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 DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

GEOLOGICAL SURVEY

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Known reserves of iron ore in southeastern Alaska have been increased by several hundred thousand tons as a result of recent investigations, William E. Wrather, Director of the Geological Survey, reported to Secretary of the Interior Harold L. Ickes today.

The additional iron ore reserves were discovered in Jumbo Basin on Prince of Wales island, about 40 air miles from Ketchikan. Geologic, magnetic, and topographic maps of iron and copper deposits of the basin have now been made and a report on the deposits is in preparation, Mr. Wrather said.

The investigations on Prince of Wales island, conducted by George C. Kennedy, are part of a larger program of the Geological Survey to investigate and appraise iron and associated copper deposits of Southeastern Alaska as a possible source of ore to be used in the industrially expanding Northwest.

Jumbo Basin is on the east side of Hetta inlet, three miles south of the abandoned town of Sulzer. By boat, it is 110 miles west of Ketchikan. The nearest settlement is the village of Hydaburg, 15 miles away by water.

The principal magnetite deposits found are about 1,600 feet above sea level and are approximately one and a half miles by pack trail from the beach.

Jumbo Basin ranges in altitude from sea level to 3,900 feet, and slopes in many places are precipitous. The area is heavily forested, largely with hemlock, up to altitudes of about 2,000 feet. Below timber line the rocks are largely concealed.

The oldest rocks in the Jumbo Basin area comprise a thick sequence of intensely folded marble and calcareous schist beds, which are conformably overlain by graphitic and chloritic schist. Massive greenstone flows overlie the metamorphosed sediments and are separated from the older metamorphic rocks by an angular unconformity, so that in some places the greenstone overlies the calcareous rocks and in others the graphitic and chloritic schists. A large pre-ore diorite stock and many pre-ore andesite dikes and sills intrude the metamorphic rocks.

#### Iron deposits

The magnetite deposits are replaced portions of marble and calcareous schist beds near the diorite. The ore bodies are tabular lenses parallel to the diorite contact. Most of the ore has formed at places where tongues of diorite extend

outward from the main stock into the calcareous rocks, or in inclusions of these rocks in the diorite. The calcareous rocks and the diorite adjacent to the ore bodies are locally replaced by a typical suite of contact-metamorphic minerals in which garnet and epidote predominate. These minerals, with calcite, form the gangue of the ore. The ore minerals are chiefly fine-grained magnetite, with considerable pyrite and chalcopyrite in finely disseminated particles or, less commonly, in irregular masses.

The lenses of magnetite range in thickness from a few feet to as much as 60 feet, and the largest known body crops out for a length of 450 feet. The three principal bodies, aggregating about 370,000 tons of indicated and inferred ore, are within an area a few hundred feet square on the north side of Jumbo Basin. These three ore bodies are separated by two thin sheets of barren rock. Additional smaller bodies of magnetite are known in Jumbo Basin but seem to be of insufficient size to be of commercial significance. The major bodies are estimated to contain approximately 45 percent of iron and 0.5 percent of copper. Associated with the magnetite bodies are smaller bodies of garnet-epidote rock, which are estimated to contain about 1.5 percent of copper but practically no magnetite.

#### Copper deposits

The only copper deposits in the district that were studied in 1944 are those at the Jumbo mine, about half a mile southeast of the magnetite deposits. This mine contributed a large proportion of the copper ore produced in the Ketchikan mining district from 1907 to 1918 but has not been active since 1923. In addition to copper the ore contained appreciable gold and silver.

The buildings near the mine are in ruins, and the aerial tram from the mine to the beach is down. However, the trail from the mine to the beach camp at the mouth of the basin has been kept open, and several buildings on the beach are habitable. All workings in the mine below the lowest tunnel, at an altitude of 1,570 feet, are flooded.

The deposits at the Jumbo mine are in and near a zone of contact-metamorphic minerals around a large marble and schist inclusion in diorite. Pods of massive chalcopyrite are present in the contact zone, and narrow discontinuous veins of chalcopyrite transect the marble adjacent to the contact zone. Only a few tons of high-grade copper ore remain, but appreciable reserves are present of material estimated to contain 0.5 to 1 percent of copper.