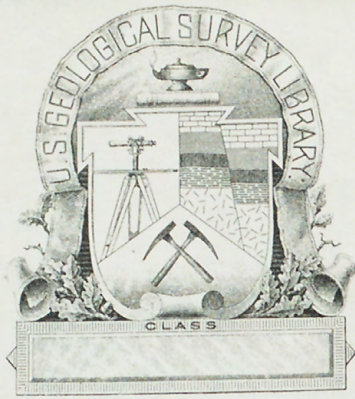




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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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SUMMARY OF REFERENCES TO MINERAL OCCURRENCES
(OTHER THAN MINERAL FUELS AND CONSTRUCTION MATERIALS)
IN THE CORDOVA QUADRANGLE, ALASKA

By ^{untigation}
Edward H. Cobb, 1916 -



Open-file Report 79-973
1979

297026

This report is preliminary
and has not been edited or
reviewed for conformity with
Geological Survey standards
and nomenclature.

Introduction

This summary of references is designed to aid in library research on metallic and nonmetallic (other than mineral fuels and construction materials) mineral occurrences in the Cordova quadrangle, Alaska. References to most reports of the Geological Survey, U. S. Bureau of Mines, and State of Alaska Division of Geological and Geophysical Surveys and its predecessor agencies released before January 1, 1979, are included. Certain, mainly statistical, reports such as the annual Minerals Yearbook of the U.S. Bureau of Mines and the biennial and annual reports of the Alaska Division of Geological and Geophysical Surveys and its predecessor agencies are not included. Also not included are data on many prospects and claims about which little more than their locations is known (for example, many of those in Condon, 1965 (I-453) and some in MacKevett and Holloway, 1977 (OF-77-169A), p. 15). These omissions should not be interpreted as a judgement on my part that the prospects and claims are not valid mineral occurrences, but only that there are insufficient data to describe any mineral deposits that might be present.

This report is divided into three parts: a section made up of summaries of references arranged alphabetically by occurrence name; a section that lists synonyms for names in the first section, claim names, and the names of operators and owners of mines and prospects; and a section that lists, by author, all references in the first section and in these introductory paragraphs.



Summaries of References

For each mineral occurrence there is a page that gives the name of the occurrence; the mineral commodities present (listed alphabetically), the mining district (Ransome and Kerns, 1954 (IC 7679)) in which the occurrence is located; the name of the 1:250,000-scale topographic quadrangle (Cordova); coordinates (as described by Cobb and Kachadoorian, 1961 (B 1139), p. 3-4); the metallic mineral resources map number (MF-392) and the occurrence number on the map if the occurrence is shown; and the latitude and longitude of the occurrence. These data, presented at the top of the page, are followed by a short, general summary of the published information on the occurrence. This is followed (continued on additional pages if necessary) by more detailed summaries, arranged chronologically, of all references to the occurrences. In a few instances data from the field notes of geologists are also included, but I made no attempt to study all of the possibly applicable notebooks. Material in brackets is interpretive or explanatory and is not in the summarized reference.

Proper names of mines, prospects, and other mineral occurrences are given if such names appear in the reports summarized. If a part of a proper name is not always used in a reference, that part of the name is shown in parentheses. If a deposit does not have a proper name, but is near a named geographic feature, the name of that feature is shown in parentheses in lieu of a proper name.

Citations are given in standard bibliographic format with the exception that references to reports and maps in numbered publication series also show, in parentheses, an abbreviation for the report or map series and the report or map number. Abbreviation used are:

AOF	Alaska Division of Geological and Geophysical Surveys Open-file Report
B	U.S. Geological Survey Bulletin
BMB	U.S. Bureau of Mines Bulletin
C	U.S. Geological Survey Circular
I	U.S. Geological Survey Miscellaneous Geologic Investigation Map
IC	U.S. Bureau of Mines Information Circular
OF	U.S. Geological Survey Open-file Report
MF	U.S. Geological Survey Miscellaneous Field Studies Map
P	U.S. Geological Survey Professional Paper
RI	U.S. Bureau of Mines Report of Investigations

Summaries are as I made them while reading the cited reports. I made no attempt to use complete sentences and did not edit for grammatical consistency, although I tried to edit out ambiguities.

MS-174, Vol. 14

Summary: Data on origin, copper deposits in Alaska, 1907-1910. The data are from the U.S. Geological Survey, and are presented in a table. The table shows the location of the deposits, the amount of copper, and the date of discovery. The data are presented in a table with 4 columns: Location, Amount, Date, and Remarks. The data are presented in a table with 4 columns: Location, Amount, Date, and Remarks.

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Alaska Commercial Co.

Copper, Gold, Lead, Silver, Zinc

Prince William Sound district
MR-392, loc. 14

Cordova (3.9, 15.0)
60°51'N, 146°32'W

Summary: Site of original copper discovery in area, 1897. Over 500 ft. of workings, mainly driven before 1905, when about 70 tons of ore was shipped. Most recent activity reported was in 1915. Ore in 2 sulfide lenses in shear zone in greenstone (with some interbedded graywacke and slate) of Orca Gp. Sulfides include chalcocite, pyrrhotite, sphalerite, galena, arsenopyrite, and cubanite(?); as much as 0.18 oz. gold and 0.26 oz. silver a ton in assays. Property eventually owned by Threeman Mining Co. Includes references to: A.C. (Co.), Copper Mountain, Jacobson. See also (Bligh I.).

Schrader, 1900, p. 417-418 -- Copper ore in talus led to discovery of vein in 1897; in shear zone in greenstone or amphibolite schist.

Ore consists of chalcopyrite, bornite, marcasite, pyrite, and some quartz and specularite. Samples contained 11.4% and 12.5% copper.

Grant, 1906 (B 284), p. 83-84 -- Shear zone in greenstone is about 4 ft. thick, strikes N68°E, and dips 75°-80°N. Contains layer pyrrhotite and chalcopyrite 2-8 in. thick. About 70 tons of ore was shipped in 1905. Tunnel run 412 ft. to undercut ore body; did not reach it unless a barren, narrow shear zone represents the vein.

Capps and Johnson, 1913 (B 542), p. 119-121 -- Preliminary to Capps and Johnson, 1915 (B 605).

Johnson, 1914 (B 592), p. 241 -- Underground development, 1913.

Capps and Johnson, 1915 (B 605), p. 13 -- First claim staked, 1897.

p. 52-54, 56 -- Data from older reports. Part of a quotation from Emerson, B. K., 1904 in Harriman Alaska Expedition, General Geology, Alaska, v. 4, p. 24-25, follows: "The deposit of copper ore is a mass of quartz, with chalcopyrite, pyrrhotite, and small amounts of galena and sphalerite, occupying a shear zone in a rock of serpentinous character."

p. 70-71 -- Arsenopyrite appears to have been the first sulfide to form.

p. 107-108 -- Located in 1897; more than 500 ft. of underground workings in 1898-99 and some high-grade ore shipped. More development, 1912-13. Country rock mainly greenstone; some interbedded slate and graywacke. Ore in shear zone about 30 ft. wide that includes large lenses of unsheared greenstone. Sulfides in most highly sheared material and in joints in unsheared rock. Highly mineralized zone is 2-10 (average 4) ft. wide; strikes N85°W, dips 60°N, and is traceable along strike for about 250 ft. Ore probably formed by replacement of greenstone with some cementation of small fractures. Sulfides are chalcopyrite, pyrrhotite, sphalerite, galena, arsenopyrite, and an undetermined sulfide [cubanite?]; gold and silver reported in assays.

Alaska Commercial Co. -- cont.

Johnson, 1915 (B 622), p. 133 -- Ore reported to have been found, 1914.

Johnson, 1916 (B 642), p. 140 -- Crosscut(s) driven by Threeman Mining Co., 1915.

Smith, 1917 (BMB 142), p. 43 -- Owned by Three Man Mining Co.

Smith, 1917 (BMB 153), p. 50 -- Same as above.

Moffit and Fellows, 1950 (B 963-B), p. 48 -- First copper discovery in Prince William Sound, 1897.

p. 59 -- In 1915 included 3 tunnels with a total length of more than 532 ft. Several tons of high-grade material reported to have been shipped.

Mihelich and Wells, 1957 (RI 5320), p. 3 -- Claim data.

p. 6 -- Were no ore shipments [does not agree with data in some of older reports].

p. 14 -- Mine map. Samples assayed contained as much as 6.0% Cu, 1.4% Zn, 0.26 oz. a ton Ag, and 0.18 oz. a ton Au.

p. 18-19 -- Prospect located in 1897. Drift driven 200 ft. from tunnel; along shear zone; exposed 2 lenses of chalcopyrite, pyrrhotite, and pyrite with total length of over 100 ft. and 1.5-3.2 ft. thick. Other exploratory openings and trenches not visible when visited by USBM, 1955.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 10 -- References to Capps and Johnson, 1915 (B 605), and Mihelich and Wells, 1957 (RI 5320). Country rock mainly greenstone of Orca Gp.

Banzer

Copper, Gold, Lead, Zinc

Prince William Sound district
MF-392, loc. 17

Cordova (3.9, 14.3)
60°49'N, 146°33'W

Summary: Quartz stringers and bunches in slate of Orca Gp. contain chalcopyrite, pyrrhotite, pyrite, sphalerite, galena, and gold; assays as high as about 2.42 oz. gold a ton reported. A little work done in early 1900's, but no recorded production. Banzer also is reported to have done some work in 1917 on a copper prospect somewhere near the head of Port Fidalgo (Johnson, 1919 (B 692), p. 149).

Capps and Johnson, 1913 (B 542), p. 123-124 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 112 -- 2 shafts and several hundred feet of stripping before 1912. Country rock contorted slate and greenstone; many stringers and bunches of quartz in slate. Quartz on dump contains chalcopyrite, pyrrhotite, sphalerite, and galena; a little calcite gangue. Assays as high as \$50 [about 2.42 oz.] a ton in gold reported; may not have been an average sample.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 12 -- Reference to Capps and Johnson, 1915 (B 605). Bedrock is Orca Gp.

Bayview

Copper(?)

Prince William Sound district

Cordova (6.25, 17.45) approx.
61°00'N, 146°16'W approx.

Summary: Copper prospect; claim located on a mineralized zone in greenstone at head of Solomon Gulch. No data on deposit other than approximate location.

Johnson, 1919 (B 692), p. 165 -- Copper prospect nearly 2,500 ft. above sea level on Solomon Gulch. [Other Solomon Gulch prospects and mine are in Valdez quad.]

p. 171 -- Claim staked on a mineralized zone in large greenstone area that crosses head of Solomon Gulch at elevation of about 2,500 ft.; 1½ mi. south of Midas mine.

Mulligan, 1974 (IC 8626), p. 22 -- Data from Johnson, 1919 (B 692), p. 171 [not cited]. [Incorrectly located in Valdez quad.]

Bear Creek Mining Co.

Gold

Prince William Sound district
MF-392, loc. 27

Cordova (15.6, 8.75)
60°29'N, 145°12'W

Summary: Has been development work on several claims. Geology similar to that at McKinley Lake. See also Lucky Strike Mining. Co.

Chapin, 1913 (B 542), p. 79-80 -- Several claims on which development work has been done. Geology similar to that at McKinley Lake.
[See Lucky Strike Mining Co. for description.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 21 -- Reference to above. In slate and graywacke of Orca Gp.

(Bligh I.)

Gold

Prince William Sound district
MF-392, loc. 2

Cordova (2.25, 15.3) approx.
60°53'N, 146°45'W approx.

Summary: Quartz pod in rocks of Orca Gp. (Paleocene) contained much gold (assay as high as about 121 oz. a ton reported) was mined out in early 1900's.

Capps and Johnson, 1913 (B 542), p. 123 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 112 -- Old prospect of Alaska Commercial Co. at NE corner of island on a mass of quartz said to have assayed as high as \$2,500 [about 121 oz.] a ton in gold. Reported to have been worked out. Shaft caved and nothing visible in 1912.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 2 -- Reference to Capps and Johnson, 1915 (B 615). Gold-bearing quartz pod in Orca Gp. (Paleocene).

(Bremner R.)

Gold

Nizina district
MF-392, loc. 31

Cordova (24.3, 18.0)
60°00'N, 144°08'W

Summary: In early 1900's there were attempts to mine fine gold from glaciofluvial sand and gravel terrace on glaciated bedrock of Valdez Gp. Total production probably no more than a few tens of ounces of gold. Includes references to (Threemile Canyon).

Moffit, 1912 (B 520), p. 99-100 -- Preliminary to Moffit, 1914 (B 576).
Moffit, 1913 (B 576), p. 44 -- Yield of placer gold worth no more than a few hundred dollars.

p. 47-48 -- Bench on north side of river about $\frac{1}{2}$ mi. above Threemile Canyon was being mined in 1911. Sand and fine gravel containing fine gold rests on glaciated surface of slate or graywacke bedrock. Sluiced with water from a small stream that went dry in the middle of the summer. Fine gold also on river bars. In 1911 one man was working on a small tributary that flows into river in Threemile Canyon; had been more interest in 1907, but returns were disappointing.

Cobb, 1973 (B 1374), p. 32 -- In early 1900's were attempts to mine glaciofluvial deposits.

Henning and Dobey, 1973 (AOF 25), p. 12-13 -- Reference to Moffit, 1914 (B 576).

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 24 -- Reference to Moffit, 1914 (B 576). In Valdez Gp. terrane.

Chisna Consolidated Mining Co. Copper, Gold, Silver

Prince William Sound district Cordova (4.0, 14.8)
MF-392, loc. 16 60°51'N, 146°32'W

Summary: Chalcopyrite and pyrite in shear zones in greenstone. Best copper assay reported is 0.64%; traces of gold and silver. A little exploration in about 1909.

Capps and Johnson, 1915 (B 605), p. 111-112 -- Company said to have been promoted in 1909. 40-ft. inclined shaft and a few open cuts; only assessment work in recent years [as of 1912]. Slightly mineralized schistose greenstone on trace of Landlock thrust.

Mihelich and Wells, 1957 (RI 5320), p. 6 -- In early 1900's was active prospecting, but no production.

 p. 15 -- Map of prospect. Assays of samples showed as much as 0.64% Cu, 0.04 oz. a ton silver, and traces of gold.

 p. 19 -- In upper plate of Landlock thrust fault. Explored by 40-ft. inclined shaft sunk in a shear zone about 40 ft. wide that strikes N30°W and dips 35°NE; thin films of chalcopyrite and of pyrite and gouge in fractures in greenstone. 20-ft. tunnel driven to crosscut a fracture zone 5 ft. thick that strikes N30°E and dips 35°SE.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 11 -- References to above. Country rock Orca Gp.; mainly greenstone.

(Cloudman Bay)

Copper, Gold, Zinc

Prince William Sound district
MF-392, loc. 3

Cordova (2.3, 14.65) approx.
60°50'N, 146°44'W approx.

Summary: Stockwork of drusy quartz veins in slate of Orca Gp. contains chalcopryite, pyrite, sphalerite and as much as \$4.80 (about 0.23 oz.) a ton in gold. Some surface stripping before 1912.

Capps and Johnson, 1913 (B 542), p. 123 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 112 -- Stockwork of about equal parts slate and drusy quartz is 20-30 ft. wide; gouge seam 4 in. wide along one wall and 2 small faults with gouge along the other. Crops out below high tide; stripped back 40 ft. from beach. Quartz contains sulfides, including chalcopryite, pyrite, and sphalerite. Samples across 30-ft. width of stockwork ran \$2 to \$4.80 [a ton, presumably in gold at \$20.67].

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 3 -- Reference to Capps and Johnson, 1915 (B 605). Stockwork in slates of Orca Gp. [Shows sb (stibnite) in description; lapsus for S1 (sphalerite).]

(Copper Mtn.)

Copper

Prince William Sound district

Cordova (3.7-3.9, 15.0-15.2)
60°51'-60°52'N, 146°32'-146°35'W

Summary: Copper deposits in fissure veins in greenstone with small amounts of slate, graywacke, and quartzite. See also: Alaska Commercial Co., Hemple Copper Co., Montezuma, Reynolds-Alaska Development Co. (Landlocked Bay), Standard Copper Mines Co.

Schrader and Spencer, 1901, p. 88 -- Fissure-vein copper deposits. Grant, 1906 (B 284), p. 82 -- Country rock greenstone with small amounts of slate, graywacke, and quartzite. Site of principal interest of prospectors in general area.

(Copper R. bars)

Gold

Prince William Sound district

Cordova (11.5-15.3, 4.3-7.0) approx.
60°15'-60°24'N, 145°15'-145°40'W approx.

Summary: Bars off Copper R. delta contain fine gold derived from Copper R. drainage basin. Samples contained as much as 0.250 ppm gold. Pete Dahl Bar of this report (below) is near Copper Sands of most maps.

Reimnitz and Plafker, 1976 (B 1415), p. 9-10 -- Bars off mouth of Copper R. contain fine gold. Samples from 2 bars (Green Island Bar and Pete Dahl Bar) contained from 0.003 to 0.250 ppm gold. Gold and other heavy minerals derived from Copper R. drainage basin rather than brought from east by longshore drift; very little gold east of main channel of river. Pete Dahl Bay appears to be as good as (or better than) Yakataga beaches [Bering Glacier quad.] as a place for beach placer mining.

Cordova Copper Co.

Copper

Prince William Sound district
MF-392, loc. 23

Cordova (11.0, 10.0) approx.
60°34'N, 145°43'W approx.

Summary: Altered and fractured amygdaloidal basalt of Orca Gp. carries copper minerals, as do stringers of quartz-epidote rock. Copper minerals are chalcopyrite, bornite, chalcocite, native copper, cuprite, and malachite. Minor development, 1905-09 and 1917. No commercial production, but native copper was exhibited at an exposition in 1909. Includes references to (Fleming Spit).

Grant, 1906 (B 284), p. 84 -- Irregular stringers of quartz-epidote rock in crushed amygdaloidal basalt. Chalcocite in stringers and in nonepidotized country rock. Native copper reported. Two small prospect holes in 1905.

Grant, 1910 (B 442), p. 165 -- Company exhibited large peices of native copper at Alaska-Yukon exposition, 1909.

Grant and Higgins, 1910 (B 443), p. 54 -- Copper minerals are chalcopyrite, bornite, native copper, cuprite, and malachite.

p. 70 -- Country rock is altered, fractured anygdaloids. Same data as on p. 54.

Johnson, 1919 (B 692), p. 149 -- Development, 1917; 2 tunnels about 250 ft. apart vertically being driven; open cuts on outcrop of ore body.

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 17 -- Reference to Grant and Higgins, 1910 (B 443). Country rock amygdaloidal basalt of Orca Gp.

Dickey Copper Co.

Copper, Gold, Zinc

Prince William Sound district
MF-392, loc. 20

Cordova (5.0, 13.4)
60°46'N, 146°25'W

Summary: Country rock is graywacke, argillite, and slate of Orca Gp.; no greenstone or other igneous rock. Shear zone contains chalcopyrite, pyrite, sphalerite, pyrrhotite, and gold in quartz and calcite gangue. Sulfides appear to have preferentially replaced certain (possibly originally limy) beds. Some postmineralization movement. 1,000 or more feet of underground workings. Property active from about 1907 to about 1917; some ore (amount not known) shipped, 1914-17. Includes references to: Irish Cove, Mason & Gleason.

Brooks, 1912 (B 520), p. 27 -- Some work done on property by Threeman Mining Co. in 1911.

Brooks, 1913 (B 542), p. 34 -- Development reported, 1912.

Brooks, 1914 (B 592), p. 62 -- Some ore mined and sledged to beach, 1913.

Johnson, 1914 (B 592), p. 241-243 -- Discovered, 1907. Development until 1913; several hundred feet of underground workings on 3 levels; surface improvements; about 600 tons of ore mined, but not shipped; in ore bunkers (as of July, 1913).

Capps and Johnson, 1915 (B 605), p. 119-122 -- Chalcopyrite, pyrite, and quartz fill irregular, small, tubular wormlike channels in sedimentary rocks. Data on history and development of property essentially as in Johnson, 1914 (B 592). Country rock is series of interbedded graywacke, argillite, and slate (no igneous rocks); all sheared in a zone traced for 300 ft. in workings; most individual shears strike between N and N50°E, apparently closely parallel to bedding; has been some postmineralization movement. Ore in shear zone; consists of chalcopyrite, pyrite, sphalerite, and pyrrhotite; considerable gold reported to be in parts of ore body; gangue minerals are quartz and calcite. Gold generally in parts of ore body that are lowest in chalcopyrite and high in sphalerite. In many places chalcopyrite appears to have preferentially replaced certain (possibly originally limy) beds.

Johnson, 1915 (B 622), p. 133-134 -- Development work, 1914; some ore said to have been found.

Johnson, 1916 (B 642), p. 141 -- Operated Nov.-Dec., 1915. Ore bunkers and wharf erected in Irish Cove.

Johnson, 1918 (B 662), p. 184 -- Ore shipped, 1916.

p. 187 -- 500-600 ft. of underground work done, 1916. Several hundred tons of ore shipped.

Johnson, 1919 (B 692), p. 144 -- Ore shipped, 1917.

p. 149 -- Property not known to have operated, 1917, but ore shipment said to have been made.

Brooks, 1912 (B 714), p. 22 -- Deposit in shear zone in slate and graywacke; slate more crushed than graywacke.

Dickey Copper Co. -- cont.

Moffit and Fellows, 1950 (B 963-B), p. 62 -- Most of data from Capps and Johnson, 1915 (B 605). About 600 tons of ore mined, but not shipped, 1913. Ore consists of chalcopyrite, pyrite, sphalerite, and pyrrhotite in shear zone in graywacke, argillite, and slate; no greenstone. Ore carries considerable gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 14 -- References to Capps and Johnson, 1915 (B 605) and Moffit and Fellows, 1950 (B 963-B). Country rock part of Orca Gp.

Ellamar (Mining Co.)

Copper, Gold, Lead, Silver, Zinc

Prince William Sound district
MF-392, loc. 4

Cordova (2.55, 15.7)
60°54'N, 146°42'W

Summary: Strata-bound submarine volcanogenic deposit in flysch of Tertiary Orca Gp. near tholeiite. Principal ore body (considered to have been mined out) was a lenticular mass extending from surface (wash at high tide) to depth of 530 ft. where it pinched out; cross section on 200-ft. level was an ellipse with axes of 240 ft. and 90 ft. Hanging wall part of deposit was a solid mass of pyrite separated from underlying copper-sulfide ore by a 2-ft.-thick body of black slate. Ore minerals were chalcopyrite, cubanite, pyrite, pyrrhotite, sphalerite, and galena; carried gold and silver, particularly in sphalerite-rich ore. Staked in 1897 and operated until mine was closed in 1920. One of two major copper mines in district; produced about 100 million pounds of copper and byproduct gold and silver (amounts not known). Pyrite supplied as smelter feed. Developed by workings on several levels (deepest 600 ft.) and inside coffer dam that allowed stoping to surface. Methane encountered in raises driven in slate in hanging wall to obtain material to backfill stopes. Includes references to Gladhaugh.

Schrader, 1900, p. 418-419 -- In 1898 a deposit about 300 ft. wide was being worked. Deposit known as early as 1895; staked in 1897. Country rock is gray arkose cut by a diabase dike, which "seems to have something to do with mineralization of the ore deposit." Deposit exposed only at low tide. Ore largely chalcopyrite and tetrahedrite with some bornite and epidote and much marcasite.

Schrader and Spencer, 1901, p. 89 -- Country rock is folded and sheared black shales. Vein is practically solid mass of copper and iron pyrites; 125 ft. wide where exposed; extends known distance of more than 300 ft. along strike. North wall strikes N45°W and dips 30°N; south wall dip is considerably steeper. Vein has small inclusions of country rock, some calcite lenses, and a little bornite. Sample assayed 5.4% copper and 0.1 oz. gold a ton. Shaft being sunk in 1900; plan to crosscut to vein at depth of 150 ft.

Grant, 1906 (B 284), p. 81-82 -- Staked in 1897. In 1905 shipped about 1,500 tons of ore per month during summer. 5 levels (deepest 500-ft. level); on 200-ft. level ore body has lens-shaped cross section 190 ft. long and 80 ft. wide. Ore body consists of chalcopyrite, pyrite, pyrrhotite, and varying amounts of slate country rock; mainly massive with a few calcite-filled cracks. Country rock much fractured and slickensided.

p. 87 -- Only producing copper mine in Prince William Sound in 1905.

Brooks, 1907 (B 314), p. 27 -- Ore shipped, 1906. Mine said to have reached 6th level at 600 ft. depth

Ellamar (Mining Co.) -- cont.

- Moffit, 1908 (B 345), p. 178 -- Partly idle, 1907 (labor trouble); shaft sunk to 600-ft. level and 650 ft. of drifts run.
- Grant and Higgins, 1909 (B 379), p. 87-88 -- Staked in 1897. Making regular shipments of ore, 1908.
- p. 94-95 -- Output decreased, 1908; lower grade material outside of poorly defined ore shoot being mined. Ore body pinched out between 500-ft. and 600-ft. levels. Prospecting for other ore bodies by diamond drilling along strike of lens being mined.
- Brooks, 1910 (B 442), p. 32 -- Began shipping ore in 1901.
- p. 39 -- Mining, 1909.
- Grant, 1910 (B 442), p. 164 -- Dam to keep out sea water being constructed to allow mining from 100-ft. level to surface, 1909.
- Grant and Higgins, 1910 (B 443), p. 52-53 -- Staked in 1897. One of 2 mines in Prince William Sound that made regular shipments of copper ore. Crystals of pyrite occur rarely.
- p. 56-57 -- Ore body is a lens-shaped mass with maximum and minimum horizontal axes of 190 ft. and 80 ft. Unmetamorphosed diabase dike "may have played an important part in the formation of the ore body...."
- p. 59-61 -- Essentially the same data as in Grant and Higgins, 1909 (B 379), p. 94-95. In 1909-10 coffer dam being built so ore between 100-ft. level and outcrop (under water at high tide) can be mined.
- p. 78 -- Small amounts of sphalerite occur with copper minerals.
- Brooks, 1911 (B 480), p. 31-32 -- Cofferdam completed and some ore shipped, 1910.
- Brooks, 1911 (B 480), p. 81 -- Data from Grant and Higgins, 1910 (B 443).
- Brooks, 1912 (B 520), p. 27 -- Ore shipped in 1911 was from upper level.
- Capps and Johnson, 1913 (B 542), p. 97, 100-102 -- Preliminary to Capps and Johnson, 1915 (B 605).
- Brooks, 1914 (B 592), p. 62 -- Operated at full capacity, 1913.
- Johnson, 1914 (B 592), p. 240-241 -- Data on mining methods and surface plant. Average of 40 men worked throughout 1913.
- Capps and Johnson, 1915 (B 605), p. 13-14 -- Staked, 1897. Ore first shipped in 1900 and regularly since then.
- p. 51 -- Ore as much as 600 ft. below sea level. Mine produced in 1912.
- p. 52-55, 57-61 -- References to and quotations from older reports.
- p. 62-64 -- Ore deposit in shear zone that parallels bedding of country rock; has been slight postmineralization movement in shear zone.
- p. 71-72 -- Tiny veins of chalcopyrite with a little sphalerite cut earlier sphalerite. Very little copper in a massive pyrite lens.
- p. 87-92 -- Largely descriptions of workings and mining methods as of 1913; about 4,000 ft. of drifts and crosscuts on 8 levels plus stopes between several levels. Ore body is a lenticular mass with

- elliptical cross section on 200-ft. level with major axis of 240 ft. and minor axis of 90 ft., strikes about N35°W, dips 80°NE, pitches steeply SE, and appears to conform to bedding of graywacke and slate country rock. Sulfides are chalcopyrite, pyrrhotite, sphalerite, and pyrite; gold and silver associated with sphalerite (specimens of sphalerite have assayed as much as \$90 [about 4.35 oz.] a ton gold). Galena probably present; lead in assays. Gangue is quartz, calcite, and fragments of country rock. Pyrite earliest sulfide. Sulfides impregnated and replaced shattered country rock (including some limestone and limy beds) and first-deposited pyrite.
- Brooks, 1915 (B 622), p. 45 -- Copper ore shipments at normal rate, 1914.
- Johnson, 1915 (B 622), p. 131 -- Ore shipments, 1914.
- p. 133 -- Entire sulfide body being mined, 1914; mine is a large producer of copper and gold; smaller amounts of silver. Development was between 400-ft. level and surface; some workings in slate country rock.
- Johnson, 1916 (B 642), p. 138 -- Large shipments as usual, 1915.
- p. 140 -- Work continued, 1915. Raises in slate country rock reported to have encountered explosive gases.
- Smith, 1917 (BMB 142), p. 39 -- Mainly data on mining methods.
- Smith, 1917 (BMB 153), p. 44-45 -- Mainly data on mining methods and equipment. Methane encountered in raises in graphitic slate of hanging wall being driven to provide material for backfilling stopes.
- Brooks, 1918 (B 662), p. 44 -- One of largest copper producers in Prince William Sound, 1916.
- Johnson, 1918 (B 662), p. 184-186 -- Mining, diamond drilling, and surface improvements, 1916.
- Johnson, 1919 (B 692), p. 144 -- Ore shipped, 1917.
- p. 147 -- Operated for nearly all of 1917. Considerable surface improvements and some diamond drilling.
- Martin, 1919 (B 692), p. 31 -- Operated on about the usual scale, 1917.
- Martin, 1920 (B 712), p. 33 -- Operated at reduced capacity (shortages of labor and shipping space), 1918.
- Brooks, 1921 (B 714), p. 22 -- Ore in shear zone in slate; ore body is lenticular and may have been formed by replacement of calcareous lens in slate.
- Brooks and Martin, 1921 (B 714), p. 69 -- Mine worked throughout 1919.
- p. 77 -- Work in 1919 on about the same scale as in the past.
- Brooks, 1922 (B 722), p. 20 -- Mine closed, 1920.
- Bain, 1946 (IC 7379), p. 33 -- Was one of the two major copper mines in Prince William Sound. Considered worked out.
- Moffit and Fellows, 1950 (B 963-B), p. 50 -- Ellamar and Latouche [Seward quad.] produced more than 96% of the 214 million pounds of copper from Prince William Sound.
- p. 55-56 -- Most of data from Capps and Johnson, 1915 (B 605). Mine reported to have closed because ore was too low grade to be profitable under 1919 conditions. Galena probably present; smelter returns showed lead.

Ellamar (Mining Co.) -- cont.

Moffit, 1954 (B 989-E), p. 228 -- Claims staked, 1897.

p. 297-298 -- Most productive mine in northeastern part of Prince William Sound. Produced copper, gold, and silver and pyrite for smelter use. Ore body was a steeply pitching lenticular mass of sulfides in slate and graywacke of Orca Gp.; reported to have pinched out at depth of 530 ft. Lens of solid pyrite formed hanging wall; underlying ore (separated from pyrite body by 2-ft.-thick body of black slate) consisted of parallel lenses of chalcopyrite, pyrrhotite, and sphalerite. Most of gold and silver in sphalerite. Pyrite oldest sulfide; sphalerite youngest.

p. 302 -- Same as Moffit and Fellows, 1950 (B 963-B), p. 50.

Berg and Cobb, 1967 (B 1246), p. 69 -- Data summarized or quoted from Moffit, 1954 (B 989-E).

Koschmann and Bergendahl, 1968 (P 610), p. 32 -- Copper ores at Ellamar and Latouche [Seward quad.] carry considerable amounts of gold; amount produced could not be determined.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 4 -- References to Capps and Johnson, 1915 (B 605) and Moffit and Fellows, 1950 (B 963-B). Sulfide-rich lenses in Orca Gp. graywacke and slate near submarine basalt. Mine produced about 100 million pounds of copper and some byproduct gold. Ore consists of chalcopyrite, cubanite, pyrrhotite, pyrite, sphalerite, and galena.

Winkler and others, 1977 (C 751-B), p. B44-B45 -- One of the principal copper deposits of Prince William Sound. Recent regional studies indicate that the deposits in the district are mostly strata bound and are syngenetic and related to recurring tholeiitic volcanism. Ore in thick pyritic sandstone and shale on margin of tholeiite.

MacKevett and others, 1978 (OF 78-1-E), p. 15 -- Data on production same as in many older reports. Deposits of area [presumably including Ellamar] are submarine volcanogenic in origin. Area underlain by flysch and mafic volcanic rocks of Tertiary Orca Gp.

Falck

Copper, Zinc

Prince William Sound district
MF-392, loc. 12

Cordova (3.85, 15.2)
60°52'N, 146°33'W

Summary: Shear zones in greenstone and other rocks of Orca Gp. contain quartz, calcite, chalcopryrite, pyrrhotite, sphalerite, and (on surface only) small flakes of native copper. No more than assessment work reported.

Capps and Johnson, 1915 (B 605), p. 72 -- Small flakes of native copper on weathered outcrops of lode.

p. 103-104 -- Claims located in about 1900; only assessment work has been done on them; short adit and open cuts. Country rock mainly greenstone; some black slate and a little graywacke. Generally northeastward-striking steeply dipping shear zones contain quartz, calcite, chalcopryrite, pyrrhotite, sphalerite, and (on surface showings only) secondary native copper.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 8 -- Reference to above. Country rock part of Orca Gp.

Fidalgo (Mining Co.)

Copper, Gold

Prince William Sound district
MF-392, loc. 21

Cordova (6.05, 13.95)
60°48'N, 146°18'W

Summary: Discovered in 1905; property active until as recently as 1922; most production (total not known, but was more than a few hundred tons), 1913-19. Mine consisted of several hundred (probably more than 1,000) ft. of workings on 2 levels. Country rock mainly greenstone of Orca Gp.; some interbedded sedimentary rocks. 2 ore bodies in shear zone 20-30 ft. wide; ore consists of chalcopyrite, pyrite, pyrrhotite, and as much as about 0.05 oz. a ton gold; average copper content of ore shipped in 1913 was a little more than 8½%. Ore shoots formed by open-space filling and replacement of greenstone. Includes references to: Mackintosh, McIntosh.

Grant and Higgins, 1909 (B 379), p. 96 -- Tunnel driven 450 ft. along well-defined shear zone. 2 lens-shaped ore bodies, each about 5 ft. by 50 ft. in cross section, were encountered. Ore chiefly chalcopyrite. Small crosscut showed 20-in. vein of nearly solid chalcopyrite. Some surface stripping on shear zone. Some ore ready to ship, 1908.

Grant and Higgins, 1910 (B 443), p. 63 -- Same as above.

Brooks, 1913 (B 542), p. 34 -- Development, 1912. Has been about 600 ft. of underground work.

Brooks, 1914 (B 592), p. 62 -- Ore shipped, 1913.

Johnson, 1914 (B 592), p. 240-242 -- Discovered, 1905. As of 1913 developments were several hundred feet of underground workings on 2 levels and extensive surface improvements. Several ore shipments in 1913.

Capps and Johnson, 1915 (B 605), p. 113-117 -- Historical data about the same as in earlier reports; details of surface plant. Country rock is greenstone (some ellipsoidal) and interbedded sedimentary rocks (many now metamorphosed); schist apparently thrust over less-metamorphosed rocks. Ore in 2 subparallel zones in a shear zone 20-30 ft. wide that strikes northerly and dips 55°-75°E. Metallic minerals in ore include chalcopyrite, pyrite, and pyrrhotite; gold content from \$0.50 to \$1.00 a ton [gold at \$20.67]. Average copper content of ore shipped was a little over 8½%. Sulfides replaced sheared greenstone and possibly filled open cracks.

Johnson, 1915 (B 622), p. 134 -- Some development, but no ore shipped in early 1914. New ore shoot found 600 ft. from portal of main tunnel.

Johnson, 1916 (B 642), p. 138, 141 -- Small crew worked part of 1915; several hundred tons of ore shipped to Tacoma smelter.

Smith, 1917 (BMB 142), p. 39 -- Chalcopyrite ore in shear zone in slate, graywacke, and greenstone.

Smith, 1917 (BMB 153), p. 45-46 -- Chalcopyrite ore in shear zone (in slate, graywacke, and greenstone) that strikes N30°W and dips 67°NE. Developed by 2 drifts with raises to surface.

Fidalgo (Mining Co.) -- cont.

Johnson, 1918 (B 662), p. 184 -- Ore shipped, 1916.

p. 186 -- Shipped a few hundred tons of ore, 1916. About 250 ft. of tunnels driven and water-power plant installed.

Johnson, 1919 (B 692), p. 144 -- Ore shipped, 1917.

p. 148 -- Considerable development and some ore shipped, 1917.

Martin, 1919 (B 692), p. 31 -- Mackintosh was a productive copper mine, 1917.

Martin, 1920 (B 712), p. 33 -- Underground development, but no ore shipped, 1918.

Brooks, 1921 (B 714), p. 22 -- In shear zone in interbedded slate and graywacke; slate more crushed than graywacke.

Brooks and Martin, 1921 (B 714), p. 69 -- Some ore produced incidental to development, 1919.

p. 77 -- Development work, 1919.

Brooks, 1922 (B 722), p. 21 -- Development work, 1920.

p. 40 -- Some ore mined, but not shipped, in course of driving 245 ft. of raise and drift, 1920.

Brooks, 1923 (B 739), p. 24 -- No work, 1921.

Brooks and Capps, 1924 (B 755), p. 29 -- 3-ft. adit driven, 1922.

Moffit and Fellows, 1950 (B 963-B), p. 61-62 -- Most of data from Capps and Johnson, 1915 (B 605).

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 15 -- References to Capps and Johnson, 1915 (B 605), and Moffit and Fellows, 1950 (B 963-B). Ore in shear zone that cuts Orca Gp. (mainly greenstone).

Prince William Sound district
MF-392, loc. 7

Cordova (3.2, 15.5)
60°53'N, 146°37'W

Summary: Shear zone in ellipsoidal greenstone and associated slate of Orca Gp. contains small masses of pyrite with a little chalcopyrite, pyrrhotite, and quartz. About 300 ft. of underground workings, mainly in barren rock. Work done in early 1900's.

Grant and Higgins, 1909 (B 379), p. 94 -- 2 claims practically surrounded by those of Reynolds-Alaska Development Co. About 200 ft. of underground workings and small surface excavations that exposed chalcopyrite stringers in sheared greenstone. Some ore ready for shipment, 1908.

Capps and Johnson, 1913 (B 542), p. 114-115 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 57 -- Reference to Grant and Higgins, 1909 (B 379).

p. 98 -- Shear zone in ellipsoidal greenstone and a little slate strikes N45°E, dips 65°N, and is 25-30 ft. wide; contains small masses of fine-grained pyrite with a little chalcopyrite, pyrrhotite, and quartz. Most of the approximate 300 ft. of workings in apparently barren material.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 6 -- Reference to Capps and Johnson, 1915 (B 605). Country rock part of Orca Gp.

Prince William Sound district
MF-392, locs, 9, 10

Cordova (3.1-3.45, 15.4-15.5)
60°53'N, 146°35'-146°36'W

Summary: Country rock is mainly sheared greenstone (some ellipsoidal) of Orca Gp. west of Landlock thrust fault (in lower plate). Ore is chalcopyrite, pyrrhotite, pyrite, and sphalerite in small replacement bodies and fracture fillings; a few dollars worth of gold per ton in some of ore; gangue mainly quartz and calcite. Several thousand feet of underground workings, surface excavations, and extensive surface improvements that were never completed. Development between about 1905 and 1914; no production reported. Includes references to: (Galena Bay), (Vesuvius Valley).

Grant, 1906 (B 284), p. 83 -- Veins along shear zones in greenstone carry pyrite, pyrrhotite, and chalcopyrite; sulfides also disseminated in wall rock. Has been stripping; several short tunnels were driven in greenstone. Longest tunnel driven 300 ft. to intercept a large shear exposed at surface has not reached it yet, 1905.

Moffit, 1908 (B 345), p. 178 -- Aerial tram and ore bunkers being built. 1907.

Grant and Higgins, 1909 (B 379), p. 93 -- Has been much work on surface plant. In August, 1908, tunnel being driven to intersect shear zone exposed on surface was more than 1,500 ft. long.

Grant, 1910 (B 442), p. 164 -- Tunnel extended to length of about 1,800 ft., 1909. Also some diamond drilling, which intersected a body of ore about 30 ft. thick.

Grant and Higgins, 1910 (B 443), p. 59 -- Data essentially as in Grant and Higgins, 1909 (B 379) and Grant, 1910 (B 442).

Capps and Johnson, 1913 (B 542), p. 112-114 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 98-102 -- Discovered in 1899. In 1913 exploration and development consisted of about 2,600 ft. of underground workings, numerous surface excavations, some diamond drilling, and considerable surface improvements. The country rock is mainly greenstone (some ellipsoidal), with small amounts of graywacke and slate. Mineral deposits are in shear zones west of the Landlock thrust fault [in lower plate] and consist of replacement bodies and fracture fillings of sulfides with some quartz and calcite gangue; all sulfide bodies are small. Sulfides are chalcopyrite, pyrrhotite, pyrite, and sphalerite. One quartz vein contains small amounts of sulfides and \$3-\$4 a ton gold [at \$20.67].

Johnson, 1915 (B 622), p. 133 -- Claims surveyed for patent, 1914.

Johnson, 1916 (B 642), p. 140 -- Assessment work only, 1915.

Smith, 1917 (BMB 142), p. 40 -- Assessment work only, 1915.

Smith, 1917 (BMB 153), p. 46 -- Assessment work only, 1916.

Moffit and Fellows, 1950 (B 963-B), p. 53-54 -- Many of data from Capps and

Galena Bay (Mining Co.) -- cont.

Johnson, 1915 (B 605). Exploration between 1905 and 1914, when claims were patented. Total of several thousand feet of underground workings and surface excavations on several claims. Surface plant never completely installed and no ore produced.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 7 -- References to Capps and Johnson, 1915 (B 605) and Moffit and Fellows, 1950 (B 963-B). Bedrock is greenstone of Orca Gp.

Glacial Island Copper Co.

Copper

Prince William Sound district

Cordova(?)

NW $\frac{1}{4}$ NW $\frac{1}{4}$ quad.(?)

Summary: Surface and subsurface developments at a prospect on a body of chalcopryrite ore in a vein said to be 4 ft. wide and exposed 150 feet above the tunnel. Expect to ship ore in 1911. May refer to a mine on Galena Bay, on Landlocked Bay, or on Glacier I. [Seward quad.].

Brooks, 1911 (B 480), p. 31 -- "The Glacial Island Copper Co. is said to have opened a body of high-grade chalcopryrite ore by a tunnel 170 feet in length. The vein is said to be 4 feet wide and to be exposed 150 feet above the tunnel. A small bunker has been built and the managers report that some shipments will be made in 1911."

(Hartney Bay)

Copper

Prince William Sound district

Cordova (9.45-9.65, 8.5-8.55)
60°29'N, 145°53'-145°54'W

Summary: Old copper prospects on shear zones in volcanic unit of lower Tertiary Orca Gp.

Winkler, 1973 (MF-531) -- Open workings of inactive, unpatented copper prospects. In volcanic unit of Orca Gp. (lower Tertiary).

MacKevett and Holloway, 1977 (OF 77-169A0, p. 14, loc. 25 -- Reference to above. On a shear zone.

Head-of(-the)-Bay

Copper

Prince William Sound district
MF-392, loc. 25

Cordova (12.25, 11.5)
60°39'N, 145°34'W

Summary: Copper prospect in slate of the Orca Gp. near a body of Tertiary granite. Prospecting in 1909. No data on size or mineralogy of deposit; probably safe to assume that some copper mineral is present.

Grant, 1910 (B 442), p. 165 -- Prospecting, 1910. Prospect is close to contact between a diorite mass and graywacke and slate country rock.
Grant and Higgine, 1910 (B 443), p. 70 -- Essentially the same as above.
MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 19 -- Reference to Grant and Higgins, 1910 (B 443). Prospect in slate of Orca Gp. near Tertiary granite.

Hemple (Copper Co.)

Copper, Gold, Silver, Zinc

Prince William Sound district
MF-392, loc. 14

Cordova (3.8-4.0, 15.0-15.1)
60°51'-60°52'N, 146°32'-146°33'W

Summary: Sulfides replaced sheared country rock and filled fractures in a shear zone in greenstone of Orca Gp. Pyrrhotite principal sulfide; others are pyrite, chalcopyrite, and sphalerite; as much as 0.32 oz. a ton each of gold and silver. More than 1,300 ft. of underground workings and many surface excavations, but no recorded production. Last report of activity was in 1924. Includes reference to Hemple Mining Co.

Grant and Higgins, 1909 (B 379), p. 95 -- 2 tunnels (125 and 400 ft. long) and surface excavations. Chalcopyrite in greenstone. Some sorted ore on dump, 1908.

Brooks, 1912 (B 520), p. 27 -- Reported that at end of 1911 total of 2,000 ft. of tunnel had been driven.

Capps and Johnson, 1913 (B 542), p. 118-119 -- Preliminary to Capps and Johnson, 1915 (B 605).

Cappa and Johnson, 1915 (B 605), p. 57-58 -- Quotation from Grant and Higgins, 1909 (B 379).

p. 106-107 -- Deposit in shear zone (average width 24 ft.) in greenstone, slate, and graywacke; shear zone strikes W to N55°W and dips about 60°N; has been traced for over 1,500 ft. in surface excavations, shallow shafts, and adits (about 1,300 ft. of underground workings). Metallic minerals irregularly distributed; occur as stringers and other bodies of solid sulfides and in calcite bodies in sheared greenstone. Ore bodies are mainly replacements of sheared country rock and fracture fillings. Pyrrhotite is the most abundant sulfide; others are chalcopyrite and sphalerite. Average assays of mineralized parts of shear zone are 3%-6% copper; one assay of an old sample showed 6% copper, and \$1.20 in gold and \$1.50 in silver; solid sulfide lenses reported to contain about 6% copper.

Johnson, 1915 (B 622), p. 133 -- A little development work, 1914.

Johnson, 1918 (B 662), p. 186 -- Drove 150 ft. of tunnel in 1916.

Johnson, 1919 (B 692), p. 148 -- Crosscut driven 110 ft. in 1917; struck a slightly mineralized shear zone that strikes N70°W and dips E and is at least 8 ft. wide.

Smith, 1926 (B 783), p. 21 -- Prospecting and/or development reported, 1924.

Moffit and Fellows, 1950 (B 963-B), p. 59 -- Data from Capps and Johnson, 1915 (B 605) summarized [not specifically cited].

Mihelich and Wells, 1957 (RI 5320), p. 6 -- Was active prospecting, but no ore was shipped.

p. 13 -- Map of prospect. Samples assayed contained as much as 1.1% Cu, 1.3% Zn, 0.32 oz. a ton each of gold and silver.

p. 18 -- Explored by 2 tunnels (total length 1,340 ft.). In a shear zone that strikes eastward and dips about 60°N. Contains sulfide lenses as much as 6 ft. thick. Sulfides mainly pyrite and pyr-

Hemple (Copper Co.) -- cont.

rhodite. Country rock greenstone, slate, and graywacke.
MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 10 -- References
to Capps and Johnson, 1915 (B 605) and Mihelich and Wells, 1957
(RI 5320). Country rock mainly greenstone of Orca Gp.

Hoodoo

Copper, Gold, Zinc

Prince William Sound district
MF-392, loc. 15

Cordova (3.85, 14.85)
60°51'N, 146°33'W

Summary: Shear zones in greenstone of Orca Gp. contain chalcopyrite, pyrrhotite, sphalerite, and as much as about an ounce of gold a ton; native copper on iron-stained outcrops. Located in 1904; being worked in 1912. About 285 ft. of underground workings and considerable surface stripping. No record of production.

Capps and Johnson, 1913 (B 542), p. 122-123 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 111 -- Located in 1904. Considerable surface stripping and about 285 ft. of underground workings, 152 ft. of which is in slide rock. Country rock greenstone; northwesterly striking shear zones that dip from 55°N to nearly vertical contain as much as 3 ft. of ore. Chalcopyrite, pyrrhotite, and sphalerite in quartz gangue in shear zones; assays of \$10-\$22 [about 0.48-1.06 oz.] a ton in gold reported. Native copper on iron-stained outcrops. Work in 1912.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 11 -- Reference to above. In volcanics of Orca Gp.

Ibach

Copper

Prince William Sound district
MF-392, loc. 26.

Cordova (13.7, 11.7) approx.
60°39'N, 145°25'W approx.

Summary: Veins in Orca Gp. rocks contain native copper.

Grant and Higgins, 1910 (B 443), p. 70 -- Prospects have been located near Scott Glacier on veins carrying native copper. [Index map shows claims with Ibeck (misspelling of Ibach) as one of the owners in this area.]

Rossman, D. L., 1952, field notes -- Joe Ibach told Rossman about a copper prospect about 22 miles from Copper River Railroad, Mile 13 [must be closer than that to railroad]. Vein 12-20 ft. wide and possibly 2 mi. long. Recorded in Valdez in 1906 as The Sure Thing.

Berg and Cobb, 1967 (B 1246), p. 71 -- Located early in century; near contact between diorite and black slate.

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 24 -- Reference to Grant and Higgins, 1910 (B 443). Native copper-bearing veins in Orca Gp.

(Jack Bay)

Copper, Gold(?)

Prince William Sound district
MF-392, loc. 1

Cordova (4.8, 17.3)
60°59'N, 146°26'W

Summary: Small quartz veins in black slate contain chalcopyrite and pyrrhotite. As this occurrence is described in a section on gold quartz veins, gold may be present even though such is not specifically stated.

Johnson, 1919 (B 692), p. 173 -- Small quartz vein 2 in. thick cuts black slate; strikes N and dips 55°W. Chalcopyrite and pyrrhotite are only metallic minerals observed. [Described in a section on gold prospects.]

[MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 1 -- Reference to same page as above. As plotted on maps and described in table is probably Orion claim, which I interpret (on the basis of newer maps) as being in Valdez quad.]

Landlock(ed) Bay Copper Mining Co. Copper, Gold, Silver, Zinc

Prince William Sound district Cordova (3.85, 14.85)
MF-392, loc. 15 60°51'N, 146°33'W

Summary: Discovered, 1898. Most work between 1903 and 1916. Over 900 ft. of underground workings. Ore is chalcopryite, pyrrhotite, sphalerite, and cubanite in quartz and calcite gangue in a curving shear zone in greenstone (a little interbedded slate and limestone) of Orca Gp. Samples assayed contained as much as 6.8% Cu, 3.5% Zn, and traces of gold and silver. 928 tons of 4% copper ore (copper content about 74,200 lbs.) shipped in 1916; a small shipment in 1912 was also reported.

Capps and Johnson, 1913 (B 542), p. 97, 110-112 -- Preliminary to Capps and Johnson, 1915 (B 605).

Brooks, 1914 (B 592), p. 62 -- Development continued, 1913.

Johnson, 1914 (B 592), p. 421 -- 2 or 3 man doing underground development, 1913.

Capps and Johnson, 1915 (B 605), p. 14 -- Small shipment of ore, 1912.
p. 51 -- Some production, 1912.

p. 96-97 -- Discovered, 1898; all underground work since 1903; by 1912 included over 900 ft. of workings. Deposit in shear zone in greenstone with a little interbedded slate and limestone. Shear zone strikes from N to N76°W and dips from 30°E to 65°N; 4-15 ft. wide. Individual ore shoots as much as 30 ft. long and 7 ft. thick in places; formed by sulfide replacement of sheared country rock. Sulfides include chalcopryite, pyrrhotite, sphalerite, and a few specks of an unidentified sulfide; gangue quartz, calcite, slate, and greenstone.

Johnson, 1915 (B 622), p. 133 -- A little development work, 1914.

Johnson, 1916 (B 642), p. 141 -- Development work reported, 1915; no ore known to have been shipped.

Smith, 1917 (BMB 142), p. 41 -- Ore in shear zone. 2 crosscuts have intersected ore, on which winzes have been sunk.

Smith, 1917 (BMB 153), p. 48 -- Same as above.

Johnson, 1918 (B 662), p. 186 -- Assessment work only, 1916.

Johnson, 1919 (B 692), p. 148 -- No work, 1917.

Moffit and Fellowes, 1950 (B 963-B), p. 57-58 -- Most of data from Capps and Johnson, 1915 (B 605). Sulfides present were chalcopryite, pyrrhotite, sphalerite, and a little chalmersite [cubanite]. The small amount of ore shipped was reported to contain 7½% copper.

Mihelich and Wells, 1957 (RI 5320), p. 5-6 -- By 1916 extensive installations and underground developments had been completed at this and other mines in neighborhood. In 1916 928 tons of 4% ore containing 74,200 lbs. of copper was sent to smelter.

p. 11 -- Mine map. Assays of samples showed as much as 6.8% Cu, 3.5% Zn, and traces of gold and silver.

p. 17-18 -- Ore discovered, 1898. 928 tons of hand-sorted 4% copper ore shipped in 1916. Ore occurs in small lenses of chalco-

Landlock(ed) Bay Copper Mining Co. -- cont.

pyrite, pyrite, and pyrrhotite in shear zone in greenstone or graywacke with interbedded slate. Shear zone 4-15 ft. wide. Localization and attitude of sulfide lenses appear to have been controlled by intersection of shear zone with north-dipping faults. Ore lenses 25-100 ft. long and slightly more than a foot wide. One of lenses partly stoped and also explored by a winze reported to be 25 ft. deep.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 11 -- References to Capps and Johnson, 1915 (B 605) and Mihelich and Wells, 1957 (RI 5320). In shear zone(s) in volcanics of Orca Gp.

Lucky Strike (Mining) Co.

Gold

Prince Willian Sound district
MF 392, loc. 28

Cordova (15.65, 8.5)
60°28'N, 145°12'W

Summary: In early 1900's and in about 1926-30 several hundred feet of workings were driven to explore quartz vein and ledge of brecciated graywacke of Orca Gp. that was healed with quartz. Arsenopyrite and free gold present in ledge and adjacent country rock. Assays of samples showed as much as about 3.9 oz. gold a ton. Mill test of selected material said to have given higher yields. Includes reference to Lucky Strike Syndicate.

Chapin, 1913 (B 542), p. 79 -- 3 tunnels with reported total length of about 400 ft.; 2 on ledge 20 ft. wide consisting of brecciated graywacke healed with quartz and carrying considerable arsenopyrite and specks of gold. Assays reported to show \$8-\$10 a ton [gold at \$20.67]. The other tunnel follows a vein between layers of gouge; some of vein said to assay \$80 [about 3.9 oz.] a ton; average value \$15 [about 0.73 oz.] a ton. Mill test of individual stringers reported to have yielded at high as \$100 a ton; country rock adjacent to ledge contains pyrite, arsenopyrite, and free gold; said to assay about \$185 a ton.

Smith, 1929 (B 797), p. 12 -- Revival of exploration, 1926.

Smith, 1932 (N 824), p. 23 -- Continued exploration, 1929. Crosscut 320 ft. long, but is still 420 ft. from estimated position of vein.

Several buildings that were burned in 1928 were reconstructed.

Smith, 1933 (B 836), p. 22 -- A very little work done in 1930.

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 22 -- Reference to Chapin, 1913 (B 542). Country rock slate and graywacke of Orca Gp.

(McKinley Lake)

Gold

Prince William Sound district

Cordova (15.6-15.65, 8.3-8.75)
60°28'-60°29'N, 145°12'W

Summary: Quartz veins in sandstone and shale carry free gold. See also: Bear Creek Mining Co., Lucky Strike Mining Co., McKinley Lake Mining Co.

Schrader and Spencer, 1901, p. 90 -- Quartz veins are both parallel and transverse to bedding of sandstone and shale. Large amount of visible gold in small quartz stringers on one claim. Ledges from a few inches to several feet wide can be traced for long distances. Transverse veins carry no visible gold; sample from one contained 1/64 oz. gold [a ton].

McKinley Lake Mining Co.

Gold

Prince William Sound district
MF-392, loc. 29

Cordova
60°28'N, 145°12'W

Summary: Quartz veins and graywacke of Orca Gp. contain pyrite, arsenopyrite, and free gold. Outcrop reported to have carried about 4.84 oz. a ton gold; mineralized ledge reported to have averaged about 0.48 oz. a ton gold. Has been gold production; amount not known.

Chapin, 1913 (B 542), p. 79 -- Mass of quartz veins enclosing blocks of graywacke. Developed by 2 tunnels with aggregate length of over 600 ft. and several open cuts. Entire mass mineralized with pyrite, arsenopyrite, and free gold. Outcrop said to have assayed \$100 [about 4.84 oz.] a ton; average for ledge reported to be \$10 [about 0.48 oz.] a ton. Small mill was operated for a number of years [no data on amount of production].

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 22 -- Reference to above. Veins generally parallel to host slate and graywacke of Orca Gp. [these data from Schrader and Spencer, 1901, p. 90; not cited].

McNaughton & Turner

Copper, Zinc

Prince William Sound district
MF-392, loc. 5

Cordova (3.1, 15.9)
60°54'N, 146°38'W

Summary: Shattered graywacke at or near contacts with greenstone healed by quartz carrying chalcopyrite and sphalerite.

Johnson, B. L., 1912-1917, field notes -- Small open cuts and a 70-ft. tunnel show shattered graywacke at or near contacts with greenstone; healed by sulfide-bearing quartz; malachite staining. Sulfides include chalcopyrite and sphalerite.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 5 -- Reference to above.

Mogul

Copper, Zinc

Prince William Sound district
MF-392, loc. 8

Cordova (3.4, 15.7)
60°54'N, 136°36'W

Summary: Chalcopyrite, pyrite, pyrrhotite, and sphalerite in irregular masses in sheared greenstone of Orca Gp. Only minor development.

Capps and Johnson, 1915 (B 605), p. 98 -- Sulfide minerals (including chalcopyrite, pyrite, pyrrhotite, and sphalerite) in irregular masses in sheared and shattered greenstone. Developed by shaft 10 ft. deep and several open cuts.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 7 -- Reference to above. In sheared greenstone of Orca Gp.

Montezuma

Copper, Gold, Silver

Prince William Sound district
MF-392, loc. 13

Cordova (3.7-3.85, 15.0-15.15)
60°51'-60°52'N, 146°33'-146°34'W

Summary: Irregular lenses of pyrrhotite and/or pyrite in a shear zone in greenstone (one interbed of slate) of Orca Gp. Sulfides replaced and impregnated greenstone. Developed by about 400 ft. of underground workings and 900 ft. of stripping. May have been a small ore shipment in 1916. Samples of a quartz vein contained 0.18 oz. gold and 0.08 oz. silver a ton. Includes references to Buckeye.

Capps and Johnson, 1913 (B 542), p. 121 -- Preliminary to Capps and Johnson, 1915 (B 605).

Jhonson, 1914 (B 592), p. 241 -- Underground development work, 1913.

Capps and Johnson, 1915 (B 605), p. 108-109 -- More than 350 ft. of underground workings and stripping for 900 ft. along lode. Country rock greenstone with a slate interbed as much as 15 ft. thick. Shear zone that strikes E and dips 65°N is irregularly mineralized with lenses of chalcopyrite and pyrrhotite. Sulfides impregnated and replaced sheared country rock.

Johnson, 1915 (B 622), p. 133 -- Ore reported to have been found, 1914.

Smith, 1917 (BMB 142), p. 43 -- Part of Three Man Mining Co. property.

Smith, 1917 (BMB 153), p. 50 -- Same as above.

Johnson, 1918 (B 662), p. 184, 186 -- A little ore shipped from Buckeye group, 1916. One or two men worked in spring and summer.

Johnson, 1919 (B 692), p. 148 -- Only assessment work on Buckeye group, 1917.

Moffit and Fellows, 1950 (B 963-B), p. 59 -- 370 ft. of underground workings and 900 ft. of stripping. Ore is chalcopyrite and pyrite that replaced and impregnated greenstone in shear zone.

Mihelich and Wells, 1957 (RI 5320), p. 2 -- One of claims patented by Threeman Mining Co.

p. 14 -- Mine map [no sample data].

p. 19 -- Erosion along an eastward-striking shear zone that dips 65°N resulted in a well-defined, shallow trench that can be traced for more than a mile. Smaller subparallel shear zones contain pyrite and quartz. Tunnel driven northward for 400 ft. did not cross main shear zone or encounter significant sulfide mineralization. Sample of a quartz vein 1 ft. wide in a fracture in greenstone contained 0.5% copper and 0.08 oz. silver and 0.18 oz. gold a ton.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 9 -- Reference to Capps and Johnson, 1915 (B 605). Country rock chiefly greenstone of Orca Gp.

(Port Etches)

Copper

Prince William Sound district

Cordova (3.9, 6.15)
60°21'N, 146°33'W

Summary: Old copper prospect in volcanic unit of lower Tertiary Orca Gp.

Winkler, 1973 (MF-351) -- Open workings of inactive, unpatented old copper prospect. In volcanic unit of lower Tertiary Orca Gp.

(Red Head)

Gold

Prince William Sound district

Cordova (4.4, 11.75) approx.
60°40'N, 146°30'W approx.

Summary: Gold in beach placer; derived from glacial gravels.

Johnson, B. L., 1913, field notes -- "Placer beach diggings on both sides of Red Head - northern Port Gravina. A man will get from \$1 to 6 or 7 for a days work. Pieces as large as 5 cts worth found. Lots of mag sand reported. Placers are apparently beach wave concentration of glacial gravel banks visible along shore. Ruby sand beds reported up to 3 ft thick."

Reynolds-Alaska Development Co. Copper
(Boulder Bay)

Prince William Sound district Cordova (3.2, 15.5)
MF-392, loc. 7 60°53'N, 146°37'W

Summary: More than 2,300 ft. of underground workings; several hundred tons of ore, some from 2 large boulders on beach, shipped before 1909. No work since then. Country rock is interbedded greenstone, graywacke, and slate of Orca Gp. Chalcopyrite in veins and disseminated in greenstone. See also Ripstein Ledge.

Grant, 1906 (B 284), p. 82-83 -- Large boulders on beach made up of iron and copper sulfides. Tunnel run into mountain from near boulders to crosscut vein exposed in face of mountain; reported that "a vein carrying a good grade of chalcopyrite was struck" 400 ft. from portal.

Moffit, 1908 (B 345), p. 178 -- Main tunnel extended, 1907.

Grant and Higgins, 1909 (B 379), p. 94 -- More than 2,300 ft. of underground workings. Country rock is interbedded greenstone, graywacke, and slate. Chalcopyrite in several veins and disseminated in greenstone. Several hundred tons of ore said to have been shipped; some of it came from 2 large boulders on beach.

Grant and Higgins, 1910 (B 443), p. 53 -- Copper ore has been shipped.
p. 61 -- Same as Grant and Higgins, 1909 (B 379).

Capps and Johnson, 1913 (B 542), p. 115 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 57 -- Data from Grant and Higgins, 1909 (B 379).

p. 61 -- Data from Grant and Higgins, 1910 (B 443).

p. 103 -- Has been no development since visited by Grant and Higgins.

Moffit and Fellows, 1950 (B 963-B), p. 54-55 -- Data from Grant and Higgins, 1910 (B 443).

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 6 -- Reference to Moffit and Fellows, 1950 (B 963-B). Country rock part of Orca Gp.

Reynolds-Alaska Development Co. Copper
(Landlocked Bay)

Prince William Sound district Cordova (3.75-4.1, 15.1-15.3)
MF-392, loc. 12 60°52'N, 146°32'-146°34'W

Summary: Discovered in about 1899. As of 1912 prospect consisted of about 900 ft. of underground workings, open cuts, and surface improvements. No record of any production. Ore in shear zones in interbedded greenstone, graywacke, and slate of Orca Gp. near and west of Landlock thrust (in lower plate). Ore pyrrhotite with less abundant chalcopyrite in stringers and lenses as much as 4 ft. thick; replaced and impregnated sheared greenstone. Includes references to Centaur and Standard claims.

Grant, 1906 (B 284), p. 84 -- Vein exposed on Centaur and Standard claims over a distance of 400 ft. Nearly vertical vein of chalcopyrite and pyrrhotite 2 in. to 3 ft. thick strikes N48°E; in a shear zone.

Capps and Johnson, 1913 (B 542), p. 115-116 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 102-103 -- Discovered in about 1899. About 900 ft. of underground workings, open cuts, and various surface improvements [as of 1912]. Ore in shear zones in interbedded greenstone, graywacke, and slate west of and near Landlock thrust [in lower plate]. Ore consists mainly of pyrrhotite and less abundant chalcopyrite (best assays showed 9%-10% copper; average much less) in gangue of quartz, calcite, and sheared greenstone. Sulfide stringers and bodies [lenses?] as much as 4 ft. thick; replaced and impregnated sheared greenstone.

Moffit and Fellows, 1950 (B 963-B), p. 59 -- Data from Capps and Johnson, 1915 (B 605) [not specifically cited].

Mihelich and Wells, 1957 (RI 5320), p. 5 -- 7 patented claims.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 8 -- Reference to Capps and Johnson, 1915 (B 605). In shear zones that cut rocks (mainly greenstone) of Orca Gp.

Ripstein Ledge

Copper, Gold, Silver

Prince William Sound district

Cordova (3.2, 15.5) approx.(?)
60°53'N, 146°37'W approx.(?)

Summary: Sulfide ore (copper and iron sulfides) with quartz gangue in shear zone. Samples assayed as much as 0.1 oz. gold and 0.45 oz. silver a ton. Deposit capped by a gossan beneath moss. By May, 1898, had been some stripping. Data somewhat ambiguous; some or all may apply to deposit at Latouche (Seward quad.). Occurrence may be on some of ground that later became part of Reynolds-Alaska Development Co. property on Boulder Bay. See also Reynolds-Alaska Development Co. (Boulder Bay).

Schrader, 1900, p. 418-419 -- On NW base of Copper Mtn.; extends down nearly to tide level. Reported to have been discovered in 1897. May be on same shear zone as Alaska Commercial Co. Gossan beneath moss cover. Ledge is about 15 ft. thick; dips about 80°N or is vertical. Fine-grained pyritiferous ore; apparently contains much marcasite; considerable purple copper ore mixed with quartz. Samples assayed as much as 0.1 oz. gold and 0.45 oz. silver a ton. In May, 1898, had been uncovered for a distance of about 30 ft. [On p. 419 table shows: Latouche Island, Ripstein Ledge, No. 140; gold (ounces per ton) - none; silver (ounces per ton) - none; per cent copper - 14.71.]

Rua

Copper

Prince William Sound district
MF-392, loc. 6

Cordova (3.05, 15.55)
60°53'N, 146°39'W

Summary: Sacks of copper ore on dump outside a short tunnel. Rocks on dump include quartzite and greenstone. See also Wagner.

Johnson, B. L., 1912-1917, field notes -- At mouth of a tunnel about 45 ft. long there are sacks of good copper ore on the dump. Rocks on dump are quartzite and greenstone. [Sphalerite and/or pyrrhotite may be present; 2 lines of notes are nearly illegible.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 6 -- Reference to above.

Prince William Sound district
MF-392, loc. 19

Cordova (4.95, 13.55)
60°46'N, 146°25'W

Summary: Deposit in closely folded and sheared graywacke, limestone, and other sedimentary rocks of Orca Gp. Ore in crushed zone 150-200 ft. wide; sulfides occur as fracture fillings, impregnations, and replacements of country rock. Metallic minerals are chalcoppyrite, pyrite, and (more rarely) pyrrhotite and sphalerite; gangue is small amounts of quartz and calcite. Mine consists of several thousand feet of workings on 5 levels, some of which are connected by stopes. From 1913 (or probably a little earlier) until mine closed in 1920 shipped about 16,000 tons of ore that averaged about 10% copper; one of the few mines in the district to produce more than a million pounds of copper. Includes references to: Alaska Mines Corp., Fidalgo-Alaska Copper Co.

Grant and Higgins, 1909 (B 379), p. 96 -- Has been considerable stripping and several tunnels (longest with over 400 ft. of workings) driven (as of 1908). Country rock slate and a little graywacke. Chalcoppyrite accompanied by a little pyrite occurs as cement in fractures, as irregular stringers, as disseminated grains, and as larger replacement bodies. Considerable amount of ore exposed; some ready for shipment.

Grant and Higgins, 1910 (B 443), p. 63 -- Same as above.

Brooks, 1912 (B 520), p. 27 -- Continued development, 1911. Ore delivered to bunkers, but not shipped.

Brooks, 1913 (B 542), p. 34 -- Development, 1912.

Brooks, 1914 (B 592), p. 62 -- Ore shipment, 1913.

Johnson, 1914 (B 592), p. 240-242 -- Discovered and development started, 1907; some development work and a small ore shipment, 1913; several hundred tons had been shipped previously. Underground workings aggregate well over 1,100 ft. in length; considerable surface improvements.

Capps and Johnson, 1915 (B 605), p. 117-120 -- Extensive underground workings and surface excavations and improvements. Country rock all sedimentary in origin (graywacke, argillite, slate, limestone, and fine-banded siliceous rocks); closely folded and sheared. Ore is in a broad crushed zone 150-200 ft. wide; sulfides occur as fracture fillings, impregnations, and replacements of country rock; in one place chalcoppyrite replaced sheared limestone. Small, irregular wormlike channels in sedimentary rocks filled by chalcoppyrite, pyrite, and quartz. Metallic minerals are chalcoppyrite, pyrite, pyrrhotite, and sphalerite (last two rare); gangue is small amounts of quartz and calcite. Very little surface alteration; no apparent enrichment. No data on gold or silver content.

Johnson, 1916 (B 642), p. 141 -- Underground development and repair of surface improvements, 1915. Ore shipment near end of year reported.

Schlosser -- cont.

- Smith, 1917 (BMB 142), p. 38 -- Underground development and surface improvements reported, 1915.
- Smith, 1917 (BMB 153), p. 43 -- Chalcopyrite and pyrite in lenses in a shear zone. 4 levels, all with some stopes; second and third levels connected.
- Johnson, 1918 (B 662), p. 184 -- Ore shipped, 1916.
p. 186-187 -- About 650 ft. of underground workings reported to have been driven, 1916. Several ore shipments made.
- Johnson, 1919 (B 692), p. 144 -- Ore shipped, 1917.
p. 148-149 -- Several hundred feet of underground development work on 4 levels as well as stoping. Deposit is lenses of sulfides in a "linked system of shears." Ore zone is nearly vertical, strikes about N20°E, and is 100 ft. wide; ore shoots pitch to north.
- Martin, 1919 (B 692), p. 31 -- Productive copper mine, 1917.
- Martin, 1920 (B 712), p. 33 -- Operated, 1918. About 690 ft. of new workings in ore zone.
- Brooks, 1921 (B 714), p. 22 -- In shear zone in slate and graywacke; slate more crushed than graywacke.
- Brooks and Martin, 1921 (B 714), p. 69 -- Some ore produced incidental to development work, 1919.
p. 77 -- Development continued, 1919.
- Brooks, 1922 (B 722), p. 21 -- Development continued, 1920.
p. 40 -- Hand-picked ore shipped, 1920. 1,450 ft. of main adit driven.
- Moffit and Fellows, 1950 (B 963-B), p. 50-51 -- Produced more than one million pounds of copper.
p. 60-61 -- Small shipments of ore at irregular intervals before 1916; regular shipments, 1916-20; total reported to have been about 16,000 tons that averaged about 10% copper. 5 principal adits; lowest was being driven to undercut ore body at depth when mine closed in 1920 because of low copper price.
- Moffit, 1954 (B 989-E), p. 298, 302 -- More than a million pounds of copper produced; came from deposit in faulted sedimentary beds.
- Berg and Cobb, 1967 (B 1246), p. 69-70 --Quotation from Moffit, 1954 (B 989-E).
- MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 14 -- References to Capps and Johnson, 1915 (B 605) and Moffit and Fellows, 1950 (B 963-B). In sheared rocks of Orca Gp.

Standard (Copper Mines Co.)

Copper, Gold, Silver, Zinc

Prince William Sound district
MF-392, loc. 13

Cordova (3.55-3.75, 15.05-15.15)
60°52'N, 146°34'-146°35'W

Summary: Chalcopyrite, pyrrhotite, and sphalerite form lenses in sheared and faulted greenstone (some ellipsoidal) with interbedded graywacke and slate of Orca Gp. Some ore bodies localized by intersections of shear zones or faults; gangue is quartz, calcite, and sheared, altered country rock. Ore formed by filling of fractures and replacement of sheared greenstone. Mine consisted of 3 adits with total length of workings of about 1,300 ft.; all driven between 1906 and 1911. Production was 1,100 tons of hand-sorted material that contained 32,000 lbs. copper and at least 36 oz. gold and 5.8 oz. silver (all gold and silver not reported) in 1907 and 1909.

Grant and Higgins, 1909 (B 379), p. 95 -- 3 ore-bearing zones exposed high on Copper Mtn. Tunnel (2,000 ft. altitude) being driven to intersect ore zones was 420 ft. long in August, 1908. One zone has been found and considerable ore mined and shipped. Second zone had not been recognized; tunnel thought to have reached third zone. Ore is in lens-shaped bodies in schistose parts of greenstone.

Brooks, 1910 (B 442), p. 39 -- Production reported, 1909.

Grant, 1910 (B 442), p. 165 -- Development work, 1909.

Grant and Higgins, 1910 (B 443), p. 52 -- Have been ore shipments.

p. 61-62 -- Same as Grant and Higgins, 1909 (B 379).

Brooks, 1912 (B 520), p. 27 -- Development continued, 1911. In all there are 50 ft. of shaft and 1,100 ft. of tunnel.

Capps and Johnson, 1913 (B 542), p. 116-118 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 57 -- Data from Grant and Higgins, 1909 (B 379).

p. 61 -- Data from Grant and Higgins, 1910 (B 443).

p. 104-106 -- About 1,300 ft. of underground workings driven, 1906-11; a few tons of ore reported to have been shipped. Idle, 1912-13. Country rock is mainly greenstone (some ellipsoidal) and small amounts of interbedded graywacke and slate; all much sheared and faulted. Sulfides are in shear zones 1-20 ft. wide and have replaced sheared greenstone and filled fractures. Sulfides are chalcopyrite, pyrrhotite, and sphalerite in stringers and lenses; gangue is quartz, calcite, and sheared, altered country rock. Some sulfide bodies are at intersections of shear zones.

Johnson, 1915 (B 622), p. 133 -- No mining, 1914.

Johnson, 1916 (B 642), p. 141 -- No work, 1915.

Johnson, 1918 (B 662), p. 186 -- Reported that rehabilitation of surface plant began in Nov., 1916.

Johnson, 1919 (B 692), p. 148 -- Some surface and underground work in 1917. By October only watchman on premises.

Standard (Copper Mines Co.) -- cont.

Moffit and Fellows, 1950 (B 963-B), p. 58-59 -- Data from Grant and Higgins, 1910 (B 443) and Capps and Johnson, 1915 (B 605).

Mihelich and Wells, 1957 (RI 5320), p. 3 -- Data on claims.

p. 5-6 -- Extensive surface installations and underground developments completed by 1911. Production in 1907 and 1909 amounted to 1,100 tons of ore that contained 32,000 lbs. copper, and at least 36 oz. gold and 518 oz. silver (all of gold and silver not reported).

p. 10 -- Mine map. Samples assayed contained as much as 6.1% Cu, 0.78% Zn, and 0.1 oz. silver and 0.05 oz. gold a ton.

p. 16-17 -- Claims actively explored and developed, 1906-11. Shipments of 1,100 tons of hand-sorted ore containing almost 1.5% copper with some gold and silver made in 1907 and 1909. Mine consisted of 3 adits with a total length of 1,250 ft. Ore bodies are small lenticular masses of chalcopyrite, pyrite, and pyrrhotite at or near intersections of shear zones or faults in predominantly greenstone country rock.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 9 -- References to Capps and Johnson, 1915 (B 605) and Mihelich and Wells, 1957 (RI 5320). Country rock chiefly greentone of Orca Gp.

Standard Mines Co.

Copper, Gold, Lead

Nizina district
MF-392, loc. 30

Cordova (22.4, 17.15)
60°57'N, 144°22'W

Summary: Quartz vein a little more than a foot thick contains visible gold, pyrite, and galena; assays of about 2.9 oz. gold a ton reported; higher assays from picked specimens. Shallow shaft was only development; no record of production. Chalcopyrite also present in other veins in neighborhood.

Moffit, 1914 (B 576), p. 51 -- Shallow vertical shaft sunk on a northward-striking, eastward gently dipping quartz vein a little more than a foot thick in schist. Vein carried visible gold, pyrite, and galena; assays of \$60 [about 2.9 fine oz.] a ton; higher from picked specimens. A little chalcopyrite in similar veins in neighborhood.

Berg and Cobb, 1967 (B 1246), p. 63 -- Data from above [not specifically cited].

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 23 -- Reference to Moffit, 1914 (B 576). Schist is part of Valdez Gp.

Steinmetz

Copper, Gold, Silver

Prince William Sound district
MF-392, loc. 14

Cordova (3.9, 15.0)
60°51'N, 146°32'W

Summary: Small-scale underground and surface exploration of a shear zone in greenstone of Orca Gp. Shear zone contains lenses of chalcop-
pyrite and pyrrhotite in quartz and calcite gangue. Lenses 2 in.
to 4 ft. thick; one is 35 ft. long. 6 tons of ore containing 6%
copper reported to have been shipped before 1913. Assays of sam-
ples showed from traces to as much as 0.11 oz. gold and 0.01 oz.
silver a ton. Includes reference to Alaska Pioneer and Sourdough
claims. See also Tibbits; Steinmetz restaked one or more of his
claims.

Capps and Johnson, 1915 (B 605), p. 110-111 -- In 1913 developments con-
sisted of a 40-ft. adit, a 25-ft. shaft, and several open cuts. 6
tons of ore containing 6% copper said to have been shipped. Bodies
of chalcoppyrite and pyrrhotite in quartz and calcite gangue are in
shear zones in greenstone, graywacke, and slate. Shear zone from
which ore was mined strikes N64°E, dips 65°NW, and contained lenses
of ore 2 in. to 4 ft. wide. Nearby there are several nearly parallel
mineralized shear zones.

Mihelich and Wells, 1957 (RI 5320), p. 12 -- Map of prospect. Samples
assayed contained as much as 3.9% Cu and 0.11 oz. gold and 0.01 oz.
silver a ton.

p. 18 -- 65 ft. of tunnel and a shallow vertical shaft driven to
explore shear zone (strike N60°E, dip 70°N) in greenstone. Lens of
chalcoppyrite and pyrrhotite is 1.5 - 3.0 ft. wide and 35 ft. long.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 10 -- Reference to
Capps and Johnson, 1915 (B 605). Country rock chiefly greenstone of
Orca Gp.

Threeman Mining Co. (Billygoat Mtn.) Copper

Prince William Sound district Cordova (4.2, 14.5)
MF-392, loc. 18 60°50'N, 146°30'W

Summary: Small bodies of chalcopyrite and pyrrhotite in shear zone in greenstone of Orca Gp. Explored by short adits. No record of production.

Capps and Johnson, 1913 (B 542), p. 122 -- Preliminary to Capps and Johnson, 1915 (B 605).

Capps and Johnson, 1915 (B 605), p. 109-110 -- Short adits at elevations of about 1,150 and 1,750 ft. driven in shear zones in greenstone. Shear zones narrow; contain small bodies of chalcopyrite and pyrrhotite, the largest being 8 ft. long, 1 ft. wide, and containing 6% copper. Some lenticular quartz-calcite veins. Sulfides impregnated and replaced sheared greenstone.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 13 -- Reference to Capps and Johnson, 1915 (B 605). Country rock is basalt of Orca Gp.

Threeman (Mining Co.) (main mine) Copper, Gold, Lead, Silver, Zinc

Prince William Sound district Cordova (3.9-4.05, 14.9-15.1)
MF-392, loc. 14 60°51'N, 146°32'-146°33'W

Summary: Country rock is sheared and faulted intimately mixed greenstone and sedimentary rocks (largely graywacke) of Orca Gp. in lower plate west of Landlock thrust. Lenticular masses of sulfides in 2 subparallel shear zones. Ore consists of chalcopyrite, pyrrhotite, sphalerite, cubanite, and galena; small amounts of gold and silver. A little native copper in weathered outcrops. A sample taken for metallurgical testing contained 0.01% Ni and 0.02% Co. Ore formed by open-space filling and replacement of sheared country rock. Mine consists of more than 5,000 ft. of workings on 5 levels. Between 1904 and 1915 shipped about 6,000 tons of ore containing about 1,214,000 lbs. copper, more than 115 oz. gold, and more than 1,508 oz. silver (data on gold and silver incomplete). Little work and no production after 1915. Includes references to: Dickey, Keystone. See also Hoodoo.

Grant, 1904 (B 284), p. 84 -- 3 tunnels (longest 50 ft. long) have been driven along shear zone with a layer of fairly solid sulfides from 1 in. to 2 ft. wide (disseminated chalcopyrite in sheared country rock on hanging-wall side); strikes eastward and dips northward. Has been a small shipment of ore.

Grant and Higgins, 1909 (B 379), p. 95 -- Considerable development work; several veins of chalcopyrite and pyrrhotite in shear zones in greenstone, graywacke, and slate. Ore in lens-shaped bodies from a few inches to a few feet thick. Have been (as of 1908) small shipments; more ore ready to ship; most of work has been development rather than mining.

Grant, 1910 (B 442), p. 165 -- Development work; a few hundred tons of ore mined, 1909.

Grant and Higgins, 1910 (B 443), p. 52 -- Copper ore has been shipped.

p. 53-55 -- Native copper present. Chalcopyrite, pyrrhotite, and pyrite have been deposited along shear zones as impregnations and replacements of country rock.

p. 61-62 -- Same as Grant and Higgins, 1909 (B 379).

Brooks, 1912 (B 520), p. 27 -- Ore shipped, 1911. Workings aggregate 5,000 ft. on 5 levels.

Capps and Johnson, 1913 (B 542), p. 97, 101-102, 108-110 -- Preliminary to Capps and Johnson, 1915 (B 605).

Brooks, 1914 (B 592), p. 62 -- Development work, 1913.

Johnson, 1914 (B 592), p. 241 -- Development, but no ore shipped, 1913.

Capps and Johnson, 1915 (B 605), p. 14 -- Staked in 1903; small sample shipments in 1904 and 1906; regular shipments began in 1911.

p. 51 -- Productive mine, 1912.

p. 56-57, 61 -- Data from older reports summarized or quoted.

p. 70-72 -- Unknown sulfide mineral intimately associated with

chalcopryite [unknown sulfide later determined to be cubanite]. This mineral, chalcopryite, and galena are younger than pyrrhotite in the ore. Assays indicate the presence of gold. Flakes of native copper in weathered outcrops.

p. 92-96 -- Historical data summarized. In 1912 mine was a regular shipper; no ore shipped in 1913. In 1912 the mine consisted of 2,000 ft. of underground workings on 5 levels at from 57 to 282 ft. above sea level. Country rock is greenstone, graywacke, and slate of Orca Gp.; just west of trace of Landlock thrust; in lower plate; intensely shattered, sheared, and faulted. Workable ore bodies are 2 lenticular masses of nearly solid sulfides (chalcopryite, pyrrhotite, sphalerite, pyrite, and [cubanite] in mineralized shear zones; from 1 to 9½ ft. thick in workings. Dimensions of ore bodies not established; stope length of one appears to be about 80 ft. Gangue is quartz, calcite, and sheared and altered country rock. Deposit formed by replacement and cementation of fractured rock in shear zones.

Johnson, 1916 (B 642), p. 138, 140 -- Several shipments of ore, 1915.

Smith, 1917 (BMB 142), p. 43 -- Ore bodies in shear zones opened by over 2,000 ft. of workings on 5 levels.

Smith, 1917 (BMB 153), p. 50 -- Same as above.

Johnson, 1918 (B 662), p. 184 -- No ore shipped, 1916.

p. 186 -- Underground development, but no ore shipped, 1916.

Johnson, 1919 (B 692), p. 144, 148 -- Very little work and no ore shipped, 1917.

Martin, 1920 (B 712), p. 33 -- Some ore mined but not shipped, 1918.

Brooks, 1923 (B 739), p. 24 -- No work, 1921.

Moffit and Fellows, 1950 (B 963-B), p. 50-51 -- More than a million pounds of copper produced.

p. 57 -- More than 5,000 ft. of underground workings on 5 levels; 5,000-6,000 tons of 8% ore shipped, 1904-15. Ore mainly from 2 lenticular bodies of nearly solid sulfides in faulted and shattered greenstone, graywacke, and slate west of Landlock thrust.

Moffit, 1954 (B 989-E), p. 298, 302 -- Produced more than a million pounds of copper. Ore from considerably faulted intimately mixed greenstone and sedimentary rocks. Considerable cubanite associated with chalcopryite in Lanlocked Bay area.

Wells, 1956 (RI 5254), p. 1, 5-6 -- Data on flotation tests of composite channel sample of copper ore that contained 1.65% Cu, 0.01% Ni, 0.02% Co, tr. Au, and 0.36 oz. a ton Ag. Concentrate contained 81% of copper in heads in a product containing 28.4% Cu.

Mihelich and Wells, 1957 (RI 5320), p. 3 -- Data on claims.

p. 5-6 -- Between 1904 and 1915 shipped about 6,000 tons of ore containing about 1,214,000 lbs. copper, more than 115 oz. gold, and more than 1,508 oz. silver (data in gold and silver incomplete).

p. 7-9 -- Mine map and sections; USBM reopened and retimbered some of workings. Samples assayed as much as 8.60% Cu, 0.64% Zn,

Threeman (Mining Co.) (main mine) -- cont.

0.78 oz. a ton Ag, and 0.07 oz. a ton Au.

p. 16 -- Data on production about as on p. 6; ore averaged 9.2% copper. Deposit staked in 1903; last activity in 1916. 5 levels of workings; total length over 5,000 ft.; in 2 roughly parallel shear zones in greenstone, graywacke, and slate in footwall of Landlock thrust fault. Shear zones 15-50 ft. wide, strike 60° - 70° W, and dip N; diverge downward. Ore formed by open-space filling and replacement of sheared material; in 2 lenticular almost massive bodies of chalcopyrite and pyrrhotite. Largest body mined had stope length of 70 ft., width of $2-9\frac{1}{2}$ ft., and was mined for 350 ft. along dip. Composite sample of ore contained chalcopyrite, pyrite, pyrrhotite, a very small amount of sphalerite, and quartz, calcite, and other gangue. Channel samples show the remaining ore to contain 0.3%-8.6% Cu, as much as 0.6% Zn, and "unimportant amounts of gold and silver."

p. 19-21 -- Data on flotation tests on ore are about as in Wells, 1956 (RI 5245).

Berg and Cobb, 1967 (B 1246), p. 69-70 -- Quotation from Moffit, 1954 (B 989-E).

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 10 -- References to Capps and Johnson, 1915 (B 605) and Mihelich and Wells, 1957 (RI 5320). Country rock mainly greenstone of Orca Gp.

Threeman Mining Co. (S. of
Landlocked Bay)

Copper

Prince William Sound district
MF-392, loc. 16

Cordova (4.0, 14.8)
60°51'N, 146°32'W

Summary: Minor underground and surface exploration of small shear zones in volcanics and interbedded slate and graywacke of Orca Gp.
Only small amounts of chalcopyrite and pyrrhotite.

Capps and Johnson, 1913 (B 542), p. 121-122 -- Preliminary to Capps and Johnson, 1915 (B.605).

Capps and Johnson, 1915 (B 605), p. 109 -- 4 adits between 115 and 5 ft. long driven in slightly mineralized shear zones in interbedded black slate, graywacke, and greenstone; small amounts of chalcopyrite and pyrrhotite in both greenstone and slate. Stripped outcrops iron stained in places; exceptionally little copper staining.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 11 -- Reference to Capps and Johnson, 1915 (B 605). Country rock volcanics of Orca Gp.

Tibbits

Copper, Gold

Prince William Sound district
MF-392, loc. 11

Cordova (3.75, 15.25)
60°52'N, 146°34'W

Summary: A little copper mineralization in shattered greenstone. Float reported to carry about 1.9 fine. oz. gold a ton.

Johnson, B. L., 1912-1917, field notes -- Float in gulch reported to run \$40 in gold. Rock on dump outside a tunnel 15 ft. long looks like shattered greenstone cemented by quartz stringers. A little copper in tunnel - "a speck or two but it didnt amount to anything." Several other prospect openings show a little copper stain.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 7 -- Reference to above.

Wagner & Salas

Copper

Prince William Sound district
MF-392, loc. 6

Cordova (3.05, 15.55)
60°53'N, 146°39'W

Summary: Chalcopyrite in quartz in shear zone in graywacke and greenstone.

Johnson, B. L., 1912-1917, field notes -- Tunnel driven 285 ft. on shear zone in graywacke and greenstone. Gouge zone near face. Chalcopyrite in quartz fragments on dump.

MacKevett and Holloway, 1977 (OF 77-169A), p. 14, loc. 6 -- Reference to above.

Whalen & Nelson

Copper

Prince William Sound district
MF-392, loc. 22

Cordova (7.4, 14.3)
60°49'N, 146°08'W

Summary: Irregular stringers and disseminated grains of chalcopyrite and pyrrhotite in rocks of Orca Gp. A little exploration, but no recorded production, in early 1900's.

Grant and Higgins, 1909 (B 379), p. 96 -- Stripping and a small tunnel. Ore in a hard band of nonslaty rock commonly 2-4 ft. thick, but as much as 12 ft. thick, in country rock that is mainly slate. Ore is irregular stringers and disseminated grains of chalcopyrite and pyrrhotite.

Grant and Higgins, 1910 (B 443), p. 62-63 -- Same as above.

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 16 -- Reference to Grant and Higgins, 1910 (B 443). Country rock part of Orca Gp.

(Wilson Point)

Gold, Silver

Prince William Sound district
MF-392, loc. 24

Cordova (11.45, 11.6)
60°39'N, 145°40'W

Summary: Quartz veinlets in shear zone in sedimentary rocks of Orca Gp. contain gold and silver. One sample assayed 1.25 oz. gold and 3 oz. silver a ton.

Schrader, 1900, p. 421 -- Vertical shear zone contains many parallel quartz stringers or veinlets; thickness of stringer lode is about 3 ft. Sample assayed 1.25 oz. gold and 3 oz. silver (value about \$27) a ton. Warrants further investigation.

Berg and Cobb, 1967 (B 1246), p. 73 -- Unproductive quartz veins prospected near Jackpot Bay [Seward quad.] and Wilson Point.

MacKevett and Holloway, 1977 (OF 77-169A), p. 15, loc. 18 -- Reference to Schrader, 1900, p. 421. Occurrence in sedimentary rocks of Orca Gp.

Unnamed occurrence

Gold(?)

Prince William Sound district

Cordova (4.7, 17.15)

60°59'N, 146°26'W

Summary: Quartz vein as much as 3 ft. thick contains a little arsenopyrite and possibly traces of gold.

Johnson, 1919 (B 692), p. 173 -- Quartz vein 6 in. to 3 ft. thick strikes N40°E and dips 60°W; is traceable for several hundred feet in outcrops. Crosscuts bedding of massive fine-grained graywacke. Not well mineralized; only visible minerals are quartz, arsenopyrite, and limonite; traces of gold reported to have been shown by assays.

Synonyms, Claim Names, Operators, and Owners

Many mines and prospects have undergone changes in both their own names and in the names of their operators and owners. All names that appear in the cited references appear in this summary either in the first section as occurrence names or in this section as synonyms.

see Standard Copper Mining Co.

see Standard Copper Mining Co.

see Standard Copper Mining Co. (landlocked)

see Standard Copper Mining Co.

see Standard Copper Mining Co.

see Standard Copper Mining Co.

see Standard Copper Mining Co.

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see Standard Copper Mining Co.

see Standard Copper Mining Co.

A.C. (Co.) -- see Alaska Commercial Co.
 Ajax -- see Montezuma
 Alaska -- see Steinmetz
 Alaska Copper Corp. -- see Schlosser
 Alaska Mines Corp. -- see Schlosser

Alaska Pioneer -- see Steinmetz
 Alaska Standard Copper Mining Co. -- see Standard Copper Mines Co.
 Alice T. -- see Standard Copper Mines Co.
 American Girl -- see Galena Bay Mining Co.
 Anvil -- see Galena Bay Mining Co.

Apex -- see Standard Copper Mines Co.
 Banta & Cameron -- see Mogul
 Beach -- see Reynolds-Alaska Development Co (Landlocked Bay)
 Black Bear -- see Dickey Copper Co.
 Blakney (& Herren) -- see Fidalgo (Mining Co.)

Buckeye -- see Montezuma
 Burke & Steele -- see Standard Copper Mines Co.
 Centaur -- see Reynolds-Alaska Development Co. (Landlocked Bay)
 Cliff -- see Montezuma
 Comet -- see Standard Copper Mines Co.

Copper King -- see Ellamar
 Copper Mountain -- see Alaska Commercial Co.
 Copper Queen -- see Galena Bay Mining Co.
 Cordova-Tacoma Copper Co. -- see Head-of(-the)-Bay
 Cornet -- see Standard Copper Mines Co.

Daisy -- see Montezuma
 Dickey -- see Threeman
 Discovery -- see Threeman
 Dolan & Rystrom -- see Landlock Bay Copper Mining Co.
 Elgin -- see Fidalgo (Mining Co.)

Fidalgo-Alaska Copper Corp. -- see Schlosser
 Fidalgo (Landlocked Bay) -- see Hemple Copper Co.
 (Fleming Spit) -- see Cordova Copper Co.
 Forget-me-Not -- see Galena Bay Mining Co.
 (Galena Bay) -- see Galena Bay Mining Co.

Gladhaugh (& Peterson) -- see Ellamar
 Gladhaugh Bay -- see Ellamar
 Gleason -- see Dickey Copper Co.
 Grizzly -- see Reynolds-Alaska Development Co. (Landlocked Bay)
 Grove -- see Hoodoo

Hemple Mining Co. -- see Hemple Copper Co.
 Hendrie & Simenstad -- see Galena Bay Mining Co.
 Homestake -- see Galena Bay Mining Co.
 Hornet's Nest -- see Galena Bay Mining Co.
 Irish Cove (Copper Co.) -- see Dickey Copper Co.

Jacobson -- see Alaska Commercial Co.

Jay -- see Threeman

Keystone -- see Threeman

Land Lock Bay Copper Co. -- see Landlock Bay Copper Mining Co.

Last Chance -- see Hemple Copper Co.

Lone Hand -- see Galena Bay Mining Co.

Lucky Strike Syndicate -- see Lucky Strike Mining Co.

Mackintosh -- see Fidalgo (Mining Co.)

Mason (& Gleason) -- see Dickey Copper Co.

McIntosh -- see Fidalgo (Mining Co.)

Minnehaha -- see Galena Bay Mining Co.

Minnewaska -- see Galena Bay Mining Co.

Moonshine -- see Landlock Bay Copper Mining Co.

Nero -- see Hemple Copper Co.

Odelle B. -- see Standard Copper Mines Co.

Panama -- see Fidalgo (Mining Co.)

Pioneer -- see Steinmetz

Porcupine -- see Reynolds-Alaska Development Co. (Landlocked Bay)

Prince William Sound Mining Co. -- see Galena Bay Mining Co.

Putz & Steinmetz -- see Reynolds-Alaska Development Co. (Landlocked Bay)

Redemption -- see Threeman

Scorcher -- see Threeman

Sheep Run -- see Galena Bay Mining Co.

Sourdough -- see Steinmetz

Spitz -- see Galena Bay Mining Co.

Standard (claim) -- see Reynolds-Alaska Development Co. (Landlocked Bay)

Starvation -- see Galena Bay Mining Co.

Stringer -- see Lucky Strike Mining Co.

Summit -- see Galena Bay Mining Co.

Sunnyside -- see Galena Bay Mining Co.

Sylvar -- see Hemple Copper Co.

Tacoma-Cordova Mines Co. -- see Cordova Copper Co.

(Threemile Canyon) -- see (Bremner R.)

Tiger -- see Reynolds-Alaska Development Co. (Landlocked Bay)

Tiptop -- see Lucky Strike Mining Co.

Turner & McNaughton -- see McNaughton & Turner

Vesuvius -- see Galena Bay Mining Co.

(Vesuvius Valley) -- see Galena Bay Mining Co.

Virginia -- see Standard Copper Mines Co.

White Hollow -- see Galena Bay Mining Co.

Winchester -- see Fidalgo (Mining Co.)

Wrangle -- see Galena Bay Mining Co.

Yellow Dog -- see Galena Bay Mining Co.

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