UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

By

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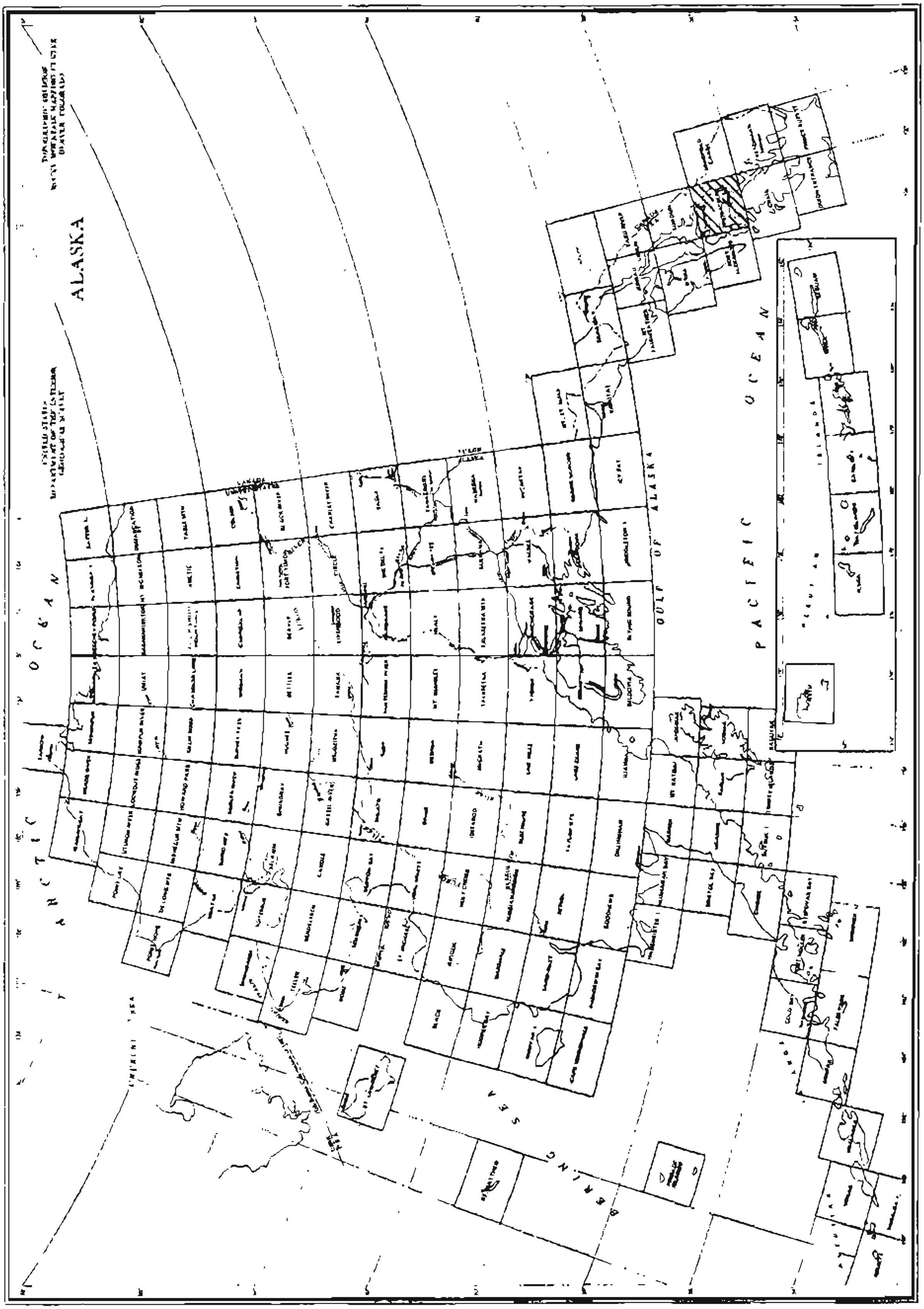
This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and and nomenclature.

Introduction

These summaries of references are designed to aid in library research on metallic and nonmetallic (other than mineral fuels and construction materials) mineral occurrences in the Petersburg quadrangle, Alaska. All references to reports of the Geological Survey, to most reports of the U.S. Bureau of Mines, and to most reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before May 1, 1978, are summarized. Certain, mainly statistical, reports such as the annual Minerals Yearbook of the U.S. Bureau of Mines and most biennial and annual reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies are not included.

This report is divided into three parts: a section made up of summaries of references arranged alphabetically first by quadrangle and second 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 summarized in the first section.


ALASKA
ARCTIC OCEAN
PACIFIC OCEAN
GULF OF ALASKA
BERING SEA

Index map

Summaries of References

For each mineral occurrence there is a page that gives the name of the occurrence; the mineral commodities present (listed alphabetically for metallic commodities and then for nonmetallic commodities) [FM is used for uranium and(or) thorium determined chemically or present as a constituent of an identified mineral other than monazite; RE is used for all rare-earth elements in minerals other than monazite]; the mining district (Ransome and Kerns, 1954) in which the occurrence is located; the name of the 1:250,000-scale topographic quadrangle; coordinates (as described by Cobb and Kachadoorian, 1961, p. 3-4); the metallic mineral resources map number (MF-415) and the occurrence number on that 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 occurrence. Material in brackets is interpretive or explanatory and is not in the summarized reference.

Proper names of mines, prospects, and other mineral occurrences usually are given if such names appear in the reports summarized. If a deposit does not have such a name or has been known by many names, but is near a named geographic feature, the name of that feature is shown in parentheses in lieu of a proper name. If a part of a proper name is not always used in a reference, that part of the name is shown in parentheses. This is most common in company names and in place names with minor variations in spelling.

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. Abbreviations used are:

B	U.S. Geological Survey Bulletin
C	U.S. Geological Survey Circular
GR	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geological Report
IC	U.S. Bureau of Mines Information Circular
OF	U.S. Geological Survey Open-File Report (numbers are informal and used only within the Alaskan Geology Branch of the U.S. Geological Survey)
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 have tried to edit out ambiguities.

References cited only in these introductory paragraphs are:

Cobb, E. H., and Kachadoorian, Reuben, 1961, Index of metallic and nonmetallic mineral deposits of Alaska compiled from published reports of Federal and State agencies through 1959: U.S. Geological Survey Bulletin 1139, 363 p.

Ransome, A. L., and Kerns, W. H., 1954, Names and definitions of regions, districts, and subdistricts in Alaska (used by the Bureau of Mines in statistical and economic studies covering the mineral industry of the Territory): U.S. Bureau of Mines Information Circular 7679, 91 p.

Alaska Garnet (Mining & Manufacturing) Co.

Garnet

Petersburg district

Petersburg (15.8, 10.2)
56°35'N, 132°22'W

Summary: Large (1/4 inch or more in diameter) almandite garnet formed by contact metamorphism in quartz-biotite schist intruded by a quartz diorite stock with aplitic injection gneiss border. Garnets adequate for use as abrasive, but not of gem quality because of internal fractures and quartz inclusions. Unknown, but small production between about 1910 and 1920. Resource above lowest exposure is about 11,900 tons of garnet in about 1,125,000 cu. yds. of rock. Includes references to garnet near Wrangell.

Wright and Wright, 1908 (B 347), p. 92 -- Almandite garnet in great abundance in mica and chlorite schist near mouth of Stikine R. Crystals 1-4 cm in diameter; too opaque and too flawed or fractured for use as gem stone.

Brooks, 1911 (B 480), p. 42 -- Small shipments of garnets, 1910.

Brooks, 1913 (B 542), p. 51 -- Garnets in an area of crystalline schist, principally in 3 ledges of mica schist containing hornblende. Almandite in symmetrical crystals from less than 1/16 to more than 1 in. in diameter. Being mined in open cuts and tunnels; stored in bins; none shipped in 1912. Too dark for gem material.

Brooks, 1915 (B 622), p. 44 -- Some garnets shipped in 1914.

Brooks, 1916 (B 642), p. 53 -- Mine operated, 1915.

Chapin, 1916 (B 642), p. 104 -- Mine operated, 1915. Best stones used for gems and the waste material for foundry powder.

Brooks, 1921 (B 714), p. 55 -- Reference to Brooks, 1913 (B 542), p. 51.

Buddington, 1923 (B 739), p. 73-74 -- Symmetrical garnet crystals generally from 1/4 to 3/4 in. in diameter in beds of quartz-mica schist 10 or more ft. thick between beds of more quartzose schist. Accessory minerals with garnets include feldspar, graphite, kyanite, sillimanite, pyrite, pyrrhotite, and tourmaline; probably of contact-metamorphic origin; granite sills nearby.

Buddington and Chapin, 1929 (B 800), p. 316 -- Contact metamorphic deposit.

p. 332-333 -- Almandite garnet for use as an abrasive has been produced intermittently.

p. 363 -- Summary of Buddington, 1923 (B 739), p. 73-74.

Bressler, 1950 (B 963-C) -- Country rock is several kinds (including garnetiferous) schists and other metamorphic rocks intruded by a quartz diorite stock with bed-by-bed aplitic injection gneiss between it and the enclosing schists in most places. Large (1/4 inch or more in diameter) almandite garnets formed by contact metamorphism in quartz-biotite schist in triangular area about 450 ft. long and 250 ft. wide. Resource above the lowest exposure is estimated to be about 11,900 tons of garnet in about 238,340 tons (1,125,000 cu. yds.) of rock. Mine consists of an open cut and about 260 ft. of drifts. Garnets not gem quality because of internal fractures and inclusions of quartz; meet requirements for abrasive garnet. Unknown, but small production, all before about 1920.

Kaufman, 1958 (IC 7844), p. 11 -- Reference to Bressler, 1950 (B 963-C).

(Berg(s) Basin) | Copper, Gold, Lead, Silver, Zinc

Petersburg district
MF-415, loc. 13 | Petersburg (19.3, 8.05)
56°27'N, 132°01'W

Summary: In belt of metasedimentary rocks between Coast Range batholith on east and 2 granitic plutons on west. Igneous and metamorphic rocks cut by rhyolite, basalt, and pegmatite dikes and, rarely, quartz veins. Original discovery in about 1900 was a quartz vein reported to carry about 0.68 oz. per ton gold; not found at depth in 800-ft. crosscut or diamond-drill holes. Basalt dike contains pods of galena and minor pyrite and sphalerite. Analyses of galena showed 27.9 and 28.7 oz. per ton silver. Other basalt dikes contain galena and sphalerite. Iron sulfides common in metamorphic rocks. No production. Includes references to: Berg, Mount Berg, Mount Wedar.

Wright, 1909 (B 379), p. 84 -- Veins of silver-lead ore in schist said to be similar to those at Glacier Basin found, 1908. 150-ft. crosscut and surface cuts.

Chapin, 1918 (B 662), p. 75 — Work in 1916. Reported that adit was driven 300 ft.

Buddington, 1923 (B 739), p. 57-58 -- For regional geologic features see (Groundhog Basin) sheets.

p. 67 -- Deposit in same belt as those of Groundhog and Glacier Basins. Fractured rhyolite sheet in metasedimentary rocks intruded by slightly discordant rhyolite and diabase sills contain a stockwork of quartz veinlets carrying pyrite, galena, and sphalerite; also sporadic pockets of sphalerite and galena. Quartz vein a foot thick carries moderate quantities of gold and silver. Sulfides in quartz in narrow breccia zones along contacts of rhyolite and basalt sheets.

Buddington and Chapin, 1929 (B 800), p. 361 -- Gold quartz fissure veins.

Gault and others, 1953 (B 998-B), p. 47-55 -- Discovered in 1907. Country rock is a belt of metasedimentary rocks between the Coast Range batholith on the E and 2 sill-like granitic masses on the W; cut by felsic and basaltic dikes and sills. Argentiferous galena, sphalerite, and rarely chalcopyrite in small irregular pockets in a composite basaltic dike, along contacts of basaltic dikes with rhyolite, along contacts of basaltic dikes with schist near rhyolite, and disseminated in rhyolite: Quartz vein said to carry $14 a ton in gold exposed at surface, but not found in 800-ft. tunnel driven to intersect it at depth or in diamond-drill holes, one of which reportedly intersected a 5-ft. zone of solid and disseminated galena. Major gangue mineral is quartz; some carbonates and possibly barite also present. No commercial ore body has been found.

Twenhofel, 1953 (C 252), p. 6 -- Lead-zinc deposit.

Berg and Cobb, 1967 (B 1246), p. 191-192 -- Metasedimentary rocks intruded by Coast Range batholith on east and by sill-like granite plutons on west. Rhyolite, basalt, and pegmatite dikes and sills cut both the igneous and metamorphic rocks; quartz veins are rare. First prospect staked in about 1900 on a foot-thick auriferous quartz vein reported to carry $14 [about 0.68 oz.] in gold per ton. Explored by pits and several diamond-drill holes; crosscut nearly 800 ft. long did not encounter

(Berg(s) Basin) -- Continued

vein at depth. Basalt dike near crosscut contains pods of galena and minor pyrite and sphalerite. Analyses of galena indicated 27.9 and 28.7 oz. silver per ton. Galena and sphalerite in other basalt dikes also and iron sulfides common in metamorphic rocks.

Eakins, 1975 (GR 44), p. 44 -- Prospect has long been known.

(Blashke Islands) — Chromite, Copper, Gold, Nickel, Platinum

Ketchikan district — Petersburg (10.7, 2.3)
MF-415, loc. 25 — 56°08'N, 132°54'W

Summary: Zoned ultramafic body about 1-1/2 mi. in diameter intruded Silurian graywacke, other sedimentary rocks, and pyroclastic material. Chromite is a sparse, but ubiquitous, accessory in dunite core. Sulfides near boundary between pyroxenite and gabbro outer zones are mainly pyrrhotite and chalcopyrite. There is a large aggregate tonnage of material containing 1%-2% sulfides. Analyses of sulfide-bearing gabbro indicate as much as 0.016% copper and 0.05% nickel and less than 0.1 oz. per ton platinum-group metals. Other analyses show 0.004 oz. per ton gold, 0.04 oz. per ton palladium, and a trace of platinum. Some analyzed samples contained an average of 0.010 ppm of both platinum and palladium with maxima of 0.020 ppm of each.

Kennedy and Walton, 1946 (B 947-D), p. 76-78 -- Zoned ultrabasic body about 1-1/2 mi. in diameter intruded Silurian graywacke, pyroclastic material, and interbedded conglomerate, slate, and limestone. Ultrabasic body consists of a dunite core, a ring of pyroxenite and wehrlite, and an outer ring of gabbro and a little diorite. Contacts appear to be about vertical; may dip slightly inward. Each ring was apparently formed at a slightly lower temperature than the one inside it. Sulfide minerals (principally pyrrhotite and chalcopyrite) locally present in marginal phase of pyroxenite and gabbro; large aggregate tonnage of material with 1%-2% sulfides. Analyses of sulfide-bearing gabbro indicated as much as 0.016% Cu, 0.05% Ni, and less than 0.1 oz. per ton platinum-group metals. Another analysis showed (in oz. per ton) 0.004 Au, 0.04 Pd, and a trace of Pt.

Walton, 1951 (OF 126), p. 16-205 -- This is a dissertation consisting mainly of petrographic and mineralogic description and petrologic discussion. It is generally summarized in Kennedy and Walton, 1946 (B 947-D), p. 76-78. Chromite is a sparse but ubiquitous accessory in dunite as very small octahedra.

Clark and Greenwood, 1972 (P 800-C), p. C159 -- Samples contained averages of 0.010 ppm of both Pt and Pd; maxima were 0.020 ppm of both Pt and Pd. In hornblendite associated with magnetite and chalcopyrite; positive correlation with Fe and Ni.

Page and others, 1973 (P 820), p. 542-543 -- Tabular data from Clark and Greenwood, 1972 (P 800-C), p. C159.

Castle & Co. — Gold

Ketchikan district — Petersburg (5.35, 2.35)
MF-415, loc. 15 — 56°08'N, 133°27'W

Summary: Quartz vein reported to carry auriferous pyrite discovered in 1898. Company had stamp mill, but it is not known if any ore was processed.

Brooks, 1902 (P 1), p. 111 -- Gold-quartz vein discovered in 1898; has stamp mill. "It [the deposit] is a wide vein of low-grade ore, most of the values being carried in pyrite."

Berg and Cobb, 1967 (B 1246), p. 177 -- Claims staked on quartz veins said to contain auriferous pyrite. Company reportedly had its own stamp mill, but it is not known if any ore actually was processed.

(Castle I.) Gold, Lead, Silver, Zinc; Barite

Kupreanof district
MF-415, loc. 5

Petersburg (8.05, 11.45)
56°39'N, 133°10'W

Summary: Barite deposit probably formed by preferential replacement of one or more Devonian limestone beds intercalated with schist. Minor impurities in barite are quartz and sulfide minerals, probably galena and sphalerite; analyses indicate 0.01-0.03 oz. per ton gold, 0.79-1.05 oz. per ton silver, 1.14%-1.27% zinc, 0.05%-0.07% copper, as much as 0.29% lead, and 0.37% strontium oxide. Claims patented in about 1923. Being mined for use in oil drilling mud as recently as 1974 (Alaska Division of Geological and Geophysical Surveys Biennial Report, 1974-75, p. 34). Includes references to barite at Duncan Canal.

Burchard, 1914 (B 592), p. 109-113 -- Small peninsula (islet at high tide) on E side of one of Castle Islands made up of barite; strikes N 30° W and dips steeply NE, as does schist that makes up main island. Barite is probably remnant of a vein or lens of barite that had been formed by replacement of limestone. The barite is finely crystalline and grayish white with thin grayish-blue veins and clouded areas and a few thin black streaks; some small segregations and thin seams of quartz; fine specks of pyrite widely disseminated; thin black streaks are probably sulfides (including probably galena and sphalerite), magnetite, and graphite; sphene present. Assays and analyses indicate the presence of 0.01-0.03 oz. gold and 0.79-1.05 oz. silver per ton, 1.14%-1.27% zinc, 0.05%-0.07% copper, as much as 0.29% lead, and 0.37% SrO. Material is 89.16% $BaSO_4$; chief impurity is silica; metallic oxides and sulfides less than 4.5%. Estimated that there are more than 50,000 short tons of barite above high-tide level.

p. 116-117 -- Crude tests indicate that pigment-quality barite might be produced by beneficiation. Quality certainly adequate for other uses.

Brooks, 1921 (B 714), p. 54 -- Reference to Burchard, 1914 (B 592).

Buddington, 1923 (B 739), p. 56-57 -- Barite deposit in Devonian rocks.

p. 72-73 -- Data from Burchard, 1914 (B 592). Short adit driven and some open cuts made to fulfill assessment requirements.

Brooks and Capps, 1924 (B 755), p. 24 -- Application for patent, 1922.

Buddington, 1925 (B 773), p. 138 -- Claims have been patented by Alaska Treadwell Gold Mining Co., 1923.

Buddington and Chapin, 1929 (B 800), p. 318 -- Barite is a replacement and impregnation type of deposit.

p. 333 -- 60,000 tons above tide level of material that is about 93% $BaSO_4$.

Smith, 1933 (B 844-A), p. 81 -- Company formed to mine deposit, 1931.

Bain, 1946 (IC 7379), p. 77 -- Reference to Burchard, 1914 (B 592).

Kaufman, 1958 (IC 7844), p. 9 -- Reference to Buddington and Chapin, 1929 (B 800).

(Castle I.) -- Continued

Berg and Cobb, 1967 (B 1246), p. 185, 188 -- Barite deposit may have been formed by preferential replacement of one or more limestone beds intercalated with schist. Estimated to contain about 60,750 tons of barite carrying small amounts of sulfide minerals, quartz, magnetite, and graphite. Analyses of 10 samples averaged 1.38% Zn, 1.07% Fe, and 0.04% Cu; Pb not reported, but galena known to be present.

Brobst, 1973 (P 820), p. 82 -- Mining, 1972.

Eakins, 1975 (GR 44), p. 44 -- Mining, 1970. No radioactivity detected.

(Devilfish Bay) — Copper, FM, Iron, Molybdenum

Ketchikan district — Petersburg (6.0, 1.45)
MF-415, loc. 21 — 56°08'N, 133°23'W

Summary: Tactite inclusions in granodiorite and tactite in marble and graywacke-siltstone contain magnetite, chalcopyrite, and a little molybdenite. One sample contained 8 ppm uranium. Very little work done in area.

Herreid and Kaufman, 1964 (GR 7), p. 4 -- Rock specimen contained 0.4% pyrite and molybdenite.

p. 9-11 -- Tactite inclusions in granodiorite of Dry Pass batholith; marble and graywacke-siltstone with tactite; contain magnetite, chalcopyrite, and a little molybdenite. Tactite largely wollastonite and garnet. Copper could probably be traced by a soil geochemical survey.

Berg and Cobb, 1967 (B 1246), p. 178 -- Chalcopyrite, molybdenite, and magnetite deposits similar to those near Dry Pass. Only work was small-scale trenching.

Eakins, 1975 (GR 44), p. 54-57 -- Reference to Herreid and Kaufman, 1964 (GR 7). Eakins found only 1 prospect; pyrite and minor chalcopyrite on dump; molybdenite in a float boulder. Some anomalous radioactivity; analysis of a sample showed 8 ppm uranium.

(Dry Pass) — Copper, Iron, Lead, Molybdenum, Tungsten

Ketchikan district — Petersburg (5.35-5.75, 2.55-2.75)
MF-415, locs. 16-20 — 56°09'N, 133°25'-133°27'W

Summary: Lodes in and near diorite pluton carry molybdenite or various combinations of pyrite, pyrrhotite, chalcopyrite, molybdenite, and galena. Quartz veins in marble lenses in a shear zone and a silicified(?) rock near a marble-diorite contact carry scheelite. A band of magnetite 2-1/2 ft. thick follows a contact between marble and a diorite dike. Has been very little exploration of these occurrences.

Herreid and Kaufman, 1964 (GR 7), p. 5 -- Band of magnetite 2-1/2 ft. wide and of unknown length follows contact between a dioritic dike and marble country rock.

p. 8-10 -- Dump outside a caved adit (said to be 100 ft. long) and several showings of ore minerals in hornfels, marble, diorite, and gneissoid diorite contain magnetite, molybdenite, chalcopyrite, pyrrhotite, pyrite, and galena. Quartz veins near the old adit contain scheelite; veins in marble lenses in a shear zone in hornfels; chip sample across 5 ft. contained 1.4% WO_3. Quartzose rock near marble-diorite contact also carries disseminated scheelite. Showings of molybdenite, pyrite, and chalcopyrite in diorite of Dry Pass batholith suggest the possibility of a porphyry-type deposit.

Berg and Cobb, 1967 (B 1246), p. 177-178 -- Lodes contain molybdenite or various combinations of pyrite, pyrrhotite, chalcopyrite, molybdenite, and galena. Lodes carrying metalliferous minerals other than sulfides include a scheelite-bearing quartz vein in a marble lens in a shear zone, disseminated scheelite in a silicified(?) rock near a marble-diorite contact, and magnetite, reportedly in a 2-1/2-ft. zone at the contact between a diorite dike and marble.

(Duncan Canal)

Copper, Gold

Kupreanof district
MF-415, locs. 2-4

Petersburg (6.1-7.15, 13.9-15.7)
56°48'-56°54'N, 133°15'-133°02'W

Summary: General data applicable to one or more of the properties near the head of Duncan Canal. See also: Northern Copper Co., (Portage Mtn.), (Taylor Cr.).

Wright and Wright, 1905 (B 259), p. 60 -- Two other groups of claims in same general area as Portage Mtn. Has been a little exploration, 1904.

Wright and Wright, 1906 (B 284), p. 53 -- Has been some exploration on several low-grade copper-bearing ore bodies in greenstone. Not enough concentrated work to evaluate any. Production [if any] has been very small.

Wright, 1908 (B 345), p. 91 -- No important developments on gold-copper prospects at head of Duncan Canal, 1907.

Buddington, 1923 (B 739), p. 56-57 -- Ore deposits in Devonian rocks.

Exchange

Gold

Petersburg district
MF-415, loc. 9

Petersburg (14.25, 17.8) approx.
56°25'N, 132°32'W approx.

Summary: Quartz vein 12-15 ft. thick in granite contains pyrite and reported to carry "moderate" values in gold. Staked in 1900 and developed by surface cuts and a crosscut 45 ft. long. No record of production.

Wright and Wright, 1905 (B 259), p. 60 -- Two gold-bearing quartz ledges about 15 ft. wide in granite; many mineralized granite inclusions. Opened by 2 tunnels and open cuts. Fair gold assays reported. No work for several years, 1904.

Wright and Wright, 1908 (B 347), p. 185 -- Claims located in 1900. Quartz vein 12-15 ft. wide exposed by surface cuts and undercut at depth of 25 ft. by tunnel 45 ft. long. Vein strikes N, dips 30° W, and is in granite. Main metallic mineral is pyrite; said to carry moderate values in gold.

Berg and Cobb, 1967 (B 1246), p. 193 -- Staked in 1900 on quartz vein in granite. Chief metallic mineral is pyrite; vein said to carry moderate amounts of gold.

(Glacier Basin)

Copper, Gold(?), Lead, Iron, Silver(?), Zinc; Fluorite

Petersburg district
MF-415, loc. 12

Petersburg (19.15, 8.6)
56°29'N, 132°01'W

Summary: Sulfide-bearing pyroxene granulite similar to and probably continuous with disseminated deposits in Groundhog Basin. Granulite "ore beds" contain sphalerite, galena, pyrrhotite, and magnetite partially replacing pyroxene; probably contain many hundreds of thousands of tons of material containing about 1.65% zinc and 1.1% lead. Veins in shear and breccia zones contain galena, sphalerite, pyrrhotite, pyrite and chalcopyrite in gangue of quartz and fluorite; probably contain several million tons of material with about 0.14% zinc and 0.09% lead. Early reports mention possible low values in gold and silver; none in samples collected during more recent investigations. Deposits in a band of metasedimentary rocks between Coast Range batholith and a smaller quartz diorite pluton. Discovered in about 1899; developed by 3 short adits. No production. See also (Groundhog Basin).

Wright and Wright, 1905 (B 259), p. 60-61 -- Country rock is schist next to Coast Range intrusive belt; cut by granitic and porphyritic dikes. In vicinity of porphyritic dikes and along their edges are ledges of massive galena and chalcopyrite, usually parallel to schistosity; principal deposit strikes N 30° W, dips 45° NE. 2 tunnels expose ore body about 20 ft. wide; reported to carry values in silver, lead, and copper.

Wright and Wright, 1906 (B 284), p. 53 -- Sulfide-bearing veins associated with porphyry dikes parallel to bedding planes in argillite. Assessment work only, 1905.

Wright, 1907 (B 314), p. 72 -- Has been only meager exploration, 1906.

Wright, 1908 (B 345), p. 97 -- Well-defined quartz veins 4-20 ft. wide traceable on surface for long distances carry galena, sphalerite, chalcopyrite, and pyrite; principal values in silver and lead. Some work, July and August, 1907.

Wright and Wright, 1908 (B 347), p. 188-189 -- Glacier and Groundhog Basins in a belt of slate and schist about 6,000 ft. thick between the main Coast Range intrusive (on E) and an outlying granite belt (on W) that is 1-3 mi. wide. Metamorphic rocks cut by many aplite and porphyry dikes, particularly near western granite body, where mineralization is greatest. In Glacier Basin veins 4-20 ft. wide, usually in or near aplite or porphyry dikes, contain galena, sphalerite, pyrite, and chalcopyrite; only moderate amounts of gold and silver. Only development is surface cuts and 2 short tunnels.

Chapin, 1918 (B 662), p. 74 -- Assessment work, 1916.

Buddington, 1923 (B 739), p. 57-58 -- Belt of gneiss and schist derived from sedimentary rocks between 2 masses of quartz diorite; includes tabular bodies of quartz porphyry, diabase, and rhyolite porphyry. Ore bodies are replacement veins of sphalerite and galena and veinlets and pockets of sphalerite, galena, and pyrite in fractured rhyolite.

(Glacier Basin) -- Continued

p. 66-67 -- Located about 1899. Country rock is siliceous injection gneiss and hornblende schist and gneiss intruded by sheets of rhyolite. Beds containing disseminated pyrite and pyrrhotite are common and conspicuous because of rusty weathering. Vein is a tabular replacement of a granulite(?) bed between 2 rhyolite sheets; stockwork in one sheet also. Sulfides include galena, sphalerite, a little chalcopyrite, and traces of pyrite and pyrrhotite; galena reported to carry silver. Tunnel driven 40 ft. along deposit.

Buddington and Chapin, 1929 (B 800), p. 327 -- Principal ore mineral is galena.

p. 337 -- Veinlets of albite cut veins of sphalerite and galena.

p. 361-362 -- Silver-lead veins are part of tabular replacement bodies in gneiss and in a brecciated felsite sheet. Ore minerals are galena, sphalerite, pyrrhotite, chalcopyrite, and pyrite.

Gault and others, 1953 (B 998-B), p. 29-40 -- Discovered in about 1899. Only development is 3 short adits; no production. Mineralized pyroxene granulite beds from a few inches to as much as 20 ft. thick that may be derived from marble beds in a belt of metamorphosed mainly sedimentary rocks between large granitic bodies and containing many quartz porphyry and basalt dikes and sills. Granulite contains sphalerite, galena, pyrrhotite, and magnetite partly replacing pyroxene. Veins in shear and breccia zones contain galena, sphalerite, pyrrhotite, pyrite, and chalcopyrite in gangue of quartz, fluorite, and silicate rock minerals. Recoverable fluorite probably not economically interesting. Average grade of ore beds is 1.66% Zn and 1.09% Pb; of veins is 0.14% Zn and 0.09% Pb. Large tonnages of mineralized material, but grade is probably too low to be classed as ore. No gold or silver in any of analyzed samples. Deposits in Glacier Basin are apparently continuous with those in Groundhog Basin immediately to the north.

Twenhofel, 1953 (C 252), p. 6 -- Lead-zinc deposit.

Kaufman, 1958 (IC 7844), p. 12 — Lead-zinc deposit.

Berg and Cobb, 1967 (B 1246), p. 191-192 -- Sulfide-bearing granulite similar to and probably continuous with disseminated-sulfide deposits in Groundhog Basin. "Ore beds" probably aggregate many hundreds of thousand tons of material containing about 1.65% Zn and 1.1% Pb. Quartz-fluorite veins in shear and breccia zones carry about 0.14% Zn and 0.09% Pb; 12 such veins, each at least 3 ft. thick and 600 ft. long, estimated to contain several million tons of lead- and zinc-bearing material; too lean to constitute ore (1966). Deposits discovered about 1899. Explored by 3 short adits. Has been no production.

Eakins, 1975 (GR 44), p. 44 -- Mineral deposits have long been known.

Shawe, 1976 (P 933), p. 34 -- Sulfide-bearing veins have gangue of quartz and fluorite.

(Groundhog Basin)

Copper, Gold, Lead, Molybdenum, Silver, Zinc; Fluorite

Petersburg district
MF-415, loc. 10

Petersburg (18.8, 9.2)
56°31'N, 132°04'W

Summary: Deposits formed by selective replacement of metasedimentary rocks between Coast Range batholith and a smaller quartz diorite pluton. Deposits and country rock cut by quartz porphyry and basalt dikes and sills. Deposits are: (1) solid sulfide bodies comprised principally of pyrrhotite, sphalerite, and galena (content about 8% zinc, 1.5% lead, and 1.5 oz. per ton silver; probably several hundred thousand tons); and (2) disseminated sphalerite and other sulfides (about 2.5% zinc and ½% lead; probably several hundred thousand tons) replacing pyroxene granulite. Deposits also contain subordinate chalcopyrite, pyrite, magnetite, tennantite(?), tetrahedrite(?), and cubanite(?) and very small amounts of gold. Molybdenite (with no other sulfides) in a thick granitic sill; probably less than 0.05% molybdenum. Breccia vein contains some sulfides and fluorite. Small cross faults cutting metamorphic and igneous rocks contain quartz and fluorite crystals. Discovered in 1904; explored (mainly in 1916-17 and early 1940's) by surface cuts, about 450 ft. of underground workings, and at least 600 ft. of diamond-drill holes. No production.

Wright and Wright, 1905 (B 259), p. 61 -- Some development, 1904; favorable assay returns. Ledge more than 6 ft. wide.

Wright and Wright, 1906 (B 284), p. 53 -- Sulfide-bearing veins associated with porphyry dikes parallel to bedding in argillite. Assessment work only, 1905.

Wright, 1907 (B 314), p. 72 -- Has been only meager exploration, 1906.

Wright and Wright, 1908 (B 347), p. 188-189 -- For data on regional setting see (Glacier Basin) sheet. Veins at contact of porphyry dikes and slate-schist belt; oxidized at surface; persistent along strike. Vein that has been explored (open cuts and short tunnels) is 6 or more ft. wide; contains galena, sphalerite, and pyrite; average assay values [for gold and silver?] only fair.

Chapin, 1916 (B 642), p. 78 -- Development work, 1915.

p. 98-99 -- Reference to Wright and Wright, 1908 (B 347). Development work, 1915.

Chapin, 1918 (B 662), p. 74-75 -- Assessment work, 1916. Country rock crystalline schist and argillite cut by porphyritic quartz diorite and alaskite porphyry dikes. Lodes contain galena, sphalerite, pyrite; strike N 45° W and dip 63° NE. Open cuts and 3 adits (total length 187 ft.)

Buddington, 1923 (B 739), p. 57-63 -- Deposits in Groundhog, Glacier, and Berg Basins are in a belt of sedimentary rocks metamorphosed to gneiss and schist with a few beds of crystalline limestone; slightly discordant diabase (basalt) and rhyolite sheets; belt bordered by 2 masses of quartz diorite intruded parallel to foliation of metamorphic rocks. Bands of rock with disseminated pyrite and pyrrhotite are common and conspicuous because of rusty weathering. Main ore bodies are tabular replacement veins in gneiss; mainly pyrrhotite and sphalerite.

(Groundhog Basin) -- Continued

Discovered in 1904. Main ore body explored by 3 tunnels (total length, including drifts, of 442 ft.) and open cuts for a distance of 3,200 ft., mainly in 1915-17. Vein is 1½ - 9 (average 3) ft. wide; average of 24 assays of samples across the full width of the vein indicated about 17% Zn, 2-1/2% Pb, and 1-1/4 oz. per ton Ag. Several parallel veins have not been explored to any great extent. Sulfides include sphalerite, galena, pyrrhotite, pyrite, and traces of chalcopyrite; silver content varies with lead content.

Buddington and Chapin, 1929 (B 800), p. 318 -- Replacement and impregnation type of deposits.

p. 328 -- Low-grade tabular replacement veins in metamorphic rocks contain sphalerite, pyrrhotite, and a little galena.

p. 361 -- Summary of Buddington, 1923 (B 739), p. 57-63.

Smith, 1933 (B 836), p. 81 -- Work reported, 1930, on molybdenite in Groundhog Basin and on Baker I. [Craig quad.].

Smith, 1942 (B 926-C), p. 172 -- Quotation from Smith, 1933 (B 836), p. 81. Occurrence not well substantiated.

Bain, 1946 (IC 7379), p. 41 -- Estimated reserve of 124,000 tons of material containing 8% zinc, 2% lead, 2 oz. a ton silver. Sample contained pyrrhotite, sphalerite, galena, and chalcopyrite in silicate gangue. Concentration studies indicated poor recovery, low-grade concentrates.

Twenhofel and others, 1946 (B 947-B), p. 37-38 -- Through a vertical range of 1,000 ft. in a granite sill molybdenite occurs as fracture coatings and in quartz veinlets in fractures; no other sulfides. Float fragments of gneiss and schist country rock that borders sill also contain molybdenite. Molybdenite-bearing material contains probably less than 0.05% Mo.

Gault and others, 1953 (B 998-B), p. 15-28 -- Ore formed by replacement of some beds (now pyroxene granulite) of a series of metamorphosed sedimentary rocks between large quartz diorite bodies and cut by many quartz porphyry and basaltic sills and dikes. 2 kinds of ore; solid sulfides and disseminated sulfides, which intergrade. Sulfides include galena, sphalerite, pyrrhotite, pyrite, and chalcopyrite and probably tennantite, tetrahedrite, and cubanite; magnetite also present. Resource is several hundred thousand tons each of solid ore containing about 8% Zn, 1.5% Pb, and 1.5 oz. per ton Ag and disseminated ore containing about 2.5% Zn and 1% Pb. Breccia vein about 40 ft. thick is cut by a network of drusy quartz; contains small amounts of galena, pyrite, sphalerite, chalcopyrite, and fluorite. Small cross faults that cut both metamorphic rocks and quartz diorite contain quartz and crystals of fluorite. Quartz porphyry sills and granitic apophyses also contain a few small patches and disseminated grains of sulfides. One small molybdenite deposit. A few samples contained from a trace to 0.01 oz. a ton gold. Explored by several hundred feet of adits and drifts and more than 600 ft. of diamond drill holes. Has been no production.

Twenhofel, 1953 (C 252), p. 6 -- Estimated to contain about 550,000 tons of indicated and inferred ore with about 8% Zn and 1.5% Pb and about 500,000 tons of ore with about 2.5% Zn and 1% Pb. Limits of deposit at depth and to NW not known.

(Groundhog Basin) -- Continued

Kaufman, 1958 (IC 7844), p. 12 -- Reference to Gault and others, 1953 (B 998-B).

Noel, 1966, p. 64 -- Reference to Gault and others, 1953 (B 998-B). As known now, deposits are not very large and would average less than 5% lead and zinc combined.

Berg and Cobb, 1967 (B 1246), p. 191-192 -- Deposits formed by selective replacement of favorable layers in a belt of metasedimentary rocks between Coast Range batholith on E and a smaller quartz diorite body on W. Deposits and country rock cut by quartz porphyry and basalt dikes and sills. Two types of mineral deposits: (1) solid sulfide bodies composed principally of pyrrhotite, sphalerite, and galena (content about 8% Zn, 1.5% Pb, and 1.5 oz. per ton Ag); and (2) disseminated sphalerite and other sulfides in pyroxene granulite (contain about 2.5% Zn and 1% Pb). Deposits also contain subordinate chalcopyrite, pyrite, magnetite, tennantite(?), tetrahedrite(?), and cubanite(?). Probably several hundred thousand tons of each type of deposit. Discovered in 1904; explored (mainly in 1916-17 and early 1940's) by surface cuts, about 450 ft. of underground workings, and at least 600 ft. of diamond-drill holes. Molybdenite (without any other sulfides) in a thick granite sill; estimated to contain less than 0.05% Mo. Has been no production from any of deposits.

Eakins, 1975 (GR 44), p. 44 -- Deposit has long been known.

Shawe, 1976 (P 733), p. 34 -- Quartz and fluorite in breccia vein about 40 ft. thick and in quartz veins.

Hattie — Copper, Gold, Lead, Silver, Zinc

Kupreanof district — Petersburg (9.2, 9.35)
MF-415, loc. 8 — 56°32'N, 133°03'W

Summary: Quartz fissure and breccia veins in sheared greenstone contain 3% or less of pyrite, chalcopyrite, galena, sphalerite, and gold; some silver values. About 500 ft. of underground workings in early 1900's; no production. See also Helen S.

Wright and Wright, 1905 (B 259), p. 59-60 -- Country rock is somewhat schistose greenstone. Quartz ledges 5-15 ft. wide apparently fill brecciated zones; many greenstone masses included in ledges. Auriferous sulfides disseminated in greenstone and quartz veinlets. Practically none of ore is free milling; 18 to 1 concentrate said to yield $32 [about 1.55 oz.] gold a ton. Developments aggregate 1,500 ft. of shafts, crosscuts, and drifts; 20-stamp mill. Operations suspended early in 1904. [Can not tell from descriptions which are of Hattie and which are of Helen S.; anything on milling ore probably is applicable to Helen S. only.]

Wright and Wright, 1908 (B 347), p. 182-184 -- Fissure and breccia veins in greenstone (in places schistose) contain quartz and mineralized country rock; metallic minerals (1%-3% of vein filling) are pyrite, chalcopyrite, sphalerite, and galena; values essentially in gold with some copper and silver. Only Hattie vein developed; 360-ft. tunnel, 135-ft. winze, and 2 levels; vein is 5-20 ft. wide, has been traced for several hundred feet. Claims located in 1900; development in 1901-03 and 1907. No mention of production.

Wright, 1909 (B 379), p. 73 -- No work, 1908.

Berg and Cobb, 1967 (B 1246), p. 185 -- Explored by about 500 ft. of underground workings; no ore was mined. Quartz fissure and breccia veins in sheared greenstone contain 3% or less of pyrite, chalcopyrite, galena, sphalerite, and gold.

Helen S. — Gold, Lead, Zinc

Kupreanof district — Petersburg (9.0, 10.0)
MF-415, loc. 6 — 56°43'N, 133°04'W

Summary: 2 shafts and about 650 ft. of crosscuts and drifts; operated in 1903-04 and 1907. Deposits are quartz veins in interbedded black slate and greenstone and a disseminated lode about 40 ft. wide and 1,000 ft. long; both contain galena, sphalerite, pyrite, and gold, most of which is in the sulfides. A small amount of ore that ran $3.66 (about 0.177 oz. gold) a ton was milled. Property abandoned in about 1916. Includes references to Smith and to Olympic Mining Co. unless obviously to Hattie. See also Hattie.

Wright and Wright, 1905 (B 259), p. 59-60 -- See entry on Hattie sheet; can not tell what applies to Hattie and what to Helen S.

Wright, 1907 (B 314), p. 63 -- Quartz in brecciated zones in greenstone carries auriferous sulfides; low grade. Attempt at mining and milling, 1906. [May have been some production; reference not clear.]

p. 72 -- Renewed operations at Smith camp, 1906.

Wright, 1908 (B 345), p. 91 -- Some work, 1907.

Wright and Wright, 1908 (B 347), p. 184 -- Located in 1902; development 1903-04, 1907. 20-stamp mill used for a small test run only. Somewhat more than 750 ft. of underground workings. Country rock is greenstone schist with some interbedded slate. Mineral deposits consist of 2 systems of quartz veins and a mineralized belt of schist 5-15 ft. with a network of quartz and calcite veinlets and 2%-4% disseminated sulfides. Metallic minerals are auriferous pyrite, galena, and sphalerite; most of gold in concentrates rather than free milling.

Wright, 1909 (B 379), p. 73 -- No work, 1908.

Chapin, 1916 (B 642), p. 78 -- Development, 1915.

Buddington, 1923 (B 739), p. 56-57 -- Gold lode in Devonian rocks.

p. 67 -- Lode of pyritized greenstone and diorite (or altered gabbro) about 40 ft. wide and exposed for a length of 1,000 ft. was worked as a low-grade gold mine. Mill heads reported to have run $3.66 [about 0.177 oz. of gold] a ton. Abandoned several years ago.

Berg and Cobb, 1967 (B 1246), p. 185 -- Staked In 1902 on quartz veins in interbedded black slate and schistose greenstone and on a disseminated lode about 40 ft. wide and 1,000 ft. long in greenstone and diorite (or altered gabbro). Both types of deposits contain galena, sphalerite, pyrite, and gold, most of which is combined with the sulfides. Worked in 1903-04 and 1907; an unknown, but certainly small, amount of ore reported to have averaged $3.66 a ton in gold was milled. Mine consisted of 2 shafts and about 650 ft. of drifts and crosscuts. A little nonproductive work in 1915; abandoned soon afterward.

(Kane Peak) Copper, Nickel

Kupreanof district Petersburg (8.5-8.85, 17.1-17.5)
56°59'-57°00'N, 133°05'-133°07'W

Summary: Ultrabasic body of dunite in places bordered by pyroxenite in places contains a few percent of disseminated pyrrhotite, pentlandite, and chalcopyrite; no concentrations of possible economic importance were found. Level of body now exposed is probably near original base of intrusive.

Kennedy and Walton, 1946 (B 947-D), p. 78-80 -- Poorly exposed composite stock of ultrabasic rocks ranging from gabbro to dunite; wehrlite, pyroxenite, hornblendite, and mica-rich variants locally abundant. Biotite-quartz gneiss, graywacke, and monzodiorite that intruded graywacke and is presumably younger than at least the hornblendite phase of the ultrabasic body around ultrabasic body. Contacts between phases of ultrabasic body gradational in some places. Some of body fresh and some serpentinized. A few percent of sulfide minerals in some of pyroxenite.

Walton, 1951 (OF 126), p. 208-226 -- Dunite central mass; at places bordered by olivine augitite and at other places by a narrow border zone of lherzolite or wehrlite. No gabbro outer envelope; hornblendite in one area. Floor of intrusive exposed at S side of mass; dips about 40° toward center of intrusive. Sulfide minerals (pyrrhotite, pentlandite, chalcopyrite) sporadically distributed in pyroxenite; in places make up several percent of rock; not economically exploitable. Country rocks are Jurassic(?)-Cretaceous(?) metasediments (some contact metamorphism in aureole 20-200 ft. wide) and monzodiorite younger than the ultrabasic body. As exposed ultrabasic body is probably near its original floor.

Lake

Copper, Lead, Silver, Zinc

Petersburg district
MF-415, loc. 11

Petersburg (18.45, 8.55)
56°29'N, 132°05'W

Summary: Main deposit is quartz-calcite veins, breccia fillings, and stringer lodes in a prominent fault zone 10-25 ft. wide in metasedimentary rocks west of a quartz diorite pluton; contains galena, sphalerite, pyrite, chalcopyrite, and silver in a mainly quartz-carbonate gangue; weighted average of 7 samples indicates grade of about 0.99% lead, 1.01% zinc, and 0.12 oz. per ton silver. Old report mentions high gold content; more recent reports do not. Probably discovered in about 1900; development (before 1923) consisted of surface excavations and about 200-250 ft. of underground workings. Only production was a 1-ton shipment in 1920. Includes references to: Lake Virginia Mining Co., Margery.

Wright and Wright, 1905 (B 259), p. 61 -- Galena ores in stringers 1-5 ft. wide in a definite zone parallel with schist country rock; 40-ft. tunnel. Also on Margery claims, open cut on 12-ft. galena ledge that has been traced several hundred feet along strike; ledge contains galena, sphalerite, chalcopyrite, native silver, cerussite, and limonite; assays reported to be high in gold, silver, and lead.

Wright and Wright, 1908 (B 347), p. 189-190 -- Quartz stringers 1-5 ft. wide in a zone parallel to schist country rock near contact with a large granite mass exposed by several short tunnels and open cuts. Rest of data same as in Wright and Wright, 1905 (B 259), p. 61.

Buddington, 1923 (B 739), p. 63-65 -- Country rock is quartzite, slate, and chloritic schist SW of a quartz diorite intrusive. Vein is generally conformable with regional foliation (strike N 15° W (mag.), vertical or dipping E); fissure fillings in brecciated quartzite bed. Galena with minor sphalerite and chalcopyrite in calcite and quartz gangue along borders of vein in bodies about 6 in. thick and in fractures in quartzite. Sample of 4 tons of ore contained 21 oz. silver per ton, 48% lead, and 9% zinc. Ore zone exposed by trenches and pits for several hundred feet along strike. Another similar vein prospected by a tunnel, now caved at portal. Basalt sills parallel to vein; one is discordant and cuts across vein.

Buddington, 1926 (B 783), p. 41 -- More than assessment work, 1924.

Smith, 1926 (B 783), p. 23 -- Prospecting, 1924.

Moffit, 1927 (B 792), p. 30 -- Silver-lead ore [probably development in 1925].

Buddington and Chapin, 1929 (B 800), p. 327 -- Galena is principal ore in fissure veins.

p. 362 -- Silver-lead veins in belt of schist, gneiss, and crystalline limestone.

Smith, 1930 (B 810), p. 14 -- Plan for driving a long adit under discussion, 1927.

Gault and others, 1953 (B 998-B), p. 41-46 -- Country rock is a series of metamorphosed sedimentary rocks west of a large quartz diorite body.

Lake — Continued

Mafic sills and dikes are probably post-ore. Main ore deposit is in a fault zone as much as 25 ft. wide and consists of galena, sphalerite, pyrite, and small amounts of chalcopyrite in a gangue of quartz, a carbonate (probably calcite), and silicate minerals from the metamorphic rocks. Similar, but much smaller, occurrences in other fault zones. Development, mainly before 1923, consisted of adits and drifts (total length about 250 ft.), trenches, and stripped areas. Only reported production was a 1-ton shipment in 1920. Not enough data for resource estimate. Weighted average grade of ore is about 0.99% Pb, 1.01% Zn, and 0.12 oz. a ton Ag; could be raised considerably by selective mining.

Berg and Cobb, 1967 (B 1246), p. 191 -- Has been no production.

p. 193 — Quartz-calcite veins, breccia fillings, and stringer lodes containing galena, sphalerite, pyrite, and chalcopyrite in a prominent fault zone 10-25 ft. wide in metamorphic rocks near quartz diorite. Average grade (based on 7 samples) is 0.99% Pb, 1.01% Zn, and 0.12 oz. per ton Ag. Probably staked in about 1900. Explored by several trenches and stripped areas and about 200 ft. of underground workings. A ton of ore was shipped to a smelter in 1920; no data on returns.

Eakins, 1975 (GR 44), p. 44 -- Deposit has long been known.

(Le Conte Bay)	Gold
Petersburg district	Petersburg Central part NE 1/4 quad.

Summary: Gold veins have been found. No other information.

Buddington, 1923 (B 739), p. 56 -- Gold veins in schist belt.

Lillie — Copper, Molybdenum

Ketchikan district — Petersburg (5.5, 2.65)
MF-415, loc. 17 — 56°09'N, 133°26'W

Summary: Band of tactite about 100 ft. wide bounded on both sides by diorite was probably formed by replacement of marble; contains joint coatings and disseminated molybdenite and powellite. Sample taken in trench (only development) contained 0.16% Mo and as much as 0.09% Cu (no copper mineral visible). Another occurrence contains magnetite, chalcopyrite, and pyrite; no molybdenite.

Herreid and Kaufman, 1964 (GR 7), p. 1 -- New discovery of molybdenite reported.

p. 7-8 -- In a band of tactite about 100 ft. wide bounded on both sides by diorite. Tactite probably formed by replacement of marble. Molybdenite occurs as joint coatings and scattered, irregular masses generally less than 1/2 in. in diameter. Some powellite. Magnetite, chalcopyrite, and pyrite in green tactite not associated with molybdenite. Chip sample over 56 ft. exposed in a trench (only development on property) contained a weighted average of 0.16% Mo and from a trace to 0.09% Cu (no visible copper mineral).

p. 10-11 -- Best showing of contact-metamorphic ore in area. Further exploration suggested.

Berg and Cobb, 1967 (B 1246), p. 177 -- Molybdenite and chalcopyrite disseminated in a 100-ft. tactite zone in diorite. Exploration restricted to several trenches, one of which disclosed a small mass of magnetite, chalcopyrite, and pyrite.

Maid of Mexico (Mining Co.) — Copper, Gold, Lead, Silver, Zinc

Kupreanof district — Petersburg (9.3, 10.0)
MF-415, loc. 7 — 56°34'N, 133°02'W

Summary: Quartz vein 2-6(average 4-1/2) ft. thick carries disseminated sphalerite, pyrite, silver-bearing galena, a little chalcopryite and free gold. Has been traced for 2,000 ft. About 1,000 ft. of underground workings. Average value of vein about $20 (about an ounce of gold) a ton. Test shipments in 1916 and 1929. Some ore reported to have been milled in 1931 and 1933. Total production probably did not exceed 100 oz. each of gold and silver. No activity reported after 1939. Vein between slate and siliceous dolomite or wholly in dolomite (Buddington) or between slate and a porphyry dike or wholly in dike (Chapin).

Wright, 1909 (B 379), p. 73 -- A mile above Smith camp [Helen S.] a quartz vein was discovered and a 40-ft. tunnel driven; encouraging results reported; 1908.

Chapin, 1916 (B 642), p. 78 -- Development, 1915.

Chapin, 1918 (B 662), p. 73-74 -- Mining and small test shipment, 1916. Country rock is greenstone schist with interbedded black slate cut by porphyry dikes. Quartz vein (average width in workings is 4-1/2 ft.) strikes E to N 60° E and dips 60°-80° S and SE; about parallel to country rock; in places in porphyry dike and in places between porphyry and slate; carries sphalerite, galena, pyrite, chalcopyrite, and in places considerable visible gold. Workings consist of 130-ft. crosscut that cuts vein 82 ft. below surface, 170 ft. of drifts, a short adit, and pits and trenches.

Buddington, 1923 (B 739), p. 56-57 -- Gold vein in Devonian rocks.
p. 63 -- Silver-bearing galena associated with gold ore.
p. 67-68 -- Vein is along contact between black slate and impure, siliceous dolomite or entirely within dolomite. Strikes about E and dips 60°-90° S; 2-6 (average 4-1/2) ft. wide; has been traced for 2,000 ft. Vein consists of quartz, a little calcite, and some included country rock; carries disseminated sphalerite, pyrite, galena, a little chalcopyrite, and free gold; in places concentrated along one or both walls in streaks 5 in. thick. Average value of full width of vein reported to be about $20 per ton.

Smith, 1932 (B 824), p. 18 -- Small shipment of ore to smelter, 1929; mainly for testing.

Smith, 1933 (B 844-A), p. 16 -- Mainly development; some ore milled, 1931.

Smith, 1934 (B 864-A), p. 17 -- Development; some ore milled, 1933.

Smith, 1941 (B 926-A), p. 20 -- Some development, 1939. Underground workings total somewhat more than 1,000 ft.; results encouraging; plan to put a mill on the property. [Ore reported to have been milled in 1931 and 1933; perhaps these reports were in error, or perhaps Smith was talking about another mill in 1939.]

Berg and Cobb, 1967 (B 1246), p. 185 -- More than 1,000 ft. of underground workings in quartz vein at contact between slate and siliceous dolomite. Vein is 2-6 ft. thick, has been traced for 2,000 ft., and contains

Maid of Mexico (Mining Co.) -- Continued

sphalerite, pyrite, argentiferous galena, some visible free gold, and a little chalcopyrite. Small test shipments in 1917 and 1929; ore milled on property in 1931 and 1933. No activity since 1939. Total production probably did not exceed 100 oz. each of gold and silver.

Maid of Texas	Gold(?), Silver(?)
Kupreanof district	Petersburg (9.3, 10.0) approx. 56°34'N, 133°02'W approx.

Summary: Group of claims adjoining Maid of Mexico. Vein on property may be similar to or a continuation of one on Maid of Mexico.

Chapin, 1918 (B 662), p. 74 -- Group of claims adjoining Maid of Mexico. Lode on property has not been opened.

Northern Copper Co. — Copper, Gold, Silver, Zinc

Kupreanof district — Petersburg (6.1, 15.7)
MF-415, loc. 2 — 56°54'N, 133°22'W

Summary: Pyroxene granulite, probably formed by replacement of limestone in a series of slate, chert, and greenstone (some of which is altered diorite) replaced by pyrrhotite, magnetite, chalcopyrite, and small amounts of sphalerite and pyrite in quartz-calcite-epidote gangue. Small values in gold and silver. Explored by shaft, drift, surface excavations, and a 375-ft. adit in barren slate. No record of production; no work since about 1921. Includes references to: Harvey, Kupreanof. See also (Duncan Canal).

Wright, 1907 (B 314), p. 72 -- Little work has been done on claims of Portage Mountain Mining Co., 1906 [may refer to (Portage Mtn.)].

Wright and Wright, 1908 (B 347), p. 141-142 -- Located in 1900; well prospected by tunnels and shafts; relocated in 1902 with annual assessment work since then. Vein deposit 3-6 ft. wide and 200 ft. long strikes NW and dips 30° N; made up largely of sulfides (mainly pyrite and pyrrhotite with chalcopyrite) in quartz and calcite gangue; small values in gold and silver.

Brooks, 1915 (B 622), p. 44 --200 ft. of underground work reported, 1914.

Brooks, 1923 (B 739), p. 21 -- Development work, 1920-21, consisted of opening a 100-ft. adit and considerable surface excavation.

Buddington, 1923 (B 739), p. 70-72 -- Deposit as exposed in 1921 consists of a replacement of limestone(?) by pyroxene granulite; in a series of slate, chert, and greenstone (at least in part altered diorite); granulite in turn partially replaced by pyrrhotite, magnetite, chalcopyrite, sphalerite, and quartz, calcite, and epidote. Deposit described by Wright and Wright (1908, B 347, p. 141-142)[complete citation not given] was probably in a tunnel not accessible when visited by Buddington in 1921. Considerable surface improvements, 1918-21.

Twenhofel and others, 1949 (B 963-A), p. 37-38 -- Geologic data from Buddington, 1923 (B 739), p. 70-72. Granulite strikes about N 55° E and dips 10°-20° SE. Davelopment consisted of 40-ft. shaft with a drift at the bottom, a 120-ft. trench, several open cuts, and a 375-ft. adit 150 ft. below other workings; adit in black slate; no sulfides. Chalcopyrite may make up 1% of mineralized material and pyrrhotite 5%-10%. Little if any production.

Berg and Cobb, 1967 (B 1246), p. 188 -- Deposit in pyroxene granulite at contact between greenstone and slate consists chiefly of veinlets and blebs of sulfides (about 1% chalcopyrite, 5-10% pyrrhotite, and small amounts of pyrite and sphalerite), gold, and silver. Explored by several hundred feet of underground workings, 120-ft. trench, and several open cuts. No known production.

(Point St. Albans) Zinc

Kupreanof district Petersburg (0.4, 1.8) approx.
MF-415, loc. 14 56°06'N, 133°58'W

Summary: Sphalerite-bearing vein material contains 0.001% eU. No other data.

Houston and others, 1958 (B 1058-A), p. 24, 27 -- Sphalerite-bearing vein material from a zinc prospect contained 0.001% eU. May be related to a small intrusive mass similar to that near Shakan.

Berg and Cobb, 1967 (B 1246), p. 188 -- Random sample of sphalerite-bearing vein material contained 0.001% eU.

(Port Camden) FM

Kupreanof district Petersburg (0.55, 14.05)
56°48'N, 133°57'W

Summary: 11-12 ppm uranium in 4-inch-thick bed of Tertiary sandstone that is about 30% magnetite. Uranium mineral not identified.

Eakins, 1975 (GR 44), p. 39-44 -- 4-in. bed of fine-grained Tertiary sandstone contains about 30% magnetite. Samples contained 11 and 12 ppm uranium. Area underlain by Tertiary clastic and volcanic rocks.

(Portage Mtn.) Copper, Gold, Platinum, Silver

Kupreanof district Petersburg (7.15, 14.95)
MF-415, loc. 3 56°51'N, 133°15'W

Summary: Thin quartz-calcite veins in slate and greenstone intruded by diorite masses and diabase dikes contain chalcopyrite, pyrite, and magnetite and small values in gold and silver. Mineralized schist (mainly hornblende) between walls of gneissoid diorite contain about 0.4 oz. gold, 2 oz. silver, and 0.0006 oz. platinum a ton; also a little copper and possibly a trace of iridium. Very little development, all before 1921. Includes references to Silver Star. See also (Duncan Canal).

Wright and Wright, 1905 (B 259), p. 60 -- 4 well-defined NE-striking ledges have been prospected; plan to drive crosscut to undercut them in 1904-05. Ore mainly chalcopyrite and pyrite with magnetite and pyrrhotite. [May refer to Northern Copper Co.].

Wright, 1907 (B 314), p. 72 -- Little work has been done on claims of Portage Mountain Mining Co., 1906 [may refer to Northern Copper Co.].

Wright and Wright, 1908 (B 347), p. 141 -- Slates and greenstone intruded by diorite masses and diabase dikes. Vein deposits strike NE across NW regional trend of slates and greenstone, prospected by open cuts. Veins are only a few feet wide; contain chalcopyrite and small values in gold and silver in gangue of quartz and calcite; no large ore bodies have been developed.

Wright, 1909 (B 379), p. 73 -- Tunnel driven 60 ft., 1908.

Buddington, 1923 (B 739), p. 56-57 -- Copper veins with a little gold and silver in Devonian rocks.

p. 69 -- Black schist between walls of gneissoid diorite is composed essentially of hornblende with biotite crystals; pyrite present in disseminated deposits and irregular veinlets. Assays of mineralized schist showed about 0.4 oz. gold, 2 oz. silver, 0.3 oz. copper, and 0.0006 oz. platinum a ton and a possible trace of iridium; no palladium.

Berg and Cobb, 1967 (B 1246), p. 188 -- Pyritic black schist enclosed by diorite gneiss contains about 0.4 oz. gold, 2 oz. silver, and 0.0006 oz. platinum per ton, a little copper, and possibly a trace of iridium. Nearby small veins carrying chalcopyrite and small amounts of gold and silver were prospected by open cuts.

(Salmon Bay) — Copper, FM, Lead(?), Monazite, RE

Ketchikan district — Petersburg (8.05-8.65, 4.65-5.65)
MF-415, locs. 22-24 — 56°16'-56°19'N, 133°07'-133°10'W

Summary: Fissure veins in a Silurian graywacke unit that also includes sandstone, shale, and limestone and is cut by lamprophyre and alkalic dikes contain dolomite-ankerite carbonates, red hematite, specularite, magnetite, pyrite, marcasite, chalcopyrite, thorite, monazite, zircon, parisite, bastnaesite, alkalai feldspar, chert, quartz, chalcedony, chlorite, epidote, sericite, kaolinite, fluorite, muscovite, apatite, topaz, and garnet. Veins are 1 in. to as much as 4 ft. thick; some can be traced for a few hundred feet, but most are covered at one or both ends by soil and vegetation or extend beyond low-tide line. Samples of radioactive veins contain as much as 0.095% eU (mainly due to thorium). Rare-earth carbonate veins contain an average of 0.79% (maximum in one grab sample was 5.0%) combined rare-earth oxides. Deposits do not appear to be of current (1975) economic interest. Include references to: Marker, Paystreak, (Pitcher I.), Smith, Pitcher & Co., Wandve.

White and others, 1952 (C 196), p. 16 -- Mesothermal fissure veins in graywacke, sandstone, shale, and limestone breccia cut by mafic and felsic dikes; contain red hematite, specular hematite, pyrite, galena, chalcopyrite(?), "limonite"; in gangue of carbonates, fluorite, feldspar, and mica. eU up to 0.07%.

Wedow and others, 1953 (C 248), p. 6, 9-10, 13 -- Carbonate veins in hematitically altered rocks of a graywacke belt contain thorite, monazite, and rare-earth fluocarbonates. Maximum radioactivity of samples by USGS of radioactive veins (1 in. to as much as 4 ft. thick) is 0.095% eU; average 0.03% eU; highest uranium content is 0.003%. A prospector's sample contained 0.13% eU. Rare-earth carbonate veins contain an average of 0.79% combined rare-earth oxides; one high-grade grab sample contained 5.0% rare-earth oxides. Only traces of rare earths in radioactive veins. Veins are steeply dipping and narrow and cut Silutian graywacke, sandstone, shale, and limestone. Lamprophyre and alkalic dikes (Tertiary ?) are associated with the veins. Veins contain red hematite, specular hematite, magnetite, pyrite, marcasite, chalcopyrite, thorite, monazite, zircon, parisite, and bastnaesite in gangue of dolomite-ankerite, alkalai feldspar, chert, quartz, chalcedony, chlorite, epidote, sericite, kaolinite, fluorite, muscovite, apatite, topaz, and garnet.

Houston and others, 1958 (B 1058-A), p. 3-4 -- 34 claims staked in 1951-52.
p. 6-23 -- Data summarized in Wedow and others, 1953 (C 248). Most veins small and short. Largest radioactive vein is Paystreak vein on Pitcher I.; exposed for about 100 ft. at low tide and can be seen for another 40 ft.; average width is 2.4 ft. Some rare-earth carbonate veins can be traced for 200-400 ft. and average about 5 ft.

in width.

Kaufman, 1958 (IC 7844), p. 13 -- Radioactive veins.

Berg and Cobb, 1967 (B 1246), p. 184 -- Houston and others, 1958 (B 1058-A), p. 6-23, summarized.

Overstreet, 1967 (P 530), p. 108 -- Narrow mesothermal carbonate-hematite fissure veins cut well-indurated Silurian graywacke overlying limestone; sedimentary rocks intruded by many lamprophyre dikes, some olivine basalt dikes, and a few phonolite dikes. 3 types of veins, only one of which is radioactive and contains monazite (average width 2.5 in.). Mineralsin veins (all 3 types) include a carbonate of the dolomite-ankerite series, alkalai feldspar, red hematite, specularite, pyrite, siderite, magnetite, quartz, chalcedony, chlorite, calcite, parisite, bastnaesite, muscovite. fluorite, apatite, thorite, zircon, monazite, epidote, topaz, garnet, chalcopyrite, and marcasite.

Eakins, 1975 (GR 44), p. 50-54 -- Most of data from Houston and others, 1958 (B 1058-A). Rookery Is., offshore in Clarence Strait, are made up of quartz diorite or granodiorite. Deposits not currently of economic interest.

(Shakan) Copper, Molybdenum, Zinc

Ketchikan district Petersburg (5.35, 2.35)
MF-415, loc. 15 56°08'N, 133°27'W

Summary: Brecciated fault zone 1-10 ft. wide in hornblende diorite contains molybdenite, pyrite, sphalerite, pyrrhotite, chalcopyrite, and magnetite; in places sulfides make up 30% - 40% of vein (average only about 5%); gangue is country rock fragments, quartz, calcite, and silicate minerals. Deposit exposed by a tunnel 570 ft. long and 14 surface cuts excavated during and immediately after World War I. Estimated resource is 10,000-20,000 tons of material containing 1.5% MoS_2. 500 tons of ore removed during exploration was not shipped (molybdenum market fell after World War I). Prospect discovered in 1917.

Chapin, 1919 (B 692), p. 85 -- Molybdenite lode discovered and opened, 1917.

p. 89 -- Quartz fissure vein about 6 ft. wide in diorite near contact with tuffaceous sedimentary rocks; contains considerable feldspar. Strikes N 85° E, dips 25°S. Vein contains molybdenite, chalcopyrite, and pyrite; footwall diorite also mineralized. Bonded to Alaska Treadwell Mining Co.

Martin, 1919 (B 692), p. 23, 28 -- Development, 1917.

Martin, 1920 (B 712), p. 23-24, 29 -- Development, 1918.

Brooks, 1921 (B 714), p. 41 -- Reference to Chapin, 1919 (B 692), p. 89.

Mertie, 1921 (B 714), p. 118-119 -- Country rock is "tuffaceous sediments" intruded by hornblende diorite that is cut by pegmatite dikes and veins. Molybdenite-bearing vein is as much as 6 ft. thick and consists mainly of quartz and pegmatitic material; variable in attitude; average strike is about N70°W; dips 10°-25°S. Hanging wall distinct; marked by 6 in. or more of fault gouge in many places; footwall indistinct. Sulfides in vein include molybdenite, pyrite, pyrrhotite, and chalcopyrite. Tunnel driven 360 ft. on vein; 2 faults offset vein. Development in 1919.

Brooks, 1922 (B 722), p. 24 -- Development suspended, 1920.

Brooks, 1923 (B 739), p. 21 -- No work, 1921.

Hess, 1924 (B 761), p. 14-15 -- Mineralized shear zone in hornblende diorite crops out for 500 ft. Ore averages 1%-2.28% MoS_2; 6,270 tons of high-grade ore blocked out; 100,000 tons of ore assaying 1.58% MoS_2 indicated (1918).

Buddington and Chapin, 1929 (B 800), p. 317 -- Example of a fissure vein.

p. 330 -- References to several of the above cited reports. Data from Hess, 1924 (B 761), p. 14-15 summarized.

p. 348 -- Data from Mertie, 1921 (B 714), p. 118-119.

Smith, 1942 (B 926-C), p. 169-171 -- Bedrock is Devonian limestone grading upward into greenstone (originally tuff) in places banded with argillite; large body of diorite (in places approaching gabbro in compos-

(Shakan) -- Continued

ition) intruded older rocks. Molybdenite in a quartz-albite vein in diorite about 1,000 ft. from contact with argillite. Vein traced for 520 ft. by surface cuts and a tunnel; 2 to more than 6 (average 4.1) ft. wide; footwall usually and hanging wall in places marked by gouge; attitude variable; strikes N60°W to N65°E; dips 20°-30°S. Metallic sulfides (50% pyrrhotite, 40% pyrite, 6% chalcopyrite, 4% molybdenite) in places make up 30%-40% of vein; gangue is quartz, albite, orthoclase, and smaller amounts of other silicates. Some of molybdenite deposited at high temperature; most was deposited after all other sulfides. Assays showed 0.27%-2.32% MoS_2; average for entire length of 520 ft. is 0.86% MoS_2. Estimated tonnage of this one vein is not more than 100,000. All operations suspended when bottom fell out of molybdenum market after World War I. High vanadium content reported from early analyses probably not correct; a careful analysis (reported in 1919) showed only 0.04% V_2O_5.

Bain, 1946 (IC 7379), p. 69 -- One ore shoot contains an estimated 10,000 to 20,000 tons of ore containing 1½% MoS_2; smaller amounts elsewhere.

Twenhofel and others, 1946 (B 947-B), p. 19-30 -- Narrow brecciated fault zone in hornblende diorite between quartz diorite on E and metasedimentary rocks to W; latter contact gradational. Molybdenite sparsely disseminated in a few places in diorite, but significant mineralization appears to be confined to fault zone and immediate country rock. Primary sulfides (in paragenetic order) are pyrite, sphalerite, pyrrhotite, chalcopyrite, and molybdenite; constitute about 5% of vein material; rest is country rock, quartz, calcite, and silicate minerals. Average grade of 10,000-20,000 tons of material considered to be measured and inferred ore is 1.5% MoS_2. 500 tons removed during exploration was not shipped. Explored by 570-ft. tunnel and 14 surface cuts. No activity since soon after end of World War I.

Wedow and others, 1952 (OF 51), p. 66 -- Molybdenite lode also contains chalcopyrite, pyrite, pyrrhotite, sphalerite, hematite, and limonite.

Wedow and others, 1953 (C 248), p. 9-10 -- No samples contained more that 0.004% eU.

McInnis, 1957 (IC 7784), p. 10 -- Molybdenite in a vein 5.8 ft. wide and 120 ft. long in hornblende diorite. Vein also contains pyrrhotite, pyrite, chalcopyrite, sphalerite, quartz, and silicate minerals. Explored by 14 open cuts and 570 ft. of tunnels.

Houston and others, 1958 (B 1058-A), p. 5 -- Small dioritic batholith exposed.

p. 24 -- Molybdenite deposit related to batholith.

p. 27 -- Grab sample contained 0.004% eU.

Kaufman, 1958 (IC 7844), p. 12 -- Molybdenite prospect.

Herreid and Kaufman, 1964 (GR 7), p. 1, 6-7, 10-11 -- Data mainly from Twenhofel and others, 1946 (B 947-B). Magnetite also present.

Berg and Cobb, 1967 (B 1246), p. 177 -- 1- to 10-ft. breccia zone in hornblende diorite contains molybdenite and smaller amounts of pyrite, chalcopyrite, sphalerite, magnetite, and secondary iron

(Shakan) -- Continued

and copper minerals. Mecallic minerals make up about 5% of lode; measured and indicated resources are 10,000 - 20,000 tons of material containing about 1.5% MoS_2. A little molybdenite disseminated in diorite outside breccia zone. During and after World War I deposit was developed by 570 ft. of tunnel and 14 open cuts; work stopped and no ore was shipped when price of molybdenum dropped.

Eakins, 1975 (GR 44), p. 54 -- References to Twenhofel and others, 1946 (B 947-B) and Herreid and Kaufman, 1964 (GR 7).

(Stikine R.) Gold

Petersburg district
MF-415, loc. 26

Petersburg (18.15, 12.75)
56°43'N, 132°07'W

Summary: Fine gold discovered on river bars in 1860's. Most of activity probably was on Canadian side of boundary.

Blake, 1868, p. 10 -- "The point of land ----- appears to be formed chiefly of coarse river drift, with probably considerable debris from the glacier, and it contains gold. It has been marked off into claims by some miners who had passed up the river in Indian canoes. The gold is said to be quite fine and is in thin scales."

Spurr, 1898, p. 107, 113 -- References to above. Gold had been discovered in 1861 on river bars here and some mining begun. [Most of activity was on Canadian side of boundary.]

Cobb, 1973 (B 1374), p. 104 -- Reference to and quote from Blake, 1868.

(Taylor Cr.)

Copper, Lead, Silver, Zinc

Kupreanof district
MF-415, loc. 4

Petersburg (6.1, 13.9)
56°48'N, 133°22'W

Summary: Small masses of galena, sphalerite, pyrite, and chalcopyrite in dolomitic limestone. In 1948 USBM drilled 4 diamond-drill holes and dug 14 trenches. No assays from trench samples contained more than 0.95% lead, 4.3% zinc, or 1.2 oz. a ton silver; drill-hole samples were leaner. Gold less than 0.005 oz. per ton. Staked in 1903 or 1904 and an open cut excavated; no other development and no production. See also (Duncan Canal).

Wright and Wright, 1908 (B 347), p. 142 -- Located in 1904. Minor development since then. Open cut exposed 12-ft. band of mineralized limestone with quartz veinlets and containing small, scattered patches of galena, sphalerite, pyrite, and chalcopyrite. Deposit strikes N80°W, dips 45°NE; parallel to country rock. Diabase dikes 1-6 ft. wide nearby.

Buddington, 1923 (B 739), p. 56-57 -- Veins with galena, sphalerite, pyrite, and chalcopyrite in Devonian limestone.

Kerns, 1950 (RI 4669) -- Discovered in 1903, when an open cut was made. Only other work was a few pits dug in 1940's. USBM put down 4 diamond-drill holes (total length 770.5 ft.) and dug 14 trenches (total length 280 ft.). Assays of samples from drill holes showed no more than 0.8% Pb, 2.5% Zn, and 0.5 oz. a ton silver; samples from trenches had no more than 0.95% Pb, 4.3% Zn, and 1.2 oz. a ton silver; most assays were much lower. Has been no production. Deposit formed by irregular, patchy replacement of dolomitic limestone by pyrite, galena, and sphalerite; some marcasite. No gold assay as high as 0.005 oz. a ton.

Kaufman, 1958 (IC 7844), p. 12 -- Reference to Kerns, 1950 (RI 4669).

Berg and Cobb, 1967 (B 1246), p. 188 -- Data from Kerns, 1950 (RI 4669) summarized.

(Thomas Bay)

Copper, Gold, Lead, Silver

Petersburg district
MF-415, loc. 1

Petersburg (11.55, 17.45)
56°59'N, 132°47'W

Summary: Sheeted zone at least 12 ft. wide (quartz veinlets and silicified and pyritized schist fragments) exposed in tunnel. Contains gold, argentiferous galena, pyrite, arsenopyrite, chalcopyrite, and pyrrhotite. Tenor not known. Little development and no known production.

Buddington, 1923 (B 739), p. 56 -- Gold veins in schist belt.

p. 63 -- A little silver-bearing galena associated with gold ores.

p. 68-69 -- Gold-bearing vein crosses foliation of quartz-mica and hornblende schists at a slight angle; consists of a sheeted zone possibly as much as 25-30 ft. wide; silicified and slightly pyritized schist fragments make up about half of the zone. 12 ft. of sheeted zone exposed in a tunnal. Sulfides in quartz include pyrite, arsenopyrite, and a little chalcopyrite, pyrrhotite, and galena.

Wedow and others, 1952 (OF 51), p. 60 -- Arsenopyrite-pyrite ores.

Berg and Cobb, 1967 (B 1246), p. 191 -- In quartz-mica schist, some of which contains enough quartz veinlets to be a stringer lode. One vein carrying pyrite, arsenopyrite, and minor chalcopyrite, pyrrhotite, and argentiferous galena explored by a short tunnal sometime before 1921; tenor not known.

(Zarembo I.) Fluorite

Petersburg district Petersburg (10.3, 5.0) approx.
56°17'N, 132°57'W approx.

Summary; Fluorite as filling in narrow fractures and coating chalcedony encrusting fragments in a breccia zone from 1 inch to several feet wide. Country rock is Tertiary volcanics.

Buddington, 1923 (B 739), p. 75 -- Breccia zones in volcanic rocks contain quartz and, less commonly, fluorite. In one such zone, from an inch to several feet thick, breccia fragments were first encrusted with a thin layer of chalcedonic quartz, on which was then deposited green fluorite a quarter to a half inch thick. Some fluorite also as fillings in narrow fractures.

Eakins, 1975 (GR 44), p. 46, 48-49 -- Country rock is Tertiary lavas, agglomerates, tuffs, and dikes; Tertiary continental beds to NW. Quartz and fluorite (frequently in euhedral crystals) in irregular fracture fillings in volcanic rocks. Slight radiometric anomaly in volcanic rocks may be caused by thorium or potassium; analyses showed no anomalous amount of uranium.

Shawe, 1976 (P 933), p. 34 -- Data from Buddington, 1923 (B 739). This is the only fluorite lode in Tertiary rocks reported in Alaska.

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 as synonyms.

Alaska Barite Co. -- see (Castle I.)
Alaska Chief -- see (Shakan)
Alaska Juneau Gold Mining Co. -- see (Shakan)
Alaska Treadwell (Gold) Mining Co. -- see (Castle I.), (Shakan)
A. J. Industries -- see (Shakan)

Basin -- see (Groundhog Basin)
Beckett -- see (Taylor Cr.)
Berg (, Berg & Wedow) -- see (Berg Basin)
Bon Alaska (Mining) Co. -- see (Groundhog Basin), Lake
Browne -- see Alaska Garnet Mining & Manufacturing Co.

(Buck Bar) -- see (Stikine R.)
Buckhorn -- see Northern Copper Co.
Copper Bell -- see Northern Copper Co.
Crystal Lead -- see (Taylor Cr.)
(Elephants Nose)-- see Exchange

Galvin -- see Lake
Garnet -- see Alaska Garnet Mining & Manufacturing Co.
(Garnet Cr.) -- see Alaska Garnet Mining & Manufacturing Co.
General Grant -- see (Groundhog Basin)
General Lee -- see (Groundhog Basin)

General Logan -- see (Groundhog Basin)
General Sherman -- see (Groundhog Basin)
Georgia -- see (Glacier Basin)
Grant and associates -- see (Groundhog Basin)
Grant, Blackburn, Grant & Sinclair -- see (Groundhog Basin)

Harvey -- see Northern Copper Co.
Heid -- see (Taylor Cr.)
Idaho -- see Northern Copper Co.
Johnson & Oleson -- see (Groundhog Basin)
Kupreanof (Mining Co.) -- see Northern Copper Co.

Lake Virginia Mining Co. -- see Lake
Lead -- see (Taylor Cr.)
Margery -- see Lake
Marker -- see (Salmon Bay)
McGill -- see (Point St. Albans)

Montana -- see Northern Copper Co.
Mount Berg -- see (Berg Basin)
Mount Wedar -- see (Berg Basin)
Nelson & Smith -- see (Glacier Basin)
Olympic Mining Co. -- see Hattie, Helen S.

Oregon -- see Northern Copper Co.
Paystreak -- see (Salmon Bay)
(Pitcher I.) -- see (Salmon Bay)
Portage Mountain Mining Co. -- see Northern Copper Co., (Portage Mtn.)
Ruby -- see Alaska Garnet Mining & Manufacturing Co.

Schoonover -- see (Taylor Cr.)
Silver King -- see (Berg Basin), (Groundhog Basin), (Portage Mtn.)
[3 separate claims]
Silver Star -- see (Portage Mtn.)
Smith -- see Helen S.
Smith, Pitcher & Co. -- see (Salmon Bay)

Treasure Box -- see Northern Copper Co.
Tuscarora -- see Northern Copper Co.
Ventures, Ltd. -- see (Groundhog Basin)
Walker & Kiss -- see (Taylor Cr.)
Wandve -- see (Salmon Bay)

Washington -- see Northern Copper Co.

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