ALWIN

OWNERSHIP: Alwin Mining Co. Ltd.

Alwin is a high-grade deposit in which veins, striking northeast or easterly, appear to have formed by replacement along permeable crushed fault zones up to 9 metres wide. The veins are sharply defined and adjacent country rock is only slightly altered. However, thin mineralized fractures occur throughout the underground workings. Ore minerals are mainly bornite and chalcopyrite, but primary chalcocite is locally important. Quartz and sericite are the predominant gangue minerals in the veins, but feldspar, calcite, chlorite, hematite, and clay minerals also occur. The country rock is primarily Bethsaida quartz monzonite but includes one weakly mineralized quartz plagioclase porphyry dyke. The dyke is chilled against Bethsaida.

END

BETHLEHEM COPPER

OWNERSHIP: Bethlehem Copper Corporation Ltd.

The Bethlehem Copper property straddles a complex digitated part of the contact between the Bethlehem and Guichon quartz diorites (see Fig. 19). It contains five separated low-grade deposits: the East Jersey, Jersey, Huestis, Iona, and White zones. Each deposit differs somewhat from the others but all have features in common. All lie close to the Bethlehem-Guichon contact, all are in areas of closely spaced joints and fractures, most are crossed by swarms of north striking porphyry dykes, several contain zones of intrusive breccia, and two are crossed by major northerly striking faults. In addition, the company shares a part of the Valley Copper orebody.

Porphyry Dykes and Breccias

The Bethlehem property lies within a north-trending swarm of dacite and quartz latite porphyry dykes which is about 3 km wide in the vicinity of the property. The dykes have irregular borders, rarely reach 30 metres in width, are commonly digitate, and can rarely be traced more than 300 metres along strike. Intrusive breccias in the East Jersey, Jersey, Iona, and White zones are tabular bodies up to 15 metres wide and 250 metres deep which are attributed to emplacement of porphyry bodies. Volatile-rich porphyries were apparently intruded at shallow depth into cold, jointed country rock. Rapid crystallization occurred with consequent release of volatiles from the porphyry. If volatile pressure overcame hydrostatic pressure, volatiles were released ex-