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C. D. Bassett
705 Oak Street
Ypsilanti, Michigan

ALASKAN IRON ORES AND THEIR AVAILABLE MARKETS
By: C. D. Bassett

As recently as 1950 publications of the U.S. Interior Department concerning the Territory of Alaska (1) mention no known iron ore deposits of any significance. In 1946 a Bureau of Mines booklet "Alaska's Minerals as a Basis for Industry" mentions small lenticular deposits of magnetite on Prince of Wales Island in Southeastern Alaska which were extensively explored by the Bureau by both trenching and diamond drilling (3,4). The estimated reserves on the Island were about two and one third million tons. Iron ore content ran fifty percent and sulfur about four percent.

Since 1950 the above picture has changed in that two immense iron ore deposits have been explored in a preliminary way in Southeastern Alaska. This location is important in that the climate is about the same as that of the Puget Sound area in the State of Washington, in other words comparatively mild the year around, due to the warm Japanese Current.

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The largest of these two deposits is at Klukwan Village thirty miles from Haines on Skagway fiord, a deep tidewater channel. The ore body itself constitutes a nea rly vertical mountain side rising from an altitude of about 400 ft. to nearly 5000 ft. A good highway runs along the foot of the deposit and on to Haines.

Preliminary examination by the Bureau of Mines in 1951 estimated the Klukwan deposit to contain from one to five billion tons of 15 to 20 percent iron ore as disseminated grains and small lenses of magnetite containing, in turn, some 2-1/2 percent tita nium.

During the summer of 1952 some exploration work was done at Klukwan by a Seattle broker, Mr. C. T. Takahashi, who has the property under lease for Japanese steel interests. This exploration discovered a zone of relatively high grade iron ore within the main deposit. Assays of preliminary type samples range from 30 to 50 percent ma gnetic iron. Field reports, which Bureau men in Alaska hope to check as soon as possible, describe the new zone to be from 50 to 100 feet wide and of undetermined length.

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The second large iron ore body is on tidewater near Snettisham, an abandoned gold mining community about 35 miles southeast of Juneau. In the summer of 1951 the Territorial Department of Mines conducted a magnetic survey of this area (5). The traverses with the dip needle located four promising zones more or less in a line and led the Department in their report (5) to recommend a further magnetic survey and trenching with diamond drilling to follow if these explorations so indicate.

Information concerning these two deposits is slow in developing for the same reason that their discovery occurred some 82 years after the purchase of the Territory from Russia. This basic reason is described in great detail in the voluminous Alaska Reconnaissance (1) and is, in short, the almost complete collapse of prospecting in the Territory since the bonanza days of '98. Good prospecting being absent, the personnel of the Bureau of Mines and the Territorial department of Mines must necessarily spread themselves rather thin in attempting to explore for minerals over so vast a region in addition to carrying on their normal duties.

The Geological Survey has been engaged in geologically mapping Alaska for over fifty years, but so tremendous is this task and so necessarily limited the available personnel that only a very small amount of the total work is done.

In the event that the two iron ore deposits described earlier prove to be attractive for exploitation three markets appea r to be available to the operators.

The Japanese market is available immediately, the Alaskan market when a reduction plant and an iron and steel industry become a reality, and a West Coast market if shipping costs are right when Alaskan reduction facilities are available.

Table 1

Steel Industry Production - Japan (6)
Metric Tons

	1949	1949
Iron Ore, Domestic	561,063	779,674
Iron Ore, Imp. from U.S.	60,869	251,791
Pig Iron & Ferro Alloys	836,455	1,602,200
Steel Ingots & Castings	1,713,828	3,111,400

Table 1 illustrates the unbalance between Japan's iron ore domestic production and her pig iron and steel production. Prior to 1945 this unbalance was offset by ore imports from Manchuria integrated economically with Japan. This supply is not available at present because of the Korean war primarily, therefore Japan must import iron ore from the world market.

The fact that Japanese interests initiated costly exploration of newly discovered iron ore deposits of unknown value and extent in Alaska is evidence that they seek a more stable and economical source of ore than is available on the world market. Presumably this commerce would be carried on over the 6700 mile route in Japanese bottoms bringing fabricated steel products to Alaska in exchange for the ore.

The Alaska market for steel products is the fastest growing market of this kind in the world. The estimated consumption of steel products of all types from nails and structural shapes to machinery in the Territory for 1952 will be 158,000 tons. In 1947 it was 16,500 tons. (7) The per capita steel consumption is Alaska is 1.23 tons in 1952 compared to 0.67 tons for the United States (8). The reasons for this heavy market for steel products are two: one, the fortification of the Territory and, two, the heavy capital investment required to

develop a virgin country and to support a large and permanent military installation. Apropos of this the civilian population of Alaska has increased 77.4 percent between 1940 and 1950. Thus here in this northwest outpost is being created a market for steel products which for all practical purposes was nonexistent five years ago. That it is a permanent and healthy market is due to the very capital investment which is creating part of the present market and which consists of railroads, highways and bridges, dams and industrial plants.

Certain segments of this market most certainly would be available to a mutual trade with Japan since at present every ounce of the steel products used in Alaska is imported from the United States. Such basic products as structural shapes, rails, reinforcing rod, wire, iron or steel castings, etc. should lend themselves to such a trade. In the event of an iron and steel industry's starting in Alaska the commerce with Japan might more profitably be altered to the shipping of pig iron or steel ingots from the Territory in exchange for mill products. With satisfactory coal and limestone present in Alaska in abundance the building of a reduction plant there is just a matter of time.

A market for Alaska's iron ore in the Pacific Coast states at present does not exist. The Eagle Mountain property in Riverside County and the Vulcan, Morris Lode, and Silver Lake properties in San Bernardino County, California seem sufficient to supply the Fontana plant even with the scheduled $65 million expansion undertaken in 1952 (9). At present this is the only iron ore reduction plant in the West Coast states.

It seems more likely that a market will exist in these states in the future for Alaskan pig iron or ingot steel rather than iron ore. These commodities

would be shipped by water from Alaska to compete against shipments by rail from the Eastern steel centers.

This paper has described the known iron ore deposits in the Territory of Alaska and the markets available to these ores. It has not been within its scope to discuss such subjects as labor supply and cost or power supply and cost in the Territory, however important these are to the entrepreneur. There is no question but that there is both a labor shortage and power shortage there at this time. The latter, however, is a matter of concern for a new enterprise anywhere and not just in Alaska. Hydro power sites which can be developed at lost cost, i.e. high head sites, abound in Southeastern Alaska. Coal is available from operating mines in the Territory for steam power plants.

The labor shortage would indicate as complete mechanization as possible for any iron ore mining operation.

References:

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2. Alaska's Minerals as a Basis for Industry
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3. Mt. Andrew Iron Deposit, Prince of Wales Island, Southeastern Alaska
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4. Tolstoi Mt. Iron Deposits, Prince of Wales Island, S.E.Alaska
   Bureau of Mines Report # R.I. 4373, December 1948

5. A Magnetic Survey in the Vicinity of Snettisham, Alaska
   J.A.Williams, Assoc. Mining Engineer, Dep't of Mines, Terr. of Alaska

6. Minerals Yearbook, 1949
   Bureau of Mines

7. The Alaska Steel Market, C.D. Bassett, A private paper.

8. A Strange Market, C.D. Bassett, A private paper.

9. Moody's Industrials, 1952

Dear Mr. Williams:

Any comments you have on this paper will be most welcome based as it is, in part, on your report on the Snettisham iron ore deposit.

Bear in mind, in commenting, that it was prepared for a very limited distribution to men in the iron mining industry and was therefore slanted to receive their interest and attention.

Many thanks for your letter of June 3, 1952 and enclosure.

Very truly yours,

C. D. Bassett