TERRITORY OF ALASKA

DEPARTMENT OF MINES

JUNEAU, ALASKA

MI-115-01

Memorandum Report to Leo H. Saarela, Commissioner of Mines, on the Snettisham Iron Deposit, Snettisham, Alaska

MI 115-10
MI 115-19

The Snettisham Iron Deposit was visited on August 17 - 19, 1950 by Howard M. Fowler, Associate Mining Engineer for the Territory of Alaska, Department of Mines. The visit was made for the purpose of conducting a preliminary examination of a known large magnetic anomoly in the area. The disturbance from this anomoly as determined by the U. S. Coast and Geodetic Survey is felt over a 20 square mile area of land and water, 8 square miles of which is considered strong. (See accompanying sketch of anomoly from U. S. C. & G. S. Chart No. 8227)

A reconnaissance was made along the Snettisham beach from Fache Cove east to Sentinel Point and south from Sentinel Point for a distance of nearly one mile. From Fache Cove to a point approximately 200 yards west of the old Post Office at Snettisham, the beach esposures were nearly entirely of diorite or of closely related dioritic phases. The amount of visible magnetite was very small, and there was virtually no noticeable reaction with a hand magnet or a dip needle. However, at a point about 200 yards west of the Post Office the diorite contacted a hornblendite which contained noticeable amounts of magnetite. The general strike of the diorite-hornblendite contact was approximately normal to the beach line. Small segregations ofmagnetite, sometimes appearing to form narrow, irregular stringers of less than 1/2 inch in width, were noted between the hornblende crystals. Through the hornblendite were noted pegmatitic phases consisting of biotite, hornblende crystals, chlorite, pyroxene, and of magnetite. Some small narrow vein dikes of anorthosite, stringers of epidote, and one quartz vein of approximately 2 foot width were noted.

Along the beach at the foot of the mill excavation were noted several dozen pieces of float magnetite of various sizes up to six inches in diameter. It is probable that this

magnetite came from the ore bin footings at the head of the mill. Similar material is found in place there. At that point it appears to be local segregations of magnetite that are part of the pegmatitic phase of the diorite-hornblendite. Average pull on a Short and Mason Mining Dip Needle (Norwegian Type) in this area was about 10 degrees above the pull caused by terrestrial magnetism.

A reconnaissance along the beach to the east of the mill also disclosed a continuation of the hornblendite with accessary magnetite. This condition exists for approximately one and one-fourth miles along the beach front.

A search was made to the east of the abandoned Post Office at Snettisham for 6 foot vein of practically solid titaniferous magnetite as reported in U. S. G. S. Bulletin 773, "Mineral Resources of Alaska, 1923", pages 133 and 134. It was reported that 4 or 5 tons of the magnetite was shipped to the Treadwell Mines in 1918, and was found to carry 4 or 5 percent titanium. The search was conducted both along the beach and in the timbered area back from the beach. No evidence of a magnetite vein could be found either by dip needle or visual observation. No evidence of an abandoned caved-in cut was seen; however, it is probable that such a vein does exist in the area as it was reported as having actually been seen by the Geological Survey.

The hornblendite-magnetite zone extends to about one-fourth mile from Sentinel Point. There, it is contacted on the east by a series of slates and phyllites. These slates and phyllites extend in a southerly direction along the shore of Gilbert Bay, and observations made along the beach for about one mile disclosed no evidence of either hornblende or magnetite exposures in that area.

A further reconnaissance was made up the Crystal Mine trail to an elevation of approximately 1,000 feet, thence east for about one-half mile, then return to the beach at a point about 200 yards from the town of Snettisham. The area traversed is one of flat muskegs and steep hillsides. Considerable overburden is present over most of the area, and comparatively few outcrops are evident. The dip needle showed little reaction in the area between the beach and the Crystal Mine. The same condition was present above the Crystal Mine, and for the half mile traversed to the east. Much of the country rock was of a dioritic or gabbroid nature. No magnetite was observed; however, at a point about midway on the final leg of the traverse, the dip needle again indicated a magnetic pull of about 10 degrees.

The ore at the Friday Mine, a gold property now abandoned, and located about midway between the Crystal Mine and Snettisham is reported to have been rich in magnetite. The property has not been worked since 1904, and its workings were not located.

Four samples were cut of the various magnetic occurrences observed, with the following results:

Sample No.	% Fe	% S	% P_2O_5	% TiO_2	Remarks
HMF - 146	67.85	0.12	0.013	9.94	Grab sample taken from near area in which 6' vein reported. Not representative
HMF - 147	52.00	0.14	Nil	8.84	Hi-Grade sample taken from under mill footings.
HMF - 150	15.12	0.79	0.95	2.65	Sample over 200' @ 1' intervals from mill to the west.
HMF - 155	18.33	0.66	1.35	3.10	Sample over 50' @ 5' intervals from mill to the east.

Inasmuch as samples 150 and 155 were representative samples taken over 250 feet of the most apparently promising area, it is probable the hornblendite will not average over 15 percent to 20 percent iron. While very low percentages of TiO_2 are indicated, the grade increases considerably in the concentrated or higher grade material and approaches the minimum desired by industry. The hornblendite is crushed without difficulty, and a ready magnetic separation made. However, the grade of material at present exposed is too low grade for economic mining.

There has been insufficient prospecting done in the area, and bearing in mind that the magnetic anomoly present is unusually strong over approximately four square miles, it is possible that thorough investigation will disclose minable ore bodies of magnetite. Further, inasmuch as known iron ore supplies on the Pacific Coast will undoubtedly prove insufficient for future industrial needs on the coast, a more complete program of prospecting and examination is fully warranted.

Respectfully submitted,

Howard M. Fowler

HOWARD M. FOWLER
Associate Mining Engineer

Territory of Alaska
Department of Mines
Juneau, Alaska

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/s/ Howard M. Fowler
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