

LEGEND

JURASSIC OR LATER
14 Granite, granodiorite, quartz diorite, diorite, monzonite, syenite, gneiss

TRIASSIC (?) AND JURASSIC (?)
ROSSLAND GROUP (12, 13)
15 Argillite, sandstone, and conglomerate; minor greenstone. 13a, mainly argillite. May be younger than 13

12 Andesite, augite porphyry, laite, agglomerate, tuff, and breccia; minor argillite. May be in part younger than 13

TRIASSIC
SLOKAN GROUP
10 Slate, argillite, limestone, quartzite, and tuffaceous sedimentary rocks

9 KASLO GROUP
Andesite, dacite, and related intrusive and pyroclastic rocks

11 Slate, argillite, quartzite; some limestone

ORDOVICIAN
8 Slate, argillite; minor limestone
8a, may not be Ordovician

CAMBRIAN
MIDDLE CAMBRIAN
7 Dolomite, argillite, limestone

LOWER CAMBRIAN
6 Schist, phyllite, quartzite, argillite. 6a, mainly limestone; 6b, mainly argillite

5 Quartzite, argillite, schist

WINDERMERE (?)
4 THREE SISTERS FORMATION: girt, quartzite, conglomerate

WINDERMERE
3 MONK FORMATION: argillite, phyllite, limestone; basal conglomerate

2 IRENE VOLCANIC FORMATION: greenstone; minor limestone

1 TOBY FORMATION: conglomerate; minor argillite

A Quartzite, schist, limestone; minor argillite; age uncertain

Drift-covered area

Bedding (inclined, vertical, overturned)

Fault (inclined, vertical, overturned)

Fossil locality

Mine

Glacial striae

DESCRIPTIVE NOTES

The group of quartzites, schist, and limestone (A), although highly metamorphosed, does not closely resemble any of the Proterozoic or Palaeozoic formations exposed in the map-area. Its age is not known.

The oldest known rocks are those of late Proterozoic (Windermere) age. The boundary between the Precambrian and Cambrian has been tentatively placed at the base of group 5, as fragments of trilobites near the top of this group (U. S. G. S. Prof. Paper 202, p. 15) establish its age as Cambrian. Furthermore, as abundant plesiosponges in the limestone band that marks the base of the overlying formation 6 are similar to those found in the Lower Cambrian *Olenellus* zone of the Donald formation in the Briscoe-Dogtooth area of British Columbia, group 5 must be at or very near to the base of the Lower Cambrian. Few fossils have been found in the rocks 7 north of the International Boundary, but fossils collected from the lower part of the formation in the Meteline quadrangle of northeastern Washington have established its age as Middle Cambrian.

The narrow band of Ordovician rocks (8) near the International Boundary is fossiliferous a few miles south of the map-area, so that its age is well established. The age and correlation of the isolated block to the north (8a) is not definitely known, but from these rocks there has been collected what may be a poorly preserved *Homotoma*-like gastropod which suggests an Ordovician age.

The Kaslo group (9) is exposed only in the north east corner of the map-area. Its age, and that of the overlying Slokan group 10, has been regarded as probably Triassic (G. S. C., Memoir 173, pp. 49 and 60). Group 11 is believed to comprise rocks of the Slokan group and possibly some that are older. Group 11 is overlain, probably conformably, by volcanic rocks (12) of the Rossland group, which are in turn overlain by sedimentary rocks (13) of the Rossland group. From the latter an ammonite of post-Triassic, probably Jurassic, age was collected. Formation 13 cannot be correlated with certainty with similar sedimentary rocks (13a) farther west.

Granitic intrusions (14) intersect rocks of all the above units and are, therefore, of Jurassic or later age. The largest bodies consist mainly of porphyritic granite and granodiorite, and gneiss, while many of the smaller bodies consist of quartz diorite, diorite, monzonite, or syenite.

The Slokan mining camp has been noted for its production of lead, zinc and silver, particularly during a 40-year period prior to 1930. More than one-half of the properties lie within the Nelson area (West Half). The high price of base metals during the last few years has brought about renewed mining activity, so that many of the properties that were inactive are now producing hand-sorted ore or concentrates for shipment to the smelter at Trail.

In Nelson district the largest producer is the Granite-Poorman mine, operated by Kenville Gold Mines, Limited. Gold is produced from a number of parallel veins that occupy fault and joint planes in diorite. The Alpine mine at the head of Sictum Creek is another gold producer. Development work is proceeding on veins that strike south 70 degrees east and dip 20 degrees northeast in granite.

Except for development and small leasing operations, there is at present little activity in the Ymir camp. The majority of the mineral deposits, which have yielded mainly gold, are of the fissure type and are found chiefly in rocks of group 11, the Rossland group (12, 13) and the granitic intrusions (14).

Lead-zinc-silver deposits occur on the slopes of Porcupine Creek. Among these are the Hunter V and Jack Pot properties where the mineral deposits are replacement bodies in limestone. The Oxide property contains secondary zinc and lead minerals occurring largely within a major fault zone between Ordovician (7) rocks (8a) and the metamorphic rocks of unknown age (A).

Many of the more productive veins of the principal producers of the Sheep Creek camp occupy fissures occurring in the more competent upper members of group (5). The veins occur in the west limb of a major syncline and along the crest of an isoclinal fold adjacent to it. These veins intersect the axial planes of the folds at large angles. Sheep Creek mine is the only one now in production.

Other properties in the Salmo district that yield mainly lead or zinc include Salmo Consolidated, H. B. Jersey, Truman, Lone Silver, Red Rock, and Reeves-McDonald. All are replacement deposits in limestone. In Salmo Consolidated, Jersey, Truman, and Reeves-McDonald mines, folding appears to have, to some extent, controlled the location of the ore deposits. This is particularly apparent in the Reeves-McDonald mine where the orebodies have a southwest plunge parallel to minor folds in Lower Cambrian limestone (6a).

The tungsten deposit of the Emerald property consists of scheelite that has replaced Lower Cambrian limestone (6a). The orebody lies within a trough formed by a band of argillite on the west and fine-grained granite on the east. It has a gentle southward plunge. Operations were suspended on the tungsten orebody early in 1949 and the mill was converted to treat lead-zinc ore from the adjoining Jersey property. Both properties are operated by Canadian Exploration Limited.

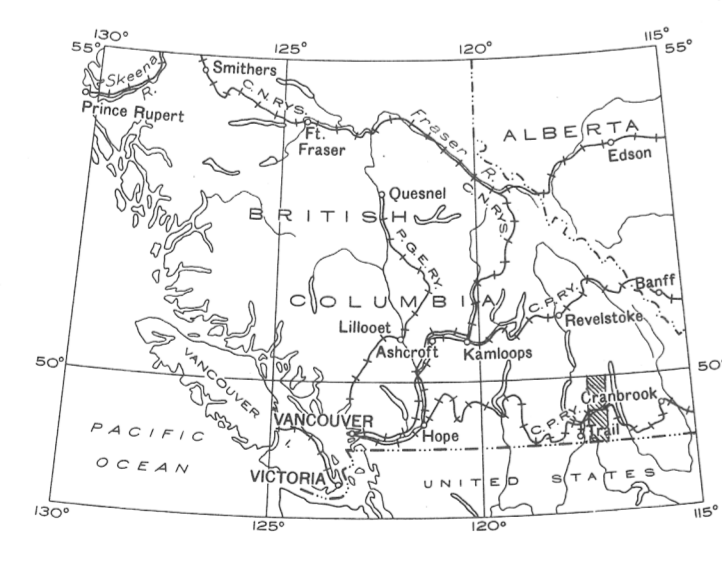
The orebodies of the International Lead and Iron property consist of irregular masses of hematite and limonite in a mottled black and white dolomite member of the Middle Cambrian formation (7). The dolomite strikes east to southeast and dips southerly at 25 to 35 degrees. Some of the orebodies contain galena and crystalline cerussite which is hand-sorted and shipped to Trail. The iron oxides are shipped to Meteline Falls, Washington, where they are used in the manufacture of cement.

Geology by H.W. Little, 1947, 1948; V.J. Okulitch, 1947; and A.L. McKelvie, 1948

Base map compiled by Topographical Survey 1949

Cartography by the Geological Mapping Division 1949

Approximate magnetic declination 23° East



PRELIMINARY MAP 49-22
NELSON
(WEST HALF)
KOOTENAY DISTRICT
BRITISH COLUMBIA

Scale: 1 inch to 2 miles

0 2 4 6 8 miles