

**SILVER-LEAD DEPOSITS
ON KEY AND STRIKE MINERAL CLAIMS**

Conquest's silver-lead showings of the Kotza River Area are confined to Silver Ridge (see Sketches 12 & 14). This ridge is underlain by three rock formations:

3. Volcanics -- flow breccias and lavas
2. Ridge Formation -- intercalated limy phyllite, and greenstones
1. Kotza Formation -- argillites, slates, cherts, gneisses, quartzite.

The main galena showings occur in the upper part of the Kotza Formation. Several small veins have been found in the volcanics.

SHOWING KEY 3A: (N56000, N54000)

This showing, which is the main one in the area, consisted of two occurrences of galena float about 130 feet apart (P₁ and P₂ of sketch 1). It was described by Wm. V. Smitheringale in his initial report; and worked on by Breakey's crew in September, 1954.

Rock Types:

The rocks in the vicinity of Showing Key 3A have been divided into three members (see Sketch 1). The lowest member consists of at least 300 feet of black slates and slightly graphitic schists. The black slates form a rugged, dark-colored cliff just above the bed of Silver Creek.

The Strike 3, 5, 7, 9, 11 Mineral Claims have been restaked as the Brush 1, 2, 3, 4, 5 Mineral Claims respectively.

The middle member consists of about 300 feet of rusty-weathering argillites, slates, and cherts. In places, there are also some black slates. This member forms two series of small cliffs, and two steep slopes covered with talus. The galena deposits occur in this member.

The two members described above belong to the upper part of the Ketna Formation of the geological map.

Above these two sedimentary members, are intercalated bands of greenstone and limy phyllite which belong to the lower part of the Ridge Formation. The greenstone bands are basic intrusives and volcanic tuffs. This member forms a prominent rugged cliff about 500 feet high.

Showings:

The rocks of the slate and argillite horizon dip southerly at angles between 20 and 50 degrees. One main fault crosses the hillside, its trace striking northwest from the showings. To the northwest of the showings, the fault runs along the base of a cliff; and forms the boundary between the two lower sedimentary members.

Large blocks of cemented breccia are found on the talus slope just below the cliff. One large piece of the breccia (at P₅ of Sketch 1) consists of loosely cemented fragments of black slate and a few fragments of galena. The breccia is coming from the fault at the foot of the cliff; a small amount of work would expose the fault at P₅ (as it was exposed at point C) and might expose the source of the galena fragments.

Galena Showings (see Sketches 1 & 6)

On July 7, work was started on the two occurrences of galena float

(P₁ and P₂). It was soon discovered that the two occurrences represented two separate veins. A drift was started on the vein at P₂; and an adit was started at P₁ with the hope of cross-cutting the other vein.

The drift at P₂ (Adit #2) follows the vein for 24 feet. The vein follows a definite fault; and consists of a replacement of the gouge and rock adjacent to the fault. The fault dips 30 degrees west; and cuts sediments which dip 20 to 25 degrees southerly. Its hanging wall is buff-weathering slate and argillite; and its footwall is cherty quartzite. Drag on fractures in the footwall indicate that the hanging wall has moved down and northward relative to the footwall.

Drag on bedding adjacent to the accessory fault (see Sketch 6) 130 feet northwest of Adit #2 indicates the same relative movement. This accessory fault branches off from the main fault and curves southward until it has a strike of 163 degrees azimuth. The mineralized fault in Adit #2 is probably a similar accessory fault branching off from the main fault.

The mineralized zone along the fault of Adit #2 contains one or more veins of massive galena adjacent to the fault. In places, the vein of massive galena splits into two smaller veins separated by a remnant of rock. The total thickness of massive galena varies, along strike, between two and twelve inches. Disseminated galena, which occurs in the silicified footwall, peters out with increasing distance from the fault. At the face of the drift, there is an increase in thickness of the mineralized zone. This is due to the occurrence of a second fault which, at its position of intersection with the first fault, has an attitude of $S25^{\circ}E/48^{\circ}SW$, and is mineralized.

Mineralization in the drift consists of galena with minor ankerite, pyrite, and tetrahedrite. Near the face, there is an increase in the amount of ankerite and pyrite in the vein.

An assay plan for Adit #2 accompanies the report. The average grade over a 3-foot width for the first 24 feet of drifting is: Ag - 39.2 oz; Pb - 17.8%; Ag/Pb ratio - 2.20

Adit #1 was started beside the cut made by Breaker's crew. It crossed a mineralized zone and entered barren rock extending a total distance of 23 feet underground. The adit was placed too high, and only the top of the mineralized zone was intersected. In order to get the attitude of the zone, and a good sample of the ore, a winze was started in the floor of the adit. The winze was about three feet deep on August 20th when work on Adit #1 ceased.

The ore deposit encountered in the adit is not a definite vein; but, rather a fractured zone in which lenses of vein material are separated by remnants of the argillite host rock. The lenses consist of masses of galena up to six inches across or larger masses of brownish quartz up to two feet across. The so-called quartz is silicified argillite, and contains ankerite, pyrite, galena, chalcopyrite, and tetrahedrite.

The muck from the winze was divided into two lots (see Sketch 5) and sampled by cone-and-quartering. The assays are as follows:

Sample A: from SW half of 7-foot-long, 2½-foot-deep winze
Cu- 0.5%; Zn- tr; Pb- 7%; Ag- 48 oz; Au- tr; Ag/Pb ratio - 6.9

Sample B: from NE 3½ feet of winze; 1½ feet deep.
Cu- 0.2%; Zn- tr; Pb- 2.6%; Ag- 15 oz; Ag/Pb ratio - 5.8

Because the mineralized zone, where cut by Adit #1, was right at the surface of the ground, it was highly fractured. Consequently, very little information on the correct attitude of the vein could be obtained. It is thought

that the sparse sulphides found in Adit #1 represent minor mineralization in the rock adjacent to and above the vein, and that the ore obtained in the winze was part of the vein.

From a consideration of the ^{spatial} special relationships shown on Sketch 6, it is concluded that the vein will probably dip gently westward. If the vein strikes 170° azimuth and dips 25° southwest (approximately parallel to the vein of Adit #2), the seven feet of ore found in the winze will represent $\frac{4.0}{2.7}$ feet of the true vein width.

The above attitude is in accordance with the fact that, although the buck from the winze was richer in sulphides than that found in the adit, it did not contain the large pieces of sulphides that were found in Breaky's cut. The attitude is also in accordance with the general attitude of the exposed galena veins on Silver Ridge. All the galena veins which have been exposed (Strike 8A, Strike 4A, Key 9A, and vein #2 of Key 3A) have westerly dips of less than 35 degrees.

Adit #3 and the open cut below Adit #1 were located by Heshka; and are in contorted slates and argillites.

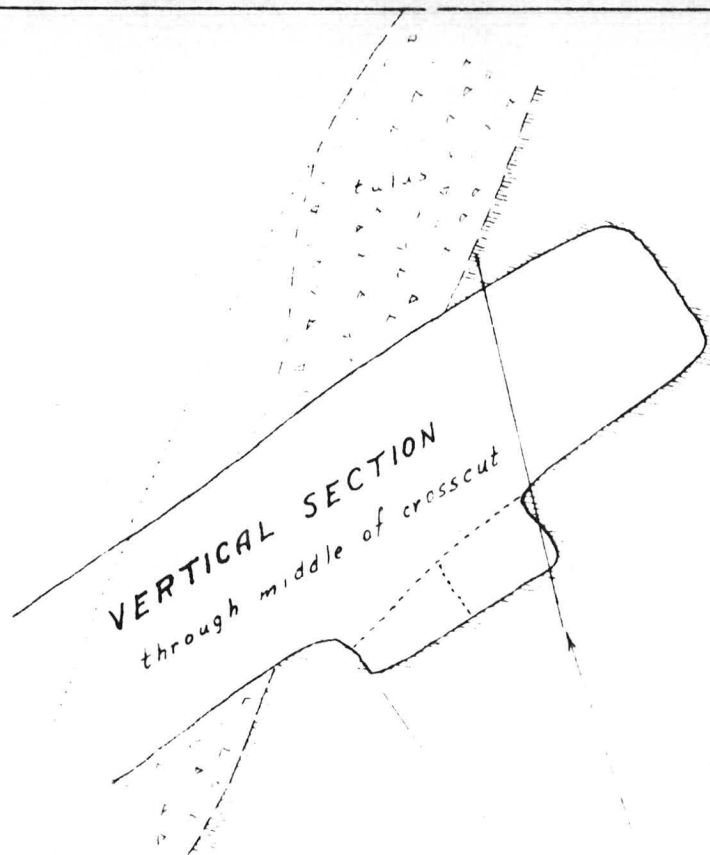
About 170 feet north of Adit #2, iron-rich springs issue from the talus at the top of the cliffs and give the water of Rill "C" its high iron content (Sketch 1). The iron may come from oxidizing pyrite in or near the Main Fault.

SHOWING KEY 3A

CROSSCUT at P₁ (Adit #1)

As on August 24, 1955

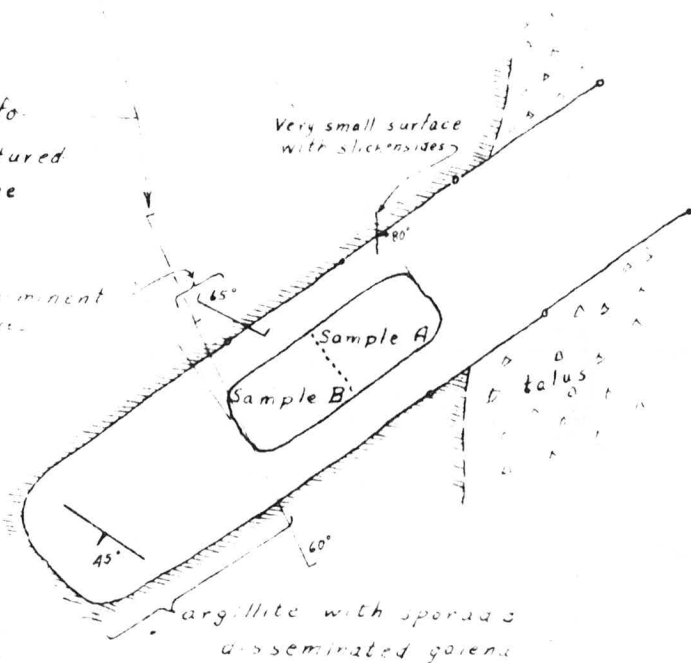
SCALE: 1" = 6'



Prominent fracture seems to form SW boundary of fractured & mineralized zone

small end of prominent fracture

Very small surface with slickensides



PLAN of FLOOR

argillite with sporadic disseminated garnet

OTHER GALENA SHOWINGS OF SILVER RIDGE:

Showing Key 9A: (N53100, E57000)

At this place, remnants of what was once an irregular galena coating up to five inches thick, can be found on a gently-dipping ($135^{\circ}/35^{\circ}\text{SW}$) fault surface. Pieces of the massive galena are dropping off an overhanging cliff into a short steep gully to the west of the fault surface. A grab sample of the galena float found in the gully assayed: Pb- 75.8%; Ag- 135.00 oz; Ag/Pb ratio - 1.8

Showing Strike 4A: (N51150, E55650)

At the top of one of the large slopes of greenstone rubble, there is a small knob where the volcanic rock crops out. Galena float can be found for 40 feet across the southern slope of this knob; and a 4-inch galena vein is exposed in one place. It strikes 130° azimuth and dips 10° southwest. A grab sample from the float assayed: Pb - 70.0%; Cu - 0.5%; Au - 0.2 oz, Ag - 135.4 oz; Ag/Pb ratio - 1.9

Showing Key 11A: (N52785, E58120)

At this point, pieces of massive galena up to six inches across can be found on the greenstone talus for about 200 feet across the hillside (Smitheringale's Showing #3). The galena is coming from an old soil horizon which is overlain by about twelve feet of coarse greenstone talus. Although the vein was not exposed, it is thought that the galena forms a thin irregular coating on a fault surface similar to that seen at Showing Key 9A. A grab sample of the galena float assayed: Pb - 47.5%; Ag - 39.6 oz; Ag/Pb ratio - 0.83.

Showing Key 1A: (N56465, E52246)

At this point, float was found in the vicinity of a supposed fault. An open cut was made in the hillside; but the source of the galena was not reached.

The pieces of galena are up to four inches across; and some contained small remnants of the argillite host rock. A grab sample from the small pile beside the cut assayed: Pb - 70%; Ag - 75.0 oz; Ag/Pb ratio - 1.07

Showing Key 6A: (N55800, E56054)

A lens of massive galena ten inches wide and four feet long is exposed in the cliff face on the west side of a gully. The lens has been formed by replacement of the argillite; and no controlling fracture or fault is visible. A few smaller stringers of galena were found near the lens. A channel sample across the 10-inch lens assayed: Pb - 75.0%; Ag - 91.40 oz.

Showing Key 13A: (N50950, E59900)

In the north bank of Cache Creek, a heavily oxidized zone containing some pyrite and galena (Smitheringale's #4 Showing) was opened up; and the opening was lagged to prevent slumping from above. This revealed two diverging faults with attitudes $128^{\circ}/80^{\circ}\text{NE}$ (west fault) and $155^{\circ}/90^{\circ}$ (east fault). The faults are two feet apart at the portal entrance and five feet apart nine feet from the entrance; and the sedimentary rock between these two faults is completely replaced by pyrite and ankerite. Near the intersection of the faults, there are small lenses of vein material which contain considerable galena and some sphalerite.

A chip sample across the 5-foot face of pyrite and ankerite assayed: Pb - nil; Zn - nil; Cu - nil; Au - 0.04 oz; Ag - 0.16 oz.

A grab sample from the galena-rich lenses assayed: Pb - 24.0%; Zn - 1.0%; Cu - 1.5%; Au - 0.02 oz; Ag - 9.08 oz.

Showing Key 16A: (N51450, E61900)

In a 40-foot cliff face on the south side of Cache Creek, there is

a 2-foot zone of oxidation with a N-S strike and a vertical dip (Smitheringale's Showing #5). In this zone, there are small stringers and lenses composed of ankerite, quartz, arsenopyrite, pyrite, and galena.

Showing Key 16B: (N51800, E62100)

On the south bank of Cache Creek, a weathered and slumped 6-foot vein was exposed. The boulder remnants in the vein consist of ankerite, arsenopyrite, pyrite and quartz; and assay: Au - 0.08 oz; Ag - 0.70 oz.

Showing Key 7A: (N54200, E55700)

On a steep southwesterly slope at this point, a dike-like body of greenstone projects through the phyllite talus. Over a 15-foot width along the western side of the intrusion, are blocks of arsenopyrite containing minor ankerite, pyrite, and sphalerite. (Smitheringale's Showing #2). A grab sample of the fresh sulphides assayed: Pb - tr; Zn - 0.8%; Au - 0.18 oz; Ag - 0.42 oz.

A few small pieces of material containing galena and sphalerite were found around the intrusion.

Minor Galena Occurrences:

Disseminated galena and small stringers of galena were found in many places in argillite on the Key M.C.'s. Small occurrences of disseminated galena were found on Key 19 M.C. at N59310, E51940; on the cliffs on Key 2 M.C. at N58000, E58300 (across from the main showing); along the cliffs on Key 3 M.C. at the same elevation as and west of the main showing; on Key 6 M.C. near N56200, E55600; and at N59430, E49680 on the Will 16 M.C.

In the small saddle at N54950, E54650 on Key 5 M.C. a 6-inch-long piece of massive sulphides was found. It consisted of pyrite, sphalerite, and galena; and probably came from a 2-inch vein.

CONCLUSIONS (silver-lead deposits):

Conwest's silver-lead showings of the Ketsa River Area are confined to the Key and Strike mineral claims on Silver Ridge. They occur in slates and argillites of the Ketsa Formation and in the uppermost volcanic formation.

Four galena veins have been exposed; and these all dip less than 35 degrees westerly. The galena veins, which have been exposed in the volcanics, are small and discontinuous. The galena veins found in the argillites and slates are replacements along definite faults, and seem to have better continuity than the veins found in the volcanic rocks. However, of all the silver-lead veins exposed to date, only those of Showing Key JA merit further attention.

At Showing Key JA, the following structure has been inferred. A main fault with a NW-SE strike and a SW dip of 33° cuts the slates and argillites. Accessory faults branch off the main fault and curve away from it towards the south until they have a N-S strike and a gentle westerly dip. The direction of movement found along the accessory faults indicates that they could probably be called tension faults. The two showings of galena represent mineralization along two of the accessory faults.

The vein of Adit #2 was drifted along for 24 feet; and for this length had an average value over three feet of: Pb - 17.8%; Ag - 39.2 oz; Ag/Pb ratio - 2.2

The vein of Adit #1 was not properly exposed; but for reasons stated on page it is assumed that the vein dips approximately 25° west. Muck from a 7-foot-long winze, which was sunk into the upper part of the vein, assayed: Pb - 4.8%; Ag - 31 oz; Ag/Pb ratio - 6.4. If the assumed attitude is correct, the muck from the winze will represent $\frac{4.0}{2.7}$ feet of the true vein width.

RECOMMENDATIONS (silver-lead deposits):

The galena deposit at P₁ (Adit #1) of Showing Key 3A, yields the best silver/lead ratio found in the Ketzka River Area. The deposit has been exposed but inadequate work has been done to determine its possibilities. The vein should be re-exposed and a new drift started on it. As a guide for future work, the values 170°/25°SW could be used for the attitude of the vein.

Large blocks of fault breccia are found downslope from the Main Fault. These masses of breccia are coming from the Main Fault; and in one place (P₅ of Sketch 1) contain a few small fragments of galena. The fault should be exposed at P₅ so that the source of the galena fragments can be observed.

The source for the galena float of Showing Key 1A has not been reached. Because the host rock is similar to that found on the main showing, and because the locality is in the vicinity of some faulting, the source of the float should be found.

The Key mineral claims south of Cache Creek are largely covered by overburden and have not been thoroughly prospected. More prospecting on Key 15, 16, 17, 18, 36, 37 mineral claims is needed.