Pedley Pass
840775

Memorandum

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SOUTHERN ROCKY MOUNTAINS PROJECT

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General:

The Ordovician-Silurian Beaverfoot-Brisco formation was examined in connection with a barite-sphalerite-galena showing located on a ridge 1½ miles northeast of Mount Pedley and 1 mile south of Pedley Creek.

Due to time available the formation was reviewed in reconnaissance fashion only. The section measured (Dk-760, attached) is close to, or identical to a section described in G.G.L. Henderson "Geology of the Stanford Range" (B.C. Dept. of Mines, Bull. No 35, pp. 68-70). The location is approximately 4 miles WNW of the showing described above.

Observations:

The following general observations were made:

(1) Primary porosity is virtually non-existent except for a 5' interval at 360' from the base of the formation. Porosity here is less than 5% and is pinpoint to vuggy in nature.

(2) Post-depositional porosity was developed in the form of numerous small fractures and veins. These are now filled with either secondary calcite or dolomite. The timing of the fracturing could be important as to mineral emplacement but is at this point subject to speculation.

(3) A complex system of joints is present throughout the entire measured interval. They seem to be fairly recent and are therefore considered unimportant as possible paths or loci for mineral solutions/deposits.

(4) The carbonates consist mostly of crypto-to microcrystalline dolomite (0'-900') and micritic limestone (900' - 1520'). Skeletal material is present but the coarse fraction (>.625 mm) makes up generally less than 10% of total rock. In some rare instances brachiopod-rich beds of a few feet thick are present with the coarse fraction grading up to 30%.

(5) Several algal stromatolitic intervals were observed (at 465', 5' thick, at 730', 25' thick, and at 1370', 25' thick). They make up 3.5% of the total measured section.

Conclusions:

(1) The carbonates are mostly of subtidal origin and were probably deposited on a shallow marine carbonate shelf with depth of deposition being less than 200'. The large amount of very fine material (usually 90% of total rock or more) together with the relative scarcity of larger skeletal fragments suggests a fair distance from the Ordovician-Silurian coast line. Rare regressive phases led to intertidal and possibly supratidal deposition of stromatolites.

(2) The type of environment described above does not lead itself very well to deposits of Mississippi-Valley type, mainly because of total absence of primary porosity.

Recommendations:

(1) With the presence of barite and associated galena and sphalerite proven in the Beaverfoot-Brisco formation in the Pedley Pass area, exploration should continue along the following lines:

A) The type of deposit at Pedley is related to fracturing in the carbonates. Similar type fracturing could have led to analogous deposits in the carbonate section extending from Cambrian into Devonian. It would be worthwhile to closely study geological maps east of the Rocky Mountain Trench to determine places where local doming of the basement is expressed in overlying carbonate rocks. Faults associated with this doming could well be loci of the same type of mineralization.

B) As mineralizing solutions have definitely passed through the Cambro-Silurian section, deposits of Mississippi-Valley type may well exist in more suitable host rocks up-dip. In order to develop more primary porosity in the carbonates more coarse fraction is needed.(either organic or anorganic in nature). The obvious direction to explore to encounter this type of rock is towards the former coastline which is located eastward of the Mount Pedley showing.

Thin Section Study:

Doug Pounder of Chevron Standard in Calgary is currently examining thin sections of the Beaverfoot-Brisco section in order to give a more detailed microscopic description of the rock types. He will also attempt some conclusions as to environment and origin of these rocks.

Several samples are processed for conodonts. These could be useful in future exact age determination.

Larry Dekker