aylard tunnel, \$4574 (\$22,645); store supplies, \$904 (\$1961); making total of \$63,211 (\$79,805), bringing actual operating profit down to \$385,887. Home office account, including interest received, general, including interest received, general expenses and capital stock tax, reached \$3393, leaving net profit for year at \$377,494 (\$388,364). Balance of \$125,307 (\$336,943) brought forward, increased total available cash to \$502,801. Dividends of \$300,000 (\$600,000) were paid, leaving balance December 31, 1917, at \$202,801 (\$125,307). **Note:** Property purchased in 1904 by late John A. Finch, of Spokane, and George H. Aylard, present managing director. From that year until 1910, ore to the net value of \$240,000 was shipped. In 1910, present corporation was organized, and mill equipment and tramway provided in 1911. In 1912, approximately 1/2 of the capital stock was purchased by the late Patrick Clark, of Spokane, for \$250,000. Since that time, property has been largest producer in Slocan district.

ST. EUGENE MINE.

Moyle

Owned by Cons. Mining & Smelting Co. of Canada, Ltd. (q.v.). Paid \$210,000 in dividends, prior to transfer, under management of James Cronin, Spokane, one of original owners. Since 1904 mine has produced 1,020,936 tons and is developed by 20.04 miles of workings.

STEWART MINING & DEV. CO., LTD.

Victoria

Capital: \$100,000. Par value, \$1. Non-assessable. **Directors:** R. M. Stewart, pres.; J. M. Stewart, vice-pres.; Dr. F. T. Stanier, A. H. Pigott and H. Puckle, all of Victoria. **Property:** 7 crown-granted claims, about 350 acres, on N. bank of Glacier creek, Portland Canal district. **Class of Ore:** Gold, silver, lead. Equipped with buildings, but shut down in 1912, awaiting completion of Portland Tunnel Co.'s tunnels, through which this property will be worked. **Development:** About 1800 ft. of workings, including tunnels, crosscuts and drifts. **Informant:** J. W. Stewart, vice-pres.

ST. KEVERNE GROUP.

Sandon

Property owned by St. Keverne Mines, Ltd., of Montreal, C. H. Lowe, secy. Details of capitalization and officers lacking. **Property:** Consists of 5 or 6 crown-granted claims adjoining Payne mine, the original locations of the Slocan country, located in 1894, by Sidney Norman, Marc H. Gilliam and Michael Landrigan. In 1897, St. Keverne Mining Co., of Spokane, was organized and operated property for some years, subsequently selling to present owner, which is subsidiary of corporation owning Payne mine. No development for 10 years, but is to be resumed in 1918, under direction of Oscar V. White, formerly manager Slocan Star Mines, Ltd.

ST. PATRICK GROUP.

Argenta

Consists of 4 claims, 6 miles N. of Argenta, at the head of Kootenay lake, Ainsworth division, owned by Jean Brochier and A. LeBlanc, of Kaslo; taken under option by British Alberta Mining Co., of which A. J. Flood of Vulcan,

Alberta, is president, and W. R. Allen, of Nelson, secy. Report of Provincial Mineralogist for 1917 says active development work has been carried on and substantial camp buildings erected. Property developed by 200 ft. tunnel on main vein, and a 90-ft. shaft, exposing streaks of from 6 inches to 18 inches of lead-zinc-silver ore, in a vein said to be 36 ft. wide. Some assays have run as high as 77% lead, although the main body is undoubtedly of milling character.

ST. PAUL GROUP.**Kelowna**

Owners: Rembler Paul, E. H. McDaniels and Angus Woods, of Kelowna. **Property:** 4 patented and 3 unpatented claims, 364 acres, 43 miles from Vernon, in Vernon division of Yale district. **Class of Ore:** Gold, silver, assaying as high as \$543.50, but average value about \$72 per ton. **Equipment:** 2-stamp mill, with water power, and wheel for 10-stamp mill with crusher, buildings, etc. **Total shipments,** 145 tons. **Development:** Several hundred ft. of tunnels and crosscuts, and considerable stripping. **Informant:** Rembler Paul, principal owner. **Note:** In annual report of minister of mines for B. C., for 1917, death of Mr. Paul noted.

SUNLOCH MINES, LTD.**Vancouver**

Capital: \$1,000,000. Par value, \$1. **Directors:** Stuart Graham Campbell, William John Wilson, Harold Rindal, R. H. Stewart, managing director; Sidney W. Miller, secy.; William P. Tierney, all of Vancouver. **Property:** Company formed late in 1917, to acquire Sunloch Nos. 1, 2, 3, 4, 5 and 6 groups, on Jordan river, Victoria division. Also proposes to acquire options on 9 other adjoining claims, at \$100,000, payable \$1500 cash, \$10,000 in one year, \$10,000 in two years, and balance in three years. Sunloch group transferred to company for 500,000 shares issued to Campbell & Stewart, in equal amounts. Latter was, for many years, general manager of Consolidated M. & S. Co., in charge of smelting plant at Trail, B. C. Annual report of Provincial Mineralogist for 1917 says that systematic development work has opened up a very wide shear zone, containing chalcopyrite, adding that width of ore bodies is such as to give promise of developing into a big mine. Workings are located within 2 miles of power station and within 6000 ft. of the end of a logging railway.

SURF INLET GOLD MINES, LTD.**Vancouver**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Col. J. Duff Stuart, pres.; E. A. Cleveland, vice-pres.; A. H. Wallbridge, treas.; B. G. Hawkins, secy.; Jonathan Rogers, A. H. MacNeill, Dr. W. B. Burnett. **Property:** A 1-5 interest in Belmont Surf Inlet Mines, Ltd. (q.v.), at Surf Inlet, Princess Royal Island, crown-granted. **Class of Ore:** Gold, copper. **Equipment:** Hydro-electric plant containing 2 turbo-driven 468-k.v.a. generators, 5.65-mile power line, railway, 2 compressors, and 300-ton mill begun in Sept., 1917, with gyratory crusher, ball mills, concentrating tables, flotation machines, etc., claimed to recover 94% of total gold and 96% of the copper. **Development:** 7000 ft. of tunnels. Ore reserves given as 385,320 tons, averaging \$11.22 per ton. **Informant:** Secy. Hawkins. **Note:** Controlled by Tonopah Belmont Mining Co., and operated by Belmont Canadian Mines, Ltd. (q.v.)

SURPRISE MINE.**Sandon**

Now owned and operated by Rosebery Surprise Mining Co., Ltd. (q.v.)

TACOMA STEEL CO.**Tacoma, Wash.**

Capital: \$3,000,000. Par value, \$1. Non-assessable. **Directors:** Joshua Pierce, pres.; E. M. Shelton, vice-pres.; E. F. Eastman, secy.-treas.-mgr.; Alex Grant, supt. **Property:** Marble Bay mine, 640 acres, crown-granted, near Marble Bay harbor, northern end of Texada Island, Vancouver district; property at Darrington, Snohomish county, Wash., idle for many years; 4000 acres coal-bearing lands in Washington and 208 acres iron ore lands on Redonda Island, B. C. **Class of Ore:** At Marble Bay, gold: 0.5 oz. to 1.5 ozs.; silver, 5 to 12 ozs.; copper, 5 to 16% mine run. **Shipments:** For 13 years have averaged approximately 2000 tons per month, principally shipped to Tacoma smelter. **Equipment:** 250-h.p. hoist, 10-drill compressor, 5-drill compressor, machine shop, carpenter shop, blacksmith shop, all fully equipped with latest machinery. **Development:** Over 5 miles of drifts and stopes, main shaft being 1500 ft. below sea level. During 1917, mine shipped regularly and stopes were opened on ore bodies exposed by diamond drilling below the 1300 ft. level. Development work has also been done with success on the 1400 and 1500-ft. levels, ore bodies at those depths maintaining same average values as nearer surface. **Dividend** of \$35,000 paid in 1907.

TIDEWATER COPPER CO.

Seattle, Wash.

Details of capitalization, directors and physical conditions not available. Property, known as Indian Chief group, on Sidney Inlet, Clayquot division, west coast of Vancouver Island, under management of Sam Silverman, of Seattle. Annual report of Provincial Mineralogist for 1917 says large force of miners been employed during 1917 and concentrator constructed. Expected latter will be in full operation in 1918, with good results. Produces copper ore.

TONOPAH BELMONT DEV. CO.

Philadelphia, Pa.

Capital: Originally \$1,000,000. In 1906 increased to \$2,000,000, but later reduced to \$1,500,000. Par value, \$1. **Directors:** C. A. Heller, pres.; W. M. Potts, vice-pres.; J. K. Kitts, secy.-treas.; R. G. Wilson, asst. secy.-treas.; J. C. Fraley, H. C. Brougher, M. C. Cutter, R. G. Potts, S. D. Sinkler, T. W. Synnot, C. B. Taylor, F. Bradshaw, gen. mgr.; F. W. Holler, supt. Surf Inlet Co., Surf Inlet, B. C. **Property:** Includes various holdings at Tonopah and Carrara, Nevada, and a four-fifths interest in Surf Inlet Gold Mines (q.v.), on Princess Royal Island, near Prince Rupert, Coast district, B. C. Considerable development work has been done on this property, 3 distinct lenses having been opened up and developed to vertical depth of 1000 ft. Over 13,000 ft. of drifting has been done and a winze sunk to 1000-ft. level. **Class of Ore:** Principally gold, with small values in silver and copper. Hydro-electric plant being installed, and hollow concrete dam 490 ft. long, and in places 75 ft. high, has been built across lower end of Cougar lake. Also installing 250 to 500-ton mill and concentrator, together with machine shops, power house, etc. Townsite also laid out, where Co. will build cottages for employees. Will employ 300 men. Co. has paid dividends of \$9,330,558 up to last quarter in 1917.

TREASURE MOUNTAIN MINING CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Non-assesable. **Directors:** W. B. Dornberg, pres.; J. C. Edwards, vice-pres.; W. W. Dreyfus, secy.-treas., all of Spokane. **Property:** 6 claims, at headwaters of Tulameen river, 20 miles N. of Tulameen, on Kettle Valley R. R., in Similkameen division, Yale district, B. C. **Class of Ore:** Silver, in upper tunnel, 140 to 210 ozs.; in lower tunnel, 136 to 190 ozs. to ton; lead, 67 to 73%; zinc, 8%. **Equipment:** Cook and bunk houses, steel rails, cars, tools, etc. **Development:** Upper tunnel, in 210 ft., with 90 ft. vertical depth. At 55 ft. from portal, struck ore, which continued to face of tunnel. Lower tunnel is in 810 ft., with a vertical depth of 600 ft., and ore was struck at 550 ft. from portal. Three drifts, from 100 to 150 ft. each, all in ore, have been run and an upraise of 55 ft. from the lower tunnel is all in ore of values described above. Government has built 10 miles of road, but 10 miles more are needed to reach property with trucks, though there is already a good trail to the mine from terminus of government road. There are several hundred tons of good ore on the dumps, and active operations will be resumed as soon as weather permits this season.

TRUE FISSURE MINING & MILLING CO., LTD.

Cincinnati, O.

Capital: \$2,500,000. Par value, \$1. Non-assesable. **Directors:** Godfrey F. Park, pres.; Theodor W. Mitchel, secy., both of Cincinnati, Ohio; A. L. Houston, B. C. representative. Ferguson, B. C. **Property:** 8 crown-granted claims, and 160 acres of crown land for mill site and timber, on Gt. Northern Mt., ½ mile from Ferguson, B. C., in Trout Lake division, West Kootenay district. **Class of Ore:** Lead, 37%; silver, 44 to 79 ozs.; gold, 0.15 oz.; zinc, 11 to 27%. **Development:** 2 lower tunnels have both encountered vein with good grade of ore, some of which assays as high as 515 ozs. silver, but amount of this material very small, smelter returns averaging 79.34 ozs.

TYEE COPPER CO.

London, Eng.

Capital: £180,000. Par value, £1. **Directors:** T. H. Wilson, chairman; W. Gardner, secy.; J. A. D. Hancke, H. Von Berg. **Note:** Smelter and assets sold in December, 1916, to Ladysmith Smelting Corporation, Ltd. (q.v.) Company paid \$195,000 in dividends in early history.

UNION GROUP.

Spokane, Wash.

Owner: Hector Poirier, Spokane. **Property:** Union group of 5 claims, 210 acres, east slope of Goat Mt., on Fish creek, Lardeau district, B. C. **Class of Ore:** Gold, silver, copper, lead, and zinc. No recent development, owing to illness of owner.

UNION MINING CO.

Grand Forks

Not incorporated. Lewis Johnson, part owner and manager. Other owners: Pat McGinnis and estate of Mike McDonnell. **Property:** 4 claims—Union, Idaho, Paper Dollar and Union Fraction—150 acres, in Gloucester camp, Grand Forks division, Yale district. **Class of Ore:** Gold and silver. **Development:** 4 tunnels, aggregating about 400 ft., all on vein, vertical depth around 150 ft. Ship-

ments to Date: 2294 tons; 605 tons in 1916, value \$21,175. **Note:** Property 26 miles from railroad, ore being hauled by wagons, with total cost of \$18 for transportation and treatment charges. Vein averages approximately 15 ft. in width.

UNITED METALS CO.

Tacoma, Wash.

Capital: \$5,000,000. Par value, \$1. Non-assessable. **Directors:** A. E. Severance, pres.; E. H. Lee, secy., both of Tacoma; Chas. W. Calhoun, vice-pres., Anyox, B. C. **Annual Meeting:** Feb. 1. **Property:** 12 unpatented claims on Granby bay, Skeena district, B. C. **Class of Ore:** Gold, silver, copper, lead; values, \$108.40 to \$114 per ton. Equipped only for surface work. No shipments. **Development:** 1000 ft. of crosscuts and surface stripping, showing good pay ore, but handicapped by lack of funds. **Informant:** Pres. A. E. Severance, Tacoma.

UTICA MINES, LTD.

Kaslo

Capital: \$3,000,000. Par value, \$1. Originally \$2,000,000, increased January, 1918, to acquire other property, but transfer not yet completed. Treasury believed to hold 1,400,000 shares. **Directors:** V. D. Williamson, Spokane, pres.; C. F. Caldwell, Kaslo, vice-pres.; W. C. Sivyver, Reese H. Voorhees and W. W. Tolman, all of Spokane. **Property:** Utica group, on Paddy's Peak, Ainsworth district, embracing 6 crown-granted and 4 un-crown-granted claims. **Equipment:** Gasoline compressor and complete camp facilities. **Development:** Over 5000 ft. drifts and crosscuts. Deepest level explored, 1200 ft. below outcrop on top of ridge. Crosscut, 350 ft. lower, was run in 1917, but results not made public, if work reached vein. **Shipments:** In 1916, 1005 tons of lead ore, averaging 22% lead, 170 ozs. silver; 72 tons zinc ore, averaging 43% zinc, 145 ozs. silver. New schedules of Trail smelter, placed in effect early in 1917, caused cessation of shipments, owing to heavy zinc content of ore. **Dividends:** Two declarations of 2c per share upon 1,600,000 shares issued, paid in June and Sept., 1917, total \$64,000. **Note:** Until early in 1917, company controlled by interests identified with Consolidated M. & S. Co., under management of W. M. Archibald. Surplus of \$104,000 in treasury when control was acquired by V. D. Williamson in association with C. F. Caldwell. Dividends were disbursed as above and balance proved insufficient to carry out ambitious plan of development in view of embargo at Trail smelter. Mine was closed down in January, 1918, and it is assumed surplus has been spent. Efforts to re-finance company and take in Bell and Sunset groups in vicinity, are now under way without definite result at this time.

VALDEZ ISLAND COPPER CO., LTD.

Victoria

Capital: \$500,000. Non-assessable. **Directors:** F. E. Rosher, pres.; C. B. Rosher, secy.; G. A. Fraser, Ernest Brammer, all of Victoria. **Annual Meeting:** June 8. **Property:** 20 claims, surveyed for patent, on Quadra, Valdez, Steep and other small islands, within ½ mile of tide-water. **Class of Ore:** Copper, with small silver values and trace of gold. **Equipment:** Ore bunkers, rails and dump cars. **Development:** Open cuts and quarries. Work superficial, but surface showings warrant vigorous development. **Informant:** Secy. C. B. Rosher.

VAN ANDA COPPER & GOLD MINES CO., LTD.

Van Anda

Directors: H. W. Treat, gen. mgr.; L. Goodacre, trustee; Jas. Roper, agt., Van Anda. **Property:** 20 crown-granted claims, 840 acres, including Copper Queen and formerly the Cornell mines, frequently bonded to various operators. **Class of Ore:** Copper. No commercial ore found below 360-ft. level. **Development:** 600-ft. shaft, 240-ft. winze. Property idle.

VANCOUVER GROUP.

Nelson

Owners: Frank Unfried and estate of Geo. H. Fisher, Nelson. **Property:** 6 unpatented claims and 2 fractions, on divide between Wolf and Sheep creeks, Nelson division. **Class of Ore:** Free milling gold, average assay, \$20.66; highest, \$212.40 in gold. Has 3 ore-bearing veins. Shipments, 7 cars, netting \$60 to \$154 per ton. **Development:** 280 ft. of tunnels. **Informant:** Frank Unfried, part owner.

VANCOUVER GROUP.

Silverton

Owned by Van Roi Mining Co., Ltd., London (q.v.), now under bond to Clarence Cunningham and associates.

VAN ROI DEVELOPMENT CO.

Silverton

Local name given to partnership now operating Hewitt-Lorna Doone group (q.v.). Not incorporated.

VAN ROI GROUP.

Sandon

Operated by Clarence Cunningham and associates under lease and bond of \$225,000, running three years from Jan. 1st, 1916. Obtained from Van Roi Mining Co., Ltd., of London. **Property:** Vancouver group of 12 claims, with 150-ton mill and 2 tramways, from No. 5 and No. 9 levels. **Equipment:** Also includes 15-drill compressor. **Development:** By adit levels partially stoped above No. 5. Operations now confined to No. 7 and No. 9, latter being 225 ft. below No. 7 and not yet into ore body, which is believed to be 1000 ft. further ahead. Property traversed by 2 veins, approximately 200 ft. apart, known as "main" and "south" veins. Shipments in 1917 aggregated 36 cars, of which 1000 tons was lead concentrate, running 63% lead and around 65 ozs. silver; 400 tons of zinc concentrate yielded 42% zinc and 20 ozs. silver. All shipments of 1917 came from "south" vein workings, between No. 5 and No. 3, a distance of 300 ft. "Main" vein shows ore of much higher value, running up to 145 ozs. silver and 65% lead. No shipments yet made from this vein by present owners, but in April, 1918, mill was running on ore from that vein and it is reported that a large amount is in sight. Mill is of 150-ton capacity, built by Frazer & Chalmers; run by water power from Four Mile creek, and including very complete equipment. Slimes are flumed to Hewitt mill, also under lease to Cunningham, where they are treated by flotation process. Property under management of F. Cushing Moore, partner to extent of 1-5, formerly State Mine Inspector of Idaho.

VAN ROI MINING CO., LTD.

London, England

Capital: £34,500 in 30,000 preferred at £1 par, and 90,000 ordinary shares, par value, 1s. Controlled by Le Roi, No. 2, Ltd., Rossland, which holds 63,193 ordinary and 10,483 preferred shares. **Directors:** Lord Ernest Hamilton, chairman; A. B. Dealtry and H. W. Morrison. Secy., F. B. Labouchere, 539 Salisbury House, London, E. C., England. **Property:** Van Roi or Vancouver group (q.v.), near Silverton, Slocan district, under lease and bond to Clarence Cunningham, who is now operating property.

VELVET-PORTLAND MINES, LTD.

Rossland

Succeeded by B. C. Phoenix Co. (q.v.)

VERONICA GOLD MINING CO.

Spokane, Wash.

Capital: \$250,000. Par value, 25c. Incorporated in June, 1916, by T. T. Mecredy, Dr. J. W. Rutledge, D. A. McIntosh, Geo. R. Leask, Fred Bryan and Ed McMahon, of Spokane, to develop the Eclipse group of six claims, adjoining Homestake group, on Perry creek, Southeast Kootenay district. No recent report.

VICTOR-SILVER LEAF MINING CO., THE.

Spokane, Wash.

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** R. Abernethy, pres.; Elmer R. Abernethy, secy.; C. E. Berry, treas.; Geo. F. Gundry, all of Spokane; John Tospon, treas., Garwood, Idaho. **Annual Meeting:** Last Wednesday in December. **Property:** 3 unpatented claims, Victor, Silver Leaf and C. W., Jr., 9 miles from Fort Steele, B. C. **Class of Ore:** Lead, silver, zinc and gold. **Equipment:** Engine, compressor, drills, etc. Ready for shipments, and for the building of a concentrating mill of 20 tons capacity daily. Sorted ore ready to ship runs about \$100 gross to ton, though samples assay as high as \$140 to \$195 per ton. Three good ore shoots. **Development:** 3 tunnels, one of 400 ft., one 200, one a short crosscut. **Informant:** E. R. Abernethy, secy. and supt. of mine. **Note:** Directors decided in April, 1918, to add milling plant and construction will be started this spring.

VIKING COPPER CO.

Van Anda

Owners: Stewart D. Craig, John Vedaa and John G. Vedaa, all of Van Anda. **Property:** 1 unpatented claim and $\frac{3}{4}$ fraction, about 90 acres, and 1 full claim, or 53 acres, $\frac{1}{4}$ mile from above, on S. side of Texada Island, B. C., 65 miles N. of Vancouver. **Class of Ore:** Copper, \$50; gold, \$2.50; silver, \$2.75. Tacoma smelter returns, 7.90% copper, .05 oz. gold, 1.79 ozs. silver. Total shipments, 15 tons. **Development:** 75 ft. of shafts and open cuts on No. 1 vein, considerable work on No. 2 vein. **Informant:** Stewart D. Craig, part owner.

VOIGT COPPER CLAIMS.

Princeton

Owner: Emil Voigt, Princeton. **Property:** 43 crown-granted claims, about 6000 acres, on Copper Mt., some 12 miles from Princeton. Under option to Eastern syndicate. British Columbia Copper Co. had option to purchase, 2 or 3 years ago, and did 390 ft. of tunneling, but option expired, after Co. had spent a few thousand dollars. **Class of Ore:** Gold, copper, silver. Preparing to install compressor. Working 6 men. No shipments. **Development:** About 4000 ft. of tunnels, 1700 ft. of shafts, 12,000 ft. of trenches and 3000 ft. of diamond drilling. Ores self-fluxing, with average values of 1 to 20% copper, \$2 to \$15 gold per ton, with small silver values. **Informant:** Emil Voigt, owner.

VOLCANIC MOUNTAIN GROUP.**Grand Forks**

Owner: R. A. Brown, Grand Forks. **Property:** 2 crown-granted claims, and 320 acres for smelter and town sites, on north fork of Kettle river, 10 miles from Grand Forks. **Class of Ore:** Copper, \$2.60; gold, from trace to \$82. Shows an immense iron capping. Work started in 1880, and property developed by 900-ft. tunnel, but closed down about 13 years ago. **Informant:** R. A. Brown, owner.

WAR EAGLE MINE.**Rossland**

Owned by Consolidated Mining & Smelting Co., of Canada (q.v.). Among early locations of Rossland district, sold by War Eagle Mining Co., of Spokane, controlled by Patrick Clark, John A. Finch, A. B. Campbell and others, of Spokane, and H. L. Frank, of Butte, to Gooderham & Blackstone syndicate, of Toronto, for \$750,000, in 1897. Latter operated property for some years, but discontinued in 1904. Several years later mine was acquired by Consolidated Mining & Smelting Co. at low figure. Total production since 1894 to 1917, of War Eagle, and Center Star, adjoining, 2,611,143 tons. Group developed by 40.10 miles of underground workings. Paid \$1,245,250 in dividends prior to transfer to present owner.

WASHINGTON MINE, LTD., THE.**Kaslo**

Capital: \$300,000. Par value, \$1. Assessable. B. C. corporation. **Directors:** J. L. Retallack, O. T. Stone and W. H. Burgess, all of Kaslo, and Clive Pringle, Ottawa, Ontario. **Property:** Washington and Slocan Boy groups, in McGuigan Basin, Slocan district, B. C. All claims patented. **Class of Ore:** Silver-lead-zinc. Closed down in 1911. **Informant:** Secy. W. H. Burgess. **Note:** Washington and Slocan Boy groups located by William Lynch, in 1892, and in same year acquired by Thomas E. Jefferson and Ralph E. Clarke, of Spokane. **Shipments:** Commenced in 1893, and in same year, $\frac{1}{2}$ interest was sold to late Major Montgomery, of New York, for \$60,000. For some years later property was among largest shippers of district, but ore became baser with depth and development was finally abandoned as above. Concentrator built 20 years ago, at the headwaters of McGuigan creek, was later dismantled. Property contains large bodies of complex lead-zinc ore at lowest level, and negotiations are now under way for use of Rambler-Cariboo tramway to transport product to market. If negotiations are successful, property may be reopened in 1918.

WAVERLY HYDRAULIC MINING CO., LTD.**Barkerville**

Capital: \$100,000. Par value, \$100. Assessable. **Directors:** John Bibby, pres.; W. W. Kelly, R. Buchanan and Joseph Wendle, all of Barkerville; A. Kelly, Victoria. **Annual Meeting:** Feb. 27. **Property:** 189 acres crown-granted and leasehold lands on Grouse creek, Cariboo district, B. C. **Class of Ore:** Gold, 81 $\frac{1}{2}$ fineness; silver, 179. **Equipment:** Hydraulic monitors and 2500 ft. of steel pipe. Total shipments, \$176,000. **Development:** Plume, 2500 ft.; average depth, 60 ft. Dip of gold lead, 20 ft. below flume grade. **Informant:** Secy. James Bibby.

WELLINGTON GROUP.**Bear Lake**

Large group N. of Bear Lake, in Slocan district, at one time owned by Wellington Mines Co., Ltd., of Ottawa, organized by Hector McRae, formerly of Ottawa, now of St. Louis, Mo. Under management of Alec Watt, shipments of high-grade silver-lead ore were made 20 years ago. Since then, property has been idle, except for some leasing operations upon a small scale.

WESTERN BELLE MINING CO.**Spokane, Wash.**

Capital: \$200,000. Par value, 10c. Assessable. **Directors:** Colen Smith, pres.; Samuel Smith, L. V. Wells, all of Port Hill, Idaho; S. R. Green, secy.-treas.; Adam McCormick, both of Spokane; Robt. Lamont, atty-in-fact, Creston, B. C. **Annual Meeting:** Mar. 17. **Property:** 4 claims, being surveyed for patent, 7 miles N. E. of Idaho-Continental mine, but in Kootenay district, B. C. **Class of Ore:** Silver-lead, average value, \$30 per ton; select ore for assays, \$150 to \$200 per ton. **Equipment:** Buildings, and tools for hand work. No shipments. Vein 12 to 20 ft., practically continuous for at least 3000 ft. **Development:** Tunnel in 202 ft., sinking shaft. **Informant:** Secy.-Treas. S. R. Green

WEST KOOTENAY POWER & LIGHT CO.**Rossland**

Capital: Details not available. Largest power-distributing concern in Western Canada, operating hydro-electric plants at Upper and Lower Bonnington Falls, on Kootenay river, 5 miles below Nelson and smaller plant at Cascade City. Revenue-producing load for year ending September 30, 1917, 22,511-h.p. Extensions now being built to Copper Mountain properties of Canada Copper Corporation (q.v.) and to plant of Northport Smelting & Refining Co. (q.v.), Northport, Washington. Supplies mines and reduction plants throughout West Kootenay district. For year ending August 31, 1917, net profits \$30,930, after writing off \$99,736 for depreciation and paying dividends of \$182,666 on pre-

ferred and common stock. Subsidiary of Consolidated Mining & Smelting Co. (q.v.), which purchased control of common stock in 1916. Lorne A. Campbell, *Londonland*, vice-president and general manager.

WONDERFUL GROUP MINING CO., LTD.

Spokane, Wash.

Organized over 20 years ago to operate Wonderful, near Sandon, B. C. (q.v.). Mining operations were carried on for some time in an effort to locate main vein, but without success, although some shipments were made from galena float. For many years prior to 1913, property was idle, but in that year, lease and bond for \$75,000, with payments covering 5 years, was given to Clarence J. Cunningham, who has since continued operations.

WONDERFUL MINE.

Sandon

Consists of 9 claims, in two groups, acquired by Clarence J. Cunningham from Miller Creek Mining Co. (q.v.) and Wonderful Group Mining Co. (q.v.) in 1913, for \$75,000, with payments extending over 5 years. Since then, 25 car-loads of ore, averaging 55% lead and 85 ozs. silver, have been shipped. Large bodies of milling ore also disclosed and in April, 1918, treatment facilities were provided by lease of Ruth mill at Sandon.

YALE DEV. & CONSTRUCTION CO.

Has 25-year lease on property of Olalla Copper M. & S. Co. (q.v.)

YANKEE GIRL GOLD MINES, LTD., THE.

New York

Company went into liquidation in 1910 and property passed to Hobson Silver-lead Co., Ltd. (q.v.), in October, 1911. Owned the Yankee Girl group of five claims at Ymir, B. C.

YMB-WILCOX DEVELOPMENT CO., LTD.

Evanston, Ill.

Capital: \$500,000, par value, \$1; non-assessable. Directors: W. S. Mason, pres.; J. C. Breese, secy.; C. H. Poppenhusen, E. R. Johnston, and B. J. Jayne, all of Evanston. Property: Wilcox group of six patented claims, 188 acres, in the Ymir division, Nelson district, B. C. Class of Ore: Gold and some silver. Note: Under development in 1917, but no details available.

YORK & LANCASTER SYNDICATE.

Manchester, Eng.

Mine office, Creston, B. C. Owners of Alice, Alice Fraction and Morning Star mineral claims, all crown-granted. On Goat Mt., 3 miles W. of Creston, B. C., and 1 mile N. of C. P. R. Class of Ore: Silver-lead. Shut down in 1910. Equipment: 100-ton concentrator, bunk, cook, store houses, office, ore bin, tram terminal, steel rails, 3 ore cars, automatic tramway, 5370 ft., capacity 10 buckets, 100 tons daily. Total shipments, 617 tons concentrates. Development: About 2000 ft. of tunnels, crosscuts and drifts. Informant: Guy Lowenberg, cons. engineer.

ZENITH MINES, LTD.

Calgary, Alta.

Capital: \$10,000. Par value, \$1. Non-assessable. Directors: Geo. E. Wood, pres.; J. W. McDonald, vice-pres.; K. M. MacMillan, secy.; R. S. Barbour, treas.; W. M. Johnston, Thos. Tucker and T. M. Wiggins, all of Calgary. Annual Meeting: First Monday in February. Property: 14 patented and 4 other mineral claims, and leases on 340 acres of marble quarry, in Prospector's valley, N. E. Kootenay district, B. C. Class of Ore: Clean galena; runs over 80% lead, with a ozs. silver to the ton. Equipment: Aerial tram, tools, buildings, etc. Total shipments, 10 tons, value, \$400. Development: Several hundred ft. of tunnels and drifts. Marble in quarries takes high polish, but not sufficiently developed to determine commercial value. Informant: Secy. MacMillan, Calgary.

Alberta

ADON MINING CO., LTD.

Calgary

Capital: \$100,000. Par value, \$1. Non-assessable. Alberta corporation. Directors: Frank M. Harvey, pres.-mgr.; Ernest G. Pescod, H. Turnbull, 702 11th ave. W., secy.-treas.; John H. Turner and A. Layzell, all of Calgary. Property: Lensed claims in Alberta, 2 miles S. and W. of Eldon station, on main line of Canadian Pacific railway. Class of Ore: Zinc, 40%; copper, hand picked, 5 to 10%. Development: Over 300 ft. of underground work. Informant: Secy. Turnbull. Shipments in 1917: returned \$3155.25.

INTERNATIONAL COAL & COKE CO., LTD.

Spokane, Wash.

Capital: \$2,000,000; par value, \$1. Directors: A. C. Fluemert, pres., Victoria; H. Davidson, 1st vice-pres., Vancouver, B. C.; A. L. White, Spokane, 2nd vice-pres., W. G. Graves, Spokane, secy.; C. S. Houghton, Boston. Annual Meeting:

Fourth Thursday in March. Annual report of year 1917 shows \$84,565 earned, from which is deduction of \$65,134 for depletion of coal lands and depreciation of plant, leaving balance of \$19,431, increasing profit and loss account to \$86,583. Balance December 31, 1917, \$438,589, of which \$305,131 was transferred to reserves. **Property:** Is at Coleman, Alberta, on the Crow's Nest branch of C. P. Ry. There are 6 seams varying from 10 inches to 17 ft. in thickness. Only No. 2 and No. 4 are being worked. Eighty per cent of output is shipped as run-of-mine, and balance, slack, goes to a breaker and is delivered to company's coke ovens, 216 in all, of bee-hive type, 14 ft. in diameter, taking a charge of $6\frac{1}{2}$ tons of slack and with combined output of 400 tons a day.

Wilsonium

Rare Element Discovered Last Year in Montana Attracting the Attention of Scientific men.

Wilsonium, the rare element first discovered in monozite and uranite sand in Montana, later in Idaho, the Carolinas, and British Columbia, is attracting attention of scientific men. The element, which many consider radium or an allotropic form of radium, is now fully identified as a new element. The discovery was made in August of last year (1917), by Roy Franklin Heath, an American chemist, who was making an analysis of monozite and noticed such a powerful similarity to rich radium salts and later followed up and isolated the element in the metallic form. Since the identification, many foreign chemists have confirmed the discovery. Wilsonium is one of the elements that possess radio-activity. The other elements are radium, uranium, and thorium. Wilsonium is more powerful than radium, while radium is more powerful than uranium, and uranium possesses greater activity than thorium. Thus, the greater the atomic weight, the less the radio-activity. It should be remembered that all radio-active elements belong to Series 12, of the Periodic system. Metallic Wilsonium is bluish gray, with dull luster and heavy powder. It does not melt, but passes directly into the volatile state, where it is deposited on cold surface. It can be photographed in the dark from its own visible radiations, provided the camera is covered with heavy lead foil so that emanations do not affect the plate. The salts and compounds of Wilsonium are all white in color, or transparent. The radiations are much more powerful than those of radium or metallic Wilsonium. Both the salts and metallic Wilsonium affects the electroscope and photographic plate in similar manner to radium, but much more powerfully. Dr. Henri Bonaparte has performed many physiological experiments with the new element and announces that he has cured cancer, and that in phthisis and miners' consumption Wilsonium has proven a specific in nearly every case. One of the most interesting experiments performed with Wilsonium is when a small quantity of the substance is placed between two electrodes. A small electric current is formed without any apparent waste of the substance. The life of radium has been estimated to be between one and two thousand years, while the life of Wilsonium is estimated by Heath to be between two and three hundred years. A small cell, made as above, has given forth a continuous current of electricity for over four months, and it only remains for time to show whether perpetual motion in the form of electrical energy has been discovered.

MONTANA

Ore sold or treated in Montana, 1900-1917, number of producers, and mine production of gold, silver, copper, lead, and zinc

Year.	Producers.	Ore. Short tons	Gold. Value.	Silver. Fine ozs.	Copper. Pounds.	Lead. Pounds.	Zinc. Pounds.	Total value.
1900			\$ 4,736,225	14,294,835	245,998,365	16,044,751		\$ 63,746,727
1901			4,802,717	14,180,545	228,031,503	11,504,892		60,387,618
1902			4,400,095	13,629,737	211,646,640	8,177,629		46,961,167
1903			4,590,516	13,224,004	213,076,628	9,144,313		50,276,355
1904	210	4,643,092	4,267,062	12,817,285	290,681,572	2,299,291		48,974,381
1905	332	5,020,137	4,794,083	13,231,300	304,723,526	6,264,998	1,560,000	60,709,155
1906	370	5,497,971	4,469,014	11,980,705	290,700,975	4,462,979	6,579,000	69,257,083
1907	436	4,148,496	3,286,212	9,317,605	220,108,792	3,748,304	243,100	53,670,592
1908	566	4,266,022	3,057,640	10,356,199	251,667,795	4,596,570	1,640,000	42,036,710
1909	619	5,421,185	3,791,510	12,378,714	312,058,011	2,983,430	9,359,724	51,429,694
1910	578	5,079,446	3,730,486	12,162,857	284,808,553	4,106,292	31,638,184	48,358,253
1911	610	4,940,303	3,710,571	11,985,196	272,847,705	6,431,575	43,810,145	46,955,287
1912	604	5,552,164	3,625,235	12,731,638	309,738,873	7,446,749	26,918,881	64,754,613
1913	558	5,960,118	3,493,432	13,819,201	287,828,699	10,935,827	88,673,083	61,900,546
1914	505	5,128,956	4,117,911	12,016,460	233,229,640	9,656,008	111,580,544	47,849,747
1915	643	6,129,924	5,004,195	14,378,437	267,231,014	13,756,356	187,146,895	82,912,254
1916	513	7,860,425	4,550,494	16,494,366	352,928,373	13,595,136	229,259,075	133,882,947
1917 est.			3,371,000	12,788,000	278,000,000	17,000,000	180,000,000	113,000,000
Total		69,648,239	\$73,798,398	231,787,084	4,855,306,664	152,155,100	918,408,631	\$1147063129

1900 to 1903 from Director of Mint reports. Coinage value for silver.

1904 to 1917 from Mineral Resources U. S. Geol. Survey, V. C. Heikes. Commercial value silver.

Prepared for Northwest Mines Handbook by Victor C. Heikes, Statistician, Division of Mineral Resources, U. S. G. S., Salt Lake City, Utah.

Montana Mines and Corporations

Covering Lincoln, Flathead, Sanders, Missoula and Mineral Counties, with Those Properties in Other Counties Owned or Operated by Residents of Spokane and Those Specially Reported.

ABBEY CYANIDE GOLD MINING & MILLING CO. Spokane, Wash.

Capital: \$1,500,000. Par value, \$1. **Directors:** John R. Cook, pres.; J. H. Willmot, vice-pres.; F. D. Allen, secy.; E. L. Tate, all of Spokane; Elling Johnson, Kendall, Mont. **Property:** 5 claims, adjoining Kendall Gold Mining Co., Kendall, Mont. **Class of Ore:** Gold. **Development:** Some work done ten years ago. No meeting since 1908. Doubtless defunct.

ALFENA COPPER MINING CO. Wallace, Idaho

Directors: C. W. Beale, pres.; A. H. Featherstone, secy.-treas.; Alexander Muir and A. P. Cochran, Wallace, Idaho. **Property:** Near Adair, Idaho, about 2 miles from Monitor mine. **Development:** Two tunnels and shaft. **Class of Ore:** Copper.

AMADOR COPPER AND GOLD MINING CO. Wallace, Idaho

Reorganized as Intermountain Copper Mining Co. (q.v.).

AMAZON-DIXIE MINING CO. Wallace, Idaho

Capital: \$750,000, in shares of 50c par value. Assessable. Approximately 1,450,000 shares outstanding. Montana company. **Directors:** Wesley Everett, pres. and gen. mgr.; Hugh Toole, vice-pres.; H. J. Rossi, secy.-treas.; Judge W. W. Woods, Shoshone district court; A. W. Ellenberger, pres. Hydraulic Pressed Steel Co., Cleveland, Ohio. **Property:** 8 claims and 4 mill-sites at Sildix, Mont., just across Idaho line. Patents applied for. **Class of Ore:** Silver, lead, copper. **Equipment:** 2 Ingersoll-Rand compressors, 3 stopers, 3 drifting machines and 3 sinkers, of latest type; No. 9 station pump and No. 6 sinking pump; 8x10 Lidgerwood hoist-skip and cage, Anaconda timber hoist, forge air hammer, Leyner drill sharpener, ore train of 8 cars, 20,000-foot sawmill. Machinery all actuated by company's own water power plant, a 4200-foot pipe line, delivering under 350-foot head and 2000 feet 3-in. pipe furnishing domestic supply. New pipe line of 6000 feet delivers water under 250-foot head. Abundance of timber on property. Northern Pacific tracks cross ground 36 feet above main tunnel portal, which is but 160 feet from station and connected by spur with main line. Property fully equipped with all necessary domestic and mine buildings, including bunk and boarding houses, with running hot and cold water, shower baths, etc. **Development:** Good surface showings of copper-lead-silver. Vein stripped for 900 feet and shaft sunk 35 feet. Later crosscut was run and vein encountered at 200 feet vertical depth, from which point drift was put out 500 feet, exposing fairly good milling ore. Another crosscut was then run, intersecting vein at depth of 700 feet and drifts run 800 feet. Raise put up to 200-foot level and winze sunk 250 feet, station and skip pocket being provided. At 900-foot level 300-foot crosscut was run to vein, which was drifted upon for 550 feet and raise put up 70 feet. Winze is now being sunk to 1100-foot level. Wherever vein was opened good milling ore was exposed and values at 900 compare favorably with any in the workings. If present development proves satisfactory, company contemplates erection of milling plant this summer, but will be assured of sufficient reserves before taking such steps. Continuously worked since organized. Force of 15 to 20 men. **Informant:** Wesley Everett.

AMERICAN COPPER MINING CO. Spokane, Wash.

Capital: \$10,000. Par value, 10c. Assessable. **Annual Meeting:** January 8. **Property:** Unpatented, half way between St. Regis and De Borgia, 120 acres. Formation is lime, shale and quartzite. **Class of Ore:** Picked samples give 16 per cent copper. Average assay gives 4% copper, 4 ozs. silver and 45c gold. **Equipment:** Gasoline engine of 4-h.p. **Development:** About 1500 ft. **Informant:** William Lintner, mgr., St. Regis.

ARLINGTON MINING CO. Wallace, Idaho

Capital: \$1,500,000. Par value, \$1. **Directors:** Chas. T. Fisher, pres.; M. J. Mahoney, secy., Wallace, Idaho. **Property:** 20 claims near Mountain House. **Class of Ore:** Lead-silver, carrying copper. **Development:** Two tunnels, lower 900 ft. long.

BANNER & BANGLE MINING CO.

Spokane, Wash.

Capital: \$600,000. Par value, \$1. Non-assessable. **Directors:** W. J. C. Wakefield, pres.; A. W. Witherspoon, secy.-treas.; W. J. Beaton, all of Spokane; A. L. Smith, Helena, Mont., vice-pres.; Leo Greenough, mgr. Spokane. **Property:** 2 patented claims and water right, 7 miles from Troy, Mont. **Class of Ore:** Silver, lead, zinc. Early in 1916 lease and bond at \$225,000 given to Snow Storm Mines Cons. (q.v.) with payments due as follows: Nov. 20, 1920, \$100,000; Nov. 20, 1921, \$125,000. Royalty of 10% to apply upon all payments. Banner & Bangle property worked for many years by late T. L. Greenough. Estate also controls Snow Storm Mines Co. under management of Leo Greenough. Approximately \$500,000 spent in equipment under present lease and bond. Impossible to obtain exact details as to present situation, but as corporations are controlled by identical interests it is believed terms of lease and bond will be elastic.

BEAR CREEK PLACER MINING CO.

Libby

Directors: C. A. Chapman, Fred Chapman and E. G. Mellander, all of Libby. **Property:** Group of placer claims on Bear creek, Lincoln Co., 18 miles S. of Libby, operated under direction of C. A. Buck. Owns 10 miles of gravel flats along creek. Gold-bearing gravel covered with 12 ft. of soil. Pay streak 5 ft. deep, opened up for width of 200 ft., without reaching its limits. A $\frac{1}{4}$ interest owned by English capitalists. In 1917, Co. was installing a \$410,000 dredging plant. **Note:** Said to have paid \$150,000 for Libby Placer Mining Co.'s property (q.v.), and \$40,000 for properties of Comet Placer Co. (q.v.), in 1916.

BEN HUB MINING & MILLING CO.

Saltse

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** D. S. Dickson, pres.; Frank H. Bell, vice-pres.; Chas. J. Luedke, secy., Saltse, Mont.; C. A. Keating, treas.; Peter Petersen, A. J. Matthiesen. **Annual Meeting:** Last Saturday in April. **Property:** 9 unpatented claims 3 miles N. of Saltse. **Class of Ore:** Lead-silver, gray copper. **Development:** 3 crosscut tunnels, the lower being 1100 ft.

BEN THOMAS MINING CO.

Libby

Owner: B. M. Thomas, Libby. **Property:** Napoleon group of 10 unpatented claims, Rainy Creek district, Lincoln Co. Working small force; under bond to F. J. Doland, of New York. **Development:** 9 tunnels, from 60 to 200 ft., all showing ore carrying copper, gold and silver. One vein carries molybdenite, and 16 other veins, copper, from 3 to 17 $\frac{1}{2}$ ft. wide. Country rock and veins carry vanadium. **Informant:** B. M. Thomas, owner, Libby. **Note:** Vanadium found under entirely new conditions and reported upon by U. S. Geological survey.

BIG EIGHT GROUP.

Wallace, Idaho

Property: Adjoining Banner & Bangle group of Snowstorm Cons. on Callahan creek, near Troy, Mont. Controlled by Harry L. Day, of Wallace, Idaho, and associates, who contemplated making arrangements in August, 1917, to sink a 3-compartment shaft and install machinery for operations by electric power, to be obtained from Snowstorm Cons. Co. An old shipper, with veins traversing Snowstorm and L. & V. properties. Several thousand tons of ore said to have been shipped from property before acquisition by Day interests. Details unobtainable, owing to secretive policy of Days. Believed inactive.

BIG ELK MINING CO.

Wallace, Idaho

Capital: \$2,000,000. Par value, \$1. Assessable. **Directors:** Peter Peterson, pres.; Carlton Fox, vice-pres.; A. H. Featherstone, secy.-treas.; Peter Peterson, mgr.; W. S. Brown, all of Wallace. **Property:** 15 unpatented claims, 300 acres, in St. Joe district, on Bald Mt., near Saltse, Mont. **Class of Ore:** 28.7% iron; 15% sulphur; 2 ozs. silver to the ton. **Development:** 125-ft. upper tunnel, and 200-ft. lower crosscut tunnel.

BLACK TRAVELER COPPER MINING CO.

Mullan, Idaho

Capital: \$1,500,000. Par value, \$1.00. Assessable. **Directors:** O. S. Roof, pres.; J. R. Bean, secy.-treas., Mullan; R. E. Sisler, Wallace; F. Lentke, Saltse, Mont. **Annual Meeting:** Second Tuesday in November. **Property:** 6 unpatented claims in St. Regis district, East Coeur d'Alenes. **Class of Ore:** Gold, silver, copper. **Equipment:** Buffalo fan, blacksmith shop, bunkhouse. **Development:** 3000 ft. tunnel, 50-ft. shaft. No shipments. **Informant:** Pres. Roof and Secy. Bean. **Note:** Holdings acquired by Saltse Cons. Mining Co. (q.v.) in December, 1917.

BLUE BIRD LODE.

Gateway

Owner: C. T. Young, Gateway. **Property:** 20 acres, patented, 14 miles from Gateway. **Class of Ore:** Gold, silver, copper. **Development:** 120 ft. of tunnel. **Informant:** C. T. Young, Gateway.

BLUE-EYED HELLIE MINE, INC.

Spokane, Wash.

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** A. W. Paterson, pres.; E. C. Paterson, secy.-treas., both of Spokane; Chas. H. Brown, Anaconda, Mont. **Property:** 2 patented and 5 unpatented claims, 6 miles W. of Anaconda, Mont. **Class of Ore:** Silver, lead, zinc. **Equipment:** Compressor, Sullivan hammer drills, etc. **Development:** 325-ft. of shafts. Production from 1885 to 1891 said to have been over \$1,000,000 net. Idle for 25 years. Operations resumed April, 1917, and will drive 1800-ft. tunnel at 700 ft. depth. **Informant:** Pres. A. W. Paterson.

BOSTON-COLBY COPPER MINING CO.

Salt Lake

Capital: \$1,500,000. Par value, \$1. **Directors:** Peter Peterson, pres.; Andrew Flaig, secy.-mgr. and principal owner, Minneapolis, Minn. **Property:** 9 unpatented claims, 180 acres, and 5-acre mill-site, adjoining Butte-Coeur d'Alene Copper Mining Co., west of Salt Lake. **Class of Ore:** Copper. **Development:** 2 crosscut tunnels, 1300 ft., 500 ft. of drifting. Crossed by C., M. & St. P. R. R. Assessment work only for past few years.

BROOKLYN MINING CO.

Spokane, Wash.

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** Ed Mielke, pres.; H. A. Maurer, treas.; H. A. Burch, all of Rocklyn, Wash.; Henry Kruger, vice-pres., Davenport, Wash.; S. W. Crabtree, secy., Spokane. **Annual Meeting:** First Friday in June. **Property:** 7 unpatented claims near Maxville, Granite Co., Mont. **Class of Ore:** Lead, silver, copper and zinc. **Equipment:** 500 ft. of rail, gas engine, power ball mill, concentrator, flotation plant, electric and water power. Total shipments, 13 carloads of ore—4 cars in 1916, net \$4135. **Development:** Tunnel. From 150 to 200 tons daily are handled through the flotation plant. **Informant:** Pres. Mielke. **Note:** In March, 1918, property was closed down and left in charge of small force as caretakers. Deal said to be pending. Future indefinite, although officials expect early resumption.

BUENA VISTA MINES CO.

Spokane, Wash.

A reorganization of the Buena Vista Mines Unit Co. **Capital:** \$150,000. Par value, 10c. **Directors:** W. P. Russell, pres.; W. S. McCrea, vice-pres.; G. F. Russell, secy.-treas.; J. D. Chickering, F. Leslie, J. Millspaugh, J. P. Boyd, all of Spokane. **Property:** Buena Vista group of 5 claims, 3 of which are held under bond and lease from Wm. Coleman, of Deer Lodge, Mont., and 2 under location by new Co., all being nine miles S. E. of Maxville, Granite Co., Mont. **Class of Ore:** Principally silver, with some copper. Vein opened at several places for 2000 ft., and by 2 shafts, showing silver values of 50 to 400 ozs. per ton. **Development:** By shaft and crosscut. New Co. will install machine drills this season. **Informant:** Secy.-Treas. Russell.

BUTTE-BULLWHACKER MINING CO.

Butte

(A reorganization of the Bullwhacker Copper Co.) Incorporated in Washington, Oct. 24, 1914. **Capital:** \$1,000,000. Par value, \$1. Assessable. **Directors:** Wm. F. Love, pres.; Henry Meloy, vice-pres.; John E. Corette, secy.-treas.; G. A. Lauzier and P. W. Clark. **Annual Meeting:** Second Monday in January, at Butte. **Property:** One claim, 20 acres, on east side of Butte district. **Class of Ore:** Copper. **Equipment:** Hoist, compressor plant, 75-ton leaching plant not yet successfully operated. **Development:** Old 300-ft. shaft, with crosscuts beneath ore body at that level, also several new shafts. Ore body is extensive, and has a large tonnage. Property was developed mainly by the late Patrick Clark, of Spokane. Reorganization of Co. wiped out a debt of \$121,200 due Mr. Clarks' estate, and left \$20,000 in the treasury. Was leased by I. A. Hellbronner and Patrick Wall for one year from April, 1916, to East Side Mining Co., on a royalty of 25%, shipments of not less than 1000 tons of ore a month being stipulated. Mine ran into debt for experimental leaching plant, and Mines Operating Co. secured control by buying 3/5 of East Side Co. stock at 75c per share. Considerable of the stock said to be owned in Spokane.

BUTTE COPPER CZAR MINING CO.

Butte

Capital: \$300,000. Par value, 25c. Non-assessable. **Directors:** C. F. Murphy, pres.; E. C. Meiklejohn, vice-pres.; L. P. Sanders, secy.-treas.; R. W. Green, all of Butte; F. G. Link, Billings; LeGrand Smith, Chicago, Ill. **Property:** Copper Czar lode mining claim, patented, 3 miles E. of Butte. **Class of Ore:**

Copper, with small values in gold and silver. Working 23 men. **Equipment:** Lidgerwood hoist, 2 boilers, electrically-driven compressor, pumps, tools, etc. No shipments. **Development:** 2-compartment shaft 275 ft. deep; will crosscut vein, 140 ft. wide, on 300-ft. level. **Informant:** Vice-Pres. Meiklejohn.

BUTTE-DEER LODGE MINING CO.**Butte**

Capital: \$300,000. Par value, \$1. Non-assessable. **Directors:** W. L. Hugo, pres.; Simon Bank, vice-pres.; J. R. Davenport, secy.-treas.; E. F. O'Flynn, F. G. Ghormley, all of Butte. **Annual Meeting:** June 15. **Property:** 8 patented claims, at Emery, 9 miles N. E. of Deer Lodge. **Class of Ore:** Gold, silver, lead, zinc. **Equipment:** 100-ton concentrator, tables, flotation plant, etc. Present approximate net returns, \$100,000 per annum. Installing electric equipment and enlarging mill. **Informant:** Managing Director O'Flynn.

BUTTE-DETROIT COPPER & ZINC MINING CO.**Detroit, Mich.**

Capital: \$2,500,000. Par value, \$1. Non-assessable. **Directors:** J. F. Austin, pres., Detroit, Mich.; Ellery C. Wright, vice-pres., Brockton, Mass.; W. G. Burns, secy., Boston, Mass.; J. S. Pishon, treas., Boston, Mass.; Wm. L. Creden, Butte, Mont.; Sir Henry M. Pellatt, Toronto, Can.; J. E. Simpson, Lawrence, Mass.; R. A. Gallagher, Franklin, Mass.; Jos. Renihan, Grand Rapids, Mich. **Property:** Owns over 50% of capital stock of Butte Central M. & M. Co., the Ophir (now known as Butte-Detroit) mine and mill, at Butte, Mont., with underground rights to 20 acres, and surface rights to 3½ acres, upon which mill is built, in heart of Butte camp; all patented. **Class of Ore:** Copper and zinc. In upper levels, manganese and silver. Working 60 men. **Equipment:** Flotation process for concentrating base ores; 600-ton crusher, jigs, Wilfley tables, briquetting apparatus, etc. **Development:** A 1065 ft. shaft and 750-ft. crosscut on Ophir. Substantial shipments of zinc and manganese ore have been made, manganese content averaging 46½ to 48%. **Informant:** Secy. W. G. Burns.

CAPE NOME COPPER MINING CO.**Missoula**

Capital: \$1,000,000. Par value, \$1. **Directors:** Edw. Donlan, pres.; F. H. Woody, vice-pres.; H. T. Wilkinson, secy.-treas.-mgr.; A. L. Coffey. **Property:** 3 patented claims, 40 acres, adjoining Aladdin Mining Co., Missoula Co. **Equipment:** 2 60-h.p. boilers, 40-h.p. hoist, 12-drill air compressor, 6 buildings. **Development:** 3750 ft. of workings. Has been idle several years.

CARBON HILL MINING & MILLING CO.**Helena**

F. S. Earnest, Spokane, chief owner. **Property:** 9 claims in Grass Valley section, 1 mile N. W. of Ft. Harrison, Helena. **Development:** 250-ft. incline shaft, showing 5½ ft. of carbonate ore and galena, said to assay \$48 per ton, value chiefly in gold. A 15-ft. shaft with 20-ft. drift shows a 9-ft. vein of carbonate ore, said to assay \$23 to \$111 per ton. Has 60-h.p. gasoline hoist. No late details; presumably inactive.

CEDAR CREEK PLACER MINING CO.**Iron Mountain**

J. T. Lacasse, pres., Iron Mountain. **Property:** 177 acres placer ground, 18 miles S. of Iron Mountain, worked every summer for 40 years. **Equipment:** Large dredge, operated by electric power, power plant on property. Has yielded large quantities of gold.

CHEW'S LIBBY CREEK PLACER.**Spokane, Wash.**

Owner: Geo. Chew, Spokane. **Property:** 6 patented claims, 25 miles S. of Libby, Mont., on Libby creek—the Mascot, Yellow Jacket, Yellow Jacket No. 2, Eureka No. 2, North Placer, and Starving. **Class of Ore:** Coarse gold, with large amount of flour gold running with black sand; average value, \$19 per oz. Not working—shut down in 1908. No equipment. Worked from 1905 to 1908, with a total production of \$15,000. **Informant:** Geo. Chew, owner.

CLINTON COPPER CO.**Missoula**

Capital: \$100,000. Par value, 10c. **Property:** In an old district in Missoula Co., abandoned in the early days for Butte, owing to low price of copper. Bonded Sullivan & Western claims near Hidden Treasure, in which thousands of tons of copper ore have been exposed recently. A depth of 800 ft. attained in main tunnel. Main tunnel in 1400 ft., showing a body of low grade ore 40 ft. wide. Upper tunnel, in 600 ft., exposes high grade ore. This and other properties in district being rehabilitated and developed.

COEUR D'ALENE INV. CO., LTD.**Mullan, Idaho**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** M. E. Lewis, pres.; Moscow; Abe Hutton, vice-pres.; J. R. Bean, secy.-treas., Mullan; D. M. Eckman,

Troy; R. Hodgins, Moscow. **Annual Meeting:** Second Monday in January. **Property:** 7 unpatented claims and option on 11 patented claims, in St. Regis district, near Keystone, Mont. **Class of Ore:** Lead-silver. **Equipment:** Gas engine, exhaust fan, cars, steel, bunk house, etc. **Development:** Much work done in endeavoring to find ore body, but not successful. **Informant:** Secy.-Treas. Bean.

COEUR D'ALENE MINERS' MINE DEV. CO.

Burke, Idaho

Capital: \$100,000. Par value, 10c. **Directors:** Mark L. Shea, pres.; Hord L. Long, vice-pres.; W. H. Clark, secy.; Lewis Dantzer, treas., all of Burke. **Property:** Option on 6 copper claims known as the Iron Mask, on White Pine Mt., in Mont. Located in 1911, by John H. Meehan. Members of company are employees of Hercules mine.

COLUMBUS COPPER MINING CO.

Thompson Falls

Capital: \$1,000,000. Par value, \$1. **Directors:** Wm. P. Flood, pres.; M. J. McHugh, both of Mullan, Idaho; Theo. Beddard, secy.-treas., Thompson Falls. **Property:** 7 unpatented claims, surveyed for patent, in East Coeur d'Alenes, on Montana side of line. Believed to be inactive.

COMET MINING & MILLING CO.

Coeur d'Alene, Idaho

Capital: \$1,000,000. **Directors:** Dr. Max A. Dorland, pres.; Fred Eppinger, vice-pres.; J. H. Wiggert, secy. **Property:** Near Whitefish; developed by short tunnel. Probably idle.

COMET PLACER CO.

Butte

Capital: \$125,000. Par value, \$1. Assessable. Sold to Bear Creek Placer Mining Co. (q.v.), for \$40,000, in 1916.

COPPER AGE & EDISON MINING CO.

Saltese

Capital: \$1,250,000. Par, \$1. **Directors:** Chas. J. Heidenreich, pres., Spokane, Wash.; Morton Webster, secy.-treas., Wallace, Idaho. **Property:** 12 claims, 4 miles S. of Saltese, Mont., an eastern extension of Richmond mines, carrying copper-bearing outcrop, vein paralleling Monitor. Vein exposed for 700 ft. in tunnel just east of divide; averages 10 ft. **Class of Ore:** Copper, gold. **Development:** Main crosscut tunnel, 1160 ft., with backs of 600 ft., showing sulphide ore. **Note:** No development since 1916, although company plans resumption July, 1918.

COPPER CROWN MINING CO.

Mullan, Idaho

Capital: \$125,000. Par value, 10c. Assessable. **Directors:** E. A. Massing, pres.; John H. Hendrickson, secy.-treas., both of Mullan. **Annual Meeting:** First Monday in January. **Property:** 160 acres unpatented land in St. Regis district, Mont. **Class of Ore:** Copper and silver. **Development:** 2000 ft. of tunnels, 1200 ft. more being driven. Only assessment work has been done for 3 years. **Informant:** Secy. Hendrickson.

COPPER HILL MINING CO., LTD.

Wallace, Idaho

Capital: \$250,000. Par value, 25c. Non-assessable. **Directors:** Morton Webster, pres.; A. T. Ryan, vice-pres.; Howard K. Welch and Chester Howarth, all of Wallace. **Property:** 7 claims, 125 acres, in Sunrise district, on Montana side of state line, showing altered zone of silicious rocks 25 to 50 ft. wide, carrying copper carbonates and sulphides. Assays about 4% copper. Has 75 ft. tunnel. Inactive.

COPPER MOUNTAIN MINING & DEV. CO.

Mullan, Idaho

Capital: \$1,500,000. Par value, \$1. **Directors:** John Hendrickson, pres.; A. B. Willard, vice-pres.; D. Flynn and John Foss, all of Mullan. **Annual Meeting:** Second Tuesday in December. **Property:** 5 claims, 1 fraction, 95 acres, with 3 adjoining claims, at head of Copper creek, near Thompson Falls, Mont. Mine has 2 tunnels, the upper a crosscut, deflected for 56 ft. along vein, said to be 25 ft. wide, with gold and silver values. Idle.

COPPERSMITH MINING & MILLING CO.

Lothrop

Capital: \$3,000,000. Par value, \$1. Non-assessable. **Property:** Coppersmith group, of 6 unpatented claims, and Inverness group, of 2 unpatented claims,

with water right and mill-site, 6 miles up Betty creek from Lothrop, Missoula Co. **Class of Ore:** Copper, assaying 3 to 20% copper, \$10 to \$12 per ton in silver and gold in Inverness group. **Equipment:** Includes 4 buildings. **Development:** Several cuts and pits, and 50-ft. shaft. Idle, and not considered very promising.

DARBY MINING & MILLING CO.

Mullan, Idaho

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** M. J. McHugh, pres.; C. D. Miller, vice-pres.; S. C. Bean, secy.-treas.; N. C. Sheridan, mgr.; J. A. Ghormley, all of Mullan. **Property:** 10 unpatented claims, near Keystone, Carter district, Sanders county, Mont. **Class of Ore:** Silver-lead. **Development:** Opened by three tunnels. No. 1, 175 ft., on the vein, with vertical depth at face of 55 ft. No. 2, 375 ft. long, on the vein, with depth of 100 ft. below No. 1, and showing 1 ft. of ore, running 25% lead and 10 ozs. silver per ton. No. 3, crosscut, now in 670 ft., expected to strike vein within 100 ft., with vertical depth of 450 ft. Operations being conducted with a small force.

DEER CREEK GOLD MILLING & MINING CO.

New York

Owner: W. R. Meneely, New York City. **Property:** 17 patented claims—the Admiral, Crystal, Skylark, Chief, White Swan, Empire, Keystone, Harmony, Empire Millsite, New Jersey, Grant, West Point, Saratogo, Portland, Gold Deer, Norman and Cornish Placer—on Deer Creek, 6 miles S. of De Borgia, Mont. Property said to be leased, and may soon resume operations.

DEMOCRAT MINING CO.

De Borgia

Co-partnership. **Owners:** A. A. Mayo, De Borgia; Mrs. Al. Grill and Mrs. S. Anderson, Mullan, Idaho. **Property:** Unpatented claim, the Democrat, on south fork of Little St. Joe river, 5 miles from St. Regis. **Class of Ore:** Copper, 8% across vein; gold and silver, \$10 per ton. Not working since 1915. **Equipment:** Cabin, drills, hammers, shovels, blacksmith shop. No shipments. **Development:** 280 ft. of tunnels, 15-ft. shaft. **Informant:** A. A. Mayo, part owner.

DENNEMORA GOLD & COPPER MINING CO.

Wallace, Idaho

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** Oscar Nordquist, pres.; P. O. Swanson, secy.; L. Leighty, treas., all of Wallace; W. F. Gardner, vice-pres., Wardner; Emil Johnson, Mullan; Carlton B. Williams, The Dalles, Ore. **Annual Meeting:** First Saturday in October. **Property:** 4 patented claims and mill-site, near Taft, in Mineral Co., Mont. **Class of Ore:** Copper, 2½% silver, 3 ozs.; gold, \$1.50 per ton. Not working now. No shipments. **Equipment:** 4000 ft. of flume, 500 ft. penstock, air compressor, hoist, pump, drills, etc. **Development:** 2000 ft. of tunnels and 240-ft. shaft. **Informant:** Secy.-Treas. Swanson.

DIAMOND HITCH MINING CO.

Spokane, Wash.

Incorporated in December, 1915, by J. E. and W. W. Wallace and Chas. Robinson, of Spokane, to develop the Diamond Hitch and Cabinet-Queen groups of 12 silver-lead claims near Troy, Mont. **Capital:** \$200,000. Par value, 10c. Wallace Bros. also own the Troy mine, 6 miles from Troy, and in developing this property by tunnel from the Troy side of the mountain, will strike the Diamond Hitch-Cabinet-Queen veins at considerable depth. No late details available. Property inactive.

EAGLE MOUNTAIN CO.

Thompson Falls

Capital: \$150,000. Par value, 10c. **Directors:** Adolph Haupt, pres.; W. W. Bixby, secy.-treas., both of Wallace, Idaho. **Property:** 7 claims, surveyed for patent, 10 miles W. of Thompson Falls, in Burns district. Nothing late obtainable. Probably inactive.

EAST BUTTE COPPER MINING CO.

Boston, Mass.

Capital: \$6,000,000. Par value, \$10. Non-assessable. **Directors:** R. H. Gross, pres.; Frank P. Son, treas.; Wm. P. Everets, secy., Boston; J. H. Reed, vice-pres., Pittsburg, Pa.; Oscar Rohn, genl. mgr., Butte, Mont. **Annual Meeting:**

First Monday in April. **Property:** Outstanding bonds of Pittsmont Copper Co., entire issue of 200,000 shares preferred stock, and 801,410 shares of 1,000,000 issue of common stock of same Co., owned by East Butte Copper M. Co.—280 acres; Dutton property, 134 acres, south part of Butte camp; Chamounix property, Austin, Lewis & Clark Co., 28 claims, 488 acres; Swisssmont property, Elkhorn, Jefferson Co., 8 claims, 91 acres; Lime Spur property, lime quarry, Lime Spur, Jefferson Co., Mont., 275 acres. All patented. **Class of Ore:** Butte property, copper; Elkhorn property, gold; Lime Spur property, lime rock for flux. Force working: Butte, 930; Lime Spur, 12. **Equipment:** Pittsmont property: Hoisting, milling and flotation plants and smelter; 2000-h.p. electric plant, 600-h.p. steam hoist good for 3000 ft. depth, and 50-h.p. good for 1500 ft., 2 25-drill air compressors, 50 power drills. Electric power for all purposes except hoisting. About 20 buildings, large and complete for every purpose. Capacity of concentrator, 600 tons; flotation plant, 800 tons. Dutton property: 150-h.p. electric hoist, electric 10-drill compressors, pumps, etc. Elkhorn property: 50-h.p. electric hoist, 5-drill compressor, 150-ton cyanide mill. Lime Spur property: 5-drill air compressor, 80-h.p. steam boilers. Shipments last year: Copper, 18,340,713 lbs.; silver, 556,452 ozs.; gold, 3844 ozs. Gross value, \$5,463,277.74. Total shipments to date, 100,420,737 lbs. copper. Rate of output now: 18,000,000 lbs. copper per year. **Development:** 3070 ft. of shafts; crosscuts and drifts, 6626 ft.; stopes, 1500 ft. **Informant:** Genl. Mgr. Oscar Rohn.

EAST COEUR D'ALENE MINING CO., LTD.

Mullan, Idaho

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** Harry P. Hogan, pres., Mullan, Idaho; W. J. Hughes, vice-pres.-mgr., Saltsee, Mont.; Mrs. L. M. Westervelt, secy.-treas.; T. A. Westervelt, M. D. Needham, all of Haugan, Mont. **Annual Meeting:** First Thursday in October. **Property:** 14 unpatented claims, 3½ miles north of Haugan, Mont. **Class of Ore:** Copper, 8%; gold, ½ oz.; silver, 3 ozs. Working small force. No shipments. **Development:** 1324 ft. of tunnels. **Informant:** Vice-Pres. Hughes.

EAST PACIFIC MINING CO.

Broadwater Co.

Capital: \$1,000,000. Par value, \$1. **Property:** 8 patented claims in Crow mountains, Broadwater Co., 5 miles N. of Winston on N. P. Ry. **Class of Ore:** Lead, silver and gold. **Development:** Over 4 miles of tunnels, all on 3 claims. Mine has not been worked much since 1902, except for short periods by leasers. Needs thorough overhauling and installation of modern equipment, including electric power, which could be obtained by erection of 13 miles of poles and wires. **Note:** Under option early 1918 to D. M. Adams, of Spokane. Negotiations for resumption of operations in progress.

EAST SPRING HILL MINING CO.

Helena

Capital: \$50,000. Non-assessable. **Directors:** A. H. Kleinschmidt, pres.; M. Kuphal, F. Hillehecht, all of Helena. **Annual Meeting:** Second Monday in January. **Property:** 6 unpatented claims, adjoining the Spring Hill mine, 3 miles from Helena. **Class of Ore:** Gold and iron. Not working; shut down in December, 1916. No shipments. No equipment. **Development:** 800 ft. of tunnel and 150-ft. shaft. **Informant:** Pres. Amelia H. Kleinschmidt.

ECLIPSE PLACER CLAIM

Superior

Owner: A. P. Johnston, Superior. **Property:** Eclipse placer, 80 acres, patented, and Van Ness placer, 80 acres adjoining, unpatented, on Trout creek, Mineral Co. **Class of Ore:** Placer gold, \$17 from 15 drill test holes sunk to bed-rock. Not working; shut down in July, 1915. **Equipment:** Keystone drilling machine, 35-h.p. boiler, 25-h.p. engine, centrifugal pump, camp outfit, etc. No shipments. **Development:** Over ½ mile of tunnel, now abandoned for drilling process. **Informant:** A. P. Johnston, owner. **Note:** Property being prospected in 1917 by possible purchasers.

EMPIRE MINING & MILLING CO.

Winston

Directors: F. L. Daggett, A. B. Ernst and M. A. Dehuff, Spokane, are officers of Co. Property at Winston, Mont. **Class of Ore:** Lead, from 40 to 60%, in vein 2 ft. wide. Shipments began about Jan. 1, 1917. **Note:** No information obtainable this year. Believed operations abandoned by Spokane interests.

FLATHEAD DEVELOPMENT CO.**Butte**

Directors: Gen. Chas. S. Warren, pres.; L. O. Evans, John M. Murphy, all of Butte; Fred Oliver and V. D. Williamson, Spokane; Dr. W. H. Campbell and A. Ingraham, Kallispell. **Property:** Big Copper, Nos. 1 to 4, and Noble Copper claims, covering veins 10 to 20 ft. wide, on Felix creek, tributary of Flathead rivers, 30 miles S. of Coram. No development. Abandoned in 1917, owing to distance from railroad. Probably defunct.

GALLATIN GOLD DREDGING CO.**Spokane, Wash.**

Capital: \$2,000,000. Par value, \$1. **Directors:** A. H. Featherstone, pres.; John Lucas, both of Wallace, Idaho; Dr. W. B. Pickrell, vice-pres.; F. D. Allen, secy.; Geo. Harding, treas.; Frederick Epplen, all of Spokane; Thos. Michener, Salesville, Mont. **Property:** Former holdings of Hercules Dredging Co. and Eureka Development Co., covering 6240 acres of placer ground in Gallatin Co., Mont., from N. E. corner Yellowstone Park, down W. fork of Gallatin river for 22 miles. Over 1200 acres patented ground. Inactive, but expects to resume this summer.

GENERAL EXPLORATION CO.**Missoula**

Capital: \$500,000. Par value, \$1. Incorporated May, 1916, by C. L. Cowell, A. L. Duncan and W. M. Bickford, to do a general mining and milling business, and take over lease on 52 acres of Marsh holdings in the Coeur d'Alenes, as well as a lease from the Federal M. & S. Co. on property in Tiger-Poorman. **Note:** Marsh Mining Co. refused to carry out plan contemplated and reorganized as Marsh Mines Consolidated. General Exploration Co. therefore believed to have died natural death.

GLEN METALS MINING CO.**Mullan, Idaho.**

Capital: \$1,000,000. Par value, \$1.00. Assessable. **Directors:** C. B. Etnier, pres., Spokane; C. A. Wing, vice-pres., Wallace; C. D. Miller, secy.-treas.; J. A. Bean, Mullan; W. D. Greenough, Spokane, Wash. **Annual Meeting:** First Tuesday in September. **Property:** 10 unpatented claims and mill-site, 220 acres, Keystone, Mont. **Class of Ore:** Lead, silver, copper, zinc. **Equipment:** Regular prospect outfit. Working small force. Total shipments, 3 cars; returns, \$507. **Development:** 2530 ft. of tunnels and crosscuts, 100 ft. drifts, 100 ft. raises; vertical depth, 1500 ft. **Informant:** Director J. A. Bean.

GOLD CHROME MINING CO.**De Borgia**

Property: 6 claims 3 miles S. of De Borgia, on Deer Creek, under management of Elmer C. Brain. Co. completing 35-stamp mill. Said to be a large free-milling gold property, and assessed for \$5550. No official report obtainable.

GOLD CROWN MINING CO., LTD.**Henderson**

Capital: \$1,000,000. Par value, \$1. A. A. Mayo, pres., Henderson. **Property:** 5 claims, 7 miles from railroad, showing vein 7 to 15 ft. wide, carrying ore with copper, silver and gold values. **Development:** By tunnels. No official report obtainable.

GOLDEN CHANCE MINING CO., LTD.**Iron Mountain**

Capital: \$800,000. Par value, \$1. Assessable. **Directors:** C. A. Stittinger, pres.-treas.; C. B. Stittinger, vice-pres.; Theo. H. Thomas, secy., all of Iron Mountain; Mrs. Kate Baker, Spokane, Wash.; Walter McKay, Portland, Ore. **Annual Meeting:** Third Monday in August. **Property:** 6 unpatented claims, on Deep and Eddy creeks, tributaries of Missoula river, in Mineral Co., Mont. Working small force. No equipment; no shipments. **Development:** 745 ft. of tunnels. **Informant:** Secy. Thomas.

GOLDEN SUNSET MINING CO.**Iron Mountain**

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** J. W. Ridinger, pres.-mgr.; Theo. H. Thomas, secy.-treas., both of Iron Mountain; J. L. Ref-

snider, vice-pres., Superior. **Annual Meeting:** March 21. **Property:** 5 unpatented claims on Cedar creek, tributary of Missoula river, 15 miles from N. P. Ry. **Class of Ore:** Gold, silver and lead. No shipments. **Equipment:** Mill machinery on ground; will be erected and put into operation 1918. **Development:** One short tunnel being run to tap vein. Another tunnel higher up, but giving only little depth. **Informant:** Pres. Ridinger.

GRAY EAGLE MINES CONSOLIDATED.

Troy
Capital: \$150,000. **Directors:** Gus Anderson, Iver Gustafson, both of Troy; Albert Peterson, John Mortenson and S. J. Turnvall, all of Newport, Wash. No details available.

GREAT NORTHERN COPPER CO.

Java
Owns Great Northern mine, 1 mile N. of Java, Flathead Co. Developed by several tunnels, 200 to 500 ft. long, on strike of vein. **Class of Ore:** Gold and copper. No official report obtainable.

GREAT NORTHERN LODGE.

Gateway
Copartnership. **Owners:** Geo. F. Stannard, Edward Dickey, Kallispell; C. T. Young, Gateway. **Property:** 20 acres, patented, in Sylvanite district, on Yahk river, Lincoln Co. **Class of Ore:** Gold, silver, lead. No shipments; no equipment; only limited development work. No official report obtainable.

GROUSE RIDGE GROUP.

Superior
Principal Owner: Wm. Whitmarsh, Superior. **Property:** 5 unpatented claims and millsite in 2 groups, one on tributary to Thompson creek, one on tributary to Cedar creek, near Superior, Mineral Co. **Class of Ore:** Copper, 27%; silver, 6 ozs.; gold, 9 ozs. to the ton. Shut down in 1915. No equipment; no shipments. **Development:** 860 ft. of tunnels, 24 ft. of open cuts. Other owners are Chas. A. Johnson, 3/18, and Edw. Olson, 1/18 interests. **Informant:** Wm. Whitmarsh, principal owner.

HAMILTON-IRON MASK MINE.

Keystone
A consolidation of the Hamilton-Coeur d'Alene Mining Co. and the Iron Mask Mining Co. Merger perfected by Richard Daxon of Hamilton, in March, 1917. **Property:** On Spring gulch, at Keystone, 6 miles from N. P. Ry. **Class of Ore:** Runs as high as 60% lead and 40 ozs. silver. **Equipment:** Compressor, and good water power. **Development:** 3 tunnels and prospect shaft. A crosscut has been run to the vein, and drift toward Hamilton-Coeur d'Alene claims shows 18 inches of ore. No official report.

HECLA MINES.

Beaverhead Co.
Property: 16 patented claims, 1/2 interest in another, and 1/4 interest in still another claim, with 10 mill-sites, altogether about 475 acres of patented ground, on and near Lion Mt., Beaverhead Co., owned and operated by Hecla Cons. Mining Co. from 1877 to 1904, with a reported production of \$16,000,000 and dividends of nearly \$3,000,000, when Co. discontinued, and title passed to Henry Knippenberg and associates. Practically no equipment now. Leasers have worked the property in recent years, netting several hundred thousand dollars. Values in gold, silver, copper, lead and zinc. In 1917, Geo. B. Conway, of Helena, secured option and began organization of company to work over the numerous dumps, as well as to reopen mines. No recent reports of progress have been received.

HEMLOCK SILVER-LEAD MINING CO.

Saltese
Capital: \$150,000. Par value, 10c. Assessable. **Directors:** W. J. Hughes, pres.; Peter Peterson, vice-pres.; W. L. Murray, treas.; H. C. Thomas, secy.; W. W. Lee, all of Saltese; G. H. Lawrence, Colfax, Wash. **Annual Meeting:** July 13. **Property:** 3 claims, 1 1/2 miles from Saltese, north of Packer creek. **Class of Ore:** Copper-lead. No shipments. **Development:** About 1500 ft. of tunnels, shafts, crosscuts and drifts. Vertical depth, 500 ft. **Informant:** Secy. Thomas.

HIDDEN TREASURE GROUP.

Missoula
Owner: W. J. Stephens, Missoula. **Property:** 9 patented claims in Wallace district, near Clinton, Missoula Co. **Class of Ore:** 2 to 20% copper; \$2 to \$4

gold; 2 to 20 ozs. silver to the ton. **Development:** 1958 ft. of tunnels. Veins said to be 50 ft. wide. Total workings, 3600 ft. Shipments ceased in 1907. Under lease and bond to Spokane people in 1917, represented by Peter Porter, formerly of Salt Lake. Understood operations abandoned, at least temporarily, in fall of 1917.

HIGHLAND COPPER CO., LTD.

Spokane, Wash.

Capital: \$1,500,000. Par value, \$1. **Directors:** R. C. McCaffery, pres.; J. A. Anderson, vice-pres.; Homer Wylde, secy.; N. J. Thomas and J. H. Marks, all of Spokane. **Property:** 5 unpatented claims, 130 acres, in Silver Star district, Madison Co., Mont. **Class of Ore:** 6% copper, 2 to 5 ozs. silver, and \$19.78 gold per ton. **Equipment:** 40-h.p. hoist, good for 1000 ft., mine buildings, etc. Probably idle; no recent returns.

HOMESTAKE MINING CO.

Thompson Falls

Capital: \$1,000,000. **Property:** On Trout creek, 22 miles W. of Thompson Falls. Considerable ore shipped years ago, when fire destroyed buildings and mine timberings, causing shut-down. In 1917, H. V. Edwards and associates, of Wallace, Idaho, took the property over on bond and lease, have cleaned out the old workings and installed a new compressor, hoist and other machinery, preparatory to extensive development. Some good copper ore said to be exposed. No official report obtainable. **Note:** Mr. Edwards exhibited samples of chalcocopyrite and bornite copper ores in Wallace, April 1, 1918, from shoot of 200 ft., which also carries large quantities of lead.

HORSE SHOE MINE.

Superior

Co-partnership. **Owners:** E. L. Dudley, Loren Anderson, Wm. McBride, John H. Ryan, B. R. Seely and John McMillan. **Property:** 70 acres, patented, on Oregon creek, 12 miles S. W. of Iron Mt. **Class of Ore:** Placer gold, \$19.60 per oz. Working small force. Total shipments, \$2000. **Development:** 1200-ft. bed-rock and 2100 ft. hydraulic flume. Depth at head of flume, 27 ft., where pay streak was encountered. Bed-rock not yet reached. **Informant:** John McMillan, partner.

HUGO GOLD & COPPER MINING CO.

Salt Lake

Capital: \$100,000. Par value, 10c. Assessable. **Directors:** Richard W. Seideman, pres.; A. G. Seideman, secy.-treas., both of Salt Lake; Peter Weber, Mace, Idaho; A. B. Atwater, Helena, Mont. **Annual Meeting:** First Monday in November. **Property:** 4 unpatented claims and 2 mill-sites, 1 mile from Salt Lake. **Class of Ore:** Copper, 2 to 53.80%; silver, \$1.56; gold, \$6.40 per ton. No shipments. **Equipment:** Water-power wheel, 2-drill compressor, air drills, water-power blower for forge, etc. **Development:** 1350 ft. of tunnels, 60-ft. shaft. **Informant:** Pres. Seideman.

ILLINOIS & MONTANA MINING CO.

Libby

Capital: \$1,000,000. Par value, \$1. **Dr. Jas. J. Toalson**, pres., Peoria, Ill.; **M. G. Rice**, atty. and agt., Libby. **Property:** 5 patented and 1 unpatented lode claims, and 2 unpatented placer claims, with water rights, in West Fisher district, Lincoln Co. **Class of Ore:** Gold. Not working. No equipment; no shipments; no development. **Informant:** M. G. Rice, Libby.

ILLINOIS GOLD MINING & MILLING CO.

Libby

Capital: \$1,000,000. Non-assessable. **Directors:** R. H. McAnulty, pres., Springfield, Ill.; E. G. McAnulty, secy.-treas., Carthage, Ill.; **Dr. A. Saley**, M. M. Wallace and **J. F. Williams**, all of Libby. **Annual Meeting:** Sept. 15. **Property:** 143 acres, patented, in West Fisher district, Cabinet range, Lincoln Co. **Class of Ore:** Gold and silver. Not working. No equipment; no shipments. **Development:** Sufficient to obtain patents. **Informant:** Secy. McAnulty.

INDEPENDENCE COPPER GROUP.

Kalispell

Co-partnership. **Geo. F. Stannard**, principal owner, Kalispell. **Property:** 1 patented and 3 unpatented claims, 8 miles N. E. of Eureka, Lincoln Co. **Class of Ore:** Copper, 3.5%; gold, \$1; silver, 3 to 6 ozs. to the ton. Not working. No shipments. **Development:** 860 ft. of tunnels. **Informant:** **Geo. F. Stannard**, principal owner.

INTERMOUNTAIN COPPER MINING CO.

Spokane, Wash.

Capital: \$2,000,000. Par value, \$1. Assessable. **Directors:** Edward Evans, pres.; R. G. McIntosh, vice-pres.; W. J. Griffith, secy.; Fred C. Dauffer, treas., all of Spokane; A. L. Nicholson, Wallace, Idaho. **Property:** 6 patented and 9 unpatented claims, 12 miles N. E. of Iron Mountain, Mineral Co., Mont., formerly known as the Amador. **Class of Ore:** Copper. Working 40 men. **Equipment:** 120-ton mill, compressor, pumps, flumes, pipe-line, saw-mill, 15 buildings, 2 hoists, electric and water power. Shipments last year, value, \$100,022.48. Total shipments, \$212,714.25. Dividends paid in 1917, \$17,000. **Development:** About 7000 ft. of underground workings, including tunnels, cross-cuts, drifts and raises. In January, 1918, Co. shipped crude ore and concentrates to the value of \$15,000, copper recovery showing an increase of 3% since overhauling of mill. March 1, 1918, encountered a new ore body from 4 to 6 ft. wide, and have drifted on it for 250 ft. on the 400-ft. level. Carries good values in copper. Co. now engaged in stoping. **Informant:** Pres. Edward Evans. **Note:** Shipped 10 carloads of ore in March, 1918, estimated value, \$20,000. New locomotive placed in service March 20, 1918.

IRON MASK LEAD MINING CO.

Kalispell

Capital: \$150,000. Par value, \$1. Assessable. **Directors:** Geo. F. Stannard, pres., Kalispell; Henry W. Dickey, Butte; Robt. Gregg, secy., Troy. **Property:** 4 unpatented claims on Grouse Mt., 10 miles S. of Troy. **Class of Ore:** Zinc, silver and lead. Working small force. **Equipment:** Car and track, engine and compressor. Total shipments, 1 carload. **Development:** 3 short tunnels. **Informant:** Geo. F. Stannard, pres. **Note:** Taken under bond and lease in August, 1917, by Geo. L. Goshow, representing Indiana capital.

IRON MASK MINING CO.

St. Maries, Idaho

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** T. B. Huey, pres.; Leon Demers, vice-pres.; P. Martin, secy.-treas.; F. Perrier, J. J. Bouchard. **Property:** 6 claims, 3 miles from railroad, near Carter, Missoula Co., Mont. **Equipment:** Gasoline power, mine buildings, etc. **Development:** 1700 ft. of tunnel, 2400 ft. of drifting on vein.

JEWEL MINING & MILLING CO.

Spokane, Wash.

Capital: \$250,000. Par value, 25c. Non-assessable. **Directors:** C. E. Morby, pres.-treas.-mgr.; A. F. Logan, vice-pres.; J. A. Power, secy. **Annual Meeting:** First Monday in November. **Property:** 10 unpatented claims and mill-site, area, 205 acres, 1½ miles from Eddy, Mont., 36 miles E. of Burke, Idaho. **Class of Ore:** Lead, 6.2% to 20%; silver, 2 to 20 ozs. **Equipment:** 2-drill compressor, distillate engine, water, fuel and air tanks, jackhammers, sinking pump, ore cars, steel, rails, air line, blacksmith shop, boarding and bunk houses, etc. No shipments. **Development:** Several hundred ft. of tunnels, drifts and winzes. **Informant:** Pres.-Treas. Morby.

KALISPELL-TROY MINING CO.

Kalispell

Capital: \$60,000. Par value, 20c. Non-assessable. **Directors:** D. R. Peeler, pres.; Geo. F. Stannard, vice-pres.; A. W. Peeler, secy.-treas.; T. S. Hand, J. W. Carey and J. Brinkhouser, all of Kalispell; Wm. Hogan and Stanley Wood, both of Troy. **Property:** 21 unpatented claims, and a bond on two others, 13 miles W. of Troy, 1 mile from Leonia, Idaho. **Class of Ore:** Lead-silver-zinc. No shipments. **Equipment:** Compressor and drills. **Informant:** Stanley Wood, director. No late details. Probably inactive.

KENDALL GOLD MINING CO.

Spokane, Wash.

Capital: \$500,000. Par value, \$1. **Directors:** W. J. C. Wakefield, pres.; Chas. Hussey, secy., both of Spokane. Taken over by John A. Finch and A. B. Campbell estates, about 17 years ago, and has since paid \$1,505,000 in dividends. Located at Kendall, Mont., and sold in 1915 to the Barnes-King Dev. Co., owning property adjoining. Sale terminates litigation over removal of ore. In June, 1917, Kendall Co. petitioned superior court of Spokane Co., Wash., for disincorporation, leaving title in Barnes-King Co.

KING AND QUEEN MINING CO.

Keystone

Capital: \$1,000,000. Par value, \$1. **Directors:** G. T. McCullough, vice-pres.; John F. Hinckley, secy.; H. A. Spangler, treas. **Property:** 15 claims, partly patented, and 20-acre mill-site, 3½ miles from Keystone. **Class of Ore:** Copper, 4.5%; silver, 12 ozs. per ton. **Equipment:** 125-ton lead-silver concentrator, 80-h.p. boiler, 25-h.p. hoist, 6-drill air compressor. **Development:** 5000 ft. of workings. No official report obtainable. Probably idle.

L. & V. MINING CO.

Spokane, Wash.

Capital: \$375,000. Par value, 25c. **Directors:** J. W. Larkin, pres.; J. Frank Robbins, vice-pres.; C. Van der Zwaal, secy.-treas.; Carl Uites, Jr., Herbert L. Barrett, all of Spokane. **Property:** A group of 7 claims heretofore owned by Larkin and Van der Zwaal, in Troy district, 9 miles from Troy, Mont. **Class of Ore:** Lead-silver, said to assay as high as 72% lead and 18½ ozs. silver to the ton. Of this ore, said to be 2 ft. on hanging wall. **Development:** At last report driving 500-ft. tunnel, to strike ore body shown on surface. No official report. Probably idle.

LAST CHANCE COPPER MINING CO.

Saltsee

Capital: \$1,250,000. Par value, \$1. **Directors:** Geo. Champagne, pres., Wallace, Idaho; W. H. Nichols, secy.; Dr. T. C. Witherspoon, treas., Butte. **Property:** 2 patented and 4 unpatented claims, adjoining Ben Hur mine, 3 miles N. of Saltsee, Missoula Co. **Class of Ore:** Copper, silver, gold. Co. reports past shipments of \$150,000. **Development:** 2300 ft. of tunnel and some shallow shafts. No official report. Probably idle.

LE ROY GOLD AND COPPER MINING CO.

Wallace, Idaho

Directors: Herman J. Rossi, pres.; G. F. Daun, vice-pres.; C. E. Clark, secy.-treas.; Wm. Fissinger, Chas. Ballinger, all of Wallace, Idaho. **Property:** Adjoins Monitor mine of the Montana-Idaho Co., at Adair, Idaho, but on Montana side of state line, in Sanders Co., Mont. Monitor tunnel runs through property. No official report. Idle.

LESLIE COPPER AND GOLD MINING CO.

Wallace, Idaho

Capital: \$100,000. Par value, 10c. **Directors:** Wesley Everett, pres.; Herman J. Rossi, secy.-treas.; A. Wyman, all of Wallace; O. E. Peppard, Missoula, Mont. **Annual Meeting:** First Monday in September. **Property:** 7 unpatented claims in St. Regis district, Montana; also a mill-site and two water rights, east of Mullan. **Class of Ore:** Copper-silver-lead. **Equipment:** Motor power, air compressor and several buildings. **Development:** About \$75,000 expended. Report of Amazon-Dixie Mining Co. contains map showing trend of latter company's ore shoot going into ground of Leslie company.

LIBERTY COPPER CO.

Saltsee

Capital: \$1,500,000. Par value, \$1. **Directors:** Frank J. Luedke, pres.; Chas. J. Luedke, vice-pres.; Chas. F. Spear, all of Saltsee; John F. Ferguson, secy.-treas., Wallace, Idaho. **Property:** At Sildix, close to Amazon-Dixie, near the Idaho line. **Class of Ore:** Copper. **Equipment:** Gasoline engine, air compressor, etc. **Development:** Several hundred ft. of tunnel. No official report. Probably idle.

LUKENS-HAZEL MINING CO.

Libby

Capital: \$1,600,000. Par value, \$1. Assessable. **Directors:** C. Ed. Lukens, pres.; John H. Town, vice-pres.; Hazel E. Town, all of Libby; J. E. Horton, Spokane, Wash. **Property:** On Shaughnessy Hill, 8 miles S. of Libby. **Class of Ore:** Lead, silver, zinc and gold. **Equipment:** Oil engine, compressor, etc. A few shipments of concentrates have been made, showing an average of 30% lead, 51 ozs. silver, \$12.40 in gold per ton. **Development:** Considerable tunnel work. No official report. Co. announces in April, 1918, that it will build good sized mill this season.

LUPFER MINING CO.

Whitefish

Capital: \$75,000. Par value, 15c. **Directors:** Geo. Hoffman, pres.-mgr.; Mike Sullivan, vice-pres.; Pete Hoffman, secy.; E. Bouttcher, John Roeder. **Property:** 160 acres, 14 miles W. of Whitefish. **Class of Ore:** Copper-silver. **Equipment:** Small steam hoist and air compressor. **Development:** 150-ft. shaft. Idle since 1911.

MAMMOTH MINING CO.

Wallace, Idaho

Capital: \$125,000. Par value, 10c. Assessable. **Directors:** A. H. Featherstone, pres.; John Ferguson, secy.-treas.; Dr. W. A. Smith, Jesse Freeman, Dr. C. R. Mowery, all of Wallace; Gilbert J. Heyfron, vice-pres., Missoula, Mont.; Geo. Austin, mgr., Spokane, Wash. **Annual Meeting:** First Thursday in August. **Property:** 7 unpatented claims, 7 miles N. E. of Bonita, Missoula Co., Mont. Formerly known as the Lead King. **Class of Ore:** Crude ore shipped ran from 28 to 37% lead, and 5 to 6 ozs. silver to the ton. Shut down in May, 1917. **Development:** 124 ft. of shafts, 30 ft. of tunnel, and short crosscut. **Informants:** Manager Geo. Austin.

MEXICO-COEUR D'ALENES MINING CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** L. F. Burnham, pres.; Stella Risum, vice-pres.; R. N. Tutt, secy.-treas., Kansas City, Mo.; Joe Krom, asst. secy., all of Spokane, except Mr. Tutt. **Annual Meeting:** Jan. 10. **Property:** 5 unpatented claims, on Swamp creek, Sanders Co., Mont., 18 miles east of Burke, Idaho. **Class of Ore:** Lead, \$7.37; silver, 72c; gold, \$1.55 per ton. **Equipment:** Car, track, hand drills, etc. No shipments. **Development:** 232 ft. of tunnel. **Informant:** Pres. Burnham.

MIKE HORSE MINING CO.

Helena

Capital: \$100,000. Par value, \$1. Non-assessable. **Directors:** J. O. Hamilton, pres.; D. H. Wells, treas., both of Spokane; Mike Dobler, vice-pres., Jefferson; H. S. Hepner, secy., Helena. **Annual Meeting:** First Monday in September. **Property:** 9 unpatented claims at Silver Camp, Lewis & Clark Co. **Class of Ore:** Lead-zinc-silver-copper. Not working. Shut down Sept. 1, 1917. **Equipment:** 100-ton concentrator, costing \$43,000; buildings costing \$9000. Shipments of 400 tons concentrates in January and February, 1917, valued at \$40 per ton, 1 car netting \$2087.14. **Informant:** Pres. Hamilton. **Note:** Taken over by the O. & M. Mines Co. (q.v.), which supplied equipment above listed and abandoned lease and bond in 1917, immediately following death of Henry Johns, of Keffer & Johns, Spokane, who organized company. Property at head of Blackfoot river, in old Silver camp, too far from transportation for economical operation at this time.

MONTANA GOLD HILL MINING CO.

Spokane, Wash.

Capital: \$100,000. Par value, 10c. **Directors:** E. V. Lambert, pres.; Curtis Huller, vice-pres.; J. W. Sarginson, secy.-treas.; Julius A. Zittel, Ben Cohn, all of Spokane. **Property:** 7 claims, in Deep creek district, about 12 miles from Superior and Iron Mt., Mont. **Class of Ore:** Gold. **Equipment:** Mill buildings, boarding and bunk houses, with use of saw-mill owned by a placer Co. **Development:** Several hundred feet of tunnels. Several hundred tons of ore on dumps, of an average value of \$22.50 per ton. No official report. Believed inactive.

MONTANA MORNING MINING CO.

Troy

Capital: \$300,000. Par value, 20c. Non-assessable. **Directors:** Wm. Hogan, pres.; Stanley Wood, secy.-treas.; D. T. Wood, G. V. Harrington, all of Troy; Geo. F. Stannard, vice-pres., Kallispell; E. S. Williamson, Somers. **Annual Meeting:** Second Tuesday in December. **Property:** 12 unpatented claims and water right, 4 miles W. of Troy. **Class of Ore:** Lead, silver, zinc, copper. Working 8 men. No shipments. **Equipment:** Engine and compressor, track, ore cars, blacksmith shop, etc. **Development:** About 1000 ft. of drifts, shafts and tunnels. **Informant:** Secy. Stanley Wood. Inactive.

MONTANA RADERSBURG MINING CO.

Helena

Capital: \$300,000. Par value, \$1. Non-assessable. **Directors:** A. E. Spriggs, pres.; B. E. Matthews, secy.; C. A. Whipple, treas., all of Helena; Fred Allen, vice-pres.; Sol Gensberger, both of Butte; Hugh Broderick, Townsend; L. A. Sarecky, New York. **Property:** Summit group, in Dogtown district; Spar group, in Radersburg district, and Slim Sam group, in Elkhorn district, all in Broadwater Co. Some of claims patented. **Class of Ore:** Lead, silver, copper, gold. **Equipment:** Gasoline hoist, 25-h.p. gasoline air compressor, drills, etc. **Development:** That class of work only last year. Total shipments to date, \$275,000. All 3 groups being operated and producing commercial ore. Three shafts, 535 ft., 325 ft. and 200 ft. respectively. **Informant:** Pres. A. E. Spriggs.

MONTANA SCOTCH BONNET COPPER & GOLD MINING CO.

Spokane, Wash.

Capital: \$300,000. Par value, 10c. Non-assessable. **Directors:** S. A. Gibson, pres.; Jos. McCarthy, vice-pres.; Thos. Donnelly, C. E. Mallette, secy.-treas.; Moritz Peterson, F. D. Allen, all of Spokane. **Property:** 11 patented and 5 unpatented claims, in New World district, Park Co., Mont. **Class of Ore:** Copper, gold. Not working. No equipment; no shipments. **Informant:** Vice-Pres. McCarthy.

MONTANA SILVER-LEAD MINING CO.

Portland, Ore.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** H. G. Lougee, pres.; Richard Naylor, John Bingham, E. Heintz, all of Portland; Chas. B. Roosa, Spokane, Wash. **Annual Meeting:** Second Saturday in April. **Property:** 6 unpatented claims at head of Leigh creek, Libby district, Lincoln Co., Mont. **Class of Ore:** Lead, silver, gold. Hand work. No shipments. **Development:** About 2000 ft. of tunnels and drifts. No official report. Probably inactive.

MONTANA SUNSET MINING CO.

Spokane, Wash.

Directors: F. R. Crocker, pres.; C. C. Elliott, vice-pres.; J. D. Milspaugh, secy.-treas.; Joseph McCarthy, Lester P. Edge, all of Spokane. **Property:** Boggs group of 4 claims, in Smart creek district, Granite Co., Mont., holding same under \$20,000 bond. Short tunnels and crosscuts have opened property at several points, exposing good-sized bodies of copper and silver ore. No official report. Probably defunct.

MOUNTAIN GEM MINING CO.

Missoula

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** Leo Greenough, pres., Spokane, Wash.; J. M. Keith, secy., Missoula. **Property:** 21 patented claims, 5 miles from Keystone, Iron Mt. district, also known as Carter, Mont. **Class of Ore:** Silver-lead-zinc. Not working. **Equipment:** Cabins, track, air pipe, etc. **Development:** 5 tunnels, several open cuts. **Informant:** Pres. Greenough.

MOUNTAIN VIEW MINING CO.

Burke, Idaho

Under management of W. E. Millaer, of Burke; is located on Trout creek, Mont., 11 miles from N. P. Ry., connected by good wagon road. Large body of lead ore said to have been opened up. Company installing compressor plant and other equipment.

NEW VICTOR EMPIRE MINING & M. CO.

Spokane, Wash.

Capital: \$60,000. Par value, 10c. Assessable. **Directors:** S. R. Boyer, I. L. Collins, both of Moscow, Idaho; P. S. Rose, W. R. Sampson, R. H. Wing, all of Spokane. **Property:** 5 unpatented claims, 12 miles from Libby, Mont., in Libby district, Lincoln Co. **Class of Ore:** Lead, silver and gold. Not working. **Equipment:** 2 miles flume, compressor, air drills, water wheel, tools, etc. No shipments. **Development:** 1900 ft. of tunnels. **Informant:** P. S. Rose, secy.

NEW VULCAN MINING CO.

Spokane, Wash.

Capital: \$150,000. **Directors:** Hiram A. Arnold, pres.; Hugh Monroe, secy.-treas.; O. L. Jones, C. B. Etnier, J. L. Bailor and B. E. Vaill, all of Spokane; Geo. M. McDonald, vice-pres., Coulee City, Wash. **Property:** 7 claims in Vulcan mountains, Mineral Co., Mont., 7 miles from Superior, on N. P. and Milwaukee railroads. **Class of Ore:** Gold, silver, copper. **Development:** About 2000 ft. of shafts, tunnels and surface cuts. Adjoins Iron King and Queen group, a well-developed producer.

O. & M. Mines Co.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1.00. Non-assessable. **Directors:** M. C. Banfield, pres.; Richard Martin, Jr., treas., both of Portland, Ore.; Frederic E. Keffler, vice-pres.; Warren W. Tolman, secy.; Sam L. Boyer, W. J. Boyer, all of Spokane. **Note:** Company was organized in 1916 to acquire property of Mike Horse Mining Co. (q.v.), 50 miles N. W. of Helena in old Silver camp, head of Big Blackfoot river, showing 5 well-developed veins all proven to some extent, but deep development confined to Mike Horse main vein. Company expended approximately \$50,000 in construction of 100-ton concentrator and did some development work, under direction of Henry Johns, of Keffler & Johns, Spokane, who died in 1917. A little later the company relinquished its lease and bond and is now supposed to be defunct. Ore must be hauled over the continental divide to Silver Station, on the Great Falls branch of Great Northern R. R., and it has been shown by experience of this corporation that expense is too great to permit of profit under present conditions.

PONY MINING & MILLING CO.

ST. LOUIS, MO.

(Formerly Garnet Gold Mining Co.) **Owner:** Ole Peterson, St. Louis. **Property:** 19 patented claims in one group, at Pony, Madison Co., Mont. Not working. **Equipment:** 20-stamp mill, water wheel, water rights, blacksmith shop and tools, hoist, air compressor, tracks, pumps, ore cars, drills, etc. Total shipments, \$708,685. **Development:** By tunnels. **Informant:** Ole Peterson, owner. Probably idle.

POPHYRY DIKE GOLD MINING CO.

Helena

Capital: \$650,000. Par value, \$1. **Directors:** Jas. Breen, pres., Spokane, Wash.; M. S. Gunn and Carl Rasche, both of Helena. **Property:** 19 claims, 18 of them patented, all being contiguous and forming a compact area of about 330 acres, about 7 miles S. W. of Rimini, nearest railroad station, 17 miles from Basin, Lewis & Clark Co. Claims cover a length of 2500 ft. on the dike, an area of about 1000 ft. wide and 1000 ft. long being developed by surface cuts and pits, and by a tunnel and upraise. Pay ore exposed to 130 ft. depth, and 20,000 tons were milled in old 10-stamp mill some years ago, showing a saving of \$2.45 in

gold per ton, the low value being on account of ore and tuff rock being melted together. Ore exposed would equal 6,250,000 tons. In 1915, property was equipped with experimental mill, said to have made an excellent saving. In 1916, property was examined by Anaconda Copper Co., with view of purchasing, but option was later relinquished. James Breen, who owns practically entire capital stock, is now preparing plans for very extensive milling equipment, which will probably be installed in 1918. Co. had some trouble with municipality of Helena over pollution of city water derived from stream on which experimental plant was built, but mill was being remodeled in 1917, under direction of S. R. Brown, supt., and it is understood arrangements have been made to overcome this difficulty.

FRINCEMONT MINING CO.

Wallace, Idaho

Capital: \$2,000,000. Par value, \$1. **Directors:** S. B. Halbert, N. B. Trist, Chas. F. Briggs, W. J. Williams and Abram G. Holmes, all of Pittsburg, Pa.; Edward F. Holbert, Fairmont, W. Va., and W. H. Batting, of Coeur d'Alene. Properties near Noxon, Sanders Co., Mont.

REID MINING, MILLING & SMELTING CO., INC.

Babb

Capital: \$50,000. Par value, 10c. Non-assessable. **Directors:** H. A. Miller, pres.; E. N. Barker, secy.-treas.; H. D. Folsom, all of Cardston, Alberta; John H. Van Pelt, Babb; R. W. Berry and E. W. Reid, Great Falls. **Annual Meeting:** May 20. **Property:** 4 claims, patent applied for, and Van Pelt Kennedy Creek millsite, with Lethbridge copper claim, 13 miles N. W. of Babb, Teton Co. **Class of Ore:** Copper, 31.5%; gold, \$7.20; silver, 6 ozs. per ton. All hand work. **Development:** 80-ft. shaft and 75-ft. tunnel; vein uncovered for about 6000 ft. by open cuts. Several parallel veins have been disclosed. **Informant:** M. R. Cooper, inspecting engineer.

RELIANCE MINING & MILLING CO.

Butte

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** D. M. Adams, pres.-treas.; P. H. Kinney, secy., both of Butte; Frank Eichelberger, vice-pres., Helena; J. C. Lane, Spokane. **Property:** 3 unpatented claims—East Reliance, West Reliance and Mendota—in Moose creek section, 15 miles S. of Butte. **Class of Ore:** Silver, lead, gold, copper. **Equipment:** 60-h.p. boiler, 35-h.p. hoist, compressor, air drills, pumps, tools, etc. Total shipments, 22 tons, netting \$2611. **Development:** 180-ft. shaft, 120-ft. crosscuts. **Informant:** Pres. Adams.

REVENUE CONS. GOLD MINES.

Butte

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** G. D. B. Turner, pres.; Chas. S. Warren, vice-pres.; E. P. Pennebaker, treas.; John M. Murphey, secy.; Wm. C. Siderfin, all of Butte. **Annual Meeting:** Second Tuesday in May. **Property:** Revenue group of 15 patented claims, 5½ miles S. W. of Norris, Upper Hot Springs district, Madison Co. **Class of Ore:** Gold. No shipments last year. **Equipment:** Steam hoist, 80-ton cyanide plant. Only development work carried on, awaiting installation of electric power and new mill equipment. **Informant:** Secy. Murphey.

RICHMOND & LEXINGTON GROUP.

De Borgia

Owner: A. A. Mayo, DeBorgia. **Property:** Richmond and Lexington, with extensions, 5 miles S. of St. Regis. **Class of Ore:** Copper, about 6%. **Development:** 266 ft. of tunnel, 15-ft. crosscut. **Informant:** A. A. Mayo, owner.

ROSE CONSOLIDATED MINING CO.

Spokane, Wash.

Capital: \$200,000. Par value, 10c. Assessable. **Directors:** Harve H. Phipps, pres.; E. C. Hormel, secy.-treas.; P. S. Rose, Oscar Nordquist, all of Spokane; Sidney L. Shonts, vice-pres., Wallace; H. M. Childs, Kellogg, Idaho. **Annual Meeting:** May 10. **Property:** 10 unpatented claims, 26 miles E. of Libby, Lincoln Co., Mont. **Class of Ore:** Copper, gold and tungsten. **Equipment:** 10-stamp mill, 20-h.p. engine and boiler. A Hardinge mill, and probably a flotation plant, to be installed at cost of \$10,000. Albert I. Goodell was made manager about Feb. 1, 1918. Shipments of bullion last year netted \$12,000. **Development:** 800-ft. tunnel, with shafts and other workings. **Informant:** Secy. Hormel.

ROYAL COPPER MINING CO., LTD.

Wallace

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** John H. Nordquist, pres.; F. Bland, secy.-treas.; Otto A. Olsson, O. A. Olin, J. Cunningham, all of Wallace. **Annual Meeting:** 2nd Monday in January. **Property:** 10 unpatented claims near Thompson Falls, Mont., in East Coeur d'Alene district. **Class of Ore:** Copper, lead and silver. Only assessment work being done.

ROYAL MINING CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** John H. Wourms, pres.; John M. Long, vice-pres.; Sam Seidenfeld, treas.; John H. Pelletier, secy., all of Spokane; Dennis Reardon, Potomac, Mont. **Annual Meeting:** Third Saturday in January. **Property:** 4 patented and 8 unpatented claims, 6 miles from Potomac, Missoula Co., Mont. **Class of Ore:** High grade silver, with some gray copper. **Equipment:** 2 boilers, hoists, compressor, cars, pumps, ore house, saw-mill, engine house, 2 large bunk houses, 2 cook houses, office building, 2 miners' houses, 2 machine drills, etc. Shipped 1 car last year, netting about \$2000. Total shipments to date, \$40,000. Present output, 1 car per month. Property all paid for; 100,000 shares in treasury. **Informant:** Secy. John H. Pelletier.

SALMON RIVER MINING CO.

Dissolved in October, 1917, by expiration of its corporate term under Montana statutes, the property, 15 patented claims, and 40 acres of other land, reverting to directors in their individual names. Another Co. to be organized with the same directorate—E. W. Dunleavy, pres.; S. V. Kemper, vice-pres.; E. S. Shields, secy.-treas.; A. G. Corbett, W. A. Kemper, T. M. Hodgens and E. Wyman—and the same capitalization, \$57,000, par value, \$1.

SALTESE CONSOLIDATED MINING CO.

Spokane, Wash.

Capital: \$150,000. Par value, 10c. Assessable. **Directors:** G. A. Turner, pres.; J. B. Ward, vice-pres.; O. V. Manring, secy.-treas.; H. W. Smith and H. E. Ferris, all of Spokane. **Annual Meeting:** First Monday in August. **Property:** 12 unpatented claims, 4 miles N. W. of Haugan, Mont., in St. Regis district. **Class of Ore:** Copper, silver. **Equipment:** Compressor, 25-h.p. steam engine, hoist, drills, steel, track, 2 ore cars, engine and compressor house, cook house, dining room, bunk house, manager's house, blacksmith shop, etc. No shipments. **Development:** 1200 ft. of tunnels, 300 ft. of drifts on 13-ft. vein of copper ore. **Informant:** Secy.-Treas. Manring. **Note:** Co., in December, 1917, acquired holdings of Black Traveller Co. (q.v.), 6 claims and a fraction, adjoining this Co. on west.

SCRATCH GRAVEL GOLD MINING CO.

Helena

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** W. E. Cullen, pres., Spokane, Wash.; Hugh I. Wilson, vice-pres.; John MacGinnis, treas., both of Butte; T. B. Miller, secy.-mgr., Helena. **Property:** 80 acres, owned in fee simple, in Scratch Gravel district, 2 miles N. W. of Helena. **Class of Ore:** Gold and silver. Co. also owns a $\frac{1}{4}$ interest in issued capital of Kootenay Gold Exploration Co., Ltd., operating Granite-Poorman gold mine, near Nelson, B. C. Production of Scratch Gravel for first 2 years, up to October, 1916, had a gross value of \$185,012, an average value of \$50 per ton of ore shipped to smelter. In August and September, 1917, 8 carloads of ore were shipped, which averaged \$3200 per ton, it is claimed. Gross income said to be about \$15,000 monthly. **Development:** Shaft to 500-ft. level, and numerous drifts. **Note:** Early in 1918 negotiations under way for consolidation with Franklin mine, adjoining producer, owned and operated by Cruse estate.

SHELLS & IRONSIDE MINING & MILLING CO.

Butte

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** John S. Shells, pres., Boulder; Stanley Ironside, vice-pres., Camden, N. J.; F. A. Ironside, secy.-treas.-mgr., Butte. **Property:** 2 patented and 4 unpatented claims in Jefferson Co. **Class of Ore:** Gold, silver, copper, lead and zinc. **Equipment:** 60-ton concentrator, air compressor, saw-mill, electric sub-station. Total shipments, \$75,000. Output now, 300 tons concentrates per month. Working property under lease. **Informant:** Pres. Shields.

SILVER CABLE MINING CO.

Missoula, Mont.

Capital: \$1,250,000. Par value, \$1. Assessable. **Directors:** Jas. D. Corbett, pres.; Geo. Falligan, vice-pres.; Carl C. Mott, secy.-treas.; John W. Kennedy, Harry E. Chaney and W. J. Rhoades, all of Missoula. **Annual Meeting:** 1st Saturday in July. **Property:** 7 patented claims—Hemlock, Silver Cable, Independent, Eureka, Tiger, Orofino and Blacktail—130 acres, near Idaho-Montana line, 5 m. north of Taft, Mont., East Coeur d'Alene. **Class of Ore and Assays:** Gold, 0.02 oz.; silver, 5.2 ozs.; copper, 0.24%; zinc, 36.6%; lead, 15.1%; iron, 2.4%; lime, 0.8%. Shipped 1 car, 45 tons. No equipment. **Development:** 1000 ft. of tunnels and upraises. Non-productive. **Informant:** Secy.-Treas. Carl C. Mott. **Note:** An assessment of $\frac{1}{2}$ c per share, payable on or before May 6, was levied in April, 1918.

SILVER TIP MINING CO.

Spokane, Wash.

Capital: \$150,000. Par value, 10c. Non-assessable. **Directors:** Joseph P. Schmuck, pres.; O. C. Wright, vice-pres., both of Spokane. **Property:** 11 claims, 7 miles from Troy, Mont. **Class of Ore:** Silver-lead. **Development:** 1200 ft. of workings. Surface values run from \$15 to \$35 per ton. Prospect only. Stock largely held in East, having been placed by Easton Shaw, 80 Broadway, N. Y., at figure disproportionate to values.

SNOW STORM MINES CONS.

Spokane, Wash.

Capital: \$625,000. Par value, 25c. Non-assessable. **Directors:** Leo Greenough, pres.-mgr.; J. W. Greenough, vice-pres.; W. J. Beaton, secy.-treas.; M. D. Hall, J. C. Broad, all of Spokane. **Annual Meeting:** Third Tuesday in January. **Property:** Lease and bond on all holdings of the Snow Storm Mining Co. (disincorporated), at Larsen, Idaho; on 25 mining claims, 7 mill-sites, 2 power-sites, 5 water-rights and large land holdings, covering mill-sites and power-sites, including the 2 patented claims and other property of the Banner & Bangle Mining Co. (q.v.), about 6½ miles S. of Troy, Lincoln Co., Mont. **Class of Ore:** Silver, lead, zinc, gold. Working 200 men. **Equipment:** 1500-1800-h.p. hydro-electric plant, furnishing power and light to 300-ton concentrator and compressor, and mine lighting; also 6-mile narrow-gauge railroad between mine and mill. **Development:** 6 tunnels, 2800 ft.; depth attained, 1100 ft. Faces all in ore. **Informant:** Pres.-Mgr. Leo Greenough. The Co.'s annual statement, dated Jan. 15, 1918, shows: Milling operations were started on April 23, 1917, and 61,647 tons treated up till the end of the year, resulting in recovery of 2933 tons of lead concentrates and 3150 tons of zinc concentrates. The former contained 340 ounces gold; 70,075 ounces silver, and 3,364,439 pounds of lead. The latter contained 105 ounces gold; 19,905 ounces silver; 563,120 pounds lead and 1,826,903 pounds zinc. While figures are not carried out, tonnage and content indicate that lead concentrates contained 24 ounces of silver and 55% lead and zinc concentrates, 6.3 ounces silver; 17.8% lead and 29% zinc. Concentration ratio was just over 10 tons into one; indicating recovered content of 3 ozs. silver; 7% lead and 2.9% zinc per ton of mine-run ore. Statement of operating and miscellaneous income and expenditures, which accompanies president's report, shows that shipments were worth \$256,371.75, while ore in transit or in the bins was worth \$29,740 on December 31, making total operating income \$286,112. Direct operating expenses reached \$202,971, leaving gross operating profit of \$83,140. Indirect operating expense, which includes \$14,088 for superintendence and office; \$6346 taxes; \$5173 loss on boarding house; \$2743 engineering; \$1608 legal; \$1712 fire insurance; \$742 general and \$2004 Snowstorm property at Larsen, Idaho, reached a total of \$34,420, leaving a net operating profit of \$48,720. To this is added \$1018 miscellaneous income, increasing amount to \$49,738. Interest and discount cost \$15,216; rent on rail contract, \$1286, and exploration \$9886—total \$26,389 classed as "miscellaneous expenditures"—leaving apparent net profit of \$23,349. Balance sheet shows cash on hand, ore in transit and supplies on hand, \$50,873. Plant and equipment is valued at \$633,969, including mill, Lake Creek and Callahan Creek power development, transmission line, narrow gauge railroad, railroad equipment, heating plant, ore bins, camps, machine shop and other surface improvements and equipment. The sum of \$82,746 is written off for depreciation and \$551,223 credited to assets. Other assets listed include real estate, mining claims, mill-sites and water-power sites, valued at \$476,385. Current liabilities, including accounts, payroll and interest, are listed at \$47,601, or within about \$3000 of the liquid assets. Other liabilities under the head of notes, leases and options reach \$488,784. While we have no official explanation of the latter entry, we understand from other sources that \$238,000 is on account of lease and bond upon the B. & B. group taken over by the company from the Greenough estate, and balance for other options secured since the company commenced business.

SPOKANE-MONTANA MINING CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. O. Hamilton, pres.; D. E. Burns, vice-pres.; Fred Ludwein, secy.-treas.; Wm. Gumm, all of Spokane; Andrew Kuklo, Hillyard. **Annual Meeting:** Oct. 15. **Property:** 2 unpatented claims, 2 miles from Basin, Basin district, Jefferson Co., Mont. **Class of Ore:** Copper, gold, silver. No shipments. **Development:** 650-ft. crosscut, 50-ft. shaft, and open cuts on 4 separate veins, 12 to 60 ft. wide. **Informant:** Pres. J. O. Hamilton.

STANDARD-BLACKFOOT MINING CO.

Spokane, Wash.

Directors: Reuben Wells, pres.; Daniel Millison, vice-pres.; D. G. Smith, secy.-treas., Spokanee. **Property:** 5 claims at Silver Camp, Heddeleston district, Lewis & Clark Co., Mont. **Class of Ore:** Silver-lead. **Development:** 70-ft. crosscut, 80 ft. drifts. Prospect only. Probably defunct.

STRAINS & KING CLAIMS.

Iron Mountain
Unpatented property about 3 miles N. E. of Cobden, Mineral Co. **Class of Ore:** Gold, \$10 per ton. **Equipment:** 1 Dodge crusher, water power. **Development:** 500 ft. of tunnel. **Informant:** Geo. W. King, Iron Mountain.

ST. LAWRENCE COPPER MINING CO.**Saltese**

Directors: Henry M. Lancaster, pres.; Wm. Saugstad, both of Saltese; Samuel B. Holbert, vice-pres.; H. R. Hyndman, Pittsburg, Pa.; F. W. Dewart, secy.-treas., Spokane, Wash. **Annual Meeting:** Second Tuesday in September. **Property:** St. Lawrence group of 6 claims, adjoining Richmond mine, S. W. of Saltese, Mineral Co. **Class of Ore:** Copper and gold. Total shipments, 1500 tons. **Development:** 700 ft. of tunnel. **Informant:** Pres. Lancaster.

ST. REGIS COPPER MINING & MILLING CO.**Missoula**

Capital: \$300,000. Par value, \$1. **Directors:** S. J. Wilson, pres.; F. W. Wilson, secy.-treas., Missoula. **Property:** 5 claims, 15-acre mill-site, and other lands, aggregating 180 acres, on N. P. Ry., near St. Regis. **Class of Ore:** Copper, 8%; gold, \$1.50 per ton. **Development:** 1840 ft. of tunnels.

SUNSHINE MINING CO.**Troy**

Capital: \$150,000. Incorporated in September, 1917, with G. A. Smith as pres. and T. S. Pattison as supt., both of Spokane, to operate a group of placer claims near Teepee Springs, Yahk district, 10 miles from Troy, Mont.

SYNDICATE MINING & MILLING CO., LTD.**Wallace, Idaho**

Capital: \$1,500,000. Par value, \$1. **Directors:** Alfred Steers, pres., Chatcolet; Geo. Miner, secy.-treas.; B. O. Skonnard, Morton Webster, Mrs. Augusta Steffens, all of Wallace. **Property:** 6 unpatented claims in Saltese district, on Packer creek, Mont. **Class of Ore:** Silver-lead. **Development:** About 600 ft. of tunnels. Only assessment work being done.

TARBOX MINING CO.**Wallace, Idaho**

Capital: \$2,000,000. Par value, \$1. Assessable. **Directors:** Richard Daxon, pres.-treas.-mgr.; Wm. J. J. Smith, vice-pres.; R. E. Seysler, secy.; Dennis Reardon, T. H. Cotton, all of Wallace. **Annual Meeting:** Third Monday in July. **Property:** 8 claims, 5 fractions and mill-site, surveyed for patent, 3 miles N. of Saltese, Mineral Co., Mont. **Class of Ore:** Silver, lead and zinc. Working about 30 men. **Equipment:** 25-h.p. boiler, 32-h.p. hoist, steel cage, 250-gal. bailing tank, suction fan, 1200 ft. of air pipe, 1000 ft. of track, 2 steel ore cars, blacksmith shop, machine shop, 1000 ft. of track, mine tools, office, bunk and boarding houses, etc. Will install a 300-ton mill and flotation plant in the summer of 1918. **Development:** 2-compartment shaft to 800-ft. level, 1850 ft. of drifts. Veins said to be from 11 to 80 ft. wide, a picked sample assaying 22.8% lead, 21.1% zinc and 7.10 ozs. silver to the ton. **Note:** Co. did 700-ft. of crosscutting on 800-ft. level from November, 1917, to Feb. 20, 1918, and is preparing plans for a 300-ton flotation plant. Much additional equipment has been completed. **Note:** First appearance of copper in mine reported March 14, 1918, while drifting east on 800-ft. level. Crosscuts entering main ore body show vein to be 40 ft. wide.

TRIANGLE MINING & DEV. CO.**Missoula**

Capital: \$1,200,000. Par value, \$1. Non-assessable. **Directors:** R. B. Hughes, pres.-mgr.; Oliver Blood, vice-pres.; H. Y. Gephart, secy.-treas.; David C. Smith, E. C. Mulroney, Geo. E. Sullinger, Missoula. **Property:** 3 patented and 10 unpatented claims, 2 miles N. E. of Clinton, Missoula Co. **Class of Ore:** Copper, silver, gold. **Equipment:** 40-h.p. boiler, air compressor, mine buildings, etc. Not working. **Development:** 653 ft. of crosscut and 1315 ft. of drifts. No official report obtainable. Probably idle.

TUOLUMNE COPPER MINING CO.**Butte**

Capital: \$2,500,000. Par value, \$1. Non-assessable. **Directors:** Ed. Hickey, pres.; Ed. J. Hickey, 2nd vice-pres.; James A. Cauty; John Harrington, secy.; Paul A. Gow; Lyman J. Roscow, treas., all of Butte; Wm. P. John, 1st vice-pres., Milwaukee, Wis.; T. E. Murray, St. Paul, Minn. **Annual Meeting:** Second Tuesday in March. **Property:** Tuolumne mine, and controlling interest in the Butte Main Range Copper M. Co. and Colusa-Leonard Ext. Copper Co., embracing about 90 acres, in Butte. All claims patented. **Class of Ore:** Copper and silver. Working 175 men. **Equipment:** Valued at \$350,000. **Development:** Main shaft, 3000 ft., developing ore body 12 to 15 ft. wide, carrying copper values of 5 to 12%; drifts on 800, 2000, 2200 and 2400-ft. levels. **Informant:** Manager Paul A. Gow.

UNITED STATES COPPER MINING CO.

Wallace, Idaho

Capital: \$100,000. Par value, 10c. Non-assessable. **Directors:** Mrs. Emma Stansfield, prés.; H. V. Edwards, Jr., secy.-treas.; Jack Lucas, C. W. Edwards, H. V. Edwards, Chas. Strobe and Jesse Freeman, all of Wallace. **Annual Meeting:** 1st Monday in January. **Property:** 3 unpatented claims—Deer Trail Nos. 1 and 2, and Gibraltar—near head of Clear creek, Sanders Co., Mont. **Class of Ore:** Copper and silver. Not working. No equipment. No shipments. **Development:** About 180 ft. of tunnels. **Informant:** Secy.-Treas. Edwards.

VALENTINE MINING CO., LTD.

Wallace, Idaho

Capital: \$1,000,000. Par value, \$1. Assessable. **Directors:** F. Bland, pres.; Otto A. Olsson, secy.-treas.; Thos. McCabe and O. W. Lewis, all of Wallace; A. L. Thurston, vice-pres.-mgr., DeBorgia, Mont. **Property:** 7 unpatented claims, near DeBorgia, Mont., being a consolidation of Rough Rider and Terra Firma properties with the Valentine Co. **Development:** 600 ft. crosscut tunnel and shallow shaft. **Informant:** Vice-pres.-mgr. Thurston. Inactive.

VANDOR MINING CO.

Butte

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** J. F. Simmons, pres.-mgr., Butte; Dr. J. E. Stuart, vice-pres.; E. B. Lindberg, secy.-treas.; J. J. Tucker and J. P. Kurtz, all of Livingston. **Annual Meeting:** Jan. 5. **Property:** 5 claims, in process of being patented, 7 miles S. W. of Ringling, Meagher Co. **Class of Ore:** Copper. Working 5 men. **Equipment:** Buffalo whim and windlasses, steam plant now being installed. Shipments to date, 16 cars, averaging over 6½% copper. **Informant:** Secy.-Treas. Lindberg.

VERMILLION SILVER & LEAD MINING CO.

Wallace, Idaho

Property: 6 claims on Vermillion creek, tributary of Trout creek, Sanders Co., Mont. Under management of R. C. Carpenter, who writes John E. White, fireman, of Wallace, a stockholder, that water wheel for the 100-ton mill had arrived, and operations would be resumed at once, having been suspended by floods. Wm. Kittrell, of Wallace, has charge of the mine. **Class of Ore:** Gold, lead, copper, zinc. **Development:** About 800 ft. of tunnels.

WARD'S PEAK MINING CO.

New York

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** M. S. Gorman, pres., Brooklyn; Jacob Steifel, vice-pres.; Mary A. Ward, secy.-treas., both of New York City. **Annual Meeting:** July 10. **Property:** 8 unpatented claims, on the Montana side of the state line, East Coeur d'Alene district. **Class of Ore:** Gold, \$3 to \$10 per ton. **Equipment:** Buildings. No shipments. **Development:** About 2000 ft. of crosscuts, drifts and shafts. **Informant:** Patrick E. Ward, foreman-mgr., DeBorgia, Mont.

WASHINGTON-BUTTE MINING CO.

Spokane, Wash.

Capital: \$200,000. Par value, \$10. Assessable. **Directors:** W. A. Kemper, pres.; S. V. Kemper, vice-pres.; A. G. Corbett, secy.-treas.; A. L. Palmer, all of Butte, Mont.; A. W. Witherspoon, Spokane. **Annual Meeting:** First Monday in July. **Property:** Various placer and quartz claims, patented, in Summit Valley district, Butte, Mont. **Class of Ore:** Principally copper. Co. not operating mines—holding the mining interests formerly belonging to Butte Land & Investment Co. **Informant:** Vice-Pres. S. V. Kemper.

WHITE STAR MINING CO.

Spokane, Wash.

Organized as a mining co-partnership, by John Salisbury, W. T. Addis, both of Spokane, and Andrew Baker, Roy Baker and Mat. Schwenke, all of Sandpoint, Idaho. **Property:** 5 unpatented claims in Pilgrim unorganized district, Sanders Co., Mont., 6 miles from Noxon. **Class of Ore:** Copper, silver and lead, one streak running 34% copper, with high assays in silver. **Equipment:** Hand tools, with comfortable buildings for 6 or 8 men. No shipments. **Development:** About 400 ft. on vein all the way. **Informant:** Secy. Salisbury.

WILSON MINING & SMELTING CO.

Saltese

Capital: \$200,000. Par value, 10c. Assessable. **Directors:** Wm. Burke, pres.; Grace Earling, vice-pres.; Abby Burke and Margaret Hayes, all of Saltese; G. W. Dougherty, secy.-treas., Wallace, Idaho. **Annual Meeting:** July 10. **Property:** 13 unpatented claims on Silver creek, 2 miles from Saltese. **Class of Ore:** Copper, gold, lead, silver. **Equipment:** Bunk house, blacksmith shop, car, track and tools. Worked by leasers, who, last year, took out considerable ore, but disagreed and abandoned lease. **Development:** 2 tunnels, extending several hundred feet, disclosing good ore bodies. **Informant:** Secy.-Treas. Dougherty.

WINDFALL PLACER MINING & DEV. CO.**Missoula**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** W. J. Johnson, pres.; Chas. Marsh, vice-pres.; A. J. Gibson, treas.; A. K. Andersen, secy.; Gunnar Nordquist, all of Missoula. **Annual Meeting:** Aug. 1. **Property:** 600 acres unpatented placer ground, on Windfall creek, Mineral Co. **Class of Ore:** Placer gold. Not working. **Equipment:** Hydraulic equipment, 6400-ft. flume, 2600-ft. pipe line, 2 giants, derrick, saw-mill, sluices, etc. Total shipments, \$200,000. **Informant:** Secy.-Mgr. Andersen.

WISCONSIN-MONTANA MINING CO.**Downing, Wis.**

Capital: \$50,000. Par value, 5c. Non-assessable. **Directors:** A. O. Nichols, pres.-mgr., Superior, Mont.; Duncan McDonald, vice-pres., Ravalli, Mont.; D. C. Coolidge, secy., Downing, Wis.; R. A. Cleveland; Dr. P. A. Beebe, both of Glenwood City, Wis. **Annual Meeting:** First Tuesday in February. **Property:** 320 acres, patented, near Superior, Mont. **Class of Ore:** Copper, from \$6 to \$93.80, with some gold and silver. **Equipment:** Car and track. No shipments. **Development:** About 1300 ft. of tunnel work. **Informant:** Pres. Nichols.

WOOD PLACER MINING CO.**Hamilton**

Capital: \$25,000. Par value, \$1. Non-assessable. **Directors:** P. M. Flugstad, pres.; J. M. Flugstad, secy., both of Corvallis. **Property:** 320 acres, patented, and 160 acres, unpatented, on Hughes creek, Ravalli Co. **Class of Ore:** Gold. Working 10 men. **Equipment:** 30-h.p. steam engine, drag line, scraper, etc. Shipments last year, \$21,000.

YAHK VALLEY MINING & MILLING CO.**Fairview**

Capital: \$250,000. **Directors:** S. H. Ehlers, Libby; V. R. Mitchell, Brockton; V. D. Evans, Fairview; L. G. Blanchett, Grand Forks, N. D. **Property:** Jim Hill mine, Sylvanite district, Yakh valley, Lincoln Co. **Class of Ore:** Gold. **Equipment:** Installing 200-h.p. plant, mine buildings, etc. **Development:** Driving a 1000-ft. tunnel to tap a body of gold-bearing ore, 45 ft. wide.

YOUNG, FORTIN, PETERSON CLAIMS.**Gateway**

Owners: C. T. Young, Philip Fortin and Gust Peterson, all of Gateway. **Property:** 5 claims—2 patented, and 3 patent applied for—14 miles E. of Gateway, Lincoln Co., on international boundary line. **Class of Ore:** Copper. Said to contain a ledge 30 ft. wide at bottom of 60-ft. shaft. **Development:** 1400 ft. of tunnel and shallow shaft. **Informant:** C. T. Young, part owner, Gateway.

List your Mine or Corporation

There is absolutely no charge for information appearing in these columns. The small operator or the prospector, struggling with a new project, is as welcome as the president of the producer of millions.

Remember, though, that the publisher of Northwest Mines Handbook cannot be expected to know every property in the Northwest.

Send for our special blanks and place your information in our hands in time for Volume 2.

No hopes, or surmises, or prognostications are wanted—just plain, supportable facts.

SIDNEY NORMAN, Publisher

Northwest Mines Handbook

Mohawk Building,

SPOKANE, WASH.

OREGON

Ore sold or treated in Oregon, 1900-1917, inc., number of producers, and mine production of gold, silver, copper, and lead

Year.	Producers.	Ore, Short-Tons.	Gold. Value.	Silver. Ozs.	Copper. Lbs.	Lead. Lbs.	Total value.
1900	-----	-----	\$ 1,727,892	132,142	21,101	94,874	\$ 1,906,175
1901	-----	-----	1,834,821	163,873	25,462	37,650	2,052,433
1902	-----	-----	1,837,406	109,463	13,736	29,100	1,981,714
1903	-----	-----	1,352,906	125,599	-----	-----	1,515,296
1904	-----	-----	1,309,939	133,157	277,738	-----	1,517,717
1905	233	150,268	1,405,235	90,636	846,815	1,610	1,592,156
1906	279	138,274	1,366,900	79,346	415,803	-----	1,500,212
1907	206	110,698	1,129,261	86,718	554,104	-----	1,297,316
1908	239	50,684	865,076	43,602	291,377	2,138	926,737
1909	162	59,281	781,964	27,827	235,000	400	827,001
1910	180	82,132	679,488	35,978	13,861	-----	700,676
1911	176	98,558	633,407	45,221	93,136	-----	669,016
1912	210	90,945	770,041	57,081	260,429	39,317	849,886
1913	173	155,901	1,627,710	179,036	43,330	87,207	1,746,402
1914	105	124,331	1,591,461	142,552	39,248	16,436	1,676,153
1915	95	155,791	1,861,796	117,947	451,172	62,957	2,003,509
1916	108	159,071	1,902,179	231,342	3,581,886	28,000	2,937,478
1917 (est.)	-----	160,000	2,025,000	215,700	3,200,000	-----	3,400,000
Total	-----	1,535,934	\$24,702,482	2,017,220	10364198	399,689	\$29,099,877

1900 to 1904 from Director of Mint reports. Coinage value silver.

1905 to 1916 Mineral Resources U. S. Geol. Survey, Chas. G. Yale. Commercial value silver.

1917 Oregon Bureau of Mines. Includes value of 15,000 tons chrome iron ore.

Prepared for Northwest Mines Handbook by Victor C. Heikes, Statistician, Division of Mineral Resources, U. S. G. S., Salt Lake City, Utah.

Mineral Resources of Oregon.

With Description of Natural and Geological Features and Notes on
Production of Metals and Coals.

(By A. M. Swartley, Consulting Mining Engineer, Oregon Bureau of Mines
and Geology.)

OREGON POSSESSES deposits of a great number of the useful minerals. On account of its vast size, however (having an area of over 95,000 square miles), in comparison with its population (which is about 700,000) much less is known of them, and fewer have been made use of, than is true of the mineral resources of most of the neighboring states.

Ores of the precious metals have been mined in the various mountainous sections of eastern Oregon since 1861 and in the southwest counties for the past sixty-five years. The main streams in these sections have also furnished from year to year a varying production of placer gold. Gold has been taken from the beach sands along the coast for years and a small amount of platinum and its associates of the rarer metals is produced annually. Although it was a secondary product of gold and silver ores before that date, Oregon began its regular shipments of copper ores in 1905.

Oregon supplies its own needs in building stone, clays and the common clay products, and possesses an abundance of raw materials for making lime and Portland cement. It has inexhaustible supplies of sand and gravel which are suitable and being used for many purposes. Coal has been mined for years in the vicinity of Coos Bay, Coos county, and lignites and sub-bituminous coals are known to exist in various other parts of the state. Large deposits of gypsum along its eastern edge are being worked and the products shipped into neighboring states. Various other non-metallic minerals exist in the state, of which there has been but little or no production to date, for economic reasons, or because of the lack of a thorough knowledge concerning them.

Oregon is similar in many ways to its sister coast states. Cutting across it from north to south are the two main ranges of mountains, the Cascades and the Coast range, both of which continue into Washington on the north and California to the south. The Cascade mountains form the "backbone" of the state, dividing it into two parts, commonly referred to as Eastern or Central Oregon, and Western Oregon. The portion east of the Cascades is about twice as large as that to the west. The Coast range of mountains parallels the coast line very closely for its entire length.

Mining Opportunities in Northeast.

In eastern Oregon, there are a number of scattered lesser mountain ranges arising from a more or less level elevated plain, besides the main area of the Blue mountains, which consists of several ranges and occupies most of the northeast counties of the state. It is in these rugged mountains of eastern Oregon that the most active mining operations are being carried on at the present time and where the opportunities for discovery and development are as good as the state affords.

Along Oregon's northern border, the picturesque Columbia river runs for 300 miles, itself a transportation highway, the value of which the state of Oregon is just beginning to fully realize. Between the Cascades and the Coast range, and extending from the Columbia southward for nearly 200

miles, lies the celebrated Willamette valley, traversed its entire length by the Willamette river. In places the floor of the valley is 25 miles wide and this, with the contiguous foothills, comprises over three million acres of productive farm lands.

The Willamette valley is separated from the Umpqua river valley to the south by a cross range of mountains that connects the Cascades and the Coast range. A similar range lies between the Umpqua and the great Rogue river country, and still farther to the south, these two rivers drain westward into the Pacific, and within their broad valleys are thousands of acres of the most productive farm lands in the state. Lying against the California border is the great Siskiyou uplift, which, again, connects the Cascades and the Coast range and separates Oregon territory from the Shasta region in California.

Great Variety of Land Surface.

Outside of mountainous areas, much of eastern Oregon consists of rolling uplands suitable for wheat growing and the raising of live stock. It will thus be noted that Oregon possesses a great diversity of land surface, and a corresponding variety of industries, besides its mining interests.

Many trunk lines of railroad now reach practically all parts of the state, as will be seen by a glance at the map. The Southern Pacific railway, with its many feeders, traverses the state from north to south, passing through the most productive portions of western Oregon and in California, connecting also with both water and rail lines at Portland, practically at the north border of the state. The Oregon Electric railway operates lines throughout the length of the Willamette valley. Coast points are reached through passes in the Coast range and by means of coastwise boats between San Francisco, Portland and Seattle. Practically throughout its 300-mile course as the north boundary of the state, the Columbia river is paralleled by two transcontinental railway lines, the S. P. & S. railroad, or "North Bank," on the Washington side, and the O.-W. R. & N. railroad on the Oregon side of the river; both of which enter the city of Portland. The main Portland-Ogden line of the O.-W. R. & N. cuts across and taps the most important mining, farming and stock-raising sections of northeastern Oregon.

The mineral deposits of economic importance are found prevaillingly in the more hilly portions of the state, the non-metallic principally in the foothills bordering the river valleys, and the metals chiefly in the more rugged and higher parts of the mountain ranges. It is found that workable deposits of the metal-bearing ores are associated quite generally with igneous rocks, that is, either with rocks of volcanic origin, or the more crystalline rocks, such as granites and granodiorites, that have pushed their way toward the surface and cooled from the molten or liquid condition. On the other hand, the common building stones, clays and other non-metallic materials are obtained mostly from the sedimentary beds, from rocks that have been deposited in water and have been later more or less consolidated.

Cascades of Volcanic Origin.

Examination of the different sections into which the state is divided by its natural physical features shows that the Cascade range is composed almost entirely of volcanic lavas of varying character, that have been violently ejected or have flowed from a large number of volcanic vents that formerly existed along the crest of the range. The position of these vents or openings is represented today by the scores of craters and sharp peaks scattered throughout its entire length across the state. Mt. Hood, the highest of these, rises to an altitude of over 11,000 feet, while Mts. Jefferson, North, Middle and South Sister, Thielsen and McLoughlin, reach upward of 9000 feet above sea level. From these old volcanic open-

ings, molten lava flowed down both slopes of the range and showers of dust and ash were scattered over large stretches of contiguous country. Pre-existing sedimentary and other rocks were thus largely covered up, or broken through by the force of intrusions of the molten rock from below.

Along the west slopes of the Cascades, therefore, we find a variety of rocks, including ancient and recent lavas, volcanic tuffs and conglomerates, and shales, sandstones, etc. In places, masses of partly or wholly crystalline rocks appear that have been intruded into or have welled up beneath the overlying beds. It is in association with the last type of rocks that most of the ore deposits are found. The east slopes of the Cascades and the adjacent country are more generally covered with surface lava flows, through which the streams have only here and there cut sufficiently deep to expose these earlier rocks.

Coast Range Not Prospected.

The Coast range of mountains is composed largely of beds of such rocks as shales, sandstones and quartzites, limestones and conglomerates. These are tipped up or folded and broken through by many dikes of basaltic lava and in places covered or interbedded with both ancient and the more recent lava flows. The Coast mountains have not been at all thoroughly prospected for ores of the metals, although coal, iron ore, stone, an abundance of useful clays are found, besides the scattered gold and platinum-bearing sands along the beaches and some of the streams that flow from their slopes into the Pacific ocean.

The principal mountain ranges of eastern Oregon are made up largely of igneous rocks of both recent volcanic and ancient deep-seated origin. Many of the prominent peaks have cappings of lava resting upon deeply eroded portions of an old granitic or granodioritic mass that has apparently pushed up from below. Others show outcroppings of sedimentary beds, sandstones, slates and marbles, that have been folded, or broken and tilted at various angles, and very greatly modified from their original condition. There are also other evidences of greater movement and disturbance of the rocks here than in most other sections of the state. Some of the ranges seem to have been produced by up and down slipping along vast breaks that often extended for many miles. Such "faulting" has assisted in the upbuilding of the Blue mountains proper, of the Willowa range, Steen mountains and many others in eastern Oregon. Vigorous geologic disturbances of the kind mentioned, where they involve rocks of igneous types that originate at or extend to great depths in the earth, very frequently give rise to conditions that are favorable to mineralization and the formation of ore bodies. That such conditions formerly existed in our eastern Oregon mountain regions in a pronounced degree is proved by the occurrence there of the most extensive and richest bodies of workable ores of the common metals to be found anywhere in the state.

Oregon's Metal Output Heavy.

The total production of all metals in Oregon to date is estimated at 140 million dollars; 105 million from eastern Oregon and 35 million from the western part of the state. The production for 1916 was \$2,937,478 from 65 placer and 30 quartz mines. Metal output for 1917 is estimated at \$3,600,000.

Western Oregon Mining Fields.

The state of Oregon contains several metal-bearing areas, widely scattered in different regions. More than half of its coast is fringed with a belt of auriferous sands, which sometimes are rich in fine gold. A second mining field, the chief producing one of western Oregon, is situated in the southwestern part of the state and includes Jackson, Josephine, Douglas, Coos and Curry counties. It may be considered as the northern ex-

tension of the gold and copper belt of California. A third region in western Oregon is that on the western slope of the great Cascade range in the Bohemia, Blue River, Quartzville, North Santiam and Ogle Creek districts—from the Siskiyou on the south almost to the base of Mt. Hood, near the Columbia river on the north.

Earliest Discoveries of Gold.

The earliest discoveries of gold in Oregon were made in Jackson and Josephine counties, where placer gold was found as early as 1852. In the same year the Jacksonville district was organized, following the discovery of placer gold on a tributary of Jackson creek. That fall, gold was found on Josephine creek and in the spring of 1853 a great rush followed to Althouse creek, where the bed of the stream was found to be uniformly rich. From Sailor Diggings, a famous placer region, a 15-mile ditch was paid for with one year's production. In the two or three following years practically every part of southern Oregon was prospected and many productive districts were organized. After the most accessible gravel deposits were taken up and largely exhausted, placer miners turned to bench deposits and drift mining wherever such deposits could be worked by water under considerable pressure. Hydraulic mining was used in southern Oregon as early as 1856 and has been employed almost continuously ever since.

Gold Quartz Discoveries at Gold Hill.

Soon after the discovery of gold-bearing gravels, quartz veins were located. In 1859 gold quartz was found at Gold Hill so rich that \$400,000 is said to have been taken out the next year. A similar rich deposit at Steamboat, found at about the same date, yielded \$350,000 in a short time. The quick exhaustion of the many rich strikes gave the region a reputation of being a "pocket" country, besides causing prospectors to search for them rather than to develop ore. It is a region where many bonanzas have been found, but recent developments indicate that it also contains large bodies of lower grade ores of gold and copper.

Early in the '60s an 8-stamp mill was installed near Grant's Pass, and many plants of similar nature have been erected since that date, the largest of which, the Greenback mill, has 40 stamps.

The total production of all metals to date is estimated at 35 millions, about 5 of which came from the mines of the Cascade range. The average production for the last 5 years is \$200,000, but the 1917 production of all metals will be more than twice that sum.

Eastern Oregon Mining Fields.

East of the Cascades (besides the most productive ones in the Blue mountain region) are several widely scattered districts. Pueblo mountain district is in southern Harney county, and the Harney district in the northern part of the county, 125 miles away. The High Grade district of southern Lake county, 80 miles west of Pueblo mountain, is near the California line; the Howard district in northeastern Crook county, and the Ashwood district in the new county of Jefferson. Spanish Gulch is in southeastern Wheeler county. The above scattered districts have a record of but a small production.

The most important mining region in eastern Oregon, and in the entire state, is that of the Blue mountains, which is situated in the northeastern part and extends westward for 130 miles from the Idaho line. Its total production to date is at least three-fourths that of the entire state.

First Gold Discovery at Griffin Gulch.

The first gold discovery in eastern Oregon was at Griffin Gulch, a few miles southeast of Baker, in the fall of 1861. In 1862 the large placer

mines of Auburn, nearby, were discovered, and the following year Auburn camp had a population of 5000. By 1864 nearly all of the mining districts of eastern Oregon were known. Supplies were brought in from The Dalles, 300 miles away. Because of the difficulty of access and cost of transportation of supplies, gravels which did not yield \$8 per day for each man were not considered.

In 1863 the Auburn canal was completed. The next year the Rye Valley ditch was constructed, as was the Eldorado ditch, with its total length of over 100 miles, to supply water to the Malheur diggings. But by this time the principal hydraulic placer deposits were largely exhausted and a gradual decline in production began, which has continued nearly to the present day. The introduction of standard gold dredges has caused an increase in placer production in the last four years, which is to be further increased by additional dredges.

Susanville and Mormon Basin Mines.

The Virtue quartz mine was discovered soon after the discovery of placer gold. Quartz mines were worked at Susanville and at Mormon Basin as early as 1865 and 1868. One of the first mills was built at Susanville in 1869. Connor Creek and Cable Cove were worked, but the shipment of ore on horseback for several hundred miles caused development to be slow. Real activity in quartz mining followed the construction of a trans-continental railroad in 1885, and the development of the many camps was thereafter placed on a more permanent and productive basis.

Speculation was rife from 1899 to 1903, and much money was unwisely spent. Eastern Oregon has just recovered from the injurious effects of this "boom," and since the greater number of producing properties are in good hands, we have a steady production from most of them, which is being increased by the addition of other producers to the list.

Blue Mountains' Production.

The production of the Blue mountain region previous to 1880 is very imperfectly known. Since that time the total annual production has been compiled by the federal government. Taking into account the best information obtainable, the total production of all metals for this area from 1861 to the end of 1916 is estimated at \$105,000,000. This estimate is based on that of Waldemar Lindgren up to 1899, to which has been added the production since that time.

Production previous to 1904 was for some years above the million-dollar mark, but beginning with that year there was a decreasing annual production to 1911, the low-water mark, when \$463,439 was produced. Since 1911 there has been a marked increase, so that in 1916, the last year for which complete figures are available, the production from the 5 counties, for all metals, was \$2,517,937. Since the phenomenal production of the earlier placer days, this amount has been approached but twice, when, in the year 1891, the gold and silver production was \$1,849,131, and in 1915, when the production was \$1,859,033.

Copper of Homestead District.

Copper usually occurs in Oregon closely associated with gold and silver. Some of the more distinctly copper ores are found in the Homestead district on the Snake river, where it occurs as chalcocite and chalcopyrite in shear zones in greenstones. Another important area is the copper belt in the lower Powder river valley, where chalcopyrite, chalcocite and cuprite are found disseminated through the shattered and sheared greenstone. Copper prospects are also found in the Wallowa district, where they are mainly chalcopyrites in a contact deposit between granodiorite and limestone. Another important district is the Waldo, about 20 miles southwest of Grant's Pass. Here it occurs as chalcopyrite, with

magnetic iron sulphide. Other districts where copper ores are found are the Imnaha and Quartzburg in eastern Oregon, the North and South Umpqua in Douglas county and the Coast range mountains in Curry and Josephine counties.

The total production of copper to December 31, 1916, according to the U. S. Geological Survey, is 7,350,355 pounds. It is estimated that the smelter production of copper from Oregon in 1916 will exceed 3,000,000 pounds.

Homestead-Irondyke Shipping Steadily.

The most productive copper mine in Oregon is that of the Homestead-Irondyke Mines Co., at Homestead, Oregon. It has been a steady producer of crude copper ore and concentrates since September, 1915. Its flotation mill, having a capacity of approximately 150 tons daily, has been operating since October, 1916, previous to which time it shipped crude ore. A notable discovery of ore was made by this company in its shaft, now down over 800 feet below the lowest tunnel level. An ore body was discovered in this shaft somewhat above the level of the Snake river. The shaft has continued in the ore body for about 450 ft., and is reported to be of chimney form, about 125x250 feet, containing about 5% copper, 2 ounces in silver and \$12.00 in gold. The mine is owned by the Goodrich Rubber company group of capitalists and bids fair to become an important and steady producer of copper.

The Queen of Bronze mine in the Waldo district, owned by individuals closely connected with Twohy Brothers, has been a steady and important shipper of crude ore during 1917. Considerable bodies of milling ore also remain in the mine and on the dump awaiting the construction of a flotation mill.

Coal Fields Are Extensive.

Oregon is well supplied with coal, there being numerous fields located in various parts of the state, the most important of which is the Coos Bay field, in the southwestern part of the state, named from the fact that it entirely surrounds that body of water. The Coos Bay region is the only one that has recorded a steady production.

This field has been operated continuously during the past 35 years and has produced about two and one-fourth million tons of coal. The production reached the maximum in 1904, when it amounted to 111,540 tons. The output in 1916 was 43,404 tons, valued at about \$130,212. That of 1917 was about the same as 1916.

The coal in this section is sub-bituminous and its average analysis is about as follows: Moisture, 9.5%; volatile matter, 43.5%; fixed carbon, 36.5%; ash, 7%; sulphur, 1.2%.

The production in this region has been materially reduced in the past few years on account of the cheap fuel oil from California.

Another locality which gives promise is the Eden Ridge field in the southeastern part of Coos county. This field has been sufficiently prospected to demonstrate the existence of two veins of coal, one 7 feet and one 10 feet thick, being in quality the highest grade yet found in the state. A railroad has been surveyed into the district and is already constructed to a point 10 miles distant.

Other coal fields have been prospected in different parts of the state. The chief localities being the Upper Nehalem in Columbia county, the Lower Nehalem in Clatsop and Tillamook counties, the Yaquina field in Lincoln county, the Eckley and Shasta Costa in Curry county, the Rogue Valley field in Jackson county, and the John Day field in Wheeler, Gilliam, Morrow and Grant counties.

Oregon Mines and Corporations

AMALGAMATED MINES CO.

Spokane, Wash.

Capital: \$1,000,000. Par value, \$1. Non-assessable. Washington corporation. **Directors:** W. F. Downie, pres., Seattle, Wash.; N. L. Smith, vice-pres., Baker; W. Burnham, secy.; G. J. Burnham, treas., Spokane; Daniel W. Loughlin, Mansfield, Wash. **Annual Meeting:** Second Monday in October. **Property:** 20 claims, surveyed for patent, Paddy's creek district, Baker Co. **Class of Ore:** Free milling gold and some silver. Shut down in 1917, account of labor troubles and lack of supplies. **Equipment:** 250-ton crusher, 70 to 120-ton mill, saw-mill, 35-k.w. generator, steel pipe line and 2 water wheels. Will resume in 1918. No shipments. **Development:** Sufficient to warrant installation of machinery. 700 ft. of tunnel. **Informant:** Secy. W. Burnham.

AMERICAN ALMADEN QUICKSILVER & GOLD MINING CO.

Portland

Capital: \$1,500,000. Par value, \$1. **Directors:** W. B. McKinney, pres.; E. N. Wheeler, secy.-treas.; G. W. Tillotson, mgr., Howard. **Property:** 3 claims, near Lookout Mt., 11 miles from Howard, Crook Co. **Class of Ore:** Cinnebar. Equipped with battery of retorts. Several tunnels have been driven. No recent details.

AMERICAN NITRATE CO.

Capital: \$20,000,000. **Property:** 40 nitrate of potash claims on Succor creek, in Eastern Oregon, purchased from Geo. D. Huntley and others, of Boise, for \$100,000. Stamp mill erected, and product treated by crushing and subjected to a special process. Armours and Guggenheims said to be interested in Co. No recent details.

BADGER GOLD MINING & MILLING CO.

Susanville

Owned almost exclusively by Susanville Commercial Co., one of the F. W. Bradley interests. **Property:** On south side of Elk creek, in town of Susanville, Grant Co. **Class of Ore:** Gold and silver. **Development:** Includes a 900-ft. shaft and 1600-ft. crosscut. Sorted ore averaged over \$150 per ton. Closed in 1905, owing to litigation with Stockton Mining Co. (q.v.)

BAILEY-ELKHORN MINE.

Baker

Owner: Wm. Pollman, Baker. **Property:** Near head of Elkhorn gulch, 18 miles W. of Baker. Discovered in 1832. Production to 1912 was \$936,717.59. **Development:** Includes a 626-ft. crosscut tunnel, a 400-ft. shaft, and drift of 1400 ft. on second level from shaft. Practically inactive since 1907, but attempts were made to reopen in 1916, by driving a tunnel 1 mile long to cut vein 1500 ft. below outcrop. No recent reports available.

BAKER MINES CO.

Cornucopia

Capital: \$800,000. Par value, \$10. **Directors:** R. M. Betts, pres.; Paul W. Gaebelein, secy., both of Cornucopia; Jas. B. Thomas, New York. **Property:** The Last Chance mine, in Bonanza Basin, near Sumpter, Baker Co. **Development:** 690-ft. adit tunnel, 265-ft. shaft, 450 ft. of drifts, and crosscut 296 ft. Present Co. formed in 1914, and management given to John M. Baker, former engineer at Columbia mine, since when equipment and development have been greatly increased. Producing steadily at last reports.

BAIRD MOUNTAIN MINING CO.

Boston, Mass.

Capital: \$100,000. **Directors:** Geo. N. Putnam, pres., Boston; A. D. Sargent, secy.-treas.; Chas. J. Wier, both of Lowell, Mass.; Chas. A. Johns, Portland, Ore. **Property:** Northeast extension of Ibex mine, Cracker Creek district, Baker Co., Ore. Reported to have been bought by Ibex Mining Co. (q.v.) in 1916.

BEH HARRISON MINE.

Lima, Ohio

Owner: A. L. White, Lima, O. **Property:** 10 claims, 28 miles from Sumpter, in Grant Co., Ore. W. C. Fellows, mgr. **Class of Ore:** Gold and silver. **Equipment:** 20-stamp mill, tube mill, classifiers and vanners. **Development:** Adits and several hundred ft. of drifts on 600-ft. level. Bonded in April, 1917, to E. H. Dewey, of Nampa, Idaho. Former owners said to have spent \$200,000 on property. **Note:** Announced, April 3, 1918, that E. H. Dewey and associates have thrown up option, after spending \$50,000 on development during 6 months, besides large payment made at time of taking option. Bad roads, rendering transportation practically impossible, given as main reason for withdrawal.

BLUE LEDGE MINE.**Copper, Calif.**

Owners: W. R. Garrison, Frank Edwards and F. W. Carnahan, Copper, Calif.
Property: Lode claims, 3 miles from Hutton, in Jackson Co., Ore. **Class of Ore:** Gold. Shut down in 1917. **Equipment:** Cyanide plant, water-driven arrastra. Total shipments, \$1800. **Development:** 300 ft. of workings. **Informant:** F. W. Carnahan, part owner.

BLUE MOUNTAIN MINING CO.**Covington, Ky.**

Capital: \$2,000,000. Par value, \$1. **Directors:** C. L. Arzeno, pres.-gen. mgr.; E. J. Stagge, vice-pres.; E. A. Buxsel, asst. secy.-treas.; Clemens Backhus, Jr.; J. E. Weitkamp, Jos. Grever, Geo. H. Vonderahe, Bernard Moeller, A. Davidson, A. Heisler, supt. **Property:** 27 claims, about 500 acres—200 patented—in Cable Cove district, 11 miles N. W. of Sumpter, in Baker and Grant Cos., Ore. **Class of Ore:** Gold-silver. In 1916, Co. took lease on Imperial Mining Co. (q.v.), holdings of 20 patented claims, and operates them in conjunction with above. **Equipment:** Includes the Alpine mill, a 10-ton experimental mill, the 85-ton Imperial mill, etc. **Development:** 1900-ft. main working tunnel, with 262-ft. crosscut, a 640-ft. tunnel, now caved in. Ore reserves include 1000 tons at Imperial tunnel, averaging \$110 per ton, and 13,000 tons of \$10 ore.

BOURNE GOLD MINING CO.**Portland**

Capital: \$1,000,000. Par value, 20c. **Directors:** Jonathan Bourne, Jr., pres.; I. M. Arneson, secy. **Property:** 2 claims, Eureka and Excelsior, other lode claims, 7 placer claims and 2 mill-sites, all patented, in Cracker Creek district, Baker Co., ¼ mile W. of town of Bourne.

BRANOS MINES CO.**Baker**

Capital: \$25,000. Par value, \$1. **Directors:** Al Geiser, pres.; Mose Fuchs, secy.; John Thomson, treas. **Property:** 2 miles N. of Pleasant valley, on O.-W. R. & N. Ry., in Virtue district, Baker Co. **Class of Ore:** Gold. **Equipment:** 10-stamp mill. **Development:** Crosscut tunnel, with 1000 ft. of drifts.

BRIGHT CARBONATE MINING CO.**Pendleton**

Capital: \$60,000. Par value, \$1. **Directors:** Geo. Darveau, pres.; John Seibert, secy.-treas., both of Pendleton. **Property:** 3 claims on main Greenhorn range, in Greenhorn district, Grant Co. **Class of Ore:** Silver and gold, assaying from \$5 to \$250 per ton. Developed by crosscuts and drifts.

BUCK GULCH MINE.**Oakland, Calif.**

Owners: Fred Gowing, A. I. Snyder and others, of Oakland. **Property:** In Buck gulch, tributary of Powder river, in Sumpter district, Baker Co., Ore. **Class of Ore:** Placer gold. **Equipment:** Electric washing plant, and dam, to be filled from a 7-mile ditch. **Development:** 900-ft. tunnel.

BUFFALO-MONITOR MINE.**Granite**

Property: 5 miles from Granite, Grant Co., on divide between Granite creek and north fork of John Day river. Leased to Wm. Norkaus and associates. **Class of Ore:** Gold and silver, said to average \$100 ton. Vein 50-ft. wide. Equipped with gasoline-driven compressor and air drills. Production to date, \$75,000.

BURNT RIVER DREDGING CO.**Portland**

Capital: \$250,000. Par value, \$1. **Directors:** O. E. Tisch, pres., Tacoma, Wash.; D. D. Wallace, secy.-treas., Portland. **Property:** 680 acres, 8 miles S. of Durkee, Baker Co., with control of river for 3½ miles on each side. Prospecting shows values of 30c to \$4 a yard. Installing large dredge.

CALIFORNIA CONS. MINES CO.**Portland**

Capital: \$750,000. Par value, \$1. **Directors:** H. W. Manning, pres.; M. Manning, secy., both of Portland. **Property:** One of oldest mines in Eastern Oregon, adjoining Imperial on west, Cable Cove district, Baker Co. Located in 1873. Formerly shipped ore running from \$50 to \$500 per ton, but now inaccessible. Had about 800 ft. of tunnels, and a 10-stamp mill which proved a failure.

CANYON MOUNTAIN MINING CO.**Canyon City**

Capital: \$1,000,000. Par value, \$1. **Directors:** Jackson Chambers, pres.; F. S. Slater, secy.-treas., both of Canyon City. **Property:** 1 unpatented claim, 1¼ miles from Canyon City, Harney Co. **Class of Ore:** Lead, 48%; silver, 40 to 50 oss.; gold, \$2 to \$20 per ton. **Equipment:** 10-stamp mill, which proved unsatisfactory. Closed down in 1915. One tunnel 500 ft. long.

CENTRAL OREGON MINING CO.

Portland

Capital: \$10,000. Par value, \$100. **Directors:** Levi Tillatson, pres.; E. S. Huckaby, secy.-treas., both of Portland. **Property:** 3 claims on Lookout Mt., Crook Co. No particulars.

CHAMPION CONS. MINING CO.

Spokane, Wash.

Capital: \$300,000. Par value, 10c. **Directors:** Olaus Jeldness, pres.; J. S. Lewis, vice-pres.-treas.; C. V. Bobb, managing director, all of Spokane; H. C. Mahon, secy., Portland, Ore. **Property:** 47 claims, about 800 acres, comprising the Champion, Helena and Music groups, Bohemia district, 35 miles from Cottage Grove, Lane Co., Ore. Discovered in 1858, and have a gross production of \$2,200,000. **Class of Ore:** Gold. **Equipment:** Includes power plant, hoists, 30-stamp mill with concentration plant, costing some \$200,000, and Co. plans to install 50-stamp mill and flotation unit. **Development:** 14,000 ft. of workings. **Note:** Succeeded, June 1, 1917, by the Champion Mines Corporation (q.v.).

CHAMPION MINES CORPORATION.

Spokane, Wash.

(Successor to Champion Consolidated Mining Co.) **Capital:** \$3,000,000. Par value, \$1. Non-assessable. **Directors:** H. C. Mahon, pres.; J. Anthony Smith, vice-pres.; F. W. Keisinger, secy.-treas.; Dr. J. Sutherland and Olaus Jeldness, all of Spokane. **Annual Meeting:** First Tuesday in September. **Property:** Champion, Music and Helena groups, 47 claims, some of them patented, in Bohemia district, Lane Co., Ore. **Class of Ore:** Gold, silver, lead, zinc, copper. **Equipment:** Hydro-electric power plant, 30-stamp mill, 3 rock-crushers, 3 Wilfley tables, 3 air-compressors, underground electric locomotive, machine drills, saw-mill, assay outfit, etc. **Development:** About 14,000 ft. of tunnels and drifts. **Informant:** Pres. H. C. Mahon.

CHICAGO-VIRTUE MINING & DEV. CO.

Baker

Directors: V. P. Dole, pres., Chicago; L. Richey, secy.; Jas. Meyers, treas., both of Baker. **Property:** 14 miles S. E. of Baker. **Equipment:** 5-stamp mill. **Development:** 100-ft. shaft, 40-ft. drift. Values said to be low. No recent details.

CHROMITE MINES.

Canyon City

Owners: Joe Beggs and Chas. McCorkle, of Canyon City. Leased to Farrish Co., of San Francisco, with W. C. Lummins in charge. Deposit outcrops for several hundred ft., estimated reserves being 60,000 tons. Property in Canyon district, Grant Co., product being hauled by wagon to Prairie City. Ore shipped to Pittsburg, and used in manufacture of chrome steel.

CINCINNATI MINING CO.

Baker

Capital: \$500,000. Par value, \$1. **Directors:** L. G. Lilley, pres.; C. T. Godwin, secy.; Jas. H. Nichols, treas., all of Baker. **Property:** 13 claims, on Pedro Mt., Rye Valley district, Baker Co. Held under contract from owners, Jack Regan and I. R. McCord, but failed to fulfill terms, and Co. was dissolved in January, 1917, according to statement of treasurer.

CLEVELAND DEVELOPMENT CO.

Portland

Capital: \$250,000. Par value, \$1. **Directors:** Wm. P. Chapman, pres.; H. G. Patterson, secy.; F. C. Graf, treas., all of Portland. **Property:** 15 claims, 1 mile S. of Rainbow mine, Mormon Basin district, Malheur Co. Developed by 2 tunnels and several shallow shafts.

COLUMBIA GOLD MINING CO.

Sumpter

Capital: \$150,000. Par value, \$100. **Directors:** Edward W. Backus, pres.; Wm. F. Brooks, secy.; R. L. Horr, treas., all of Minneapolis, Minn. **Property:** 2 claims on lode and other protective claims, on Fruit creek, Cracker Creek district, Baker Co. **Class of Ore:** Silver and gold. Total production to Jan. 1, 1915, estimated at \$8,000,000. Of 5 distinct properties, four have ceased operations since 1908, owing to lack of adequate facilities for saving values, and the fifth was left in charge of small crew. Co. sold entire property in 1917, and will retire from business.

COMMERCIAL MINING CO.

Portland

Capital: \$1,750,000. Par value, \$1. **Directors:** F. P. King, pres.; A. S. Nichols, vice-pres.; H. V. Carpenter, secy.-treas.; W. E. King, Barney May, J. R. Coples, all of Portland; D. W. French, Baker; E. W. Haines, Forest Grove; C. G. Huntley, Oregon City. **Property:** 11 claims, 2½ miles S. W. of Durkee, in Mormon Basin district, Malheur and Baker Cos. **Class of Ore:** Gold. Work-

ing 140 men. **Equipment:** Hoist, compressors, 15-stamp mill, tube mill, Merrill zinc precipitation, Kelly press, etc. Rate of output, 110 tons per day. Total shipments to Dec. 31, 1915, 103,547 tons, value \$1,113,158.99. **Development:** 400-ft. vertical shaft, 1700 ft. of drift on 200-ft. level, and considerable work on third and fourth levels. Is the principal mine of the district. Operated in 1915 and 1916 by United States S. R. & M. Co., which expended much money in development and equipment. Reported to have reverted to Commercial M. Co. in 1917.

CONNOR CREEK MINES.**Home**

Capital: \$100,000. Par value, \$1. **Directors:** Clayton Mark, pres., Chicago, Ill.; J. H. Bagley, secy.-treas., Home. **Property:** 6 quartz claims in Connor Creek district, Baker Co., leased from Connor Creek Mining & Milling Co. (q.v.) **Class of Ore:** Gold and silver, with native mercury. **Development:** About 6000 ft. of tunnels. Co. also controls 5 quartz and 5 placer claims adjoining. **Equipment:** 10-stamp mill added to former equipment. Production incidental to development since date of lease, 1915, \$4000.

CONNOR CREEK MINING & MILLING CO.**Portland**

Capital: \$500,000. Par value, \$1. **Directors:** T. L. Elliot, pres.; A. H. McGowan, secy. **Property:** On Connor creek, Connor Creek district, Baker Co. **Class of Ore:** Gold and silver, with considerable native mercury. **Development:** Between 5000 and 6000 ft. of tunnels, most of which are caved in. Leased in 1915 to J. H. Bagley, Albert Geiser and Isaac Sweet.

CONQUEST GOLD MINING CO.**Baker**

Capital: \$2,000,000. Par value, \$1. **Directors:** Jas. A. Parting, pres.; A. H. Parting, secy.-treas., Baker. **Property:** 21 quartz claims, 164 acres placer, 4 miles N. E. of Durkee, Burnt River district, Baker Co. Equipped with 10-stamp mill, and developed by long crosscut.

CONTACT MINING & MILLING CO.**Lostine**

Capital: \$1,500,000. Par value, \$1. Assessable. **Directors:** H. J. Martin, pres., Wallowa; C. H. Herman, vice-pres., Enterprise; O. F. Mays, secy.-treas., Lostine. **Property:** 10 unpatented claims and mill-site, 16 miles S. of Lostine, Wallowa Co. **Class of Ore:** Copper, 3½%; gold and silver, \$2 per ton. Shut down in 1915. **Development:** 450 ft. of tunnels. Reported leased for 5 years from November, 1916, to Ole Twedt, of Seattle, with bond for \$65,000. Known also as Peacock mine (q.v.).

CO-OPERATIVE COPPER & GOLD MINING CO.**Rockford, Ill.**

Capital: \$1,000,000. Par value, \$1. **Directors:** Alfred Larson, pres.; J. A. Bowman, secy.; A. T. Bodin, treas., all of Rockford, Ill. **Property:** 15 claims, 4 miles N. E. of North Powder, Baker Co., Ore. Inactive.

CORNUCOPIA MINES CO.**New York**

Capital: \$500,000. Par value, \$100. **Directors:** Jos. B. Thomas, pres.; I. W. Hunter, secy.-treas., both of New York; Robt. M. Betts, gen. mgr., Cornucopia, Ore. **Property:** Union Companion mine, 45 patented claims, 800 acres, in Cornucopia district, Baker Co., Ore. **Class of Ore:** Gold and silver. **Equipment:** 2 compressors, 20-stamp mill, cyanide plant, 500-h.p. electric plant. **Development:** 30,000 ft. of crosscuts and drifts, according to manager's report. A close corporation, and figures as to production not available, but Co. expects to build a large, new mill soon, if certain tests with low grade ore are successful.

COUGAR GOLD MINING & MILLING CO.**Spokane, Wash.**

Capital: \$2,000,000. Par value, \$1. **Directors:** David R. Adams, pres.; N. Johnson, secy.-treas.; J. W. Larkin, all of Spokane. **Property:** 3 miles N. of Granite, Grant Co., Ore. **Development:** 2000 ft. of drifting, and several short crosscuts to vein. Taken over in 1916, by United Gold Mining Co., of Spokane (q.v.).

DOUBLE EAGLE MINING CO.**The Dalles**

Capital: \$1,050,000. Par value, \$1. **Directors:** J. S. Fish, pres.; T. J. Seufert, secy.; J. C. Hostetter, treas. **Property:** 7 quartz claims, 2 miles N. of Greenhorn, Baker Co. **Development:** 1200-ft. crosscut, 500 ft. of drifts. New vein, discovered in 1916, being prospected.

EAST EAGLE MINING & MILLING CO.**Baker**

Capital: \$5000. Par value, \$1. **Directors:** J. A. Thronson, pres.-treas.; E. S. Platts, secy.; both of Baker. **Property:** 5 located claims and 5 under bond and lease, 15 miles N. of Sparta, Baker Co. Has 5-stamp mill, Wilfley table, assay outfit, boarding house and smaller buildings.

EASTERN OREGON MINING CO.**Jersey City, N. J.**

Capital: \$250,000. Par value, \$1. Non-assessable. **Directors:** Alexander Baring, pres.; C. W. Bennett, treas., both of New York. **Property:** North Pole mine (q.v.), near Bourne, Baker Co., Ore., area, about 1300 acres, patented. **Class of Ore:** Gold. Production from 1896 to 1908, \$2,485,006. Now worked by lessee. **Equipment:** 30-stamp mill and cyanide plant. **Development:** 5 tunnels. **Informant:** Emil Melzer, engineer, Baker, Ore. **Note:** Under lease to John C. Lewis, Portland.

ELDORADO COPPER CO.**Spokane, Wash.**

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** Andrew Laidlaw, pres.; C. F. Clough, secy., both of Spokane; Henry Banfield, vice-pres., Drew, Ore.; F. W. Beyer, treas., Riddle, Ore.; C. P. Ritter, Indianapolis, Ind. **Annual Meeting:** First Monday in June. **Property:** Independence claims, 1 to 9 inc., unpatented, known as Banfield mine, in Douglas Co., Ore. **Class of Ore:** Copper, 4%; gold and silver, \$2 to \$3 per ton. Not working. Shut down 1917. **Equipment:** Fine camp buildings. No shipments. **Development:** 1 mile of tunnels, lowest cutting 3 veins, 50, 40 and 16 ft. wide. There are 5 other known veins, all large. Over 10,000 tons of ore on dumps, averaging \$15 per ton. Distance from shipping station, 32 miles, cause of closing down. **Informant:** Pres. Andrew Laidlaw.

ELK CREEK GOLD MINING CO.**Union**

Capital: \$50,000. Par value, \$1. **Directors:** H. C. Susecoind, pres., Nampa; C. E. Davis, secy.-treas., Union. **Property:** 1 claim, Robert Emmett, 1 mile N. W. of Cornucopia, Baker Co. **Class of Ore:** Gold. **Equipment:** Tramway connecting mine with mill on Elk creek. **Development:** 165-ft. shaft, drained by tunnel, and drifts on 2 levels. Vein 1 to 2 ft. wide, with ore running as high as \$100 per ton. Practically only assessment work done past few years.

EMPIRE GOLD DREDGING & MINING CO.**Portland**

Capital: \$100,000. Par value, \$100. **Directors:** W. F. Burrell, pres.; O. L. Kennedy, secy.-treas., both of Portland. **Property:** Dredging ground between towns of John Day and Canyon City, Grant Co. Operating on Canyon creek, said by federal authorities to have produced \$15,000,000 in placer gold. Co. employing modern methods of dredging, to recover values left by former operators.

EQUITY COPPER & GOLD MINING CO. OF OREGON.**Baker**

Capital: \$150,000. Par value, 10c. **Directors:** W. J. Hughes, pres.; F. M. Saxton, vice-pres.; T. E. Johns, all of Prairie City; Mrs. Kate Palmer, secy.; G. J. Bowman, treas.; T. C. Goodwin, all of Baker; E. J. Hughes, Randolph, Wis.; A. J. Smith, Viroqua, Wis.; W. V. Jones, Pickett, Wis.; Owen Pritchard, Pasadena, Calif. **Property:** 6 unpatented claims, 120 acres, 7 miles N. E. of Prairie City, Grant Co. **Class of Ore:** Gold, \$30; silver, \$1 per ton; copper, 2%; lead, 3%; zinc, 3%; iron, 20%. Not working. **Equipment:** 5-stamp mill, assay office, cabins, ore cars, etc. Production to date, \$120,000. Worked by lessees at intervals. **Development:** About 1400 ft. of tunnels and drifts. **Informant:** Pres. W. J. Hughes.

EUREKA MINING, SMELTING & POWER CO.**Clarkston, Wash.**

Capital: \$2,000,000. Par value, \$1. **Directors:** Wm. Strune, pres., Almont, Iowa; W. E. Howard, secy.-treas., Clarkston, Wash.; C. H. Zurcher, Enterprise, Ore. **Class of Ore:** Copper. **Property:** 40 claims, patent applied for, on Oregon side of Snake river, in Wallōwa Co., Ore. Idle for several years, awaiting railway facilities.

FLAGSTAFF MINE.**Baker**

Arthur Murphy owns controlling interest; J. H. Sullivan in charge. **Property:** 6 miles N. E. of Baker. **Class of Ore:** Gold. **Equipment:** 20-stamp mill, steam power, and cyanide plant. **Development:** 5000 ft. of workings, shafts, drifts and winzes. No recent report.

GEM CONSOLIDATED GOLD MINING CO.**Baker**

Capital: \$1,000,000. Par value, \$1. **Directors:** E. D. Geiser, pres.; F. E. Geiser, secy.-treas. **Property:** 2 miles W. of Sparta, Baker Co. **Class of Ore:** Gold. Vein narrow, but rich. **Development:** 179-ft. vertical shaft, with about 300 ft. of drifts from two levels. **Equipment:** Hoist, pumps, and small steam power amalgamating mill. No recent information.

GIRAFFE MINING & MILLING CO.**Miller**

Capital: \$150,000. Par value, \$1. **Directors:** Geo. Cartwright, pres.; A. O. Weatherman, secy.; Grace Nichols, treas. **Property:** 7 claims on Clark's creek, Mormon Basin, Baker Co. **Class of Ore:** Gold. **Development:** 250 ft. of crosscut and several drifts. No recent information.

GLEESON DEVELOPMENT CO.**Portland**

Capital: \$75,000. Par value, \$1. Non-assessable. **Directors:** Walter H. Gleeson, pres.; T. B. Garrison, vice-pres.; Wm. F. Wright, secy.-treas.; E. M. Wright, S. F. Wilson. **Annual Meeting:** Second Monday in January. **Property:** 6 unpatented claims, 4 miles from Granite, Grant Co. **Class of Ore:** Gold and silver, averaging about \$10 gold and \$5 silver to the ton. Not working—shut down May 1, 1915. **Equipment:** Hoist, boiler, pumps, cable, buckets, blacksmith shop, boarding house, cars, track, tools, mill plant, with boiler, engine, crusher, rolls, etc., for cyanide plant. No shipments. **Development:** 1500 ft. drifts, 100-ft. raise, 100-ft. winze. **Informant:** Pres. Gleeson.

GLOCONDA MINE.**Portland**

C. S. Jackson, Portland, owner. Property in Cracker Creek district, Baker Co. **Class of Ore:** Gold. Not active since 1914. At one time large producer. No details available.

GOLD CREEK MINING & MILLING CO.**Salem**

Capital: \$3,500,000. Par value, \$1. **Directors:** Otto Hansen, Seattle, Wash., pres.; W. T. Staley, secy.-treas. **Property:** 17 claims, 16 miles N. E. of Gates, Santiam district, Marion Co. **Class of Ore:** Copper, lead. **Development:** 1500-ft. crosscut tunnel, driven to cut vein at 2000 ft., with vertical depth of 600 ft. No recent information. Probably inactive.

GOLDEN CHARIOT MINING & MILLING CO.**Sumpter**

Capital: \$350,000. Par value, \$1. **Directors:** Chas. Wiedemann, pres., Newport, Ky.; Oliver E. Conner, Jr., mgr.; Rose Rennkamp, secy., Sumpter. **Property:** The old Gold Chariot prospect of the Tri-State Mining & Milling Co. (q.v.), 2 miles E. of Sumpter. **Class of Ore:** Gold. **Development:** Single-compartment 300-ft. vertical shaft, small amount of drifting; winze reported in free milling ore.

GOLDEN EAGLE MINING CO.**The Dalles**

Capital: \$441,000. Par value, \$1. Non-assessable. **Directors:** Judd S. Fish, pres.; J. C. Hostettler, secy., both of The Dalles. **Property:** 8 patented claims at Greenhorn, Baker Co. **Class of Ore:** Gold, copper, lead. Not working. **Equipment:** 4-stamp mill, compressor, hoist, boiler etc. No shipments. **Informant:** Pres. J. S. Fish. **Note:** Additional information gives total production as \$75,000, and development as consisting of 3 tunnels and drift, aggregating 2600 ft.

GOLDEN GATE MINING CO.**Marion, Ohio**

Capital: \$1,500,000. Par value, \$1. **Directors:** M. F. Douce, pres.; John F. Lust, treas., both of Marion, Ohio; G. L. Bender, secy.-atty.; Fred L. Daines, both of Greenhorn, Ore. **Property:** 2 miles N. of Greenhorn, Baker Co. **Class of Ore:** Gold. **Equipment:** 20-stamp mill. **Development:** 2400 ft. of tunnels, crosscuts and raises. Reported in 1917 that mine had been closed down and equipment sold.

HAMILTON MINES CO.**Chicago, Ill.**

Capital: \$1,000,000. Par value, \$1. Non-assessable. **Directors:** M. S. Sickle, pres.; F. A. Poor, vice-pres.; H. L. Baylles, secy., all of Chicago; R. L. Wheaton, treas., Wheaton, Ill.; W. H. W. Hamilton, mgr., Baker, Ore. **Property:** Mormon Boy group of 6 claims, on north fork of John Day river, and Grand Central group, on Bull Creek, both about 12 miles N. of Sumpter, Baker Co., Ore., all being patented. **Class of Ore:** Gold and silver. Total shipments, 200 tons. Recently purchased by Hamilton Mines Co., and active development will begin at once. Mill to be erected in 1918. **Development:** 1000 ft. on Mormon Boy, 500 ft. on Grand Central group. **Informant:** Gen. Mgr. W. H. W. Hamilton, Baker, Ore.

HAMM GOLD MINING CO.**Hereford**

Capital: \$100,000. Par value, \$1. **Directors:** A. B. Hamm, pres., Ramer, Tenn.; A. M. Howard, secy.-treas., Kenton, Tenn. **Property:** 3 miles E. of Hereford, Baker Co. **Class of Ore:** Gold. Annual labor performed is \$1000.

HANNIBAL MINING & MILLING CO.**Baker**

Capital: \$96,000. Par value, \$1. **Directors:** J. H. Waugh, pres.; G. S. Misener, treas., both of Vancouver, B. C.; M. N. Thompson, secy., Baker. **Property:** 4 claims, 2 miles N. E. of Weatherby, on Chicken creek, Baker Co. Developed by 600-ft. crosscut tunnel. Co. dissolved by proclamation in January, 1917.

HECLA CONSOLIDATED MINING CO.**Baker**

Capital: \$1,000,000. Par value, \$1. **Directors:** John L. Rand, pres.; M. Ethel Brooks, secy.-treas., both of Baker. **Property:** 11 claims on Hurricane creek, 9 miles from Joseph, Wallowa Co. **Class of Ore:** Lead, zinc, gold, silver. No recent information.

HEPPNER MINING CO.**Heppner**

Capital: \$1,000,000. Par value, 10c. **Directors:** D. B. Stalter, pres., Austin; J. O. Hager, secy.; S. A. Wright, treas., both of Heppner. **Property:** 13 claims on Greenhorn range, 18 miles from Austin, Grant Co. **Class of Ore:** Gold. Tunnel of 256 ft. run in 1915; no later reports.

HIDDEN TREASURE GOLD MINING CO.**Baker**

(Known as I X L Mine.) **Capital:** \$1,250,000. Par value, \$1. **Directors:** Fred T. Kelly, pres.; N. M. Kelly, secy. **Property:** 11 claims short distance E. of Greenhorn, Grant Co. **Class of Ore:** Gold. Developed by 2 shafts and considerable drifting, but very little work done since 1915.

HIGHLAND DEVELOPMENT CO.**Baker**

Capital: \$50,000. Par value, \$1. **Directors:** S. O. Correll, pres.; R. R. McGaughey, secy. Co. dissolved by proclamation in January, 1917. Organized to lease Highland mine from Highland Gold Mines Co., but failed to meet expenses, and passed into hands of creditors through liens. See Highland Mine.

HIGHLAND MINE.**Baker**

Property formerly owned by Highland Gold Mines Co., and operated by Highland Development Co. (q.v.), now owned by creditors through labor and material liens. Leased by them to Delbert E. Metzger in 1916. **Property:** 6 claims in lower end of Maxwell Basin, 14 miles from Haines, Baker Co. **Class of Ore:** Gold and silver. **Development:** 6 tunnels, of an aggregate length of 5000 ft. Equipped with 50-ton mill. No recent report.

HILLSBORO GOLD MINES CO.**Hillsboro**

Capital: \$6000. Par value, \$1. **Directors:** J. W. Shute, pres.; A. C. Shute, secy.-treas. **Property:** Placer, at junction of Eagle and East Eagle creeks, Baker Co. Patented. Considerable equipment and development, but total production not available. Very little work done past few years.

HOMESTEAD-IRON DYKE MINES CO.**New York**

Capital: 1,000 shares; no par value. **Directors:** David M. Goodrich, pres.; Chas. C. Goodrich, secy.-treas., both of New York; N. D. Simon, atty.-in-fact, Portland, Ore. Co. operates property of Iron Dyke Copper Co. (q.v.)

HUMBOLDT MINE.**Portland**

Owned by John Kiernan, of Portland, the Humboldt Cons. Gold Mines Co. having lost property through labor and material liens. Mine now idle and full of water. **Property:** In Mormon Basin, Malheur Co., has 20-stamp mill, using amalgamation and concentration, with Wilfleys and vanners. **Class of Ore:** Gold, mostly free milling.

HYDRAULIC MINING CO.**Three Pines**

Capital: \$10,000. Non-assessable. **Directors:** H. Cook, pres.; J. D. Cook, secy.-treas., both of Three Pines; I. W. Lutz, vice-pres., Portland. **Property:** Hydraulic placer mines, on Jump-off Joe creek, Jackson and Josephine Cos. Claims nearly all patented. Working 6 men. **Equipment:** 2000 ft. steel pipe, 2 ball-bearing giants, with deflectors, reservoirs, ditches, etc. Close corporation. **Informant:** J. D. Cook, secy.-treas.

IBEX MINE.**Sumpter**

Between McCully fork and Granite creek, 8 miles N. W. of Sumpter, in Baker and Grant Cos. **Class of Ore:** Gold, with some silver and copper. **Development:** About 1½ miles, over 3000 ft. of which is on vein. Ore very low grade, requiring high extraction and strict economy in operation. Reported to have acquired Bald Mountain M. Co. (q.v.) property, adjoining, in 1916.

IDAHO MINE.**Portland**

Property: 40 miles E. of Joseph, Wallowa Co. **Class of Ore:** Gold. Equipped with a mill operated by 50-h.p. Pelton wheel, with saw-mill, and buildings large enough for a plant handling 50 tons, though mill handles but 10 tons daily. Developed by 4000 ft. of tunnels, shafts and crosscuts. Concentrates assay \$300 to \$500 per ton. Reserves estimated at 50,000 tons. Address, S. L. Winchester, Joseph, Ore.

IMPERIAL MINING CO.**Covington, Ky.**

C. L. Arenzo, mgr., Covington, Ky.; Alfred Heisler, supt. **Property:** Imperial mine, at Cable Cove, 11½ miles from Sumpter, Baker Co., Ore. **Class of Ore:** Gold, silver. Production from 1904 to 1914, \$50,500. Operated in 1915 by C. L. Arenzo and associates, but ceased operations owing to financial difficulties. Equipped with a small mill. Formerly operated by Oregon-Idaho Investment Co. (q.v.). In 1916, vein again encountered in crosscut 70 ft. E. of main drift. Work began at once to reach rich ore opened in level above. The property was leased in 1916 to the Blue Mountain Mining Co. (q.v.).

INDEPENDENCE MINE.**Granite**

Four miles N. of Granite, Grant Co. **Class of Ore:** Gold and silver. Developed by 1275 ft. of tunnels and 210-ft. shaft. Taken over in 1916 by United Gold Mining Co. (q.v.).

IRON DYKE COPPER CO.**Erie, Pa.**

Capital: \$500,000. Par value, \$100. **Directors:** F. F. Curtze, pres.; F. A. Breveller, secy.; A. A. Clauss, treas., all of Erie, Pa.; Emmitt Galligan, gen. mgr. **Property:** A copper deposit, discovered in 1897, at Homestead, Baker Co., Ore. Erie (Pa.) Trust Co. holds title by trust deed and bond. Worked by Homestead-Iron Dyke Mines Co. (q.v.). **Class of Ore:** Copper, 5%; gold, \$12 per ton. Over \$2,000,000 worth of ore said to have been shipped in past two years, and production is one carload of concentrates and crude ore daily. **Equipment:** Includes an all-slime flotation plant, 125 tons daily capacity concentrating plant, ball mill, filter press, etc. **Development:** 3-compartment shaft to 850-ft. level and several thousand ft. of tunnels and other workings. **Notes:** Co. has just purchased 40 acres adjoining, for \$40,000 cash, and has an option on 20 acres more. In 1918 is said to be largest copper producer in state, though for 17 years regarded as worthless.

I. K. L. MINE.**Baker**

11 claims E. of Greenhorn, Grant Co., owned by Hidden Treasure G. M. Co. (q.v.)

LA BELLEVIEW MINE.**Salt Lake City, Utah**

Owners: David Keith and J. T. Bamberger, Salt Lake City, Utah. **Property:** On Bald Mt., 26 miles from Sumpter, in Granite district, Grant Co., Ore. **Class of Ore:** Gold-silver, shipping ore having a value of \$60 to \$300 per ton. Production up to 1911, 8000 tons, having a gross value of \$200,000. **Development:** About 6000 ft. of work, mainly tunnels. No recent reports.

LAST CHANCE MINE.

In Cable Cove district, Grant Co. **Class of Ore:** Gold. Developed by drift on vein for 400 to 500 ft., but ore not sufficiently high grade to pay operating expenses. Owned and operated by Baker Mines Co. (q.v.).

LEWIS & CLARK MINING & MILLING CO.**Silverton**

Capital: \$100,000. Par value, 10c. **Directors:** Dr. F. M. Brooks, pres.; Thos. Skalf, secy.; M. Palmer, treas. **Property:** 5 claims, 18 miles N. E. of Gates, Marion Co. **Class of Ore:** Copper, gold and silver. Work being done on small scale.

LITTON LAKE GOLD MINING CO.**Baker**

Capital: \$500,000. Par value, \$10. **Directors:** F. W. Thomas, pres. Fargo, N. D.; C. I. Flynn, secy., Baker. **Property:** 4 quartz claims and McNamee placers, 4 miles S. of Greenhorn, Baker Co. **Class of Ore:** Gold and copper. **Development:** 120-ft. shaft, in which water stands to within 10 ft. of surface.

LITTLE HILL PROPERTY.**Baker**

Owners: Fish & Bowen, of Baker, and McGillery, of Weatherby. **Property:** 3 claims 4 miles N. E. of Weatherby, Baker Co. **Class of Ore:** Gold, free, average value, \$130 per ton. **Development:** Several tunnels, some being inaccessible, one drift on vein at 50-ft. level, and stope to surface. Now sinking shaft, with intention of crosscutting to vein at 50-ft. depth. Equipped with small stamp mill, driven by oil engine.

MACDOUGALL GROUP.**San Francisco, Calif.**

Group of 40 claims, 19 patented, 5 miles N. of Homestead, in Baker and Wallowa Cos. **Class of Ore:** Copper. **Development:** About 1000 ft. of tunnels, several pits and open cuts. Property sold to W. S. Kuhn, of San Francisco, in August, 1917, for \$125,000. New owner negotiating for power line from Idaho Power Co.'s terminal at Homestead, and has put 25 men to work developing claims.

MAGNOLIA MINE.

Reported sold in 1916 by Boyce and Lachner to Goddard-Hayes Mining Co. **Property:** In Lucas gulch, 5 miles N. of Granite, Grant Co. **Class of Ore:** Gold, values less than \$10 per ton. Only work done since 1900, extension of lower tunnel 200 ft. along vein.

MAMMOTH MINING CO.**Portland**

Capital: \$50,000. Par value, \$100. **Directors:** W. W. Wheelock, pres.; F. J. Newey, secy., Chicago, Ill. **Property:** 2 claims, 10 miles from Sumpter, in Cracker Creek district, Baker Co. **Class of Ore:** Gold. Developed by shaft and 4 levels. Not much work done since 1914.

MAXWELL MINE.

Adjoins Highland mine, in Rock Creek district, Baker Co. Reported sold for \$123,000 in 1901, but little work done since 1909. Now operated by Delbert E. Metzger, who is working on Highland. **Class of Ore:** Gold. **Development:** About 6000 ft., including 18 tunnels and a number of short drifts.

MAYFLOWER MINE.

In Cornucopia district, Baker Co. **Class of Ore:** Gold. Has stamp mill and cyanide plant, with steam power, aerial tram, etc. Developed by 2 adit levels and 1 intermediate, and a raise connecting. Shut down in 1914, owing to labor and material liens, and said to have been purchased by Queen of the West Mines Co. (q.v.).

MESGUE MINE.**Prairie City**

Owner: W. J. Hughes, Prairie City. **Property:** 3 unpatented claims in Greenhorn district, Grant Co. **Class of Ore:** Gold, \$12 to \$15; silver, \$4 to \$266 to the ton. Not working. **Equipment:** Ore cars, rails, etc. Total shipments, 8 tons, \$640. **Development:** 500 ft. of crosscuts, 420 ft. of drifts. Has good water power, timber, and some ore showings. **Informant:** W. J. Hughes, owner.

MOLLIE GIBSON GOLD MINING & MILLING CO.**Bourne**

Capital: \$100,000. Par value, \$10. **Directors:** T. V. Williams, pres., New Castle, Pa. Mrs. Jane Evans, secy.-treas., Monmouth, Ore. **Property:** 2 claims, 15 miles from Sumpter, Baker Co., Cable Cove district. **Class of Ore:** Gold, copper. **Development:** Adit of 300 or 400 ft. on vein, some upraises and surface cuts. Inactive.

MOON ANCHOR MINES CO.**Portland**

Capital: \$100,000. Par value, \$1. **Directors:** Mike Zenger, pres.; Anthony Mohr, secy.; Frank Degonda, treas., all of Portland. **Property:** 3 claims, between Silver creek and Bull creek, in Cable Cove district, Grant Co. **Class of Ore:** Gold. **Development:** Crosscut of several hundred ft., said to have reached high grade ore, from 1 to 2 ft. wide and 120 ft. long.

MOUNTAIN GEM MINING & DEV. CO.**Joseph**

Capital: \$200,000. Par value, 10c. **Directors:** Harry E. Dawson, pres.; T. F. Tomkins, secy.-treas., both of Joseph. **Property:** 11 unpatented claims on Wallowa river, 10 miles from Joseph, and 5 claims 25 miles S. of Lostine, Wallowa Co. **Class of Ore:** Copper, 1 to 64%; gold, 40c to \$22.80; silver, 13 to 91 ozs. per ton. **Development:** On the 11 claims, 170 ft. of tunnels; on the 5 claims, 500 ft. of tunnels.

NATIONAL COFFEE MINES CO.**Portland**

Capital: \$3,000,000. Par value, \$1. Non-assessable. **Directors:** Wm. Trevo, pres.; Dr. R. J. Marsh, vice-pres.; Ed. H. Hayes, secy.; W. H. Coffey, treas.; Capt. Jos. Wolfs, Capt. Frederick Hagstrom. **Property:** 35 claims, surveyed for patent, in Seven Devils district, Adams Co., Idaho, and 2 claims, Coad Placer and Gold Bar, in Waldo district, Josephine Co., Ore. **Class of Ore:** Copper, gold, silver, lead. Working 12 men. **Equipment:** Steam compressor plant. Total shipments, 200 tons. Rate of output now, 1 ton hand-picked ore and 10 tons milling ore per day. **Development:** 50-ft. shaft and 2 adits on Gold Bar; now driving tunnel. Taking out copper glance ore, running from 50 to over 70% copper. **Informant:** Pres. Trevor.

NEW ELDERADO MINING & REDUCTION CO.**Austin**

Capital: \$100,000. Par value, \$1. **Directors:** E. B. Reed, pres.; E. H. Saxe, secy.-treas. **Property:** Known as Pioneer, on southern slope of Greenhorn range, new Eldorado district, Grant Co. **Class of Ore:** Gold, with small values in antimony and blende. **Development:** Consists almost entirely of drifts along the larger veins.

NORTH POLE MINE.**Baker**

Emil Melzer, of Baker, atty.-in-fact for Baring Bros., of London, Eng. Leased to John C. Lewis, of Portland. **Property:** Is in Cracker Creek district, Baker Co. Lessee has run raise from No. 1 level of E. & E. mine to No. 1 level of North Pole, and can now hoist ore to that level and take it by aerial tram to the mill. No recent details of operations. Property is an old one and produced in fair quantity 20 years ago.

NORTHWESTERN GOLD & COPPER CO.**Susanville**

Capital: \$1,000,000. Par value, \$1. **Directors:** C. H. Duncan, secy., Wheeling, W. Va. **Property:** 2 claims in Susanville district, Grant Co. **Class of Ore:** Gold and copper. Developed by a 200-ft. perpendicular shaft. Ledge said to be 1 to 8 ft. wide and 75 ft. long; average value of ore about \$9 per ton. Handicapped by lack of adequate transportation facilities.

OLIVE CREEK MINING CO.**Baker**

Capital: \$1,000,000. Par value, \$1. **Directors:** Thos. M. Tobin, pres.; Adam J. Weckler, treas., both of Chicago, Ill.; S. A. Tobin, secy., Baker. **Property:** Olive creek and Quartz gulch placers, in Greenhorn district, Grant Co. **Class of Ore:** Gold. No details available. Probably inactive.

OPHIS MAYFLOWER MINE.**Howard**

Owners: A. J. Champion, of Howard; W. T. and E. A. Davenport, of Prineville, and Julius McAllister. **Property:** 8 miles from Howard, in Ochoco district, Crook Co. **Class of Ore:** Gold, averaging \$70 to \$125 per ton. **Equipment:** Includes small amalgamating-concentrating stamp mill. **Development:** One 1400-ft. tunnel and a shorter one 200 ft. above, besides a number of drifts from 100 to 200 ft. each, with some raises and stopes. No recent details.

OREGON ASBESTOS MINES.**Portland**

Capital: \$5000. Par value, \$100. **Directors:** Jos. Woerndle, pres.; E. Sturchler, secy.; Otto Berg, treas., all of Portland. **Property:** 5 miles from Mt. Vernon, Canyon district, Grant Co. **Class of Ore:** Asbestos. Some \$7000 spent on development and a few tons shipped, of fine quality, but lacking in quantity. Operations suspended.

OREGON CHIEF GOLD MINING CO.**Baker**

Capital: \$1,000,000. Par value, \$1. **Directors:** J. T. Donnelly, pres., Portland; Thos. Thornton, secy.-treas., Baker. **Property:** 4 claims, 11 miles N. W. of Sumpter, in Cable Cove district, Baker Co. **Class of Ore:** Gold. But little work done on property recently.

OREGON FREEGOLD MINING CO.**Prairie City**

Capital: \$150,000. Par value, 10c. **Directors:** W. J. Hughes, pres.-treas.; Miss D. E. Hughes, secy., both of Prairie City. **Property:** 11 claims in Lost Basin, 6 miles S. W. of Durkee, Baker Co. **Class of Ore:** Gold. Old prospect with little development and now in litigation.

OREGON-IDAHO INVESTMENT CO.**Baker**

Capital: \$50,000. Par value, \$100. **Directors:** Jas. A. Howard, pres.; John Arthur, vice-pres.; Fred R. Mellis, secy.-treas. Co.'s principal business is ore buying; owns ore-sampling plant at Baker. Formerly owned Sovereign Cons. Copper Co., Imperial Mining Co., and recently the Humboldt Cons. Gold Mines Co., all of which are now inactive. Owns the Poorman mine (a prospect), and recently took lease on Taber Fraction mine, Baker district.

ORNAMENT GOLD & SILVER MINING CO.**Portland**

Capital: \$25,000. Par value, \$1. **Directors:** H. H. Stephenson, pres.; Bertha E. Martin, secy.; Sadie E. Stephenson, treas., all of Portland. **Property:** 4 claims in upper basin of Granite creek, 7 miles from Greenhorn, Grant Co. **Class of Ore:** Gold, with small silver values. Developed by 3 long drifts on vein, but values too low to ship crude ore.

PARKERVILLE DIGGINGS.**Geiser**

Located 2 miles S. W. of Geiser, in Greenhorn district, Baker Co., and known as the Winterville and Parkerville Diggings, formerly active, with a reported production of \$145,000, but now practically deserted, the only activity of late years being in the Winterville diggings, which intermittently produce small amounts. See "Winterville and Parkerville Diggings."

PEACOCK MINE.**Lostine**

See Contact Mining & Milling Co.

POWDER RIVER GOLD DREDGING CO.**San Francisco, Cal.**

Capital: \$500,000. Par value, \$1. **Directors:** W. P. Hammon, pres.; A. E. Boynton, secy.-treas., both of San Francisco; R. W. Derby, supt., Sumpter. **Property:** 1500 acres of placer ground near Sumpter, Baker Co., Ore. **Equipment:** 2 electrically-driven dredges, of 10,000 yards daily capacity. Power furnished by Eastern Oregon Light & Power Co. Weekly clean-ups, with estimated extraction of 95%. Production in 1916, \$624,869, being over one-third of state's gold output. Dividends to October, 1917, aggregate \$425,000, or 85c per share. The most important placer property in the state.

PSYCHE MINE.**Baker**

Owned by J. D. Dixon, of Baker. Is 2 miles W. of Greenhorn, in Grant Co. **Class of Ore:** Gold. Developed by 130-ft. shaft, 300-ft. crosscut, drifts and raise. Inactive for several years, but reported sold in December, 1916, to a new Co. composed of Baker people, who expected to do extensive development. No recent reports.

QUEEN OF BRONZE MINE.**Grant's Pass**

Owners: Twohy Bros., of Spokane, and John Hampshire, of Portland, who bought it in 1916, for \$150,000, from Takilwa Smelting Co. (q.v.), owned by Tutt, Hull & McNeill, of Colorado Springs, Colo. Roy H. Clarke, mining engineer, of Spokane, is manager. **Property:** In Illinois valley, 30 miles from Waters Creek, on California-Oregon Coast railway, and 42 miles from Grant's Pass, Josephine Co. **Class of Ore:** Copper, 9 to 20%; gold, \$5 per ton. Has been a shipper for 10 years; shipments last year, 5000 tons, with value of \$250,000. Total shipments, 181,000 tons; 30 outfits are hauling ore to railroad. **Equipment:** 100-ton smelter, with 125-ton water jacket blast furnace, tramway from mine to ore bins, several boilers, air compressor, hoist, machine drills, etc. **Development:** Tunnels, shafts, open cuts, 2 adits, one being 1100 ft. long. Glory hole method largely employed in mining surface ore bodies. Several large bodies of ore developed in past few months.

QUEEN OF THE WEST MINES CO.**Minneapolis, Minn.**

Capital: \$1,000,000. Par value, \$1. **Directors:** A. Y. Bayne, pres.; Lewis W. Campbell, secy.; H. U. Maurer, treas., all of Minneapolis; Richard Amidon, atty.-in-fact, Cornucopia, Ore. **Property:** 11 claims in Cornucopia, district, Baker Co., Ore. **Class of Ore:** Gold, silver, zinc, lead and copper. **Equipment:** 10-stamp mill, concentrating plant, 50-ton cyanide plant, 3600-ft. aerial tramway, of 6 tons per hour, water power and air compressor. **Development:** Mainly by adits, but plans for extensive crosscutting have been made.

RAINBOW MINE.**Boston, Mass.**

Operated in 1915 and 1916 by U. S. Sm., Ref. & Mining Co., Boston. Mine at Rye Valley, Baker Co., Ore. Howard S. Lee, mgr.; F. W. Parker, supt. **Property:** A large group covering the Rainbow vein, 5 to 50 ft. wide. **Development:** 500-ft. shaft, with 1500 ft. of drifting on vein at 200-ft. level. **Equipment:** 100-ton, 15-stamp mill, tube mill, classifier and thickener, tank, press and filter. Reported in 1917 to have reverted to Commercial Mining Co. (q.v.).

RAND-McCARTHY GROUP.**Spokane, Wash.**

Rand-McCarthy group of 26 unpatented claims, adjoining the Iron Dyke Copper Co.'s holdings at Homestead, Baker Co., on the N. E., taken over under bond by N. T. Johnson and T. E. Coleman, of Spokane, in April, 1918, and syndicate being organized to develop the property. Contract has been let to drive 500-ft. tunnel on one of the three dykes traversing property. **Class of Ore:** Copper sulphides, $\frac{1}{2}$ to 21%, with small gold and silver values. Assays from surface croppings, \$3.23 to \$56.85 per ton. Three shear zones, from 300 to 500 ft. wide. Developed by 1000 ft. of tunnels, which will be driven further to cut first dyke at 600 to 700-ft. vertical depth. Plan to build narrow-gauge track to connect upper tunnel with main line of railroad, which runs by property.

RED BELL PLACER MINE.**Olalla**

Owned by Mrs. Mona Porter, Olalla. **Property:** Unpatented placer property in Olalla district, Douglas Co. **Class of Ore:** Free gold. Shut down. Total production, \$10,200. **Equipment:** Hydraulic outfit. **Development:** $\frac{1}{2}$ mile of ditch, 172 ft. of flume, good house, barn and outbuildings. **Informant:** A. J. Sanders, Olalla.

RED BOY MINING & DEV. CO.**Baker**

A reorganization of the Red Boy Mines Co. **Capital:** \$250,000. Par value, \$1. **Directors:** Ray Nye, pres.; Paul Colson, vice-pres.; R. B. Schneider, treas.; Julius Beckman, secy., all of Fremont, Neb. **Property:** Red Boy mine, in Granite district, Grant Co.; credited with a past production of \$800,000 to \$1,000,000. **Class of Ore:** Gold. **Development:** Has been extensive, but details not available, requests for information being ignored.

SANGER GOLD MINES CO.**Baker**

Capital: \$2,000,000. Par value, \$1. Non-assessable. **Directors:** F. W. Paine, pres., Walla Walla, Wash.; W. M. Pierce, vice-pres., LaGrande; J. K. Romig, secy.-treas.; M. Boswell, both of Baker. **Property:** 800 acres of quartz and placer claims, half of them patented, on W. side of Eagle creek, Baker Co. **Class of Ore:** Gold. Has produced about \$1,500,000, but nothing since 1900, except from small placer operations. **Equipment:** 10-stamp mill, hoist, good for 1200 ft., pumps, compressor, cars, drills, etc. **Development:** About 2 $\frac{1}{2}$ miles of workings, including adits, shafts and levels. **Informant:** Secy. Romig.

SILVER KING MINING CO.**Albany**

Capital: \$500,000. Par value, \$1. **Directors:** J. J. Langmack, pres., Portland; E. E. Williams, vice-pres.; Wm. S. Risley, secy.-treas. **Property:** 12 claims on Little North Santiam river, near Elkhorn. **Class of Ore:** Gold, \$1.20; silver, 15 oza.; lead, 3 to 4%; zinc, 3 to 4%. **Development:** 120 ft. of shafts, 220 ft. of prospect tunnels and several open cuts. No recent details.

SNAKE RIVER MINES CO.

Formerly known as the Runner claims, 19 miles north of Huntington, Connor Creek district, Baker Co. **Class of Ore:** Gold. Equipped with a test mill of 75 tons daily capacity. Developed by several hundred ft. of tunnels and drifts. No recent details available.

SNAKE RIVER MINING & MILLING CO.**Pasadena, Calif.**

Capital: \$300,000. Par value, \$1. **Directors:** J. H. Schneider, pres.-treas.; Mrs. J. H. Schneider, secy. **Property:** Several claims 1 mile from Homestead, Baker Co., Ore. **Class of Ore:** Copper. No details available.

SNOW CREEK MINING CO.**Baker**

Capital: \$200,000. Par value, \$1. **Directors:** Henry B. Smith, pres., Bay City, Mich.; Chas. H. McColloch, secy., Baker; Robt. J. Davison, treas., Bath, N. Y. **Property:** 5 claims, including Snow Creek mine, near Greenhorn, in Baker Co. **Class of Ore:** Gold and silver, \$12 per ton; lead, 5%. **Equipment:** 10-stamp

mill, 3 vanners, 80-h.p. steam plant. Total output, \$40,000. **Development:** 225-ft. vertical shaft, and 1315 ft. of tunnels. Under water for past few years. Title obtained by present Co. through foreclosure of mortgage.

SOVEREIGN CONS. COPPER CO.**Baker**

Capital: \$2,000,000. Par value, \$1. **Directors:** J. A. Howard, pres.; K. O. McEwen, secy.; John Arthur, treas. **Property:** 3 claims, 6 miles W. of Sparta, Eagle Creek district, Baker Co. **Class of Ore:** Copper. Organized to develop Sovereign mine, but results were discouraging and work ceased. Now being developed by H. C. Thoms and H. W. Forster.

STOCKTON GOLD & COPPER MINING CO.**Seattle, Wash.**

Capital: \$1,000,000. Par value, \$1. **Directors:** Chas. E. Patten, pres.; Geo. F. Folsom, secy., both of Seattle. **Property:** 4 patented claims at Susanville, Grant Co., Ore. **Class of Ore:** Gold. Shut down some years ago, to await building of railroad. No shipments. **Equipment:** Hoist, pump, etc. **Development:** 900-ft. shaft, and several crosscuts and drifts. **Informant:** Pres. Patten.

SUMMIT MINING CO.**Portland**

Capital: \$9000. Par value, \$100. **Directors:** H. A. Moore, pres.; Laura Moore, secy.-treas.; A. E. Hammond, mgr., all of Portland. **Property:** The Gold Coin mine, in Weatherby district, Baker Co., consisting of about 300 acres of unpatented placer ground. **Equipment:** 15 miles of ditch, with a capacity of 3000 miners' inches; flume; inverted siphon 1 mile in length; 2 No. 11 Joshua Hendy giants. Co. took over property in 1917, and is preparing to work on extensive scale. **Informant:** Mgr. A. E. Hammond.

SUSAN D MINE.

Formerly White Swan mine, in Virtue district, Baker Co., Ore., with a reported production of \$1,200,000. Was spectacularly exploited by Letson Balliet some years ago, and for some time involved in litigation. Is now being operated by C. L. Camp and associates, of Spokane. Developed by 300-ft. shaft and several drifts on vein. **Class of Ore:** Gold. Development exposes free milling ore that averages \$12 ton. Equipment includes 10-stamp mill.

TABER FRACTION.

On North Pole-Columbia lode, in Cracker Creek district, Baker Co. Total production, \$475,000, but none since 1905. Lease and bond given to Jas. A. Howard, pres. Oregon-Idaho Investment Co. (q.v.), in 1916, with permission to use tunnels of Bourne Gold Mining Co. No later report.

TAKILMA SMELTING CO.**Grant's Pass**

Not organized. Roy H. Clarke, mgr. **Property:** Queen of Bronze (q.v.), Cowboy, Lytle and Mabel mines, at Takilma, Josephine Co., all patented. **Class of Ore:** Copper. Total shipments, 7200 tons, value \$375,000. Rate of output, 500 tons monthly. Smelter has 125-ton water-jacket blast furnace, making matte averaging 45% copper, 2.5 oza. silver and \$2.50 gold per ton. **Informant:** Roy H. Clarke, mgr.

TRI-STATE CHROME CO.**Spokane**

A private syndicate, composed of A. L. White, J. D. Sherwood, Walter J. Nichols, Guy Riegel, Dee Riegel, Lester P. Edge and R. E. M. Strickland, all of Spokane, which has leased mill of Jupiter Mining Co. (a Michigan corporation), between Canyon City and Prairie City, Grant Co., Oregon; now engaged in milling chrome iron ores. Plant about six miles from Canyon City, approached via Baker City, thence by Sumpter Valley R. R. to Prairie City, where stage is taken 16 miles to Canyon City. Production will be hauled by auto truck to Prairie City, a distance of 9 miles, over excellent road. Plant includes gyratory crusher, 20 stamps and five standard tables. It is practically new, only 400 tons of gold quartz having been run through. Believed it will handle 4 tons daily to the stamp, or total of 80 tons, and that production will be between 600 and 700 tons per month. Lee H. Skeels is in charge of the plant.

TRI-STATE MINING & MILLING CO.**Sumpter**

See Golden Chariot Mining & Milling Co.

TROUT CREEK MINING & MILLING CO.**Canyon City**

Capital: \$100,000. Par value, \$1. **Directors:** O. J. Darst, pres., Burns; F. S. Slater, secy.-treas., Prairie City. **Property:** Bullion quartz mine, near Burns, Harney Co. **Class of Ore:** Gold, silver, lead and zinc. Developed by tunnels and shafts. No recent details.

UNITED COPPER-GOLD MINES CO.

Salem

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** W. S. Low, pres.; E. O. Mull, vice-pres.; Daniel Webster, secy.; C. E. Lebold, treas.; C. W. Buchner, Herman Neugabauer, all of Salem. **Property:** 11 unpatented claims, in Illinois River district, Josephine Co. **Class of Ore:** Copper, 6 to 22%; gold, 1 to 10 ozs. per ton. Only assessment work being done. No shipments. **Development:** 1000 ft. of work, including 500-ft. tunnel, 200-ft. crosscut, besides drifts, etc. **Informant:** Secy. D. Webster.

UNITED GOLD MINING CO.

Spokane, Wash.

Capital: \$2,500,000. Par value, \$1. 750,000 shares in treasury. Non-assessable. **Directors:** Arthur B. Lee, pres.; Alfred S. Oliver, vice-pres.; T. M. Ahlquist, secy.-treas.; Frederick Epplen, B. A. Hoffine, Elmer C. Brain, all of Spokane; Frank Tesch, Chilton, Wis. **Annual Meeting:** First Monday in January. **Property:** Formerly the Cougar mine, acquired from the Cougar Gold M. & M. Co. (q.v.), in 1916, also the Success and Independent mines, adjoining, in Granite district, Grant Co., Ore. **Class of Ore:** Gold and silver. Working 40 men. **Equipment:** 75-ton mill, with crushers, ball mill, flotation machines and concentrating tables. Tramway carrying ore from mine to mill, 1500 ft. Mill completed in November, 1917. **Development:** 8000 ft. of underground workings, exposing large quantities of good milling ore. Co. expended \$60,000 on mine and mill in 1917. Installation of cyanide plant has obviated former difficulty of treating the ores. Hydraulic siphon system supplies abundance of water for all purposes from Granite creek, affords ample protection from fire hazard, and light and power to camp, mine and mill. **Informant:** Genl. Mgr. Elmer C. Brain.

VEVUSIUS MINES CO.

Eugene

Capital: \$6,000,000. Par value, \$1. Non-assessable. **Directors:** E. M. Johnson, pres.; Chas. Hard, vice-pres.; F. J. Hard, secy.-mgr., all of Eugene. 4 groups, 50 claims, 16 patented, in Bohemia district, Lane Co. **Class of Ore:** Copper and gold. Working small force. **Equipment:** 10-stamp mill, electric dynamo, saw mill, laboratory, water wheels, pipe lines, tramway, company store, etc. **Development:** 20,000 ft. of underground workings; vertical depth, 1000 ft.; no shipments. Co. awaiting installation of concentrator and cyanide plant. **Informant:** Secy.-Mgr. F. J. Hard.

VINCENT CREEK GOLD & COPPER CO.

Austin

Capital: \$200,000. Par value, \$1. **Directors:** Burton Miller, pres.; Nellie Miller, secy.-treas., Prairie City; J. S. Edwards, Ernest Blackwell. **Property:** 6 claims, 100 acres, 5 miles N. W. of Austin, in Greenhorn district, Grant Co. **Class of Ore:** Copper and gold. **Development:** 25-ft. shaft, 215-ft. tunnel. Vein 14 ft. wide, traceable 1500 ft., carrying 3.5% copper. Has 3 buildings. No recent details available.

VIRTUE MINES DEV. CO.

Baker

Capital: \$1,500,000. Par value, \$1. Non-assessable. **Directors:** J. K. Romig, pres.-mgr.; M. Boswell, secy.-treas.; J. J. Heilner, all of Baker; F. G. Lodge, vice-pres., Troy, N. Y.; Robt. L. Moore, Walla Walla, Wash. **Property:** 17 claims, 400 acres, majority patented, 7 miles E. of Baker. **Class of Ore:** Gold, average value, \$15 per ton. Said to have produced \$3,000,000, but idle for a number of years. Bonded to Geo. W. Field & Co., of Boston, for \$500,000, in 1916, but little has been done by lessors except to repair mill. **Equipment:** 20-stamp mill, 1200 cu. ft. compressor, driven by electric motor, 85-h.p. mill motor, 5 vanners, 60-ton cyanide plant, hoist good for 1600 ft., air-drills, pumps, cages, machine shop, etc. **Development:** About 2½ miles of shafts, drifts and raises, and has a 2-year ore supply ready to stope. **Informant:** Pres.-Mgr. J. K. Romig.

WALDO COPPER CO.

Grant's Pass

(Successor to Elder Mining Co.) **Owners:** DeWitt Van Ostrand, Phillips, Wis.; Dr. J. F. Reddy and Alva H. Gunnell, Grant's Pass. **Property:** 480 acres of patented ground and 12 unpatented claims, total 720 acres, at Takilma, Waldo district, Josephine Co. **Class of Ore:** Copper, 15%; gold, \$4 per ton. Working 15 men. **Equipment:** Ordinary mining tools, but plan to build flotation plant. Total shipments, estimated at \$200,000. Rate of output now, 2 tons per day. **Development:** 3 tunnels, 554 ft. being driven last year. Former lessors had badly abused and finally abandoned property, but present owners have recovered sufficient ore to pay all expenses of development. Have \$50,000 worth of milling ore on dumps. **Informant:** Alva H. Gunnell, Gen. Mgr.

WALLOWA CO. MINING & DEV. CO.

Enterprise

Capital: \$200,000. Par value, \$1. **Directors:** Jesse Walker, pres.; J. A. Burleigh, secy., both of Enterprise; Geo. W. Williams, treas., Wallowa. **Property:** 14 claims on Lick creek, 13 miles S. of Joseph, Wallowa Co. **Class of Ore:** Copper-gold. No details available.

WESTERN COAST STATES MINES DEV. CO.

Spokane, Wash.

Capital: \$500,000. Par value, \$1. Non-assessable. **Directors:** J. P. Acoam, pres.-mgr.; J. J. Curran, vice-pres.; Joseph Bailly, secy.-treas.; Fred Howe, J. O. Chase, all of Spokane. **Annual Meeting:** Second Thursday in February. **Property:** 11 patented claims and fractions, aggregating over 157 acres, ½ mile N. of Greenhorn City, Grant Co., Ore.; 6 miles from Tipton, on S. V. R. R. **Class of Ore:** Free gold, average value, \$20 per ton, with a little silver and some telluride. Working small force. **Equipment:** 80-h.p. boiler, duplex station pump, 1 sinking pump, rock crusher, 10-h.p. engine, 3-h.p. gasoline engine, centrifugal pump, good buildings, etc. Total shipments estimated at \$40,000. **Development:** 450 ft. of shafts, 535 ft. drifts on levels, all in ore shoots. Property in vicinity of many of the largest producers in Eastern Oregon. **Informant:** Pres. J. P. Acoam.

WEST SIDE GOLD & SILVER MINING CO.

Yamhill

Capital: \$10,000. Par value, 1c. **Directors:** J. A. Simmons, pres.; Richard Baird, secy.; W. G. Busbee, treas., all of Yamhill; C. C. Laughlin, N. N. Perkins, N. G. Gist. **Property:** 3 patented claims at Greenhorn, Baker and Grant Cos., under lease and bond to R. Baird, who in 1915 mined about 550 tons in course of development. **Class of Ore:** Gold, silver, copper, lead; some cinnabar also reported. Shipping ore said to average about \$60 per ton, milling ore \$20. **Equipment:** Includes small steam pump. Developed by several shallow shafts, comprising about 1000 ft. of workings. Development proceeding in 1917.

WHITE MINING CO.

Unity

Capital: \$15,000. Par value, \$1. Alfred White, Unity. **Property:** 8 claims ½ miles S. of Unity, Baker Co. **Class of Ore:** Gold. **Equipment:** 10-stamp mill, with amalgamating plates and Wilfey tables. Developed by 2 crosscut tunnels and drifts, showing shoots of gold-bearing quartz, in two veins. No recent report.

WICKHAM (P. B.) CLAIMS.

Alameda

Owner: P. B. Wickham, Alameda. **Property:** Seven-Thirty mine, unpatented, in Galice district, Josephine Co. **Class of Ore:** Gold, silver and copper; values, \$9 to \$12 per ton. Working under development contract. Equipped only with mining tools. No shipments. **Development:** 300-ft. tunnel, 40-ft. winze, and new tunnel started to tap vein. **Informant:** P. B. Wickham, owner.

WINTERVILLE AND PARKERVILLE DIGGINGS.

See "Parkerville Diggings."

YELLOW JEWEL.

Myrtle Creek

No longer owned by stock Co., but by W. C. Bates, now of Moscow, Idaho. **Property:** 17½ acres, unpatented, at Nugget, Douglas Co. **Class of Ore:** Gold and silver, averaging about \$13 per ton. Working small force. **Equipment:** Car and blacksmith shop. No shipments. **Development:** 600 ft. of tunnels and 57-ft. inclined shaft. **Informant:** W. C. Bates, owner.

ZENITH MINING CO.

Tampa, Fla.

Capital: \$1,000,000. Par value, \$1. **Directors:** Henry Lieman, pres.; A. B. Filogamo, secy., both of Tampa; Emmett Calahan, asst. secy., Portland, Ore. **Property:** Zenith, Putman and Chance quartz claims, near Granite, Grant Co., Ore. No details available.

Stevens County Magnesite

Crystalline Deposits of the Austrian Type Occur in Immense Beds.—Reserves Already Developed Estimated at Fifty Million Tons.—Natural Monopoly of Great Value.—Heavy Investment in Equipment Since Discovery Less Than Two Years Ago.

(By F. M. Handy, E.M.)

THE immense deposits of crystalline magnesite discovered in the summer of 1916 in Stevens county, Washington, a few miles west of the little town of Valley, on the Great Northern railway, and 50 miles northwest of Spokane, far excel in size and purity any deposits previously known. A single district in central Austria had previously been the sole possessor of the known deposits of this type, and in consequence of its superiority for refractory purposes, had been easily able to monopolize the world's trade.

This kind of magnesite occurs in immense beds, several hundred feet thick and, in at least two cases, over 2000 feet in length, dipping steeply, generally from 40 to 70 degrees. The enclosing rocks are slates, schists, and quartzites. The deposits represent the replacement of dolomite by magnesite. Twelve deposits are known in a belt, beginning at a point about 5 miles due west of Chewelah and running about 10 miles nearly due southwest. Of these deposits, three are of doubtful value, because of silica and dolomite impurities. Six have been developed and explored sufficiently to prove immense reserves of excellent material, and three are known to be of good grade, but not sufficiently explored to determine extent. There are three well-proven bodies in which quarry faces, up to 300 feet by 100 feet and more, can be secured with practically no waste.

Fifty Million Tons Developed.

In the best Austrian deposits, dolomite impurities are so prevalent that one-half or more is rejected in the quarrying, and often three sortings are required after burning, in order to produce a marketable product. The Stevens county material, with no sorting whatever, can be run directly through the kiln and furnish a purer product. A conservative estimate of reserves in developed and explored deposits would be at least 50,000,000 tons. Future development will certainly show a much larger amount.

In color it presents many shades—red, pink, gray and white. Gray is the most common color, ranging from nearly white to a very dark gray, nearly black.

It is all crystalline, with bright, shiny cleavage faces, varying from the texture of granulated sugar to very coarse crystals an inch across. In burning, it does not crumble to a powder, but the innumerable cleavage openings permit the gas to escape rapidly, so that it will dead-burn easily, in lumps a foot through, in an ordinary lime kiln.

Local Product Desirable.

Theoretically, magnesite consists of magnesium carbonate only, but it is rarely found pure, usually carrying more or less silica, lime, iron and alumina. Iron and alumina are very desirable if they constitute from 7 to 10%. Any considerable excess above that amount is a detriment, since it so lowers the fusion point that the lining will not withstand the operating temperatures. Four to six per cent of silica greatly increases the toughness and bonding strength of a lining and thus is a desirable element. Lime is always, everywhere, and in any amount, a nuisance, though up to 5% or 6% may be tolerated. It causes the phosphorous to pass into the

hearth instead of into the slag, and so makes the hearth "rotten". Its tendency to hydrate and carbonate is very destructive to brick or linings.

Magnesite, when sufficiently heated, breaks up into magnesium oxide and carbon dioxide; the latter as a gas passes off and in doing so reduces the weight about 50%. The Stevens county product as a rule carries from 3 to 7% silica, 2 to 4% iron and alumina and from none to 5% lime, after being calcined.

Methods of Treatment.

There are really three different degrees of burning or calcining,—“caustic”, “dead-burned”, and “sintered”. “Caustic” is burned at a relatively low temperature, so that several percent of its carbon dioxide is left in the product. “Dead-burned” has less than 1% carbon dioxide. “Sintered” has been heated to about 3000 degrees Fahrenheit, at which temperature it softens and shrinks about 30% in volume, becomes very dense, heavy and flint hard. For most refractory purposes, the most desirable form is “sintered”, containing about 8% iron oxide, 4% silica, and 86 to 88% magnesium oxide.

The Stevens county material is readily dead-burned below the sintering temperature, while the common, massive variety of Greece and California cannot be dead-burned unless brought to the “sintering” temperature, and since the outer portion of a lump crumbles like chalk when calcining, it is almost impossible to dead-burn, except in a special furnace with fuel, such as coke, fed with the charge. This makes very expensive treatment.

Product Is Quarried.

The crystalline magnesite, owing to its occurrence in immense beds, is quarried in open cuts in the cheapest possible manner, while the massive variety of California and elsewhere, occurring in small irregular veins, stringers and bunches, is several times more expensive to produce, as it has to be mined by underground methods and often much waste must be handled and sorting employed.

Four different types of kilns have been employed in the West for calcining magnesite, namely, the rotary cement kiln; the continuous shaft kiln, as used in lime production; the downdraft beehive brick kiln, and the straight-shaft kiln, similar to the blast furnace in operation, fuel being fed with the charge. The rotary kiln possesses the advantages of large output, low labor costs in operation and adaptability to production of the iron magnesia mixture known as “ferro-magnesite”.

Ferro-Magnesite.

For the latter product, the crude magnesite and the desired proportion of iron oxide are finely ground, mixed, and sintered, just as in Portland cement practice. The clinker may then be again ground and used in making brick, or may be crushed to ½-inch grains and smaller and in this form used for making hearths, etc.

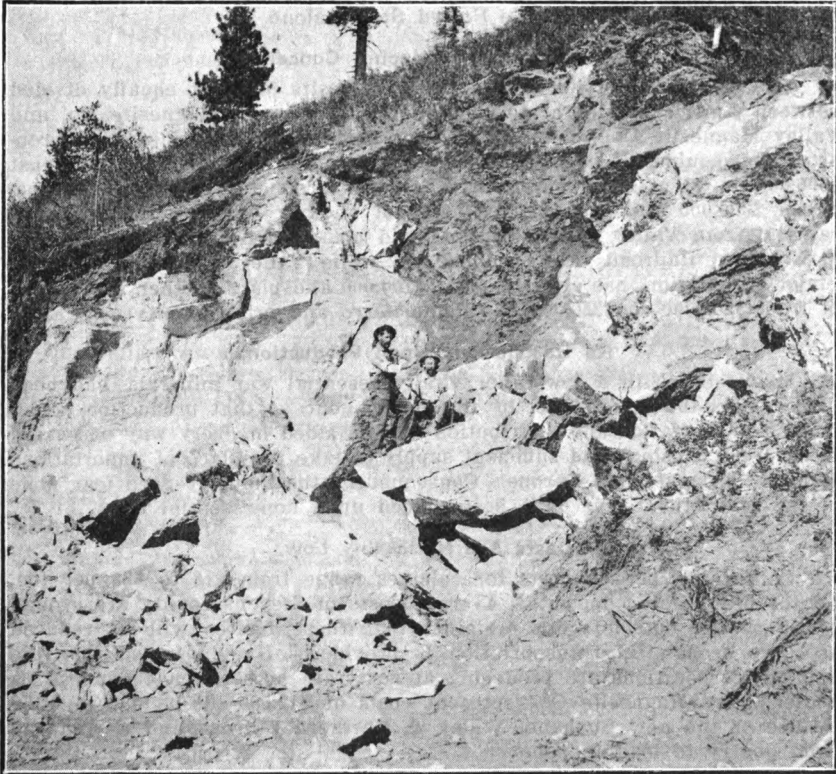
The fuels most generally used are powdered coal, and fuel oil. The cost of plant and equipment is very high. The ash of the fuel adds to the objectionable impurities—chiefly silica and lime—while the material in calcining is mostly broken to a powder or small grains and no sorting is possible after burning. This point is of great importance if the material has a dolomite admixture.

The shaft kiln, with outside fire boxes, has several advantages—low cost and upkeep, and, if properly built, a low fuel consumption. With proper automatic appliances for feeding and handling the output, labor costs may be kept low.

The ash of the fuel does not enter the product and the burned material, coming out as it does in lumps practically as fed, can be readily

sorted, since dolomite or silica is readily distinguished and the lumps break up easily under a light blow, making it possible to produce almost any desired lowness in the lime content, even when the rock fed is considerably mixed with dolomite. No preliminary crushing is required, as the kiln works best with rock broken to a size most convenient to handle, that is, in lumps up to 12 inches across. This saves the expense of crushing, which the rotary kiln requires. It is also possible to make the "ferro" in a shaft kiln by grinding and briquetting the magnesite-iron mixture and burning the hardened briquettes.

In order to get the necessary temperature in a shaft kiln, the briquettes and fuel (a high grade coal or coke) must be fed together as in blast furnace practice. It might also be possible to secure the requisite



Double Eagle No. 1 Quarry of Valley Magnesite Co.

temperature with gas as fuel, or with fuel oil, by securing combustion within the shaft and near its base.

Beehive Kiln Adaptable.

The downdraft, beehive type of brick kiln, where it has a lining able to withstand the heat, is also an excellent means of burning the "ferro" briquettes and has the added advantage of being adapted to the production of magnesite and other highly refractory brick. "Ferro" made in briquettes is distinctly superior to that made in the rotary kiln, since the iron and magnesia readily combine to form dense, iron-hard masses of

homogeneous nature, while in the rotary kiln the product is apt to be porous, slaggy and weak. It will do very well if ground, made into brick and returned, but does not make a good product to use direct in the form of grains or powder, as it makes a weak structure.

About 60% of the magnesite for refractory linings is used in grained form and the rest in brick. Magnesite simply calcined may be used to build up a good bed in the open hearth by sintering it in place, layer by layer, and at the same time adding iron in the form of slag or iron ore.

The Stevens county material, being so free from lime and with a generally low and even iron content, can be made into a product with the exact percentage of iron desired, more cheaply than it can be produced in Austria.

As a matter of fact, Stevens county, within two years, has developed a natural monopoly of a product which, in its finished form, is worth ten million dollars annually in the United States alone.

Three Large Producing Concerns.

The developed territory of workable deposits is about equally divided between American Mineral Production Co., Northwest Magnesite Co. and Valley Magnesite Co., all of which have made large investments, in property and equipment. Northwest Magnesite Co. has invested at least \$500,000 in plant alone; American Mineral Production Co. probably between \$300,000 and \$400,000, exclusive of another \$400,000 invested in a railroad from Valley to the deposits and constructed by Spokane, Valley & Northern Railroad Co., a subsidiary, while Valley Magnesite Co., the junior corporation, has already spent \$100,000 and plans further investment of from \$200,000 to \$250,000 in calcine, ferro and brick plant.

No Restrictions Upon Production.

Magnesite, with a few other vitally essential war minerals, has been placed upon the favored list by the government, so that production, treatment, transportation and distribution will be aided in every way necessary to assure a constant and sufficient supply to take the place of importations formerly brought from Europe. Consequently, the industry need fear none of the restrictions that have been placed upon non-essential lines.

Costs Are Noticeably Low.

California's per-ton costs for calcines range from \$18 to \$25 per ton, for the best located deposits. Average costs in Stevens county are around \$12.50 at the outside, with certainty that these figures will be reduced as more economical transportation is provided. It is assumed that the two big corporations are producing at cost rate of between \$5 and \$7.50, while Valley Magnesite Co.'s present costs of \$12.50 will be cut to \$7.50 by use of the new Spokane, Valley & Northern railroad and a tramway from quarry to loading point.

Can Compete With the World.

At market price of \$20 per ton, California would be practically eliminated as a factor, while even at \$12.50 per ton at shipping point, large profit can be made in the Stevens county fields. Prices last year ranged from \$32.50 to \$40 per ton, f. o. b. Western shipping points, for calcines, and from \$7 to \$14 per ton for crude. Under these prices California produced 200,000 tons from comparatively small bunch and stringer deposits, which have been worked in a small way for 20 years. The same tonnage could be produced in the Stevens county field at one-third the California cost and in far less time. There is reason to believe that Spokane, as the radiating point for the northern fields, will soon become the magnesite center of the United States.

Directory of Engineers, Metallurgists, Geologists, Assayers and Chemists

ARMSTRONG, L. K.

MINING ENGINEER

Examinations and Reports for
Investors

Peyton Block SPOKANE, WASH.

ASHLEY, JOHN K.

MINING ENGINEER

701 Mohawk Block.
Spokane, Wash.

BARD, DARSIE C.

MINING ENGINEER

204 Pioneer Building
SEATTLE, WASHINGTON

CALLAWAY, FRED W.

Consulting Mining Engineer

Kellogg and Wallace, Idaho
Competent Surveying Corps

**CAMPBELL, WELLS
AND ELMENDORF**

Mining Engineers, Chemists
Metallurgists

114 James St. SEATTLE, WASH.

CARTWRIGHT, MATHESON & CO.

Civil Engineers
British Columbia Land Surveyors
445 Granville Street, VANCOUVER, B. C.
Phone—Seymour 7070

Surveys, Reports, Estimates. Con-
struction superintended for railways,
tramways, wharves, ore bunkers, etc.
Mineral Claims Surveyed

COLLINS, G. A.

MINING ENGINEER

Examination and Report of Mines
Arctic Club

SEATTLE, WASHINGTON

COLLINS, RUSSELL F.

MINING ENGINEER

Old National Bank Building

SPOKANE, WASHINGTON

COOPER, MOSES R.

MINING ENGINEER

Montana Hotel

KALISPELL, MONTANA

CRÉRAR, GEORGE

MINING ENGINEER

517 East 7th Avenue
SPOKANE, WASHINGTON

CURRIE, J. W. & CO.

Assayers and Chemists

F. G. Sewell, Manager
70 W. Broadway SALT LAKE CITY
Umpire and Control Work
a Specialty

DRUMHELLER, D. M. Jr.

MINING ENGINEER

401 Columbia Bldg.

SPOKANE, WASHINGTON

EBY, J. H., E. M.

Mining Investment Engineer

28 East Sinto Ave.

SPOKANE, WASHINGTON

ELDRIDGE, G. S. & CO.

ASSAYERS AND CHEMISTS

Flotation and Concentration Tests

Cave Building VANCOUVER, B. C.

Directory of Engineers, Metallurgists, Geologists, Assayers and Chemists

FASSETT, C. M. & CO.

CHEMISTS AND ASSAYERS

Sampling and Testing of Ores

209 Wall Street

SPOKANE, WASHINGTON

GOODALE, C. W.

MINING ENGINEER

BUTTE, MONTANA

GOODALL BROTHERS

Assayers and Metallurgists

Smelter Shipments Checked

Controls a Specialty

38 South Main Street

HELENA, MONTANA

GOODSELL, CHARLES H.

MINING ENGINEER

United States Mineral Surveyor

818 Paulsen Building

SPOKANE, WASHINGTON

Herbert Goodall Archie J. Goodall

GRAUPNER, M. F.

MINING ENGINEER

Reference Examinations Made

P. O. Box 596 BUTTE, MONTANA

GRETHER, W. SCOTT

Examinations, Reports, Management

Box 1708 BUTTE, MONTANA

GUYER, RAYMOND

MINING ENGINEER and

METALLURGIST

Sherwood Bldg. SPOKANE, WASH.

HAAS, J. C.

MINING ENGINEER

The Wellington

SPOKANE, WASHINGTON

HEATH, ROY FRANKLIN

METALLURGICAL CHEMIST

Specialty: Analysis and Reports on

Ores, Minerals and Metallurgical

Products

Processes Devised

Tests

Box 740 BILLINGS, MONTANA

HOUGH, U. B.

MINING ENGINEER

Peyton Block

SPOKANE, WASHINGTON

HUNT, JOHN

Gravity and Flotation Concentration

BUTTE, MONTANA

KEFFER & JOHNS

MINING ENGINEERS

Hutton Block

SPOKANE, WASHINGTON

LARSON, A. G.

MINING ENGINEER

Old National Bank Building

SPOKANE, WASHINGTON

LAUCKS, I. F.

Chemist, Assayer, Metallurgist

Ore Testing

Shipments Checked at the Smelters.

99 Marion Street Seattle, Wash.

Directory of Engineers, Metallurgists, Geologists, Assayers and Chemists

MABRY, BOB

Examinations and Reports of Mines

Hutton Block

SPOKANE, WASHINGTON

McBRIDE, J. W.

MINING ENGINEER

Northwest Mining Association

SPOKANE, WASHINGTON

McDONALD, E. H.

CONSULTING ENGINEER

409 Realty Building

SPOKANE, WASHINGTON

NASH, A. D.

MINING ENGINEER

NELSON, BRITISH COLUMBIA

Bradford-McNeil Codes

OLSEN, CHARLES O.

MINING ENGINEER

701 Paulsen Building

SPOKANE, WASHINGTON

PATTISON, EVERETT H.

MINING ENGINEER

Hutton Block

SPOKANE, WASHINGTON

PAYNE, HENRY MACE

Consulting Mining Engineer

1203 Chamber of Commerce Bldg.

PITTSBURGH, PA.

Usual Codes Cable: "Macepayne"

QUINN, M. F.

MINING ENGINEER

SPOKANE, WASHINGTON

RICHARDS, J. W.

ASSAYER AND CHEMIST

1118 Nineteenth St., DENVER

Ore Shippers' Agent. Write for Terms
Representatives at All Colorado
Smelters

ROSS, FRANK A.

MINING AND MILLING

Box 2175 SPOKANE, WASHINGTON

SACKET, C. T.

Civil and Mining Engineer

U. S. Mineral Surveyor

LIVINGSTON, MONTANA

SALES, RENO H.

Mining Geologist

Anaconda Copper Company

BUTTE, MONTANA

SPANNAGEL, OTTO

Mechanical Engineer

Oil Engines

Mechanical Installations

30 East Sprague

SPOKANE, WASHINGTON

STOWELL, W. H. & CO.

CHEMISTS AND ASSAYERS

Established 1890

Sprague Avenue

SPOKANE, WASHINGTON

Directory of Engineers, Metallurgists, Geologists, Assayers and Chemists

TAYLOR, SAMUEL A., C. E.
 M. Am. Soc. M. E., M. Am. Inst. M. E.
Consulting Civil and Mining Engineer
 506-509 2nd National Bank Building
 PITTSBURGH, PA.
 Cable: "Rolyat." W. U. Code.

VAN EMAN, A. G.
Chemist and Assayer

 BOISE, IDAHO

WAHL, H. R.
MECHANICAL ENGINEER
 Design and Construction of Crushing,
 Milling and Mining Plants
 Phone 36 West Randolph St.
 R. 701-701 CHICAGO, ILL.

WALTERS, R. E.
MINING ENGINEER
 Snow Storm Mines, Consolidated
 TROY, MONTANA

WEAVER, CHARLES E.
CONSULTING GEOLOGIST
 Examination of metalliferous and non-
 metalliferous products in the Pacific
 Northwest.
 University Station
 SEATTLE, WASH.

WEED, WALTER HARVEY
Mining Geologist and Engineer
Examinations
 29 Broadway NEW YORK
 Cable: "Minexam"

WESTERVELT, WILLIAM YOUNG
Consulting Mining Engineer
 17 Madison Ave. (Madison Square E.)
 NEW YORK
 Cable: Casewest Code: McNeil

WHITE, J. RUSH
MINING ENGINEER

 WALLACE, IDAHO

WILLIAMS, WAKELEY A.
 Superintendent of Granby Smelters

 ANYOX, B. C.

WOOD, ERNEST C.
MINING ENGINEER
 308 Empire State Bldg.
 SPOKANE, WASHINGTON

WAKELEY A. WILLIAMS

Mining and Metallurgical Engineer

Supt. of Smelters, Granby Co.

GRAND FORKS, B. C.

ANYOX, B. C.

MINING BROKERS AND BANKERS

BURDICK BROTHERS & BRETT, LTD.

STOCK BROKERS

Stocks, Bonds, Grain and Cotton
Pemberton Building
620 Broughton St.
VICTORIA, B. C.

LIPPERT INVESTMENT COMPANY

Stocks and Bonds

Chas. H. Fisher, Mgr.
806 Paulsen Bldg., Spokane, Wash.

COX, A. H. & CO., Inc.

309 First Ave. South
SEATTLE, WASHINGTON

General Mine & Mill Equipment
Mine & Smelter Supply Co. Agency

PRICE, D. W.

STOCKS, BONDS

KELLOGG, IDAHO

HARTLEY, G. F.

Member Vancouver Stock Exchange

I execute all orders at best market prices on strict commission basis only. If you want information on any stock, write, wire, or telephone me. I want your business.

422 Richards Street
VANCOUVER, B. C.

MORLEY, A. B. & CO.

(Established 1901)

Curb, Unlisted Stocks and Bonds

44 Broad Street NEW YORK
Telephone Broad 2855-6

HERMAN, A.

MINING BROKER

505-6 Rookery Building
SPOKANE, WASHINGTON
Mines Bought and Sold
Correspondence Solicited from
Investors and Brokers

MISSOURI SCHOOL OF MINES

Established in 1871

Four-Year Courses in Mining Engineering, Metallurgy, Civil, Electrical and Mechanical Engineering
Address

MISSOURI SCHOOL OF MINES
ROLLA, MISSOURI

EIGHT YEARS FURNISHING TECHNICAL MEN.

NEED A SUPERINTENDENT?

— ASSAYER, ENGINEER, MASTER MECHANIC, ELECTRICIAN, WIRE OR WRITE —

BUSINESS MEN'S CLEARING HOUSE, DENVER, COLO.

ATTORNEYS

MCCARTHY & EDGE

Attorneys and Counsellors at Law
All Business in U. S. and Territory of Alaska Carefully Attended to.

Paulsen Bldg.
SPOKANE, WASHINGTON.

NUZUM, CLARKE & NUZUM

Attorneys and Counsellors at Law

Mining a Specialty

Old National Bank Bldg.
SPOKANE, WASHINGTON

E. H. ROBINSON
Vice-Pres.

N. C. FASSETT
President

CHAS. MAILHOT
Sec.-Treas.

The C. M. FASSETT CO.

(INCORPORATED)

Importers, Wholesale and Retail Dealers in

Laboratory Supplies

For Assayers, Chemists, Physicians
Mines, Smelters and Schools

Manufacturers' Agents
for Leading Makes of
Balances, Crushers,
Gasoline Furnaces, Etc.
Fine Glass and
Porcelain Ware

Pure Reagents
Fine Chemicals
Cyanide Potash
Zinc Shavings
Anhydrous Ammonia
Industrial Chemicals

207-9-11-13 Wall Street

SPOKANE, WASH.

ACCOUNTANTS

T. C. CANNON, MEMBER WASHINGTON SOCIETY OF
(CHARTERED ACCOUNTANT)

**CERTIFIED
PUBLIC
ACCOUNTANTS**

LEMASTER, CANNON & COMPANY

221-222 SYMONS BLOCK
SPOKANE

ELLIS LEMASTER, MEMBER AMERICAN INSTITUTE OF ACCOUNTANTS

ELECTRICAL ENGINEERS

Agents for
General Electric
Co.
Dynamos
Motors
Etc.

**THE DOERR-MITCHELL
ELECTRIC CO.**
Jobbers

All kinds of Electrical Supplies
Engineers and Contractors
118-120 Lincoln St. Opp. Post Office
SPOKANE, WASHINGTON

The Oldest
and
Largest House
in
Eastern
Washington

CONTRACTOR

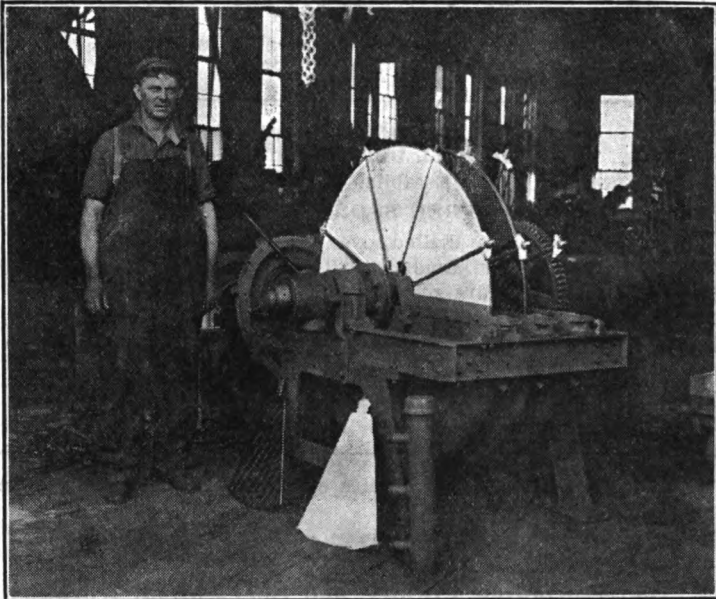
JACK, ADAM

Brick Builder and Contractor
Practical Kiln and Furnace Builder
Kilns, Furnaces, Boilers and Coke
Ovens a Specialty

Phone 800 Keefer St.
High 728 VANCOUVER, B. C.

American Continuous Vacuum Filter

Dewaters Slime Concentrates



American Filter, 4-foot diameter, 3 leaf, 65 square feet area, 5x6-foot floor space and 5 feet high. These filters are made 7 feet 6 inches in diameter and up to 1100 sq. feet of filter area.

ADVANTAGES.

- Drier concentrates.
- Smaller machine gives larger capacity.
- Replace separately each damaged pie-shaped bag.
- No wire windings.
- No long shut-downs.
- Cheaper operations.

United Filters Corporation

Main Office: FELT BLDG., SALT LAKE CITY, UTAH.

Brookline

Chicago

Los Angeles

Local Representatives: Union Iron Works, Spokane, Wash.

NOTT-ATWATER CO.

S. 157 Monroe St. SPOKANE

MANUFACTURERS

Leather Belting

Asbestos Pipe Covering

SOLE AGENTS

Manhattan Rubber Co.

Condor Transmission, Dreadnaught Elevator and
Lamona Conveyor Belts

DIAMOND DRILL CONTRACTING COMPANY

Established 1896

FRED STONE, Pres.

We have drilled over 600,000 feet (114 miles) of Diamond Drill holes during our twenty years of operations in this Northwest country. We have complete outfits in all the leading mining centers and can start work without delay.

Write for Prices and References

429 First Ave.

SPOKANE, WASH.

Blow Pipe and Ventilating.

Repairs on Boilers Given Prompt Attention

BROWN BROTHERS

Boiler, Roofing, Cornice and Sheet Metal Works

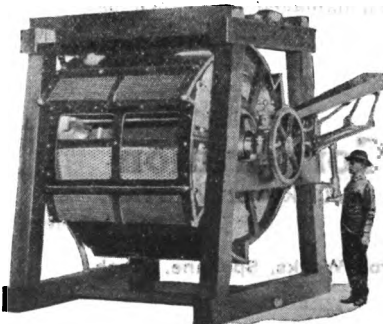
Manufacturers of

Boilers, Smoke Stacks, Tanks, Ore Cars, Buckets, Riveted Pipes

Steel Auto Truck Bodies

Corner Grant and East Riverside

SPOKANE, WASH.



EUREKA QUARTZ MILL

BUILT FOR HARD WORK

Only requires 4 H. P. to operate. Grinds the ore to any desired mesh with the least consumption of steel. Has large screening surface. Can be taken down and transported on horses.

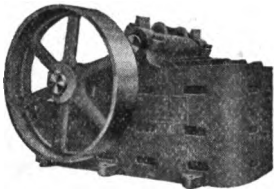
Write us for particulars.

EUREKA QUARTZ MILL CO.

P. O. Box 640

SPOKANE, WASH.

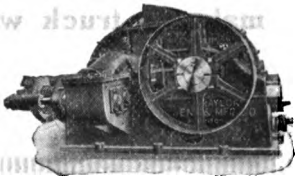
TRAYLOR CRUSHING EQUIPMENT



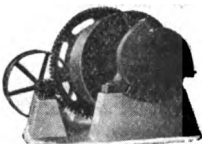
JAW CRUSHERS of the better kind, having cast steel water-cooled pitmans and water-cooled pitman shaft bearings of extra diameter and length, and built in five types and thirty-six sizes, from the 7"x10" Crusher of 8000 lbs. weight up to the Giant 66"x86" Crusher weighing 680,000 lbs., the largest and heaviest Jaw Crusher of them all. Bulletin NW-J-2.



GYRATORY CRUSHERS with an eccentric that is not only longer and of greater diameter than others, but is completely submerged in the lubricant, shafts of extra size, concaves that can be removed without interfering with any other parts of the Crusher. Built in sizes from No. 2 to No. 60 inclusive. Bulletin NW-G-4.



CRUSHING ROLLS which are insured against corrugating and flanging of the roll shell when properly fed by the automatic "Fleeting Roll"—this is also your assurance of a greater tonnage of finished product per horse power consumed and a greater tonnage of ore crushed per set of roll shells. Built in sizes from 18"x10" to 72"x30" inclusive. Bulletin NW-R-1.



BALL MILLS with or without a diaphragm screen, having the maximum discharge area, gudgeons of extra size, allowing a throat of the maximum diameter. Liners of either cast manganese steel or special hard iron, scoop feeders of a new design having a separate intake for returns from classifiers and other special features which this space is too limited to enumerate. Bulletin NW-B-1.

Send for the Bulletin.

Much Valuable Data.

TRAYLOR ENGINEERING & MFG. CO.
ALLENTOWN, PENNA.

NEW YORK OFFICE
39 CHURCH ST.

CHICAGO OFFICE
1414 FISHER BLDG.

General Motors Company TRUCKS

A Two-Ton G M C with Five Tons of Ore



Ask any driver who has driven any make of truck what truck he would buy—

Ask any G M C owner what his next truck will be—
THEY ARE THE MEN WHO KNOW

G M C TRUCKS PREDOMINATE IN THE ORE AND LUMBER HAULS IN AND ABOUT STEVENS COUNTY. ASK THESE OWNERS—

Rutledge Timber Co., Coeur d'Alene, Ida.
John Brunner, Addy, Wa.
Carter & Olson, Chewelah, Wa.
Somers & O'Brien, Boundary, Wa.
A. F. Enzler, Colville, Wa.
Palm & Son, Northport, Wa.
W. L. Woodard, Addy, Wa.
Abe Oastine, Echo, Wa.
Llewellen Co., Kettle Falls, Wa.
A. B. Nickens, Covada, Wa.
C. J. Brown, Keller, Wa.

L. E. Stutzman, Marcus, Wa.
Boundary Lbr. Co., Northport, Wa.
City of Newport, Newport, Wa.
L. A. Connelly, Aladdin, Wa.
Elkhorn Mill Co., Blue Creek, Wa.
American Min. Prod. Co., Valley, Wa.
McMillan & Byersdorf, Deer Park, Wa.
Valley Magnesite Co., Valley, Wa.
O. H. Reich, Valley, Wa.
Idaho Continental Mine
E. G. Maughan, Forthill, Idaho

**WIRE OR PHONE AT OUR EXPENSE
AND WE WILL HAVE OUR TRANSPORTATION EXPERT ADVISE YOU
REGARDING YOUR OWN HAUL**

ELDRIDGE BUICK COMPANY

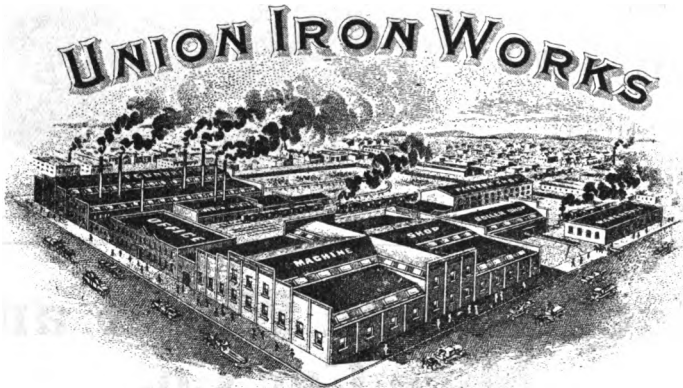
SEATTLE, WASH., 802 E. Pike St.

SPOKANE, WASH., 1308 First Ave., Main 6421

Sales Agents For:

Ziegler Flotation Machinery
 Worthington, Deane & Prescott Pumps
 Laidlaw-Dunn-Gordon Compressors
 General Electric Motors and Transformers
 Power and Mining Machinery Company Rolls, Crushers, Ball Mills,
 etc.

United Filters Corporation Filters
 Gutta Percha & Rubber Mfg. Company Belting and Hose
 Bayley Manufacturing Company Blowers, Exhausters, etc.
 Deister Concentrator Company Slime and Sand Tables
 American Steel Split Pulleys
 Nagie Engines, Boilers and Receivers
 Connersville Pressure Blowers
 Dorr Classifiers, Thickeners, etc.
 Knight Sawmill Machinery
 Berlin Planing Mill Machinery
 Denver Rock Drill Mfg. Co. Dreadnaught & Waugh Drills and Sharp-
 eners



WE STOCK:

Bolts, Nuts, Rivets, Steel Plate, Bar Iron, Beams, Angles, Channels, Shafting, Boxes, Collars, Couplings, Pulleys, Sprocket Chain, Sprockets, Boiler Tubes, Black Pipe, Joist Hangers, Anchors, Sash Weights, Belting, Air Receivers, Boilers, Engines, Compressors, Sawmills, etc.

WE BUILD:

Band Mills, Edgers, Slashers, Steam Feeds, Niggers, Jump Cylinders, Electric and Air Hoists, Crushers, Rolls, Ball Mills, Trommels, Feeders, Jigs, Ziegler Flotation Machines, Ore Cars and Buckets, Hoisting Skips and Cages, Steel Tanks, Steel Riveted Pipe, Pelton Wheels, Fire Escapes, Drill Work, Drag Line Equipment, etc.

Largest Stock of Miscellaneous Second-hand Machinery in the Northwest.

Manufacturers of

MINING, SMELTING AND SAWMILL MACHINERY

UNION IRON WORKS

SPOKANE, WASHINGTON



OIL ENGINES

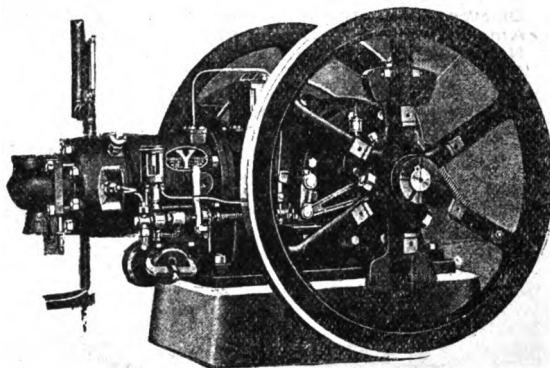
Save Money by Using

Low Priced Fuel Oils

Guaranteed by
Fairbanks-Morse
Quality

FAIRBANKS, MORSE & COMPANY

SPOKANE, WASH.



Hockensmith Wheel and Mine Car Co.

(Pittsburg District) Penns Station, Pa.

Manufacturers of

Ghilled Annealed Mine Car Wheels

Self-Oiling—Roller-Bearing

Angle Bar Trucks

The Truck for Severe Service

Mine Cars

Steel—Composite—Wood

Awarded Gold Medal Panama-Pacific Exposition for Mine Cars, Wheels
and Oiling System

Catalogue "M" upon request

USE THE EDISON STORAGE BATTERY

Its strength and ruggedness will ensure greater certainty in mine production. Use Edison Batteries

in

Mine Lamps

The steel and iron construction of the Edison Battery gives great durability to the Edison Mine Lamp. It stands up in service. It gives ample, unfailing light. Successful use has made the Edison the Standard Electric Mine Lamp of America. Over 110,000 in use.

Ask for Bulletin 3007



The ONLY Battery with any iron or steel in its construction or elements

in

Battery Motors

There's a big advantage in using the steel-and-iron Edison Battery. Then you can depend on your battery motors for steady, reliable service, day in and day out. You can depend on freedom from trouble. You can be assured of greatest production at lowest cost.

Bulletin 6087 on Request

EDISON STORAGE BATTERY CO.

FACTORY AND MAIN OFFICE: ORANGE, N. J.

Distributors in

San Francisco
New York
Detroit

Seattle
Boston
New Orleans

Los Angeles
Chicago
Pittsburgh

EDISON STORAGE BATTERY CO. 1915

Postoffice Box No. 1

Roofing
Asphalt
Mastic
Culverts
Flume Pipe

BUSH

Building Materials
Wood Preservative
Special Paints
Waterproofing
Paper and Felts

SPOKANE

THOMAS G. BUSH & COMPANY

UNITED BRAND OILS AND GREASES

HIGHEST QUALITY
MADE FROM PARAFFINE
BASE CRUDES

FOR ALL
PURPOSES



CONVEYORS AND
CONVEYOR CHAINS

CENTRIFUGAL PUMPS
FOR WATER, SLIMES AND
SAND AND GRAVEL



South 5 Stevens Street, SPOKANE

MINE AND MILL MACHINERY

We Carry in Stock

"Lidgerwood" Hoists "Bulldog Special" Drill Steel

Betts' Coal Tar Products

FLOTATION OILS
COAL TAR

The C. G. BETTS CO., Spokane, Wn.

1802



1918

EXPLOSIVES

In its century of progress in the explosives industry, the Du Pont Company has introduced, improved and standardized an extensive variety of explosives adapted to every blasting requirement.

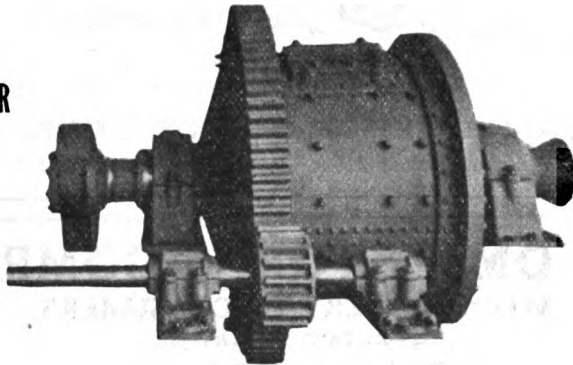
For detailed description of our standardized, highly efficient explosives and methods of loading them to obtain maximum results, write for our "High Explosives" Catalogue.

E. I. du Pont de Nemours & Company

523 FIRST AVE., SPOKANE, WASH.

HALLIDIE COMPANY

COMPRESSOR
AIR DRILLS
and
PUMPS



COMPLETE
MILLING
EQUIPMENT
and
ORE CARS

Manufacturers of **Mining Machinery**

North 701 Division Street
SPOKANE, WASH.

ELECTRIAL DYNAMOS, MOTORS,
VACUUM CLEANERS, Etc.

LARGEST and BEST
STOCK IN THE
INLAND EMPIRE

EXCHANGE OF

DYNAMOS
AND
MOTORS

NIXON-KIMMEL CO.

901 Main Avenue, Spokane, Wash.

F. O. BERG

Manufacturer

MINING AIR HOSE ORE BAGS
CANVAS of All Weights and Widths

224 RIVERSIDE, SPOKANE

Send for Catalogue

The **TRAIL** of

LEADS TO THE OFFICES OF
LARGE MINING COMPANIES

SPOKANE OFFICE SUPPLY COMPANY

422-424 W. SPRAGUE AVE.

SPOKANE, WASHINGTON

ECONOMY STORES COMPANY
WHOLESALE TO CONSUMERS

22—RETAIL STORES—22

Our Wholesale and Mail Order Dept.

152 So. Monroe St.
SPOKANE

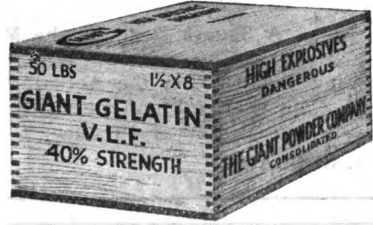
Supplies Mines, Prospects, Logging Camps, Construction Camps, etc., with all Groceries and Provisions at Wholesale Prices. Anything from a pound to a carload.

MAKE THAT BOARDING HOUSE PAY

THE FIRST HIGH EXPLOSIVE ON THE PACIFIC COAST GIANT POWDER



LOW FREEZING GIANT EXTRA. 40%



V. L. F. GIANT GELATIN. 40%

THIS TRADE
MARK ON
EVERY CASE



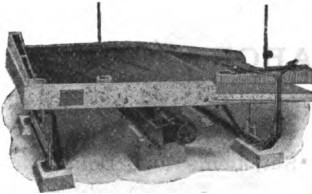
PROTECTS YOU
AGAINST
SUBSTITUTION

THE GIANT POWDER CO., CON.

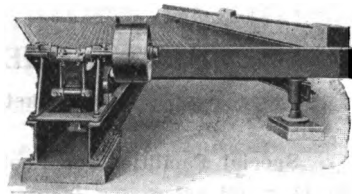
HOME OFFICE: SAN FRANCISCO, CAL.

EVERYTHING FOR BLASTING

BRANCH OFFICES: SEATTLE PORTLAND SALT LAKE CITY DENVER



Deister No. 3 Slimer



Deister Overstrom Table

USE

Deister and Deister-Overstrom Tables

FOR

Capacity—Efficiency—Satisfaction

The Deister CONCENTRATOR Company

Manufacturers of DEISTER and DEISTER-OVERSTROM Tables in Either
Single or Double Deck Types

Main Office, Factory and Test Plant—Ft. Wayne, Ind.

Stearns-Roger Mfg. Co., 1718-1720 California St., Denver,
Colo.
Union Iron Works, Pearl and Montgomery, Spokane, Wash.
W. R. Grace & Co., Lima, Peru
International Machinery Co., Santiago, Valparaiso, Antofa-
gasta.
International Machinery Co., Oruro, Bolivia

Bedford-McNeill
A. B. C.
5th Edition
Cable Address
"Retsied"

J. G. CLARK, Purchaser of TUNGSTEN ORES

Ferrotungsten, Tungstic Acid

Meets the Highest Quotations of the Eastern Market

A Square Deal for the Mines and the Independent Miners

**Doing Business on the Actual Worth of the Mineral and Making Profits
on the Live and Let Live Basis. It Will Be of Advantage to
Every Producer to See or Communicate With**

J. G. CLARK

Boulder, Colorado

GROCERY SUPPLIES at WHOLESALE PRICES

**We Specialize in Supplying Groceries in Any Quantity at
Wholesale Prices to**

**PROSPECTORS
MINE BOARDING HOUSES
CONTRACTORS, ETC.**

**See or Write Us Regarding Your Next Order
It Will Mean Money Saved to You**

Imperial Trading Co.

So. 174 Stevens St.

SPOKANE WASH.

BENNETT'S CHEMICAL LABORATORY

1142 Market Street, Tacoma, Wash.

**Special Facilities for Looking After Ore Shipments and Doing
Check Assay Work**

Ore Testing and Reports Made on Properties

HERRIN & RHODES, Inc.

Established 1896

Stock and Bond Brokers

(Not Speculators)

CODES

119 Cherry St. Moreing & Neal

Clough's SEATTLE, WASH.

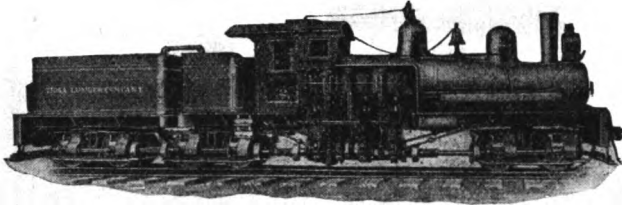
**Oldest established brokerage firm in the Pacific Northwest, specializing in
local bank, steamship, industrial and mining securities.**

Special information and service to brokers.

**Buying and selling orders executed promptly on all Western and Alaska
securities.**

HOFIUS STEEL & EQUIPMENT COMPANY

Northwest Sales Agents for



"SHAY" GEARED LOCOMOTIVES

Specially designed for use on mining and industrial roads having steep grades and sharp curves.

RAILWAY SUPPLIES—TRACK TOOLS SPIKES—BOLTS

Switch Material Built to Order

General Sales Offices in

L. C. SMITH BLDG., SEATTLE, WN.

PORTLAND, ORE.
E. A. Stewart, Mgr.
29 First St.

SPOKANE, WASH.
E. G. Ferris, Mgr.
So. 11 Washington St.

TACOMA, WASH.
Will Hudson, Mgr.
Tide Flats

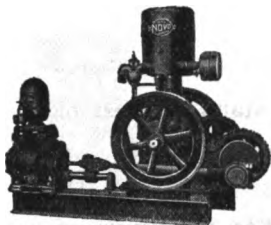


Fig. 14139 Novo Type U
Medium and High Pressure
Force Pumping Outfit

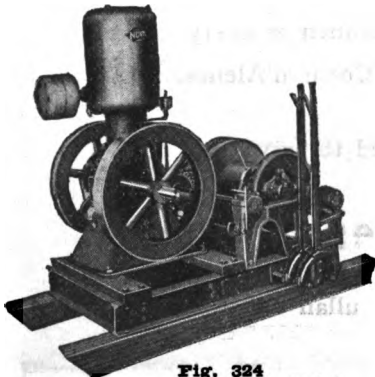


Fig. 324
Novo Type M Mining Hoist

NOVO POWER IN MINING

For Hoisting—Novo Type M Hoists are adapted to prospecting and small mining operations. They are powerful within the limits of their capacity, and easy to operate.

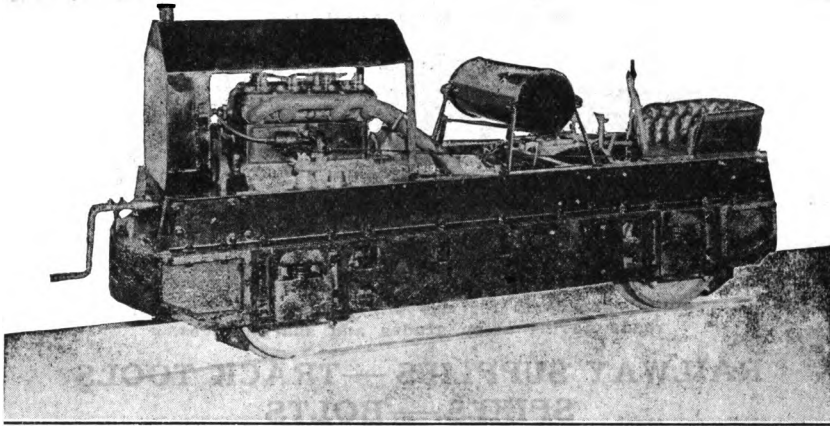
For Pumping—Novo Type U Medium and High Pressure Force Pumping Outfits or Novo Triplex Pumping Outfits will give you an adequate water supply for any purpose at pressures up to 500 lbs. and better. Novo Sump Pumping Outfits will do your non-forcing drainage work.

For Air Tools—Novo Portable Air Compressor Outfits will operate your drills for prospecting right on the job, or furnish air for any purpose.

The Novo Catalogue describes these outfits fully. Send for a copy, giving us an idea of your work.

NOVO ENGINE CO.
Clarence E. Bement, Vice-Pres. & Gen. Mgr.
LANSING, MICHIGAN

GASOLINE LOCOMOTIVES



**GASOLINE LOCOMOTIVES FOR ALL HAULAGE PURPOSES.
SPECIAL DESIGNS FOR MINE AND TUNNEL WORK.
MOST ECONOMICAL SYSTEM UNDER ANY CONDITIONS.
SEND FOR FACTS AND FIGURES.**

WESTERN IRON WORKS

MANUFACTURERS AND DEALERS

SALES OFFICE, 319-320 HUTTON BLDG.

SPOKANE, WASH.

¶ For a merchandise establishment to stand the test of time, its merchandise and methods must be right.

¶ For 20 years we have been catering to the wants of the populace of the Coeur d'Alenes. We have grown with the district, now having a branch at every distributing point of importance in the Coeur d'Alenes.

¶ We are therefore best equipped to serve you.

The United Stores Company

Wallace

Burke

Mullan

Kellogg

DAVENPORT HOTEL

SPOKANE, U. S. A.

"ONE OF AMERICA'S EXCEPTIONAL HOTELS"

Headquarters for Mining Men of the Northwest.



You are always at liberty to use our lobby and other public conveniences even though you are not a registered guest.

**No Undesirable Rooms.
No Formality.
Very Low Prices**

The Coffee Shop offers especially quick service for busy men and women.

Dollar Dinner daily from 5:30 in Isabella Room

Products of Our Kitchen on Sale in Delicacy Shop in Convenient Cartons.



Largest and Best Equipped Office in the West

NOTARY PUBLIC

**Hours 8 a. m. to 11 p. m.
Seven Days in the Week**



Merrick Thompson

MINING REPORTS A SPECIALTY

**PUBLIC STENOGRAPHIC OFFICES
212-214 Eagle Bldg., Riverside and Stevens**

Phones: Office, Main 4272

Residence, Max. 3332-Y

HAVE YOUR BLUE PRINTS

Made at **GRAHAM'S, Spokane**

THE UNIFORM ELECTRICAL WAY

Mining property plans of every description, from 1 ft. to 100 ft. in length, made in this modern blue printing plant promptly upon receipt of order. Mail us your tracings.

TECHNICAL INSTRUMENTS

Brunton Compasses, Aneroids, and Kenfel & Esser Co.'s Mining Transits, Levels and Tapes. Aneroids adjusted free.

OFFICE SUPPLIES

Mining Stock Certificates, Time and Pay Roll Books, Seals, Stock Forms in Blank Books.

MODERN BINDERY on the premises

OFFICE DESKS and CHAIRS

Globe-Wernecke and Art Metal Filing Equipment

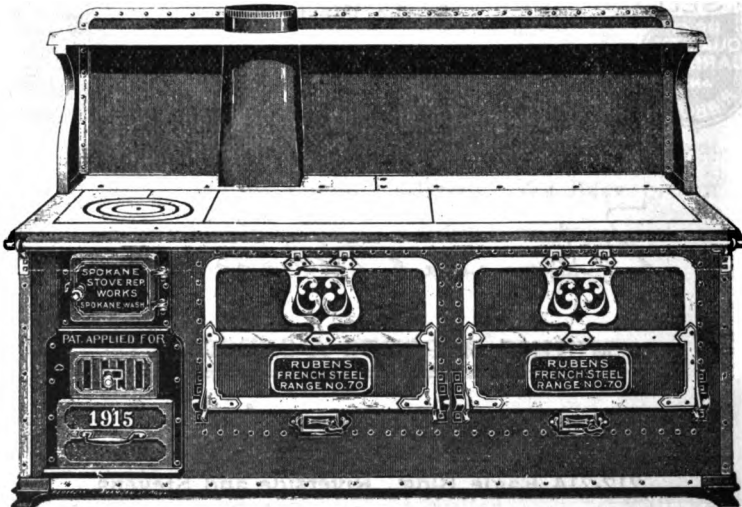
John W. Graham & Co
If Its Made of Paper We Have It

707-709-711 Sprague Ave.

SPOKANE, WASHINGTON

MINING RANGES and REPAIRS INSTALLED in the Largest Camps in the Northwest RUBENS & EMPIRE FRENCH STEEL Portable Hotel and Camp RANGES

WRITE TODAY FOR PRICES and FURTHER DETAILS



COMPLETE TOPS and FIRE BOX LININGS for ALL MAKES of HOTEL and CAMP RANGES

UNEXCELLED FOR DURABILITY AND SERVICE

THE LARGEST STOVE AND FURNACE REPAIR HOUSE IN THE NORTHWEST

SPOKANE STOVE & FURNACE REPAIR WORKS, INC.

W. 912-14 FIRST AVE., SPOKANE, WASH. MAIN 1790



HOTEL SPOKANE

FOR over a quarter century the Hotel Spokane has been the real mining center of the Great Northwest.

In its spacious corridors and lobbies most of the important mining deals of that period have been conceived and consummated.

Every nook and corner is reminiscent of the Coeur d'Alenes, Rossland, Slocan, Republic, and the many other districts that have made this country famous and brought prosperity to this city.

Hotel Spokane still offers all that human heart desires in the way of creature comfort. Its beds are one peaceful dream and its service is based upon the theory that personal attention, unobtrusive but insistent, is what the wayfarer most desires.

In all the West there is no such cuisine provided as in

THE SILVER GRILL

Here is spoken the last word in the culinary art and here may be found the most peaceful, comfortable and satisfying old English inn room in America.

Rates in both Hotel and Grill are suited to the purse of all.

HOTEL SPOKANE

Real Mining Center of the Great Northwest



Spokane Stock Exchange, Ltd.

Incorporated under the laws of the State of Washington, December 11th,
1907, by F. E. P. McMain, C. E. Mallette, C. Twitchell,
Charles E. Adams and E. C. Tousley.

Public Exchange: Ground Floor, Paulsen Bldg.
Daily Call: At 9:30 A. M.

MEMBERSHIP

AMSDEN, G. R.	-----	"With U. S. Forces."
BAGNELL, D. P.	-----	Paulsen Bldg.
BOARDMAN, W. F.	-----	Paulsen Bldg.
BUTTON, W. H., & CO.	-----	Old National Bank Bldg.
CARTER, EDW. V., CO.	-----	Paulsen Bldg.
FORD, F. D.	-----	Paulsen Bldg.
GARRETT, W. V.	-----	Empire State Bldg.
GILLIS, C. L., INVESTMENT CO.	-----	Hutton Bldg.
GREENOUGH, J. E.	-----	"With U. S. Forces."
HARVEY, CHESTER H., CO.	-----	Paulsen Bldg.
Hawley, W. S., & SON	-----	Hutton Bldg.
HOWARTH, J. F., & SON	-----	Chester Howarth "With U. S. Forces."
INTERSTATE LAND CO. (JACKSON & WALKER)	-----	-----
	-----	Chamber of Commerce Bldg.
IRVINE, H. T., & CO.	-----	Paulsen Bldg.
LA RUE, JOHN G., CO.	-----	Hutton Bldg.
LIPPERT INVESTMENT CO.	-----	Paulsen Bldg.
MALLETTE, C. E.	-----	Jamieson Bldg.
MARKHAM, F. D.	-----	Paulsen Bldg.
McNUTT, W. H.	-----	Rookery Bldg.
NICHOLLS, W. A.	-----	Old National Bank Bldg.
NICHOLLS, W. J., & CO.	-----	Sherwood Bldg.
NORMAN, S., & CO.	-----	Mohawk Bldg.
OLIN, O. A., & CO.	-----	Wallace, Idaho
POHLMAN INVESTMENT CO.	-----	Empire State Bldg.
POHLMAN, T. T., CO.	-----	Wallace, Idaho
ROSAUER BROKERAGE CO.	-----	Paulsen Bldg.
SHARP, B. E., & CO.	-----	Mohawk Bldg.
STIMMEL, B. E.	-----	Mohawk Bldg.
UNDERWOOD, C. T.	-----	Old National Bank Bldg.
WHELAN, D. J.	-----	Paulsen Bldg.
WHITEHOUSE, IRVING, CO.	-----	Davenport Hotel

Spokane Stock Exchange, Ltd.

OFFICERS, DIRECTORS AND STANDING COMMITTEES.

President.....C. E. Mallette
 Vice President.....C. L. Gillis
 Secretary-Treasurer.....Edw. Pohlman
 Assistant Secretary and Caller.....R. H. Hughes

Directors: C. E. Mallette, C. L. Gillis, W. A. Nicholls, Edw. Pohlman, W. F. Boardman.

Arbitration Committee: W. F. Boardman, D. P. Bagnell, F. D. Ford.

Rules Committee: Edw. Pohlman, Sidney Norman, Walter J. Nicholls, Chester H. Harvey.

Membership Committee: W. A. Nicholls, F. D. Markham, L. R. Hawley.



Listing Committee: C. L. Gillis, D. P. Bagnell, H. T. Irvine, F. J. Walker, W. H. Button.

Auditing Committee: C. E. Mallette, C. T. Underwood.

Entertainment Committee: Walter J. Nicholls, Irving Whitehouse, D. J. Whelan, John G. LaRue.

IRVING WHITEHOUSE COMPANY

BOND DEPARTMENT

Bonds {
 Municipal
 Foreign Government
 Railroad
 Public Utility
 Industrial

Bought and Sold

BROKERAGE DEPARTMENT

Buying and Selling Orders executed on all
 Exchanges, including Unexcelled Service
 in local Coeur d'Alene Stocks

DIRECT WIRES TO

New York, Boston, San Francisco and
 all Important Cities of the
 United States

Correspondents of **E. F. Hutton & Co.**
 Members of the New York
 Stock Exchange

Telephone Main 1804

Davenport Hotel

SPOKANE, WASH.

1213 L. C. Smith Building

SEATTLE, WASH.

WHAT STOCKS Do You Own? WHAT ARE YOU INTERESTED IN?

Give us the list and we will furnish you with late information without charge or obligation. We will also advise you What, How and When to Buy and Sell. Our judgment is not infallible, but it is based on thorough investigation and careful consideration, and is conscientious and sincere.

DIXON SERVICE ON ALL BUYING AND SELLING ORDERS MEANS

PROMPT ACKNOWLEDGMENT	INTELLIGENCE
PROMPT EXECUTION	HONESTY
PROMPT NOTIFICATION	EFFICIENCY
PROMPT DELIVERY	

WRITE FOR OUR MARKET LETTER

K. H. DIXON COMPANY, STOCKS, BONDS, INVESTMENTS
508 SHERWOOD BUILDING, SPOKANE

A Complete Investment Service

HARRY DUDMAN

**Mines and Real Estate
BROKER**

FISCAL AGENT

Silver Antimony Mining Company
Chewelah, Washington

Bethlehem Gold Mines, Ltd.
Yahk Mining District, Idaho

*Latest information of the Mining Resources of the Northwest
Furnished Free*

Suite 408-409 Sherwood Bldg.
SPOKANE, WASH.

F. D. FORD

STOCKS AND BONDS

Member Spokane Stock Exchange

1012 Paulsen Building Spokane, Washington

Established Twelve Years

Codes—Clough's, Western Union

Up-to-date INFORMATION on all Northwest Mining Securities
Correspondence Solicited

The C. L. Gillis Investment Company

STOCKS AND BONDS

Member of Spokane Stock Exchange

Ground Floor, Hutton Block

SPOKANE, WASHINGTON

UNITED COPPER STOCK SPECIALISTS

Up-to-date **INFORMATION** on all Northwest Mining Securities
Correspondence Solicited

W. S. HAWLEY & SON, Inc.

MEMBERS SPOKANE STOCK EXCHANGE

INVESTMENT BROKERS

STOCKS—BONDS—LOANS

We examine and report on mines and mining companies for stockholders and prospective investors.

Correspondence solicited.

Reference: Fidelity National Bank.

Address: 614-15 Hutton Bldg.

SPOKANE, WASH.

CHESTER H. HARVEY COMPANY

Members
Spokane Stock
Exchange

INVESTMENT SECURITIES

818 Paulsen Bldg.,
SPOKANE
WASH.

BROKERAGE DEPARTMENT

We maintain a complete financial service, featuring prompt, accurate execution of orders on a strictly commission basis. Reliable information and quotations on all listed and unlisted stocks furnished on request.

We guarantee prompt delivery.



H. B. DEVELOPMENT COMPANY

Incorporated

Owners and operators of producing metal mines. We invite inquiries from those interested in acquiring promising properties, either partially developed or ready to ship.

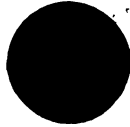
Mines bought and sold.

CODES

Glough's, Western Union

We offer to Brokers a special service on Coeur d'Alene and British Columbia stocks. Write us for information regarding this department.

ON THE



**ASSURING FIRST-HAND, RELIABLE
INFORMATION REGARDING MINING
PROPERTIES AND CONDITIONS IN
THE COEUR D'ALENES**

**HARRY C. McALLISTER CO.
MINING BROKERS
WALLACE, IDAHO**

**WILLIAM A. NICHOLLS
BANKER AND BROKER**

Member Spokane Stock Exchange

Washington State Bankers' Association

701-3 Old National Bank Building

SPOKANE, WASH.

Reliable information from a qualified source regarding the merit of stocks and mining properties is essential in order to secure the best results for the investor.

I have been successfully engaged in stock brokerage business for the past twenty-two years and in the operation of mining properties during a greater part of that time, which experience makes it possible for me to render valuable assistance by furnishing impartial information relative to the speculative and investment value of mining issues in this section of the country. I have close connections in the principal investment centers and excellent facilities for assisting in the development of properties of proven merit. Inquiries will receive prompt and careful attention and I will be pleased to execute orders, buying or selling, at the market.

Codes:

Bedford-McNeil
Western Union

Reference:

Wallace Bank &
Trust Co.**WHELAN & MORTIMER****MINING AND INVESTMENTS****WALLACE, IDAHO**

We are in position to handle your orders in COEUR D'ALENE issues promptly and intelligently, as we are located in the heart of this rich and growing district. We know conditions and are equipped to execute your buying or selling orders without prejudice.

CORRESPONDENCE SOLICITED**W. H. McNUTT****STOCKS AND BONDS**

Member Spokane Stock Exchange

303 Rookery Bldg.
Spokane, Washington**INFORMATION ON ALL NORTHWEST MINING SECURITIES**

Correspondence Solicited

Codes: Clough's and Western Union.

THE O. A. OLIN CO.

(Capital \$50,000.00)

**MINING STOCK and
Insurance Brokers****WALLACE, IDAHO****Members of the Wallace Stock Exchange**

We Are Located in the Heart of the Coeur d'Alene Mining District, and
Have Been for Twenty Years.

All Orders and Inquiries Given Prompt Attention.

Codes: Bedford-McNeil, Western Union, Clough's

Twenty-Five Years' Experience



We have had twenty-five years' experience in Mining Districts of the West—from Alaska to Old Mexico.

Our knowledge of the Coeur d'Alenes, British Columbia and other prolific sections of the Northwest, dates back to the days when they were in their infancy.

We believe we are capable of giving you advice that will guide you to make intelligent mining investments, but, unlike many other brokers, we do not guarantee that we are infallible.

We will give you honest advice, based upon first-hand facts. No broker can do more.

We are always in the market for mining property of merit and have extraordinary facilities for bringing such investments to the attention of capital.

We are members of the Spokane Stock Exchange and execute all orders under its rules and scale of commissions.

We respectfully refer to Fidelity National Bank, Spokane, for information as to our standing.

Your correspondence and orders solicited.



S. Norman & Co.

(Member Spokane Stock Exchange)

Mining Investments

Suite 612-14 Mohawk Bldg.

Phone Main 2967

SPOKANE, WASHINGTON

Mining Men Get.... MARTINized

Quality Service

WHEN M-ART-IN
MAKES THE PICTURE
IT'S THE ACCEPTED
STANDARD OF
PHOTOGRAPHIC PERFECTION

It's worth while

The Leading Men

WHEN THEY WANT THE BEST IN PORTRAITS GO TO THE
STUDIO OF MARTIN, PHOTOGRAPHER. THEY KNOW THAT
A MARTIN-MADE PORTRAIT IS

A Faithful Mirror Reflection

A PERFECT LIKENESS—PLEASING IN BOTH POSE AND EXPRESSION
IT'S YOURSELF, LOOKING EXACTLY AS YOUR FRIENDS
KNOW YOU BEST

M-ART-IN, YOUR PROFESSIONAL PHOTOGRAPHER, HAS THE HAPPY
KNACK FOR MAKING EXCEPTIONALLY FINE PORTRAITS
OF PARTICULAR PEOPLE

STUDIO

ON THE LEVEL

AT PICTURE CORNER
HOWARD STREET AT FIRST AVE.
ADJOINING HIPPODROME
THEATRE

ASK ANYBODY—EVERYBODY KNOWS MARTIN

SEE OUR **Flashing Electric Signs** At Our Double Store
Location On Picture Corner
"ART" IN MARTIN—"DON'T LET YOUR FACE DIE WITH YOU"
AND "KEEP YOUR FACE ALIVE"

VISIT OUR STUDIO ::: Cheerful Young Ladies Will Explain the Work
Come in, Look Over Our Assortment of More Than 2000 Sample Portraits
Every Picture marked plainly with a price—so that you know you are paying
no more than your neighbors and they no more than you.

Picture Framing

Splendid Assortment of Fine Mouldings.

Special Attention Paid to the Framing of Pictures for Offices and Homes.

Get Our Prices

Phone MAIN 6861

Commercial Pictures

Most Complete Photographic Equipment Owned in This Northwest Country—A Lense and Camera for Every Known Purpose—We Are Prepared to Photograph Anything the Eye Can See or Mind Desire—In or Out of City

MOVING PICTURES Made of ANY Subject
Projection Qualities Guaranteed.

THE HUME, NELSON, B. C.

GEORGE BENWELL, Proprietor
 European Plan Rooms, \$1.00 and upwards
CAFE, A LA CARTE AND TABLE D'HOTE
 Cafe service is unexcelled and charges are the most reasonable in the interior of British Columbia.
 We Are Headquarters for Mining Men, Tourists and Commercial Travelers
 Cordial service is our motto and we solicit your patronage.
MINING MEN: We have show cases containing specimen samples and exhibits from the district mines. If you desire any information call us up. Our time is at your disposal.
 Stay at the Hume and You Will Enjoy Your Visit to Nelson.



MUSCOVITE MICA MINING CO.

Miners and Manufacturers of

Mica Products

MINES NEAR AVON, IDAHO

GEO. H. DOERR, Gen Manager

Offices: 717 Riverside Ave.

Factory: 728 E. Sprague Ave.

SPOKANE, WASH.

BUNKER HILL PIG LEAD

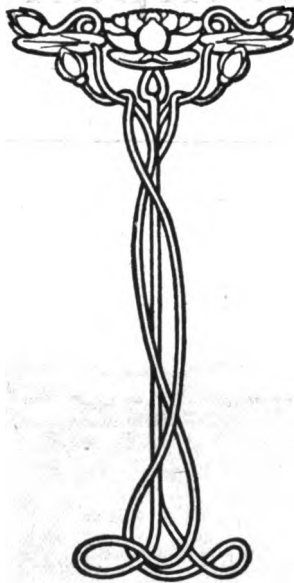


PRODUCED BY THE

Bunker Hill Smelter
KELLOGG, IDAHO

Office: Crocker Building, San Francisco, Cal.

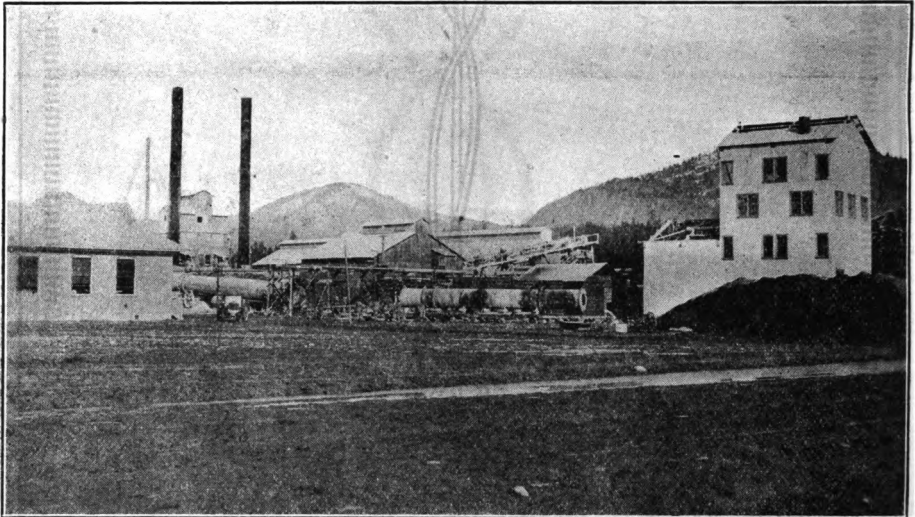
HECLA MINING COMPANY



Wallace, Idaho

Mines at Burke
Idaho

ANNOUNCEMENT
**Northwest Magnesite
Company**



CALCINING PLANT, CHEWELAH, WASHINGTON

Producers and Manufacturers
MAGNESITE

CHEWELAH,

WASHINGTON

Armstrong's Library

THE publisher of Northwest Mines Handbook is able to announce that, by arrangement made with Mr. L. K. Armstrong, E. M., of Spokane, and through his courtesy, subscribers will have access to his splendid mining library.

The collection, which is arranged in Mr. Armstrong's offices in the Peyton building, includes

4500 brochures covering every state in the Union, Yukon, British Guiana, Canada, New South Wales, New Zealand, Philippines, Queensland, and Western Australia.

240 text books and specials

10 leading serial publications

16 scientific publications

60 miscellaneous

14 papers on administration of public lands

45 special works on various phases of mineralogy, metallurgy and mining law

20 forestry publications and hundreds of other publications of general interest to the mining industry.

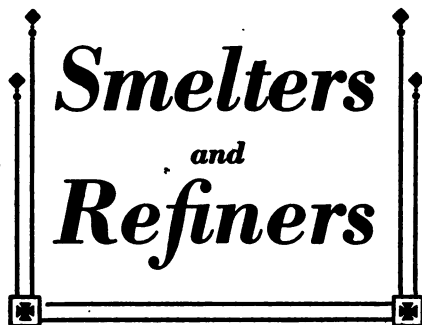
The only requisites to use of this, the most complete mining library in the Northwest, are an introduction from the publisher of Northwest Mines Handbook and the understanding that no publication shall be taken from Mr. Armstrong's office.

Almost any subject connected with the mining industry is completely covered by a reference library without equal in the West, collected by laborious effort covering over quarter of a century.

The Consolidated Mining & Smelting Company of Canada, Limited

Offices, Smelting and Refining Department

TRAIL, BRITISH COLUMBIA



*Purchasers of Gold, Silver, Copper
Lead and Zinc Ores*

*"TADANAC" Brand Pig Lead Bluestone,
Spelter and Copper*

NORTHWEST

Mining Truth

Mining Truth is the only publication of its kind in the world.

Mining Truth is the only mining periodical published in the Northwest—embracing districts that produced nearly \$100,000,000 of new wealth last year and paid \$13,000,000 in dividends.

Mining Truth is just what its name implies—it gives plain facts about mining matters and it treats its subject in a way that carries complete understanding to untechnical readers.

Mining Truth believes in a "square deal" for the investing public and uses its influence to stop the tainted efforts of the get-rich-quick.

Mining Truth is not an indiscriminate "booster"—although it boosts the proposition of poor and rich alike, if the proposition itself is legitimate.

Mining Truth particularly appeals to stockholders of Northwest corporations.

Mining Truth keeps the most complete set of files in the Northwest and imparts facts to subscribers at any time.

Mining Truth should be in the hands of everyone interested in Northwest mines.

Mining Truth is worth more, but its subscription price is \$3.00 per annum—sent anywhere.

MINING TRUTH PUBLISHING CO.

Mohawk Building

SPOKANE, WASH.

Consolidated Interstate Callahan Mining Co.

*Producers of
Zinc and
Lead*

*Mines at Interstate, Shoshone County
Idaho*

*Main Office, 61 Broadway
New York City*

MINING PRINTING

in books of from 25 to 1000 certificates, from \$4.50 to \$27.50; corporate seals, \$3.00; corporate records, journals, ledgers, minute books, cash books, assessment records, time check books, quartz and placer location blanks, 40c a dozen; mining deeds, proxy blanks, pay rolls, 40c and 75c a dozen. Printed and embossed letterheads, envelopes and prospectuses. Lithographed bonds. Complete stationery and office outfitting. Catalogues and prices on request.



Exceptional Opportunities
Offered
Manufacturing Plants
to
Locate In Spokane

A market right at your door with a distributive territory of 150,000 square miles and a population of 800,000.

Five transcontinental railways---Complete network of feeders---546 towns and cities within reach.

Gigantic Water Power.

Already harnessed. Delivered to you at fair rates.

Operate the Year Round.

Factories never close on account of weather conditions. The annual normal temperature is 48 degrees, with a low monthly normal of 27 degrees and a high monthly normal of 69 degrees.

Fair Freight Rates.

On March 15th, 1918, Spokane won a 30-year fight for just freight rates. On that date the interstate commerce commission ordered that rates to Spokane should be on a parity with those of the coast cities. This has resulted in a prompt and substantial increase in manufacturing activities.

**State Industrial Insurance Law Protects You
From Excessive Damage Claims.**

The Spokane Chamber of Commerce has compiled full data on every phase of manufacturing suitable for this section. This information is yours for the asking. We will not encourage you to come here unless we are confident your business will be successful.

Spokane Chamber of Commerce

Northwest Mines Handbook



The Standard Reference Work of the Great
Northwest, which produced \$100,000,000 in
New Wealth last year and paid \$13,000,000
===== in dividends =====



Price \$5.00

including delivery.



This work will henceforth be issued annually and will improve as its preparation becomes systematized and mining operators more thoroughly understand its value to their industry.

As an all-the-year-round advertising medium it has no equal in this field.

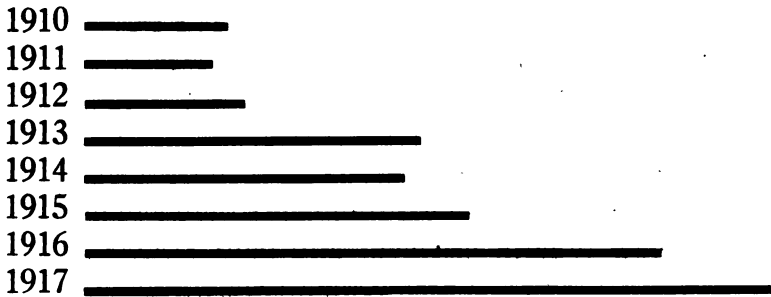
According to present arrangements, Volume No. 2 will be published April 1, 1919.

I ask the support of all mining machinery and supply houses wishing to get into direct, all-the-time connection with this great buying field.



SIDNEY NORMAN, Publisher
Mohawk Building, SPOKANE, WASH

Oregon's Metal Production for Past Eight Years



Oregon's 1917 Metal Production totalled \$3,600,000.

The Oregon Bureau of Mines and Geology Invites you to consider Oregon

Study its resources in copper, gold, silver, lead, antimony, quicksilver, tungsten and chromium.

Look at the chart of Production above and then write to the Bureau for more information.

It will be given without prejudice by competent engineers, employed by the State.

Its publications are true to the point and unexcelled. They are free.

A good mining state wants more good mining men in it.



The Oregon Bureau of Mines and Geology

417 OREGON BLDG.

PORTLAND, ORE.

A Mining School in a Mining State

THE
Idaho School of Mines

Is an Integral Part of the

University
of Idaho

AT

MOSCOW



Situated in the center of the most richly diversified mineral region of the West, it offers opportunity in a liberally cultural atmosphere for the acquisition of a thoroughly technical education in Geology, Mining and Metallurgy.



The School of Mines maintains one of the most complete testing laboratories in the West, the use of which is available for properly qualified persons who desire to do their own ore-testing.



For further particulars address:

FRANCIS A. THOMSON
DEAN

State College of Washington

School of Mines

Offers a

Four-Year Course in

Mining and Metallurgy

Leading to the
Degree of Bachelor of Science
in

Mining Engineering

For full information address

L. O. Howard
Dean, School of Mines
Pullman, Wash.

Department of Geology

Offers a

Four-Year Course in

GEOLOGY

Leading to the
Degree of Bachelor of Science
in

Geology

For full information address

Solon Shedd
Pullman, Wash.

The Winter School of Mines

**A Twelve-Weeks' Course in Mining, Metallurgy
Geology, Mineralogy, Chemistry
Assaying and Surveying**

For the
Miner and Prospector

**Address, DEAN OF THE SCHOOL OF MINES
Pullman, Washington**

"WE KNOW THE STOVE REPAIR BUSINESS"

**We Give Prompt
Attention to
Mail Orders**

Send Us Your
ORDERS FOR

STOVE REPAIRS

WE CARRY A COMPLETE STOCK FOR ALL MAKES AND WELD BROKEN CASTINGS

MYER S. RUBENS
STOVE & FURNACE REPAIR WORKS

1009 W. FIRST AVE., SPOKANE, WASH.

15 Years Experience
Filling Mail Orders
for Stove and
Hotel Range Repairs
in Spokane

Montana Gold Mine for Sale or Lease

This mine was formerly known as the Garnett Gold Mine, but now is operated as the Pony Mining and Milling Company and the title is held in that name. Property consists of 19 patented claims, all in one group. All of the claims are patented, and there are no encumbrances whatever on same. The property is at Pony, Montana, and known as the Mineral Hill, and is two and a half miles in a westerly direction from the railroad depot; a good county road leads up to the mine. Two men working last winter took out \$8,000 of gold. There is one lead five feet wide—galena ore. The mine is well equipped with facilities, tools, ore cars, etc. The motor that supplies the mine with electric light is run by water power. Blacksmith shop is at the mouth of the tunnel, office building near by, assay building all equipped with tools, powder magazine, and various other buildings, all in good shape. 50-horse power air compressors in the mill, which supply mine with air, and in the mine is a hoist 50-horse power, and a pump to draw water out of the winze, 100 feet below. A 20-stamp mill with crusher; 4 tables, six vanners, one warehouse 5 feet from the mill with large platform on the outside. Mill is run by water power. I also own patented water rights. Ore has run from \$5.00 to \$75 or \$80 per ton.

Will sell at a sacrifice, or lease or bond to a responsible company. Correspondence solicited. **OLE PETERSEN, Owner** 4522 Holly Ave., St. Louis, Mo.



THE
IMPRINT
OF
QUALITY

The Inland-American Printing Co.

THIRD AVENUE AND BROWNE STREET

SPOKANE

Mining and Engineering Record

Established 1895

An Illustrated Magazine, descriptive of
Mineral Resources, Development, Produc-
tion, Engineering and Electrical Progress

SUBSCRIPTION RATES:

Canada and Great Britain, \$3.00 per annum, including postage.
Other Countries, \$3.50 per annum, including postage
Payable in Advance
Single Copies, 20 Cents

PUBLISHED FORTNIGHTLY

Office: 303 World Building

Vancouver, B. C.

CXL EXPLOSIVES

Forcite fumes minimum, force maximum.

Orders solicited and cared for.

Results assured.

Can be used in wet or dry work.

Insist on Forcite for hard rock work.

Tamping bags facilitate tamping, use CXL bags.

Efficiency and "Forcite" go together.

DISTRICT OFFICES:

NOVA SCOTIA	-----	Halifax
QUEBEC	-----	Montreal
ONTARIO	-----	Toronto, Cobalt, Timmins, Sudbury, Ottawa
MANITOBA	-----	Winnipeg
ALBERTA	-----	Edmonton
BRITISH COLUMBIA	-----	Vancouver, Victoria, Nelson, Prince Rupert

Head Office: MONTREAL, P. Q. **CANADIAN EXPLOSIVES CO., Ltd.** Main W. Office: VICTORIA, B. C.

Factories at

Belotel, P. Q.
Waverley, N. S.
Northfield, B. C.

Vaudreuil, P. Q.
James Island, B. C.
Bowen Island, B. C.

Windsor Mills, P. Q.
Nanaimo, B. C.
Farry Sound, Ont.