BRUCEJACK LAKE (SULPHURETS) PROSPECT (104B/8)

By T. G. Schroeter

INTRODUCTION

The Brucejack Lake (Sulphurets, MI 104B-118) precious metals epithermal prospect, located approximately 65 kilometres northwest of Stewart, was examined from August 3rd to 6th inclusive. Brucejack Lake, part of the larger Sulphurets property, is covered by the Red 1 Group mineral claims (Red River, Red River 2 to 7 inclusive, and Tedray 12). In total, the Sulphurets property consists of 240 units including three fractional claims and six two-post claims. It covers parts of 104B/8E, 8W, 9E, and 9W. The claims are held by Granduc Mines Limited, Esso Resources Canada Limited, and Sidney F. Ross. The property is being operated by Esso Resources Canada Limited under option from Granduc Mines Limited and Sidney F. Ross. Access is by helicopter from Stewart. During exploration, Esso Resources Canada Limited utilized a helicopter from their base camp located on the north side of Mitchell Creek, about 200 metres east of McTagg Creek.

GEOLOGY AND MINERALIZATION

Small precious base metal showings occur over a large area within altered Early Jurassic andesitic volcanic and sedimentary rocks (arenite and argillites) of the Unuk River Formation. The mineralization occurs in sericite schists that represent areas of moderate to intense wallrock alteration. Hornblende syenites and alkali feldspar syenites that intrude the sequence have also undergone local intense alteration. Numerous north-south to northwesterly faults cut across the property -- including the Brucejack fault. Middle Jurassic Betty Creek Formation rocks occur to the east. The dominant alteration products include sericite, K-feldspar, silica, carbonate, and chlorite. Sulphide mineralization, found in five separate mineralized zones spaced along a 7-kilometre belt, occurs as low-grade disseminations ('porphyry' gold), as veins (for example, Iron Cap), and as epithermal stockworks (for example, Brucejack Lake). Minerals include pyrite, chalcopyrite, molybdenite, ruby silver, stephanite, cerargyrite, electrum, native gold, tetrachloride, freibergite, argentite, galena, sphalerite, and bornite in a gangue of quartz, barite, and calcite. Cerargyrite has been identified in a purple rind on silver-bearing veins in the Brucejack area (Dane Bridge, personal communication, 1982).

The main area of interest this year was Brucejack Lake where several showings of precious metal mineralization have been found and partially tested over a 2-square-kilometre area. At the time of the writer's visit, 120 short, hand-blasted trenches had been completed and diamond drilling was in progress.
Figure 59. Brucejack Lake (Sulphurets) property (compiled from company plans).
During 1982, 53 diamond-drill holes totalling 4,633.4 metres were drilled on the Sulphurets property. On the Brucejack Lake prospect 1981 and 1982 drilling includes diamond-drill holes 28, 29, 32, 40 to 44 and 63 to 76 in the Peninsula zone; 54 to 62 and 80 to 91 in the West zone; 33 to 36 in the Stockwork zone; 52, 53 and 92 to 95 in the Galena showing; 45 to 48 in the 5.9 vein; and 17, 30 and 31 in the Discovery area on the peninsula.

Two principal zones have been identified:

1. **PENINSULA ZONE** (Near Shore zone), which has been traced for 265 metres and to a depth of 140 metres by intersections in 22 drill holes. The zone is still open. Grab samples collected by the writer ranged in value from 0.1 ppm gold and 43 ppm silver up to 2 ppm gold and 2,924 ppm silver with lead and zinc values up to 1.49 per cent and 3.33 per cent respectively.

2. **WEST ZONE**, which was tested by 21 drill holes along a length of 310 metres and to a depth of 60 metres. It is still open. True widths are estimated to range from 0.6 to 4.0 metres. Some very high grades over narrow widths have been obtained. Ruby silver, freibergite, electrum, native gold, stephanite, galena, pyrite, and sphalerite occur in a stockwork of quartz veinlets in sericitic andesitic tuff. Mineralized grab samples containing sulphides in quartz veinlets that the writer collected ranged in value from 4.8 ppm gold and several thousand ppm silver up to 275 ppm gold and 67,525 ppm silver. Copper ranged from 0.54 per cent up to 2.74 per cent, lead from 0.4 per cent up to 2.50 per cent, and zinc from 0.027 per cent up to 4.5 per cent.

Other showings or zones tested include (see Fig. 59):

3. **GALENA SHOWING** -- galena, sphalerite, pyrite, chalcopyrite, and native gold occur in quartz and barite veinlets in sericite schist (altered andesitic tuff); grab samples collected by the writer ranged in value from 1 ppm gold and 69 ppm silver to 9.3 ppm gold and 1,276 ppm silver; copper values ranged from 0.02 to 0.52 per cent, lead from 0.04 to 7.7 per cent, and zinc from 0.02 to 4.78 per cent.

4. **TRENCH 108-111 RIDGE** -- galena, tetrahedrite, electrum, argentite, sphalerite, pyrite, and chalcopyrite occur in a quartz stockwork in sericite schist (altered andesitic tuff); grab samples collected by the writer ranged in value from 0.3 ppm gold and 10 ppm silver to 56 ppm gold and 5,166 ppm silver; copper values ranged from 0.05 to 0.68 per cent, lead from 0.6 to 5.9 per cent, and zinc from 0.12 to 5.87 per cent.

5. **0.5 VEIN** -- sulphides in quartz veins in sericite schist; grab samples collected by the writer ranged in value from 16.5 ppm gold and 187 ppm silver to 36 ppm gold and 235 ppm silver; copper ranged
from 0.25 to 0.66 per cent, lead from 1.19 to 3.8 per cent, and zinc from 3.01 to 4.5 per cent.

(6) STOCKWORK ZONE -- pyrite, galena, and sphalerite in a quartz stockwork in sericite schist.

(7) 5.9 VEIN -- native gold, electrum, pyrite, galena, sphalerite, ruby silver in a quartz stockwork in sericite schist.

ACKNOWLEDGMENTS

The writer would like to acknowledge the cooperation and logistical support provided by Esso Resources Canada Limited.
MOUNT JOHNNY PROSPECT
(104B/11E)

By T. G. Schroeter

INTRODUCTION

On August 5th the writer made a brief visit to Skyline Exploration Ltd.'s Mount Johnny (Reg claims, MI 104B-77) massive sulphide property, which is located approximately 120 kilometres northwest of Stewart on the west flank of Mount Johnny (see Fig. 60). Access to the property, which consists of 172 units, is via helicopter from either Stewart or Eddontenajon.

Figure 60. Location map, Mount Johnny prospect.
GEOLOGY AND MINERALIZATION

The base of Mount Johnny is underlain by intercalated phyllitic grits, siltstone, and an andesitic-rhyolitic sequence of Early Jurassic age (Unuk River Formation?). The volcanic sequence locally shows persistent autometamorphic textures. A sequence of lower Middle Jurassic rocks (Betty Creek Formation?) overlies the Early Jurassic rocks but are devoid of significant mineralization.

Copper-gold massive sulphide mineralization has been located in three zones: Pick Axe, Cloutier, and McFadden (see Fig. 61). The Pick Axe and Cloutier zones are localized in a sequence of rhyolitic tuffaceous rocks. Mineralization consists of near massive chalcopyrite and pyrite in quartzcarbonate gangue.

![Diagram of the Mount Johnny prospect](image)

Figure 61. Mount Johnny prospect (Inset on Fig. 60) (based on company plans).
(1) Pick Axe Zone

Reportedly traced more than 1,000 metres, the zone has been confirmed by drilling along a length of 15 metres (George Cross News Letter, May 14, 1982). Assay results from grab samples collected by the writer are as follows:

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Brief Description</th>
<th>Gold ppm</th>
<th>Silver ppm</th>
<th>Copper per cent</th>
<th>Lead per cent</th>
<th>Zinc per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>JM-82-2</td>
<td>Massive chalcopyrite-pyrite</td>
<td>2</td>
<td>124</td>
<td>3.93</td>
<td>0.04</td>
<td>0.078</td>
</tr>
<tr>
<td>JM-82-3</td>
<td>Chalcopyrite-pyrite in quartz</td>
<td>2</td>
<td>90</td>
<td>3.57</td>
<td>0.02</td>
<td>0.078</td>
</tr>
<tr>
<td>JM-82-5</td>
<td>Chalcopyrite-pyrite in quartz</td>
<td>2.3</td>
<td>111</td>
<td>4.32</td>
<td>&lt;0.02</td>
<td>0.043</td>
</tr>
<tr>
<td>JM-82-6</td>
<td>Chalcopyrite-pyrite in 'rhyolite'</td>
<td>0.7</td>
<td>255</td>
<td>3.42</td>
<td>&lt;0.02</td>
<td>0.012</td>
</tr>
<tr>
<td>JM-82-8</td>
<td>Near massive pyrite and chalcopyrite</td>
<td>1</td>
<td>100</td>
<td>2.63</td>
<td>0.045</td>
<td>0.050</td>
</tr>
</tbody>
</table>

(2) Cloutier Zone

Apparently traced along a length of 490 metres (George Cross News Letter, May 14, 1982). Assay results for grab samples collected by the writer are as follows:

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Brief Description</th>
<th>Gold ppm</th>
<th>Silver ppm</th>
<th>Copper per cent</th>
<th>Lead per cent</th>
<th>Zinc per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BJ-82-9</td>
<td>Chalcopyrite-pyrite in silicified tuff</td>
<td>1.7</td>
<td>19</td>
<td>1.57</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>BJ-82-11</td>
<td>Pyrite in silicified tuff</td>
<td>&lt;1</td>
<td>&lt;10</td>
<td>0.014</td>
<td>0.02</td>
<td>0.018</td>
</tr>
<tr>
<td>BJ-82-13</td>
<td>Near massive chalcopyrite-pyrite</td>
<td>2.3</td>
<td>19</td>
<td>2.1</td>
<td>&lt;0.02</td>
<td>0.022</td>
</tr>
<tr>
<td>BJ-82-14</td>
<td>Chalcopyrite-pyrite in quartz</td>
<td>&lt;1</td>
<td>35</td>
<td>5.40</td>
<td>&lt;0.02</td>
<td>0.047</td>
</tr>
<tr>
<td>BJ-82-15</td>
<td>Near massive pyrite-chalcopyrite</td>
<td>3.4</td>
<td>140</td>
<td>6.50</td>
<td>&lt;0.02</td>
<td>0.045</td>
</tr>
<tr>
<td>BJ-82-16</td>
<td>Massive pyrite-chalcopyrite</td>
<td>0.3</td>
<td>65</td>
<td>5.12</td>
<td>&lt;0.02</td>
<td>0.017</td>
</tr>
<tr>
<td>BJ-82-17</td>
<td>Chalcopyrite-pyrite in quartz</td>
<td>0.3</td>
<td>45</td>
<td>4.15</td>
<td>&lt;0.02</td>
<td>0.012</td>
</tr>
</tbody>
</table>
At the time of the writer's visit, drilling was in progress on diamond-drill hole 10. Diamond-drill hole 9 intersected a massive sulphide section from 35.8 to 38 metres.

(3) McFadden Zone

High-grade massive pyrite boulders were found in an area 245 metres by 45 metres (George Cross News Letter, May 14, 1982) that is located approximately 1 kilometre southeast of the Cloutier zone.

Diamond drilling exceeded 750 metres in eight holes, and geophysical surveys were carried out throughout the summer and fall. In mid-September, Placer Development Limited optioned the property from Skyline Explorations Ltd.
KUTCHO CREEK PROPERTY
(104I/1)

By T. G. Schroeter

INTRODUCTION

The part of the Kutcho Creek massive sulphide deposit (MI 104/I-60) owned by Sumac Mines Ltd. was visited on August 30th. It is located approximately 100 kilometres east of Dease Lake. During 1982, Sumac Mines Ltd. constructed a 12-kilometre tote road from the Kutcho airstrip to the property. The company then flew surface and underground equipment to Kutcho airstrip and moved it to the property.

Sumac Mines Ltd. completed a 218-metre crosscut into the ore zone for bulk sampling purposes and collected 145 tonnes of ore (see Fig. 62). They also conducted 1,525 metres of surface diamond drilling. This brings the total number of holes drilled by Sumac Mines Ltd. to 128 for approximately 21,335 metres in total. Esso Minerals Canada, owners of part of the massive sulphide mineralization, has also drilled 9,200 metres. Consequently, total drilling on the Kutcho Creek property exceeds more than 30,535 metres.

Figure 62. Sketch of Sumac Mines Ltd.'s Kutcho Creek property.
Figure 63. Cross-section along adit at 38232E, Kutcho Creek deposit, Sumac Mines Ltd. (after company plans).
Estimated reserves for the Sumac Mines Ltd. property are approximately 11 million tonnes grading 1.68 per cent copper, 2.14 per cent zinc, 25.23 grams silver per tonne, and 0.26 grams gold per tonne.

GEOLOGY AND MINERALIZATION

The geology of the crosscut is shown on Figure 63. Two main zones of massive sulphide ore mineralization consisting of chalcopyrite, pyrite, bornite, sphalerite, and minor galena and tetrahedrite were intersected in the crosscut. The first, A zone, is 4 metres wide, the second, B zone, is 13 metres.

In addition, a C zone was intersected below B zone and consists of greater than 80 metres of massive fine-grained pyrite (see Fig. 63). Metal zoning with a zinc-rich hangingwall appears to exist. The ore zones dip 45 degrees to the north and crosscut the enclosing rocks which have an average dip of 70 degrees to the north.

ACKNOWLEDGMENTS

The writer acknowledges the hospitality of Taiji Ueno, Roy Suzuki, and Ed Holt of Sumac Mines Ltd. while visiting the property.
MAJOR MINERAL DEPOSITS

1. SCOTTIE GOLD MINE
2. DAGG HILL DEPOSIT
3. BIG MISSOURI MINE
4. CONSOLIDATED SILVER BUTTE DEPOSIT
5. INDIAN MINE
6. SEBAKWE MINE
7. B.C. SILVER MINE
8. SILBAK PREMIER MINE
9. RIVERSIDE MINE
10. DUNWELL MINE
11. SILVERADO MINE
12. PROSPERITY AND PORTER IDAHO MINES

Figure 64. Regional geology and mineral deposits.