The rhodonite is dense textured and various shades of red and pink to a creamy white in colour. Where intruded by sills and dikes, the rhodonite is sugary textured to more coarsely crystalline, and often contains abundant pyrite. Many of the deposits have been quarried in recent years for decorative gem rhodonite. Ore bodies are lenticular, and range in length from less than a meter to over 30 m in length and 6 m thick. Most are poorly exposed. The Cowichan Valley rhodonite usually is finely banded, and some deposits show considerable internal flowage, disruption and brecciation. Red jasper and specular hematite are found near the periphery of some lenses. The rhodonite bodies may form a stratigraphic marker zone in the Sicker cherts. At least one small manganese oxide body is found higher up in the section on the south side of the Cowichan Valley.

GEOLOGY OF THE GOLDSTREAM COPPER ZINC DEPOSIT, SOUTHEASTERN B.C.

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The Goldstream conformable copper, zinc massive sulfide deposit located 70 kilometers north of Revelstoke, B.C. occurs within Lower Paleozoic Hamill Group meta-sedimentary and meta-volcanic rocks. The Hamill Group forms part of a eugeosynclinal pile accumulated in Late Proterozoic to Paleozoic times. The meta-sedimentary or crystalline schist of pelitic origin is comprised of quartzite, pelitic phyllite, calcareous phyllite, and limestone. The meta-volcanic or crystalline schist of basic origin found as lens-like units within the pelitic sequence is comprised of dark calcareous phyllite, quartz-chlorite phyllite, chlorite schist, and greenstone.

The Goldstream massive sulfide deposit forms a conformable layer within a succession of northerly dipping dark calcareous phyllite, spessartine phyllite, chlorite-sericite-quartz phyllite, grey banded limestone, and quartz-chlorite-biotite phyllite. The massive sulfide layer, hosted within the chlorite-sericite-quartz phyllite, averages one to three meters in thickness and has a strike length of up to 500 meters and an explored plunge length of 1,200 meters. The sulfide ore consists largely of medium to coarse grained intimately mixed pyrrhotite, chalcopyrite, sphalerite, and minor pyrite. Inclusions of subrounded to rounded fragments of glassy quartz eyes, large white quartz eyes, and siliceous chlorite-sericite phyllite may comprise up to 30% of the massive sulfide layer. Larger fragments may also contain sulfides in fractures and as inclusions.

The lower contact of the sulfide layer with the country rock is fairly sharp with minor discontinuous sulfide interbands found within several meters of the contact. The upper contact may be weakly gradational, with sulfide mineralization found within several meters of the contact. This occurs as narrow sulfide layers, fine disseminations, and irregular blebs.

Ore grades are generally consistent from hanging wall to footwall, with an increase in the Zn/Zn + Cu ratio from west to east across the ore body.

Based on the form and mineral assemblage of the Goldstream deposit, it compares closely with the "bedded cupiferous iron sulfide" or "Besshi type deposits" found in the Sanbagawa metamorphic terrane in Japan.

General features of this type of deposit are their conformable nature with crystalline schists of basic and pelitic rock origin, tabular form and

massive compact iron sulfide (pyrite or pyrrhotite)-chalcopyrite ore.

LATE CENOZOIC AND PRESENT DAY PLATE HISTORY

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Detailed marine geophysical investigations off the west coast of Canada have enabled the recent history of offshore plate movements to be closely analyzed. For the past 10 m.y., the general regime has been one of plate convergence or subduction along the Vancouver Island margin to the north. The gravity, heat flow, seismicity and seismic structure of southwestern British Columbia clearly reflect the present continuation of this regime.

In detail, however, the tectonic pattern is complex and has changed rapidly. Within a few million years, convergence has declined and become oblique, there have been triple junction migrations and clockwise plate rotations. At least one major transform fault in the oceanic Juan de Fuca plate is being subducted beneath Vancouver Island and now separates different convergence regimes.

Although plate history in the region becomes more uncertain back in time, we believe that the recent pattern serves to demonstrate that the geological effects of offshore plate movements may be extremely complex. Stress fields that vary rapidly in space and time and delays between the changes in offshore plate movements and their continental consequences, mean that any correlation between past offshore plate tectonic regimes and geological structures should be carried out with caution.