History of the Idaho Continental Mine, Boundary County, Idaho

Victoria E. Mitchell

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
Moscow, Idaho 83844-3014
History of the Idaho Continental Mine, Boundary County, Idaho

Victoria E. Mitchell

Staff reports present timely information for public distribution. This publication may not conform to the agency's standards.

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
Moscow, Idaho 83844-3014

Staff Report 00-5
May 2000
CONTENTS

Introductory Note ................................................. ix

History of the Idaho Continental Mine, Boundary County, Idaho ............... 1

References .......................................................... 111

ILLUSTRATIONS

Figure 1. Location of the Idaho Continental Mine, showing access roads (U.S. Forest Service Panhandle National Forests (Kaniksu National Forest) map, scale 1:126,720). .............................................. 2

Figure 2. Topographic map of the Idaho Continental Mine, Upper Priest Lake, and the upper end of Priest Lake (Idaho Transportation Department Bonners Ferry, Idaho-Montana, 1:100,000-scale metric topographic map). .............. 3

Figure 3. Topographic map of the Idaho Continental Mine (U.S. Geological Survey Continental Mtn., Idaho-B.C., 7.5-minute topographic map). ............. 4

Figure 4. Geologic map of the Idaho Continental Mine and vicinity (Miller, 1982). .... 5

Figure 5. Regional geology of the area near the Idaho Continental Mine (Green, 1974, Figure 1). ................................................................. 7

Figure 6. Idealized cross-section of the Red orebody at the Idaho Continental Mine (Green, 1974, Figure 2). ......................................................... 8

Figure 7. Geology of Boundary County near the Idaho Continental Mine (Kirkham and Ellis, Plate III). ......................................................... 11

Figure 8. Workings of the Idaho Continental Mine (Kirkham and Ellis, 1926, Plate XIII). .......................................................... 12

Figure 9. An open stope at the Idaho Continental Mine, showing the inclination and width of the ore shoot (Kirkham and Ellis, 1926, Plate XI) ............... 16

iii
Figure 10. Potential water-power site 3 miles from the Idaho Continental Mine (Bell, R.N., 1912, Thirteenth Annual Report of the Mining Industry of Idaho for the Year 1911, opposite p. 25). ........................................... 39

Figure 11. Two views of the 200-tons-per-day mill and the mine camp of the Idaho Continental Mine (Bell, R.N., 1913, Fifteenth Annual Report of the Mining Industry of Idaho for the Year 1913, p. 108). ........................................... 41

Figure 12. Idaho Continental Mine and mill (c. 1917; Bell, R.N., 1918, Nineteenth Annual Report of the Mining Industry of Idaho for the Year 1917, p. 33). ............ 46

Figure 13. Idaho Continental Mill (c. 1913; Bell, R.N., 1919, Twentieth Annual Report of the Mining Industry of Idaho for the Year 1918, p. 57). ...................... 49

Figure 14. Plan and section of the Idaho Continental mine (c. 1918; Bell, R.N., 1919, Twentieth Annual Report of the Mining Industry of Idaho for the Year 1918, p. 59). ........................................... 50

Figure 15. Plan and section of the Idaho Continental Mine (Lancaster, 1926, Idaho Geological Survey mineral property files). .................................................... 62

Figure 16. Plan of the Idaho Continental Mine (Gammell, 1946, Figure 3). ...................... 67

Figure 17. Longitudinal section of the Idaho Continental Mine (Gammell, 1946, Figure 4). ................................................................. 68

Figure 18. Cross-section looking northeast at the Idaho Continental Mine (Gammell, 1946, Figure 5). .............................................. 69

Figure 19. Cross-section looking southwest at the Idaho Continental Mine (Gammell, 1946, Figure 6). .............................................. 70

Figure 20. Cross-section projected from outcrops, looking northeast from the southwest end of the Continental ore zone at the Idaho Continental Mine (Gammell, 1946, Figure 7) .............................................. 71

Figure 21. Reconnaissance sketch map of the Idaho Continental Mine and vicinity (Bracken, 1959). .................................................. 79

Figure 22. No. 5 adit in June 1985 (photograph by Charles R. Gruenenfelder). ............... 83

iv
Figure 23. Oxidized, water-saturated tailings supporting a stand of *Equisetum*
(photograph by Charles R. Gruenenfelder). 84

Figure 24. General features of the Idaho Continental Mine site, showing surface
structures and surface variations in mineral wastes (Gruenenfelder, 1987,
Figure 6). 85

Figure 25. Debris-clogged channel of Blue Joe Creek in 1985, looking upstream
from the middle of the tailings area (photograph by Charles R.
Gruenenfelder). 86

Figure 26. Idaho Continental tailings piles in September 1985, looking upstream
(photograph by Charles R. Gruenenfelder). 87

Figure 27. Idaho Continental mine and tailings piles in August 1985, looking west
from the road (photograph by Charles R. Gruenenfelder). 88

Figure 28. Tailings piles at the Idaho Continental Mine (photograph by Charles R.
Gruenenfelder). 89

Figure 29. Tailings piles at the Idaho Continental Mine in July 1985, looking
downstream (photograph by Charles R. Gruenenfelder). 90

Figure 30. Blue Joe Creek and the Idaho Continental tailings piles in 1984 or 1985,
looking downstream (photograph by Charles R. Gruenenfelder). 91

Figure 31. Fine-grained flotation tailings piles at the Idaho Continental Mine
(photograph by Charles R. Gruenenfelder). 92

Figure 32. Reworked jig tailings at the side of Blue Joe Creek about 4 miles below
the Idaho Continental Mine (Idaho Geological Survey photograph by Earl
H. Bennett). 93

Figure 33. Drainage channel from the No. 5 Adit at the Idaho Continental tailings
piles in the fall of 1996, looking uphill toward the adit (photograph by
Charles R. Gruenenfelder). 95

Figure 34. The Idaho Continental tailings piles in the fall of 1996, looking
upstream (photograph by Charles R. Gruenenfelder). 96

Figure 35. The Idaho Continental tailings piles in the fall of 1996, looking
downstream from the middle of the tailings area (photograph by Charles R.
Gruenenfelder). 97
Figure 47. Power shack just north of the No. 5 level adit at the Idaho Continental Mine in July 1998 (Idaho Geological Survey photograph by Earl H. Bennett). ................................................................. 109

Figure 48. Ore bin, ore pile, and power shack at the Idaho Continental Mine in July 1998, with the open pit in the background (Idaho Geological Survey photograph by Earl H. Bennett). ......................................................... 110

**TABLES**

Table 1. Companies and individuals operating at the Idaho Continental Mine. ........ 31

Table 2. Development work, number of men employed, and operating companies at the Idaho Continental Mine, by year. ................................................................. 43

Table 3. Cumulative development at the Idaho Continental Mine, by year. .............. 48

Table 4. Mine output and economic data for the Idaho Continental Mine for selected years, 1919-1923. ................................................................. 52
INTRODUCTORY NOTE

This report was prepared under a cooperative agreement with the U.S. Forest Service, Region I, as part of a project to identify and describe inactive and abandoned mines in Idaho. Work on this project included preparing detailed histories of mines in Region I that had significant recorded production. The information in this report is from a number of published and unpublished sources in the Idaho Geological Survey's mineral property files. Where not otherwise noted, most of the mine production data is drawn from the U.S. Geological Survey's (USGS) annual volumes on *Mineral Resources of the United States* (1882-1923) and the equivalent volumes produced by the U.S. Bureau of Mines (USBM), *Mineral Resources of the United States*, 1924-1931, and *Minerals Yearbook*, 1932 to present. Information on underground workings and mine equipment is generally from the annual reports of the Idaho Inspector of Mines (IMIR) published from 1899 to 1979. After 1974, the Mine Inspector's office was known as the Mine Safety Bureau, a section of the Idaho Department of Labor and Industrial Services. Detailed accounts of mine operations are, for the most part, drawn from the annual reports prepared by the companies for the State Inspector of Mines; these reports were required by law, and the information contained in them formed the basis of the Mine Inspector's annual reports. Reports of recent developments are taken from the Idaho Geological Survey's (IGS) annual reports on the developments in mining and minerals in Idaho (from 1984 to present) or from similar reports produced by the Survey's predecessor, the Idaho Bureau of Mines and Geology (IBMG) from 1975 to 1984. Other published sources are referenced in the text. A complete bibliography is included at the end of the report. Where direct quotations are taken from source materials, the original spelling and grammar are preserved even in cases where they do not conform to currently accepted usage.
History of the Idaho Continental Mine, Boundary County, Idaho

Victoria E. Mitchell

The Idaho Continental Mine is on the crest of the Selkirk Range in northwestern Boundary County about 20 miles west-southwest from Porthill, Idaho. During the period when the mine was active, access was along the 25-mile-long Boundary Creek road (which runs partially through Canada) from Porthill. At present, the mine can be reached by crossing the Kootenai River at Copeland, following U.S. Forest Service roads to the 1009 road to Grass Creek, taking the 636 road to Boundary Creek, and following the Boundary Creek road to Road 2546, which runs up Blue Joe Creek to the mine. Ownership of the Boundary Creek road was in dispute between the U.S. Forest Service, Boundary County, and the mine’s owners when the Idaho Geological Survey visited the site in August 1998. Most of the mine workings are in T. 64 N., R. 4 W., sec. 6, but the patented claims and some of the workings extend into adjacent sections (Figures 1, 2, and 3). Elevations at the mine range from 6,160 to about 5,100 feet (Figure 3).

The mine is a lead-silver deposit hosted in metamorphosed sedimentary rocks of the Precambrian Wallace Formation (Miller, 1982; Figure 4). Most sources describe the deposit as a replacement vein, but some suggest that the mine may be a remobilized stratiform deposit (Kauffman, 1976). Green (1974) described the geology of the deposit as follows (p. 7-13):

1Idaho Geological Survey, Main Office at Moscow, University of Idaho, Moscow.
Figure 1. Location of the Idaho Continental Mine, showing access roads (U.S. Forest Service Panhandle National Forests (Kaniksu National Forest) map, scale 1:126,720). Note the outline of the patented claim block.
Figure 2. Topographic map of the Idaho Continental Mine, Upper Priest Lake, and the upper end of Priest Lake (Idaho Transportation Department Bonners Ferry, Idaho-Montana, 1:100,000-scale metric topographic map). The contour interval is 50 meters.
Figure 3. Topographic map of the Idaho Continental Mine (U.S. Geological Survey Continental Mtn., Idaho-B.C., 7.5-minute topographic map).
Figure 4. Geologic map of the Idaho Continental Mine and vicinity (Miller, 1982).
Precambrian Belt Supergroup: Yp — Prichard Formation; Yr — Ravalli Group, undivided; Wallace Formation: Ywcs — calc-silicate rock; Ywc₁ — lower carbonate; Ywa₁ — lower argillite; Ywc₂ — upper carbonate; Ywa₂ — upper argillite. Kc — Cretaceous tonalite of Continental Mountain; Tt — Tertiary quartz monzonite of Trapper Peak; Qag — Quaternary glacial and alluvial material. Heavy lines are faults — dashed where approximately located, dotted where concealed, queried where uncertain.
The Idaho Continental Mine is located in metamorphic rocks related to the Belt Supergroup of Precambrian age. Recent field mapping by the Idaho Bureau of Mines and Geology has indicated that the Wallace, St. Regis, and Revett Formations crop out within the boundary of the property. These rocks exhibit a higher degree of metamorphism than they normally display, commonly consisting of schist and quartzite.

The relationship between the direction of bedding and schistosity has not been studied in detail, but it is thought to vary in attitude and direction. Over much of the property the bedding and schistosity are nearly parallel, uniformly striking approximately N 40°E and dipping at a steep angle. Locally the rocks are sometimes crenulated, especially in the vicinity of the Idaho Continental orebody.

Near the northeastern end of the property, the metamorphic rocks are in contact with the Staggerin Granodiorite which is reported to have a dated age somewhat less than the Kimiksu batholith (Cretaceous) located several miles to the southeast. In addition, small stocks of diorite having an inferred Tertiary age are found along Blue Joe Creek one mile to the northeast and at Trapper Peak, two miles to the south of the property. Mafic dikes have been reported in the underground workings and have been noted at several places on the surface in the immediate vicinity of the property.

The Idaho Continental Mine lies near a major structural intersection comprised of two faults, both of which have a regional extent, and which strike northwesterly and northeasterly respectively (Figure 1 [Figure 5]). The Trapper Peak Fault strikes N 40°W and has been traced for more than 50 miles to the south where it is thought to become part of the Hope fault system. This fault exhibits left-lateral displacement of at least several hundred feet in the vicinity of the property. The Blue Joe Fault forms the other half of the intersection striking N 25°E. This fault has been traced for at least 10 miles to the northeast, but terminated against the Trapper Peak fault near the property. Small intrusive bodies thought to be Tertiary in age occur along both sets of intersecting faults.

Several branches from the Trapper Peak Fault parallel it on the east and cut the Idaho Continental orebody. Horizontal displacements along these fractures do not appear to be great, but may have dip-slip components. Kink folding is common in the vicinity of the orebody, but its direction and attitude has not been measured or recorded.

Mineralization at the Idaho Continental Mine as contained in the Red and Black orebodies. These two zones, strike approximately N 45°E, dip to the northwest, and parallel each other about 100 feet apart. Both orebodies are lensoid in cross section and have a modest vertical dimension in comparison to their strike length. The mineralized zones both rake to the northeast from 10° to 25°. The Red, or northwestern orebody, attained a maximum width of 30 feet, had a rake length of 3200 feet, and a maximum down-dip dimension of 350 feet. The Black, or southeastern orebody, attained a maximum width of 10 feet, had a rake length of 1600 feet, and a down-dip dimension of 400 feet. Both schist and quartzite are reported to be hosts for the mineralization.

The ore zones consisted of a composite of stringers, bands, and bunches of sulphide minerals which individually attained maximum thicknesses of several feet. It is reported that the highest grade areas occurred along the edges of each zone, and were generally separated by lower grade material. The sulphide minerals roughly parallel the schistosity and bedding in strike. With depth, although the sulphides follow schistosity locally, they are reported to be arranged in an overlapping or en echelon configuration on a broader scale. The net effect of this pattern is to give both ore deposits dips of 90° to 60° to the northwest, definitely discordant to schistosity (bedding?). It has been suggested that this orientation is caused because the mineralization is localized along folds in the bedding (schistosity?) such as shown in Figure 2 [Figure 6].
Figure 5. Regional geology of the area near the Idaho Continental Mine (Green, 1974, Figure 1). Note the differences between this map and Figure 4.
Figure 6. Idealized cross-section of the Red orebody at the Idaho Continental Mine (Green, 1974, Figure 2).
Both mineralized zones display an abrupt termination at depth, having a linear or keel-like lower edge. Where not removed by erosion, both orebodies appear to have the same type of upper extremity. This configuration results in a considerable portion of the Black orebody not being exposed at the surface because of its rake. It is reported that some pyrite continues both above and below the mineralized zones indicating their linear extremities are not caused by faults.

Several small showings of sulphide minerals exposed at the surface appear to be discordant to bedding and schistosity. These occurrences [sic] may possibly be explained by remobilization due to post-mineralization metamorphic events.

Argentiferous galena and lesser amounts of pyrite have been by far the most abundant sulphides contained in the orebodies. In addition, minor amounts of sphalerite and chalcopyrite have been noted. Gangue minerals consisted primarily of siderite and lesser amounts of quartz. It is reported that the Black orebody contained more sphalerite, pyrite, and siderite than the Red orebody. The grain size of sulphide minerals is variable, although galena shows a tendency to be usually coarse-grained.

Lead and silver are the chief economic constituents of the mineralization. The lead-silver ratio (%:oz) is fairly uniform, throughout the property, averaging approximately 2.5:1. Total production figures for the property give a calculated average grade of 5.5 percent lead and 2.33 ounces of silver to the ton. These figures are probably low because of poor recovery rates in the early days and the fact that over 10 percent of the production consisted of reworked tailings. A significant amount of gold was produced in the early day operations, with the average grade for 1914 to 1921 being about 0.07 oz. to the ton. However, smelter statements for recent shipments show only negligible values. Zinc values appear to be quite subordinate to lead, but may be variable within the deposits. Apparently no attempt was made to recover zinc in the early days with all recorded production resulting from 1943 to 1955. Recent smelter shipments of hand-sorted material have averaged several percent zinc. Some copper production was recorded in early day operations, but little copper mineralization can now be observed. Recent smelter shipments of hand-sorted material have assayed from 0.1 to 0.4 percent copper.

The host rocks surrounding the orebodies at the surface have been described as a zone of red-banded, iron-stained quartzite and schist. This zone surrounds both orebodies, is about 150 feet wide, and consists of a bleached zone containing abundant sericite and some limonite staining. Although the sulphides contained in the orebody show very little oxidation, the bleached zone surrounding them appears to be more of a supergene phenomenon than a pervasive alteration.

Kirkham and Ellis (1926) described the geology and occurrence of the orebodies in more detail and speculated on their origin (p. 52-56):

The Idaho Continental Mine in Sec. 5, T. 64 N., R. 4 W., lies 25 miles southwest of Port Hill and may be reached by a good auto road. After crossing the Kootenai River at Port Hill by ferry, the road crosses the International Boundary line twice before it reaches its destination. The ore is trammed across the river and loaded into cars for shipment on the Great Northern Railway.

The property is situated on the crest of the Selkirk Range in the northern part of Boundary County.

The vein, where first discovered, was a brilliant exposure of unvarnished and unoxidized galena ore on the actual drainage divide of the range where relatively recent scalping by continental mountain-riding ice sheets had revealed it, with some interruptions, for
a length of approximately 3000 feet. The valley, cut by Blue Joe Creek, runs almost north and consequently the outcrop which strikes in a northeasterly direction, travels down the side of the glaciated valley almost to the bottom. This makes it possible to enter the vein by adit tunnels in the valley bottom at a depth approximately 500 feet below the original discovery.

The relationship of the ore shoots to the roof-pendant and cupolas of the underlying batholith is almost an ideal one to illustrate the embetholithic stage of Emmons. The rock in which the deposit occurs is a part of the Belt series referred to the Creston-Ravalili group and lithologically it much resembles the Burke formation of the Coeur d’Alene mining district. The Belt rocks occur here as a pseudo-roof-pendant which is flanked on the south by the main granodiorite mass of the Selkirk batholith and on the west and northeast by cupolas of this batholith which are respectively five and two miles in diameter. The presumably wedge-shaped pendant is about two miles across at its narrower part and its long axis strikes about 40° east of north and extends for several miles. A small cupola splits it into a Y-shaped body on the northeast where the body of invaded rock narrows to a mile and one-half on either limb of the Y. (See Pl. Ill, in pocket [Figure 7].) The ore body which parallels the long axis of the roof pendant lies about three-fourths of a mile from the surface outcrops of the two cupolas and about one and one-quarter miles from the main batholith to the south. An idealized sketch of the relationship is presented in figure D on plate XIII, in pocket [Figure 8]. Batholiths are characteristically steep sided and so also are their outlying cupolas. Roof-pendants between cupolas and batholiths are generally conceded to have a depth as great or perhaps two-thirds as great as their width. This gives some idea of the possible depth to which the mineralized zone may extend. The bedding planes of the grey schists and of the light colored sericite schists and quartzites which lie adjacent to or surrounding ore are nearly vertical in places but they have been sufficiently disturbed either by folding or slipping to cause the dip to vary at other points from vertical to 75° S. E. The general strike of the beds is N. 40° E., while that of the ore body is parallel to it or nearly so. In a few places the vein strikes N. 45° E. The mineralizing solutions appear to have followed the almost vertical bedding planes. The lenses of sulphides, which make up the ore body, extend longitudinally parallel to the bedding and also parallel to the dip of the ore shoots in their vertical dimension. These lenses step over and are aligned in echelon (like shingles on a roof) both vertically and horizontally. This causes the actual strike of a line drawn through the lenses to vary about 5° from the strike of the beds and also causes a plane drawn from an upper lens to a lower one to have a flatter dip than that of the beds. The horizontal stepping is illustrated on plate XIII. [Figure 8], figure A. The vertical stepping is shown on Plate XIII. [Figure 8], figure C.

The zone that contains these lenses dips to the northwest at an angle varying from 90° to 60° and gives a stopping area often as wide as 30 feet. The zone of lenses also appears to pitch or rake to the northeast at an unusually flat angle.

Many years after the "red" or discovery vein had been blocked out, a second or "black" vein or ore body practically identical in characteristics, attitude, and mineralization, was discovered southeast of the original vein and outcropping down the hillside at a lower level. The horizontal distance between the surface outcrops of the two veins is about 100 feet. The dip and strike are practically the same in both ore bodies. These two ore bodies thus appear in an over-lapping position but have, otherwise, almost identical characteristics.

The "black" vein has a much more meager exposure at the surface and in fact is well exposed only at its southwesterly extremity and at its highest point. This is perhaps due to greater glacial erosion at that extremity. The vein is strong and wide at a short distance

---


10
Figure 7. Geology of Boundary County near the Idaho Continental Mine (Kirkham and Ellis, Plate III). Note the differences between this map and Figures 4 and 5.
underground for most of its explored length but its vertical dimension is very short as the lead ore begins suddenly at the top and ceases suddenly at the bottom of the ore body.

The flat bottom or what has been called the nearly horizontal rake of both these ore shoots has been the object of much puzzled speculation. The apparent shallowness of these veins is hard to reconcile with a stoping width of 30 feet and an exposed length of 3000 feet along the strike. Neither vein has as yet shown a vertical stoping length in the shoot of more than 400 feet.

It appears quite obvious that much of the "red" vein has been removed by glacial scalping. This, of course, could explain the apparent shallowness of the vein, were it not for the rather abrupt cessation of the ore along a nearly horizontal line. It fails to explain, however, the shallow depth of the "black" vein which has fairly well defined upper and lower limits and which fails to outcrop at the surface for much of its length and consequently could hardly have been abbreviated by ice or other erosion.

If these veins are undisturbed and lie now in much the same positions as they were deposited, it would be unique if more ore of similar nature were not found at greater depth. In much the same nature as the lenses step-over and echelon in the ore body, so also, perhaps, may the ore bodies step over for relatively greater distances and continue at greater depths. These bodies may, perhaps, be connected by thin and relatively barren cross-fractures in rocks which were not so receptive to ore deposition and which upon exploration by the drill appear discouraging. Similar bodies might, perhaps, be expected laterally to the northwest and southeast of these two veins at similar levels and also in the strike of the formation to the southwest.

Another possible explanation of the unique dimensions of the "red" and "black" veins lies in the hypothesis that the bottom of the "red" ore body is a fault plane which also forms the top of the "black" ore body. The fault plane would have a shallower dip to the northwest than either the formation or the ore and would perhaps strike along the formation or bedding planes. It would be a normal slip fault with the down-thrown side to the northwest, thus bringing the "red" segment of the vein in its over-lapping position over the truncated "black" segment.

The flat bottom of the "black" segment would of course be explained in the same manner. This theory explains the similarity of the two veins in nearly all characteristics. Little zinc appears in the "red" vein which would be the upper portion of the vein under this hypothesis but more zinc, pyrite, and siderite occur in the "black" or supposed lower segment. If a still lower segment should lie laterally to the southwest it would perhaps contain proportionately less lead and more zinc than the "black" segment. Carrying on with the same assumption a still higher segment of the "red" vein might conceivably lie to the northwest and parallel to it.

Evidence against this theory lies first, in the fact that the "black" vein lies in a dark grey schist while the "red" vein is surrounded by the light colored sericite quartzite, second, that after the lead has disappeared in the bottom of the "red" vein some iron continues with depth, and third, that some slight structural difference is said to be apparent after long study. The latter, however, was not sufficiently marked to be noted by the writers in their brief examination.

Three minor faults cut across the ore bodies and effect slight displacements. Two of these are occupied by thin basic lamprophyre dikes. All of these faults and dikes are, of course, later than the ore bodies and had no influence in their genesis or deposition. These faults all strike in a general northwesterly direction and fault A is nearly vertical while fault B dips to the northwest at an angle [angle] varying from 40 degrees to 45 degrees. Fault C dips to the northeast at a steeper angle averaging 75 degrees. The block between faults A and C has been raised in relation to the vein east and west of it. The vertical throw appears to be at least 75
feet as evidenced by displacement in the ore. This displacement, however, may have been much greater since the segment of the "red" vein found within this block has a great keel-like irregular bottom which does not tie on to the vein in its eastern and western extremities [extremities] without a considerable change in angle. (See Figure C, plate XIII [Figure 8], in pocket.)

A horizontal throw of about 60 feet to the northwest is evidenced on the west edge of the middle block as shown by outcrops. The eastern edge, on the contrary, is thrown southward about 40 feet in relation to the eastern block. The block east of fault C is relatively lower than the block west of this fault. The vertical displacement appears to be about 40 feet and the horizontal displacement results in a small offset and a slight change in direction of the veins. The probable extension of the "black" vein ore body would lie northwest of the B fault below the No. 4 tunnel and on one side or one the other of No. 5 tunnel probably to the eastward; and is logically to be explored by cross-cuts from No. 5 tunnel. Any ore body northeast of the B fault in the "black" vein would of course be downthrown proportionate to the displacement on the west.

The ore is argentiferous galena in a series of replacement deposits which are described on page 42, 43, and 48 [see below] (Plate IV., p. 41, Vein type No. 1 [omitted]).

The significance of the area of light colored sericitic quartzite surrounding the "red" vein is somewhat lessened by its failure to appear in connection with the "black" vein further to the southeast. Although the evidence for the alteration is persuasive, the difference between the veins is negligible except for the slight difference in mineralization already mentioned.

Under the heading "Replacement Ore-Bodies in Metamorphic Rocks," Kirkham and Ellis (1926) noted (p. 42-43):

The best example of the replacement type of deposit is afforded by the Idaho Continental Mine at Klockman. The country rock is sericitic quartzite of the Creston-Ravalli group. This deposit lies approximately a mile northwest of the granite batholith which forms the greater part of the Selkirk Range in Boundary County. A large granite cupola again outcrops a mile or less to the northwest and another cupola shows hardly more than half a mile to the northeast. The latter cupola, however, has a rather limited extent and is entirely surrounded by metamorphic sediments. In other words, the quartzitic area in the vicinity of the property is approximately two miles wide measured across the bedding and, as may be seen by reference to the map (Plate III. in pocket [Figure 7]), is largely in the nature of a roof- pendant. The formation strikes northeast and extends for several hundred yards.

The ore deposit was formed by a replacement which followed the bedding of the rock. In the vicinity of the "red" vein the country rock is very light colored but farther away the rock is a much darker shade of bluish-gray. This would suggest hydro-thermal or pneumatolytic action on the country rock at the time of mineralization. The bedding dips 75° to 90° southeast, thus exposing the edges of the beds on the surface and affording an excellent opportunity to note the change in the color of the country rock as one approaches the "red" ore body. Field evidence points to contact metamorphism of sericitic shales followed by pneumatolytic action accompanying ore deposition. Such action probably would take place along the slightly broken-up zone near the center or longitudinal axis of the roof- pendant. The above discussion does not apply to the "black" ore body.

Specimens of the light-colored rock accompanying the ore, and of the more distant bluish-gray rock, were studied under the microscope.

The dark rock showed a considerable amount of magnetite, some of which appeared to be titaniferous, since a small amount of leucoxene was noted. The specimens seemed to be
made up largely of sericite whose crystals showed a definite flow structure except near the magnetite. Apparently the magnetite was so hard that the crystals could not conform to the flow structure near it. The dark rock also contained a small amount of quartz and biotite mica.

The magnetite and sericite may be the result of contact metamorphism between the quartzite and the large granite intrusion. If this be the case, it is not at all unlikely that all the sedimentary rock in the vicinity of the granite is altered.

The light-colored rock from the vicinity of the ore-body contained a considerable amount of sericite which showed the same flow structure as the dark rock. The light rock also contained a small amount of quartz and no little amount of pyrite in the form of well developed crystals which were distributed throughout the mass. There seemed to be little or no magnetite or biotite. From this it would seem that hydrothermal action had accompanied ore deposition or at least followed the same course through the rock.

Of the ore, Kirkham and Ellis reported (1926, p. 48):

In 1925, lead in the form of galena was being profitably produced in only one part of the county. Silver occurs with the galena in a direct ratio of 0.35 to 0.40 of a troy ounce of silver per ton to the per cent or "unit" of lead. Pyrite and siderite are present in varying quantities. Little quartz is in evidence with the ore, and for the most part the particles of galena are coarse and easily broken along the cleavage planes. In addition, the ore contains a small amount of sphalerite. The ore occurs in the replacement type of vein and is by far the most important deposit of the district yet known. This type of deposit is best seen at the Idaho Continental Mine in the northwest corner of the county. It is not unlikely, however, that similar deposits may be opened up to the west and southwest of the Idaho Continental in similar formation.

At the Idaho Continental, the ore bodies occur in large kidneys with their axes parallel to the strike of the formation and dipping roughly parallel to the bedding (Pl. IV., p. 41 [omitted].) They also have a very flat angle of pitch to the northeast. The ore has a tendency to zigzag back and forth as it follows the various cleavage planes and cross-cracking. This "stepping-over" of the ore gives somewhat the appearance of an ore body cutting the bedding. (Pl. XIII. [Figure 8], Figs. A and C.) The size of the kidneys of ore, coupled with the fact that the formation has a very steep dip, renders the orebody readily worked by open overhand stoping. The stopes remain open for a long period after the ore has been extracted. (Pl. XI. [Figure 9], p. 61).

The Idaho Continental was discovered in 1890 (Klockmann, n.d.), and most of the original claims were patented soon after (Green, 1974). In the words of the mine's long-time owner and operator, A.K. Klockmann, Vinther (1980, p. 45-52) tells of the events following the discovery of the mine:

Soon after, on one of my trips around the lake to inspect the work being done by men on some of my mining claims in a canoe with one of the oldest Indians I had often taken with me, as he was well acquainted with every part of the lake. The Indian, knowing I was prospecting to find and develop mining claims, tried to tell me by words and signs in the direction of certain mountains to describe a large deposit of lead and kept saying Priest Lake, but with his words of broken English I could not make out what he tried to describe to me. In the meantime one of those unexpected heavy winds came up tossing our frail canoe in all directions, but while the old Indian handled it in a masterly manner I confess I was rather scared and forgot all about mines just praying up to get to shore again alive.
Figure 9. An open stope at the Idaho Continental Mine, showing the inclination and width of the ore shoot (Kirkham and Ellis, 1926, Plate XI).
On coming back to Sandpoint I called on a halfbreed I knew who spoke both languages fluently and asked him to find out what the old Indian had meant to tell me about lead and Priest Lake. After talking to the old warrior at length the halfbreed told me an interesting and evidently true story. He said, that for generations Priest Lake had been the Indians’ favorite hunting and fishing grounds, and that after the Hudson Bay Company had sold them rifles, they had gotten the lead for their bullets from an immense outcrop of lead on the summit of the hills back of Priest Lake, but that none of the present day Indians had ever been up there, as they had since bought their ammunition by trading furs for it, and that nobody knew of the actual location at this time.

I had heard former rumors of a large mineral deposit in those hills and was so impressed by the tale of this old Indian that I sent two well equipped prospectors to Priest Lake, Pelky and Duffy, with instructions to make headquarters there, build a good cabin and a clinker boat, take a trapping outfit along and never give up until they would find and locate this mine.

The winter passed quietly without hearing from them, also the next summer, when towards fall I happened to go to Rathdrum to file some records of assessment and had to stand in line before the window of the auditor. The next man just ahead of me was recording two new locations from Priest Lake; calling them the Continental and Jasper claims, and as I watched and listen to him over his shoulder he pulled out of his pocket a beautiful piece of silver-lead ore, showing it to the recorder and telling him of the great ore deposit, and then turned around and left. I made no attempt to do my own recording, as something told me at once, that this ore had come from the big mine I was looking for. Striking up an acquaintance with him and finding that he was a German by name of Henry Steidler he told me that he had met two prospectors in the hill above Priest Lake by name of Billy Houston and Fred Butler, who had located two claims and called them the Continental and Jasper, which he had just recorded for them, and he had located an extension to them and called it the Blue Joe Claim.

This description of the Continental, which Houston had found and located, was hardly believable, still I felt he was telling me the truth as I later on verified, that an ore body was exposed on the bare summit of the mountain for a length of about one thousand feet and from fifty to one hundred feet in width, some solid clean ore eight feet wide protruding several feet above the surface of the bare rock. I tried my utmost with all kinds of offers to have him return with me to the find, but he said and showed me letters from his folks in the east, which had been long waiting for him, telling him of the serious illness of his mother, but we finally struck a bargain in Sandpoint, by which I bought out his extension for cash, my first investment in the Continental group. I never heard from its former owner since, who had left me a little drawing of the lower and upper Priest Lake and the hills back of it, but gave me no encouragement that I could find the location from it.

I could find neither rest or peace now, until I could see the mine for myself and made inquiries among the Indians through the halfbreed, if any of them knew the way to Priest Lake to guide me to where two of my prospectors were located.

I finally found one, who had been there, and I offered him fifty dollars and finally one hundred dollars to guide me there with two packhorses for our provisions, but he shook his head and declined. I made a second appeal to the halfbreed who said, “Money is no good, he does not savey its value. You buy a sack of sugar, one of flour, some slabs of bacon and quite a list of other articles including tobacco, line it all up along the wall of your room and when ready I shall bring him around with his squaw and the latter will insist on his going with you, or I do not know my Indians.”

This worked beautifully, the squaw looked it all over with wondering eyes and then, as the interpreter told me, gave the Indian peremptory orders to start with me for Priest Lake at once, and his only answer consisted of several grunts and a reach for some of the tobacco.
The following day we left with two packhorses carrying our provisions and bedding, the Indian taking the lead with an ax and I bringing up the rear with my faithful dog, Prince, my rifle and Mauser pistol over a trail to Priest River, where old Man Kaiser had taken up a homestead. From there the trail was lost, but the Indian with little use of his ax led us successfully around the trees, and while I enjoyed a fine appetite myself, the Indian could get away with more fried birds, baked biscuits and eggs and bacon than I had thought humanly possible.

Birds were so plentiful and deer so tame that the latter came very close and stood there watching us and the Indian motioned to kill one of them, but I gave him to understand that three large frying pans full of birds were quite enough for two men and a dog, and the ponies had fine pasture and a few hands full of oats. Prince slept right by my side, and neither the Indian or the horses could come near me but what he warned them and me with a growl of serious objection, as he never seemed to trust an Indian or make up with him, the same as Indian dogs never make up with white men.

We finally reached Priest Lake and the only man, who had just settled there on the foot of the Lake, good old Andy Coolin, who received me rather surprised but with true hospitality. Coolin on Priest Lake has been named for him. I tried to learn from him, where my prospectors might be located, but all he knew was that they had built a cabin and a boat during part of the winter on the west side of the Lake. Coolin himself had no boat or canoe yet, but he promised to help me build a catamaran, as he called it, a sort of raft, two light logs being tied together, and we made a paddle to drive it with. I tried vainly to have the Indian accompany me, but nothing would induce him, when he saw no boat or canoe and realized what kind of contraption I expected to use to cross the Lake with, and after a good rest he simply started back home with the ponies and a liberal supply of grub.

Never in my life have I missed a few good spikes or even some nails as I did then, but with the help of friend Coolin, who was an experienced woodsman, we contrived to finish the floating contraption with even an elevated seat, stored my provisions on it, and in company with Prince I set out at daybreak one morning, paddling across the Lake to the west side and into the unknown.

I worked very hard all day, not even taking time to eat, as it was clouding up and I was afraid that a strong wind might overtake me and my frail ship before I could reach the western shore several miles away, every now and then scanning the shore line with my fine binoculars for a sign of my prospectors.

It was getting dark when I finally reached shore, and before unloading and making camp I took a final look with my glasses and felt sure that I saw smoke rising some distance from my landing place, and hoping that it came from the cabin of my prospectors, I paddled another hour along the shore and stopped right beside a nice new clinker boat and saw the light of a cabin.

Walking up to it and opening the door quietly both men jumped up in utter surprise in seeing me instead of perhaps the arrival of some renegade Indian, and after satisfying my appetite with a plentiful of supposed to be deer meat, which turned out to be from a young bear hanging outside on a tree, and a number of biscuits baked with a liberal amount of bear grease and sugar, which made them taste very fine, I told them my story and errand and requested Pelky, one of the most experienced mountaineers and trappers, to accompany me and help me find the mine.

He studied the sketch of Steidlers location of the mine carefully and finally said, "It must be on one of the mountains at the head of what we have called Cedar Creek, and where we have been prospecting this summer and fall without meeting anybody and seeing any signs of mineral, but the mountains are very steep and since it is already the end of November, the higher mountains being covered with snow, we have no chance of finding them, and the upper Lake may freeze over any day now and force us to abandon our boat and walk with snowshoes.
all around the lakes and thoroughfare. Better wait until Houston and Sutter either show up on
the lake or until next spring." However, neither of these ideas would I entertain for a minute
and waste my time on the lake or return home without even an attempt, so after a days rest and
preparation for any emergency we started one morning for the head of the little lake in rather
cold weather.

Rowing through the thoroughfare as we called it, a connection between the lower and
upper Priest Lakes, I called Pelky's attention to it, that the wild dracks never flew up and barely
kept away far enough from our oars, that we would not touch them. Pelky said, "We never
shoot at them with our rifles and they will remain perfectly tame and gentle, until later on
some tenderfeet will come along with shotguns frightening and killing them," as in later years
it turned out to be true.

It turned colder from hour to hour, and in late afternoon we reached the upper lake
and found a thin covering of ice over it with Pelky advising to turn back, as it might finally
prevent us from getting to shore, but since the boat was built well and strong and seemed to
part the ice easily I prevailed upon him to keep on, as we had two pairs of oars, both rowing
steadily. However, the ice kept getting thicker and thicker, until finally still about half a mile
from the head of the lake shore the boat would not penetrate the ice any more, and in turn one
of us had to kneel in the prow of the boat and break the ice with an oar, the other man shoving
the boat ahead with an oar.

Thus we actually wore our oars straight and thin, and in turn the ice cold water
splashed all over us, penetrating our clothes to the very skin, but the hard work kept us from
freezing and we finally reached shore, which was covered with a foot of snow.

Then the reaction set in as far as I was concerned, and I stretched out in the snow
ready to go to sleep. Here is where Pelky, the experienced trapper came to my rescue. In no
time he had a blazing fire going and shaking me roughly made me take off my boots and every
stick of clothing and after rubbing me from head to foot with a towel made me put on a dry
suit of clothes and leather slippers, which I kept in my pack, and he himself stood up in front
and close to the fire, while the steam rolled out in waves until he was dry all over. I then made
us some hot cocoa and felt fine again, when after a good meal we rolled up in our Hudson Bay
blankets between two good fires.

The next morning it was snowing and blowing and Pelky asked smiling, "How about
it, to the foot of the mountain on Cedar Creek is only a good day's trip on snowshoes, but each
of us has to take at least seventy-five pounds of grub in our pack sack to be safe, as we may not
run across a single bird from now on in this weather. Are you still game?" I said, "Sure" and
we loaded up, took our rifle and started. I had left Prince behind in our cabin with Duffy on the
lake, as Pelky had advised on account of the travel in the deep snow. Pelky took the lead
making it easier for me to follow in the tracks of his snowshoes, and wherever I would lag
behind he would say, "Well, we will rest our packs a little while by sitting down and holding
the pack a little higher against the tree to take the weight off the shoulders." and after a short
rest we would go on again, reaching the foot of the mountain and Cedar Creek before night.

Here in going after water from Cedar Creek to make our cocoa we met a sad sight. In
the middle of the creek in deep water stood a shaking deer and on each shore a large timber
wolf, patiently waiting for their victim. Strange to say, neither of the three made a move, when
we came in sight, and after talking over the situation Pelky said, "Here we have to waste two
cartridges, I take the fellow on the far side and you the one on this side of the creek, and when
I say shoot let him have it." Both dropped in their tracks at his command, and to our surprise
and satisfaction the deer came out of the creek toward us, hardly able to move, and walked
within a few yards from us and slowly disappeared in the bushes.

The weather cleared somewhat during the night, and bright and early we started for
the top of the hill with our packs, which I found the following year better than a thousand feet
high and very steep from the side on which we made our ascent. By noon I asked Pelky how

19
far we were from the top, "Oh," he said, "we should be getting to the top before tomorrow night." The soft snow was getting deeper and deeper with every step, and its falling on our snow shoes made it harder to lift up our feet. By afternoon it began storming and blowing again, and after I had to sit down repeatedly to rest and was unable to see in any direction I had to give up, and we turned back to our camp on Cedar Creek to the satisfaction of Pelky, who said he had known all the time that we could not make it and find anybody under those conditions, but he wanted to me to be convinced and give the word.

Accordingly, we started back for the upper Priest Lake, where we had left our boat upturned on the shore, and where the ice had become still thicker, but not strong enough to hold us and go in a straight line home to our lower lake cabin.

Pelky then told me that to walk around all the large bends of both lakes on snow shoes, on the foot of cliffs and brushy mountain slopes would be a great hardship and require a long time, but that not far from the shore where we were he and Duffy had a small cabin on their tralpine in the woods with some provisions left in it, mainly bacon and beans, and proposed for us to go and stay there until the ice would be strong enough to go home in a straight line across the lakes and the thoroughfare. He took the lead for the cabin, and when about a hundred yards away from it he stopped behind a tree and motioned to me saying, "I see a wisp of smoke coming from the cabin, most likely some Indian has discovered it and is feasting on our grub, and will then depart with some furs we have nailed up on the walls of the cabin."

Moving noiselessly from tree to tree towards the cabin Pelky all at once stepped out carelessly within twenty feet of the cabin and at my surprised inquiry said, "Look at the trees cut for firewood around here with a clear smooth cut, no Indian can do that. They cut all around the tree in beaver fashion, while this was done by an experienced woodsman with a sharp ax." Accordingly, he stepped up to the door, pushing it inside, and there beheld a man jumping up from the floor, rather scared and surprised at first, his clothes in tatters and his face covered with a full beard, so that we could hardly distinguish his features. After making him acquainted with the object of our trip and our decision to stay awhile in the cabin, which by the way had but one opening serving as a window and was covered with a sugar sack for a glass, he told us a remarkable story as follows:

"My name is Fred Sutter, a partner of Billy Houston, who found and located the Continental Mine, the largest outcrop of silver-lead I had ever seen. We had no tent and did not have time to build a cabin before the snow got too deep, and the country around the location is bare rock without any trees and hardly enough dry wood to keep up a fire. In place of a tent or cabin we made a covering for us from caribou hides, and finally our grub except for caribou meat was running shorter every day, but I could not induce Houston to go out with me, as he was afraid that claim jumpers would come up in his absence after Staidler had made the discovery known by making the records. About a week ago even our mest gave out and we decided to bake our last two bannocks and follow a large band of caribou, which had passed our camp on the summit during the early morning and get enough winters meat and pelts to provide a better shelter. Caribou are very gentle, and when you kill the leader the rest will plunge around for sometime without knowing what to do or where to go. We had no snowshoes, but were able to follow their tracks, as it evidently was a large herd, until we came to a point on the summit, where the herd had divided, one herd keeping on the summit straight ahead, and the other taking a somewhat lower trail. We decided for Houston to follow the herd going along the summit, and I should follow the other herd to be sure, that we would get enough meat and furs. My herd kept leading me lower and lower, while I was wading to my knees in the snow and unable to overtake the caribou I kept going down further in farther, the snow getting lighter and before I realized it I was down on Cedar Creek and utterly unable to walk back to the summit without snowshoes. I then decided to make for Priest Lake and try to kill a deer on my way. It started snowing and blowing and I did not see a single bird or deer. I
reached the head of the upper lake and for protection went into the woods, and to my great surprise and delight stumbled onto this cabin and found some grub and even some dry wood and an ax in it to make a fire, and I have been here now for several days, as without strong ice or some makeshift of snowshoes I could not venture out on foot for the Big Lake.

We realized that it was useless to undertake another trip to the summit, and that we could not ever take Sutter with us to our headquarters to the lower lake without snowshoes, as the snow was getting deeper every hour, so the final decision was after two days, when the ice was strong enough that Pelky and I should return to our base of supplies, get a pair of snowshoes for Sutter, leaving him with whatever grub we could possibly spare and return with a larger supply to take him out with us. On the second night we reached our cabin on the lower lake, took Duffy’s snowshoes and in four days returned with Sutter.

In my own mind my plans had already been made on the trip. I said goodbye to Pelky and Duffy for the winter and took Sutter home with me to Sandpoint, where we, like nearly all other oldtime prospectors immediately began to indulge in drinking and gambling, drawing on me for all needed funds, and in the coming spring, when the hills called to him, I furnished him with a new grubstake, some money as a balance of what he had already drawn during the winter and he headed to me his interest in the mine. Sutter also did not return to our part of the country.

I was now ready to make a fresh start for Priest Lake to find Billy Houston, the original locator, and see the mine. This time I went alone with my faithful dog, Prince, and packhorses, well loaded with supplies for the headquarter camp, birds, game and fish being so plentiful, that I knew that the supplies would last us all a long time. I reached Andy Coolin in due time, leaving my horses with him, and we made another floating palace of dry logs, having brought with me a good supply of large spikes, and on reaching our cabin Pelky said he had already expected me every day. We went to Coolin for the supplies the next day with our boat and started out the following morning for the head of the little lake again, where we left our boat and started for Cedar Creek with our packs on our back. Prince proved himself to be a fine bird dog. He would locate them on the ground or in the trees and bark furiously, and I would shoot their head off with my Mauser pistol succeeding nine times out of ten, but if it went through any other part of the bird it belonged to Prince according to our strict rule after I skinned the bird for him. Otherwise he received the heads as his reward, and his share after we fried about six or eight of them, he also ate with relish his share of the fish.

We reached the foot of the mountain on Cedar Creek, but as fate would have it not the mine again on this trip, as we had but just prepared for camp, when Prince growled and Pelky touched my arm and pointed to a walking object in the distance coming toward us wanting to know what in the world it might be.

Coming slowly nearer after a long wait we realized, that it was a man clad entirely in caribou hides, even his headpiece covering part of his face, and stepping out to meet him, it was no other than Billy Houston in pitiful physical condition from exposure in the deep snow all winter with nothing but caribou meat to live on, even without any salt for several months. His eyes, nose and ears were badly affected, even for some time his mind, and after giving him a carefully prepared meal of coconuts, a biscuit and the breast of fried birds, we took him to our boat on the lake and to our headquarters, and after a day of rest I took him on one of the packhorses to Priest River and by boat to Sandpoint where the railroad doctor looked him over after giving him a bath and new clothes. The doctor advised me to take him to a hospital in Spokane without delay, as he would need long and careful treatment to save him.

I lost no time to get him there and put him in care of a physician and a special nurse, where he remained the better part of the year and eventually regained his full strength again, and we always thought him a little queer in some ways afterwards, but we lived, prospected and roamed the hills together from that day on until he died in 1927, after a severe illness on our homestead ranch at Porthill.
I was approached one evening by a prospector, who told me confidentially, that he had just arrived from Spokane and had overheard a few days ago in a saloon the conversation between two drunken rowdies and professional claim jumpers, that they were going to start the next day for Priest Lake and the Continental Mine, of which they had heard so much, in order to get a slice of the new discovery as they called it.

Billy Houston was still ill, my prospectors might be far away from the lake on a trip, and the only men beside city people, Mr. Heitman and Wenz in Rathdrum, who had an interest in the mine through Houston’s grub stake, was the neighbor of my ranch in Porthill, a good mountainer and rancher, Spence Smith, and I immediately set out to look him up and ask if he would accompany me to the mine for the purpose of dispossessing those blackmailers. He readily consented, while his wife was reluctant to let him go on such an errand, but she consented and by fast traveling with light packs, as I had stored provisions at the mine, we reached the foot of the hill on Cedar Creek within a few days. After resting there a few hours we went up the mountain during the night, arriving at the summit and on the claims three o’clock in the morning, just at daylight. Here we found that our stakes on the most important claim, the Continental, containing the largest outcrop, and that new stakes cutting Houston’s location practically in two, had been put in their place.

The first thing we did was to gather all new stakes together in a pile and set fire to them, and after two hours of hard work we held a council of war and I said to Spence Smith, “Spence, there is no doubt in my mind that these two claimjumpers are in my little cabin yonder right now, sound asleep in my bunk. They are known to be desperate fellows and gunmen, and the only way is to surprise them and run them out and off the hill at the point of a rifle, preventing them to get to their own guns, and not to have any witness to it, as their destruction of our stakes is also a criminal offense according to the law. I intend now to go in and run them out of my cabin and you stay a little way down the mountain in the bushes, where they cannot see you, and if you here any shooting you can come to my assistance.”

He first insisted to go along with me, but I pointed out to him that he had a wife and children at home, while I had neither chick or child, and that it was of great importance to us not to have a witness they could call on to whatever might happen. He finally consented, hid in the bushes below the summit and the cabin, and I went over, pushed open the door and crossed over to the corner, in which they had placed their rifles against the wall, taking position in front of them out of their reach. I had built two small bunk beds in the cabin, one above the other to take up less room, and in each of them slept one of them fully dressed but without their boots, which were laying on the floor. Both men raised up in their bunk evidently quite surprised, and I, seeing in a glance that they were using my own bedding and had used my cooking utensils and my grub called on them with pet names which would not look good in print, to get out of my cabin within two minutes to put on their boots, or they would never leave the cabin alive, having my rifle lifted and cocked for action.

They jumped out of bed, put on their boots and one of them said, “What about our rifles?” To which I replied, “They stay here for good.” And when he turned around with the intention to make a pass for the guns, the cabin being very small, I pointed my rifle within six inches of his breast and my face must have shown him that I meant business, and turning around to his partner he said, “Let’s go, we can fight it out later.”

I followed them step by step, urging them to hurry faster, but they seemed to be concocting in some new deviltry among themselves and as I thought of the hardships I had

---

1 There seems to be a gap of several weeks or months between the events described below and those in the preceding paragraphs. Klockmann's narrative does not mention building a cabin on the property; however, enough time has elapsed between these two incidents for him to have built a cabin at the Continental and to have stocked it with supplies.
endured to get an interest in the property, I had helped in putting up the little cabin to actually carry some of the logs to the summit, carrying our blankets and provisions up there on our backs, and then having these bandits take possession of it all, my blood began to boil and my patience was at an end. Being a crack shot at the time I made up my mind to scare them into faster action and retreat and started to shoot between their legs, the bullets striking the bare and loose rocks, which in turn spread over them wounding them slightly and sending them into a headlong run down the hill, but I had forgotten all about my arrangement with Smith, who came running breathlessly up the hill and almost had a heart attack, but it turned out later in my trial, that they had never seen him.

Smith and I then decided to do the assessment work while we were up there on the furthest part of the exposed vein, from where we could see a part of Priest Lake, working in solid ore, and one afternoon about three weeks afterwards faithful old Prince, squatting and watching us on the rocks above us growled and pointed down the hill, and looking down the mountain towards Priest Lake we saw the movement of something coming toward us, but could not make out for some time what it was. Finally Spence said, "It must be a man who does not seem to know where he is going, as he has changed his direction twice while I am watching him." I then stood up in full view at the highest point of the hill and fired my Mauser pistol several times, which directed him to us in a straight line. Coming nearer and nearer we finally recognized a tall man more than six feet in height and with his boots in his left hand, painfully and slowly walking in his stocking feet over the bare rocks. On reaching us in this sad condition I asked him who he was and where he was bound for and he said, "I am Sheriff Peace of Kootenai County and am looking for a fellow by the name of Klockman, for whom I have a warrant of arrest for attacking and injuring two men with a deadly weapon and destroying the U.S. mining location monuments." I am your man, Sheriff," I said and ended jokingly, "Had we better start right out or will you need some repairs first for a few days." To which he laughingly replied, "I could not and would not go back with you now in the shape I am in, if the whole Panhandle of Idaho was at stake."

We then took him to our cabin, bathed and bandaged his feet with linen while he told us that he had started out from Rathdrum in his stiff riding boots on horseback, leaving his horse on the foot of Priest Lake with Coolin, and finally footing it in his stiff boots, until his poor feet were raw and bleeding and he had to take his boots off and continue in his stocking feet or returned unsuccessful after the longest and hardest trip he had ever undertaken.

I noticed he was wearing an elk's tooth on his watch chain, and I pulled out my life membership card, dated January 3, 1900. After shaking hands as brother elk I told him truthfully all that had happened including the burning of the stakes and the shooting. His only comment with an oath was, "My good man, why did you not kill the skunks and blackmailers and save me this terrible trip, and the County and yourself all the trouble and useless cost of the trial? I know all about these fellows and shooting is too good for them. They ought to be hung from a tree with a good rope."

We remained in camp for several days to cure the sheriff's feet, and after fitting him with a pair of softer shoes, I started out for Rathdrum with him, leaving Smith to finish the assessment work and guard the mine.

Finding the sheriff on our trip a jolly companion, rather fond as I thought from our conversation of wine, women, and song, I propose to him instead of going to Rathdrum with him, to come with me as far as Spokane, where I had some friends with whom we could have a good celebration. Then he might let me go to Rosland to look after my business affairs, while he could arrange in Rathdrum to let attorney Heitman and Mr. Wenz put up bonds for me, as both these men had an interest in the property on account of having furnished Houston with a grubstake. He said he would go along as far as Spokane and then decide what to do next.
We landed in Spokane to spend the night in the Spokane Hotel after a tour of Dutch Jake’s place, the Theatre Comique and Henry Seiffert’s Saloon, the last two were old friends of mine.

I told them my errand, and that I wished to give the sheriff a good time, preferably in their private office with the best of drinks and if possible in the company of a few jolly ladies and Seiffert’s own company. “Leave it to me,” Henry said, “first we will have a drink at the bar and I shall introduce you to a friend, a young attorney who has a better memory for names and can tell better stories that any man I have ever met. If you meet him in six months or a year from now he will call you by name.” This man, as I have known since, was Mr. Ham Lewis, the late senator from the state of Illinois, which state he represented for many years, until he died only a few months ago.

We then all adjourned to Seiffert’s large office, had more refreshments and the company of some jolly ladies, and my friend Peace began to tell of some of his best experiences and all about his trip to the mine and what I had told him happened there, and wound up by saying to me. “You go home from here and I intend to rest in Rathdrum, as I like to spend another day in Spokane, have not had such a good time for ages in the backwoods.” Accordingly I left in the morning for Rossland and the sheriff stayed in Spokane.

In due time I was notified by Mr. Heitman, at that time the undisputed political boss of the present three counties; Kootenai, Bonner, and Boundary, to come to Rathdrum at a certain date for preparation of the case, as the date for trial had been set for a few days later.

His plan was to make the complainants come with their attorneys on the trial date, then by some technicality put it off for a week or two, and do this again the next time to put them to as much trouble and expense as possible. He carried this out and would have done it again a third time if I had not objected, as I had to take a long buggy trip each time and I wished to have the trial over with.

While in Rathdrum in the second trip he called in the sheriff and they went over the list of jurors together, picking out only men who were new settlers and had not proved up on their homestead yet, and the sheriff’s remark now and then would be at the mention of a name, “He is alright, I can vouch for him to make short work of them. A fellow tried to lay over on his homestead location once.”

The selection of twelve jurors completed, the sheriff notified them all on horseback to be in court on a certain date, which had been set by the judge, and everybody including myself, the complainants with their two attorneys and a large number of spectators were there promptly, when Judge Mayhew called the court to order.

Judge Mayhew was the same elderly judge who presided in the trials during the riots in the mining camps of the Coeur d’Alenes and I noticed that he also wore his elk’s tooth prominently on his watch chain, at that time the custom of every elk.

The lawyers for the prosecution opened the case, telling the judge and jury all about the case and putting their clients on the stand to testify, stressing the fact, that I had destroyed their stakes of a legitimate mineral location, deprived them by force of their rifles, ordered them at the point of a gun to leave the camp, and took a number of shots after them, which had wounded them and endangered their lives.

Heitman put them through a severe cross examination, bringing out the fact that they had traced the imprints of Billy Houston’s footprints in scattered remaining patches of snow to find his locations, had arrived without a prospecting outfit and used our cabin, bedding and supplies while up there.

He put me on the stand to prove these facts, that the claims had been properly located by Houston and that I was simply protecting them and my own interest in them in the absence of Houston by illness, knew that our stakes had been removed when I came up there, and had been replaced by the two claim-jumpers. On entering our cabin I had found these two men in
my bed and ejected them forcibly. I had no intention of killing them, but simply tried to scare them to hurry and drive them off the hill.

On cross examination their attorney wanted to know who had pulled up and burned their stakes during the night, which were still burning when I drove off his clients. Before I was able to answer, or Mr. Heitman to make an objection, the judge lifted up his hand and said, "You cannot convict the defendant by his own testimony in a criminal offense," and on Mr. Heitman's objection to the question the judge sustained the same.

The judge then said to the attorneys of the prosecution to put on their witnesses to the occurrence to prove their case, but as they had never seen Spence Smith up there with me they stated they had no eye witness, but they had an important witness in the person of the county sheriff, who had told the story of the case to a number of people in Spokane, just as he had obtained the facts from the defendant. "Alright," said the judge, "send for the sheriff and put him on the stand." The sheriff stepped into the aisle and before the judge and said to him, "Judge, Your Honor, the defendant is a brother elk, and as such he told me privately in strict confidence and unofficially some things which might be used by the prosecution in this case, but do I have to break my word of honor given him on the witness stand here?" "No sir," Judge Mayhew said to him. And lifting up his head and looking towards the table of the attorneys added, "the witness is discharged." The prosecuting attorneys seemed surprised and at the further question of the judge if they could produce any other witness they said no, and the judge ordered them to make their plea to the jury in which both of them took part in very strong terms about my lawless deeds, which should call for severe punishment to set an example to people taking the law into their own hands at a point of a rifle.

When they were through Mr. Heitman spoke at length, telling the jury that these men were nothing but professional blackmailers and claim jumpers and how they would feel and act if they happened to be away from their homestead some night and found these men in their beds in the morning, locating their land over in their own name, helping themselves to their supplies, and cooking their meals in their kitchen. This produced a smile in the face of every juror, plainly indicating, that they would know how to take care of them alright.

After Mr. Heitman finished the judge gave his instructions to the jury and told them to retire and agree on a verdict, and while they filed out nobody left his or her seat, as all expected the return of the jury very soon, which they did, as we found out later, that they had not even taken their seats but waited a few minutes and returned with their verdict; Not Guilty.

Then the surprise of the trial in a speech by Judge Mayhew to the attorneys and their clients from Spokane, in which he warned them never to come into the state of Idaho again with such a plain blackmail suit, putting our county to useless great expenses, and that he felt strongly that the two attorneys lowered the standard of their profession by lending their help and assistance to such a case. The judge then discharged the prisoner and the jury and adjourned court, and our visitors from Spokane left very much disgraced, while all the rest of us, including judge and jurors adjourned to a nearby bar to have some refreshments to celebrate my discharge.

Access to the mine and transportation for needed supplies and equipment was a severe obstacle to the development of the property. According to Klockmann (Vinther, 1980, p. 52-54):

In spite of the greatest known surface showings of ore on the Continental for a length of approximately one thousand feet I realized that it would be impossible for me to get large capital interested in the mine to supply it with needed transportation over a good road and the equipment of a concentrator, much machinery and buildings and that some development in reasonable depth would be required for this purpose, which I had to do all alone, as none of
the other interested parties were willing to put up any money to this end, simply speculating on the sale of the property in the future.

Under such handicaps I succeeded during the next two years to run a tunnel to a depth of four hundred feet into the mountain all in the ore for several hundred feet in length.

The cost of getting provisions and supplies there were enormous and it struck me that transportation by boat from Sandpoint to Priest River and by Priest River to and across both lakes would be the first step to lower these costs.

Following this up I acquired a good boat in Sandpoint, loaded it heavily with supplies and started out with a companion by the name of Fred Spade, the strongest man in the surrounding country, who used to take his bath in winter by cutting a square hole in the ice of the lake, by trade a bridge carpenter, working on the railroad trestle bridges at Sandpoint, who could for instance lift up a barrel of kerosene in his arm and alone load a number of them in that manner on a wagon.

We made good time to the upper part of Priest River not far from the entrance into Priest Lake, when we encountered dangerous rapids filled with large boulders during the high water season, and the rushing waters threw us against the boulders and in our struggling upset the boat, injuring it and losing all of our supplies. Both of us waded out to the brushy shore to survey the happening and our condition.

We had to make camp and did not expect that we could reach Priest River and the hospitable home of old man Kaiser in a day. Having to fight our way through underbrush we decided first of all to wade back to the boat to save our guns and ammunition and as much grub as we could carry back on our backs on our return trip. Fred showed himself with many an oath and his superior strength a master of diving and salvaging even our blankets and about one hundred and fifty pounds of grub, of which Fred cheerfully carried a hundred pounds on his back insisting on carrying fifty pounds and our guns and a few cooking utensils.

Fortunately each of us always carried a water proof supply of matches contained in empty cartridge shells, so that we could start a fire, strip our clothes and shoes, which took at least an hour to dry them. It would have made an nice picture to see us walk up and down the river and start cooking operations as the Lord had made us.

We reached Kaisers place the following night, and about two years later a man in Priest River showed me a nicely painted boat there with the name of "Distress" painted on it in large letters and ask me if I recognized it, and he informed me that he had founded it in fairly good condition during low water near the shore and had brought it home and reconditioned it.

That ended the intended water transportation and I now gathered up from around Sandpoint and Hope ten packhorses, bought the necessary equipment for them in Spokane. We were ready again fully loaded and the loads secured with the well known diamond hitch to start out to build a permanent trail from Priest River to the foot of Priest Lake, Fred Spade and I taking care of the pack horses and two experienced oxmen ahead. While it was a slow process, it really was a lovely trip.

My dog, Prince, provided all the birds we could eat by putting them up in the trees and barking furiously. Often the foal hens get so low in the trees that we could use a stick with a horse hair attached as a sling, hook it over their heads and haul them down to save cartridges. Later on, on horseback, I have taken them from low branches by hand, as these birds are absolutely fearless; one can throw sticks and rocks at them until they lose some feathers, but they will sit still until you bring them down from their perch. I could never understand why they do not get exterminated by their natural enemies, but they are with us today, and are just as unafraid as they were in early days. The deer were extremely tame and gentle. I had a small silver bell on our lead horse and evidently the tinkle of the same brought more than a hundred at a time to follow us in a long line within a hundred feet from us, listening to the bell and watching the unusual sight of the horses. They marched along for
many miles and at night, when our fires were lit, they came so close to watch us that I could actually see the brown of their eyes.

I trained Prince to lay perfectly still and never allowed anybody to shoot at them, as nature provided us plentifully with birds and fish. The fish acted the same way without fear of anything. All the fishing outfit I carried with me for many years consisted of a fish line in my vest pocket and a few fly hooks. Whenever I found a good sized hole in Cedar Creek or Priest River, Billy Houston and I would count the trout in it, dangle our short line with the fly hook on a short stick from four to six inches above the pool, and out they would rush from the water catching themselves on the fly hook until we had enough to fill two large fry pans. One for each of us, with plenty to spare for Prince, our regular ration with a liberal addition of biscuits mixed in a sack of flour.

Our hardest job, taking up a long time, was to cut a good trail all around the lake and along the thoroughfare, the many large bends around the lakes adding endless miles to our task.

We finally reached the head of little Priest Lake and I built the first substantial two story cabin there to serve as our permanent headquarters.

On looking over the ground on the projection from where you could overlook the lake we found the remains of two trappers killed by the Indians, who had burned their cabin, as at the time the Indians claimed Priest Lake was their best hunting and fishing ground. We buried what was left of the trappers and built our cabin right over them in the same place where theirs had been.

Many years afterwards, after we had abandoned the lake road, the cabin was still there and somebody with my permission had taken up a homestead. A strong wind had demolished the upper story and the new settler had put a new roof on the lower part, which had been built very substantially of logs.

After building a good trail from the lake to the foot of the mountain on Cedar Creek, we erected here and there temporary lean-tos all the way to the summit of the mountain where our first little cabin was located. After Billy Houston was well enough he looked after the running of the tunnel for development work, while I went after supplies with our pack train, nearly always along [alone?], as friend Kaiser helped me to get started from his ranch on Priest River. My next stop was at Jim Taylor’s, who had made his home in the woods about one-third of the way to the lake. He was an ever friendly host helping to unpack the horses on my arrival, hobble the leader in his meadow, and again helping me to load up in the morning to get an early start for East River.

Klockmann (n.d., p. 1) summarizes his early years at the mine as follows:

After getting interested in the property, and none of the owners being willing or able to help finance it, I immediately undertook development of it alone during the next ten years, until the fall of 1901, when I formed the Idaho Continental Mining Company.

Looking at the country at the present time one cannot imagine the difficulties and hardships I had to face to carry on this development. Located in Sandpoint during the construction of the Great Northern Railway and carrying on a thriving hotel business there I used a boat to take my supplies by river to the mouth of Priest River, where we camped, as the town was not in existence yet, I cut a trail through the dense forest for my 20 packhorses to Priest Lake, a distance of about 25 miles, built a boat to take supplies across the large lake, through the so called thorough fare and to the head of the Little Priest Lake, about 40 miles, and finally a trail for the packhorses all around the lakes, a distance of seventy miles, and from the head of the lakes to Cedar Creek, 9 miles. All this territory was densely wooded, and brush and deadfalls covered the entire distance. Starting from Cedar Creek to the Mine over a trail I built was always and for years a heartbreaking trip, as within a distance of only about 3 miles
we had to overcome an elevation of 3000 feet, which made the climb to the summit of the mountain, where our little log cabin was located, extremely difficult. The cost of needed supplies for transportation alone was often as high as 25¢ per pound, and many times we had to carry them up on our backs on snowshoes over ten feet of snow.

This route around the lakes proved to be impractical. The partners began to look for a better way to reach their mine (Vinther, 1980, p. 58):

One day Houston said to me at the mine, “There must be a nearer way out down the east side to the Kootenai River or Kootenai Lake.” By day break the next morning we started out on a new expedition along the Boundary Creek to the lower valley, which we reached to our surprise by noon the next day.

After looking up and down Kootenai River for some time we found an old fishing raft to make our crossing with to the present Porthill side. Only three people were living there at the time, Mr. and Mrs. Rykert on the Canadian side of the boundary line, and old Mike Driscoll an Indian trader living in a cabin on the Porthill side, who cordially invited us to stay overnight with him, where we slept on the floor that night.

We judged the total distance between the mine and Porthill to be only between twenty-five and thirty miles. We could obtain provisions, landed by steamboats operating from Canada, along the Kootenai River.

Accordingly, we started in at once to build a packtrail from the mine down Boundary Creek to the river, first on the north side, which we later found to contain too many sheer rock cliffs, making us go up and down the hill too often. Then we found the south side of the creek much easier to follow on a better and more even grade and build another packtrail down that way.

There was, however, a serious drawback with this new route (Vinther, 1980, p. 59):

While the transportation to the mine by way of Porthill was made more than a hundred miles shorter we had to face one serious drawback in the beginning, namely the crossing of the Kootenai River at Porthill by swimming our horses across the six hundred feet of fast water. One of us had to go ahead on horseback, and plunging into the river the rest would have to be urged with a whip to follow. Often we would miss our landing place quite a way by the action of the current, particularly during the high water time. While we were good swimmers ourselves, I confess we did not feel any too safe and were always relieved when this part of the trip was behind us.

Later on I bought a boat for the transfer of our supplies and ourselves so that the horses could swim across without any load, and still later on I built a substantial power ferry, which I operated for a number of years free of charge to anybody at private expense, until it broke loose one night and went down the river to Kootenai Lake. I then induced the County Commissioners to establish a county ferry.

Klockmann (n.d., p. 2) gives a slightly different account of how the trail along Boundary Creek came to be built:

Then one day in the winter of 1896, when the original locator Wm. Houston and I were working alone on the tunnel, we decided that there might be a nearer and better outlet to the Kootenai River and we set out at daybreak on snowshoes over 10 feet of snow, following
the mountains along Boundary Creek and landed the same night on Kootenai River at a traders station of old Mike Driscoll, which is now known as Porthill.

This outlet being 100 miles shorter than the trip around Priest Lake I decided in the following spring to build a trail along the mountains up Boundary Creek and Blue Joe Creek, as we had named the latter, and we thus succeeded in reaching the Mine within about 30 miles from Porthill on the Kootenai River. The Kootenai Valley Railway was not then built and the nearest ferry was in Bonners Ferry, a distance of 50 miles by water, which forced us to swim the river with our packhorses at Porthill for years, quite an undertaking on every trip itself, as the river there is 750 feet wide and 80 feet deep. Later on I built a ferry there at my own expense and operated it for years free to all comers, until the County put in and operated one in late years.

Klockmann (n.d., p. 2) summarized his first decade at the mine:

For ten years, until 1901, I carried on these development alone at an expense for purchasing my interest in the property and doing 1000 feet of tunnel work and open cuts of approximately $96,000.00, and realizing on account of its location in the wilderness away from transportation, that I would be unable to equip and work it properly I formed the Idaho Continental Mining Company and with my associates built a rough road along Boundary Creek, crossing the creek 23 times with bridges and succeeded to haul out some 1200 tons of crude ore during the winter of 1903, but we could not make it pay without proper equipment and a good permanent road on an easy grade, which could be used in summer and winter alike.

The Idaho Continental Mining Company was organized in 1902. Klockmann’s account of the company’s early days is as follows (Vинтер, 1980, p. 63-64):

Returning to the year 1902, I had done enough development work on the mine to show its full merits, and getting acquainted with some rich lumber men from Duluth, one Mr. Bailey, Henry Turris, D.S. Clark, and Captain Harry Roberts, the latter a successful iron mine operator. After showing them the property I induced them in doing further development work, which they did, forming a Minnesota Company, in which I retained my interest in the property, as I did in later companies.

Before attempting further development work we acquired by purchase the interest in the property at handsome cash figures from Mr. Heitman and Wenz of Rathdrum, Ignatz Weil of Sandpoint, and Spence Smith of Porthill.

Mr. Bailey, an experienced and practical lumberman, was put in charge of operations and suggested we build a winters sleigh road to the mine, as they did in Minnesota for lumber operations. He carried this out by following Boundary Creek for twenty six miles, building thirteen bridges to cross the creek from one side to the other for the better territory, and for the horses and men three camps with large barns and bunkhouses. The plan was to haul crude ore from the top of the mountain and tunnel number four and ship it to the smelter, the product averaging about twenty-five ounces in silver and sixty-five per cent in lead. Mr. Bailey had not taken our climate and high altitude of six-thousand feet at the mine in consideration, and consequently the returns from the smelter during the winter were in no proportion to the greater expenses.

In these days his men had to carry their belongings and bedding on their back, walking to and from the job in all weather conditions, and arriving in camp they were assigned a bunk, one of two or three above each other, and filled with some hay or straw and usually containing plenty of bedbugs.
The grub was poor, the wages low, and working hours from daylight to dark; getting up in the morning before daybreak by the light of lantern to feed their horses and eat their breakfast.

In my own mind this was against all human treatment, and when in later years men under an association of Union called I.W.W. started strikes and raised hell with some lumber companies and mines. They had my full sympathies.

Old Mr. Bailey was really a kind hearted man which he showed to his family and friends, and a great sportsman as well, but he was a typical oldtime lumber man who treated his men neither better or worse than the rest of the timber operators, who all accumulated large fortunes.

When he quit the management and I took it over during the times of the I.W.W. troubles I never had the least trouble with the men or a strike on my hands, as I always treated them decently and with consideration. I did away with carrying their own bedding, provided them with good iron bedsteads, mattresses and blankets, kept experienced cooks, who were furnished with the best of supplies, including plenty of vegetables, fresh or canned fruits, condensed cream, eggs and meat every day as good and better as I have ever kept in my own home.

No man belonging to the union of the I.W.W. was barred, as many companies did. Our road foreman showed me with pride his membership card, but added, "We have quite a few in our camp, and I know every one of them, but if anybody ever makes a wrong move or does not deliver a first class day's work, he will regret that he ever came up here, that is also the sentiment of the other boys."

Mr. Bailey's operation, as we fully realized, had not been successful and had been carried on at a heavy loss to his associates. The mine really required very large capital to build a good road through the mountains on an easy grade all the way, the erection of a large concentrating mill, various buildings and a power plant, for which the Minnesota Company was not prepared, so they finally withdrew from the operation.

See Table 1 for companies and individuals operating at the mine.

In 1903, Western Historical Publishing Company (1903, p. 811) commented about the property:

Within a radius of twenty-five miles from Porthill there are a number of promising mineral claims, among them what is known as the Continental mine. Ores have been mined showing assays of fifty dollars per ton in silver and lead. But transportation facilities are lacking, and the development of the mineral resources must await the investment of capital in railroads.

The same year, the Idaho Mine Inspector wrote the first of a series of glowing reports on the Idaho Continental (1903 IMIR, p. 91-92):

Among the most important mining properties of this county the Idaho-Continental mine stands high and in the dimensions of its ore showings savors of some of the monster deposits of Shoshone County.

This embryo bonanza is situated near Port Hill and is being opened on a wide fissure vein or zone in schist which is thirty feet wide, of ten per cent lead concentrating ore containing half an ounce of silver to the unit of lead.

---

*The Idaho Continental was located in Kootenai County at this time. In 1907, Bonner County was formed from the northern half of Kootenai County, and Boundary County was split off from Bonner County in 1915.*
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Officer</th>
<th>Date Incorporated</th>
<th>Charter Forfeited</th>
<th>Year(s) at Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert K. Klockmann</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1890-1940s</td>
</tr>
<tr>
<td>Idaho Continental Mining Company</td>
<td>Henry Turrish, President</td>
<td>December 12, 1902; reinstated: July 26, 1920; February 8, 1922</td>
<td>1914; 1921; 1928</td>
<td>1902-1928</td>
</tr>
<tr>
<td>Idaho-Continental Company</td>
<td>A. Klockmann, President/Manager</td>
<td>January 11, 1910</td>
<td>1930</td>
<td>1910-1930</td>
</tr>
<tr>
<td>Klockmann Bros., Inc. (lessee)</td>
<td>I.H.L. Gage, bookkeeper</td>
<td>1</td>
<td>1</td>
<td>1914(?)-1928</td>
</tr>
<tr>
<td>Bunker Hill &amp; Sullivan Mining &amp; Concentrating Co. (lessee)</td>
<td>F.W. Bradley, President</td>
<td>August 20, 1903</td>
<td>merged into Gulf Resources &amp; Chemical Co.: June 18, 1968</td>
<td>1920-1928</td>
</tr>
<tr>
<td>Trueman Higgenbotham (lessee)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1938-1942</td>
</tr>
<tr>
<td>A.B. Cobb (lessee)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1943</td>
</tr>
<tr>
<td>Guy Patchen (lessee)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1933(?)-2</td>
</tr>
<tr>
<td>Idaho-Continental Leasing Co.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1944-1946</td>
</tr>
<tr>
<td>T. Garrett and J. Small</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>(1945)</td>
</tr>
<tr>
<td>Continental Mining Co. (lessee)</td>
<td>S.K. Garrett, President</td>
<td>August 8, 1946</td>
<td>December 2, 1957</td>
<td>1946-1952</td>
</tr>
<tr>
<td>Mrs. Martha N. Klockmann</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>mid-1940s-early 1960s</td>
</tr>
<tr>
<td>Northwood Mining &amp; Leasing Co. (lessee)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1953-1954</td>
</tr>
<tr>
<td>Company Name</td>
<td>Officer</td>
<td>Date Incorporated</td>
<td>Charter Forfeited</td>
<td>Year(s) at Mine</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------------</td>
<td>-------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Patchen &amp; Erickson</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1955</td>
</tr>
<tr>
<td>Old Continental Mining Company</td>
<td>Philip Priano</td>
<td>December 30, 1957</td>
<td>December 1, 1959</td>
<td>1958-1959</td>
</tr>
<tr>
<td>(lessee)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selma McCulver</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>early 1960s-?</td>
</tr>
<tr>
<td>New Idaho Continental Corporation (lessee)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1980-</td>
</tr>
</tbody>
</table>

1Information not available in Idaho Geological Survey’s files.
2See P & B Silver Mines, Inc.

The development on this property consists of a six hundred and fifty-foot tunnel driven on the vein, which has gained a face depth of five hundred feet, which gives an idea of the abruptness of that section of the county. There is also a shaft two hundred feet deep tapped at the bottom by a cross-cut tunnel.

This great vein or zone carries a pay streak of high-grade shipping ore one to three feet wide that averages sixty per cent lead and thirty ounces silver per ton. Of this first-class ore the company had out and on the dump in December, 1903, sixteen hundred tons ready for shipment and expected to get fully twice that much to market during the winter while the sleighing was good.
This remarkable deposit contains two million tons of ore above the tunnel level, according to estimates of the company's engineers, based on the showing made by the present development. The vein pitches steeply to the northwest and strikes about northeast; both walls are schist, with a granite country bounding the mountain axis on either hand. The vein can be worked by an adit or cross-cut tunnels to a depth of eleven hundred feet and is surrounded with very natural advantages in the water for power, timber and opportunities for handling the ore by gravity which insures economical mining costs and promises to make a producer of very considerable caliber.

This company is figuring on the construction of a large concentrating plant in the spring and a branch railway from the Great Northern to connect to the mines, which are twenty-two miles back from the main line. The survey has already been made for the new branch and a very feasible route and grade has been obtained, and if the present plans are carried out there will be something doing in the lead-silver industry of Kootenai County by the close of 1904.

Also during the year, Klockmann started patenting the Continental claims, a process that was not without difficulties (Vinther, 1980, p. 56):

In 1903 I began to apply for patents for the mining claims and engaged for this purpose an engineer and surveyor by the name of Billy Ashley to make the surveys for me. After a hard trip to the mine with Ashley with his survey and other instruments we reached the summit of the mountain on foot, but since there was no survey of any kind within many miles either in the United Stated or Canada, Ashley had to take observations at night from the stars and establish the first starting point for future surveys in the form of a large stone monument in which the records were buried.

At one time, Klockmann and Houston had recorded all their claims in both the United States and Canada, because the boundary between the two countries had not been surveyed and they were not certain in which country the mine was located (Vinther, 1980).

The 1904 IMIR (p. 90-91) noted:

The Idaho Continental mine near the north end of Kootenai County shipped several hundred tons of high-grade lead ore to the smelters at Tacoma and East Helena during the past year. This Company was working a force of twenty men on development recently.

The property carries a monster fissure of fine concentrating lead-silver ore, thirty feet wide and 10 per cent in value, accompanied by a pretty consistent pay streak twelve to thirty-six inches wide along one wall, of high-grade shipping mineral that averages about 60 percent lead and thirty ounces of silver. There are several other splendid properties of the same class, including the property of the Priest Lake Mining Company, now undergoing development just south of the Continental, and when the problem of transportation has been solved a very important new source of lead and silver ore will be opened up.

The 1905 IMIR (p. 77) continued on the same theme:

Near the north end of Kootenai County, in the Priest Lake District, the Idaho Continental Mine contains a very large deposit of concentrating lead-silver ore, together with a pay streak of six inches to two feet of clean galena shipping mineral that carries good silver values. This property has considerable development, which justifies further extension. Its
rather remote situation from railway transportation has been a drawback to its profitable operation, but the high prices at the present ruling for lead and the prospect of their continued strength will very likely result in this mine's further extensive operation.

Development work continued in 1906. Courtis (1906, p. 866) described the mine as follows:

The Idaho Continental is the nearest approach to a mine. This is on the east side of the Priest river, nearly to the Canadian boundary. It has several deep tunnels from 500 to over 1000 ft. long. The ore is mostly galena, sometimes massive but full of small separate quartz crystals so that the best ore would be improved by concentration. The quartz crystals are like plums in a pudding. The ore bodies are 4 or 5 ft. wide apparently solid galena and of large extent, making this mine one of great promise. The ore is selected and hauled out 25 miles to Port Hill. If the railroad comes up Priest river this mine can be worked better from the southwest side.

The 1906 IMIR (p. 92) continued to describe the Idaho Continental in enthusiastic terms:

The schist formation at a point twelve miles above the head of the lake [Priest Lake] carries the ore deposits of the Idaho Continental mine, which probably has one of the best lead ore showings in the State, outside of the Coeur d'Alenes. The great ore course is from ten to thirty feet wide of concentrating mineral at the surface, accompanied with a fairly constant pay streak of clean shipping galena, from a few inches to two feet wide. These fine showings can be followed almost continuously for the full length of three claims of about forty-five hundred feet along the apex of the lode, and under intelligent development should mean an extensive resource of profitable ore at present prices of lead and silver.

The establishment of the Pend Oreille National Forest in 1907 started a long-standing disagreement concerning the application of federal regulations to the Idaho Continental Mine and its associated improvements (Klockmann, n.d., p. 3):

In the meantime in 1907 the Pend Oreille National Forest was created and under the regulations of the Forest Service I was forced to obtain a permit to maintain a road, and was also forced to obtain a permit for the development of power plant and transmission line for use in development of the Mine. In addition I have always paid since a yearly grazing fee to the Forest Service for several hundred head of cattle grazed on lands made accessible only through the building of roads and trails by my own expense. Naturally the requirements have always irked me and impressed me as being unjust since after pioneering the country putting in roads, trails and other improvements at my own expense, prior to the establishment of any Forest Reserve, then simply through the creation of such Reserve being forced to pay for the privilege of using my own improvements without my recognition of prior rights established through my own pioneering efforts and without recognition of any benefit or value to the Forest Service itself, which these roads, trails, telephone lines etc. held for them.

In my pioneering developments I opened first the Priest Lake watershed with trails and then the Boundary Creek watershed leading into the Kootenai drainage, first with trails, then followed by a high class road. These trails and roads, built of course primarily for the development of my own interests, have been and still are used exclusively by the Forest Reserve in the administration of the Forest and Forest Officials have always been granted free access to all these improvements, including camps and buildings used exclusively for mining.
purposes. For many years these trails and roads were the only means of access to large areas of Forest Reserve and proved time and again of untold value to the Forest Service. My Superintendent had standing instructions to house Forest Service employees at any time, either at the mine or at any of our camps, haul in their supplies by wagon and in later years by motor trucks. These services were offered free of charge and taken advantage of for years, as former Forest Supervisors can testify, and yet at the same time over the same period of years I paid thousand of dollars to the Forest Service for grazing fees and special use permits for the use of my own road, power development and transmission.

The IMIRs for 1907 and 1908 did not mention the Idaho Continental, but the 1909 IMIR (p. 41-42) noted:

The most important operations of the district have been carried on at the property of the Idaho Continental Company, which has produced considerable lead-silver ore during the year. The vein, which is 10 to 30 feet in width, occurs in schist formation and is an extremely attractive showing. Two shifts of miners have been at work during the greater part of the year. With the construction of a railway, which is contemplated next summer, this district should come into prominence.

Also during the year, Klockmann started organizing another company to operate the mine. The result of this work, the Idaho-Continental Company, was incorporated on January 11, 1910 (Table 1). According to Klockmann (Vinther, 1980, p. 64):

My next move was in 1909 to organize the Idaho Continental Company with our office in the Paulsen Building of Spokane, which company I served as President and Mr. Richard Schacht as secretary.

This company, in which I kept the controlling interest, also found itself unable to sell enough unassessable stock to properly finance the large improvements necessary but kept in existence until June, 1926 when it gave up its charter.

It should be noted that there is considerable confusion in printed references concerning the ownership and the operating companies at the mine. From 1910 to 1928, the property was owned by Idaho Continental Mining Company, but leased (and operated) by the Idaho-Continental Company; however, the two companies' names were often used interchangeably. (Even the companies' officers, in their reports to the Idaho Inspector of Mines, did not always keep the distinctions clear.) To add to the confusion, the mine was being subleased to Klockmann Bros, Inc., a company apparently organized by Idaho-Continental Company's president and manager, Albert Klockmann.

Development work at the Idaho Continental was described in the January 15, 1910, issue of Mining World (Lancaster, 1910, p. 100):

The property most developed in the district is the Idaho Continental, situated 10 miles north of the lake, and 4 miles south of the international boundary line. This property has a magnificent surface showing of silver-lead ore, which has been practically opened up by a series of tunnels, the lowest of which will eventually open up the vein to a depth of 500 ft. below the outcrop.
The ore is contained in an altered sedimentary formation, evidently belonging to the same series of rocks as the Coeur d'Alenes, and the vein has been exposed on the surface by long trenches along the outcrop, for an approximate distance of 3000 ft.

This outcrop is very strong and regular, but varies in width from 2 to 20 ft. of concentrating ore, carrying a streak of clean shipping ore, averaging 2 ft. wide. There has been 1200 tons of crude ore shipped from the mine to coast smelters\(^5\), and the returns show an average grade of 49% lead and 20 oz. silver per ton.

This property comprises a group of 15 patented and 5 unpatented claims on the vein so as to protect the owners right in every particular. Active operations are being carried on at the mine this winter, in extending the No. 4 tunnel under the outcrop previously referred to, and on the completion of this work a large and profitable amount of ore will have been blocked out.

During 1910, the shaft was sunk to the 500-foot level and a crosscut was driven to the vein. However, the work did not advance far enough to determine the quantity of ore present at that level. Also during the year, planning apparently began for constructing a mill at the property. (The mill was reported under construction for the next three years.) Klockmann (n.d., p. 2) describes his efforts to finance the needed equipment for the mine and mill:

> We not only needed the road, but two short tramways, a 200 ton concentrator, a compressor plant, hydro-electric power plant, pumping plant and a number of buildings, and for this purpose I formed in 1909 a new Company with larger holdings, exchanging shares with the former stockholders, and thus through our fine showing in the Mine interested the Anaconda Copper Company to the extent of making us a loan of $325,000.00 on ore shipment, with which we put in the needed equipments.

Vinther (1980, p. 68-69) provides more information on Anaconda's involvement:

The St. Paul officials of the Great Northern Railway called the merits of the mine to the attention of the Anaconda Copper Mining Company in Butte, where Mr. Con Kelly, the present President, was at that time their chief attorney.

I met him by appointment at his summer home at Swan Lake, and after giving him the history of the mine and telling him, that it would require large capital to build a good road on a three percent grade, a hundred and fifty ton concentrator, and aerial tramway from the upper workings to the mill, a five hundred H.P. power plant, besides buildings to accommodate at least one hundred men, he sent for Mr. Reno H. Saloe, their chief engineer and geologist. I took him to the mine for a thorough investigation lasting two days, and on our way back he did not hesitate to express his opinion about the property to me, which was very favorable. At my request he promised to send me a copy of his report, which in his opinion justified a large investment of capital to bring the mine into full production.

Soon after I received a call from Mr. Kelly to come to Butte, where Mr. William Wraith, manager of their Salt Lake Office and their properties in Utah, including the International Smelter, joined us in working out a deal for the operation of the mine and the proper financing. Our meeting at the time took place under peculiar conditions, as their offices were under guard day and night on account of serious labor troubles and riots.

---

\(^5\)A typographic error, consisting of a full line of unrelated text, has been deleted from between the two syllables of the word "smelters," which was hyphenated in the original.
All legal papers were drawn up, the International Smelter to furnish the capital for equipment and development work, and in return to receive the ore for treatment under certain smelting charges, less fixed deductions to repay the advances.

The road was built at once on an even grade of three percent for twenty-six miles regardless of high rock cliffs, which were penetrated with hand drills by a special rock crew of fifty Italians, all work being done under the directions of Mike Cannon of Seattle, a young engineer and our superintendent, the survey having been made through two young engineers, Wickstrom and Gillison.

The road was completed at cost of $125,000 to which more than $50,000 have been added since for widening, filling in short bridges and other repairs. I traded the road a few years ago to the forest reserve for the building by them of a large dike and road along the Canadian Boundary line from the river at Porthill to the foothills, to protect our Boundary ranch from yearly overflows by the Kootenai River.

While the mine road was being completed we built and operated a saw mill two miles below the mine in good timber, and fourteen miles below on Boundary Creek a Hydro Electric Power Plant with a long flame and a fourteen mile transmission line. Also a twenty-six mile metallic telephone line from the mine to the Great Northern Depot at Porthill. At the mine itself a hundred and fifty ton concentrator was erected, a bunk and cookhouse accommodating at least a hundred men, a tramway from the upper workings to the concentrator, a good office building and a number of houses for married people.

In 1911, the Idaho Continental was said to have a large body of lead ore awaiting concentration and transportation to the railhead. The 1911 IMIR (p. 24-25) described the mine as follows:

Another important resource of lead-silver ore that is likely to add materially to Idaho’s specialty in metal production is now being developed in Bonner County, within three miles of the British line, where the Idaho Continental Mine shows a resource of practically measurable ore amounting to 175,000 tons, which by extensive and careful sampling is estimated to contain an average value of 14 per cent lead with 5 3-4 (5¾) ounces silver per ton, and probable ore that may quite safely be anticipated with additional adit tunnel work to double that resource. This is one of the strongest and most persistent linear manifestations of lead-silver mineral at the surface that has been found in Idaho and occurs in a close association of strongly defined shoots for fully 3,000 feet along the strike of the vein, which is a steeply pitching and intensely sheared fissure in thin bedded quartzite and is from 4 to 8 feet wide, with a course northeast, and a dip of 60 degrees to the northwest, and shows every evidence of persistency to great depth.

One important ore shoot near the center of the property is associated with copper sulphide minerals and carries values in silver of six to eight times as much as the average given in the above developed resources, but is not figured in that average. The ore is a fairly coarse galena free from zinc and maintains its sulphide condition almost to the grass roots. The mine has a shipping record of 1,200 tons of crude hand sorted ore that averaged 45 per cent lead and 18.5 ounces silver per ton.

The property is situated 24 miles from the nearest railway shipping point at Port Hill, a station on the Great Northern Railway, from which point a wagon road is now being constructed on dry ground with a maximum grade of 4 per cent, which will probably be transformed into a light railway in the near future. The development of the property is in the hands of experienced operators and the company is planning the erection of a large mill the coming season and is likely to drop into the list of producers of high grade lead-silver concentrating and crude ore before the close of another year.
This property is only a short distance north of the head of Priest Lake, around the shores of which there are quite a number of prospects containing lead, copper, silver and gold values in quartzite, diorite and granite formations. Some limited areas of limestone also occur in this region in which high grade silver bearing grey copper ores have been found, and it is not unlikely that other important ore discoveries will be made as a result of the interest in the district, which will be induced by the active operations of the Idaho Continental Mine next season.

By 1912, the mill, a hydroelectric power plant, and a sawmill were under construction, and a compressor was being installed. According to the IMIR for that year (1912, p. 55):

The property of the Idaho-Continental Mining Company in Bonner County, three miles south of the British line, has been the scene of active surface improvements during the year.

This enterprise has been substantially financed and during 1913 should become a prominent producer of high grade lead-silver concentrate and crude ore.

It has an extensive underground development and a measurable resource of mineral, aggregating 175,000 tons, containing an average value of 14 per cent lead, and 5 ¼ ounces of silver per ton, together with probable ore deposits that may be made available by additional development that will easily double the tonnage of this property now in sight.

Very little work has been done in the mine during the year, but the outside work has been extensive, consisting of the construction of a broad gauge wagon road from Port Hill, the nearest shipping point, 24 miles distant, which has been built on a 4 per cent maximum grade and may be ultimately transformed into a light railroad.

All the machinery for a hydro-electric power plant of 800 horsepower capacity and a concentrating mill of 300 tons daily capacity has been ordered and considerable of it is already on the ground, and it is anticipated that this complete plant will be in running order by June 1, 1913.

Figure 10 shows a potential site for generating hydroelectric power near the mine. This does not seem to be the site where the company actually built its power plant.

Construction continued on the mill and hydroelectric power plant in 1913. In addition, work was finished on the wagon road to Porthill. The 1913 IMIR (p. 106-109) described the mine at some length:

Among other leading points of interest in the lead-silver ore resources of Idaho that are destined to cut an important figure in the maintenance of the prestige enjoyed by this State into production of this class of ore, is the Idaho Continental Mine, which is the farthest north mine in the State, and whose property is partly adjoining the right-of-way through the forest which marks the international boundary line between Idaho and British Columbia. This mine has commanded recognition during 1913 by the variety of expensive and important equipment, road construction, power plant, mining and milling machinery which has been installed at a total cost of fully $300,000 and should result in giving the State this coming year another important shipping resource of lead-silver ore.

This property is situated 24 miles west of the nearest railroad station at Port Hill on the Kootenai Valley Branch of the Great Northern railway, to which point it has been connected with a wagon road through the rugged canyon of Boundary Creek with a maximum
Figure 10. Potential water-power site 3 miles from the Idaho Continental Mine (Bell, R.N., 1912, Thirteenth Annual Report of the Mining Industry of Idaho for the Year 1911, opposite p. 25).
grade of 4 per cent, which is susceptible of being transformed into a light railway as the development of the property warrants.

The new mill on this property, recently completed, is illustrated with an accompanying cut [Figure 11]. It is an up-to-date concentrating plant of 200 tons daily capacity and is supplied with an 800-H. P. hydro-electric plant and ample mine equipment. The mine whose ores it is designed to treat lies immediately above the mill and presents one of the most attractive surface showings of lead-silver mineral, embracing both high grade concentrates and crude shipping ore, that has ever been found in the State. The fissure on which this property is being developed is nearly vertical [sic] in walls of thin bedded quartzite, resembling the famous ore bearing Burke quartzite of the Coeur d’Alene District, and the ore is accompanied by intersecting dikes of basic igneous rock of the Coeur d’Alene character, which presents another interesting point of comparison and probably relative ore genesis.

The strike of the vein up the steep mountain slope presents magnificent opportunities for deep adit tunnel development on the ore course, which have been taken advantage of to a maximum vertical face depth of 500 feet.

This vein is traceable on the company’s property for over a mile in length and shows a close succession of ore shoots carrying high-grade galena mineral clear through to the grass roots. The largest ore shoot on the vein outcrops on the crest of the high mountain divide it traverses. It is with some slight fault interruption practically 700 feet long and two to fifteen feet wide with clean, high-grade concentrating galena ore, and occasional ribs of first-class shipping mineral varying up to four feet in thickness. This constitutes the largest shoot developed on the vein, but it is succeeded in the strike down the steep mountain slope to the east by two other important ore shoots of similar width that are 300 and 180 feet in length, respectively.

The bottom level development, which is an adit 1,700 feet long, shows the highest grade lead and by far the richest silver values found on the property. Extending farther down the mountain on the strike of the vein, another convenient tunnel site 300 feet deeper, connecting with the back of the mill, is afforded, and in the intervening spaces the crest of two other shoots are evidenced by shallow surface work with rich values in both lead and silver at the outcrop.

This property has been examined by several well-known engineers whose reports, made from a purchaser’s standpoint, are naturally conservative, but coincide in giving the property an estimated resource of nearly 100,000 tons of ore that is found to contain an average mill feed value of 15 per cent lead and approximately 1-2 [?] ounce silver per unit of lead.

The geological surroundings shows such a marked comparison with important ore development results in the Coeur d’Alene District that one seems warranted in estimating probable and possible ore of this deposit at several times its present important resource and the prediction of the establishment at this point of an important and steady producer and dividend paying mine operation of considerable capacity. The mill was nearly completed towards the close of the year and should be put in active operations at an early date.

Although the IMIR and the USGS reported that the mill was completed in 1914, it did not operate that year. According to the 1914 IMIR (p. 26):

The Continental Mine, in Bonner County, completed its new concentrating plant of 200 tons daily capacity, together with a big power plant and mine machinery installation and extended its development underground with most gratifying results in the matter of demonstrating its great ore resources, but was discouraged from shipping or entering into a campaign of mill operations by the slack market for mineral and the property has remained idle since the middle of the summer, except some small leasing operations.
Figure 11. Two views of the 200-tons-per-day mill and the mine camp of the Idaho Continental Mine (Bell, R.N., 1913, Fifteenth Annual Report of the Mining Industry of Idaho for the Year 1913, p. 108).
According to the USGS, equipment in the mill included a No. 4 gyratory Blake crusher, two 30×14\textsuperscript{6} roll crushers, one 6-foot\textsuperscript{7} Hardinge pebble mill, a hydraulic classifier, a Hancock jig, four No. 4 Deister concentrators, and two No. 3 Deister slimmers. The company did 650 feet of development (Table 2) and shipped lead ore, presumably mined during development work, to a Salt Lake smelter.

In 1915, the mill operated for two months, but was destroyed by fire on July 30. Vinther (1980, p. 69-70) gives Klockmann's account of this mill's brief operation:

> The whole operation was placed in the hands of a general manager by the Salt Lake Office [of International Smelting Co.], who was supposed to be an engineer, but unfortunately was more inclined to take life easy in Spokane by skipping highballs and scotch and sodas in preference to being around the works and attending his business.

> The mill, designed and equipped by the Union Iron Works of Spokane, started its run under a good millman very successfully, but was completely destroyed by fire after run of but a few weeks. The fire was caused by spontaneous combustion in the compressor room and spread so rapidly, extending also to the tram buildings, that nothing could be saved.

> It then developed that our general manager, in spite of plenty of funds on hand, had only placed insurance amounting to $22,000 on all the buildings and machinery. Shortly after he was requested by the Salt Lake Office to hand in his resignation.

> This, of course, did not help us any and I was again called to Butte to meet Mr. Kelly and Mr. Wraith, and Mr. Kelly said to the latter in my presence, "Bill, this is an awful affair. If we report this to New York after spending all that money Mr. Ryan will feel like taking our heads off. What in the world are we going to do? There is an end to all expenditures."

> Eventually, to make the affair look somewhat better in New York the Salt Lake Office sent another engineer to the mine, one Mr. Hart, to make a full report on the condition of the ore bodies, which by additional development work were in splendid condition, wherever work had been carried on, showing increased reserves, but in spite of this to our utter surprise he reported, and I received a copy of this report, that the ore bodies were very small and would not justify further outlays of money.

> This report was the very opposite to the one made by their Butte engineer Mr. Reno H. Sales, and the best answer to Mr. Hart's report is, that up to this date from this very part of the mine, from the surface to Tunnel No. 4 crude ore and concentrates have been shipped by the different companies containing metal values in net smelter returns of approximately five million dollars, and we are still shipping ore from the same sources in the mine after twenty-five years with good ore reserves ahead for the future operations.

> The International Smelting Company officially notified us on August 1914, that on account of the war conditions and great uncertainties of the future of business conditions they could not see their way free to go ahead with further operations of the property, and I made an arrangement with them for the Washington Company to pay them a certain amount of royalties from future shipments, under which we later on paid them the sum of $85,584.00 besides payments on their investment, which had been retained by the smelter during shipments.

During the time the mill was in operation, it produced a good grade of concentrate. In addition, the mine produced lead sulfide shipping ore, and both the ore and the

\textsuperscript{6}The diameter and the face of each cylinder, in inches.

\textsuperscript{7}The diameter of the barrel of the mill.
Table 2. Development work, number of men employed, and operating companies at the Idaho Continental Mine, by year.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Men Employed</th>
<th>Tunnels (feet)</th>
<th>Sinking (feet)</th>
<th>Crosscutting (feet)</th>
<th>Drifting (feet)</th>
<th>Raising (feet)</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1914</td>
<td>100</td>
<td>650¹</td>
<td>—</td>
<td>—</td>
<td>300</td>
<td>350</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1917</td>
<td>2</td>
<td>300¹</td>
<td>100³</td>
<td>200⁴</td>
<td>—</td>
<td>—</td>
<td>Klockmann Bros., Inc.</td>
</tr>
<tr>
<td>1919</td>
<td>138</td>
<td>745¹</td>
<td>290³</td>
<td>455⁴</td>
<td>—</td>
<td>—</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1920</td>
<td>74</td>
<td>318³</td>
<td>—</td>
<td>318⁴</td>
<td>—</td>
<td>—</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1921</td>
<td>67</td>
<td>940¹</td>
<td>—</td>
<td>690⁴</td>
<td>—</td>
<td>250</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1922</td>
<td>10</td>
<td>1,450</td>
<td>—</td>
<td>885</td>
<td>565</td>
<td>—</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1923</td>
<td>60</td>
<td>873</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1924</td>
<td>61</td>
<td>873</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1925</td>
<td>35</td>
<td>486</td>
<td>—</td>
<td>536</td>
<td>—</td>
<td>—</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1926</td>
<td>24</td>
<td>—</td>
<td>—</td>
<td>217</td>
<td>—</td>
<td>213</td>
<td>Idaho-Continental Co.</td>
</tr>
<tr>
<td>1928</td>
<td>15</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>727</td>
<td>476</td>
<td>Idaho-Continental Co.</td>
</tr>
</tbody>
</table>

1 Number is for total development for the year.
2 Number of men employed was not reported to the Idaho Inspector of Mines.
3 Number is combined total for sinking and raising.
4 Number is combined total for crosscutting and drifting.

Concentrate were hauled from the mine to the railway at Porthill by Caterpillar tractors. The mine’s output made it one of the most important lead producers in the state outside of Shoshone and Lemhi counties. Development continued at the mine after the mill burned down.

Transportation of the ore from the mine to the market was not without its challenges (Vinther, 1980, p. 69):

I took the contract to transport the concentrates from the mine to the train at Porthill, bought an equipment of eighty fine horses, wagons and sleighs for the purpose after the company had provided three good camps along the road consisting of barns and bunkhouses. I kept a veterinary from Spokane to look after the horses and equipment.

One of our best teamsters, who never missed a trip summer or winter under all weather conditions, Joel Riley, and one of the cooks, Billy Forbes, are still living in Porthill, carrying on a hotel, restaurant and store business.

Another old timer in Porthill is H. A. French, who has been our Postmaster for thirty-nine years and still is. Nobody here can imagine anyone else on the delivery window, as he has become the very center of this little community. He takes his time, particularly making out
money orders, but when he does get through it is perfect. A more honorable man cannot be found in this land. By living carefully and saving and conducting a mercantile business he has amassed quite a fortune, but some unscrupulous promoters and miners with great promises of rare metals in these mountains, but with nothing behind it, have for many years imposed on his credulity and good nature, and must have parted him from a considerable share of it.

Our lead pack horse, called old Shorty, by my old partner Bill Houston lived on the ranch, pensioned over since the early days and only died last winter at the age of forty years, his hair actually having turned gray. It reminded me of many a hard trip we had together and the many runs old Shorty had given us, when we were looking for our horses in the morning and found them miles away from our camp. To avoid this, whenever Billy Houston found a place on the trail where it was narrow and the horses could not get around it, he would sleep right on the trail and they would stop, as they always tried to go back with us, hardly ever having to hunt for them ahead on the trail. Shorty was generally in the lead and I would hear Billy give him a loud talk and tell him he's better turn around, which Shorty would quietly do.

Construction of a new concentrator began immediately, with plans calling for it to be in operation by the middle of 1916. Klockmann (n.d., p. 2-3) tells how the new mill was financed:

Unfortunately within 30 days after the completion of the plant we lost by fire, and it then appeared, that the man in charge of construction for the Anaconda Company had neglected to insure it, for which he was discharged by them, but the Directors refused to finance it the second time and turned the whole operation over to me, willing to take the loss, if the property could not be revived.

I then pledged my own resources in land, cattle and mining interests to a Spokane Bank, receiving a loan of $60,000.00 from them, and obtained two other loans of $40,000.00 each from personal friends to construct a new plant and make badly needed improvements to the road from the Mine to Porthill, which had been constructed on a former survey on a 3% grade. This survey was made by the Great Northern Railway at an expense to us of about $9,000.00, as the intention was to make a narrow gauge Railway of it with further opening of ore bodies.

Vinther (1980, p. 70) contains additional information:

The Washington Company then entered into a deal with Klockman Brothers, and [an?] Idaho Corporation, in the form of a lease for a number of years, under the terms of which Klockman Brothers had to rebuild the concentrating mill to a capacity of two hundred tons, furnish much additional machinery and other improvements, including the building of a tramway from the Porthill side to the Great Northern Depot, and to be reimbursed from concentrates shipped to the smelter.

The cost of these improvements according to the audit of a public accountant amounted to $249,700.00, which by the way has never been fully recovered by the Klockman Brothers, who sustained a heavy loss on the transaction by the fall of metal prices after the war was over.

The replacement mill, for which the USGS stated the capacity was 300 tons per day (tpd), was completed and in operation by the next year. A considerable amount of ore was processed through it. The lead concentrate, along with some crude lead ore, was shipped to the International Smelting Co., at Tooele, Utah. The concentrate contained
about 20 ounces of silver per ton and nearly 60 percent lead. According to the 1916 IMIR (p. 26):

At the north end of Boundary County, adjoining the international line, the Idaho-Continental Mine, in spite of serious set backs owing to power and transportation troubles, got its new mill of 150 tons daily capacity in operation during the summer and made a shipment of 46 cars of high grade concentrates and crude ore. This property has one of the longest and most persistent galena ore channels in the State. It is developed 500 feet deep with adit tunnels and shows a two years' ore reserve of clean high grade concentrating galena ore in quartzite [sic] gangue and walls which, with additional power and improved transportation advantages, should prove one of the future dividend paying lead-silver enterprises of the state.

The mine had three tunnels and extended over a vertical range of 600 feet.

The Idaho Continental produced most of the 1917 lead output from Boundary County. The mine operated for eleven months and shipped several thousand tons of crude lead ore and concentrate. According to the 1917 IMIR (p. 32-34):

Outside of the Coeur d'Alene District, the Idaho Continental Mine, whose property adjoins the Canadian boundary line in Boundary County, and whose ore resources and formations are more nearly identical with Coeur d'Alene conditions than those of any other district in the State, has developed an interesting resource of ore and made a handsome production of clean mineral during the year totaling 80 cars of concentrates and crude ore containing about the same average shipping values in lead and silver as the Coeur d'Alene District produces.

This property carries a remarkably persistent fissure vein or shear zone in thin bedded clean quartzite that is traceable for several thousand feet at the surface. It is equipped with a milling plant of 150 tons daily capacity and developed to a depth of 500 feet through adit tunnels driven on the course of the vein. This vein is nearly vertical and varies from a foot to as much as 40 feet in width of good concentrating ore, containing practically no zinc and very little associated pyrite, and with its clean white quartzite gangue presents one of the simplest milling problems imaginable. In addition to its very considerable production during the year, the present developed resources of this mine are estimated at 150,000 tons, or nearly twice as much as when the stopes were started from the present tunnel development, with less than half the length of the known continuity of the ore bearing part of the vein yet explored.

The operation of this enterprise has been hampered seriously by some shockingly poor engineering plans in the location of its power plant and mill. It is 26 miles from the nearest railway shipping point at Porthill, on a branch of the Great Northern Railway, and presents a transportation problem that is far more serious than the distance would indicate, by reason of the rough topography traversed by the road and a flat marshy valley bottom covered on the route. This road, however, was constructed on a uniform grade with a maximum of four per cent and is available for equipment with a light Shay railroad, which will probably be considered as the development of the deposit is more extensively carried out, if it maintains its present splendid tonnage promise.

Figure 12 is a picture of the mine and mill.

In the company's report to the Idaho Inspector of Mines, it was noted that the mine was being leased by the Klockmann Bros., Inc. According to the company, the equipment at the mine included: "550 kw. electric station, 15 mi. transmission line,
Figure 12. Idaho Continental Mine and mill (c. 1917; Bell, R.N., 1918, Nineteenth Annual Report of the Mining Industry of Idaho for the Year 1917, p. 33).
3 phase, 1600 to 440 volts. J-R® Type 10 Compressor. Complete air lines, drills, 3 blacksmith shops and equipment, machine shop. Aerial tramway from mine to mill, 2 bucket, gravity tram, 1800 ft. Dam, Flumes and pipe lines, Office Buildings, commissary and store buildings, bunk house. Assay office and residence, barns, etc. The mill was described as: “250 ton wet concentrator. 10 x 12" Blake Crusher, coarse rolls, jiggis, fine rolls, Hardinge mill, trommels, esperanza, hydraulic classifier, settling tanks, 5 willfleys, 4 Frue vanners, grizzlies and bins, triplex Gould plunger pump, centrifugal reserve pump, two dams[,] pump stations, lines, etc. complete.” Total development at the mine was about 3,200 feet of workings (Table 3).

In 1918, the Idaho Continental produced almost all of the ore from Boundary County. The mine shipped several thousand tons of rich lead concentrate. More material was on hand, and was not shipped, when the price of lead dropped toward the end of the year. According to the 1918 IMIR (p. 56-60):

Among the other lead producing districts of Idaho, the Idaho-Continental Mine [Figure 13] in the Boundary Creek district in Boundary County made important and marked progress in new ore development and in addition to a large output of clean crude lead ore and concentrates the normal stoping and drift progress, together with a little additional cross cut work, greatly expanded to the ore tonnage resources of this property and emphasized its growing importance and prospects. This mine is developed by three adit tunnels driven along the strike of the vein, the lowest tunnel being 1,600 feet in length and attaining a face depth of 500 feet [Figure 14]. The ore was supposed to lie in three separate shoots, but the past year’s development has demonstrated the likelihood that it is one persistent channel of stoping ground practically the full length of the lower adit and that the adit was previously driven off the course of the vein for considerable distance. Also a drift extension beyond a short fault at the south end added several hundred feet of additional stoping ground that can be readily undercut by the extension of the lower or No. 4 tunnel, and should very greatly enhance the ore resources of the property as development progresses at that horizon.

This vein carries other handsome virgin ore croppings and is traceable for 2,000 feet north of the portal of its lower tunnel. Recent disclosures indicate that when it is more fully developed it may carry one of the longest and most persistent channels of desirable galena mineral that has ever been opened in the state.

The Continental Mine is situated 26 miles from the railway at Porthill, near the Canadian line. Its isolated position has greatly retarded its progress. The property is connected with the railroad by a wagon road, whose route embraces a broad mud flat and overflow river bottom of Kootenai valley and a rugged glacial canyon route from the valley to the mine. The road on this route, however, was built on a uniform grade with a maximum of four per cent, with a view to its ultimate equipment with a shay railroad and the rapid expansion of the ore resources of the property now afford the most promising encouragement for the construction of this improved means of transportation.

The vein is a steep pitching fissure in clean, thin, bedded quartzite walls and is intersected by minette dikes. Its ores are clean galena with no zinc and very little iron sulphide and present conditions more typical of some of the Coeur d'Alene deposits than any other mine.

---

8Ingersoll-Rand.
8The gape of the crusher’s jaws, in inches.
Table 3. Cumulative development at the Idaho Continental Mine, by year. Information is from company reports to Idaho Inspector of Mines; discrepancies in numbers reflect inconsistencies in the original data.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Development (ft)</th>
<th>No. of Tunnels</th>
<th>No. of Shafts</th>
<th>Total Length of Tunnels, Crosscuts, and Drifts (ft)</th>
<th>No. of Raises</th>
<th>Total Length of Raises (ft)</th>
<th>Length of Principal Tunnels (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No. 1</td>
</tr>
<tr>
<td>1917</td>
<td>3,200</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1919</td>
<td>3,500</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1920</td>
<td>3,800</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1921</td>
<td>6,000</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>250</td>
</tr>
<tr>
<td>1922</td>
<td>8,335</td>
<td>5</td>
<td>1</td>
<td>100</td>
<td>4</td>
<td>750</td>
<td>1,800</td>
</tr>
<tr>
<td>1923</td>
<td>9,208</td>
<td>5</td>
<td>7,922</td>
<td>1</td>
<td>100</td>
<td>4</td>
<td>350</td>
</tr>
<tr>
<td>1924</td>
<td>9,208</td>
<td>5</td>
<td>7,922</td>
<td>1</td>
<td>100</td>
<td>4</td>
<td>1,186</td>
</tr>
<tr>
<td>1925</td>
<td>13,712</td>
<td>6</td>
<td>12,110</td>
<td>1</td>
<td>100</td>
<td>5</td>
<td>1,502</td>
</tr>
<tr>
<td>1926</td>
<td>14,142</td>
<td>6</td>
<td>12,327</td>
<td>1</td>
<td>100</td>
<td>5</td>
<td>1,715</td>
</tr>
<tr>
<td>1928</td>
<td>15,845</td>
<td>6</td>
<td>15,845</td>
<td>1</td>
<td>100</td>
<td>8</td>
<td>3,610</td>
</tr>
<tr>
<td>1948</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1,500</td>
</tr>
</tbody>
</table>

1Information not reported to Idaho Inspector of Mines.
Figure 13. Idaho Continental mill (c. 1913; Bell, R.N., 1919, Twentieth Annual Report of the Mining Industry of Idaho for the Year 1918, p. 57). This picture is enlarged from the photograph in Figure 11.
Figure 14. Plan and section of the Idaho Continental mine (c. 1918; Bell, R.N., 1919, Twentieth Annual Report of the Mining Industry of Idaho for the Year 1918, p. 59).
in the state outside of that district. If its permanency in depth is in any ratio to its linear extent, at the surface, it should gradually develop into one of the more important lead ore resources of Idaho. The property is equipped with a concentrating mill of 150 tons daily capacity, a hydroelectric power plant on Boundary Creek, 12 miles below the mine. Both these installations have been greatly improved during the past year and former difficulties from the shortage of power materially relieved. The metal contents of its ore shipments during the past year by motor truck haulage to the railway aggregated 7,000,000 pounds of lead and 129,000 ounces of silver, with 1,500 tons of high grade mill product left on the dump when the roads became too soft for hauling in the fall.

The Idaho Continental was active for eight months in 1919 and shipped high-grade concentrate to International, Utah. The company produced 42,802 tons of ore (Table 4). In August, 130 men were employed at the property, and twelve motor trucks hauled ore to Porthill. The 1919 IMIR described the year’s activities as follows (p. 54-56):

The Continental Mine in Boundary County, operated with a force of 100 men for the greater part of the year, made a handsome production of clean galena concentrates with shipments containing an aggregate value of 8,804,000 pounds of lead and 104,000 ounces of silver. This property is situated at the extreme northern border of Boundary County adjoining the British line 26 miles from Porthill on a branch of the Great Northern Railway. It is equipped with a 150-ton concentrating mill and is developed with three adit tunnels to a maximum face depth of 500 feet. Its actual ore production has doubled the original engineering estimates above this lower tunnel already, with a reserve still in sight, above that horizon, that again doubles the original estimates with probable and possible ore at further depth through the extension of a mill level tunnel under several virgin ore outcrops that should aggregate a million tons.

The formation is thin bedded quartzite and the ore carries hardly any zinc and very little iron sulphide affording one of cleanest milling gangue minerals imaginable and a ready separation of the contained values. The formation is hard and the dip of the vein steep, presenting splendid opportunities for shrinkage stoping methods requiring very little timbering which have been followed successfully in the operation of the mine to date. The property has hardly been touched with new development since the mill was built, but the ore bodies have shown such a marked expansion on stoping widths up to thirty feet in 10 to 12 per cent mill feed values as to greatly increase the tonnage resources originally estimated. A decidedly interesting new ore extension was found during the year in the stoping operations to the south and by some crosscut work which demonstrated that the 200 main drift had been run parallel to one of the biggest ore bodies in the mine.

The Continental Mine is nearer the type of the vertical lead bearing fissures of the Coeur d’Alenes than any other mine in the State. Its ore body is the most persistently continuous at the surface of any mine in the State, except possibly the Livingston Mine in Custer County . . . . Its future as an important source of desirable lead-silver ore tonnage seems assured. The greatest drawback of this enterprise is its isolation from railway transportation which, while the distance is only 26 miles, it is over a route that is only passable during short seasons of the year, due to the flooded condition of the Kootenai Valley bottom in the spring months, which has to be crossed on a dyke on the way to the railroad and the deep snows of the winter season at the upper end of the route. A remedy for this condition is a light shay railroad for which the wagon road was originally designed with a maximum grade of 4 per cent, and I am advised the property will very likely be supplied with this essential requirement during the coming season as such a road would make accessible some very
<table>
<thead>
<tr>
<th>Year</th>
<th>Ore Produced (tons)</th>
<th>Total Mining Cost per Ton</th>
<th>Ore Shipped During Year (tons)</th>
<th>Concentrate Shipped During Year (tons)</th>
<th>Average Value per Ton</th>
<th>Cost of Local Treatment per Ton</th>
<th>Percentage of Recovery</th>
<th>Transportation and Treatment Costs per Ton</th>
<th>Silver Recovered (ounces)</th>
<th>Lead Recovered (pounds)</th>
<th>Gross Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919</td>
<td>42,802</td>
<td>$4.26</td>
<td>4,947</td>
<td>$73.97</td>
<td>$1.07</td>
<td>75</td>
<td>$40.18</td>
<td>108,609</td>
<td>6,128,000</td>
<td>not known</td>
<td></td>
</tr>
<tr>
<td>1920</td>
<td>41,137</td>
<td>22.68</td>
<td>4,537</td>
<td>$98.48</td>
<td>$1.16</td>
<td>75</td>
<td>$41.85</td>
<td>100,742</td>
<td>6,591,625</td>
<td>not known</td>
<td></td>
</tr>
<tr>
<td>1921</td>
<td>42,694</td>
<td>1,770</td>
<td></td>
<td>$108.28</td>
<td></td>
<td>75</td>
<td>24.07</td>
<td>37,005</td>
<td>2,087,485</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1923</td>
<td>59,980</td>
<td>77</td>
<td></td>
<td>3,275</td>
<td></td>
<td>75</td>
<td></td>
<td>83,800</td>
<td>4,350,000</td>
<td>$257,565.41</td>
<td></td>
</tr>
</tbody>
</table>

1Number includes unknown amount of crude ore.
extensive timber resources in addition to affording a cheap transportation outlet for the Continental Mine product.

In 1920, the mine was active for six months, and production was greater than that from any other mine outside of the Coeur d'Alene region. Concentrate, which contained about 60 percent lead, and lead ore were shipped to International, Utah. The mill was operated as long as water was available, and the concentrate was hauled to the railroad when the condition of the road permitted. The other development during 1920 was the negotiation of an agreement with the Bunker Hill & Sullivan Mining & Smelting Company10 (Vinther, 1980, p. 70):

In the fall of 1920 with 1800 tons of concentrates on my hands at the mine, hoping for better prices of silver and lead, I kept losing money on the operation and decided to shut down until conditions would improve.

In the meantime I met Stanley A. Easton, Manager of the Bunker Hill and Sullivan Mining Company and P.W. Bradley, who was heavily interested in said company. After giving them a verbal statement of the condition of the mine, and that I still had a ten year lease on the operation of the property, they both offered to take a trip to the mine and to make their own investigation of its merits.

The three of us went to the mine together, and while both gentlemen looked over the surface and through all the workings alone I prepared a meal for us. After we had finished it Mr. Bradley said to me, "Mr. Klockman, your property has the largest showing I have ever seen before, and I am sure anywhere in the world, with the exception of the Kimberly Mine in Canada. If this property was located in the Coeur d'Alenes we would pay you a million and a half dollars for it. As it is unknown as to its future expansion in depth we would like to join you as partners with a one-half interest in the operation of your lease, either upon some royalty basis to be agreed upon, or we will give you 50% of the net profits of the operation, take over your personal assets of stocks and inventories on hand, including the 1800 tons of concentrates, and from the beginning of operations finance the same without calling on you for any contributions. We will start operations in the coming spring, in April, 1921. We will also pay you a salary to maintain the office in Spokane and to look after all corporate affairs and a monthly rent for the use of your private tramway from your ranch across the river to the railroad loading station. You can think our proposition over for a few days then meet us in Spokane or Kellogg."

On November 10th 1920, Mr. Easton, Bradley, their smelter director Mr. Smith and myself met in Spokane, where all details of the deal were decided upon. My choice of interest to be one-half of the net profits, which net profits, unfortunately never materialized during the eight years of our partnership. I had taken the wrong gamble, as any reasonable royalty would have paid me a comfortable fortune.

They did a great amount of development work, however, including the running of a long lower tunnel No. 5, which did not turn out to our satisfaction. The general result, I think, would have been very different if we had been nearer Kellogg. It would also have been better if Mr. Easton could have visited us often instead of only a few times during the eight years of

---

10This date conflicts with other sources, but is probably correct. Green (1974) states that Bunker Hill leased the property in 1922. Hershey (1921; quoted below) implies that the lease was in place before August 1921, but does not state when the property actually was leased. The timing and nature of the 1921 development work at the Idaho Continental are consistent with Klockmann's narrative.
During 1921, the major activity at the Idaho Continental was driving a new lower tunnel (the No. 51). The tunnel was started on April 1 and by late October, it was 1,050 feet long. The company also shipped to the Bunker Hill smelter more than 1,000 tons of concentrate from ore that had been mined and milled the previous year. Oscar Hershey visited the mine for Bunker Hill during the summer and described the property in detail (Hershey, 1921, p. 1-9):

The Idaho Continental mine, situated at the summit of a high mountain 26 miles by road westward from Port Hill, Idaho, is in an area of Belt rocks that consist of a series of black slates and graphitic schists, gray quartz-sericite-biotite schists and white quartzites, that doubtless represent the Precambrian formation unusually highly metamorphosed by intrusion of large bodies of granite magma. The beds strike northeast. The planes of schistosity strike northeast and stand nearly vertical, but in part dip northwest 70° to 85°, locally reversed. The Idaho Continental vein zone is in a belt of gray schist whose predominant attitude is vertical. In certain lenticular bodies the gray schist has been bleached to a light-colored sericite schist with thin bands of white quartzite. A little fine-grained pyrite has been developed in the rock and by oxidation this gives the surface portion a somewhat iron-stained appearance. There are two of these lenses at the mine. The southeast one appears barren. The northwest lens has practically all the veins bearing galena. Irregular fissures were formed in this lens and in them were deposited quartz, calcite, galena, sphalerite, pyrite and chalcopyrite. The fractures tended to have courses slightly more eastward than the white schist lens and northwest dips of 50° to 70°, usually 60° to 65°. As a consequence, in order to keep within the lens, they have had to have northeastward rakes at 35° and less. The veins practically terminate at the border of the white schist and quartzite bands. A different type of pyrite-bearing quartz occurs in irregular pockets and southeastward dipping to vertical seams through the white and gray schist areas and must not be confused with the galena-bearing veins which are very local in distribution. The latter are cut by dark green lamprophyre dikes, whereas the other type of quartz seams sometimes may be found in the dikes. The Idaho Continental ore was probably produced in the following manner: On the northwest and southeast sides of the belt of metamorphosed sediments there are great areas of intrusive granite, that on the northwest probably a portion of the Nelson granite. Somewhere toward the northeast this granite probably breaks across the schist belt. When intruded, water issuing from the magma, or water set in circulation by the heat of the magma penetrated the schist belt in a southwest direction, gradually rising, flowing in the fissures that were formed by a breaking stress that was relieved only in the white schist and banded quartzite lens. Thus the mineral deposits at one time extended (and may yet if not removed by erosion, extend) far northeast from the mine site, but probably changed in character as the granite was approached. In that direction I would expect the galena to decrease nearly to the vanishing point, but the pyrite and chalcopyrite to increase and finally pyrrhotite appear. There is some slight evidence supporting this theoretical deduction. Northeast of the mine the vein zone is almost entirely buried under glacial debris.

1/This is currently the main open adit at the mine. A raise from the No. 5 level connected to the No. 4 level. Most of the mining was done from or above the No. 4 level or from the open cut. The No. 5 adit was used to haul ore to the mill.
and hidden by dense timber and underbrush, but at about 3000 feet northeast of the new or No. 5 tunnel, on the Silver Queen claim, per Mr. Lancaster, there are two cuts in light-colored sericite schist with seams of quartz and sulphides, chiefly pyrite and chalcopyrite, with possible traces of sphalerite and galena. Some of the seams dip northwestward, suggesting the Idaho Continental vein system. It is, however, true that the entire width of the zone is not exposed and good galena-bearing seams may occur in the buried portion. At a point farther northeast along the zone, Mr. Kevern expects to see, when he rounds up his informant, galena grains scattered for several hundred feet along a small creek bed. It is, therefore, uncertain as to how far northeast along the belt commercial galena deposits may occur and I have merely advanced the theory as a caution against too much optimism regarding the vein system toward the northeast. That is the only direction in which there are possibilities. As already stated the country is exceedingly difficult to study on account of the timber, underbrush and glacial debris. Schist and quartzite extend at least two miles from the mine, though intruded by granite along the planes of schistosity after the first mile. There is no way of telling how far the veins go without tracing by trenching at intervals. As the Idaho Continental group of claims probably covers the belt for about one mile northeast of the mine I do not regard it as necessary to acquire other property in that direction unless Kevern's guide shows him galena as claimed.

The important white schist lens terminates at the southwest on the Continental claim. Several other lenses occur toward the northwest, one of which has probably been the source of the name Iron Dyke of two claims of a group which Mr. Lancaster says is owned by Mr. A. Klockmann. A rather strong bleached and iron-stained belt occurs at or near the plane between the gray schist and a broad belt of black and gray slates and graphicah schists that intervenes between it and the Nelson granite. These northwest lenses may have a little lead in small veins but not much and I do not think it necessary that you acquire more property in that direction. In any case, the rake will soon carry these lenses into the group on which you have a lease.

Some day, if developments in the mine give you an optimistic frame of mind, you may extend the No. 5 tunnel to cross-cut these northwest lenses. I am not sanguine enough to recommend it now.

In the mine there are two groups of lead-bearing veins, the Red and the Black, adopting, under modification, Mr. Lancaster's nomenclature. The Black is a relatively short weak vein that extends obliquely across the white schist belt near its southwest end. The heart of it is (and was) a good shoot of ore between certain levels. Between it and the Red vein or veins there is an interval (at the surface 200 feet long) in which there is no trace in the white schist of a vein of the lead-bearing system. Then the Red vein begins abruptly. This is clearly seen at the surface. The fissure bends rapidly northwest and runs across the schistosity to the edge of the gray schist. Much ore has developed along the planes of schistosity southwestward, but only to distances of 10 to 30 feet from the fissure proper. This makes a strong outcrop of ore, which gradually diminishes northeastward to a mere irregular seams of galena. To a considerable extent the veins show galena practically at the surface because ice moving S. 60° W. abraded the former oxidized zone and post-glacial time has not been long enough to form a new one worth mentioning. Hence, the veins may be stumped to the surface, but the stops usually have not been carried quite to the surface on account of letting snow and water into the mine and weakening the hanging-wall. In some sections the outcrop of the veins is a porous, limonite-stained quartz from the decay of pyrite and chalcopyrite where there was little or no galena to protect them. There are also some sections where the line of outcrop is marked by a broad shallow, debris-filled trench and I have ventured to map the veins in these sections where I was reasonably certain they exist.

On the top of the ridge a second Red vein outcrops about 40 feet in the foot of the one already mentioned. It dips at a rather low angle and my impression is that they unite with depth. Both have been extensively stumped, though evidently considerable ore remains. In a
longitudinal section which I prepared from my observations and Mr. Lancaster's information, both veins are treated as one, constituting a vein or ore-shoot that rakes northeast at first about 35°, then slightly flatter, that has been largely stope to a practically vertical fault. The surface mapping shows that the block southwest of this fault has been thrown down or moved southeast, and displacement underground of the Red vein shows that it has been thrown down about 60 feet. The presumption is that the Black vein has been displaced in the same way.

The next disturbance going northeast is a fault that has been formed in a very persistent but small lamprophyre dike that dips northeastward 50°. In the 300-foot block between the two faults, the surface shows the Red vein splitting into three strands that doubtless unite with depth. Where the stopes are 15 to 20 feet wide, it means that two veins are mined and more or less galena occurs in seams and pockets between and beyond them. The deposits have the irregularity characteristic of cross-cut fractures in schist, and in the stopes appear to be broad brecciated zones with irregular walls, until one studies them carefully and learns that most of the galena is distributed along several persistent fissures.

For about 240 feet from the lamprophyre dike northeast I have not ventured to map the vein outcrops, though there are trenches to indicate their presence. The displacement on the dike fault has been southeast or downward on the hanging-wall side. The data are not clear enough to fix the direction and amount of movement accurately, but leave little doubt that there was a small vertical and a horizontal component, in other words the hanging-wall moved at an oblique angle southeastward and downward. On this basis I have displaced the Red and Black veins in the longitudinal section 30 feet, but the figure is arbitrary. It is, however, clear that what Mr. Lancaster has called the Black vein northeast of the dike is the same as his Red vein southwest of the dike. When I began to map it at the surface there are three strands, two marked by streaks of limonite-stained porous quartz and one by galena. After 420 feet I can see only one strand, the main fissure with galena at the surface. Along this fissure the schists and quartzites have been bent in a manner to suggest normal faulting, though the actual displacement was small. The vein is very thin to a point about 90 feet southwest of the mouth of No. 3 tunnel. Thence for 240 feet it is so strong that I am constrained to recognize that the heart of the Red vein oreshoot which went under cover on top of the ridge emerges again above the No. 4 tunnel. The suggestion is that the rake of the Red vein has continued to flatten, and I have so indicated it in my section.

I might burden this report with the details of the distribution of the white schist lens and galena occurrences on each level, but I believe it will be more readable and hence useful if I keep to general principles and leave to maps and the section the presentation of details.

Unquestionably much ore remains above the No. 4 tunnel level in the form of short sections of the thick shoots, in off-shoots of galena running into the walls of the large stopes, in thin edges of the veins, in unmined strips along the outcrops, in broken ore and even in many chunks lying about on the surface and scattered through dumps, so that I do not want to be understood as questioning the wisdom of the company in taking the lease or as expressing doubt that it can be made profitable under conservative management but I am not sanguine that much ore will be found below the No. 4 tunnel level and hence that the mine has a great future. The new or No. 5 tunnel penetrated the white schist belt in a relatively weak section without any trace of the lead-bearing vein system nearly under a surface shaft that has galena, and the drift southwest has continued to develop this schist belt in a practically unmineralized condition. The quartz seems it contains belongs to the other system of veins mentioned early in this report. The only evidence of mineral of the kind sought, in this drift, was a thin seam of

---

12This longitudinal section, as well as Hershey's maps, is not included with Idaho Geological Survey's copy of this report.
galena, sphalerite, pyrite and chalcopyrite, handed in at the office by a miner. The presence of the white schist and the absence of a galena-bearing vein suggest that the Red vein lies overhead and the Black vein farther southwest on this new level. In a cut 300 feet northeast of No. 4 tunnel there is 2 feet of quartzite rich in galena and other sulphides. At 220 feet farther northeast a cut exposed a small irregular vein of quartz, galena, etc. Finally, at 490 feet farther northeast we have galena ore near the collar of the shallow shaft. These occurrences prove that the Red vein extends as far at least as the shallow shaft, but they do not prove how deep below the surface it extends. It may skim along the surface, or it may go to a substantial depth as I have tentatively mapped it in my longitudinal section. Mr. Lancaster’s model shows a long section of what I call the Red vein coming down to the No. 4 tunnel level, but as a matter of fact, very little of it on that level is thick enough to be of much value, which suggests that the lower portion of the vein weakens southeastward. Now, it may be true that the portion of the Red vein that has escaped erosion and glacial abrasion northeast of No. 4 tunnel is this greatly weakened lower portion, the heart of the ore-shoot having been removed. It may be unduly pessimistic but it seems to me that before any expensive development is planned it would be advisable to put up a raise to learn just how deep the Red vein does extend. Messrs. Kevern and Lancaster favored a site off the drift, but I argued that if the northeastward rake continues, the distance to the vein would be less if the raise were made from the cross-cut tunnel beyond the mouth of the drift; besides, it would not interfere with continued driving of the drift. Lancaster says the distance to the surface is 145 feet. If it transpired that the ore does not come much below the surface it could be mined in an open cut during the summer.

In my longitudinal section I have represented the Black vein as flattening in rake and lengthening down to the No. 4 tunnel level. But much of it is very thin and evidently non-commercial. It does not appear very good to me on the No. 4 tunnel level and below that level may become non-commercial. On the other hand, after a week section it may improve again and the chances seem great enough to warrant continued driving southwest on the new level in search of it. The manner in which I have projected it in my longitudinal section is of course no criterion of where it may be found except that if it goes down to No. 5 level as it must theoretically in some form it can hardly escape being ahead of the present face of the drift. I have instructed Mr. Lancaster how to drive the drift so as to reach the northeast end of the Black vein if in normal position with reference to the white schist lens.

It appears to me that Mr. Lancaster has a very good working knowledge of where the remaining ore above No. 4 tunnel level is and can safely be depended upon to get it out, but I think he ought to be impressed with a new policy in mining. That is, to skin it out cleaner as he goes. Doubtless in the past the difficulty of making a profit under the transportation difficulties caused much gathering of the best ore, but it will have to be mined much cleaner now to get much tonnage. I have never, at any other mine, seen so much first class ore lying around on the surface and projecting out to invite the pick.

Presuming that I will visit the mine from time to time, it seems to me that it will be better for me to make detailed recommendations then as to how to find missing blocks of ore, than to go into the subject elaborately now.

I regret that the observed facts have compelled me to take a rather pessimistic attitude about the future of the mine, but I am partly consoled by the information from Mr. Kevern that you had anticipated my conclusion about the possibility of the main ore-shoot skimming along the surface northeast of No. 4 tunnel. Briefly stated, the possibilities in that direction are great, but the probabilities are not encouraging.

Klockmann Bros. was the only lessee reported at the mine during 1921, although both Klockmann’s and Hershey’s statements, as quoted above, show this to be inaccurate.
The Idaho Continental was operated by the lessees from May 1 to December 31, 1922, and the mine was the largest producer of lead north of the Coeur d'Alene district. Several thousand tons of high-grade lead concentrate was shipped to the Bunker Hill smelter, but transportation difficulties prevented a greater output. According to the 1922 IMIR (p. 62):

Early in 1922 this company revamped its mill, changed the flow sheet and added a flotation unit, since which time active production has been maintained. In addition to the mill changes No. 5 tunnel was advanced continuously throughout the year and a large amount of diamond drilling was done. The new ore exposed by the drill and being developed by No. 5 tunnel has greatly increased the ore reserves of this property. In the past the greatest difficulty has been in transporting the ore from the mine to the railroad, a distance of 26 miles. This problem was solved with 10-ton Holt caterpillar tractors which are proving successful. The new construction and development work has been financed by the Bunker Hill & Sullivan M. & C. Co., which has purchased an interest in the lease and to those smelter all ore is shipped.¹³

The April 17, 1922, issue of Mining Truth ran the following story on the mine (p. 9):

Milling operations are to be resumed at the Idaho-Continental mine, in Boundary county, Idaho, some time next month. The property, which is the biggest producer of lead-silver ore in the state outside of the Coeur d'Alenes, is being operated jointly by A. Klockmann and the Bunker Hill & Sullivan Mining & Concentrating Co. under five-year lease. About 50 men are now employed, some of them upon readjustment of the milling equipment. Flotation is to be added and the flow sheet somewhat changed according to plans of Bunker Hill metallurgists who have conducted a series of experiments covering several months. The lower tunnel is being driven steadily ahead and is now in between 1,600 and 1,700 feet. No crosscuts have yet been run, the management being content to run through to the vicinity of the oreshoot mined 350 feet above before doing any exploratory work. The accumulation of about 2,600 tons of concentrate piled up during the last run of the mill has all been hauled out, the "caterpillar" having given great satisfaction since special trailers were constructed. The haul of 26 miles, over mountain and river bottom roads is known as one of the most difficult in the Northwest. The Holt "caterpillar" seems to have finally solved a transportation problem that has existed for nearly thirty years and in which several hundred thousand dollars has been thrown away.

A follow-up story ran in the June 16, 1922, issue of Mining Truth (p. 8):

Number of men employed at the Idaho-Continental mine, Boundary County, Idaho, under the operations being conducted by the Klockmann-Bunker Hill joint lease will be increased from 80 to 150 in the near future, according to an announcement made by Mr. Klockmann recently.

The No. 5 tunnel is nearing completion, and additional underground exploration is to be undertaken by means of some diamond drilling. A second 10-ton Holt caterpillar tractor is being added to the hauling equipment, and mill and everything in connection with the enterprise will be going at an unprecedented scale within a short time, it is believed.

¹³The Idaho Continental Company's report to the Idaho Inspector of Mines did not mention anything about the lessees or Bunker Hill's interest in the property.
The August 18, 1922, issue of *Mining Truth* noted (p. 12):

Operations at Idaho-Continental, 26 miles from Porthill, Idaho, are proceeding satisfactorily, according to A. Klockmann. Men employed number about 100, with mill running steadily since operations were resumed. No. 5, the long tunnel, has about 100 feet to go before reaching the point where a raise will be started to connect with the upper workings.

Oscar Hershey examined the mine in October (Hershey, 1922, p. 1-3):

Yesterday I visited the Idaho Continental mine. First I inspected the stopes in which work has been done since my last visit. A small amount of work at the back of 405 stope on the Black vein has brought to no change worth noting. There are several new chutes on the Black vein ore on the No. 4 tunnel level to start a new stope. Mr. Lancaster is preparing to work the Sub 2 south stope on the Black vein which is partly oxidized in this region and has an unusually high silver ratio. It would be interesting to know whether the letter is true in the Black vein at lower levels. In the Sub 4 stope the Red vein ore at the northeast end of the back has given place to essentially barren quartz but as there is ore above and below, this is probably merely a horse in the lower portion of the vein. A little work has been done on Nos. 1 and 2 stopes on the Red vein near the surface to get ore left along the foot and hanging sides of the stope and at the lower edge and southwest end of the shoot. The southwest portion of the 305 stope on the Red vein continues 35 feet wide and may continue thus to the surface, about 60 feet. The northeast portion of the same stope continues to be from 30 to 40 feet wide with good ore in the back. Mr. Lancaster found 15 feet thickness of ore in the footwall of the old stope, from which he has taken over 9000 tons. In reality, nothing new of great importance has been developed by the stopping and no recommendations from me are necessary.

Five diamond-drill holes were bored from the top of the No. 1 raise from the No. 5 tunnel level. Two of them show evidence of quite a wide development of the Red vein near the surface and one of them showed a little ore at a point about 195 feet above the No. 5 tunnel level, or almost exactly where I place the probable lower edge of the Red vein in my original longitudinal section. No. 1 raise is now being extended to the point where the ore was cut. Mr. Lancaster has plans for developing the ore from this raise including driving northeastward to the surface. I am not disposed to criticize these plans.

I examined the cores of all the diamond drill holes bored on the No. 5 tunnel level. They show a wide zone of light and dark gray sericite schist, but no vein, though there is some suggestion of vein matter without mineral at 123 feet in hole No. 503. It is a problem as to what has become of the Black vein. Hole No. 503 is probably too far southwest for it. Holes 511 and 504 should have cut it, but it may have flattened in rake and may come down to the level northeast of hole 504. Another possibility is suggested by the fact that holes 503, 511 and 504 were not drilled far enough to reach the Black vein. The third possibility is that it does not come down to this level. The surest way to trace it down would be to put up a raise from the present end of the No. 5 tunnel level at an angle to reach the No. 4 level under the lamprophyre dike and accompanying fault and then trace the vein down by a series of short crosscuts.

In a letter to me dated Sept 28th, Mr. Bradley quotes from a letter to you as follows: "6th - Chances for the Idaho Continental to the south - especially at the point on Cedar Creek where Klockmann says two feet of ore can be seen." Mr. Lancaster does not know where the point is referred to by Mr. Klockmann as two feet of ore showing on Cedar Creek. He never saw any galena beyond the end of the Continental claim. He says McLain has a claim on Cedar Creek but he never saw any mineral in it. The absence of knowledge of where to go and a new fall of snow made it impossible for us to investigate this matter.
Perhaps Mr. Klockmann has in mind the outcrop of the Black vein. If not, I suggest that he show Mr. Kevern or Mr. Lancaster where the 2-foot exposure on Cedar Creek is and then it can be shown to me at my next visit.

There are no chances for the Idaho Continental toward the southwest. The only chances for new ore lie in tracing the Red and Black veins northeastward. I have suggested a raise that would be the surest way of tracing the Black vein. Tracing the Red vein can be accomplished by carrying out the plans made by Mr. Lancaster and later putting up more raises from the No. 5 tunnel level and possibly at a yet later date driving northeastward on the No. 5 level.

Mr. Kevern has told me that it is essential to keep the mill working to capacity. That being the case prospecting should be prosecuted vigorously to give a chance for more stopes when the big chimney in the Red vein above No. 3 level is suddenly exhausted not many months hence.

The mine operated at capacity for most of 1923. The 250-tpd mill produced several thousand tons of high-grade lead concentrate, which was shipped to the Bunker Hill smelter at Bradley. A large part of the development work for the year consisted of diamond drilling. The aerial tram from the mine to the mill was 1,600 feet long. Horses were used for haulage in the mine. Mill equipment included a 10x20 crusher (probably a jaw crusher), four double four-compartment Hartz jigs, three 2x30 roll crushers, a 12x20 hydraulic classifier, a drag classifier, a 6x22 1/4" Hardinge ball mill, five Willey tables, and four Frue vannors. Although Bunker Hill was supposed to add a flotation circuit to the mill, this apparently was not done (Vithner, 1980).

Several thousand tons of silver-lead concentrate was shipped from the mine in 1924, making it the largest lead producer outside of Shoshone County. An active development program opened a large orebody, which was later shown to be part of the original vein. When Kirkham and Ellis visited the Idaho Continental in 1924, they described the property as follows (Kirkham and Ellis, 1926, p. 56):

The company owns twenty claims, fifteen patented and five unpatented. Underground workings thus far approximate 10,000 feet [Figure 8]. The surface equipment consists of a 1200 cu. ft. 1-R Imperial type air compressor; Leyner drill sharpener; 1600-foot aerial tramway connecting mine and mill; full mining equipment; and 250-ton concentrator.

The mill consists of a 10x20 crusher, belt conveyor, four double four-compartment Hartz jigs, three rolls 12 in. x 30 in., drag classifier, five Willey tables, Hardinge ball mill, four Frue vannors, flotation cells and hydroelectric power plant. The concentration of the ore is fairly simple, there being very little zinc accompanying the galena. The mill feed runs from 8% to 9% lead and is concentrated into a product varying from 65% to 70% lead. The silver accompanies the lead in the ratio of 0.35 to 0.40 of a troy ounce to the per cent lead and maintains this ratio fairly uniformly throughout the concentration.

This company has produced since 1915, 849,791 ounces of silver and 43,913,407 pounds of lead. In 1923 it produced approximately 96,000 ounces of silver and 4,500,000 pounds of lead and in 1924 it produced 100,465 ounces of silver and 4,878,931 pounds of lead. The property is operated by the Bunker Hill & Sullivan Mining and Concentrating Company of Kellogg.

14The diameter, in feet, and the length, in inches, of the cylinder in the mill.
The Idaho Continental maintained capacity production and active development throughout 1925. More than 2,000 tons of silver-lead concentrate was shipped, again making the mine the largest lead producer north of the Coeur d'Alene district. Several shipments ran as high as 71 percent lead and 27 ounces of silver to the ton. Exploration work included considerable diamond drilling from the No. 5 tunnel.

In 1926, the lessees operated the mine on a one-shift basis and treated about 23,000 tons of silver-lead ore in the mill. (Figure 15 shows the mine workings at this time.) More than 3,000,000 pounds of lead was recovered from the silver-lead concentrate, making the Idaho Continental Mine the largest lead producer in Idaho outside of Shoshone County. For twelve years ending in 1926, the Idaho Continental was the largest producer of silver and lead north of the Coeur d'Alene region. More than 800 feet of development was done during the year. In a letter to the Idaho Inspector of Mines dated July 16, 1926, Portland, Oregon, attorney George Arnold Alexander noted:

In perusing your report for the year 1925 I find you state at page 104 that Idaho Continental Mining Company owns the Continental mine. This is absolute true; however, on page 105 you carry the impression that the claims Continental, Jasper and Blue Joe are owned jointly by the Idaho Continental Mining Company and The Idaho Continental Company. This is a mis-statement, as these claims in which the mineral lies are the property of the Idaho Continental Mining Company, a Minnesota corporation, and are held under a purported lease by the Idaho Continental Company, which in turn had sub-leased same to Klockmann Brothers without the written consent of the Minnesota Company, as required in the purported lease of December 15, 1910. This property has not been worked by the Idaho Continental Co. since 1912 - and has been in litigation some eight years.

The Idaho Continental Company was organized under the laws of the State of Washington in December 1909 - not 1910.⁵

The Mine Inspector's office acknowledged this letter, but the text in the annual reports was not changed. Also, considering that the Idaho Continental Mining Company's annual reports were filled out by A. Klockmann (and were identical in content to the Idaho Continental Company's reports), the lawsuit mentioned in Alexander's letter does not seem to have had much effect on operations at the mine. The outcome of the suit is not known. Production was greatly reduced in 1927, although development work continued. The following year, the mine operated at capacity for a few weeks, but production was suspended in February. Exploration and development continued with a small crew. Bunker Hill relinquished its interest in the mine (Vinther, 1980), and the April 16 issue of

⁵The only identification on the letter is the sender's signature, which appears to read “Geo. Arnold Alexander,” with all the letters connected to each other. A typed reply to this letter from the Mine Inspector's office is addressed to "Yeo Arnold Alexander." Alexander was presumably representing Idaho Continental Mining Company.

⁶State of Idaho records indicate that the mine was incorporated in January 1910. An alternative interpretation is the mine was incorporated in Washington in December 1909 but did not complete the paperwork necessary to conduct business in Idaho until the following January.
Mining Truth noted that arrangements were being made with "eastern capitalists" for additional money to finance the development program. During the first part of the year, the mine yielded about 600 tons of silver-lead concentrates and 143 tons of crude silver-lead ore, which were shipped to the Bunker Hill smelter at Bradley. Vinther (1980, p. 70-71) gives Klockmann's account of the consequences of Bunker Hill's dropping its lease:

In 1928 the Bunker Hill withdrew from the lease, and their representatives Mr. Joseph Lancaster and other Bunker Hill engineers gave us their reason, that the ore body in the mine was practically exhausted, and that, but a few thousand tons of milling ore, might be left in the mine, but the cost of recovering it would be too great.

We held several stockholders meetings in our Spokane office, in which nearly all stockholders were represented. I told them the reasons of the retirement of the Bunker Hill Company and the statements of their representatives and the Superintendent in charge of mining, but added that every experienced miner employed at the mine at the time differed completely with them, as I did myself. Personally I still had the greatest confidence in the property under good management and I made them the offer, since we were a non-assessable company in which I held a majority of the stock, that if necessary we should assess ourselves voluntarily according to our holdings and continue the operations as the Idaho-Continental Company.

After several meetings under the guidance of an attorney the minority stockholders decided that they did not wish to contribute their proportional share to further operations and offered to turn over their interest to me and disband the company, if I would personally pay and discharge all outstanding indebtedness and obligations of the company, which offer I accepted and thus obtained the proper deed to the property.

In order to pay up the large amount of former indebtedness I had to dismantle and sell all the valuable machinery of the mill and power plant. I then gave leases to various miners for several years to take out and ship crude ore on payment of 15% royalty.

The mine was idle throughout 1929. Lessees shipped 89 tons of lead ore to the smelter at Bradley in 1931 and one car of rich lead ore of smelting grade in 1934. The mine produced a little high-grade lead ore in both 1935 and 1936. In the mid-1930s, Klockmann began investigating the feasibility of building a new mill at the mine (Vinther, 1980, p. 71):

It is rather interesting to note how far the judgment of investigating engineers will differ on mining property, even if it has a large amount of development work as in our case.

The engineer, who had been in charge of the property for years told me that no milling ore to speak of was left in the mine. He strongly advised me to drop it for good, and not to attempt to put in a new mill. His assistant thought there might be from five to eight thousand tons of milling ore left in it, but it would not pay to work it. Another engineer of the company raised the contents to a possible ten thousand tons, which of course would not justify the erection of a mill, and an outside young engineer, whom I called in, stated in his reports that developed mill ore amounted to fifteen hundred tons and possible ore to six thousand tons, and advised me to drive from one thousand to two thousands feet of drifts, crosscuts and raises before undertaking to even build a twenty-five ton mill.

I showed these results of my investigations to a practical mine [man], one Erwin McLaury, who had worked in the mine and was now leasing. He had also found ore during his investigations in a new discovery in the extreme south end of the vein towards Priest Lake, and
here is almost verbally what he said, "Mr. Klockman, don't pay the least attention to these fellows and their foolish reports. The former engineer of the property should know better, and if you will bring him up any time, so that I can go through all the workings with him, I guarantee that he will than [then] tell you that there is plenty of ore in sight to build a fifty ton mill." Which by the way I did before building the mill, and received his full endorsement. ["""] The rest of the follows [fellows] came running up here and I took them through the mine myself, spending in the workings from three to four hours all told, looking at the formation and where the ore shines right in your face, but they never see where poor mining has deliberately left and lost it. When they go back home and write up an elaborate report of what they have seen.

["""] Since you gave me a lease I have crawled for days through every hole and workings to select the best places from where to extract crude ore, and I can point out to you where these mistakes were made beyond any doubt every stope in which they have worked and extracted ore, will go from tunnel No. 4 clear to the surface, and the same area will produce at least one hundred thousand tons of ore. It does not say, however, that we intend to ship crude ore alone as in the extraction of one ton of crude ore and shipping, you have to throw aside from five to eight tons of mill ore, which does not bring you anything. To be conservative you should build at least a fifty ton mill at once with the object of enlarging it after properly opening up the ore bodies again and start stoping and shipping from the old workings following the ore bodies."

After looking the mine workings over with him I felt sure he was right and started my plans to build a fifty ton mill, which was designed by the well known milling and metallurgical engineer Mr. Royal S. Handy of Kellogg, Idaho. The machinery, including a flotation plant, was furnished by the Union Iron Works of Spokane on liberal terms, and when completed in the fall of 1936 worked highly satisfactorily in every way for the treatment of our ore.

When I entered into a partnership with the Bunker Hill Company our written agreement called for the latter company to add a flotation plant to our mill, which was not done. However, not being a professional miner or millman myself I never realized the enormous saving this comparatively inexpensive addition would have made if it had been added years ago, as we had shipped up to this time during former operations approximately forty-five thousand tons of concentrates, the smelter returns averaging from 25 oz. up to thirty oz. in silver and from 62% to 66% in lead, the tailing dump of several hundred thousand tons contained approximately two ½% in lead and 2.8 ounces of silver.

According to the USBM, Klockmann constructed a new 50-tph flotation plant in 1937 (not 1936, as Klockmann states) and treated several thousand tons of silver-lead ore. The 1937 IMIR reported (p. 133):

Fire destroyed the compressor building and tramway at the Idaho Continental mine. This held production down to some degree. However, the damage has been repaired and the owners plan to operate during the winter and may increase the capacity of the mill to treat tailings left by former operators in addition to the newly mined ore. Concentrates are shipped to the Bunker Hill Smelter at Kellogg. A. Klockmann of Porthill is in charge of the property.

17 The opening quotation mark for the rest of McLaury’s statement is missing. Based on context, this seems the most reasonable place to locate it.
It should be noted that both Green (1974) and Gammell (1946) state that Trueman Higginbotham leased the mine in 1937, somewhat in anticipation of the facts (see below). In 1938, the mill treated 4,000 tons of ore, and 15,630 tons of ore was treated by flotation in 1939. Klockmann’s account of the operations for these years is as follows (Vinther, 1980, p. 71-72):

Under my new operations I was fortunate enough to get, through the recommendations of Mr. Royal Handy one Mr. Truman Higginbotham of Kellogg, Idaho, as Superintendent, who for the first time during all past operations turned out to be a practical miner as well as an expert millman. While the metal contents in all former shipments of concentrates had been as stated above, even after the flotation had been added, Mr. Higginbotham raised the smelter returns from the same identical stopes and workings from 40 to 80 oz. of silver, and from 70 to 74% of lead, showing beyond a doubt, that we had lost a large fortune in our former operations for the want of the flotation units and a competent man in charge.16

He knew practical mining and milling, as Mr. Higginbotham fully endorsed Mebury’s (McLaury’s (?)) judgment about the ore bodies and told me that by mistakes made in mining under former operations the mine had been left in truly deplorable condition, which was now causing us a great deal of useless large expenses.

After I had thus operated the property during 1937 and slump in the metal prices occurred during the fall we decided not to operate until prices were revived, as it would have meant shipping out our valuable ore with little or no profit. When an improvement occurred in the fall of 1938 I gave a lease to Mr. Higginbotham on a 15% royalty basis on all shipments for two years lease, during which time in seventeen months including January 1940 he paid averaging $1,500 per month, the first clear profit I had ever received from operating [operations] exceeding five million in smelter returns, which I am applying on payments of machinery of the new mill I had built until all indebtedness is paid.

Besides, Mr. Higginbotham has spent approximately $20,000 on his own account for machinery and equipment to add a flotation plant to save the mine, to practically double the capacity of the mill and for new transportation equipment to enable him to operate without interruption during the winter months in our high altitude.

Mr. Higginbotham estimates that at his present capacity of milling he has enough ore in sight for a run of several years, before he will reach the new discovery of the furthest south end of the property. As yet none will be able to tell the future of the property without considerable exploration by development and diamond drill work, which he intends to undertake in due time, and also finally to work over the large tailing dump to a good profit.

Further steps are on foot for still more improvements towards greater security against floods.

By 1940, the mill had been expanded, and the mine produced 30,000 tons of silver-lead ore in that year. The 1940 IMIR noted (p. 117):

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

---

16The magnitude of this loss can be gauged from the fact that an estimated 85 percent of the mine’s metal output from 1945 to present consisted of reprocessed tailings.
Production for 1941 was 37,000 tons of silver-lead ore. The Idaho-Continental operated continuously in 1942, producing 41,353 tons of ore that yielded about 45,000 ounces of silver, 2,450,000 pounds of lead, and a little gold and copper.

In the early 1940s, the dam on the tailings impoundment was breached, and a large quantity of material was carried into the creek. The erosion associated with this event is believed to be responsible for much of the extensive sediment deposition, channel braiding, and debris in the lower part of Blue Joe Creek (Gruenenfelder, 1987).

Higginbotham sold his lease on the Idaho Continental to A.B. Cobb of Great Falls, Montana, on January 1, 1943 (USBM; Gammell, 1946). Cobb operated the mine and mill continuously until September 30, treating 10,560 tons of silver-lead ore.

The mine and mill were idle most of 1944. The property was taken over late in the year by the Idaho-Continental Leasing Co., and 900 tons of lead ore was produced. When Gammell (1946) examined the property in 1945, it was being operated by T. Garrett and J. Small. However, USBM records list a W.K. Garrett as the contact person for the Idaho-Continental Leasing Co., which suggests that T. Garrett and J. Small were affiliated with that company.

In 1945, the mine produced 2,400 tons of lead ore, which yielded 124 tons of silver-lead concentrates. (Green, 1974, implies this material was reprocessed tailings rather than ore.) Gammell (1946, p. 4-6) described the property as follows:

The Deposit

Two veins, known as the Red vein and Black vein follow along two paralleling folds; their axes are about 75 feet apart. This zone, in general, strikes N45°E. The dip ranges from 60 degrees west to 90 degrees. In the vicinity of the mine workings, low dipping basalt dikes and steeply dipping cross faults cut the formation and veins, (figs. 3, 4, 5, 6, and 7 [Figures 16, 17, 18, 19, and 20]). The veins occur in the broken permeable schist and quartzite where faults have cut the limbs of relatively small concentric folds. The heaviest mineralization is generally confined to both walls of the veins, (fig. 6 [Figure 19]); however, in some sections the entire vein may be of high grade ore.

The Red vein, which is the principal one, occurs along the west fold mainly in quartzite. Its outcrop is conspicuous throughout most of its length. The ore shoot mined in the Red vein was about 2,500 feet along the rake, 2 to 20 feet wide; it continued to a depth of 200 feet vertically below its outcrop.

The Black vein follows the east fold; it crops out only at the south end of the ore shoot. At the north this vein is mainly in schist. At the south it is in quartzite. The ore shoot mined in the Black vein was about 1,200 feet along the rake, 1.0 to 10 feet wide and 5 to 200 feet deep measured on the dip of the vein. The ore shoots in both veins raked north about 20 degrees.

The ore

The ore consists of fine and coarse grained silver bearing galena in a quartz, altered schist, and quartzite gangue. Sparingly disseminated iron sulfides have accompanied the mineralization. The high grade ore usually assays 40 to 60 percent lead and 5 to 10 ounces silver per ton. The entire width of the ore shoots in both veins was mined. The included waste or low grade ore was largely responsible for the relatively low tonor of the ore produced. Some chalcopyrite and sphalerite is said to have been produced and to have accounted for smelter returns on copper and zinc. No chalcopyrite or sphalerite was observed in the ore now remaining in the mine.
Figure 16. Plan of the Idaho Continental Mine (Gammell, 1946, Figure 3).
Figure 18. Cross-section looking northeast at the Idaho Continental Mine (Gammell, 1946, Figure 5). This is Section A-B on Figure 16.
Figure 19. Cross-section looking southwest at the Idaho Continental Mine (Gammell, 1946, Figure 6). This is Section C-D on Figure 16.
Figure 20. Cross-section projected from outcrops, looking northeast from the southwest end of the Continental ore zone at the Idaho Continental Mine (Gammell, 1946, Figure 7).
SAMPLING

Five channel samples were cut at points where mineralization was indicated on possible extensions of the ore shoots below the mined out areas. The samples proved to be barren. Sampling of existing pillars and backs of the stopes was not practicable due to the excessive staging and timbering that would have been required; hence no attempt at an overall sampling of the property was made.

MINE WORKINGS

The mine has been operated from two main levels known as the No. 5 tunnel and the No. 4 tunnel (fig. 3 [Figure 16]). No. 4 tunnel is approximately 1,600 feet long and for a number of years was the main operating level. No. 5 tunnel is about 3,000 feet long, and is now the main operating level. A number of raises connect the two main levels and also connect with about five sublevels above each of the main levels. There are, in all, about 12,000 feet of underground workings in the Idaho Continental mine.

Mining in the past has been done by the open stope method, using very few stulls and leaving a minimum number of pillars. The dip of the bedding of the hard quartzite, being opposite the dip of the ore, makes the open stope method of mining suited to the physical characteristics of the ore body.

PLANT

The mine was equipped with mine and mill equipment sufficient to mine and treat 50 pounds of ore per day.

The mill was operated by a 125 H. P. Diesel engine through a line shaft and belt drives. Mill equipment consists of a 4' x 6' Ball Mill, eight 24' flotation cells, and a 3' x 5' filter. An 8' cone crusher was operated by a 50 H. P. gas engine.

The mine was equipped with a 385 cu. ft. compressor, some drills, cars, and other accessories.

A two bucket "jig back" tram from the coarse ore bin at the portal of No. 4 tunnel carried ore to the mill.

COMPANY OPERATIONS

At the time of examination, the leasing company was milling old jig tailings and planned to mine some of the pillars and saved areas.

The transmittal letter from S.H. Lorain accompanying this report stated Gammell's conclusion that the Idaho Continental was "of no further interest" was believed to be correct (IGS mineral property files).

In 1946, 3,845 tons of old tailings from the Idaho Continental dump was reprocessed. This material yielded 2 ounces of gold, 2,500 ounces of silver, 3,000 pounds of copper, 131,500 pounds of lead, and 16,000 pounds of zinc.

During the summer of 1947, the Continental Mining Co. installed a 500-tpd heavy-media separation plant at the mine. The plant operated from August 1 to October 15 and treated 7,964 tons of old jig tailings and 111 tons of ore. This material contained 7,000 ounces of silver, 4,000 pounds of copper, 300,000 pounds of lead, and 30,000 pounds of zinc. The product from the heavy-media plant was treated in a 100-tpd flotation mill, yielding 161 tons of high-grade lead-silver concentrate. In addition, 64 tons of high-grade lead-silver ore were shipped direct to the smelter.

18 This typographical error was questioned in the original. It should have read "tons of ore per day."
The Continental Mining Co. operated its heavy-media plant and 100-tpd flotation mill for five months during 1948. Operations were closed down during the winter because the jig tailings and the ore pillars being mined from the surface were inaccessible due to the heavy snow. During the summer months, the company treated 28,667 tons of old jig tailings and 330 tons of crude ore containing 12,000 ounces of silver, 9,000 pounds of copper, 600,000 pounds of lead, and 90,000 pounds of zinc. Also, 278 tons of lead-silver ore was shipped direct to a lead smelter. The company noted in its report to the Idaho Inspector of Mines that it was leasing the mine from Mrs. Martha N. Klockmann of Bonners Ferry, Idaho. From Gammell’s (1946, p. 3) statement that “The Idaho Continental mine has been controlled by A. A. [A.K.] Klockmann, or his estate, since it was discovered,” it would appear that Klockmann died sometime before Gammell visited the mine in June and July of 1945.

During the summer of 1949, Continental Mining Co. treated about 15,000 tons of old jig tailings in the 500-tpd heavy-media separation plant. The lead middling from the heavy-media plant and 5,000 tons of lead ore were treated in the 100-tpd flotation mill. This yielded a total of 285 tons of concentrates containing 2 ounces of gold, 7,250 ounces of silver, 1,538 pounds of copper, 356,637 pounds of lead, and 20,000 pounds of zinc. In addition, 16 tons of lead ore and 32 tons of zinc-lead ore were shipped direct to the smelter.

Various lessees worked the mine during at least part of each of the next three years, and ore was shipped each year. Continental Mining Co. relinquished its lease in 1952. Northwood Mining & Leasing Co. operated the mine for part of 1953. In June 1953, Bunker Hill & Sullivan Mining & Concentrating Co. geologist Alfred E. Nugent visited the property (Nugent, 1953, p. 1-2):

A Mr. H. A. Myers of Western Machinery Company gave Ted Olds, of our Mining Department, the tip that lessees at the Idaho-Continental had found new ore; Ted introduced Mr. Myers to me.

In accordance with your suggestion I drove to the mine to investigate the find. I there met Mr. Guy Patchen, the lessee. Patchen is a miner-lessee who has been sub-lessee at Idaho-Continental at various times during the past 20 years. He is a man about 50 years of age, amiable though apparently competent at handling his small crew. He discussed his plans at the mine and voluntarily described the diamond-drilling he had done.

Patchen has a lease on the entire mine from Mrs. Klockman of Bonner Ferry. At the time of my visit he was getting ready to mill several thousand tons of dump ore cobbled from high-grading operations of former years. He also was employing two or three men to pick down patches and stringers of good ore in the walls of the open cut. Patchen also has several places in the mine from which he expects to mine high-grade, but at the time I was there he was unable to do so because of the water from melting snow.

The "new ore" found by diamond-drilling is impossible to assess. It was supposedly indicated by a "doodle-bug" owned by Francis W. Russell of Sunny side, Washington. Patchen tested the indication by one diamond drill hole; the core recovery was poor and he is not certain of the width which is represented by a half-inch fragment of good galena. However, the discovery was made about 2,000 feet below the camp — far to the northeast beyond any of the old workings, but in line with the strike of the orebodies (according to Patchen).
Upon learning that Patchen intended shipping his concentrate to the Bunker Hill Smelter I suggested that he and I sample the dumps to be milled and mentioned that the Mill Department at Bunker Hill might run mill tests on his ore. His estimated tonnages (too optimistic, I believe) and the assay results are as follows:

<table>
<thead>
<tr>
<th>Dump</th>
<th>Est. Tonnage</th>
<th>% Pb</th>
<th>Oz. Ag.</th>
<th>% Zn</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1 tunnel</td>
<td>500-1000</td>
<td>13.25</td>
<td>4.89</td>
<td>0.64</td>
</tr>
<tr>
<td>No. 4 tunnel</td>
<td>800</td>
<td>10.60</td>
<td>4.68</td>
<td>0.27</td>
</tr>
<tr>
<td>Open Cuts</td>
<td>20,000-50,000</td>
<td>3.66</td>
<td>1.69</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Upon returning to Kellogg I submitted the samples to Al Kroll, Assistant Mill Superintendent, who ran mill tests on them and sent a report of the results to Mr. Patchen.

**Comments**

The geology of the mine has been described by Hershey reports in our files and the Idaho Bureau of Mine [sic] Bulletin No. 10 on Boundary County. We have no available record of Higginbotham's operations from 1938-1942.

Mr. Patchen has a considerable tonnage of mill feed, but the mill tests indicate that it is partially oxidized and that his lead recovery may not be more than 51 percent. Furthermore, he is not an experienced mill operator.

Even in 1924 Hershey commented that the only hope of finding new orebodies at Idaho-Continental was the extension of the vein to the northeast. He said: "Northeast of the mine the vein zone is almost entirely hidden by dense timber and underbrush, but at about 3,000 feet northeast of the new or No. 5 tunnel, on the Silver Queen claim, there are cuts in serpice schist with seams of quartz and minor sulphides……. The entire width of the zone is not exposed and good galena — bearing seams may occur in the buried portion……. The northeast is the only direction in which there are possibilities." This testimony is interesting in connection with Patchen's discovery of galena to the northeast.

I suggest that it will be good business to visit Patchen occasionally in order to show an interest in his geologic, mining or milling problems.

In 1954, Northwood Mining & Leasing Co. produced lead concentrate from the Idaho Continental and also shipped a small quantity of lead ore direct to the Bunker Hill smelter. In 1955, Jireh Mining Co. produced lead concentrate and Patchen & Erickson shipped crude ore from the mine. Jireh Mining Co. produced lead ore in 1956. In September of that year, Nugent (1956, p. 1-6) again examined the property:

September 12, 1956. Arrived at the Idaho Continental Mine. In accordance with brief plan of reconnaissance, went to the southwestern end of the deposit. About opposite the No. 1 tunnel I made a cross-sectional reconnaissance some 4,000 feet to the southeast of the vein. About 400 feet southeast of the No. 1 tunnel and two or three-hundred feet below it vertically is a short tunnel about 100 feet long that has been driven in along the fault, which cuts and displaces the Idaho Continental ore body. Nothing of importance was seen in the tunnel.

About 150 feet further to the southeast is the diorite dyke, which is roughly parallel with the bedding of the quartzites and schists. Rocks from the No. 1 tunnel to this diorite dyke are all uniformly dipping to the northwest at angles of 85 degrees. In the vicinity of the No. 1 tunnel no bands of alteration were seen.

The diorite itself is a fine-grained, black material, and dyke is about 50 feet wide. Continuing southeast from the dyke the rocks are a little more quartzitic. Some bands are
massive quartzite, six-inches to a foot in thickness. Bedding is very nearly vertical and in some cases I saw dips to the northwest at about 87 degrees and there were a few dips in the other way, but, essentially, the dip is a little steeper than further towards the No. 1 tunnel.

However, this band of rocks to the southeast of the diorite forms a ridge perhaps 50 feet higher than the diorite. The southeast slope of this ridge is steep and descends into a deep gully, possibly 200 feet below the level of the ridge.

Halfway down the slope to the bottom of the gully the dip of the rocks become flatter ranging from about 87 degrees to the northwest to 58, and finally to about 20 degrees in the gully. Gully is a topographic expression of a fault. The rocks on the southeast side of the gully are the same quartzite and schists, however, the dip is vertical. The rocks from there to the southeast are more quartzite, but the dips are vertical to 85 degrees northwest.

Another diorite dyke about 100 feet wide angles in from the east until it hits the fault plane and follows along the fault plane for perhaps 300 or 400 feet or more to the SW.

Therefore, in summary, the cross-sectional view of the rocks for some three or four-thousand feet to the southeast of the Idaho Continental ore bodies shows the dip of the rocks to be generally the same. The uniforms deep dip to the northwest [7]. The major structural feature in this belt of rocks is the fault which I have already described.

Incidentally, this fault appears to be along the similar strike to the bedding although I could not see the dip. Some strike folding was observed in the rocks. This strike folding on a minor scale had a plunge to the southwest at about 20 degrees. From this point to the southeast I swung around in an arc some 500 feet below the top of the Idaho Continental ore body and to the southeast of the outcrops.

As a result of these two days of reconnaissance, I am convinced that if we are to understand the localization of the ore bodies at the Idaho Continental, it would be necessary to map possibly the No. 5 level and the No. 4 level, and, especially, the crosscuts driven from them, and perhaps make one or two cross-sections down through some of the stopped areas. Possibly, one in the center of the stopped area and one on the southwest end of the mine, and one on the northeast end of the mine: this way, just hitting the high spots. This job possibly could be done in a week or ten days.

In regard to the operations of Guy Patchen, I doubt very much whether he can afford to continue for very long. In two or three places in which he hopes to work, two or three underground, and one or two on the surface for selvage operations and costly difficult to mine. I do not believe that Guy Patchen has the necessary equipment nor the managerial ability to get this ore out at the profit.

Until a study is made of the structure and localization of these ore deposits, it would appear that the best chances for finding additional ore are either to the northeast beyond the stopped portion of the mine or parallel lenses which may lie below the Red vein and the Black vein which have not yet been discovered. In the altered zones in the footwall already mined zones may hold a chance for new undiscovered ore bodies.

Purpose of this reconnaissance was to get a better understanding of the dip of the fracture and the way in which it cuts the beds.

From there we went to the northeast end of the mine in the general vicinity of the outcrop No. 5. About 300 feet to the southwest of the No. 5 crosscut along the outcrop is the last of the workings which penetrate the surface. Here the alteration mineralization along the surface are little indication of the ore bodies which have been mined underneath. Most of this work at this end of the mine was done by the Bunker Hill. Stopes are from four to ten feet wide and it is almost continuous stopping. Those pillars that are left show that the ore body was from two to four feet wide, very good grade mill ore.

Both with individual streaks and lenses of very high-grade galena. Here on these stope, just like on other places, in the mine that I have seen, the actual locality of the fracture
appears to be a crumpled, a very sharp fracture in the beds. Sharp local curvature of the beds on either side of the fracture would suggest that the hanging wall moved down, that is, a normal fault.

We went up to the vicinity of the No. 4 tunnel and there made another cross-sectional reconnaissance northwest, covering about 1500 feet of ground to the northwest of the vein. However, like the other reconnaissance made yesterday, I saw no change in the strike or dip of the bedding in that direction.

The Black vein appears to be 50 to 75 feet lower in elevation. However, the fracture cutting the bedding and the plunge is similar to the Red vein. The stopes on the Black vein come to the surface in various places along the side of the hill, and further southeast there are three large cuts which break into the stopes.

On that there is one cut 75 feet to the southwest. In this cut the mineralized altered zone is only one to two feet wide. At a point 50 feet further to the southwest the zone is weaker yet. Perhaps 100 feet further southwest the topography steepens and the rocks are well exposed, but the mineralized fracture represents the Black vein is either too weak to spot or is absent all together.

Having failed to find the projection of the Black vein or the Red vein to the southwest, I made a cross-sectional reconnaissance to the northwest, going about 1000 feet, but failed to notice any change in the strike of the bedding or in the dip, which uniformly 70 to 85 degrees to the northwest nor did I see any other altered zones.

Thursday, September 13, 1956. Accompanied by Guy Patchen, I went up to the No. 1 tunnel and there went underground, climbing down through the No. 1 tunnel to the Sub-2 and almost to the Sub-3.

Dip of the bedding in the lithology of the rocks is very similar to the cross-sectional view I had earlier in the afternoon. I crossed over the front along the southwest projection of the mineralized beds but could see no alteration or anything to indicate further mineralization.

From there we climbed back up to the real outcrop of the Idaho Continental. That outcrop being the further southeast exposure of the ore. Characteristics of this outcrop are crumpled, altered zone. Width of the zone varies anywhere from five to ten feet. Bedding on either side of this zone dips from 70 to 80 degrees to the northwest. However, the veins are localized along fractures which cut the bedding. Dip of the flat are angles, 40 to 50 degrees to the northwest. General roles in the bedding along much of the locality of the vein, especially the rather tight crumples and folds, are usually dipped from 15 to 20 degrees to the northeast and apparently it is the plunge of these crumples which delimit the ore bodies. The Red vein and that is the upper original lense of ore, outcrops the plunge has steepened to 40 degrees.

Both above and below the major fracture along which the ore is localized, the bedding is cut by flattened, interlacing cross-brakes, filled with stringers of galena and alteration, extends a short distance to either side of each of these little cross-brakes. From the outcrop of the Red vein, continuing in line, that is, along the strike of the bedding with the Red vein outcrop, but about two or three-hundred feet further southwest, are the outcrop of the Black vein, which is a lower lense beneath the Red vein.

Various lessees shipped small amounts of ore or concentrates in each of the next four years. A story in the January 9, 1958, edition of the Wallace Miner\textsuperscript{20} noted:

Old Continental Mining company has been organized to operate the old Idaho Continental lead-silver mine in northern Boundary county just south of the Canadian border, it was disclosed this week by Frank E. Speer of Spokane, a company official.

\textsuperscript{20}The copy of this article in IGS's mineral property files does not include the page on which the story appeared.
The new firm, which filed articles of incorporation last week, is a reorganization of Jireh Mining company, which was formed in 1952 as successor to Idaho Continental Mining company, he said. It is capitalized for $500,000 and the new stock is assessable. Most of the outstanding shares are held in Coeur d'Alene, Spokane and South Dakota.

The Idaho Continental mine, which is located about 30 miles west of Porthill, has been operated intermittently since its discovery in 1884 and now has about three miles of underground workings.

Last year about $60,000 worth of equipment, including a new ore crushing plant, was installed and a small amount of lead-silver concentrate was shipped to the Bunker Hill smelter at Kellogg, Speer stated.

In 1959, Bunker Hill again examined the property (Bracken, 1959, p. 1-4):

Examination of the Continental Mine property, 26 miles west of Porthill, Idaho, consumed three weeks of the month of July 1959.

This study consisted of mapping the geology in accessible drifts, probing in old stopes, and Brunton and tape survey and geologic mapping of roads and bulldozer cuts. Geochemical testing of both soil and water samples was also used in an attempt to indicate favorable areas for surface exploration.

Summary:


Lesser operations, in addition to earlier company operations, have depleted the known ore deposit and saved most of the workings. There is little possibility of additional ore, except for a limited tonnage of milling grade above the Number Five (5) tunnel. The principal hope for the property is that of locating similar ore deposits.

Surface indications are rare, even in the vicinity of the original outcrops. Faulting appears to be of minor magnitude and float, and underbrush obscure the geology over much of the area.

My conclusion, reached after seeing much of the surface and mapping the old workings, roads and surface pits, is as follows:

1. The best possibility for similar ore deposition lies under overburden 300 to 600 feet northeast of, and parallel to, the known ore deposit.
2. A limited amount of bulldozer trenching, possibly $1000 to $1200 worth, in the upper edge of the cirque south of the No. 4 tunnel would test this.

General geology:

Ore deposition at the Continental Mine appears to have been controlled by the intersecting of northwesterly dipping feeder fissures (dipping 55°-60°) with bleached siliceous schist horizons in nearly vertical altered Pritchard [sic] rocks. Two feeder-shears, 20 to 40 feet apart, and roughly parallel, are exposed in most of the underground workings.

Replacement of the quartzitic schist along the fissures and in flat crumpled zones, associated with the fissures, formed the ore bodies. There is very little surface indication of the deposit even in areas adjacent to the workings where feeders can be traced to the surface.

Fragments of ore left in pillars, and blasted over the surface near the workings indicate that the ore was nearly solid galena with occasional pyrite and quartz inclusions.

Some occurrences of scattered pods of galena in 8 to 12 foot wide shear zones was also noted in some of the old workings. One such zone, 8 feet wide, was sampled and the
sample assayed 5.8 % Pb and 2.5 oz. Ag. per ton. There is a limited tonnage of this type of material available along the northeast extension of the ore zone.

Exposures in surface pits north of the mine workings indicate that the mineralization in that direction contains a preponderance of pyrite associated with similar feeders and rock alteration.

The possibility of an undiscovered ore body, semi-parallel to the known zone, is based upon the fact that each exposure of the so-called “Black vein” observed, strikes slightly more easterly than the main, or “Red vein” zone.

The observed strike would project the vein under overburden and tailings in the vicinity of the mine camp. Surface testing by bulldozer can be accomplished near the upper edge of the cirque as indicated on the attached map [Figure 21].

Persistent rumors of a galena ore exposure in the creek below camp vary in description from six (6) inch thick stringers to a (?) width of shearing with small galena stringers. One such possibility was tested by bulldozer and proved to be float. No bedrock was reached in that cut.

Geochemical Testing:

Geochemical testing of streams and soil samples was tried, and results correlate reasonable well with known facts.

The method used is a variation of the “University of Alaska method”, employing dry reagents and easily available dithizone solvents.

Anomalies obtained are not high, but where mineral is present the reaction is marked and recognizable. The chief draw-back to soil sampling in the vicinity of the Continental Mine is mineral float. This is spread widely by both mining and glaciation, making results in the vicinity of the mine workings highly questionable. Results leading to the float area tested by bulldozing also appear to have been influenced by glacial distribution of float.

Water sampling at the surface appears to be influenced by the same factors. However, rather definite correlation between indicated geology and geochemistry was obtained through testing water-courses water in No. Five (5) tunnel.

Conclusion:

1. The hope for the area is limited to discovering a new ore deposit.
2. Surface indications point to a zone roughly parallel to, and northeast of the known ore zone. This is under deep overburden and tailings for most of its extent, but can be tested by bulldozing near the No. 4 tunnel where overburden will not be so deep.
3. Possibly $1200 worth of bulldozer trenching will test this area. If no encouragement is encountered the property should be dropped completely.

In 1962, Tira-Mall Mining Co. produced lead ore from the Idaho Continental. A story in the July 26, 1962, edition of the Wallace Miner21 reported the company’s interest in the mine:

Mining activity in Boundary county, Idaho, was given impetus with the announcement last weekend that the old Continental property near the Canadian line on the west side is being readied for production. Reports are that a group of men from the west coast are backing the venture under the leadership of M. R. Timian, who was formerly connected with the mine.

21The copy of this article in IGS’s mineral property files does not include the page on which the story appeared.
Figure 23: Reconnaissance sketch map of the Idaho Continental Mine and vicinity (Hodgen, 1959).
Operating under the name of Pira-Mall (sic) Mining company, the new management has taken in considerable equipment and has several men employed in the repair of buildings and the mill. Reports are that the mill will be operating in about two weeks.

The mine has had an interesting history since its discovery late in the nineteenth century by "Billy" Houston, and its subsequent operation by A. K. Klockmann.

Additional information appeared in the September 20, 1962, edition of the Wallace Miner:

The old Idaho Continental mine north of Priest Lake, once worked by more than 200 men, is being returned to production—this time as an open-pit operation.

A. E. Warsinske, Spokane Valley business man, reports a 50-ton mill at the mine has been renovated and that milling of stockpiled lead-silver ore is scheduled to start.

Enough ore is "in sight" to run the mill for two years, he said.

Warsinske is vice president of Tira-Mall Mining Co. of Bonners Ferry, incorporated in 1961, which has a 15-year lease and purchase option on the mine and 23 surrounding mining claims.

The lease and option was obtained from the estate of Mrs. A. Klockmann, whose husband was one of the mine's discoverers and president of the Idaho Continental Co. which put the mine into production in 1914.

Martin R. Timian, Bonners Ferry, is president of Tira-Mall and George M. Hill, Bremerton, secretary-treasurer. S. Brown, Newark, Ohio, business man, is helping finance the operation. John A. McLean, Spokane, is mine superintendent.

The Bonners Ferry firm has constructed a new access road, built a new cookhouse, installed new machinery and made two promising ore discoveries by bulldozing, Warsinske said.

Ore currently is being mined from a surface discovery made on the opposite side of a fault from where previous production was obtained, he said.

Underground workings yielded $8 million worth of metals in intermittent operations from 1914 to 1955, he said.

A United States Bureau of Mines report lists production of 62,889,468 pounds of lead, 1,322,995 ounces of silver, 12,174 ounces of gold, 205,242 pounds of zinc and 124,784 pounds of copper.

Before the coming of the white man Indians melted lead from surface outcropping for bullets, Warsinske said.

During World War I, crude ore was hauled by horse and wagon 25 miles to Porthill, Idaho, and then shipped to a smelter in Utah. The mine once had a 250-ton mill.

The Bunker Hill Co., Kellogg, operated it in the 1920s and T. (Cy) Higginbotham, Colville, made shipments during and after World War II.

Idaho-Continental Mines, Inc., produced lead ore from the mine in 1963 and 1964. The company abandoned its lease early in 1964. The 1968 IMIR reported that Idaho-Continental Mines did the assessment work on the property for that year. However, attributing the 1968 work to this company may be an error since no mention is made of either the company or the mine in the preceding three years.

---

22The copy of this article in IGS's mineral property files does not include the page on which the story appeared.
In 1971, P & B Mining Co. leased the property. According to Green (1974, p. 2), the terms of the lease were:

The property consists of 18 patented and 11 unpatented mining claims (Plate 1 [omitted]). The patented claims and 7 of the unpatented claims are held under lease and option from the estate of Mrs. M. N. Klockmann. Terms of the agreement call for P and B Silver Mines to pay all taxes, do and file all necessary assessment work, make advance royalty payments of $3,000 per year to the estate, and expend at least $3,000 per year on the property. The agreement calls for a 10 percent net smelter return royalty on production which applies toward a final purchase price of $100,000. At the date of this report, the purchase price been reduced to $91,000 due to the payment of advance royalties. The remaining 4 unpatented claims are held outright by P and B Silver.

Green (1974, p. 5-6) described P & B Silver’s work at the mine:

In 1971, P and B Silver Mines, Inc. was formed for the purpose of exploring and developing the property. During the year some equipment was purchased and an attempt made to mine a showing left in a surface pillar by earlier operators. As a result of this work, two shipments of hand-sorted material were made to the Asarco smelter at East Helena, Montana, and a third shipment sent to the Bunker Hill smelter at Kellogg, Idaho. These shipments totaled 52 tons which had an average grade of 42.3 percent lead, 5.6 percent zinc, and 18.8 ounces of silver to the ton. In addition, several hundred tons were crushed and stockpiled on the surface. A composite of grab samples taken from this material assayed 3.7 percent lead and 1.9 ounces of silver to the ton.

In 1972, P and B conducted a modest geophysical exploration program at the property. This work consisted of several traverses along which CEM, Radem, and Induced Polarization-Resistivity measurements were taken. The work was contracted to a commercial geophysical firm and was terminated by inclement weather conditions very late in the field season. The results of this exploration were encouraging and a more extensive geophysical survey was conducted in the summer of 1973.

The results of P & B Silver’s program and suggestions for further work, as of 1974, were as follows (Green, 1974, 21-23):

Analysis of Exploration

The results of exploration by P and B Silver indicate a strong anomaly, confirmed by more than one geophysical technique, to exist parallel to the Idaho Continental ore zone. The anomaly has a considerable strike length, extends to substantial depths, and possibly has a rake similar to the previously discovered mineralization. Inspection and sampling of the few outcrops that exist in the vicinity of the anomaly indicate that it is caused by metallic sulphides and not graphite. However, at the date of this report, limited sampling has not shown anomalous values of lead, zinc, copper, or silver in the soil over this zone.

The Idaho Continental ore zone and the geophysical anomaly occur near an intersection of major structural features which also appear to control the position of Tertiary age intrusives. The anomaly occurs within a stratigraphic interval noted to be a favorable host for copper and lead-zinc-silver mineralization in northern Idaho and western Montana. Although no evidence for these metals has been found along the anomalous zone, there are several reasons why this should not necessarily detract from its potential. The soil cover is generally pervasive and not many outcrops are available for inspection. Soil sampling that has
been carried out has been limited and the samples taken by amateurs. Finally, the nearby Idaho Continental mineralization occurred in orebodies having considerable lengths and lensoid cross sections and which did not necessarily crop out at the surface. At the extremities of these zones (both upper and lower) lead-silver sulphides are reported to have ended, but iron sulphide material continued for some distance. Thus the outcrops observed along the geophysical anomaly could represent the valueless upper extremities of mineralization having a similar configuration. For these reasons the anomaly is felt to be a target which definitely warrants further exploration.

RECOMMENDATIONS

The most efficient method to evaluate the anomaly is by diamond drilling from the surface. The drilling program must include a sufficient number of holes to adequately explore the area. The program should be designed to investigate the anomaly at several locations along strike and especially at various depths. One site should be located near IP line SW-22 and several holes drilled from this point to intersect the zone at depths from 100 to 600 feet.

It is estimated that several thousand feet of drilling will be necessary to fully complete this program. In view of the favorable geologic information developed to date, it is recommended that sufficient expenditure be made to fully evaluate the geophysical anomaly.

P and B Silver continued to do assessment work on the unpatented claims until 1979. In 1980, the mine was leased by the New Idaho Continental Corporation (Gruenenfelder, 1987). According to Gruenenfelder (1987), some ore was shipped in 1979 and 1980.

In 1984, a cooperative program began to reclaim the Idaho Continental tailings piles. Participants included the U.S. Forest Service, the Idaho Department of Health and Welfare, the Soil Conservation Service, the University of Idaho, the Idaho National Guard, and New Idaho Continental Mines, Inc. (USFS files). As part of this project, Gruenenfelder (1987) studied the impact of the Idaho Continental adits, dump, and tailings piles on the surface and ground water in the vicinity of the mine. He found that the major sources for metals in Blue Joe Creek were discharge from the No. 5 tunnel (Figure 22), seepage through the waste rock and tailings piles, and leaching from tailings that had washed into the creek (Figure 23). Discharge from the No. 5 adit is a major source of water in upper Blue Joe Creek. The waste rock and tailings pile measured 1,100 by 600 feet, with a highly variable thickness that probably averaged 5 to 7 feet (Figures 24, 25, 26, 27, 28, 29, and 30). The volume of material was estimated to be 30,000 to 40,000 cubic yards, 90 percent of which was tailings (mostly mixed jig and flotation tails; Figures 31 and 32). An estimated 40 to 60 percent of the original tailings had been eroded from the site (Gruenenfelder, 1987).

As a result of Gruenenfelder's study, the proposed reclamation plan called for the following steps: stabilizing the tailings piles by reshaping the slopes, seeding the entire tailings area, and fertilizing it; stabilizing Blue Joe Creek by placing rip-rap along the channel through the tailings piles, directing the discharge from the No. 5 adit straight into the creek; stabilizing side channels to reduce sedimentation; and eliminating a diversion channel that had been built to carry the creek around the tailings area. Suggested additional work included controlling side discharges above the tailings area, capping the tailings with woven filter material and top soil, and additional efforts to stabilize the side channels (USFS files).
Figure 22. No. 5 adit in June 1985. Note the stream of water coming from the opening (photograph by Charles R. Gruenenfelder).
Figure 23. Oxidized, water-saturated tailings supporting a stand of *Equisetum* (photograph by Charles R. Gruenenfelder).
Figure 24. General features of the Idaho Continental Mine site, showing surface structures and surface variations in mineral wastes (Gruenenfelder, 1987, Figure 6).
Figure 25. Debris-clogged channel of Blue Joe Creek in 1985, looking upstream from the middle of the tailings area (photograph by Charles R. Gruenenfelder).
Figure 26. Idaho Continental tailings piles in September 1985, looking upstream (photograph by Charles R. Gruenenfelder).
Figure 27. Idaho Continental mine and tailings piles in August 1985, looking west from the road (photograph by Charles R. Gruenenfelder).
Figure 28. Tailings piles at the Idaho Continental Mine (photograph by Charles R. Gruenenfelder).
Figure 29. Tailings piles at the Idaho Continental Mine in July 1985, looking downstream (photograph by Charles R. Gruenenfelder).
Figure 30. Blue Joe Creek and the Idaho Continental tailings piles in 1984 or 1985, looking downstream (photograph by Charles R. Gruenenfelder).
Figure 31. Fine-grained flotation tailings piles at the Idaho Continental Mine (photograph by Charles R. Gruenenfelder).
Figure 32. Reworked jig tailings at the side of Blue Joe Creek about 4 miles below the Idaho Continental Mine (Idaho Geological Survey photograph by Earl H. Bennett).
During the summer of 1987, the Idaho National Guard contoured the tailings piles and covered the fine-grained flotation tailings with coarser-grained jig tailings to reduce wind erosion. In addition, rip-rap was placed along the creek bed and a rip-rapped channel (Figure 33) was built to carry the discharge from the No. 5 adit into Blue Joe Creek (USFS files). Most of this work has held up relatively well (Figures 34, 35, and 36), although heavy floods in recent years appear to have cut channels in the tailings on the steeper slopes and the rip-rap in Blue Joe Creek has failed in several places (Bennett, 1998, IGS field inspection). Apparently, the area was reseeded in 1987 (USFS files), but most of the tailings area is still barren (Figures 37, 38, 39, 40, and 41).

The Idaho Continental was examined in 1998 by an Idaho Geological Survey geologist as part of a project to study abandoned and inactive mines in northern Idaho (Bennett and others, 2000). In addition to the above photographs of the tailings area, Figures 42, 44, 45, 46, 47, and 48 show the site as it appeared at that time. Figure 43 shows the north end of the open pit in 1985.

According to U.S. Bureau of Mines records, between 1904 and 1971 the Idaho Continental produced 572,698 tons of ore and reprocessed 11,809 tons of old tailings. This material yielded 160 ounces of gold, 1,326,223 ounces of silver, 122,250 pounds of copper, 62,313,000 pounds of lead, and 196,590 pounds of zinc. These numbers are highly suspect because several entries are labeled as "ore" on the production sheets, but were identified as reprocessed tailings in the corresponding USBM Yearbook. Based on this information, the mine produced 528,701 tons of ore and reprocessed 55,806 tons of old tailings. Green (1974) states that over 60,000 tons of old jig tailings were reprocessed in the 1940s, so it seems probable that even more reprocessed tailings may have been recorded as ore. In addition, it is suspected that some of the production by lessees may not have been credited to the mine.
Figure 33. Drainage channel from the No. 5 Adit at the Idaho Continental tailings piles in the fall of 1996, looking uphill toward the adit (photograph by Charles R. Gruenenfelder).
Figure 34. The Idaho Continental tailings piles in the fall of 1996, looking upstream. Compare this photograph with Figure 26 and note the graded slopes and relatively debris-free channel (photograph by Charles R. Gruenenfelder).
Figure 35. The Idaho Continental tailings piles in the fall of 1996, looking downstream from the middle of the tailings area. Compare this photograph with Figure 30 (photograph by Charles R. Gruenenfelder).
Figure 36. Iron-stained seeps coming from the east side of the tailings area at the Idaho Continental Mine (photograph by Charles R. Gruenenfelder). This photograph was taken in the fall of 1996.
Figure 37. West side of the Idaho Continental Mine in July 1998, showing the power shack and the southern end of the tailings area (Idaho Geological Survey photograph by Earl H. Bennett). Compare this picture with Figure 27.
Figure 38. West side of the Idaho Continental Mine in July 1998, showing the ore bin and the bunkhouse. The left side of this photograph overlaps the right edge of Figure 37 (Idaho Geological Survey photograph by Earl H. Bennett). Compare this picture with Figure 27.
Figure 39. Lower end of the tailings area at the Idaho Continental Mine in July 1998, looking downstream. The iron-stained seeps shown in Figure 36 are on the right center (Idaho Geological Survey photograph by Earl H. Bennett). Compare this picture with Figures 30 and 35.
Figure 40. Central section of the east side of the tailings area at the Idaho Continental Mine in July 1998. The left edge of this photograph overlaps the right edge of Figure 39 (Idaho Geological Survey photograph by Earl H. Bennett).
Figure 41. Upper end of the tailings area at the Idaho Continental Mine in July 1998, looking upstream. There is a small gap between the left edge of this photograph and the right edge of Figure 40 (Idaho Geological Survey photograph by Earl H. Bennett). Compare this picture with Figures 26 and 34.
Figure 42. Looking down (northeast) on the tailings area at the Idaho Continental Mine from the northeast end of the open cut (Idaho Geological Survey photograph by Earl H. Bennett). This photograph was taken in July 1998.
Figure 43. Open pit at the Idaho Continental Mine in the summer of 1985, looking northeast (photograph by Charles R. Gruenenfelder). Figure 42 was taken from the end of this open cut.
Figure 44. Mineralized area in the open cut at the Idaho Continental Mine in July 1998, looking north (Idaho Geological Survey photograph by Earl H. Bennett).
Figure 45. Open stope above the No. 4 level at the Idaho Continental Mine (Idaho Geological Survey photograph by Earl H. Bennett).
Figure 46. No. 5 level adit at the Idaho Continental Mine in July 1998. Both water and cold air are coming from the opening (Idaho Geological Survey photograph by Earl H. Bennett).
Figure 47. Power shack just north of the No. 5 level adit at the Idaho Continental Mine in July 1998. The drainage channel from the No. 5 adit is in the lower right of the photograph, and the eastern part of the tailings area is in the background (Idaho Geological Survey photograph by Earl H. Bennett).
Figure 48. Ore bin, ore pile, and power shack at the Idaho Continental Mine in July 1998, with the open pit in the background. The view is to the southwest from the bunkhouse (Idaho Geological Survey photograph by Earl H. Bennett).
References


Idaho Geological Survey’s mineral property files (includes copies of company reports to the Idaho Inspector of Mines).


Klockmann, n.d., Data on the private road from Porthill to the Continental Mine used by the Forest Reserve: unpublished memorandum, 3 p.


