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MINERAL INVESTIGATION REPORT

Slide Lake Area, Juneau Quadrangle

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This trip was made June 28 to July 1, 1961. The object of the trip was to assess the ore potential of the area of migmatite around Slide Lake and to determine whether further geological work would enhance the area's ore possibilities. My plan was to walk from Slide Lake northward along the first left lateral tributary -- here called "Fault Creek" -- up stream from Slide Lake to the saddle and thence on to the area of granitic rock shown on the USGS "Progress Map of the Geology of Admiralty Island" (Map I-323). Due to the precipitous slopes and a somewhat unfortunate choice of route it took two days to reach the saddle, approximately 2 miles airline from the lake. The next day I found that the slopes leading to the granitic body were so steep as to make walking on them dangerous so I abandoned the attempt and returned to the lake. I was accompanied by my pack dog, Kobuk, who carried about 20 pounds of the pack load.

RESULTS

Limonite-stained pyrrhotite float was found to be common in the area, especially in "Fault Creek", and similar rock was found in place in three localities. In two of the three places discontinuous sulfide zones were present in contact with quartz

veins or pegmatite zones. This occurrence strongly suggests that the sulfide zones were the result of a wall rock impregnation by the vein fluids and are not metamorphosed pyritic sediments. The sulfide-bearing bodies were from 2 to possibly 10 feet thick but none were seen more than 20 or 30 feet long. They are of no value in themselves but have some interesting and perhaps valuable geological implications.

The rocks in the area are migmatites. They consist of ultra-mafic rock containing biotite and hornblende, pegmatite and quartz-feldspar-biotite gneiss. There is much quartz and pegmatite veining of the country rock. Sulfides are fairly common in the area but occur very sparingly in the rocks composed entirely of biotite or hornblende. The sulfide generally is in small blebs in biotite in or along the contacts of pegmatite or quartz veins, duplicating on a small scale what was seen in the three sulfide bodies.

My conclusion is that the pegmatitic fluids contained a small percentage of sulfur, some of which was taken up by the heated biotite when the veins were emplaced. On cooling, the sulfur and iron from the biotite evolved from the biotite in the form of pyrrhotite and, in very small amounts, chalcopyrite. The sulfur could not be accomodated in the biotite lattice at low temperatures. This indicates that some sulfur was being moved by the pegmatitic fluids and that either very little Cu, Pb, and Zn were present, or that they were present but due to the high temperature were not fixed in the biotite, and therefore passed through to cooler regions peripheral to the migmatite area. It is interesting to note that the ore deposits in SE Alaska tend to be peripheral to migmatite areas.

CONCLUSIONS

The Slide Lake migmatite area is not a favorable place to look for Cu, Pb and Zn deposits. Unless the samples taken have a high nickel content, the area is not favorable for sulfide deposits in general. However, the areas of lower grade metamorphics surrounding the migmatite may be favorable. A problem is to find the general areas where the metal content of vein fluids was relatively high.

It is proposed to take a series of placer magnetite samples across the Juneau Gold Belt in a number of places to ascertain whether the trace quantities of Cu-Pb-Zn in magnetite will indicate an area favorable for ore deposition.

Juneau, Alaska
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