UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

OPEN-FILE REPORT
75-587

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

Menlo Park, California

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By

Edward H. Cobb

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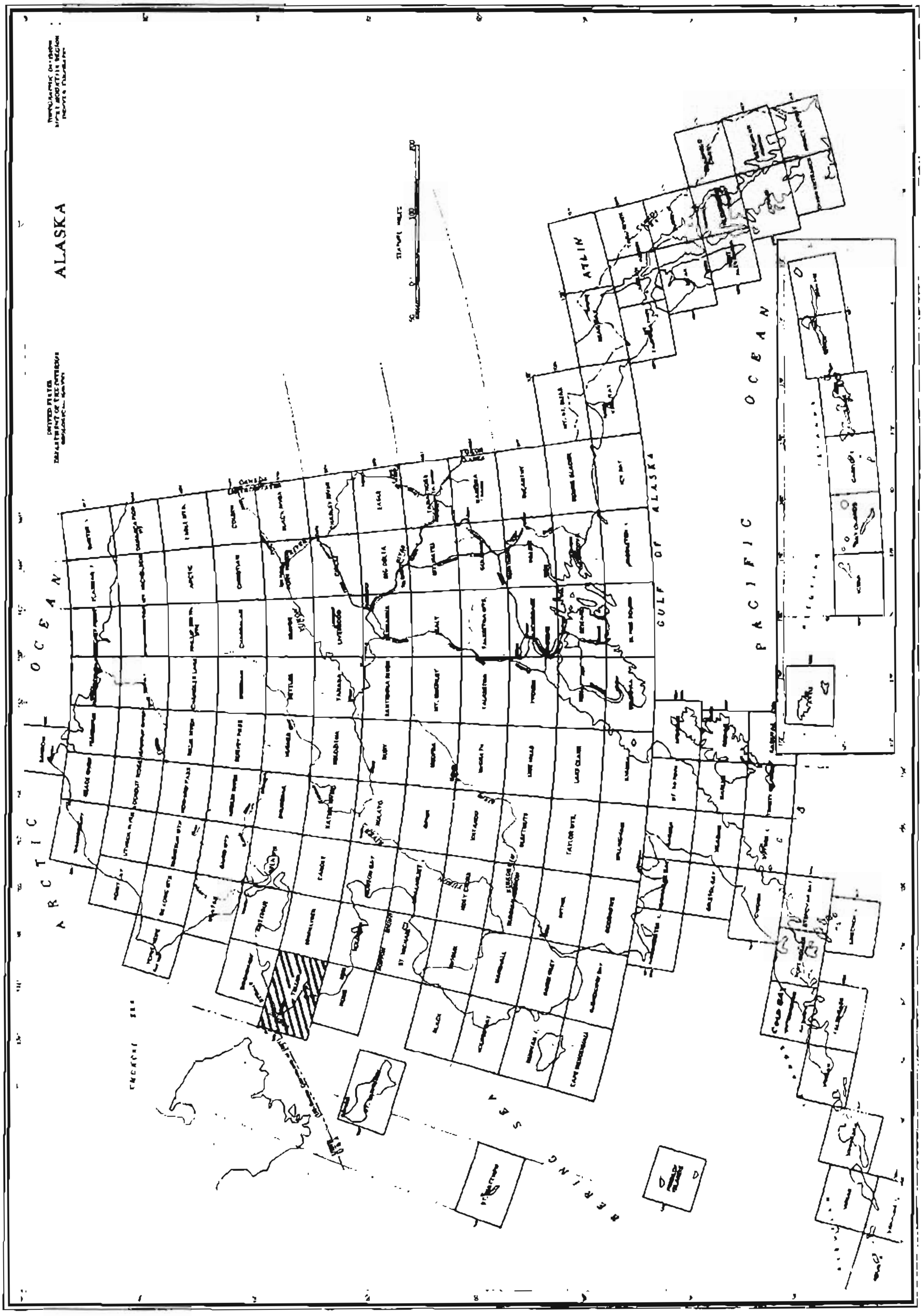
Introduction

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 Teller quadrangle, Alaska. All references to published and open-filed reports of the Geological Survey, to most published and open-filed reports of the U.S. Bureau of Mines, and to most published reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before January 1, 1975, are summarized. 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 State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies are not included.

This summary 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 summarized in the first section and cited in introductory paragraphs. Pages are not numbered because users may wish to add data from other sources.



Location of Teller quadrangle

Summaries of References

For each mineral occurrence this section presents a page that gives the name of the occurrence, the mineral commodities present (listed alphabetically for metallic commodities and then for non-metallic commodities; FM stands for uranium and(or) thorium and RE for rare-earth elements), the mining district (Ransome and Kerns, 1954) in which the occurrence is located, the name of the 1:250,000 scale topographic quadrangle (Teller), coordinates (as described by Cobb and Kachadoorian, 1961, p. 3-4), the metallic mineral resources map number MF-426 (Cobb and Sainsbury, 1972) 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 from the summarized reference.]

Proper names of mines, prospects, and other mineral occurrences are given if such names appear in the reports summarized. If a deposit does not have such a name, but is near a named geographic feature, the name of that feature is shown in parentheses in lieu of a proper name If a deposit has no proper name and is not near a named geographic feature, it is titled "Unnamed occurrence" and appears at the end of the list. If 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
BMB	U.S. Bureau of Mines Bulletin
C	U.S. Geological Survey Circular
I	U.S. Geological Survey Miscellaneous Geologic Investigations Map
IC	U.S. Bureau of Mines Information Circular
OF	U.S. Geological Survey Open-file Report (numbers with a hyphen in them are formal. Numbers without a hyphen are informal and are used only within the Alaskan Geology Branch of the 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 Investigation
TDM	Alaska Territorial Department of Mines Pamphlet
USBM OF	U.S. Bureau of Mines Open-file Report

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

(Agiapuk R.) Gold

Port Clarence district Teller
SE¼ quad.

Summary: A little mining was reported, 1928-1930. No data on location or mode of occurrence. Could have been anywhere in basin. See also: (Allene Cr.), (American R.).

Brooks and others, 1901, p. 126 -- U.S. Commissioner reported that gold had been found in paying quantities in 1900; could have been in any part of basin.
Smith, 1930 (B 813), p. 42 -- A little mining reported in 1928.
Smith, 1932 (B 824), p. 48 -- A little mining reported in 1929.
Smith, 1933 (B 836), p. 49 -- A little mining reported in 1930.

Alaska Chief

Port Clarence district
MF 426, loc. 5

Lead

Teller (12.9, 7.85)
65°26'N, 167°14'W

Includes references to lead on Rapid R.

Summary: Fine-grained limestone in upper plate of a thrust. Galena-bearing gossan in faulted and brecciated limestone cut by a quartz-porphyry dike (?). Explored (before 1918) by a shaft and 2 tunnels but no ore ever shipped.

Knopf, 1908 (B 345), p. 268-269 -- Preliminary to B 358.
Knopf, 1908 (B 358), p. 58-59 -- Country rock is fine-grained Port Clarence Limestone. Fault breccia cemented by calcite nearby. Quartz porphyry dikes a few thousand feet to east. Galena in oxidized red iron oxide. Shaft and adit exposed 12 ft and 7 ft, respectively, of "low-grade galena ore."
Brooks, 1910 (B 442), p. 38 -- Some development work in 1909.
Harrington, 1919 (B 692), p. 359 -- "....said to be extensively developed."
Cathcart, 1922 (B 722), p. 182 -- Reference to B 358. [Cathcart cited incorrect page number.]
Steidtmann and Cathcart, 1922 (B 733), p. 81 -- Somewhat less data than in B 358.
Anderson, 1947 (TDM 5-R), p. 29 -- Reference to B 358.
Wedow and others, 1952 (OF 51), p. 24 -- Data same as B 358.
Berg and Cobb, 1967 (B 1246), p. 135 -- Galena-bearing gossan in faulted and brecciated limestone cut by quartz-porphyry dike (?). Explored (prior to 1918) by shaft and 2 tunnels, one of which was 600 ft long. No evidence that any ore was shipped.
Sainsbury, 1969 (B 1287), p. 93 -- Could be interpreted as a leakage above a thrust fault.

(Alder Cr.) Gold

Port Clarence district Teller (20.8-21.1, 1.55-1.65)
MF 426, loc. 21, 81 65°04'N, 166°10'-166°12'W

Summary: Placer gold discovered in 1900 and mined for about 1 mi up from mouth. Bedrock is chlorite mica schist with small greenstone intrusives and small stringers and veins of quartz. Near mouth placer mining exposed a zone 16 ft wide consisting of talcose material, quartz stringers and blebs, pyrite, and fine gold; between graphitic schist and schistose limestone with albite. Assayed sample contained 0.06 oz gold per ton and a trace of silver. Lode was prospected to a depth of 60 ft. Placer mining reported in 1903, 1946.

Brooks and others, 1901, p. 128 -- Has been mining.
Brooks, 1904 (B 225), p. 54 -- Mining in 1903.
Collier and others, 1908 (B 328), p. 273 -- Gold has been produced.
p. 279-280 -- Gold discovered in 1900 and mined for about 1 mi up from mouth. Bedrock is chloritic mica schist with small greenstone intrusives and stringers and small veins of quartz. Working claim at mouth exposed lode 16 ft wide and consisting of a talcose material containing quartz stringers and blebs, pyrite, and fine gold. Hanging wall is schistose limestone with albite; foot wall is graphitic schist. Sample assayed 0.06 oz Au per ton and a trace of Ag. Lode was prospected to a depth of 60 ft. One-half mile above mouth of creek paystreak is 4 ft of gravel under 4 ft of muck and on broken limestone bedrock. Gold is well rounded and coarse; pyrite cubes in concentrates.
White and others, 1953 (C 244), p. 1 -- Pick and shovel mining in 1946.
Berg and Cobb, 1967 (B 1246), p. 135 -- Data from B 328, p. 280.

(Allene Cr.)

Gold

Port Clarence district
MF-426, locs. 71-73

Teller (21.5-22.05, 6.25-7.15)
65°20'-65°23'N, 165°59'-166°05'W

Summary: Bedrock mica schist and greenstone. Mining in early 1900's was of gold on clay false bedrock. Dredge operated in 1935; other types of placer mining reported in 1901, 1927, 1930, 1931, 1946; probably was some in other years as well. Includes references to: (Ilene Cr.), (Swanson Cr.).

Collier, 1902 (P 2), p. 45-46 -- Bedrock mica schist and greenstone. In 1901 mining was in creek gravels on clay false bedrock. Gold generally fine and bright.
Collier and others, 1908 (B 328), p. 271-272 -- Reference to P 2; production through 1903 not more than $2,000.
Mertie, 1918 (B 662), p. 451 -- 2 idle dredges to be moved in from Anikovik R., 1916.
Harrington, 1919 (B 692), p. 353 -- Machinery from a dredge on Anikovik R. taken to Swanson Cr. and installed, 1917.
Brooks, 1923 (B 739), p. 9 -- Dredge operated, 1921.
Smith, 1930 (B 810), p. 36 -- Mining, 1927.
Smith, 1933 (B 836), p. 49 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 50 -- Mining, 1931.
Smith, 1937 (B 880-A), p. 56, 62 -- Dredge began operating, 1935.
Smith, 1938 (B 897-A), p. 64, 72 -- Dredge did not operate, 1936.
White and others, 1953 (C 244), p. 2 -- Mining upstream from old dredged area in 1946.
Sainsbury and others, 1969 (OF 377), p. 20 -- Placer gold has been mined.
Cobb, 1973 (B 1374), p. 92-93 -- Has been extensive mining.

(American R.) Gold

Port Clarence district Teller
NE¼ quad.

Summary: Mining or prospecting reported in 1913, 1927, 1932, 1933; no other data given. Activity could have been anywhere in valley; for example, Budd Cr. and/or Windy Cr. See also: (Budd Cr.), (Windy Cr., trib. American R.).

Chapin, 1914 (B 592), p. 393 -- Prospecting in 1913.
Smith, 1930 (B 810), p. 36 -- 3 mining camps in valley in 1927.
Smith, 1934 (B 857-A), p. 47 -- Mining reported in 1932.
Smith, 1934 (B 864-A), p. 52 -- Mining reported in 1933.

American Tinfields, Inc. Tin

Port Clarence district Teller
SW1/4SE1/4NW1/4 quad.

Summary: Major tin-mining company in Alaska, 1935-1940. Placer gravel from streams draining eastward across contact zone between Cape Mtn. granite stock and mainly limestone country rock; trucked to sluices, crusher, and jigs. Sea water used for sluice boxes and mill. See also: (Cape Cr.), (First Chance Cr.), (Goodwin Gulch).

Smith, 1937 (B 880-A), p. 75 -- Began work near Tin City, 1935. Placer gravel dug with power shovel, trucked to sluices and mill, where water from Bering Sea is used for sluice boxes and jigs. Coarse material from sluice boxes crushed and jigged.

Smith, 1938 (B 897-A), p. 85 -- Gravels mined contain well-formed cassiterite crystals and angular pieces of quartz and feldspar; evidently derived from contact zone between [Cape Mtn.] granite and limestone, which is the regional country rock. Production for 1936 was much greater [amount not given] than preceding annual average of 13 tons of Sn.

Smith, 1939 (B 910-A), p. 91 -- High-grade concentrate shipped to Singapore, 1937.

Smith, 1939 (B 917-A), p. 90-91 -- Mining continued, 1938 [Total output for Alaska was down from 1937; as American Tinfields was major producer, its output also must have dropped.]

Smith, 1941 (B 926-A), p. 83 -- Mining continued, 1939. [Output again seems to have dropped from previous year.]

Smith, 1942 (B 933-A), p. 80 -- Mining continued, 1940. [Output seems to have increased from previous year.]

(Anikovik R.) Chromite, Gold, Tin

Port Clarence district Teller (9.6-10.0, 8.75-9.3)
MF-426, locs. 35, 37, 38 65°30'-65°31'N, 167°37'-167°41'W

Summary: Cassiterite found below mouth of Buhner Cr. in 1900; cassiterite in gold miners' sluice boxes. Bedrock slate with greenstone sills; in lower part of course slate is vertical; some gold and cassiterite probably lost in crevices. Chromite found in concentrate from a churn-drill hole. One or two dredges operated within 1/2 mile of mouth of river in 1914-1915. Total production from creek (mainly by dredges) was 1,225-1,250 oz Au and 1,600 lbs concentrate containing 31% Sn.

Brooks and others, 1901, p. 134 -- Upper part of course in greenstone; lower part in phyllite and slate. Colors in lower 10 mi, but no paying claims as of 1900.

p. 136-137 -- Cassiterite found about 1/2 mi below Buhner Cr. Also in sluice boxes of gold miners. One pebble about 2 in in diameter.

Collier, 1902 (P 2), p. 48-51 — Bedrock slate and greenstone sills. Placer tin reported. No granitic rocks reported from basin of Anikovik. Gabbroic greenstone boulders common in stream bed.

Brooks, 1903 (B 213), p. 93 -- Same as Brooks and others, 1901, p. 136-137.

Collier, 1904 (B 225), p. 158 -- Presence of placer tin has been confirmed (1903).

p. 165-167 -- Same data as Brooks and others, 1901, p. 136-137.

Collier, 1904 (B 229), p. 35-36 -- Same data as in Brooks and others, 1901, p. 136-137.

Collier, 1905 (B 259), p. 120 — Stream tin discovered in 1900.

Purington, 1905 (B 263), p. 209 -- Gold worth $19 per ounce.

Collier and others, 1908 (B 328), p. 281 -- In 1903 one party was mining 1/2 mi from coast. Gravel 2-1/2 ft thick on slate bedrock; gold in top 6-18 in of bedrock. Gold from very fine to nuggets worth $10. Cassiterite and magnetite in concentrates.

Brooks, 1915 (B 622), p. 23 -- Gold and tin dredging, 1914.

Eakin, 1915 (B 622), p. 83-84, 89 -- 2 dredges operated, 1914.

p. 91-92 — 2 dredges on river, but only the one 1/4 mi from beach operated. Bedrock slate with irregular surface. Gravel coarse and shallow (6-8 ft). Chief value in gold, but tin is valuable by-product, 1914.

Eakin, 1915 (B 622), p. 367 -- Old dredge moved in from Peluk Cr. near Nome, 1914.

p. 372-373 -- 2 dredges, one of which operated, 1914.

Brooks, 1916 (B 642), p. 28 -- 2 dredges operated, 1915.

Smith, 1917 (BMB 142), p. 28 -- 2 dredges operated, 1915.

Harrington, (1919 B 692), p. 353-- No active dredges, 1917.

p. 360-361 -- No production, 1917. Largest area of gravels of any stream in area, but vertical slate bedrock might involve loss of cassiterite and gold.

Mulligan, 1959 (RI 5520), p. 5 — In 1914-15 a dredge in the lower 1/4 mi of river recovered 1,217 oz Au and 1,600 lbs concentrate containing 31% Sn.

p. 15, 17-20 -- Chromite, cassiterite, and gold in churn-drill samples.

p. 23 -- Samples contained only trace amounts of tin.

(Anikovik R.) - Continued

Cobb, 1973 (B 1374), p. 92 -- Cassiterite identified, 1900.
p. 98 -- Between 1,225 and 1,250 oz Au and about 1,600 lb Sn concentrate (31% Sn) mined within 1/2 mi of coast, mainly by dredging, 1914-1915. Chromite identified in a churn drill sample.

(Baituk Cr.) Gold, Tin

Port Clarence district Teller (8.85-9.5, 9.15-10.0)
MF-426, locs. 30-33 65°31'-65°34'N, 167°41'-167°47'W

Summary: Traces of cassiterite and a little gold in concentrates from USBM churn-drill holes and a pit. No record of there ever having been any mining.

Collier, 1902 (P 2), p. 49 -- Placer tin reported.
Collier, 1904 (B 225), p. 166 -- Placer tin reported.
Collier, 1904 (B 229), p. 36 -- Placer tin reported.
Mulligan, 1959 (RI 5520), p. 7 -- Tin discovered by prospectors, early 1900's. No record of production.

p. 17, 21-23 -- Gold and cassiterite in concentrates from pit and churn-drill holes, 1956-1957. Gold in small, thin flakes on bedrock and in crevices in bedrock. Gravel composed largely of shale, phyllite, and basalt; minor quartz. Only traces of cassiterite. 0.003% europium in one analysis.

(Banner Cr.) Gold, Tin

Port Clarence district Teller (10.1, 9.25)
MF-426, loc. 39 65°31'N, 167°36'W

Summary: Stream gravel contains colors of gold and a little cassiterite. No mining has been reported.

Brooks and others, 1901, p. 135 -- Very little prospecting; some colors found.
Collier, 1904 (B 225), p. 166 -- Stream tin reported by prospectors.
Collier, 1904 (B 229), p. 36 -- Stream tin reported by prospectors.
Wedow and others, 1952 (OF 51), p. 32 -- Cassiterite, magnetite, ilmenite, pyrite, fluorite, garnet, and gold have been reported from stream gravels.
Mulligan, 1959 (RI 5520), p. 15 -- Cassiterite recognized in churn-drill sample.

p. 17 -- Dike or sill composed largely of plagioclase and quartz with minor amounts of sulfide minerals exposed in creek bank.

p. 19-20 -- Churn-drill concentrates contained pyrite, limonite, ilmenite, tourmaline, zircon, augite, hematite, hypersthene, cassiterite.

Cobb, 1973 (B 1374), p. 98 -- A little gold found in 1900.

(Bering Cr.) Gold

Port Clarence district
MF-426, loc. 77

Teller (19.3, 1.85) approx.
65°05'N, 166°24'W approx.

Summary: Stream and bench placers. Gold coarse; some picked up by hand rather than recovered by sluicing. Mining in 1902, 1903, 1905, 1908.

Brooks, 1904 (B 225), p. 54 -- Mining in 1903.
Moffit, 1906 (B 284), p. 139 -- Mining in bench gravel, 1905. Gold is coarse, bright, unworn; most was picked up by hand.
Collier and others, 1908 (B 328), p. 273 -- Gold has been produced.
p. 280-281 -- Gold discovered in 1901. A few thousand dollars worth mined each year in 1902-1903. Most of gold in nuggets.
Smith, 1909 (B 379), p. 299 -- Mining in 1908.

Bessie & Maple

Antimony, Beryllium, Copper, Lead, Silver, Tin, Tungsten, Zinc; Fluorite

Port Clarence district
MF-426, loc. 6

Teller (13.15, 8.0)
65°27'N, 167°12'W

Summary: Argillaceous limestone overridden by limestone and shale of upper plate of Rapid River thrust. Both plates cut by dikes, including lamprophyres. Explored by diamond-drill holes, trenches, and tunnel. Sulfide-tin deposits contain galena, pyrite, chalcopyrite, stannite, stibnite, sphalerite, arsenopyrite, wolframite, stibnite; high silver content (up to 25.6 oz per ton according to old assays). Sulfide zone in upper plate sandwiched between fluorite-beryllium deposits consisting mainly of fluorite (some sellaite), chrysoberyl, diaspore, white mica, and tourmaline. Scheelite reported from a drill core. Includes reference to Southern Cross.

Harrington, 1919(B 692), p. 359 -- Assays said to show the presence of tin and tungsten.

Steidtmann and Cathcart, 1922 (B 733), p. 78-80 -- Country rock is shaly limestone in probable fault contact with dark-gray pure limestone that is cut by many parallel quartz porphyry dikes. 130 ft from portal the Southern Cross tunnel cuts through a highly altered dike 20 ft thick. Galena-limonite veins in limestone between dike and portal. On surface a trench exposes an 8-ft gray, fine-grained, brecciated dike with fragments cemented by galena and pyrite with some chalcopyrite. Assays of samples showed as much as 0.03 oz Au per ton, 25.6 oz Ag per ton, 9.1% Pb, 3.2% WO_3, and 1.45% Sn.

Anderson, 1947 (TDM 5-R), p. 30 - Reference to B 733.

Wedow and others, 1952 (OF 51), p. 24 -- Galena-bearing veins in quartz-porphyry dike cutting limestone. Nearby is kaolinized dike cut by stibnite-bearing veins.

Lorain and others, 1959 (IC 7871), p. 9 -- Data on claim status.

Sainsbury and others, 1961 (P 424-C), p. C16 -- Sediment samples collected below prospect contain amounts of beryllium that are many times regional background.

Sainsbury, 1963 (C 479), p. 5 -- Sample contained 0.14% by spectrographic analysis.

p. 8-9 -- Thin-bedded dolomitic limestone of probable latest Early Ordovician age overlain to west and north by argillaceous limestone of early Early Ordovician age; dolomitic limestone may be part of a thrust sheet. Bulk sample contained 0.4% Be and 28.6% F. Specimen from south of prospect contained 0.23% Be.

Sainsbury, 1964 (B 1129), p. 56 -- Mineralized dikes and brecciated limestone; ore minerals include: galena, stannite, chalcopyrite, wolframite, stibnite, and sphalerite. Potentially economic beryllium ore nearby.

Mulligan, 1965 (USBM OF 7-65), p. 13 -- Data on claim ownership.

p. 16 -- 3 diamond drill holes totalled 399 ft in length.

p. 63-70 -- Drill-hole sampling data and additional chemical analyses. Be content of samples up to 0.79%; CaF_2 content up to 75%.

Bessie & Maple -- Continued

p. 77-78 — Mineralogy of core samples; minerals identified include: fluorite, zinnwaldite, pyrite, arsenopyrite, chalcopyrite, sphalerite, galena, scheelite, and sellaite (MgF_2).

p. 90-92 -- Spectrographic analyses of composite samples.

Sainsbury, 1965 (OF 250), p. 33-38 -- Wide band of low-grade fluorite-beryllium rock formed by replacement of limestone beyond sulfide deposit. Localized along Rapid River fault. Detailed logs of USBM drill cores.

Berg and Cobb, 1967 (B 1246), p. 132 -- Explored before 1918 by tunnels, trenches, and pits. Zone at least 1,500 ft long of kaolinized dikes and bracciated limestone containing veinlets and disseminated grains of galena, pyrite, stannite, chalcopyrite, wolframite, stibnite, and sphalerite in gangue of fluorite, topaz, and other minerals. Samples assayed tr. to 0.3 oz Au and 4.2-25.6 oz Ag per ton, 0.5%-9.1% Pb, 0.48%-1.53% Cu, about 3% Zn, 0.3%-1.6% Sn, up to 3.2% WO_3, and 3.8% Sb. No workable ore found.

Sainsbury, 1969 (B 1287), p. 64 -- Cores obtained by USBM in 1964. One hole in upper plate of Rapid River thrust penetrated broken dolomite; fluorite with chrysoberyl and diaspore, 1 ft of practically solid sulfides, including stannite, pyrite, sphalerite, arsenopyrite, and galena; dolomite containing fluorite and sulfides along the walls of a lamprophyre dike; fluorite-beryllium rock; and dolomite. In several other holes beryllium-fluorite deposits have a similar central core of sulfides.

p. 78-79 -- At west end of line of deposits that extend for 5,000 ft along Rapid River thrust. Steeply dipping lamprophyre dikes pierce fault. Sulfide-tin and fluorite-beryllium deposits are complexly interrelated. Sulfide assemblage has high silver content. Fluorite-beryllium deposits consist mainly of fluorite, diaspore, tourmaline, white mica, and chrysoberyl. Beryllium content (less than 0.2% BeO) near tin deposit is lower than elsewhere.

p. 93 -- Tin lode and beryllium-fluorite lode in shattered rocks along thrust.

(Black Mtn.) Lead, Tin, Tungsten, Zinc; Fluorite

Port Clarence district Teller (16.4-16.65, 8.85-9.15)
MF-426, locs. 12, 13 65°29'-65°30'N, 166°43'-166°45'W

Summary: A small biotite granite stock intruded slate and argillaceous limestone. Contact rocks are metamorphosed and hydrothermal solutions followed and altered some faults in country rock and granite. Minerals in altered zones include vesuvianite, tourmaline, fluorite, topaz, sphalerite, pyrite, arsenopyrite, cassiterite, wolframite, pyrrhotite, and galena. Includes reference to (Tozer Cr., Willow Branch).

U.S. Geological Survey, 1964 (P 501-A), p. A5 -- Granite locally contains cassiterite and wolframite in quartz-topaz veinlets.

Sainsbury and Hamilton, 1967 (P 575-B), p. B21-B25 -- A small stock of biotite granite intruded pre-Ordovician slate and overlying argillaceous limestone; accompanied by faulting of country rock and granite. Contact rocks metamorphosed; hydrothermal solutions followed and altered some of faults. Minerals in altered zones include garnet, vesuvianite, tourmaline, sphalerite, pyrite, arsenopyrite, fluorite, cassiterite, wolframite, topaz, pyrrhotite, galena. By analogy with Lost River area (20 mi to west), the authors suggest that there may be an ore shoot at depth.

U.S. Geological Survey, 1967 (P 575-A), p. A7 --Reference to P 575-B, p. B21-B25.

Sainsbury, 1969 (B 1287), p. 63 -- Reference to P 575-B, p. B21-B25.

Sainsbury, 1969 (B 1301), p. 10 -- Tin-bearing veins have not been assessed.

(Bluestone R.) Gold, Mercury, Platinum

Port Clarence district Teller (20.55-20.9, 2.0-2.7)
MF-426, locs. 81, 83, 84 65°05'-65°08'N, 166°11'-166°13'W

Summary: Country rock is mica and chlorite schists with interbedded limestone and greenstone dikes and sills. Many quartz veins in schist. Gold discovered in 1899 and mined from both bench and stream gravels. Mining reported in 1903, 1908, 1918, 1926-1930. Concentrates contained cinnabar and platinum-group metals. See also (Gold Run).

Brooks, 1904 (B 225), p. 54 -- Mining in 1903.

Collier and others, 1908 (B 328), p. 273-275 — For 10 mi above mouth, river flows in broad valley through a rolling plateau 300-400 ft above sea level; flood plain 1/2 mi or more wide in some places. 10 mi from mouth, river flows through narrow canyon for 5 mi; sides rise steeply to 1,200-ft flat-topped mountains. Upper valley broader. Bedrock is mainly mica and chlorite schists and interbedded limestone and sills (also a few dikes) of greenstone, usually only slightly altered. Many quartz veins (gold not found in assays) in schist. Gold discovered in 1900. Both stream and bench placers. In 1903 mining was on bench about 4 mi below forks. Most gold fine, but a few nuggets. Gold also in top foot of weathered graphitic schist bedrock.

p. 276-278 -- Gold in 2 benches opposite mouth of Gold Run; bedrock massive greenstone. At mouth of Gold Run gold is in gravels of both Gold Run and Bluestone R.

Smith, 1909 (B 379), p. 297-298 -- Coarse gold mined from stream bed below forks, 1908. One nugget was worth $72.

Cathcart, 1920 (B 712), p. 189 -- Open-cut operations, 1918.

Smith, 1926 (B 783), p. 17 -- Small amount of gold recovered, 1924.

Moffit, 1927 (B 792), p. 23 -- Preparations for installing 2 dredges, 1925.

Smith, 1929 (B 797), p. 27 -- Mining, 1926.

Smith, 1930 (B 810), p. 36 -- Mining, 1927. Plans for large-scale operations.

Smith, 1930 (B 813), p. 42-43 -- Mining, 1928. Prospecting for possible dredging.

Smith, 1932 (B 824), p. 47 -- Mining, 1929. No information on possible dredging.

Smith, 1933 (B 836), p. 49 -- Mining, 1930. No dredge built.

Sainsbury and others, 1969 (OF 377), p. 16 -- Anomalous Hg in samples; may indicate mineralized faults.

Sainsbury, 1972 (I-685), p. 3 -- Cinnabar and platinum-group metals in auriferous gravels.

Cobb, 1973 (B 1374), p. 92 -- Gold discovered, 1899.

(Bluestone R., Right Fork) — Gold

Port Clarence district — Teller (20.25, 2.2)
65°06'N, 166°15'W

Summary: Has been small-scale mining; was most recently reported in 1972. Anomalous mercury in sediment samples may be indicative of mineralized faults.

Collier and others, 1908 (B 328), p. 280 -- Colors have been found in both creek and bench placers; none appear to be economic.
Smith, 1909 (B 379), p. 299 -- Prospecting near mouth in 1908.
Sainsbury and others, 1969 (OF 377), p. 15-16 -- Has been small-scale mining. Anomalous Hg in samples; may indicate mineralized faults.
Sainsbury, 1972 (I-685), p. 3 -- Mining, 1972.

(Boulder Cr.)

Columbium, FM, Monazite, RE, Tantalum, Tin, Tungsten

Port Clarence district
MF-426, loc. 23

Teller (7.4, 10.7-10.9)
65°37'N, 167°59'W

Summary: Headwaters cross granite-limestone contact of Cape Mtn. stock. Cassiterite fragments become finer and with less adhering gangue downstream. Drilling program outlined a placer deposit containing 1 lb tin per cubic yard (maximum in any drill hole was 4.49 lb tin per cu yd). Concentrates contained: cassiterite, tourmaline, hematite, scheelite, zircon, monazite, xenotime, apatite; chemical analyses indicated the presence of: columbium, tantalum, yttrium. Radioactivity of concentrates (as much as 0.025% eU) due mainly to thorium, but uranium (mineral not identified) also present. No record of any mining.

Collier, 1902 (P 2), p. 49 -- Placer tin reported.

Heide and others, 1946 (RI 3978), p. 9 -- Small deposit of placer tin.

Heide and Sanford, 1948 (RI 4345), p. 4-7 -- Claims in effect on creek in 1943. Shortage of water possibly could be alleviated by pumping sea water. Crosses granite-limestone contact. Cassiterite becomes finer grained and with less adhering gangue downstream. Boulders up to 3 ft in diameter in gravel. Analyses of composite concentrate samples indicated average Sn content of 53.11%.

p. 12 -- Data on individual churn-drill holes; maximum tin content was 2.89 lb per cu yd.

Mulligan and Thorne, 1959 (IC 7878), p. 1-2 -- Churn-drill holes drilled, 1953; DMEA contract.

p. 9, 13-14 -- Data on status of claims.

p. 17-18 -- Stream drains contact zone of Cape Mtn. stock. Data on DMEA contract.

p. 20 -- Older drilling and that under DMEA contract outlined placer deposit.

p. 43 -- Deposit in coarse, unconsolidated, thawed gravel with granite boulders 3-5 ft in diameter; data from churn-drill holes less accurate than if in other types of gravel.

p. 47-48 -- Most of drilled area below granite-limestone contact. Minerals in churn-drill samples included: cassiterite, tourmaline, hematite, scheelite, zircon, monazite, xenotime, apatite. Minor to trace amounts of the following elements were determined chemically: tungsten, columbium, tantalum, yttrium.

p. 50-67 -- Details of drill holes. Concentrate samples contained up to 0.025% eU; mainly due to thorium, but some uranium (mineral not identified) also present. Several churn-drill holes indicated that mining section contains more than 1 lb Sn per cu yd; highest was 4.49 lb Su per cu yd. All funds available for exploration expended on Boulder and Cape Creeks.

Barton, 1962 (IC 8120), p. 31 -- Reference to IC 7878.

Kauffman and Holt, 1965 (IC 8268), p. 32 -- Reference to IC 7878.

Mulligan, 1966 (RI 6737), p. 18-19 -- Tin-bearing placer gravels form an alluvial fan on coastal plain; rest of data from IC 7878.

(Boulder Cr.) - Continued

p. 21 -- Private churn drilling in parts of creek not covered in IC 7878 found very little tin.

p. 23 -- Widespread traces of tin in detrital cover near head of creek.

p. 29 -- Lode-tin zone extends only a short distance into Boulder Cr. drainage.

p. 32-33 -- Old prospect pits, etc., explored limestone-granite contact on ridge at head of Boulder Cr.

Overstreet, 1967 (P 530), p. 112-113 -- Monazite-bearing concentrate; reference to IC 7878.

Cobb, 1973 (B 1374), p. 95 -- Cassiterite has been found, but there is no record of mining.

(Brooks Mtn.)

Antimony, Beryllium, Bismuth, Copper, FM, Lead, Monazite, RE, Silver, Tin, Tungsten, Zinc; Corundum, Fluorite

Port Clarence district
MF-426, loc. 11

Teller (13.4, 9.2)
65°31'N, 167°09'W

Summary: Black slate overlain by limestone has been intruded by a granite stock 2 mi long and 2/3 mi wide and by related granitic, aplite, dacite porphyry, and pegmatite dikes. Accessory minerals include corundum, monazite, zircon, xenotime, anatase, magnetite and ilmenite. Prospects are near, and on both sides of, granite-limestone. Hydrothermally altered zone in limestone contains fluorite, scheelite, arsenopyrite, ludwigite, pyrite, pyrrhotite, magnetite, hematite, limonite, galena (some argentiferous), cerussite, sphalerite, chalcopyrite, chalcocite, bornite, azurite, malachite, hulsite, paigeite. Minerals in altered granite include hematite, limonite, siderite, pyrrhotite, arsenopyrite, fluorite, scheelite, chalcopyrite, azurite, malachite, tetrahedrite, cassiterite, bismuth, zeunerite (no primary uranium mineral found). Coarse columnar stibnite from west side of mountain. Main zeunerite deposit (15 ft in diameter and 4-5 ft thick) averaged 0.15% eU. Old assay reports indicated some material contained as much as 34% lead and 11 oz silver per ton. No mining reported. Includes references to: Luther, Read.

Collier, 1904 (B 225), p. 166 -- Granitic rock present; no confirmed report of tin ore in appreciable amounts.

Collier, 1904 (B 229), p. 17 -- Prospectors have reported "ledge tin."
p. 26 -- Bedrock limestone and black slate cut by granite and rhyolite dikes. Minerals commonly associated with tin ore near Lost River found; no actual tin minerals listed.

Collier, 1905 (B 259), p. 120 -- New discovery of lode tin reported, 1904.
p. 125 -- Prospecting, 1904. Ore said to be similar to that at Lost River.

Hess and Graton, 1905 (B 260), p. 181 -- Tin has been reported.

Brooks, 1907 (B 314), p. 28 -- Prospecting, 1906.

Knopf, 1908 (B 345), p. 269-271 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 41-44 -- Granite mass 2 mi long and 2/3 mi wide. Surrounding rock mainly Port Clarence Limestone. Contact-metamorphic aureole with vesuvianite the commonest mineral. A pegmatite contains accessory corundum. Prospect near west end of granite body is on argentiferous galena in limestone 20 ft from granite contact; sphalerite, pyrrhotite, and fluorite also present. Assays indicated 34% Pb and 11 oz Ag per ton. Nearby are more galena and some paigeite. Another prospect down hill from this one contains hulsite (a Mg-Fe-Sn borate). Other occurrences of fluorite and sulfide minerals have been found. Gossan on a galena prospect on north side of mountain contains bismuth, probably as an oxide.

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

Schaller, 1911 (B 490), p. 8-24 -- Mineralogical data on vesuvianite, hulsite, and paigeite. Nothing new on Brooks Mtn.

(Brooks Mtn.) - Continued

Hess, 1912 (B 520), p. 89, 92 -- Data from B 358.
Chapin, 1915 (B 592), p. 407 -- Tin lodes known, but little work has been done (1913).
Brooks, 1916 (B 649), p. 59 -- Specimen of stibnite from west side of mountain given to Survey. Coarse columnar aggregates of stibnite; contains irregular masses of vitreous quartz. Nothing known about source lode.
Harrington, 1919 (B 692), p. 359 -- Prospects have been found on Brooks Mtn.
Cathcart, 1922 (B 722), p. 182 -- Reference to B 358.
p. 185 -- Reference to B 649.
Steidtmann and Cathcart, 1922 (B 733), p. 86-87 -- Data on Read prospect from Knopf (B 358). In 1920 (?) material on dump was mainly intergrown pyrrhotite and galena with fluorite in a gangue of typical contact-metamorphic minerals. Luther prospect is in limestone close to contact with granite; much vesuvianite, some tourmaline, and a few very small galena crystals; prospect consists of a trench 30 ft long, 10 ft wide, and 12 ft deep.
Anderson, 1947 (TDM 5-R), p. 13-- Reference to B 649.
p. 17, 29 -- References to B 358.
Wedow and others, 1952 (OF 51), p. 26-28 -- Black slate overlain by at least 1,000 ft of limestone intruded by granite stock. Alteration along contact and in fissures in limestone caused development of many minerals, including: vesuvianite, galena, sphalerite, fluorite, arsenopyrite, bismuth, cerrusite, garnet, hulsite, ludwigite, magnetite, paigeite, pyrrhotite, scapolite, tourmaline. Uraniferous minerals near Read prospect are: azurite, biotite, fluorite, hematite, malachite, tetrahedrite. Other data are preliminary to C 214.
p. 32 -- Lost River and Brooks Mtn. areas contain the most important uranium prospects in the York region.
West and White, 1952 (C 214) -- Black slate and limestone intruded by granite stock and related granite and aplite dikes, one dacite porphyry dike, and one pegmatite dike. Accessory minerals in granite include: monazite, zircon, xenotime, anatase, magnetite, and ilmenite. Prospects within 200 ft of limestone-granite contact; 3 in limestone and 1 in granite. Hydrothermally altered zone in limestone includes the following incomplete list of minerals: scapolite, chondrodite, tourmaline, fluorite, scheelite, arsenopyrite, ludwigite (a beryllium mineral), pyrite, pyrrhotite, magnetite, hematite, limonite, galena, cerussite, sphalerite, chalcopyrite, chalcocite, bornite, azurite, malachite, hulsite, paigeite. Minerals in altered granite include: hematite, limonite, siderite, pyrrhotite, arsenopyrite, fluorite, scheelite, chalcopyrite, azurite, malachite, tetrahedrite, cassiterite, bismuth, and zeunerite (a secondary uranium mineral). No primary uranium mineral found. Exploration for uranium by trenching, 1950-51. A few specimens from Foggy Day prospect contained as much as 2.1% eU, entire pegmatitic lens averaged 0.1% to 0.2% eU, and the surrounding granite 0.07% eU.
White and others, 1952 (C 196), p. 1-3, 6 -- Preliminary to C 214.
Wedow and others, 1953 (C 248), p. 13 -- No prospecting since 1951 (as of 1952).
Lorain and others, 1959 (IC 7871), p. 4 -- Tin discovered by 1903.

(Brooks Mtn.) - Continued

Sainsbury, 1963 (C 479), p. 13-14 — Stream-sediment and slope-wash samples from slopes of mountain contained as much as 47 ppm Be. May have been derived from fluorite-sulfide deposits or from disintegrated high-beryllium idocrase in contact zone around stock.

Sainsbury, 1964 (B 1129), p. 10 -- Data presented in greater detail in C 214.

p. 57 — Cassiterite in fine-grained granite and pegmatite dike near headwaters of Crystal Cr.

Berg and Cobb, 1967 (B 1246), p. 131 -- Beryllium lodes may be found.

p. 133 -- Tin deposits in limestone cut by granite and pegmatite; granite and limestone both hydrothermally altered, but most lodes in limestone near contact. Cassiterite, hulsite, and paigeite intergrown with galena, pyrrhotite, and sphalerite; small amounts of scheelite, arsenopyrite, pyrite, magnetite, hematite, chalcopyrite, chalcocite, bornite, ludwigite, tetrahedrite, bismuth, azurite, malachite, siderite, cerussite, and zeunerite; gangue minerals include fluorite, tourmaline, axinite, and idocrase. Explored, mainly before 1918, by shallow trenches and short shafts and adits. Early assays reportedly showed as much as 34% Pb and 11 oz Ag per ton; no recorded production. Main zeunerite-bearing deposit (15 ft in diameter, 4-5 ft thick) averaged 0.15% eU.

Overstreet, 1967 (P 530), p. 112 -- References to C 196, C 214.

(Bryan Cr.) Gold (?)

Serpentine district Teller (28.75, 15.4) approx.
65°49'N, 165°00'W approx.

Summary: No data other than development work preparatory to mining in 1901. If there ever was any mining it probably was near the mouth of Dick Cr. and very well could have been in Bendeleben quad.

Collier, 1902 (P 2), p. 55 -- Development work reported in 1901. No production.

(Buck Cr.) Gold, Monazite (?), Tin, Tungsten (?)

Port Clarence district Teller (10.6-11.05, 11.1-11.85)
MF-426, loc. 29 65°38'-65°40'N, 167°28'-167°32'W

Summary: Major tin-producing creek in Potato Mtn. area; a little gold also recovered. Buck Cr., some of its small forks and tributaries, and Grouse Cr. were mined from 1902 to 1953 and yielded 1,102.34 tons of tin worth $1,337,475; most of production from dredges that mined an estimated 560,000 cu yds of gravel containing 4.2 lb concentrate (2.86 lb tin) per cu yd. Monazite and scheelite reported, but not confirmed. Drains Potato Mtn., where lode tin minerals occur. Country rock mainly slate, a few greenstone bodies.

Collier, 1902 (P 2), p. 48-49 -- Placer tin reported; colors of gold found. Bedrock at head is slate that contains decomposed, iron-stained quartz veins; no gold in assay of sample.

Collier, 1904 (B 225), p. 156, 162-165 -- Preliminary to B 229.

Collier, 1904 (B 229), p. 16 -- Tin ore has been found.

p. 29-35 -- Bedrock is dark slaty schist; no intrusive rocks found in vicinity, although there are greenstone boulders and pebbles in gravel near mouth of creek. Quartz veins up to 4 ft wide in slate; a vein of pyrite 6 or 8 ft wide found, with pyrite pebbles down-stream from it. Cassiterite found from mouth of creek to about 1 mi below head; quartz and slate attached to some of cassiterite fragments. Some of gravel near head contains about 8 lb of 60% Sn ore per yard. Some gold in concentrates. Cassiterite mainly in modern stream and flood-plain gravels. 30-40 tons of tin concentrates mined in 1903.

p. 39 -- A few specimens of wood tin have been found.

Collier, 1905 (B 259), p. 126 -- About 60 tons of ore hauled to York, 1904.

Hess and Graton, 1905 (B 260), p. 181 -- Summary of B 229, p. 29-35.

Hess, 1906 (B 284), p. 155-157 -- Total production through 1905 was about 91 tons of ore that probably averaged about 65% Sn. Gravel carries about 20-30 lbs. concentrate with 60%-70% Sn and 40 cents in gold per cubic yard. Scheelite and monazite reported, but Hess could not find any of either.

Brooks, 1907 (B 314), p. 28 -- Some shipments made, 1906.

Collier and others, 1908 (B 328), p. 281 -- Reference to B 229.

Knopf, 1908 (B 345), p. 265 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 8 -- Tin production from Seward Peninsula in 1907 was about 160 tons of concentrates worth $20,000; nearly all from Buck Cr.

p. 16-17 -- Gold and cassiterite both present in concentrates.

p. 32-35 -- Bedrock mainly slate with minor greenstone; two quartz porphyry dikes near head. Bedrock occurrences of cassiterite are (1) in dikes, (2) in quartz stringers cutting slate, (3) intergrown with arsenopyrite in actinolite gangue; none commercial as of 1907. Area probably above an unexposed pluton.

p. 61-62 -- Gravel shallow and in about 4 mi. of creek coarse; about 125 ft. wide below mouth of Sutter Cr. Richest gravel is on bedrock and is clayey. Two companies mined in 1907.

(Buck Cr.) - Continued

Brooks, 1910 (B 442), p. 39 -- Mining, 1909.
Hess, 1912 (B 520), p. 89-91 -- Stream tin discovered, 1901. Country rock is slate with some sandy beds; cut by a few quartz-porphyry and greenstone dikes. Gravel no more than 9 ft. deep and extends laterally from creek; generally fine, but a few greenstone boulders. In creek bed stream-tin (about 65% Sn) content as high as 400 lbs. per cu. yd., but probably averages about 28 lbs. per cu. yd. Gold content worth about 40 cents per cu. yd.; nuggets worth as much as $20. Small dredge installed in 1911. Total production through 1911 320-325 short tons of 60% Sn concentrate.
Smith, 1912 (B 520), p. 340-342 -- Dredge operated, 1911. About 100 tons concentrates produced.
Brooks, 1913 (B 542), p. 50 -- Dredge operated, 1912.
Chapin, 1914 (B 592), p. 388, 393 -- Dredge operated for 6 weeks (lack of water), 1913.
Chapin, 1914 (B 592), p. 407 -- Tin lodes known, but little work has been done [probably means Potato Mtn.].
Brooks, 1915 (B 622), p. 23 -- Dredge operated, 1914.
Eakin, 1915 (B 622), p. 83-84 -- Lode properties have been prospected. Dredge operated, 1914.
p. 89-91 -- Most of data from B 358 and B 520.
Eakin, 1915 (B 622), p. 372 -- Reference to B 622, p. 89-92 [should be p. 89-91].
Brooks, 1916 (B 642), p. 28 -- 2 dredges operated, 1915.
Smith, 1917 (BMB 142), p. 27-28 -- 2 dredges (1 new) operated, 1915.
Mertie, 1918 (B 662), p. 456 -- 2 dredges operating, 1916. One working from Buck Cr. into Grouse Cr.
Harrington, 1919 (B 692), p. 353-354 -- Summary of some of data in B 622. Most tin production of Seward Peninsula has been from Buck and Grouse Creeks.
p. 360-361 -- Major past tin producer of York region. 1 dredge in 1917. In 1917 placer mining for tin was restricted to Buck Cr. area.
Martin, 1919 (B 692), p. 41 -- Tin dredge operated, 1917. Lode prospecting near head of creek.
Cathcart, 1920 (B 712), p. 195 -- Dredge operated, 1918.
Martin, 1920 (B 712), p. 51 -- Dredge operated, 1918.
Brooks, 1921, (B 714), p. 71 -- Dredge operated and some sluicing, 1919.
Harrington, 1921 (B 714), p. 236 -- Dredge operated and some sluicing, 1919. Combined production of Buck and Grouse Creeks was about 56 tons of Sn concentrate.
Brooks, 1922 (B 722), p. 22 -- Dredge operated, 1920.
Steidtmann and Cathcart, 1922 (B 733), p. 89-90 -- Gold probably derived from cassiterite-carrying quartz stringers in slate.
p. 94-96 -- Principal source of tin through 1919. Production from 1900 to 1911 (324 tons of concentrates) was by hand and scraper methods; from 1911 through 1919 (1,194 tons of concentrates) was from dredges. [This probably includes production from Grouse Cr.] Concentrates for 1912 averaged about $32 in Au per ton. Placers worked through 1919 showed an average yield of about 8 lbs. of concentrate (about 68% Sn) per cu. yd. of gravel mined. Bedrock and most of gravel slate. Most of cassiterite in small rounded crystals. Nodules of magnetite and hematite present. Dredging continued down Grouse Cr. from mouth of Buck Cr. Buck Cr. placers considered to be two-thirds exhausted; much of what is left is on tributaries.

(Buck Cr.) - Continued

Heide and Rutledge, 1949 (RI 4418), p. 4 -- Mining began in 1901 and continued until 1920. Dredging began in 1911. Hand-mining production was 324 tons of 50% Sn concentrate; dredge production was 1,194 tons of 68% Sn concentrate. [This includes production from Grouse Cr.].

p. 6-8 -- Description of USBM investigative techniques. Weighted averages of composite concentrate samples showed from 55.42% Sn to 65.52% Sn. During the time Buck Cr. was mined, about 15,000 ft. were dredged and another 1,500 ft. hand mined.

p. 10-14 -- Detailed data on USBM drill holes.

p. 21 -- Detailed data on USBM trenching. From 1911 to 1919 dredges mined an estimated 560,000 cu. yds. gravel and recovered 1,194 tons of concentrate containing 812 tons (1,624,000 lb.) tin. Material dredged carried an average 4.2 lb. concentrate (2.86 lb. Sn) per cu. yd. These data for Buck and Grouse Creeks combined.

Wedow and others, 1952 (OF 51), p. 28 -- Buck Cr. has been one of the principal producers in York region.

White and others, 1952 (C 196), p. 3 -- Concentrate contained: cassiterite, hematite, magnetite, pyrite, tourmaline, and rutile. [Birch in reference is lapsus for Buck.]

Lorain and others, 1959 (IC 7871), p. 4 -- Tin discovered, 1901. Placer mining on Buck and neighboring creeks began in 1902 and continued each summer for 19 years. Revived in 1948 and continued for 6 seasons.

Mulligan, 1959 (RI 5520), p. 5 -- Prospects were more attractive than in Anikovik R. valley, early 1900's.

Mulligan, 1965 (RI 6587), p. 9-10 -- A little mining in 1937; non-float operation 1948-1953; mining probably on tributaries. Total production of Buck Cr.-Grouse Cr. area, 1902-1953, was 1,102.34 tons Sn worth $1,337,475.

p. 15 -- Was mined for about 10,000 ft. upstream from mouth.

p. 23-32 -- Cassiterite crystals showed progressively less wear from mouth towards head. Only tributary streams and gullies with more than traces of cassiterite are those draining Potato Mtn. Some cassiterite in some vein-quartz fragments, but most were barren. Descriptions of individual specimens presented. Left Fork was mined for about 2,500 ft. up from mouth; very little tin farther up except for a small deposit in center headwater tributary. On West Fork, paystreak extended nearly to head; may have been a supplementary source near mouth of Peluk Cr., but most probably came from near head of South Gulch. Data on churn-drill holes presented.

p. 63-64 -- Data repeated from RI 4418.

Sainsbury, 1969 (B 1301), p. 11 -- Yielded several hundred tons of tin between 1940 and 1959.

Sainsbury, 1972 (I 685), p. 3 -- At least 2,500 tons of tin has been produced from placers in Teller quad.; mostly from Buck and Cape Creeks.

Cobb, 1973 (B 1374), p. 93, 95 -- Major tin producing creek in Potato Mtn. area. A little gold accompanies cassiterite; other heavy minerals include magnetite, hematite, rutile, and possibly monazite and scheelite.

(Budd Cr.) Copper, Gold, Mercury, Tin (?)

Port Clarence district Teller (25.1, 11.35)
MF-426, loc. 75 65°36'N, 165°32'W

Summary: Budd Cr. and Windy Cr., into which it flows, have been the major gold producers in the American R. drainage. Cinnabar and copper minerals have been identified in concentrates and there is an unsubstantiated report of cassiterite. A dredge operated in 1913, 1916, 1920, and possibly other years. There was mining in 1946.

Chapin, 1914 (B 592), p. 388, 393 -- Dredge operated, 1913; near mouth of Windy Cr.
Mertie, 1918 (B 662), p. 452 -- Dredge operated, 1916.
Brooks, 1922 (B 722), p. 63 -- Dredge operated, 1920.
Cathcart, 1922 (B 722), p. 185 -- Cinnabar in concentrates.
Smith, 1932 (B 824), p. 48 -- Report that dredging may be undertaken, 1929.
Smith, 1933 (B 836), p. 49 -- Report that dredging may be undertaken, 1930.
Smith, 1941 (B 926-A), p. 65 -- Drilling and exploration work, 1939.
Anderson, 1947 (TDM 5-R), p. 22 -- Copper minerals have been found by prospectors.
Moxham and West, 1953 (C 265), p. 4 -- Unverified report of cassiterite.
p. 6 -- Mining, 1946.
Malone, 1962 (IC 8131), p. 55 -- Cinnabar in gravels.
Malone, 1965 (IC 8252), p. 52, 56 -- Cinnabar in gravels.
Cobb, 1973 (B 1374), p. 93 -- One of major gold producers in American R. drainage basin. Cinnabar and copper minerals have been identified in concentrates. Unsubstantiated report of cassiterite.

(Buhner Cr.) Gold, Tin

Port Clarence district Teller (10.0, 9.45)
MF-426, loc. 40 65°32'N, 167°38'W

Summary: Creek on which original discoveries of coarse gold (1899) and cassiterite (1900) were made in York area; there probably never was profitable mining of either. Bedrock schist and slate. Concentrates contained cassiterite, magnetite, and (about 5% in all) ilmenite, limonite, pyrite, fluorite, garnet, and gold. Stream now called Buckner Cr.

Schrader and Brooks, 1900, p. 25-26 -- Gold discovered, June 1899 by an Eskimo; largest nugget worth $1.30.

Brooks and others, 1901, p. 135-136 -- Original coarse-gold discovery in York district, but no paying claims worked in 1900. Concentrates contain: 90% cassiterite, 5% magnetite, and 5% a mixture of ilmenite, limonite, pyrite, fluorite, garnet, and gold.

Collier, 1902 (P 2), p. 50-51 -- Pebbles and boulders of greenstone common in creek gravels; no greenstone bedrock in drainage basin. First tin in area discovered in Buhner Cr.

Brooks, 1903 (B 213), p. 92-93 -- Same as Brooks and others, 1901, p. 135-136.

Collier, 1904 (B 225), p. 158, 165-166 -- Preliminary to B 229.

Collier, 1904 (B 229), p. 16 -- Tin ore has been found.

p. 35-36 -- Bedrock is jointed schist and slate; schistosity strikes across stream. A few much-altered greenstone intrusives. Irregular veins contain quartz and calcite, frequently pyrite, and sometimes gold. Sample of concentrates contained 90% cassiterite, 5% magnetite, and ilmenite, limonite, pyrite, fluorite, garnet, and gold.

Collier and others, 1908 (B 328), p. 269 -- Reference to Brooks and others, 1901.

Hess, 1912 (B 520), p. 89 -- Tin discovered, 1900.

Eakin, 1915 (B 622), p. 81 -- Stream tin discovered, 1900.

Harrington, 1919 (B 692), p. 353 -- Original tin discovery, 1900.

Steidtmann and Cathcart, 1922 (B 733), p. 94 -- Cassiterite identified, 1900.

Lorain and others, 1959 (IC 7871), p. 4 -- Tin recognized in placer-gold concentrate, 1900.

Mulligan, 1959 (RI 5520), p. 5 -- Gold discovered, 1899; cassiterite identified, 1900.

p. 15, 18-20 -- Pyrite, hematite, trace of cassiterite in churn-drill sample.

Cobb, 1973 (B 1374), p. 92-93 -- Gold discovered, 1899; cassiterite, 1900.

p. 98 -- Gravel not rich enough to mine for gold.

(Burke Cr.) Gold

Port Clarence district Teller
NW¼SE½NE¼ quad.

Summary: Mining reported in 1930 and prospecting in 1932 and 1933. Location on creek not known. No data given on geology or type of occurrence other than that it is placer.

Smith, 1933 (B 836), p. 49 -- A little mining reported, 1930.
Smith, 1934 (B 857-A), p. 47 -- Prospecting reported to be encouraging, 1932.
Smith, 1934 (B 864-A), p. 52 -- Prospecting reported, 1933.

(Canyon Cr.) Gold

Port Clarence district Teller
SE¼SW¼SE¼ quad.

Summary: Small-scale mining in 1927; no other data given. Mining may have been on part of creek in Nome quad.

Smith, 1930 (B 810), p. 36 -- Mining, mainly in the nature of prospecting, reported in 1927. No other data given.

(Cape Cr.) Tin

Port Clarence district Teller (7.6-7.85, 9.9-10.2)
MF-426, loc. 25 65°34'-65°35'N, 167°55'-167°57'W

Summary: One of the major placer tin producers on Seward Peninsula; still being mined in 1972. Creek drains area near Bartels lode mine on Cape Mtn.; cassiterite derived from contact zone of Cape Mtn. stock. Cape Cr. valley underlain by limestone and smaller amount of schist. Production data for Cape Cr. are commonly lumped with those for Goodwin Gulch, which heads in the same part of Cape Mtn. and for many years was mined by same operator; total for both for 1924-1941 was gravel that contained 655.7 short tons of tin worth $657,540. No data on production since World War II. Includes references to (Tin City Cr.); see also (First Chance Cr.).

Martin, 1919 (B 692), p. 41 — Lode prospecting near head of creek.

Brooks, 1922 (B 722), p. 22 — Tin-bearing gravels have been prospected (as of 1920).

Steidtmann and Cathcart, 1922 (B 733), p. 102 -- Small amounts of placer tin reported to have been discovered in 1918.

Smith, 1933 (B 844-A), p. 69 — Some equipment moved from Goodwin Gulch to begin mining Cape Cr. when price of tin rises, 1931.

Heide and others, 1946 (RI 3978), p. 9 -- Has been tin placer mining.

Heide and Sanford, 1948 (RI 4345), p. 4-9 -- About 200 tons of tin produced by hand mining, 1933-1935, and 500 tons by larger scale methods, 1935-1941. These figures are total for Goodwin Gulch and Cape Cr. Water supplies inadequate, so gravel was hauled to a washing plant at Tin City that used pumped sea water. Placer cassiterite derived from contact zone around Cape Mtn. pluton. Grain size of cassiterite and amount of adhering gangue both decrease downstream. 60% Sn concentrate could be obtained with very little loss. Most of Cape Cr. has been mined. Detailed data on USBM program presented. Average Sn content of composite placer samples was 58.85%.

Wedow and others, 1953 (C 248), p. 13 — Concentrates from DMEA exploration not radioactive.

Lorain and others, 1959 (IC 7871), p. 4 -- Cape Cr.-Goodwin Gulch placers produced several hundred tons of tin concentrate, 1924-1942. DMEA explorations disclosed more valuable deposits.

Mulligan and Thorne, 1959 (IC 7878), p. 1-2 -- Churn-drill holes drilled 1952; DMEA contract. Discovery of old buried channel certified as DMEA discovery. More than 500 tons of tin produced from Cape Mtn. area, 1935-1941.

p. 7 — Total production, 1924-1941, was 659 tons of tin; from Cape Cr. and Goodwin Gulch.

p. 9, 13 — Data on claim ownership.

p. 14-43 -- Main channel had been worked beach to a point 500 ft below First Chance Cr. Data on early mining methods. Creek and headwater branches drain contact zone around Cape Mtn. stock. Data on DMEA contract and issue of a DMEA certificate of discovery. Detailed data on churn-drill holes. Mining section contained up to 32.75 lb Sn per cu yd; many holes showed Sn content greater than 2 lb per cu yd.

p. 45-47 — Churn drilling in Cape Cr. Beach indicated low Sn content.

(Cape Cr.) - Continued

Barton, 1962 (IC 8120), p. 31 -- Misquotation of reference to IC 7878, which states that no Cb was found in analyses. IC 8120 states that 0.01-0.001 percent Cb was found.

Kauffman and Holt, 1965 (IC 8268), p. 31 -- Reference to IC 7878.

Mulligan, 1966 (RI 6737), p. 8 -- Total production, 1924-1941, from Cape Cr. and Goodwin Gulch was 655.7 short tons of tin worth $657,540.

p. 11 -- Local water supply inadequate for mining, so gravel was transported to beach and pumped sea water used.

p. 20-23 -- References to IC 7878. Practically all tin in placers came from vicinity of Bartels lode mine on Cape Mtn.

p. 29 -- Lode-tin deposits near Bartels mine adequate to have supplied tin in Cape Cr. and Goodwin Gulch.

p. 31-32 -- Cassiterite found in trench excavated in contact zone around small granodiorite intrusive near head of Capa Cr.

Overstreet, 1967 (P 530), p. 112 -- Cape Cr. valley underlain by limestone and some schist. Radioactive mineral absent from concentrates from USBM drill holes and shafts.

Sainsbury, 1969 (B 1301), p. 10-11 -- Deep placer being mined in 1968; richer than drilling had indicated.

Sainsbury, 1972 (I-685), p. 3 -- At least 2,500 tons of tin has been mined from placers in Teller quad.; mostly from Buck and Cape Creeks. Cape Cr. being mined in 1972.

Cobb, 1973 (B 1374), p. 95 -- Drains Cape Mtn. stock. Being mined in 1970 with dredge machinery (not in a hull); results rumored to be good.

(Cape Mtn.) Gold (?), Tin, Tungsten, Zinc; Fluorite

Port Clarence district Teller (7.2, 10.2)
MF-426, loc. 1 65°35'N, 168°00'W

Summary: Cape Mtn. is a Mesozoic granite stock intruded into Paleozoic limestone overlain on top of mountain by schist. Pluton not completely unroofed; contains xenoliths. Many apophyses and granitic dikes. Contact-metamorphosed aureole and alteration along faults. Tin lodes near contact of granite and limestone include partially replaced limestone and granite and quartz veins; cassiterite is only tin mineral reported. Other minerals include tourmaline, quartz, calcite, pyrite, pyrrhotite, fluorite, scapolite, sphalerite, scheelite. Much exploration, 1903-1909, resulted in more than 1,000 ft of underground workings and construction of 2 mills. Total production was about 10 tons of concentrate that contained about 6 tons of tin worth $6,819. Was source of placer tin in Cape Cr. and Goodwin Gulch (production through 1941 was about 650 tons of tin) and other streams. One old reference (B 284) mentions gold ore said to have been worth $180 per ton. Anomalous amounts of beryllium in sediment samples, but no beryllium minerals reported. Includes references to: Bartell(s), Bartels (Tin Mining) Co., Empire Tin Mining Co., U.S. Alaska Tin (Mining) Co.

Collier, 1904 (B 225), p. 157-158, 160-162, 166-167 -- Preliminary to B 229.
Collier, 1904 (B 229), p. 24-25 — Granite boss intruded into limestone. Tin ore discovered in 1902. Several short tunnels did not reach ore zones. Much tourmaline with the cassiterite.
Collier, 1905 (B 259), p. 124-125 -- Tunnel in granite near contact with limestone. Cassiterite seems to be in streaks parallel to joints. High-grade float 1/2 mi. north of tunnel. Tourmaline with cassiterite. No minable ore has been found (1904).
Hess and Graton, 1905 (B 260), p. 181 -- Granite intruded into Carboniferous limestone and slate; cassiterite near contact.
Hess, 1906 (B 284), p. 150-155 -- Granite stock in Carboniferous limestone; top of mountain is quartz-sericite schist; wollastonite and dark limestone between schist and granite. Dikes and sills radiating from main granite body caused extensive contact metamorphism. Granite much jointed and faulted. One crushed zone followed for 80 ft by a tunnel said to have contained as much as $180 in gold per ton near mouth. Several hundred feet of underground workings to prospect for tin by 1905; 2 mills under construction. Quartz, tourmaline, and cassiterite replaced granite along veins and crushed zones. Fluorite with some float ore. About 1/2 ton of ore (probably float) sent to Nome in 1905.
Brooks, 1907 (B 314), p. 28-29 — Some concentrates shipped. Continued development, 1906.
Knopf, 1908 (B 345), p. 257-261 — Preliminary to B 358.
Knopf, 1908 (B 358), p. 35-41 — Granite stock in Carboniferous crystalline limestone; contact aureole extends outward a maximum of 200 or 300 ft; wollastonite formed near summit and next to a dike near ocean; some of aureole is essentially pyroxene and fluorite. Scheelite and pyrrhotite in some of contact rock. Cassiterite occurs at Cape Mtn. (1) in tourmalinized peripheral parts of granite and in dikes, (2) in contact-

(Cape Mtn.) - Continued

metamorphic rock, and (3) in veins in granite and in wall rock. About 1,000 ft of underground workings in 1907; really still prospecting.

Brooks, 1910 (B 442), p. 39 -- Tunnel driven; other assessment work, 1909.

Hess, 1912 (B 520), p. 89, 91 -- Summary of some older references; total production through 1911 was 10 tons of concentrates, 1906.

Brooks, 1913 (B 542), p. 50 -- Examined by mining engineers, 1912.

Chapin, 1914 (B 592), p. 407 -- Tin lodes known, but little work has been done.

Brooks, 1916 (B 642), p. 28 -- Work [does not specify what kind] on claims, 1915.

Smith, 1917 (BMB 142), p. 27 -- Some development work, 1915.

Mertie, 1918(B 662), p. 443 -- No activity report, 1916, other than possible assessment work on Percy lode.

Harrington, 1919 (B 692), p. 358 -- About 1,255 ft of tunnels and winzes on old Bartels property. Data from B 358. No work since 1914. No work for many years on U.S. Tin Co. property. Statements as of 1917.

Steidtmann and Cathcart, 1922 (B 733), p. 96-102 -- As of 1918 no commercial ore bodies had been discovered and all workings were abandoned and inaccessible. Granite pluton intruded into limestone; portions of roof remain. Many granitic dikes, pegmatites, and quartz veins. Youngest rock is olivine porphyry in dikes that cut both limestone and granite. Fragments of limestone are in the granite. Between Lagoon and Village Creeks limestone roof is overlain (apparently conformably) by about 200 ft of quartz-biotite schist. Granite dikes are offshoots of main mass. A few pegmatites; largest 10 ft thick and containing biotite plates 5 in in diameter. Tin-bearing quartz veins occur only in granite. Limestone considerably metamorphosed near contacts with granite; minerals developed include: wollastonite, pyroxene, tourmaline, pyrite, pyrrhotite, fluorite, scapolite, sphalerite, cassiterite. Borders of intrusive also contain cassiterite and tourmaline. Total length of underground workings was 1,100-1,150 ft. Total production was 10 tons of concentrates.

Smith, 1932 (B 824), p. 68 -- Negotiations to reopen property reported in 1929.

Heide and others, 1946 (BI 3978) -- Tin discovered, 1903. Company formed and mill built. 10 tons concentrate (64% Sn) shipped in 1905; reported to have been lost in transit. About 40 patented claims and mill sites. 2 companies: Bartels Tin Mining Co. (Empire Tin Mining Co.) and U.S. Alaska Tin Mining Co. Bartels mine workings consist of more than 1,000 ft in 3 levels and a sublevel. Geology section from B 733. Tin mineralization on both sides of granite-limestone contact; those in granite not economic. USBM samples taken in 1943-1944 showed less than 0.05% WO_3, as much as 1.86% CaF, and a maximum of 32.39% Sn. Most tin analyses were below 2% Sn.

Anderson, 1947 (TDM 5-R), p. 40-41 -- USBM had drilling program, 1943.

Wedow and others, 1952 (OF 51), p. 31-32 -- Tin mineralization at contact of Mesozoic granite stock and mid-Paleozoic(?) limestone, particularly where apophyses of granite cut shattered limestone. Border of granite tourmalinized; locally pyrite and cassiterite replaced minerals in granite. A few feet of limestone near contact and along fissures altered; pyrite, pyrrhotite, fluorite, sphalerite, and cassiterite in zone. Some cassiterite in quartz veins.

(Cape Mtn.) - Continued

Lorain and others, 1959 (IC 7871), p. 4 -- Tin discovered 1901. Considerable work on lodes, but only production was a few tons of concentrates in 1906.

Sainsbury and others, 1961 (P 424-C), p. C17 -- Sediment samples contain less Be (only one as much as 20 ppm) than samples from Ear Mtn. and Lost R.

Sainsbury, 1963 (C 479), p. 15 -- Geochemical reconnaissance showed anomalous beryllium, but less than at Ear Mtn. and Lost R.

Mulligan, 1966 (RI 6737) -- Data from earlier reports are summarized. Total lode production was about 6 short tons of tin worth $6,819, all in 1906. Placer tin production from area was 655.7 tons of tin worth $657,540. Most of the area is mantled by a detrital cover of frost-rived bedrock, much of which has been transported by mass movement. Sampling the detrital cover as a tool to find mineralized areas of bedrock was successful. Lode sampling was limited to evaluation of mineralized zones found by sampling detrital cover. Bartels mine area contains many small cassiterite-rich zones in limestone near, but not at, contact with granite. Was source area for cassiterite in placers of Cape Cr. and Goodwin Gulch. Local, minor mineralized zones in or near dikes contributed tin to First Chance and Cape Creeks.

Berg and Cobb, 1967 (B 1246), p. 131-133 -- Beryllium lodes may be discovered. Tin lodes near contact between limestone and granite stock and related dikes include: limestone partly replaced by quartz, tourmaline, cassiterite, calcite, and pyrite; granite partly replaced by cassiterite and quartz along faults and near limestone contacts; cassiterite in quartz veins. Most of extensive underground exploration was between 1903 and 1909. Only recorded production was about 10 tons of 64% Sn concentrates; reportedly shipped in 1905. USBM sampling (1943-1944) indicated 4 small bodies of potentially minable ore. Samples contained as much as 32.9% Sn, but the most promising deposit averaged only 7.24% Sn.

Sainsbury, 1969 (B 1287), p. 62 -- Placers in area producing, 1968. [This production was probably all from Cape Cr.]

Cobb, 1973 (B 1374), p. 92 -- Most of tin from Seward Peninsula mined from streams that drain Cape and Potato Mountains.

p. 95 -- Concentrates from streams in Cape Mtn. area contain cassiterite, scheelite, monazite, xenotime, and zircon; columbium and tantalum have been identified by spectrographic analyses.

(Christophosen Cr.) Graphite

Port Clarence district Teller (24.85-25.0, 1.0-1.1)
65°02'N, 165°38'-165°39'W

Summary: Paleozoic or older quartzose schists and other metamorphic rocks contain lenses of graphitic schist and graphite. Entire zones (up to 25 ft thick) contain as much as 10% graphite; lenses contain 50%-90% coarse graphite in flakes several mm in diameter. About 120 tons of graphite was shipped in 1912 and about 300 tons more was ready to ship. All had been hand sorted. Inferred resource for 3 miles of mountain front is 65,000 tons of material containing about 60% graphite by volume. Includes references to: (Graphite Bay), Uncle Sam Alaska Mining Syndicate, Uncle Sam Graphite Mining Co., Uncle Sam Graphite Mining Syndicate.

Brooks, 1918 (B 662), p. 40 -- Development work continued, but no graphite shipped 1916.

Mertie, 1918 B (662), p. 449 -- Graphite in seams 1 in to 18 in thick; contain bunches and veinlets of quartz. 200-lb sample said to have contained 60% graphite, 12.5% of which was high-grade graphite flake. 130 tons shipped and 300 tons ready to ship, 1916.

Harrington, 1919 (B 692), p. 363-365 --Graphitic schist with concordant lenticular masses of graphite as much as 10 in thick south of divide. Zone extends to region south of Imuruk Basin. Mining between 500 and 1,000 ft elevation. Quartz schists with some biotite; locally garnet schist with some calcite. Claims first staked in 1900. About 120 tons shipped by Uncle Sam Alaska Graphite Mining Syndicate in 1912; none since (as of 1917).

Martin, 1919 (B 692), p. 42 -- Assessment work, 1917 [Identification of property on basis of B 692, p. 363-365.]

Cathcart, 1922 (B 722), p. 185 -- Several shipments of selected material (graphite) have been made (as of 1920).

p. 221-222 -- Mainly quotation from B 692.

Coats, 1944 (OF 10), p. 1-5 -- Historical data from B 662 and B 692. No production or interest in property between 1917 and 1943, when Coats examined the deposits. Country rock is a sequence of Paleozoic or older quartzite schists, gneisses, and marble intruded by a few sills and dikes of granodiorite aplite, olivine basalt, and other igneous rocks. Major fault bounds north flank of Kigluaik Mts.; locally derived conglomerate between mountain front and Imuruk Basin. Sillimanite characteristic metamorphic mineral in schist. Graphite, locally amounting to several percent of the rock, is widespread; locally intergrown with biotite; disseminated flakes from 0.1 to 1 mm in size. In zones as much as 25 ft thick schist contains as much as 10% graphite, some in lenses containing 50%-90% coarse graphite (by volume); some flakes several mm in diameter. All graphite shipped was hand sorted from lenses that were mined or from float derived from lenses. Samples from piles of mined material (either from pits or gathered from float) contained 56.63% and 24.9% graphite; more than 80% was coarser than 30 mesh (30 meshes per inch).

p. 7 -- Inferred resource for 3 miles of mountain front was 65,000 tons of material containing about 60% graphite by volume (about 52% by

(Christophosen Cr.) - Continued

weight).
Anderson, 1947 (TDM 5-R), p. 25 -- Reference to B 722.

(Clara Cr.) — Tin (?)

Port Clarence district — Teller (13.25, 10.4) approx. 65°35'N, 167°10'W approx.

Summary: Stream tin was reported by prospectors in 1903 or earlier. Reports not confirmed.

Collier, 1904 (B 225), p. 166 -- Stream tin reported by prospectors, 1903 or earlier.
Collier, 1904 (B 229), p. 36 -- Stream tin reported by prospectors.

(Cobblestone R.)	Gold (?)
Port Clarence district	Teller SE¼SE¼SE¼ quad.

Summary: Unconfirmed report that free-milling quartz had been discovered.

Smith, 1908 (B 345), p. 234 -- Free-milling quartz said to have been discovered, 1907, near north face of mountains. No mention of this in any later report.

(Collin Cr.)	Gold (?)
Port Clarence district	Teller NE¼NE¼ quad. (?)

Summary: Rumor of an auriferous lode. No other data.

Collier and others, 1908 (B 328), p. 272-273 -- Quartz ledge from which samples assayed $2 a ton in gold reported to have been discovered. No other data.

(Columbia Cr.) Gold

Kougarok district Teller
NE¼NE¼SE¼NE¼ quad.

Summary: A little gold mined in 1903. Probably not economic.

Collier and others, 1908 (B 328), p. 326 — Tributary of Kougarok R. One claim being developed in 1903. Coarse gold; one nugget worth $10; gold angular, some with quartz attached. Production for year $220. Collier and Hess concluded that low-grade gravel probably could not be worked at a profit under current conditions.

(Coyote Cr.) Gold

Port Clarence district Teller (20.2, 4.0)
MF-426, loc. 85 65°12'N, 166°17'W

Summary: Colors of gold were found as early as 1900. In 1932 had been most productive creek in district. Mining reported in 1918, 1924-1933, 1939, 1940.

Brooks and others, 1901, p. 131 -- Colors have been found (as of 1900).
Cathcart, 1920 (B 712), p. 189 -- Open-cut operation, 1918.
Smith, 1926 (B 783), p. 17 -- Mining, 1924.
Moffit, 1927 (B 792), p. 23 -- Prospecting and ditch building, 1925.
Smith, 1929 (B 797), p. 27 -- Mining, 1926.
Smith, 1930 (B 810), p. 36 -- 1 camp mining, 1927.
Smith, 1930 (B 813), p. 42 -- A little mining, 1928.
Smith, 1932 (B 824), p. 48 -- A little mining, 1929.
Smith, 1933 (B 836), p. 49 -- A little mining, 1930.
Smith, 1933 (B 844-A), p. 50 -- Mining, 1931.
Smith, 1934 (B 857-A), p. 47 -- Mining, 1932. Coyote Cr. was the most productive creek in the district, but the entire gold output of the Port Clarence district was worth only a few thousand dollars.
Smith, 1934 (B 864-A), p. 52 -- Mining, 1933. Apparently on about the same scale as in 1932.
Smith, 1941 (B 926-A), p. 65 -- Non-float mining, 1939.
Smith, 1942 (B 933-A), p. 63 -- Non-float mining, 1940.
Sainsbury and others, 1969 (OF 377), p. 15 -- Has been mining.
Cobb, 1973 (B 1374), p. 92 -- Has been gold mining.

(Crosby Cr.) Tin

Port Clarence district Teller (20.4, 16.15)
MF-426, loc. 59 65°54'N, 166°10'W

Summary: A little cassiterite found during USBM sampling program, 1953-1954.

Mulligan, 1959 (RI 5493), p. 1-2 — Placer sampling, 1953-1954. Cassiterite identified.

p. 29-30 -- Cassiterite in churn-drill samples.

p. 32 -- Mining section contained .01 lb Sn per cu yd in one hole.

(Curve Cr.) — Antimony (?), Beryllium, FM; Fluorite

Port Clarence district — Teller (12.9, 8.05)

MF-426, loc. 4 — 65°27'N, 167°14'W

Summary: A zone of shattered limestone below a thrust fault contains fluorite, stibnite (?), and diaspore. The maximum BeO content is about 0.15%. A sample of a dike contained uranium-bearing fluorite, pyrite, and hematite; highest radioactivity was 0.006% eU.

Wedow and others, 1952 (OF 51), p. 25 — Sample of rhyolite dike with uranium-bearing fluorite, pyrite, and hematite contained 0.006% eU and 0.002% U.

Sainsbury, 1969 (B 1287), p. 77-78 -- The deposits were discovered in 1964 and consist mainly of silica, fluorite, pyrite, and, locally, stibnite (?) and diaspore. The beryllium content is low; maximum about 0.15% BeO. In shattered limestone beneath Rapid River thrust.

(Deer Cr., trib. Anikovik R.) Gold

Port Clarence district Teller (9.8, 8.9)
MF-426, loc. 36 65°30'N, 167°39'W

Summary: Bedrock is slate or phyllite with small greenstone bodies and blebs of quartz and calcite. Some placer gold on and in weathered bedrock. No substantial production.

Brooks and others, 1901, p. 134-135 -- Bedrock is gray slate or phyllite with greenstone bands that probably are altered intrusives. In slate are blebs of quartz with pyrite and calcite occasionally with gold. Placer gold in basal part of gravel, in weathered bedrock, and especially where clay is on surface of bedrock. A 40-cent nugget was found in a limonitic nodule in carbonaceous layer in slate.

Cobb, 1973 (B 1374), p. 98 -- Data from Brooks and others, 1901.

(Deer Cr., trib. Crosby Cr.) Tin

Port Clarence district Teller (19.95, 16.0)
MF-426, loc. 56 65°53'N, 166°13'W

Summary: A little cassiterite found in USBM sampling program, 1953-1954.

Mulligan, 1959 (RI 5493), p. 1-2 -- Cassiterite in gravels.
p. 29-30 -- Cassiterite in churn-drill sample.
p. 32 -- Mining section contained .02 lb. Sn per cu yd.

(Dese Cr.) Gold, Mercury

Port Clarence district Teller (20.55-20.6, 3.9-4.1)
MF-426, loc. 86 65°12'-65°13'N, 166°12'-166°13'W

Summary: Colors of gold had been discovered by 1900. Dredging reported in 1934-38; has also been mining by other methods. Dredge concentrates contained cinnabar. Includes references to (Dease Cr.).

Brooks and others, 1901, p. 131 — Colors have been found (as of 1900).
Smith, 1930 (B 810), p. 36 — 1 camp mining, 1927.
Smith, 1932 (B 824), p. 48 — Old dredge at Nome being dismantled and taken to Dese Cr., 1929.
Smith, 1936 (B 868-A), p. 54, 59 — Dredge built and operated for 15 days, 1934.
Smith, 1937 (B 880-A), p. 56, 62 — Dredge operated, 1935.
Smith, 1938 (B 897-A), p. 64, 71 — Dredge operated, 1936.
Smith, 1939 (B 910-A), p. 71, 77 — Dredge operated, 1937.
Smith, 1939 (B 917-A), p. 69, 75 — Dredge operated, 1938, but had mechanical problems.
Smith, 1941 (B 926-A), p. 65, 72 — Dredge idle, 1939; owners mining on Coyote Cr.
White and others, 1953 (C 244), p. 2 — Dredge operated in recent years (as of 1946).
Sainsbury and others, 1969 (OF 377), p. 15-16 — Has been dredging and other kinds of mining. Samples, even above abandoned dredge are anomalous in Hg; may indicate mineralized faults. Dredge concentrates contained cinnabar.
Cobb, 1973 (B 1374), p. 92 — Has been gold mining.

(Dewey Cr.) Gold

Port Clarence district Teller (21.0, 5.7) approx.
MF-426, loc. 68 65°18'N, 166°09'W approx.

Summary: Gravel is auriferous, but there is no record of mining.

Collier and others, 1908 (B 328), p. 270-271 -- Auriferous gravel present; no mining in 1903.

(Dick Cr.) Gold, Tin, Tungsten

Serpentine district Teller (28.75, 15.4)
MF-426, loc. 65 65°49'N, 165°00'W

Summary: Only site of commercial placer mining in Serpentine district. Scheelite and cassiterite in concentrates. Dredge operated in 1914. Most of mining by nonfloat methods between 1916 and 1952; deposit worked out. Most of mining was on part of creek in Bendeleben quadrangle.

Hess, 1906 (B 284), p. 157 -- Carries some stream tin.
Collier and others, 1908 (B 328), p. 282 -- Has been mining; probably is a large body of "rather low-grade auriferous gravel".
Chapin, 1914 (B 592), p. 388, 393 -- Dredge freighted in, but not installed, 1913.
Eakin, 1915 (B 622), p. 372 -- Dredge operated, 1914.
Mertie, 1918 (B 662), p. 455 -- Open-cut mine, 1916.
Harrington, 1919 (B 692), p. 353 -- Reference to B 284.
Cathcart, 1920 (B 712), p. 189 -- Open-cut mine, 1918.
Smith, 1926 (B 783), p. 17 -- Mining, 1924.
Moffit, 1927 (B 792), p. 22 -- Mining, 1925.
Smith, 1930 (B 810), p. 35 -- Hydraulicking, 1927.
Smith, 1930 (B 813), p. 42 -- Mining, 1928.
Smith, 1932 (B 824), p. 47 -- Mining, 1929.
Smith, 1933 (B 836), p. 48 -- Mining, 1930.
Smith, 1934 (B 857-A), p. 46 -- Mining, 1932.
Smith, 1934 (B 864-A), p. 51 -- Mining, 1933.
Smith, 1936 (B 868-A), p. 53 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 55 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 63 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 66 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 65 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 61 -- Mining, 1939.
Smith, 1942 (B 933-A), p. 58 -- Mining, 1940.
Anderson, 1947 (TDM 5-R), p. 41 -- Placer tin present.
p. 43-44 -- Placer scheelite present.
Moxham and West, 1953 (C 265), p. 4, 6 -- Placer cassiterite reported. Mining, 1946.
Cobb, 1973 (B 1374), p. 98 -- Only site of commercial placer mining in Serpentine district; ended in 1952 when deposit was worked out. Scheelite and cassiterite in concentrates.

(Diomede Cr.) Tin

Port Clarence district Teller (10.1-10.3, 11.7-11.9)
MF-426, loc. 27 65°40'N, 167°35'-167°36'W

Summary: A little cassiterite is in creek gravel. This stream is now called Oakland Cr.

Heide and Rutledge, 1949 (RI 4418), p. 7 -- Composite of concentrate samples contained 45.42% Sn.
p. 20 -- 0.0 to 0.24 lb. Sn per cu yd of mining section.
Cobb, 1973 (B 1374), p. 95 -- Cassiterite has been found.

(Eagle Cr.)

Gold, Mercury

Port Clarence district
MF-426, locs. 76, 78

Teller (19.0-20.4, 1.65-1.9)
65°04'-65°05'N, 166°23'-166°26'W

Summary: Gold and cinnabar in concentrates. Mining in 1946, 1968 and/or 1969. Includes reference to (Igloo Cr., trib. Bluestone R.).

White and others, 1953 (C 244), p. 1 -- Hydraulicking at mouth of Bering Cr. in 1946.
Sainsbury and others, 1969 (OF 377), p. 15-16 -- Mining, 1968 or 1969. Pebbles of cinnabar in gravels.

(Ear(s) Mtn.)

Antimony, Beryllium, Copper, FM, Gold, Lead, Mercury, Monazite, Silver, Tin, Tungsten, Zinc; Fluorite

Port Clarence district
Serpentine district
MF-426, loc. 14

Teller (19.95, 17.0)
65°56'N, 166°13'W

Summary: A granite stock nearly 2 mi in diameter and felsic and mafic dikes and sills intruded limestone, slate, and schist. Lime-silicate rocks developed at granite-limestone contacts. Minerals in contact zone include fluorite, quartz, hematite, cassiterite, pyrite, chalcopyrite, pyrrhotite, arsenopyrite, galena, sphalerite, paigeite, idocrase, topaz, gold, silver, stibnite, limonite, malachite, pyrrhotite, ilmenite, chalcocite, scheelite, magnetite, rutile, stannite, pyrolusite, cinnabar, gold, zinnwaldite, cerussite, scapolite, tourmaline, and a secondary uranium mineral intermediate between metazeunerite and metatorbernite. Monazite and zircon are common accessory minerals in the granite. A zone 1,000 ft long and 65 ft wide on the northeast part of the mountain contains an average of 0.2% tin, 0.3% copper, and small to trace amounts of gold, silver, lead, and zinc. Rock samples of metasomatized limestone contained as much as 380 ppm beryllium; highest values from fluorite-tactite rock rich in idocrase. Several shallow shafts and a few drifts, all before 1918, did not result in any ore being mined. Includes references to: Eunson's shaft, Vatney, (Vatney Gulch), Winfield.

Collier, 1904 (B 225), p. 166 -- Preliminary to B 229.
Collier, 1904 (B 229), p. 17 -- "Ledge tin" reported by prospectors.
p. 26-28 -- Granite stock intruded into quartzite and slate. Fringe of quartz-porphyry and rhyolite dikes. Specimens similar to ones from tin granite of Cornwall (England), but no cassiterite found. Much tourmaline. Analyses of some samples showed only traces of tin.
Collier, 1905 (B 259), p. 120 -- New tin discovery, 1904.
p. 125 -- Only one of many specimens shown Collier contained more than a trace of tin. Granite stock in slate and limestone.
Hess and Graton, 1905 (B 260), p. 181 -- Tin has been reported.
Hess, 1906 (B 284), p. 155-156 -- Prospecting in 1905. Most of samples brought out were tourmaline or augite rather than cassiterite.
Brooks, 1907 (B 314), p. 28-29 -- Prospecting, 1906.
Knopf, 1908 (B 345), p. 252-256 -- Preliminary to B 358.
Knopf, 1908 (B 358), p. 9 -- Prospecting, 1907.
p. 25-32 -- Cassiterite discovered in Eldorado Cr. on northeast side of mountain in 1901. Lode source has not been discovered (1907). Coarsely crystalline granite stock and finer grained apophyses intruded limestone, calcareous schist, and black siliceous schist. Tourmaline, scapolite, fluorite, galena, chalcopyrite, and other minerals in contact zone. Microscopic topaz and muscovite with microscopic cassiterite crystals in some of apophyses. Vesuvianite and paigeite in some contact zones; minor chalcopyrite visible. Other metallic minerals identified at Ear Mtn. include galena and arsenopyrite. Several prospect shafts have been sunk.

(Ear(a) Mtn.) – Continued

Schaller, 1911 (B 490), p. 10, 21–24 — Mineralogical data on paigeite. Nothing new on Ear Mtn.

Hess, 1912 (B 520), p. 89 -- Lode tin present; paigeite present.

Brooks, 1914 (B 592), p. 58 -- Prospecting, 1913.

Chapin, 1914 (B 592), p. 407 -- Prospecting, 1913; enough ore found in shear zone to be encouraging.

Harrington, 1919 (B 692), p. 355 -- Not visited by Harrington in 1917.

p. 357 -- Mainly prospecting and assessment work for several years (as of 1917).

Martin, 1919 (B 692), p. 41 -- Some development work, 1917.

Cathcart, 1922 (B 722), p. 181 — Reference to B 358.

Steidtmann and Cathcart, 1922 (B 733), p. 103-111 -- Country rock is quartz-mica schist [by implication, a metasedimentary rock], thin-bedded limestone, and a granite stock with finer grained border facies and associated dikes. Slate crops out on top of, east of, and about a mile south of the stock. [Steidtmann and Cathcart seem to have recognized thrust faulting of schist over limestone, although they did not use the word "thrust" or show such a relationship in their section.] Limestone is extensively metamorphosed near its contacts with granite. Typical contact-metamorphic minerals developed; metallic minerals include paigeite, cassiterite, chalcopyrite, pyrrhotite, magnetite. Border facies of the granite are tourmalinized; chalcopyrite is present in some places. About 175 ft of shafts and drifts had been driven, but were inaccessible in 1918.

Anderson, 1947 (TDM 5-R), p. 22 -- Reference to B 733.

Wedow and others, 1952 (OF 51), p. 29-32 — Country rock is limestone, schist (cut by altered gabbro dikes), and slate; all intruded by granite stock; still younger mineralized basic dikes. Alteration in granite and dikes restricted to tourmalinization near contacts. Limestone altered for "some hundreds of feet from the visible contact." Replacement minerals include: vesuvianite, fluorite, scapolite, cassiterite, axinite, topaz, danburite, arsenopyrite, pyrite, chalcopyrite. Some tourmaline-quartz fissure veins in granite are radioactive. One 8-inch red hematitic zone in middle of one dike contained 0.035% U. Metatorbernite occurs in granite wall rock and in tourmaline-quartz veins, but not in hematitic zone.

Killeen and Ordway, 1955 (B 1024-C), p. 65-70 -- Country rock is slaty schist (shale, slate, fine-grained laminated quartzite) and schistose limestone intruded by a granite stock nearly 2 mi in diameter and granitic dikes extending several thousand feet from the stock. Lime-silicate rocks developed at contacts between granite and limestone. Minerals in contact zone (in both granite and surrounding rocks) include tourmaline, fluorite, quartz, hematite, cassiterite, pyrite, chalcopyrite, pyrrhotite, arsenopyrite, galena, sphalerite, paigeite [incorrectly spelled in this report]. Data on prospects and prospecting from old reports.

p. 86-92 -- Monazite and zircon are common accessory minerals of granite. Fairly detailed discussion of geiger-counter surveys and of trenching a hematitic reddish zone of weathered, tourmalinized rock; eU up to 0.182%. Over 5-ft. width reserves calculated to be 960 tons per foot of depth of material with 0.014% eU. The primary radioactive mineral was not identified; a secondary mineral is intermediate between metazeunerite and metatorbernite. Deposit probably not economic.

(Ear(s) Mtn.) – Continued

Lorain and others, 1959 (IC 7871), p. 4 — Tin discovered, 1903.

Mulligan, 1959 (RI 5493), p. 2-3 -- Cassiterite in granite, but most in altered limestone near contact. Exposures and trenches near Winfield shaft indicate a zone 1,000 ft long and with an average width of 65 ft that contains an average of 0.2% Sn, 0.3% Cu, and small to trace amounts of Au, Ag, Pb, Zn. Sn in paigeite and fine-grained cassiterite.

p. 8 -- References to Geological Survey reports.

p. 11, 13, 17 -- Data on claim ownership and condition of prospect shafts, etc.

p. 19, 21 -- Granite stock and alaskite dikes and sills in limestone; one basic dike. Cinnabar identified in sample from basic dike.

p. 33-52 -- Very detailed description of USBM investigations, mainly at and near Winfield shaft. Analyses of samples indicated small amounts of gold and silver, tungsten, lead, and zinc and up to 3% copper. Minerals identified include: vesuvianite, fluorite, limonite, chalcopyrite, malachite, cassiterite, sphalerite, pyrrhotite, pyrite, tourmaline, zircon, ilmenite, chalcocite, scheelite, magnetite, paigeite, arsenopyrite, rutile, stannite, pyrolusite, cinnabar, gold, scapolite, zinnwaldite, cerussite, galena.

Sainsbury and others, 1961 (P 424-C), p. C17 -- Sediment samples less than 20 ppm Be (background less than 3 ppm); rock samples from near Winfield shaft contained to 350 ppm Be; higher values from fluorite-tactite rock rich in idocrase [vesuvianite].

Sainsbury, 1963 (C 479), p. 14-15 -- Stream-sediment and alluvium samples showed geochemical anomaly around granite stock. Rock samples from metasomatized limestone near Winfield shaft contained as much as 380 ppm Be.

Berg and Cobb, 1967 (B 1246), p. 131 — Geochemical reconnaissance indicates that beryllium lodes may be found.

p. 134 -- Granite stock and felsic and mafic dikes and sills cut limestone and slate. Limestone near contacts contains fluorite, scapolite, tourmaline, topaz, paigeite, cassiterite, chalcopyrite, pyrite, pyrrhotite, arsenopyrite, stannite, chalcocite, galena, sphalerite, stibnite, scheelite, magnetite, gold, cinnabar, malachite, and cerussite. Tin lodes are scattered grains and veinlets of cassiterite and paigeite in limestone and, rarely, dikes. First prospecting (several hundred feet underground and trenching) for gold and then tin. Some high assays, but no ore found. Best lode material on northeast side of mountain near Winfield shaft; limestone sparsely metallized in zone 1,000 ft long and 65 ft wide.

Overstreet, 1967 (P 530), p. 112 -- Summaries of data from B 1024-C.

(Eldorado Cr.) FM, Monazite, RE, Tin, Tungsten; Fluorite

Serpentine district Teller (20.4-20.7, 16.8-16.95)
MF-426, locs. 60-63 65°56'N, 166°07'-166°09'W

Summary: Drains Ear Mtn. granite stock and contact zone. Concentrates contain: cassiterite, scheelite, monazite, xenotime, zircon, fluorite, magnetite. DMEA exploration caused USBM to conclude that the placers are not minable. Maximum radioactive content of gravel in place was 0.00024% eU.

Knopf, 1908 (B 345), p. 252 -- Cassiterite present; only tin ore from vicinity that Knopf saw in 1907.

Knopf, 1908 (B 358), p. 26 -- Stream tin discovered, 1901. Nuggets several inches in diameter on bedrock riffles. Bedrock source not found.

Harrington, 1919 (B 692), p. 359 -- Reference to B 358.

Killeen and Ordway, 1955 (B 1024-C), p. 69 -- Reference to B 358.

p. 71-72 -- Heavy-mineral fraction of a sample contained 0.520% eU (after cassiterite had been removed).

p. 74 -- Data on Geiger counter survey; "hot spots" in headwater forks.

p. 76-78 -- Data on sampling techniques, etc. Gravel in place calculated to have as much as 0.00024% eU.

p. 80-82 -- Panned concentrate (1.02 lb. per cu. yd.) contained 0.290% eU. One sample (eU 0.290%) contained 0.02% uranium; remainder assumed to be due to thorium. Minerals identified in concentrates included monazite, zircon, cassiterite, xenotime, scheelite, fluorite.

Mulligan, 1959 (RI 5493), p. 1-3 -- Cassiterite in gravels of all three forks. In mining section of most promising part of creek averaged 0.3 lb. Sn per cu. yd. Part of exploration was by Alaska Tin Corp. under Defense Minerals Exploration Administration contract.

p. 8 -- Some private and some DMEA exploration.

p. 11 -- Data on claim ownership.

p. 21-22 -- Data on DMEA contract.

p. 24 -- DMEA exploration indicated trace to 0.8 lb. Sn per cu. yd. in mining section.

p. 29-30 -- Churn-drill samples included the following minerals: garnet, zircon, limonite, cassiterite, magnetite.

p. 32-33 -- Headwaters cross granite-limestone contact on Ear Mtn. "Not enough gold, scheelite, or other valuable minerals were found in quantity ... to be minable as placer deposits ... ".

Cobb, 1973 (B 1374), p. 97 -- Data from B 358 and B 1024-C.

(First Chance Cr.) Tin

Port Clarence district Teller (7.7 - 7.8, 10.1-10.3)
MF-426, loc. 25 65°35'N, 167°56'-167°57'W

Summary: Headwaters drain contact zone around Cape Mtn. stock, but cassiterite in placers was probably derived from contact zone next to acidic dikes or from dikes themselves about 2,000 ft. above mouth. Exploration indicated a maximum of 2.7 lb. tin per cu. yd. in placer deposit. Has been some mining; production probably credited to Cape Cr.

Heide and others, 1946 (RI 3978), p. 9 -- Has been tin placer mining.

Heide and Sanford, 1948 (RI 4345), p. 4-7 -- Inadequate water for mining, but sea water probably could be pumped to creek. Cassiterite derived from contact zone around Cape Mtn. pluton. Grain size of cassiterite and amount of adhering gangue both decrease downstream. Data on USBM drilling program presented. Tin content of composite placer samples was about 59.42%.

Mulligan and Thorne, 1959 (IC 7878), p. 1 -- Deposits lower grade than those on Cape Cr.; DMEA contract.

p. 17-21 -- Cassiterite in lower part of stream is coarse and angular; probably not from contact zone around Cape Mtn. pluton; USBM thinks lode source may be nearby. Data on DMEA contract.

p. 44 -- DMEA and USBM exploration data indicate maximum of 4.34 lb concentrate (2.70 lb Su) per cu yd of mining section.

Mulligan, 1966 (RI 6737), p. 18 -- Grade of placer gravel dropped to a trace of tin about 1,500 to 2,000 ft above mouth.

p. 20-21 -- Reference to IC 7878.

p. 23 -- Tin is derived from group of acidic dikes in valley about 2,000 ft from mouth.

p. 31-33 -- Tin and clay minerals on both sides of acidic dikes. Cassiterite crystals up to 1/2 in long in detrital cover and placers.

Cobb, 1973 (B 1374), p. 95 -- Drains eastern slope of Cape Mtn.

(Gold Run) — Gold, Mercury, Platinum, Tungsten

Port Clarence district — Teller (20.4-21.15, 1.0-2.0)
MF-426, locs. 80-82 — 65°02'-65°05'N, 166°09'-166°15'W

Summary: Gold mining had begun by 1900. Bedrock is chlorite, mica, and graphitic schists, limestone, slate, and greenstone sills; many quartz veins. Some of gold very coarse. Some very rich pockets on bedrock (up to $50 per cu yd, old price of gold). Both creek and bench placers. Concentrates contained cinnabar, platinum-group metals, and scheelite. Dredge operated from confluence that forms Bluestone R. upstream to above mouth of Alder Cr. (about 4 mi) from 1935 to at least as recently as 1940. Other kinds of mining reported for most years from 1900 to 1946. See also (Bluestone R.).

Brooks and others, 1901, p. 128, 131 -- Mining above canyon in 1900. Bedrock is chloritic schist with many quartz veins. Gravels very coarse. Some very rich pockets of gold on bedrock ($2 to $3 per pan). Gold coarse; one nugget worth nearly $100.

Brooks, 1904 (B 225), p. 54 -- Mining in 1903.

Purington, 1905 (B 263), p. 209 -- Gold worth $18.35 from bench; $18.55 from creek.

Moffit, 1906 (B 284), p. 139 -- Mining above mouth of Alder Cr., 1905.

Collier and others, 1908 (B 328), p. 273 -- Has been mining.

p. 275-279 -- Most mining in lower 5 mi of course. Gradient not more than 20 ft per mile. Terraces on valley slopes. Bedrock chlorite and mica schists, some graphitic, limestone, slate, and greenstone sills. Granitic boulders (not of local derivation) in gravel. Both creek and bench placers; richest at mouth of Alder Cr., where some spots ran $50 per cu yd. Best pay in base of gravel and in top part of bedrock, which in places is yellow clay. Bench claims being mined and prospected in 1903. Concentrates contained much limonite (and a loaded revolver). In one bench deposit above Alder Cr. prospect shaft reached bedrock at depth of 115 ft; some coarse gold, but not enough to mine; this deposit is on the divide with McAdam Cr.

Smith, 1908 (B 345), p. 229 -- Mining in 1907.

Smith, 1909 (B 379), p. 298-299 -- Old channel and another bench deposit being mined, 1908.

Mertie, 1918 (B 662), p. 455 -- 1 open-cut mine operated, 1916.

Cathcart, 1920 (B 712), p. 189 -- 1 open-cut operation, 1918.

Smith, 1926 (B 783), p. 17 -- Mining, 1924.

Smith, 1929 (B 797), p. 27 -- Mining, 1926.

Smith, 1930 (B 810), p. 36 -- Mining, 1927.

Smith, 1930 (B 813), p. 42-43 -- Mining, 1928. Prospecting in preparation for large-scale mining.

Smith, 1932 (B 824), p. 47-48 -- Mining, 1929.

Smith, 1933 (B 836), p. 49 -- Mining, 1930.

Smith, 1933 (B 844-A), p. 50 -- A little mining, 1931.

Smith, 1934 (B 857-A), p. 47 -- A little mining, 1932.

Smith, 1934 (B 864-A), p. 52 -- A little mining, 1933.

Smith, 1936 (B 868-A), p. 54 -- Dredge under construction, 1934.

(Gold Run) - Continued

Smith, 1937 (B 880-A), p. 56-57, 62 -- Dredge and open-cut mines operated, 1935.

Smith, 1938 (B 897-A), p. 64, 71 -- Dredge operated, 1936. One nugget recovered weighed 22-1/4 oz and 14 more weighed more than 5 oz each.

Smith, 1939 (B 910-A), p. 71, 77 -- Dredge operated only part of 1937 season because of litigation. Other mining near head of creek.

Smith, 1939 (B 917-A), p. 69, 75 -- Dredge had very successful season in 1938; many large greenstone boulders encountered. Other mining near head of creek.

Smith, 1941 (B 926-A), p. 65, 71 -- Dredge operated, 1939. Other mining near head of creek.

Smith, 1942 (B 933-A), p. 62-63, 68 -- Dredging and hydraulicking, 1940.

Anderson, 1947 (TDM 5-R), p. 43-44 -- Fairly large amounts of placer scheelite.

White and others, 1953 (C 244), p. 1 -- Has been dredged from near mouth of Right Fork to point about 1 mi above Sullivan [a little above mouth of Alder Cr.] Ground sluicing at mouth of Bull Pup in 1946.

Sainsbury and others, 1969 (OF 377), p. 15-16 -- Dredge has operated. Concentrates contained cinnabar and platinum-group metals. Anomalous Hg in samples upstream from mining may indicate mineralized fault zones.

Cobb, 1973 (B 1374), p. 92-93 -- Has been gold mining. Loaded revolver recovered from sluicebox on a bench above Gold Run; no other data on concentrates.

(Goodwin Cr.) Tin

Port Clarence district Teller (8.0, 10.4-10.45)
MF-426, loc. 24 65°35'N, 167°54'W

Summary: Creek drains east side of Cape Mtn. stock. Cassiterite in a narrow paystreak extending 1,000 ft downstream from Goodwin Gulch. Composite concentrate from USBM drilling program was about 58.5% tin. Only traces of cassiterite upstream from Goodwin Gulch. Several hundred pounds of tin concentrate was recovered from a small depression at the head of Wales Cr., a tributary not shown on available maps. Includes reference to (Wales Cr.).

Brooks, 1922 (B 722), p. 22 -- Tin-bearing gravels have been prospected (as of 1920).

Heide and Sanford, 1948 (RI 4345), p. 4 -- Data on claim ownership.

p. 6-7 -- Detailed data on USBM drilling program presented. Tin content of composite placer samples was about 58.5%.

p. 11 -- Data on individual churn-drill holes.

Mulligan and Thorne, 1959 (IC 7878), p. 1-2 -- DMEA exploration did not cover Goodwin Cr., even though it had been planned to. Data on claims.

p. 14-15 -- Data on claim ownership. No signs of old mining except for old sluice boxes and other equipment.

p. 18 -- Original DMEA contract specified work in Goodwin Cr. drainage.

p. 67-68 -- Data on proposed exploration that was not carried out.

Mulligan, 1966 (RI 6737), p. 18-19 -- Placer tin obviously came from Goodwin Gulch; only traces above Goodwin Gulch and tenor decreases rapidly downstream; narrow paystreak extends downstream from gulch for 1,000 ft.

p. 21 -- No data on results of exploration below mouth of Wales Cr. [Wales Cr. must be a tributary of Goodwin Cr. that is not shown on available maps.]

Cobb, 1973 (B 1374), p. 95 -- Drains east side of Cape Mtn. stock.

(Goodwin Gulch) Tin

Port Clarence district Teller (7.8-8.0, 10.4)
MF-426, loc. 24 65°35'N, 167°54'-167°56'W

Summary: Drains part of Cape Mtn. near old Bartels lode-tin mine. Goodwin Gulch and/or Cape Cr. were mined in most years from 1924 to 1942; total production was concentrates containing about 660 tons of tin. The entire gulch was mined from mouth to headwater forks; much cassiterite in south headwater fork, but very little in north fork. Not enough water in gulch for mining; gravel hauled to Goodwin Cr. or Bering Sea beach for processing.

Smith, 1926 (B 783), p. 24 — Some tin recovered, 1924.
Smith, 1929 (B 797), p. 40 -- Placer tin mining, 1926.
Smith, 1930 (B 810), p. 53 -- Placer tin mining, 1927.
Smith, 1930 (B 813), p. 61 -- Placer tin mining, 1928.
Smith, 1933 (B 844-A), p. 69 -- Major tin producer in Alaska in 1931; hydraulic operation. Some of the buildings and equipment were moved to Cape Cr.
Heide and others, 1946 (RI 3978), p. 9 -- Has been tin placer mining.
Heide and Sanford, 1948 (RI 4345), p. 4 -- Mining on Goodwin Gulch and Cape Cr. began in 1933. Total production, 1933-1941, was about 700 tons of tin. Economically minable gravel exhausted in 1941.
p. 6 -- Gravel hauled to mill, first at Tin City and later at Goodwin Cr.
Wedow and others, 1953 (C 248), p. 13 -- Somewhat confused reference suggests that some radioactive concentrates have been collected.
Lorain and others, 1959 (IC 7871), p. 4 -- Production from Cape Cr.-Goodwin Gulch placers was several hundred tons of tin concentrates, 1924-1942.
Mulligan and Thorne, 1959 (IC 7878), p. 1 -- Planned DMEA exploration was not carried out.
p. 7 -- From 1924 to 1941 production of tin from Goodwin Gulch and Cape Cr. was 659 tons.
p. 14-15, 17-18 -- Data on claim ownership. Gulch worked for 4,500 ft upstream from mouth. Data on methods of operation by American Tinfields, Inc. Gulch drains contact zone around Cape Mtn. stock. Data on DMEA contract.
p. 67-68 -- Data on proposed exploration that was not carried out.
Mulligan, 1966 (RI 6737), p. 8 — For data on production see (Cape Cr.).
p. 11 -- Not enough water for mining; gravel was hauled to Bering Sea beach or to Goodwin Cr. for processing.
p. 18-19 -- Mined from mouth to headwater forks; cassiterite abundant in south headwater fork, but not in north fork.
p. 23 -- Placer tin derived from small area at head of south headwater fork.
p. 29 -- Tin in placers derived from cassiterite-bearing lenticular pods in limestone near, but not at, contact with limestone.
p. 32 -- Only small amounts of tin in detrital cover along north headwater fork; not a significant source for tin in placers.
Cobb, 1973 (B 1374), p. 95 — Goodwin Gulch and/or Cape Cr. have been mined in most years since early 1920's. Drains east side of Cape Mtn. stock.

(Graphite Cr.) Graphite

Port Clarence district Teller (25.65, 1.45)
65°03'N, 165°32'W

Summary: Graphitic schist with concordant lenses of graphite as much as 18 in thick. 50 tons mined and shipped in 1916 from a pit on Graphite Cr. A sample of schist in the pit (collected in 1943) contained 11.97% graphite, 75% of which was coarser than 30 mesh; a sample from a high-grade lens contained 58.64% graphite, of which 85% was coarser than 30 mesh. For summary of regional data applicable to this occurrence see (Christophosen Cr.). Includes references to: (Glacier Cr.), Alaska Graphite (Mining) Co.

Smith, 1908 (B 345), p. 250 -- Graphite layers interlaminated with quartzose schists. Much of graphite in blocks 2 ft long and 1 ft thick; practically no foreign material. Several tons taken to tidewater in 1907.

Brooks, 1918 (B 662), p. 40 -- Development work in 1916, but no production. Wharf built.

Mertie, 1918 (B 662), p. 449 -- Graphite seams 1 in to 18 in thick; contain bunches and veinlets of quartz. 100 tons mined in 1916 by Alaska Graphite Co.; some may have been from this creek.

Harrington, 1919 (B 692), p. 363-366 -- Graphitic schist with concordant lenticular masses of graphite as much as 18 in thick south of divide extends to region south of Imuruk Basin. Mining at elevations between 500 and 1,500 ft. Quartz schists with some biotite; locally garnet schist with some calcite. Claims staked 1905 and later. A "considerable" tonnage of hand-picked material shipped in 1917. Mined from cut near Glacier Cr.

Martin, 1919 (B 692), p. 42 -- Road construction and some mining. [Identification of property on basis of B 692, p. 363-366.]

Cathcart, 1922 (B 722), p. 221-222 -- Reference to B 692.

Coats, 1944 (OF 10), p. 1-4 -- General data; see summary under (Christophosen Cr.).

p. 6 -- 50 tons of graphite mined and shipped (in 1916) from a pit. Sample of schist in pit ran 11.97% graphite, more than 75% of which was coarser than 30 mesh (30 meshes per inch). A sample from a high-grade lens ran 58.64% graphite, about 85% of which was coarser than 30 mesh.

(Granite Cr.) Tin (?)

Port Clarence district Teller (7.7, 10.6)
65°36'N, 167°57'W

Summary: More recent of 2 U.S. Bureau of Mines Reports of Investigations reports no tin in any of their churn-drill holes.

Heide and others, 1946 (RI 3978), p. 9 -- Only traces of tin in gravels.
Heide and Sanford, 1948 (RI 4345), p. 4 -- Data on claim ownership.
p. 6 -- Data on USBM exploration procedures.
p. 10 -- Data on each USBM churn-drill hole; no tin reported.

(Grantley Harbor)	Gold
Port Clarence district	Teller NW¼SW¼ quad.

Summary: Fine flakes of gold can be panned from beach.

Sainsbury and others, 1969 (OF 377), p. 20 -- Fine flakes of gold can be panned from beach gravels, generally where white quartz boulders are common.

(Grouse Cr.) Gold, Tin

Port Clarence district Teller (11.05-11.2, 11.1-11.2)
MF-426, loc. 29 65°38'N, 167°27'-167°28'W

Summary: Creek and tributaries drain part of Potato Mtn. Was mined between mouths of Buck Cr. and East Fork. Dredge operated from 1916 to 1919 or 1920. Some nonfloat mining as recently as 1954. Gravel mined contained gold, but probably less than 5 cents worth per cu yd. For data on regional geology and production see (Buck Cr.). Includes references to: (Skookum Cr.), (Sterling Cr.).

Collier, 1902 (P 2), p. 49 -- Stream tin reported by prospectors.
Collier, 1904 (B 225), p. 164 -- Preliminary to B 229.
Collier, 1904 (B 229), p. 32 -- Little if any prospecting by 1903. Said to be very little cassiterite below Buck Cr.
Hess, 1906 (B 284), p. 157 -- Cassiterite below mouth of Buck Cr.
Knopf, 1908 (B 345), p. 266 -- Assessment work, 1907.
Knopf, 1908 (B 358), p. 62 -- Assessment work, 1907.
Eakin, 1915 (B 622), p. 89, 91 -- Probably profitable cassiterite deposits below Buck Cr.
Mertie, 1918 (B 662), p. 456 -- Dredge worked into Grouse Cr. from Buck Cr., 1916.
Harrington, 1919 (B 692), p. 354 -- Most of Alaskan tin production has been from Buck and Grouse Creeks.
p. 360 -- Dredge operated, 1917.
Martin, 1919 (B 692), p. 41 -- Dredge operated, 1917.
Brooks and Martin, 1921 (B 714), p. 71 -- Dredge operated, 1919.
Harrington, 1921 (B 714), p. 236 -- Dredge operated, 1919. Total Sn concentrate production from Buck and Grouse Creeks was about 56 tons.
Brooks, 1922 (B 722), p. 22 -- Tin placers reported to have been worked out (as of 1920).
Heide and Rutledge, 1949 (RI 4418), p. 4-5 -- Data on claim ownership. [Production was included with that of Buck Cr.]. Cassiterite probably derived from quartz veins on Potato Mtn. Concentration of tin on or near bedrock. High percentage of fines in concentrates; hematite and magnetite in concentrates. Average gold content of gravel not more than 5 cents per cu yd.
p. 7-9 -- Tin content of composite placer concentrate samples was 56.95%. Creek was dredged for 5,000 ft below mouth of Buck Cr.; no concentration of tin below mouth of East Fork. Data on each churn-drill hole put down by USBM are presented; most show less than one pound tin per cubic yard of mining section.
p. 21 -- Production lumped with that from Buck Cr.
Mulligan, 1965 (RI 6587), p. 24-25 -- Mined for about 5,000 ft from mouth of Buck Cr. to mouth of East Fork. Single pit extended from East Fork to Buck Cr., up Buck Cr., and up West Fork of Buck Cr.
Cobb, 1973 (B 1374), p. 93, 95 -- Dredge operated on Grouse and Buck Creeks for many years and nonfloat mining continued until 1954. A little gold accompanies cassiterite.

Idaho — Copper; Fluorite

Port Clarence district — Teller (13.3, 8.0)
MF-426, loc. 7 — 65°27'N, 167°11'W

Summary: Fluorite, pyrrhotite, and chalcopyrite are in an irregular shattered zone 15 ft thick in limestone. See also Yankee Girl; at least one reference is garbled.

Knopf, 1908 (B 345), p. 269 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 17 -- Copper pyrites with pyrrhotite and fluorite near mouth of Tin Cr.

p. 59 -- Chalcopyrite associated with abundant pyrrhotite in gangue containing fluorite. In irregular shattered zone 15 ft wide in limestone. Body traced for at least 50 ft to a gossan. Near mouth of Tin Cr.

Cathcart, 1922 (B 722), p. 181 -- Reference to B 358.

Steidtmann and Cathcart, 1922 (B 733), p. 81 -- Same data as B 358, p. 59.

Anderson, 1947 (TDM 5-R), p. 22 -- Reference to B 358.

Wedow and others, 1952 (OF 51), p. 24 -- Stringers of copper ore in irregularly shattered zone in limestone.

Sainsbury, 1964 (B 1129), p. 57 -- Fluorite with pyrrhotite and chalcopyrite in eastward-striking shattered zone in limestone.

Berg and Cobb, 1967 (B 1246), p. 132 -- Fluorite, pyrrhotite, and chalcopyrite in eastward-striking breccia zone in limestone.

Sainsbury, 1969 (B 1287), p. 94 -- May merit attention as an example of a dike that may lie above mineralized granite in which a large tonnage of low-grade material may be available for evaluation.

(Igloo)

Bismuth (?)

Kougarok district

Teller
E½SE¼SE¼ quad.

Summary: Bismuth nugget reported to have been found by Eskomos; unconfirmed.

Anderson, 1947 (TDM 5-R), p. 17 -- Three-quarter-lb. bismuth nugget said to have been found by Eskimos.

(Igloo Cr., trib. Grantley Harbor) Gold

Teller (20.6, 5.8)

MF-426, loc. 67 65°18'N, 166°12'W

Summary: Small gold production, probably mainly in 1901. Stream now called Moonlight Cr.

Collier, 1902 (P 2), p. 45-46 -- Sluicing in 1901.

Collier and others, 1908 (B 328), p. 270-271 -- Has been productive mining; none in 1903.

(Imuruk Basin) — Garnet, Graphite

Port Clarence district — Teller (23.1-25.65, 1.0-2.2)
65°02'-65°05'N, 165°32'-165°53'W

Summary: 20 tons of garnet sand was shipped from a beach of Imuruk Basin to Nome in 1920. Graphite was mined along the front of the Kigluaik Mts. for several years. See (Christophosen Cr.), (Graphite Cr.), (Ruby Cr.); two references that are too general to identify with any of these creeks are listed under (Imuruk Basin).

Smith, 1912 (B 520), p. 344 -- Graphite sorted and sacked for shipment.
Brooks, 1921 (B 714), p. 54-55 -- Reference to B 692, p. 363-367.
Brooks, 1922 (B 722), p. 33 -- 20 tons garnet sand shipped to Nome from beach in 1920. Approximate location 65°05'N, 165°53'W (23.1, 2.2).
Cobb, 1973 (B 1374), p. 93 -- Same as B 722.

(Iron Cr.) Tin

Port Clarence district Teller (10.45, 11.4)
MF-426, loc. 28 65°39'N, 167°33'W

Summary: Cassiterite-bearing gravel suitable for hand mining was exploited in 1917 and possibly preceding or following years; a 1,500-ft-long narrow section in the middle of the creek was worked. Stream drains east side of Potato Mtn. Hematite and magnetite in concentrates. See also (Sutter Cr.), into which Iron Cr. flows. For data on regional geology see (Buck Cr.).

Harrington, 1919 (B 692), p. 360 -- Sluicing in 1917. A few tons of concentrate mined. Gravel 4-5 ft deep, 15-20 ft wide. Water scarce.

Martin, 1919 B 692), p. 41 -- 2 men sluicing, 1917.

Steidtmann and Cathcart, 1922 (B 733), p. 94 -- Iron Cr. placers "show cassiterite associated with porphyry....".

p. 96 -- Some high-grade placer ground suitable for shovelling in, but not dredging.

Heide and Rutledge, 1949 (RI 4418), p. 5 -- Hematite and magnetite with cassiterite in concentrates.

p. 7-8 -- Composite concentrate sample contained an average 57.4% Sn. A 1,500-ft narrow section in center of creek channel was hand mined; very little tin is left.

p. 15 -- Data on each USBM churn-drill hole are presented.

p. 21 -- Summary of USBM trenching program.

Cobb, 1973 (B 1374), p. 95 -- Cassiterite has been mined.

(Ishut Cr.) Gold, Tungsten

Port Clarence district Teller (10.0, 9.6)
MF-426, loc. 41 65°32'N, 167°37'W

Summary: Stream carries colors and scheelite was identified in a sample from a churn-drill hole. For brief description of regional geology see (Anikovik R.).

Brooks and others, 1901, p. 135 -- Stream carries colors; has not been prospected (as of 1900).

Mulligan, 1959 (RI 5520), p. 19 -- Scheelite in concentrate from churn-drill hole.

Cobb, 1973 (B 1374), p. 98 -- Scheelite in churn-drill sample.

(Joe Cr.)	Gold (?)
Port Clarence district	Teller E½SE¼NE¼ quad.

Summary: Exploration reported in 1939. No other data.

Smith, 1941 (B 926-A), p. 65 -- Exploration in 1939.

(Kanauguk R.)	Tin (?)
Port Clarence district	Teller NE¼SW¼ quad.

Summary: Cassiterite reported by prospectors before 1902; not confirmed.

Collier, 1902 (P 2), p. 49 -- Stream tin reported by prospectors.

(Kigezruk Cr.)

Gold (?), Tin

Port Clarence district
MF-426, loc. 34

Teller (9.25, 9.2)
65°31'N, 167°44'W

Summary: Traces of tin (sic) in concentrates from 2 USBM churn-drill holes, 1956-1957. Gold reported by prospectors, but its presence is not confirmed.

Brooks and others, 1901, p. 135 -- Stream reported to carry some colors.
Collier, 1904 (B 225), p. 166 -- Stream tin reported by prospectors.
Collier, 1904 (B 229), p. 36 -- Prospectors reported that tin-ore had been found.
Mulligan, 1959 (RI 5520), p. 7 -- Prospectors discovered tin, early 1900's; no record of production.
p. 17, 21-23 -- Trace amounts of tin in churn-drill holes. Gravel mainly shale and phyllite with minor quartz. No gold. Pyrite, magnetite, ilmenite, tourmaline in concentrates.

(Kreuger Cr.) Tin

Serpentine district Teller (20.8, 16.75-16.85)
MF-426, loc. 64 65°56'N, 166°06'W

Summary: A little tin present, but not considered minable by Mulligan. Stream drains contact area of Ear Mtn. stock.

Mulligan, 1959 (RI 5493), p. 2-3, 8 -- Exploration by Alaska Tin Corp., 1953-54, under Defense Minerals Exploration Administration contract. Tin averaged about 0.3 lb per cu yd of mining section.

p. 11 -- Data on claim ownership.

p. 21-22 — Data on DMEA contract.

p. 24 -- Maximum Sn content of mining section 0.71 lb per cu yd.

p. 33 -- Headwaters cross granite-limestone contact on Ear Mtn. Not minable.

(Little Skookum Cr.) — Gold (?)

Port Clarence district — Teller SE½ quad.

Summary: Gold reported as of 1900. No more recent report mentions this stream, so the report of gold should be considered to be unconfirmed. Creek is a small tributary of Gold Run, possibly the one shown as Skookum Cr. on modern maps.

Brooks and others, 1901, p. 131 -- Tributary of Gold Run. Colors worth 10-15 cents per pan reported.

(Lawson Cr.) Gold

Port Clarence district Teller
SE¼NE¼NE¼ quad.

Summary: Gold production in 1902. No accurate location or geologic data.

Collier and others, 1908 (B 328), p. 271-272 -- Tributary of American R. In 1902 produced $1,000 to $1,500 worth of gold worth $19 per ounce. [Lawson is probably an old name for some tributary that was renamed; possibly Budd or Goldrun.]

Lost River

Antimony, Beryllium, Bismuth, Copper, Lead, Molybdenum, Silver, Tin, Tungsten, Zinc; Fluorite

Port Clarence district
MF-426, locs 8, 42-44, 46

Teller (13.4-13.5, 8.5-8.6)
65°28'N, 167°10'W

Summary: Most important lode-tin deposit in United States with resources of more than 18,000 tons of metallic tin in material containing 1.0% or more tin; about the same amount of tin in lower grade material. Large resources of tungsten, fluorite, and beryllium. Country rock is limestone, intruded by a granite pluton (exposed in a small boss on Tin Cr. and in underground workings of mine) and related rhyolite dikes (now altered) and cut by thrust and other faults. Most of tin ore in Cassiterite dike (altered rhyolite porphyry) from which ore containing about 350 tons of tin and some tungsten has been mined. Richest ore may have been localized by intersection of dike and a thrust fault. Fluorite-beryllium ore mainly in shattered, altered zones along thrusts. Metallic minerals from deposits include cassiterite, stannite, galena, sphalerite, pyrite, chalcopyrite, arsenopyrite, stibnite, bismuthinite, pyrrhotite, molybdenite, magnetite, ilmenite, hematite, wolframite, scheelite, and pyrolusite. Assays and analyses indicate very small gold and silver contents. Beryllium minerals include chrysoberyl, phenacite, beryl, euclase, bertrandite, and milarite(?). Gangue minerals include fluorite, topaz, tourmaline, zinnwaldite, quartz, plagioclase, idocrase (vesuvianite), danburite, diaspore, rutile, sericite, and kaolinite. Includes references to: (Camp Cr.), Cassiterite, (Cassiterite Cr.), Dolcoath, Greenstone, Grothe & Pearson, Ida Bell, National Tin Mining Co., and tin on upper part of Lost River; see also (Lost R.).

Collier, 1904 (B 225), p. 157-160, 166-167 -- Preliminary to B 229, except that specimen reported as wolframite and malachite there is here reported as wolframite and garnet.

Collier, 1904 (B 229), p. 17-23 -- Most of regional bedrock is Port Clarence Limestone (Silurian) cut by numerous rhyolitic dikes. Granite stock exposed on Tin Cr.; fluorite and cassiterite(?) in granite. Contact-metamorphic aureole around granite. Cassiterite-bearing dike from Tin Cr. to Cassiterite Cr.; disseminated crystals of cassiterite and much purple fluorite that replaced many original minerals. Much lithium mica. In granite are also tourmaline, topaz, pyrite, garnet, and galena. Wolframite and malachite in float from a dike; picked sample assayed 0.36 oz Au per ton and trace of Ag. Some of galena argentiferous. Stannite found in contact zone around granite on Tin Cr. In 1903 claims were staked along and trenches dug across Cassiterite dike.

Clarke and others, 1905 (B 262), p. 129-135 -- Zinnwaldite, cassiterite, and topaz collected from Lost River by Collier (B 229) described.

Collier, 1905 (B 259), p. 121-123 -- As of 1904 most development work was on Cassiterite Cr. Tunnel and crosscut show ore body in dike 60 ft. long; dike 15 ft. wide; limestone walls. Cassiterite in dike and limestone, one vein 2 in. to 1 ft. thick followed about 100 ft. 12 tons ore estimated to carry 10%-20% tin shipped.

Hess and Graton, 1905 (B 260), p. 181 -- Most of data the same as in B 229, p. 17-23. Dikes kaolinized in many places. Minerals other than cassiterite include: tourmaline, topaz, fluorite, zinnwaldite, wolframite, quartz, epidote, garnet, chalcopyrite, pyrite, and galena.

Hess, 1906 (B 284), p. 146-150 -- Basic data the same as given in B 229 and B 259. In 1905 more tunneling and stripping exposed more of Cassiterite, Ida Bell, Dolcoath, and other dikes. Typical metamorphic minerals developed. Much zinnwaldite, fluorite, and tourmaline. Other minerals include molybdenite in small veins, pyrolusite (probably deposited from ground-water), wolframite, arsenopyrite, stibnite, topaz, cassiterite, pyrite, galena, and "mountain leather".

Brooks, 1907 (B 314), p. 28-29 -- Systematic prospecting, 1906.

Knopf, 1908 (B 345), p. 261-264 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 44-57 -- Country rock is Port Clarence Limestone. Granite boss one-third mile in diameter on Tin Cr. Many vertical quartz porphyry dikes. Tin prospects in highly altered dikes. Contact aureole around granite contains fluorite, vesuvianite, magnetite, hornblende, plagioclase, arsenopyrite, cassiterite, scheelite, garnet, etc. Major development on Cassiterite dike; altered quartz porphyry dike traced 9,000 ft. from Tin Cr. to Lost R.; tin-bearing part of dike 3,000 ft. long. Tin ore associated with fluorite and lithium mica. Wolframite, pyrite, arsenopyrite, sphalerite, galena, molybdenite, topaz also present; value of tungsten may equal or exceed that of tin. Ida Bell dike similar to Cassiterite, but not much altered. Dolcoath dike highly altered; cassiterite in dike microscopic in size; wall rock extensively contact metamorphosed; danburite and cassiterite intergrown. Several tunnels and drifts in and along Cassiterite dike in 1907. Minor exploration elsewhere. Limestone within 1,000 ft. of parts of Cassiterite dike seamed with veinlets containing contact-metamorphic minerals, including fluorite, vesuvianite, zinnwaldite, tourmaline, scheelite, a few sulfides, cassiterite, and wolframite. Quartz veins that contain either cassiterite or wolframite cut limestone; sulfides also present.

Brooks, 1910 (B 442), p. 39 -- Placer tin recovered from Cassiterite Cr., 1909.

Hess, 1912 (B 520), p. 89 -- Cassiterite found in dikes, 1903.
p. 91-92 -- Data all in earlier reports.

Brooks, 1913 (B 542), p. 50 -- 300 ft. underground work completed, 1912.

Brooks, 1914 (B 592), p. 58 -- Mill erected and concentrates shipped, 1913.
p. 71 -- Mill installed and development work, 1913.

Chapin, 1914 (B 592), p. 407 -- Small concentrating plant installed and 5,000 lbs. concentrate that contained over 60% Sn and 11% W produced, 1913.

Brooks, 1915 (B 622), p. 68 -- Development, 1914.

Eakin, 1915 (B 622), p. 84-89 -- Quotations from B 358 and additional material on development and milling methods. As of July, 1914, there were about 1,200 ft. of underground workings on Cassiterite dike; about 2,000 tons of ore taken out of two levels. One milled during two years yielded about 4% concentrates that averaged 62.31% Sn and 11.08% W. Some placer mining on Cassiterite Cr., 1914.

Brooks, 1916 (B 642), p. 28 -- Work [type not specified] continued, 1915.

Smith, 1917 (BMB 142), p. 27 -- 80 ft. of adit driven, 1915.

Smith, 1917 (BMB 153), p. 4 -- Development continued, 1916.

Lost River - Continued

Brooks, 1918 (B 662), p. 19, 62 -- Development continued, 1916.

Mertie, 1918 (B 662), p. 436-437 -- Wolframite is an essential part of the lode; amount may be one-half that of cassiterite.

p. 443 -- Development work in 1916.

Harrington, 1919 (B 692), p. 354-357 -- About 150 ft. of additional drifts since 1914. References to B 622, p. 84-89. May be as much wolframite as cassiterite in ore.

p. 359 -- Placer tin has been mined from Cassiterite Cr. [as of 1917].

Martin, 1919 (B 692), p. 41 -- Some development work, 1917. No ore milled or shipped.

Cathcart, 1920 (B 712), p. 194 -- Fearing examining lodes and Cassiterite Cr. placers, 1918.

Martin, 1920 (B 712), p. 21-22 -- Work done, but no production, 1918.

p. 52 -- Work preparatory to mining, 1918.

Brooks, 1921 (B 714), p. 37-38 -- Lost River mine is only lode tin property sufficiently developed to justify belief that it will soon become a producer [as of 1919].

Brooks and Martin, 1921 (B 714), p. 71, 95 -- Development continued, 1919. About 25 men employed.

Harrington, 1921 (B 714), p. 236 -- Development continued, 1919.

Brooks, 1922 (B 722), p. 22, 65 -- During winter 1919-20 a 250-ft. inclined shaft was sunk on the [Cassiterite] dike from a station on the lower tunnel.

Cathcart, 1922 (B 722), p. 163, 185 -- Within the last few years [as of 1920] underground work has been done.

Steidtmann and Cathcart, 1922 (B 733), p. 51-74 -- Country rock is northward dipping Port Clarence Limestone cut by 2 sets of faults, along some of which quartz-porphyry dikes were injected. Parts of some of the dikes and some of the country rock were replaced by cassiterite, fluorite, topaz, tourmaline, and other minerals. The most promising tin deposits are in dikes. Altered mineralized dikes contain, among other minerals: sericite, cassiterite, fluorite, kaolin, wolframite, zinnwaldite, pyrite, arsenopyrite, galena, molybdenite, sphalerite, stibnite, topaz, tourmaline. Limestone walls of dikes extensively metamorphosed; minerals developed include: fluorite (in places as much as 50% of rock), zinnwaldite, vesuvianite, pyrite, cassiterite, arsenopyrite, wolframite, tourmaline, topaz, plagioclase, quartz. At the end of the 1918 season underground workings near Cassiterite Cr. totalled 1,400 or more feet. [This reference includes 10 p. of detailed description of working near Cassiterite Cr.] Estimate of amount of probable tin-bearing material in part of Cassiterite dike is 107,488 tons. Underlying granite body probably close to surface. Placer cassiterite in Cassiterite Cr.; one ton sluiced out in 1918.

p. 76-78 -- Dolcoath dike comprised mainly of plagioclase (near labradorite) and quartz in fine-grained groundmass. Secondary minerals include: tourmaline, micas, danburite, pyrite, arsenopyrite, microscopic cassiterite crystals, topaz. Hanging wall of dike has moved downward since mineralization. Tunnel at least 100 ft. long and shaft 25 ft. deep have explored dike; prospect not economic.

Smith, 1930 (B 813), p. 61-62 -- Machinery and supplies shipped in, 1928.

Smith, 1932 (B 824), p. 68 -- Some prospecting and development, 1929.
Smith, 1942 (B 926-C), p. 203 -- Reference to B 733.
Coats and Killeen, 1944 (OF 2) -- Fluorite occurs as (1) replacement of limestone in vein-like bodies; (2) large masses of partially replaced limestone in which 40% of the rock may be fluorite; (3) selvages of fluoritized limestone along the Cassiterite dike (up to 50% fluorite); (4) mixtures of fluorite, topaz, mica, clay minerals, and several ore minerals in the Cassiterite dike. Minable rock might contain a minimum of about 300,000 tons of fluorite.
Bain, 1946 (IC 7379), p. 66 -- USBM work suggested about 4 million tons of rock averaging 0.336% Sn and 0.061% WO_3. Drill hole penetrated 13 ft. of granite that averaged 2.91% Sn.
Heide, 1946 (RI 3902), p. 2-44 -- Detailed description of changes in ownership before 1944 given. At least 15 claims were patented. Regional bedrock is limestone; intruded by small granitic stocks at Brooks Mtn. and on Tin Cr. Acidic dikes intruded along faults that are younger than the stocks. Underlying granite mass discovered by USBM drilling. Intense contact metamorphism. Tin ore in contact zone and acidic dikes. Principal mine workings on Cassiterite dike. Dikes terminate at, or are offset by, major fault in Lost River valley. Tin-tungsten ore in parts of dikes (particularly Cassiterite). Locally the contact-metamorphic zone consists wholly of fluorite. Contact zone of granite cupola with limestone is, in places, essentially kaolin with fluorite, topaz, quartz, galena, sphalerite, chalcopyrite, molybdenite, wolframite, zinnwaldite, arsenopyrite. Strongest tin mineralization in cupola is in about 40 ft. from contact; tin and tungsten both present in variable quantities. Several USBM drill-hole samples contained phenacite (beryllium silicate). Exploration methods and data on drill holes and reentered workings are presented in exhaustive detail. Composite sample supposedly representative of ore from dikes contained 1.02% Sn, 0.29% WO_3, 0.18% Zn, 0.10% Pb, 0.03% Mo.
Heide and others, 1946 (RI 3978), p. 9-10 -- Data abstracted from RI 3902.
Anderson, 1947 (TDM 5-R), p. 35 -- Pockets of fluorite, molybdenite, tin and tungsten minerals in Greenstone lode.
p. 41 -- USBM diamond drilling, 1943.
p. 44 -- Reference to B 733.
p. 47 -- In Greenstone lode fluorite makes up most of gangue.
Thorne and others, 1948 (RI 4174), p. 31 -- Wolframite and cassiterite present; reference to RI 3902.
Wedow and others, 1952 (OF 51), p. 21-25 -- Dikes on Cassiterite Cr. are locally almost entirely replaced by sericite, fluorite, and zinnwaldite with scattered amounts of cassiterite, wolframite, tourmaline, topaz, humite, arsenopyrite, and pyrite. Principal tin deposits in mineralized quartz porphyry dikes and adjacent limestone. Extensive sericitization and introduction of fluorite. Cassiterite and wolframite commonly associated with quartz rather than with fluorite. Limestone appears to have undergone 2 stages of alteration; tin introduced in both stages, tungsten in second stage.

Lost River - Continued

p. 32 -- Lost River-Brooks Mtn. area contains the most important uranium prospects in the York region.

Twenhofel, 1953 (C 252), p. 3-4 -- Large, low-grade fluorite deposits have not been mined.

p. 8 -- Wolframite concentrate would be a byproduct if tin were produced.

Wedow and others, 1953 (C 248), p. 13 -- No rock more radioactive than previously described was found in 1952.

White and West, 1953 (C 319), p. 1 -- Development work, 1951.

p. 3-4 -- Data on geology from older reports. Dike rocks contain average of 0.005% eU; maximum was 0.01% eU. No deposits in area are of commercial interest as sources of radioactive material.

Lorain and others, 1959 (IC 7871) -- Mainly data on history of ownership changes, mining and milling practices, cost analyses, and the like. The scanty geologic data are from older reports. All lode-tin ore from Cassiterite dike. 1913-1914 production was 5.6 ton concentrate (3.5 tons Sn and 0.6 ton W). Placer mining in Cassiterite Cr., 1949-51, resulted in concentrate containing 93.4 tons Sn. Ore milled 1952-55 produced concentrate containing 309 tons Sn. In 1955 the property consisted of 15 patented lode claims, 3 patented placer claims, and 33 unpatented lode claims.

Mulligan, 1959 (RI 5520), p. 5, 7 -- Deposit discovered 1903; most extensively developed lode mine on Seward Peninsula (as of 1959). Placer tin recovered from Cassiterite Cr., 1949-1951 (186,710 lb. Sn from 52,000 cu. yds. gravel). Gravel contained 0.6-0.7 lb. WO_3 per cu. yd.

p. 13 -- Section mined averaged 3-4 lb. Sn per cu. yd.

Sainsbury and others, 1961 (P 424-C), p. C16-C17 -- Sediment samples downslope or downstream from mine contain as much as 160 ppm Be; upstream Be content drops abruptly to regional background of 3 ppm. Fluorite-tactite rock all high in Be. Beryl, phenacite, and chrysoberyl all occur at mine.

U.S. Geological Survey, 1962 (P 501-A), p. A2 -- Sulfide-bearing greisen 1 mi. from mine [Tim Cr. stock] identical with that at mine.

A5 -- Extensive area of fluoritized limestone with beryllium minerals.

Sainsbury, 1963 (C 479), p. 2-5, 7-8 -- Beryllium deposits in zone about 7 mi. long and 2-3 mi. wide. 4 distinct mineralized areas are each about 4,000 ft. long and 1,000 ft. wide; all rock in areas is not ore. Deposits are replacement lodes in limestone and consist of veins, pipes, and irregular stringer lodes; minor amounts of beryllium in tactite near granite contacts. Beryllium ore looks very much like argillaceous limestone host rock, but is heavier. Ore consists basically of fluorite, diaspore, crysoberyl, white mica, and tourmaline with minor amounts of other beryllium minerals, hematite, manganese minerals, and unidentified minerals. Chrysoberyl commonly along borders of fluorite. Some nodules contain as much as 6% BeO. Beryllium minerals identified are: chrysoberyl, euclase, bertrandite, beryl, phenakite, and possibly milarite. Be content of tourmaline probably very low. Largest veins and largest potential reserves of beryllium are in and near Lost River mine, particularly along Camp Cr. Much dark purple float ore.

Lost River - Continued

p. 13-14 -- Sediment samples from above mine showed Be contents no greater than regional background. Float sample collected where Ida Bell dike crosses a headwater of Cassiterite Cr. contained 0.58% BeO.

Sainsbury, 1964 (B 1129) -- Mine operated intermittently from 1904 through 1955 and produced a total of about 350 short tons of tin metal from lodes (Cassiterite dike) and 93.4 tons of tin metal from placers (Cassiterite Cr.). Regional bedrock is Port Clarence Limestone (Early Ordovician age near mine) intruded by granite plutons (exposed at Brooks Mtn. and on Tin Cr.; encountered only in drill holes and workings at mine). Main ore minerals are cassiterite and wolframite, associated with sulfides and minor amounts of other ore minerals, in intrusive rocks and limestone. Many basalt porphyry and rhyolite porphyry dikes intrude limestone. Granite and dikes greisenized and cut by veinlets. Extensive kaolinization, measured and indicated reserves of one containing more than 1% Sn (or combined Sn and WO_3) amount to 305,000 tons, all in the Cassiterite dike. Extensive underground workings, mainly in Cassiterite dike and granite cupola. Ore minerals include: arsenopyrite, pyrite, pyrrhotite, sphalerite, stannite, cassiterite, scheelite, wolframite, chalcopyrite, hematite, galena, bismuthinite, molybdenite, ilmenite, magnetite, stibnite, rutile, phenacite, beryl, and chrysoberyl. Gangue minerals include: fluorite, zinnwaldite, idocrase [vesuvianite], topaz, garnet, sericite, kaolinite, and tourmaline. Selected specimens of sphalerite contained as much as 1.0% cadmium, 0.1-0.5% indium, and 0.001-0.01% niobium. Silver reported in spectrographic analyses in amounts as great as range of 0.01-0.05%. Report presents many data on paragenesis and post-mineral alteration.

U.S. Geological Survey, 1964 (P 501-A), p. A4 -- Deposits in area constitute largest known U.S. tin resource and contain appreciable tungsten.

Berryhill and Mulligan, 1965 (USBM OF 1-65) -- Detailed data on USBM sampling program are presented. Principal beryllium mineral is chrysoberyl associated with fluorite in altered limestone. Averages of various kinds of samples of rocks other than Cassiterite dike and underlying granite were 0.12% and 0.13% BeO. Dike samples (possibly including some altered wall rock) averaged 0.07% BeO; granite contained only traces of beryllium.

Heide and Mulligan, 1965 (USBM OF 2-65) -- Detailed data on sampling program described in RI 3902.

Mulligan, 1965 (USBM OF 7-65), p. 10 -- USBM project in 1960-61 in mine; results in USBM OF 1-65.

p. 13 -- Data on claim ownership.

p. 16 -- 13 diamond-drill holes (total length 2,158 ft.) drilled in Camp Cr. area.

p. 35-62 -- Drill-hole sampling data; Be up to 1.66%, but most samples less than 0.2%; fluorite content up to 80%.

p. 72-76 -- Core samples contained much fluorite and no more than 0.5% pyrite.

p. 79-92 -- Data on preliminary metallurgical tests.

Sainsbury, 1965 (OF 250), p. 2-34 -- Camp Cr. deposits consist of a wide zone of replacement veins and veinlets in fractured limestone; localized beneath a thrust fault and highest grade where intersected by a second thrust fault. Fluorite-beryllium deposits may grade at depth

into tin deposits. Detailed logs of USBM drill cores.

Berg and Cobb, 1967 (B 1246), p. 128, 130-132 -- Beryllium lodes in Paleozoic limestone intruded by granite dikes and sills consist mainly of chrysoberyl, fluorite, diaspore, mica, tourmaline, and minor amounts of other beryllium minerals, hematite, sulfides, and manganese minerals. Bulk samples range from 0.11% to 0.5% Be; some nodules contain up to 2.6% Be. In general do not coincide with tin, tungsten, and base-metal deposits. Largest and richest tin-tungsten lodes in Seward Peninsula region are at Lost River. Occur in hydrothermally altered dikes and other bodies of rhyolite porphyry that cut limestone; in granite cupola not exposed at surface; in irregular veinlike masses in tactite (siliceous alteration) in limestone. Metalliferous minerals include: cassiterite, wolframite, stannite, arsenopyrite, pyrite, galena, scheelite, chalcopyrite, marmatite, molybdenite, stibnite, bismuthinite; gangue minerals include: fluorite, topaz, tourmaline, quartz, calc-silicate minerals, clay minerals. Virtually all lode-tin ore (contained about 350 tons tin) produced in Alaska came from Cassiterite dike, a highly altered body of rhyolite porphyry. Lode tin resources estimated at 2,600 tons of tin in material containing 1.3% Sn; 15,450 tons of tin in material containing about 1.0% Sn; 18,200 tons of tin in leaner material. Also considerable WO_3 resources. No tungsten has been mined.

U.S. Bureau of Mines, 1967 (IC 8335), p. 34 -- Reference to B 1129.

Sainsbury, 1969 (B 1287), p. 45 -- Altered dikes, Cassiterite and Ida Bell, contain main ore shoots. Both can be traced for 9,000 ft. or more; Ida Bell cuts Cassiterite. Near tin deposits both have been changed to quartz-topaz greisen.

p. 62-63 -- Commercial lode production was 3.5 tons tin and 0.6 ton tungsten, 1913-14; 342.2 tons tin, 1949-55. Placer production 83.4 tons tin, 1949-55. Total resources of lode mine estimated to be 23,000 tons Sn and 62,500 units WO_3.

p. 74-75 -- Phenacite in drill cores; associated with quartz. Beryl found only in a single quartz-mica-fluorite vein exposed between Cassiterite and Ida Bell dikes.

p. 81-84 -- The greatest amount of beryllium-fluorite rock is in a grossly tabular body beneath the Rapid River thrust; it is extremely brecciated along the still lower Camp Creek thrust. Only a few discontinuous rhyolite porphyry and lamprophyre dikes have been found. Ores contain fluorite, diaspore, chrysoberyl and other minerals; at east end is an old prospect with stibnite and fluorite. Drill cores contained stannite and other sulfides. In Lost River mine beryllium is principally in selvages between tin ore shoot and limestone wall rock. Phenacite has been identified in cores of drill holes that penetrated granite cupola.

p. 93 -- Tin ore shoot may be localized by intersection of a thrust fault with the Cassiterite dike.

Sainsbury, 1969 (B 1301), p. 10-11 -- Marginal resources greater than stated in report on tin resources published in 1953 (Penn. State Univ.). Main lode deposit consists of cassiterite and wolframite associated with base-metal sulfides in quartz-topaz greisen. Main ore shoot along greisenized rhyolite porphyry dike; confined to 500-ft. (vertical extent) zone

Lost River -- Continued

above buried biotite granite. Submarginal deposits along several altered dikes and in conelike mass of altered limestone above buried granite.

Sainsbury, 1972 (I-685), p. 3 -- Most important tin lode of United States.

Cobb, 1973 (B 1374), p. 91 -- Has been a source of lode tin production.

p. 93, 95 -- Extensive investigations by USGS, USBM, and private companies. Lode mine has produced about 350 tons of tin. Placer deposits on Cassiterite Cr. produced concentrates containing 93.4 tons of tin between 1949 and 1951. Wolframite in concentrates was not saved.

Gualtieri, 1973 (P 820), p. 58 -- Reference to B 1129.

Sainsbury and Reed, 1973 (P 820), p. 639 — Tin that could be recovered during milling of fluorite-tin-tungsten-beryllium deposits could amount to as much as 40,000 long tons.

p. 641-644 -- Some cassiterite has exsolved from magnetite. Lost River area is typical of sulfide-cassiterite type of high-temperature deposit, but is unusual in containing large deposits of fluorite containing beryllium zoned around the tin deposits. Data on geochemical cycle of tin are presented. Contact-metamorphic tin deposits are fairly uncommon and have magnetite, fluorite, and sulfides associated with them; at Lost River beryllium minerals are also present.

p. 648 -- New type of beryllium deposit.

(Lost R.)

Antimony, Beryllium, Copper, FM, Lead, Silver, Tin, Tungsten; Fluorite

Port Clarence district
MF-426, locs. 6, 7

Teller (13.15-13.55, 7.1-8.3)
65°24'-65°28'N, 167°09'-167°12'W

Summary: Country rock is mainly limestone cut by a major thrust fault and other faults and by various small dikes. Fluorite-beryllium ore localized along thrust fault; consists mainly of fluorite, diaspore, tourmaline, and chrysoberyl. An iron-enriched zone contains limonite, hematite, goethite, and mimetite, all with uranium impurities; radioactivity was 0.06% eU. Placer cassiterite in gravels probably was derived from known outcrops on Cassiterite and Tin Creeks. Wolframite-topaz lode is probably a mineralized fault zone in limestone; minerals present include topaz, fluorite, wolframite, argentiferous galena, stannite, stibnite, and azurite. Includes references to wolframite-topaz lode; see also Lost River.

Collier, 1905 (B 259), p. 123-124 -- Porphyritic dikes, some containing galena and arsenopyrite found southwest of Cassiterite Cr. One sample reported to have assayed 15 oz. Ag per ton (1904).

Knopf, 1908 (B 345), p. 263-264 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 57-58 -- Mineralization along a fault. Stringers in a belt about a foot wide. Wolframite, galena, and stannite in gangue of topaz and purple fluorite. A little azurite, probably derived from stannite.

Steidtmann and Cathcart, 1922 (B 733), p. 81 -- Reference to B 358.

Anderson, 1947 (TDM 5-R), p. 13 -- Stibnite in wolframite-topaz lode.
p. 22 -- Copper in wolframite-topaz lode.
p. 29 -- Lead and/or silver and/or zinc in wolframite-topaz lode.
p. 44 -- Wolframite-topaz lode is a fissure filling composed of topaz gangue with wolframite, stannite, and galena with minor amounts of stibnite and fluorite. Wall rock is limestone. Vein is 14 in. wide for the 65 accessible feet followed by a tunnel. Channel samples assayed 0.74%-0.96% Sn, 0.32%-0.62% WO_3, 4.17%-4.66% Pb, trace of Au, and 9.30-9.34 oz. Ag per ton.

Wedow and others, 1952 (OF 51), p. 24-25 -- Wolframite-topaz lode is a stringer lode in a fault zone cutting limestone. A prospect pit on ridge across from mouth of Tin Cr. yielded samples with an average content of 0.061% eU and 0.049% U. Uraniferous minerals are limonite, hematite, and mimetite.

White and others, 1952 (C 196), p. 2-3 -- In area mineralized limestone contained less than 0.001% eU; iron replacement zones in limestone, 0.06% eU; rhyolite dikes, an average of 0.005% eU (locally up to 0.01% eU); granite, less than 0.002% eU. Other data contained in older reports.

White and West, 1953 (C 319), p. 3-4 -- Very small iron-enriched zone in limestone opposite mouth of Tin Cr. contained 0.06% eU. Radioactivity due to uranium impurities in limonite, hematite, goethite, and mimetite.

Mulligan, 1959 (RI 5520), p. 12-15 -- 6 churn-drill holes all encountered tin; best hole indicated 0.35 lb. Sn per cu. yd. in 11-foot mining section. No tungsten.

(Lost R.) - Continued

p. 23 -- Placer tin probably derived from known outcrops on Cassiterite and Tin Creeks.

Sainsbury and others, 1961 (P 424-C), p. C16 -- Sediment samples all higher in Be than regional background.

Sainsbury, 1963 (C 479), p. 3 -- General data; see Lost River.

p. 8-9 -- Banded fluorite-diaspore-chrysoberyl ore in zone of en echelon veins across valley 1-1/2 mi. below Lost River mine.

Berg and Cobb, 1967 (B 1246), p. 130 -- En echelon replacement veins in an eastward-trending belt about 1,000 ft. wide and 4,200 ft. long. Veins mainly fluorite-diaspore-chrysoberyl in fractures in limestone and along walls of mafic dikes.

p. 132 -- Wolframite-topaz lode is probably mineralized eastward-striking fault (breccia) zone in limestone. Foot-thick stringer lode of wolframite, galena, stannite, topaz, and fluorite veinlets; assay showed 22.9 oz. silver per ton.

Sainsbury, 1969 (B 1287), p. 78-79 -- Lodes occur for about 5,000 ft. along Rapid River thrust, extending eastward from Bessie & Maple prospect. In central part of area there are only fluorite-beryllium lodes; at eastern end (Tozer prospect) mainly rusty float boulders of fine-grained silica. Fluorite-beryllium lodes are fluorite, diaspore, tourmaline, white mica, and chrysoberyl. [This statement does not agree with Pl. 5, which shows fluorite-beryllium rock in lower plate at Tozer prospect.]

Cobb, 1973 (B 1374), p. 95 -- Placer mining for tin, 1966-67; no data on results.

(McKinley Cr.) Gold

Port Clarence district Teller (21.6, 5.2)
MF-426, loc. 69 65°16'N, 166°04'W

Summary: Placer gold has been mined.

Collier and others, 1908 (B 328), p. 270-271 -- Gravels known to be auriferous; no mining, 1903.
Sainsbury and others, 1969 (OF 377), p. 20 -- Placer gold has been mined.

(Mint Cr.) (R.) — No Tin

Port Clarence district — Teller SE¼NW¼ quad.

Summary: No cassiterite present, in spite of rumors. See also (Clara Cr.).

Collier, 1902 (P 2), p. 49 -- Stream tin reported by prospectors.
Hess, 1906 (B 284), p. 157 -- Prospectors working in 1905 could find no stream tin.
Steidtman and Cathcart, 1922 (B 733), p. 96 -- Mint R. is barren of tin.

(Offield Cr.) Gold

Port Clarence district Teller (21.9-22.1, 5.65-5.8)
MF-426, loc. 70 65°17'-65°18'N, 165°59'-166°01'W

Summary: Has been extensively mined. Placer mining reported in 1903, 1931-1933, 1937-1939; probably also in other years.

Collier and others, 1908 (B 328), p. 270-271 --Mining, 1903.
Smith, 1933 (B 844-A), p. 50 -- 1 man mining, 1931.
Smith, 1934 (B 857-A), p. 47 -- A little mining, 1932.
Smith, 1939 (B 910-A), p. 52 -- A little mining, 1933.
Smith, 1939 (B 910-A), p. 71 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 69 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 65 --
White and others, 1953 (C 244), p. 2 -- Formerly had been extensive mining; none in 1946.
Cobb, 1973 (B 1374), p. 92-93 -- Has been extensively mined.

(Peluk Cr.) Tin

Port Clarence district Teller (10.6, 11.65)
MF-426, loc. 29 65°39'N, 167°32'W

Summary: USBM churn drilling indicated 0.01-0.77 lb. tin per cu. yd. in samples. Composite concentrate contained 53.46% Sn. No production mining except possibly at very mouth; production would have been included with that of Buck Cr. Shaft, 20 ft. deep, sunk on quartz stringers in slate near head in early 1900's; a little cassiterite on dump; float nearby contained arsenopyrite and cassiterite.

Knopf, 1908 (B 345), p. 257 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 33-34 -- Shaft reported to be 20 ft. deep sunk on quartz stringers in slate. Material on dump contains abundant pyrite and a little cassiterite. Float consisting largely of actinolite contains intergrown arsenopyrite and cassiterite; tourmaline is an accessory mineral.

Steidtmann and Cathcart, 1922 (B 733), p. 95 -- Some of ground may be suitable for dredging.

Heide and Rutledge, 1949 (RI 4418), p. 7 -- Composite concentrate of placer samples contained 53.46% Sn.

p. 16 -- Data on 4 churn-drill holes; 0.01-0.77 lb. Sn per cu. yd. of mining section.

Mulligan, 1965 (RI 6587), p. 24 -- No mining on this creek reported.

p. 27-30 — Little tin except near mouth. Scattered traces of tin in detrital cover between Peluk Cr. and West Fork (of Buck Cr.). Churn-drill-hole data repeated from RI 4418.

(Percy Gulch) Tin

Port Clarence district Teller (8.0, 10.4) approx.
MF-426, loc. 24 65°35'N, 167°54/W approx.

Summary: The gravel of Percy Gulch, a tributary of Goodwin Cr., is tin bearing.

Brooks, 1922 (B 722), p. 22 -- Tributary of Goodwin Cr.; tin-bearing gravel present.

(Pinnacle Cr.) FM, Monazite, Tin

Port Clarence district Teller (20.05-20.3, 16.15-16.6)
MF-426, locs. 55, 58 65°54'-65°55'N, 166°10'-166°12'W

Summary: Gravel in place contained as much as 0.00017% eU. Concentrates contained cassiterite (0.02 lb. Sn per cu. yd. of mining section), monazite, and zircon. One concentrate sample (0.180% eU) contained 0.065% uranium; the balance was assumed to be due to thorium.

Killeen and Ordway, 1955 (B 1024-C), p. 71-74 -- Radioactivity of heavy-mineral fraction of one sample was 1.0% eU. In field Geiger counter showed some "hot spots" in bedrock and stream gravel.

p. 79-83 -- Stream gravels in place had eU as high as 0.00017%. One concentrate sample contained 0.180% eU; 0.065% was uranium and the balance was assumed to be thorium. Minerals identified in concentrate included cassiterite, monazite, and zircon.

Mulligan, 1959 (RI 5493), p. 1-2 -- Cassiterite identified.

p. 29-30 -- Sample contained cassiterite.

p. 32 -- 0.02 lb. Sn per cu. yd. of mining section.

(Pinguk R.) Tungsten (?)

Port Clarence district Teller
SW¼NE¼ quad.

Summary: Unconfirmed report of placer wolframite on upper Pinguk R.

Anderson, Eskil, 1947 (TDM 5-R), p. 44 -- Large quantities of placer wolframite reported from upper Pinguk R.
Cobb, 1973 (B 1374), p. 98 -- Unconfirmed report of wolframite.

(Potato Cr.) Tin

Port Clarence district Teller (9.75-9.95, 11.65-11.75)
MF-426, loc. 26 65°39'-65°40'N, 167°38'-167°39'W

Summary: Drains from Potato Mtn. For data on regional geology see (Buck Cr.). Cassiterite in stream gravel, but in only low concentrations; less than 0.6 lb. Sn per cu. yd. Composite of USBM cassiterite samples contained 45.42% tin.

Cathcart, 1920 (B 712), p. 195 -- Placer tin discovered, 1918.
Martin, 1920 (B 712), p. 22 -- Placer tin discovered, 1918.
p. 52 -- Placer tin discovered, 1918.
Brooks, 1922 (B 722), p. 22 -- Tin-bearing gravels have been prospected (as of 1920).
Heide and Rutledge, 1949 (RI 4418), p. 4 -- Data on claim ownership.
p. 7 -- Composite concentrate of placer samples contained 45.42% Sn.
p. 19 -- Data on each USBM churn-drill hole; none contained as much as 0.6 lb. Sn per cu. yd. of mining section.
Mulligan, 1965 (RI 6587), p. 24 -- No record of any mining (as of 1965).
Mulligan, 1966 (RI 6737), p. 20 -- Sample from tributary gulch contained 0.2 lb. Sn per cu. yd. Reference to RI 4418.
p. 33-34 -- Low-grade placer probably derived from veinlets near faults in metamorphosed shaly rocks.
Cobb, 1973 (B 1374), p. 95 -- Cassiterite has been found.

(Potato Mtn.) Tin; Fluorite

Port Clarence district Teller (10.4, 11.65)
MF-426, loc. 2 65°39'N, 167°34'W

Summary: Country rock is slate, shale, phyllite, schist and limestone cut by small greenstone bodies and an altered granite porphyry dike. Lodes consist of quartz veinlets containing cassiterite, tourmaline, pyrite, arsenopyrite, stannite. Accessory minerals that are common in other tin deposits of Seward Peninsula are absent; even fluorite is much less common. Lode prospects consisting of shallow shafts and trenches failed to find ore. Most streams that drain Potato Mtn. carry cassiterite; Buck Cr. was a major producer. Includes references to: Alan Dale, Daisy, Eureka, Red Fox.

Hess, 1906 (B 284), p. 155 -- Dikes in hills running north from Potato Mtn. Small veins in slates in this area contain small clusters of cassiterite crystals and pyrite.

Knopf, 1908 (B 345), p. 257 -- Preliminary to B 358.

Knopf, 1908 (B 358), p. 33 -- Prospect pit on divide at head of Buck Cr. [Eureka claim of other reports] shows quartz with considerable cassiterite. Country rock slate. Arsenopyrite and tourmaline in quartz.

Mertie, 1918 (B 662), p. 443 -- Denny Bros. said to own tin claims developed by a shaft and tunnel. "The lode is said to be connected with several rhyolitic dikes that cut a body of calcareous slate."

Harrington, 1919 (B 692), p. 355 — Harrington made a superficial examination, 1917.

p. 357 -- Stringers of quartz with some cassiterite in short tunnel.

Steidtmann and Cathcart, 1922 (B 733), p. 88-94 — Country rock is sandy to calcareous slate (some practically shale) intruded by granite porphyry dike; many quartz veins. Reference to B 358. Cassiterite nuggets have been found in float. Cassiterite crystals in quartz veins. All tin-bearing streams in vicinity head in Potato Mtn. Sulfides found in altered dike rock on Red Fox claim at head of Buck Cr. Nearby dump from shallow shaft contains quartz with pyrite crystals and stannite. Other prospects on mountain have been explored by trenches and shallow shafts. No minable ore disclosed, but some cassiterite, stannite, and pyrite present. Some specimens contain tourmaline and fluorite. Granite body probably underlies mountain.

Anderson, 1947 (TDM 5-R), p. 40 -- Placer tin in streams draining Potato Mtn.

Wedow and others, 1952 (OF 51), p. 28-29 -- Country rock is calcareous slate with minor interbedded fine sandstone and limestone; cut by quartz-porphyry dike and quartz veins. Pyrite, tourmaline, stannite, cassiterite, fluorite have been found in prospects.

p. 32 -- Mineralization favors presence of uranium.

Sainsbury, 1963 (C 479), p. 15-16 -- Beryllium-bearing lodes less likely in slates of Potato Mtn. than in limestones of other tin-bearing areas of York region.

Mulligan, 1965 (RI 6787) — Study of distribution of placer deposits indicated that source of most of tin was on Potato Mtn. Bedrock is slate with

(Potato Mtn.) - Continued

some shale, phyllite, schist, and limestone; cut by small greenstone bodies and by an altered granite dike near the summit; no stock exposed, but one probably underlies mountain. Considerable jointing and faulting; some faults have crushed zones as much as 15 ft. wide and can be traced for thousands of feet. Cassiterite is in quartz veins or disseminated in schist; accompanied by arsenopyrite and pyrite. Rock near some crushed zones is tourmalinized. USBM trenching and diamond-drilling program described in detail. Tin-bearing deposits are "along minor breaks and bedding planes but not in the crushed earthy fillings of major faults." Irregular segregations contain 1 to 10 percent tin, but zones do not average more than 0.25% tin. The largest segregation exposed (on Little Potato Mtn.) is in an area 300 ft. by 30 ft.; highest sample value was 12%, but the average grade is probably about 1% tin. The minerals that commonly accompany cassiterite in other parts of the York area have not been found at Potato Mtn.; even fluorite is very scarce.

Berg and Cobb, 1967 (B 1246), p. 134-135 -- Tin lodes in tourmaline-bearing slate and schist cut by granite porphyry dikes; lodes consist of irregular quartz veinlets containing cassiterite, tourmaline, pyrite, arsenopyrite, and clay minerals. Richest lodes contain 1-10 percent Sn, but are separated by zones with little more than 0.25% Sn. Largest deposit is a stockwork carrying about 1% Sn for a length of 300 ft. and a width of 10-30 ft. Lodes discovered about 1900 and explored until about 1920, but no ore was shipped.

Sainsbury, 1969 (B 1287), p. 62 -- Production from placers in area continued until 1960.

p. 94 -- Area not glacially scoured in late Wisconsin time, so placers were not destroyed.

(Quartz Cr.) FM, Monazite, RE, Tin

Port Clarence district Teller (19.45, 16.55)
MF 426, loc. 51 65°55'N, 166°17'W

Summary: Drains Ear Mtn. stock and contact zone. Concentrates contain cassiterite, monazite, xenotime, zircon, apatite, scapolite and other more common minerals. Columbium (niobium) identified spectrographically. Maximum radioactive content of gravel in place was 0.000078% eU.

Killeen and Ordway, 1955 (B 1024-C), p. 70-72 -- Old concentrate samples contained as much as 0.215% eU.

p. 79 -- Maximum radioactive content of gravel in place calculated to be 0.000078% eU.

p. 81-82 -- Minerals identified in concentrates included: monazite, zircon, cassiterite, xenotime, apatite, scapolite.

Mulligan, 1959 (RI 5493), p. 30-31 -- Sample contained pyrite and various contact-metamorphic minerals. No tin mineral identified, but Sn showed up in spectrographic analysis.

Cobb, 1973 (B 1374), p. 97-98 -- Columbium (niobium) identified by spectrographic methods.

(Rapid R.)

Beryllium, Lead, Tin, Zinc; Fluorite

Port Clarence district
MF-426, locs. 3, 45

Teller (12.35-13.4, 7.3-8.1)
65°24'-65°25'N, 167°10'-167°18'W

Summary: Area traversed by major thrust fault. Fluorite-beryllium deposits localized along this and a lower (suspected but not exposed) thrust; are in jointed and faulted limestone and dolomite. Mineralized rock at surface is mainly fluorite, diaspore, tourmaline, white mica, and chrysoberyl with small amounts of other beryllium minerals. At depths of several hundred feet drill holes encountered sulfide minerals (including galena and sphalerite) and cassiterite. Deposits grade eastward into nearly barren fine-grained silica. Granite stock or cupola may underlie area at depth greater than 500 ft.

Mulligan, 1959 (RI 5520), p. 12-14 -- Traces of cassiterite (but no tungsten minerals) in samples from churn-drill holes.

Sainsbury, 1963 (C 479), p. 5 -- Spectrographic analyses of 2 samples indicated 0.24% Be.

p. 9 -- Deposits similar to those described for Lost River except that tourmaline is more common. See Lost River for general description of mode of occurrence.

p. 11 -- Be content of 12 samples ranged from 0.05% to 0.38%. 2 samples analyzed for fluorine contained 27.5% and 27.6% F.

Berg and Cobb, 1967 (B 1246), p. 130 -- Beryllium minerals in veins, pipes, and stringers in brecciated and dolomitized argillaceous limestone in an area about 4,400 ft. long and 1,000 ft. wide. Similar to Lost R. deposits, but contain more tourmaline; consist mainly of fluorite- and chrysoberyl-bearing rock.

Sainsbury, 1969 (B 1287), p. 72-74 -- Euclase in veinlets that also contain fluorite and mica; euclase younger than chrysoberyl. Minute amounts of bertrandite in veinlets. Phenacite(?) in veinlets in banded ore from Rapid R.

p. 76-77 -- Deposits consist of veins, veinlets, and pipes of banded fluorite-beryllium rock in limestone and dolomite alined along Rapid River fault for about 4,400 ft. Drilling suggest a lower thrust (200-300 ft. vertically below Rapid River fault) that localized richer ore. Lamprophyre dikes extend up through Rapid River fault. Some zones of richer ore are localized along faults that in places also contain lamprophyres. Fluorite-beryllium ore replaced limestone along walls of joints. At surface ore consists mainly of fluorite, diaspore, tourmaline, white mica, chrysoberyl, and minor amounts of hematite, euclase, bertrandite, and phenacite(?); at depths of several hundred feet sulfide minerals (including galena and sphalerite) and cassiterite were encountered. Deposits grade eastward into nearly barren fine-grained silica. Granite stock or cupola may underlie area at depth greater than 500 ft.

p. 93-94 -- Lodes in shattered zones along faults can be expected to be complex.

(Ruby Cr.) Graphite

Port Clarence district Teller (25.55, 1.35)
65°02'N, 165°33'W

Summary: Graphite occurs as massive lenses several inches thick and as disseminated material in intensely altered quartz and garnet schists near a major fault. Lenses of high-grade material make up about 50% of rock in material exposed by 50 ft. of trenches. Samples of high-grade material ran 59.73% graphite, 80% of which was coarser than 30 mesh. Some of the 100 tons mined by Alaska Graphite Co. in 1916 probably came from this occurrence. Includes references to Alaska Graphite (Mining) Co. and to graphite on tributary of Glacier Canyon Cr.; see also (Christophosen Cr.).

Brooks, 1918 (B 662), p. 40 --Development work, 1916; no production. Wharf built.

Mertie, 1918 (B 662), p. 449 -- Graphite seam 1 in. to 18 in. thick; contain bunches and veinlets of quartz. [Some of 100 tons mined by Alaska Graphite Co. in 1916 may have been from this creek.]

Harrington, 1919 (B 692), p. 363-366 -- Graphitic schist with concordant lenticular masses of graphite as much as 18 in. thick south of divide can be traced to region south of Inuruk Basin. Mining at elevations of 500-1,000 ft. Quartz schists with some biotite; locally garnet schist with some calcite. Some production before 1917 from short tunnels and open pits.

Cathcart, 1922 (B 722), p. 221-223 — Reference to B 692.

Coats, 1944 (OF 10), p. 1-4 -- General data; see summary under (Christophosen Cr.).

p. 5-6 -- Lenses of high-grade material in about 50 ft. of trenches make up about 50% of rock; individual lenses up to 1 ft. thick. Sample of high-grade material ran 59.73% graphite more than 80% of which was coarser than 30 mesh (30 meshes per inch). Several similar graphitic zones exposed on or near Ruby Cr.; at least one was explored by a drift.

Sainsbury and others, 1969 (OF 377), p. 13 -- Graphite has been mined. Occurs as massive lenses several inches thick and as disseminated blebs and flecks in intensely altered rocks near Kigluaik fault. Area may be hydrothermally altered.

(Serpentine R.) Tin

Serpentine district Teller
E½SE¼NE¼ quad.

Summary: Cassiterite in pebbles on river bars.

Marsh and others, 1972 (OF 536), p. 1 -- Pebbles of cassiterite-bearing quartz-tourmaline rock found on river bars in 1970. Eskimo hunters reported to have found a fist-sized piece of cassiterite in 1950's.

(Step Gulch) FM, Monazite, Tin

Port Clarence district Teller (19.95-20.2, 16.05-16.5)
MF-426, locs. 54, 57 65°53'-65°55'N, 166°11'-166°13'W

Summary: Drains Ear Mtn. stock and contact zone. Cassiterite, monazite, and zircon in concentrates. Maximum radioactive content of gravel in place 0.0001% eU. Tin content of mining section 0.05 lb. per cu. yd.

Killeen and Ordway, 1955 (B 1024-C), p. 71 -- Old concentrate sample contained 0.142% eU.

p. 79 -- Maximum radioactive content of gravel in place calculated to be 0.0001% eU.

p. 81 -- Comparison of eU with that of nearby creeks.

p. 83 -- Cassiterite identified in concentrate; monazite and zircon also present.

Mulligan, 1959 (RI 5493), p. 1-2 -- Cassiterite present.

p. 29-30 -- Cassiterite present.

p. 32 -- Sn content of mining section in churn-drill hole was 0.05 lb. per cu. yd.

(Sunset Cr.) Gold, Tungsten

Port Clarence district Teller (20.0-20.15, 6.1-6.3)
MF-426, loc. 66 65°20'N, 166°15'-166°16'W

Summary: Bedrock is mainly greenstone and greenschist with many small auriferous quartz veins. Placer deposit extends both upstream and downstream from the slope break of modified seacliffs of a regional interglacial terrace. So much of the gold in the placer was in crevices in bedrock that the top 3 ft. had to be mined. So much scheelite in concentrates that some was saved and sold in 1917. Dredging reported from 1913 to 1915 and inferred until 1919. Other types of mining 1901-1903, 1935, 1937-1940, 1946.

Brooks and others, 1901, p. 131 --Good colors obtained, 1900. Abundant vein quartz in bedrock.

Collier, 1902 (P 2), p. 45-46 — Successful mining in 1901. Upper part of course in canyon; lower part slightly incised in rolling moss-covered lowland. Bedrock is chloritic mica schist and highly altered greenstone. Many small quartz veins. One branch of creek heads in Mukacharni Mtn. (basalt) and the other in limestone and calcareous schist. Mining at forks of creek. Gold said to be in 4 ft. of gravel on yellow clay. Creek carries enough water for sluicing; enough water for hydraulicking would require a long ditch.

Purington, 1905 (B 263), p. 209 -- Gold worth $17.50 per ounce.

Collier and others, 1908 (B 328), p. 270-271 -- Mining 1901-1903. 3 mi. from coast 2-7 ft. of rather fine gravel on bedrock. Gold in gravel and in crevices in top foot of bedrock. Largest nugget worth about $4.

Smith, 1908 (B 345), p. 229 -- Ditch 30 mi. long completed, 1907. Very little mining.

Smith, 1909 (B 379), p. 297, 299-300 -- Bedrock greenstone and various kinds of schist. Mining in 1908 curtailed by water shortage.

Chapin, 1914 (B 592), p. 388, 393 -- Dredge operated, 1913. Bedrock is greenstone schist and limestone with so much gold in crevices that top 3 ft. of bedrock must be mined.

Eakin, 1915 (B 622), p. 372 -- Dredge operated, 1914.

Smith, 1917 (BMB 142), p. 28 -- Dredge operated, 1915.

Mertie, 1918 (B 662), p. 457 --Report that dredge planned to save scheelite concentrate, 1916.

Martin, 1919 (B 692), p. 41 -- Small production of placer scheelite, 1917.

Harrington, 1921 (B 714), p. 232-233 -- Dredge reported to have been reconstructed and operated for a short time, 1919.

Smith, 1937 (B 880-A), p. 57 -- Renewed activity reported, 1935.

Smith, 1939 (B 910-A), p. 71 -- Mining, 1937.

Smith, 1939 (B 917-A), p. 69 -- Mining, 1938.

Smith, 1941 (B 926-A), p. 65 -- Mining, 1939.

Smith, 1942 (B 933-A), p. 62-63 -- Largest non-float operation in Port Clarence district, 1940. Water for sluicing was pumped.

White and others, 1953 (C 244), p. 2 -- Hydraulicking, 1946.

Sainsbury, 1967 (P 575-D), p. D210 -- Placer extends upstream and downstream from the slope break of the modified seacliffs of the York terrace (Sangamon(?) age), where deposition took place because of reduced gradient. Gold derived from auriferous quartz veinlets in greenschist.

(Sunset Cr.) -- Continued

Sainsbury and others, 1969 (OF 377), p. 20 -- Placer gold has been mined.
Sainsbury, 1972 (I-685), p. 3 -- Gold has been mined.
Cobb, 1973 (B 1374), p. 92-93 -- Was extensively mined; long ditch built from headwaters of Agiapuk R. Scheelite saved and marketed in 1917.

(Sutter Cr.) Gold, Tin

Port Clarence district Teller (10.7-10.85, 11.25)
MF-426, loc. 29 65°38'N, 167°30'-167°32'W

Summary: Has been mined for 1,000 ft. upstream from mouth; concentrates carried a little gold. Stream drains part of south flank of Potato Mtn. and flows into Buck Cr. For data on regional geology and production see (Buck Cr.). See also (Iron Cr.), which is a tributary that contributed tin to lower part of Sutter Cr. Cassiterite-bearing gravel near head of Sutter Cr. was sluiced in 1915.

Collier, 1904 (B 225), p. 164 -- Not much gold or cassiterite has been found (as of 1903).
Knopf, 1908 (B 345), p. 265 -- Discovery of cassiterite reported.
Knopf, 1908 (B 358), p. 62 -- Discovery of cassiterite reported.
Eakin, 1915 (B 622), p. 89-91 -- Tin-bearing placers in lower part of stream course. No mining as of 1914.
Brooks, 1916 (B 642), p. 28 -- Sluicing of tin-bearing gravel reported, 1915.
Smith, 1917 (BMB 142), p. 27 -- Sluicing for tin near head of creek, 1915.
Harrington, 1919 (B 692), p. 360 -- Creek being prospected for dredging ground, 1917.
Steidtmann and Cathcart, 1922 (B 733), p. 96 -- Sutter Cr. above mouth reported to be dredgeable.
Heide and Rutledge, 1949 (RI 4418), p. 7 -- Composite concentrate of placer samples contained 64.65% Sn.
p. 17-18 -- Data on each USBM drill hole are presented; less than 1 lb. Sn per cu. yd. of mining section in all holes.
p. 21 -- Data on trench samples are presented; less than 1 lb. Sn per cu. yd.
Mulligan, 1965 (RI 6587), p. 24-25 -- Mined for about 1,000 ft. upstream from mouth. Tin from mouth of Iron Cr. to mouth of Sutter Cr.
p. 56-57 -- Data from RI 4418. Only traces of tin above Iron Cr.
Cobb, 1973 (B 1374), p. 95 -- Cassiterite, accompanied by a little gold, has been mined.

(Tin Cr., trib. Lost R.)

Antimony, Beryllium, Copper, Tin, Zinc; Fluorite

Port Clarence district
MF-426, loc. 10

Teller (13.6, 8.55)
65°28'N, 167°07'W

Summary: A small granite body intruded limestone. Skarn at contact, joints and small dikes in limestone. Some of skarn contains helvite. Major fluorite-beryllium deposits are replacement veins in or near radial fractures in limestone south of granite; veins contain fluorite, diaspore, chrysoberyl, and white mica. Lodes in limestone near contact with granite contain galena, cerussite, arsenopyrite, chalcopyrite, and cassiterite. Near mouth of creek lepidolite vein contains arsenopyrite, cassiterite, and sphalerite. See also Yankee Girl.

Knopf, 1908 (B 345), p. 269 -- Stibnite and fluorite found at head of creek in 1907.

Knopf, 1908 (B 358), p. 45-46 -- Orbicular rock containing magnetite in contact zone around intrusive.

p. 60 -- Stibnite and fluorite at head of creek.

Brooks, 1916 (B 649), p. 59 -- Reference to B 358 and to Knopf's field notes, which reported finding altered rock (probably contact-metamorphosed limestone) that contained stibnite and fluorite.

Mertie, 1918 (B 662), p. 440 -- Reference to B 649.

Jahns, 1944 (B 945-C), p. 79 -- Orbicular rock described by Knopf (B 358, p. 45-46) is very similar to "ribbon rock"at Iron Mtn., N.M., and contains beryllium.

Anderson, 1947 (TDM 5-R), p. 13 -- Reference to B 649.

Wedow and others, 1952 (OF 51), p. 22 -- Mineralized rock restricted to limestone near a granite-limestone contact.

Sainsbury and others, 1961 (P 424-C), p. C16 -- Stream-sediment and slope-wash samples from granite high in Be. The richer samples are from contact rock rich in idocrase [vesuvianite], which, in the Lost R. area, is rich in Be.

Sainsbury, 1963 (C 479), p. 2-4 -- General data; see Lost River.

p. 9, 11-13 -- Veins and veinlets of fluorite-diaspore-chrysoberyl-mica type; beryllium-bearing skarn at margins of granite that intrudes limestone. Skarn deposits relatively low in beryllium and not considered to be potential ore. The better deposits are replacement veins in radial fractures around south margin of granite; some fractures were followed by rhyolite dikes before introduction of fluorite-beryllium veins, which follow edges of dikes, but are not in the dikes. Some of larger veins extend into granite. Most of beryllium deposits are well away from skarn zone and do not coincide with tin-tungsten deposits.

U.S. Geological Survey, 1964 (P 501-A), p. A10 -- Helvite (complex mineral containing beryllium) occurs in banded magnetite-fluorite "ribbon rock" at contact of granite. In region, some of beryllium deposits are localized where Late Cretaceous granite plutons pierce (or underlie at shallow depths) older thrust faults.

(Tin Cr., trib. Lost R.) -- Continued

Berg and Cobb, 1967 (B 1246), p. 130 -- Beryllium deposits associated with small granite plug that intrudes limestone. Tactite deposits contain relatively little beryllium. Major deposits are replacement veins of fluorite, diaspore, chrysoberyl, and mica in or near radial fractures in limestone south of granite; many of veins at margins of felsic porphyry dikes in fractures.

p. 132 -- Lodes in limestone near granite contact contain galena, cerussite, arsenopyrite, chalcopyrite, and cassiterite. Near mouth of creek lepidolite veinlets in limestone contain arsenopyrite, cassiterite, and sphalerite.

Sainsbury, 1969 (B 1287), p. 70 -- Helvite-bearing skarn near contact of granite and limestone. First identified beryllium mineral from area.

p. 72 -- Euclase present.

p. 79-80 -- Most of beryllium deposits are replacement veins and veinlets in marble south of granite stock. Some are concentrated at margins of dikes. Mineralogy of beryllium lodes more diversified than elsewhere in area; all have high content of fluorite and beryllium; some contain sulfides, including stannite. Tactites are generally low in Be except where cut by fluorite veins. Vesuvianite contains 0.05% BeO. Locally skarn carries 0.45% BeO, principally in helvite.

(Tin Cr., trib. Shishmaref Inlet) Tin

Serpentine district Teller (20.05, 17.45)
MF-426, loc. 53 65°58'N, 166°12'W

Summary: Trace amounts of cassiterite in only sample collected. Stream drains northward from Ear Mtn.

Mulligan, 1959 (RI 5493), p. 30, 32 -- Cassiterite present.

(Tuttle Cr.) FM, Gold, Monazite, Tin, Tungsten

Port Clarence district Teller (18.85-19.75, 16.55-17.05)
MF 426, Locs. 49, 50, 52 65°55'-65°57'N, 166°15'-166°22'W

Summary: Drains Ear Mtn. stock and contact zone. Maximum tin content of gravel sampled 1953-54 was 1.28 lb. per cu. yd.; average was 0.2 lb. Sn per cu. yd. of mining section. Not considered (by USBM) to be minable. Maximum radioactivity content of gravel in place was calculated to be 0.00025% eU. Minerals identified in concentrates include: cassiterite, magnetite, tourmaline, pyrite, monazite, zircon, scheelite, danburite, gold. Columbium (niobium) identified spectrographically.

Harrington, 1919 (B 692), p. 359-360 -- Gravels reported to carry 5 oz. cassiterite per pan.

Killeen and Ordway, 1955 (B 1024-C), p. 69 -- Prospect drilling in 1940 and 1953 indicated too low a tin content to be minable under current conditions. Cassiterite in bedrock near head. A very little gold in gravels.

p. 71-72 -- Maximum eU of old concentrate samples was 0.370%.

p. 74 -- Geiger-counter reconnaissance showed several "hot spots."

p. 78 -- Maximum radioactive content of gravel in place calculated to be 0.00025% eU.

p. 80-82 -- Sample (3.1 lb. concentrate per cu. yd.) contained 0.230% eU in heavy-mineral fraction. Minerals identified in concentrates included: cassiterite, monazite, zircon, axinite, scheelite, magnetite, danburite.

Mulligan, 1959 (RI 5493), p. 1-3 -- Cassiterite present. Churn drilled by Alaska Tin Corp. in 1953-54 under Defense Minerals Exploration Administration contract.

p. 11 -- Data on claim ownership.

p. 21-23 -- Data on DMEA contract. Maximum tin content established by drilling was 1.28 lbs. Sn per cu. yd.; average was 0.2 Sn per cu. yd. for mining section.

p. 30-33 -- Minerals in concentrates included: cassiterite, magnetite, tourmaline, vesuvianite, pyrite, garnet. Headwaters cross granite-limestone contact of Ear Mtn. Mulligan did not consider deposits minable. Niobium in spectrographic analyses.

Cobb, 1973 (B 1374), p. 97-98 -- A little gold in concentrates. Columbium (niobium) identified spectrographically.

(Village Cr.) Tin

Port Clarence district Teller (6.85, 10.9)
MF-426, loc. 22 65°37'N, 168°03'W

Summary: Drains north side of Cape Mtn. stock, but carries only traces of cassiterite. USBM drilling program disclosed no minable deposits.

Brooks, 1907 (B 314), p. 28-29 -- Cassiterite-bearing veins found in basin, 1906.
Heide and others, 1946 (RI 3978), p. 9 -- Only traces of tin in gravels.
Heide and Sanford, 1948 (RI 4345), p. 4 -- Data on claim ownership.
p. 6 -- Data on USBM investigation procedures.
p. 13 -- Data on each USBM churn-drill hole; no tin reported.
Mulligan, 1966 (RI 6737), p. 19 -- 0.1 lb. Sn per cu. yd. in 8 churn-drill hole samples from place where stream flows from gorge to coastal flats.
p. 33 -- Refers back to p. 19; deposit not rich enough to look for lode source.
Cobb, 1973 (B 1374), p. 95 -- Cassiterite has been found.

Ward (Copper Co.) — Copper

Serpentine district — Teller (27.0, 13.8) approx.
MF-426, locs. 15, 16 — 65°45'N, 165°16'W

Summary: A klippe of carbonate rocks thrust over schist; extensive silicification near base of klippe. Undeformed veinlets contain copper sulfides (including chalcopyrite), azurite and malachite. Mineralization is highly erratic; no continuous ore body. Explored by pits, trenches, and short adits. Ore mined in 1906, 1907, 1913, and 1916; total was 40 tons of material containing 30-40 percent copper and sold for $4,781.12. Includes references to (Ward Mtn.) and to copper between Quartz and Bismark Creeks.

Moffit, 1906 (B 284), p. 139 -- Copper prospect between Quartz and Bismark Creeks discovered, 1905. Mainly malachite with quartz at contact between limestone and mica schist. Shaft and incline sunk. Vein 6-21 inches thick. 10-12 tons of ore taken out; to be taken to Teller in winter, 1905-06.

Smith, 1908 (B 345), p. 244 -- Quotation from B 284. Hand specimens indicate that ore is copper sulfides in metamorphosed limestone.

Mertie, 1918 (B 662), p. 440-441 -- 8 claims developed by open cuts and shallow shafts. Commercial ore consists of about equal amounts of malachite and azurite; a little chalcopyrite reported. Quartz is main gangue mineral; calcite and blue fluorite float in vicinity. Shipments reported by owners in 1906, 1907, 1913, 1916; about 40 tons of ore containing about 30-40 percent Cu; worth a total of $4,781.12.

Brooks, 1922 (B 722), p. 65 -- 3 men working, summer of 1920.

Cathcart, 1922 (B 722), p. 181 -- Reference to B 662.

Anderson, 1947 (TDM 5-R), p. 20-21 -- Reference to B 662.

Wright, 1947 (RI 4110) -- First claim locations, 1904. No mining or development since 1916 (as of 1946). Most of data quoted or summarized from B 284, B 662. 8 claims are patented. Country rock is schist and overlying limestone; silicification along contact. Iron and copper carbonates. Ore shipped seems to have been hand-sorted malachite and azurite. Analyses of samples by USBM showed one sample 0.46 ft. wide to contain 25.7% Cu; all other samples in range of 0.3%-8.3% Cu. No data on amount of resource.

Wedow and others, 1952 (OF 51), p. 46 -- Malachite and azurite (and reportedly, chalcopyrite) near a limestone-schist contact.

Moxham and West, 1953 (C 265), p. 4 -- Evidence of development work visible in 1946. Several veins of malachite and azurite about 2 in. thick near limestone-schist contact.

Berg and Cobb, 1967 (B 1246), p. 135 -- Quartz, malachite, azurite, and a little chalcopyrite form one or more veins (or possibly a stringer lode) in limestone near contact with mica schist. A northwestward-dipping ore body, reportedly 6-21 in. thick was mined from open cuts and shallow shafts; 40 tons of ore averaging 35% Cu shipped between 1906 and 1918.

Sainsbury and others, 1968 (C 565), p. 4 -- Carbonate rocks of a thrust plate overrode slates; quartz, carrying copper, replaced carbonate rocks near thrust.

Sainsbury and others, 1969 (OF 377), p. 8 -- Minor copper sulfides (and secondary malachite and azurite) in banded quartz that replaced carbonate rock near

(Ward (Copper Co.) - Continued

sole of upper plate of thrust fault; no copper minerals below thrust plate. A few tons of ore has been mined.

p. 22 -- Small amount of copper ore from prospects in a klippe of carbonate rocks that are extensively silicified along the thrust and along small fractures. Chalcopyrite and other copper sulfides disseminated along faint laminae in silicified carbonate and concentrated in joints; secondary malachite and azurite. Mineralization highly erratic; no continuous ore body.

Marsh and others, 1972 (OF 536), p. 2-3 -- Malachite, azurite, chalcopyrite, and unidentified copper-bearing sulfides in small limestone thrust sheet. Mineralized rock exposed by pits, trenches, and adit for almost a mile. Spectrographic analyses show that tin, silver, bismuth, lead, and zinc, in addition to copper, are present. Veinlets containing sulfides are undeformed, suggesting that mineralization was after regional deformation. Altered diabasic dikes (some with copper minerals) in area are also undeformed. Gravity data support conclusion that granite body underlies entire area. Mineralization and study of concentrate samples suggest that ore deposits (particularly of tin) may be present at depths, not exceeding a few hundred feet.

(Windy Cr., trib. American R.) Gold, Mercury, Tin (?)

Port Clarence district Teller (25.1-25.3, 11.15-11.35)
MF-426, loc. 75 65°36'N, 165°31'-165°32'W

Summary: The only major production from the basin of the American R. was from near the junction of Budd and Windy Creeks. Dredge operated on Windy Cr. 1914-1916. Cinnabar nuggets in concentrates. A report of cassiterite is unverified.

Smith, 1908 (B 345), p. 229 -- Mining at mouth of Budd Cr.; ditch completed, 1907.
Eakin, 1915 (B 622), p. 372 -- Dredge operated, 1914.
Smith, 1917 (BMB 142), p. 28 -- Dredge operated, 1915.
Mertie, 1918(B 662), p. 452 -- Dredge operated, 1916.
Moxham and West, 1953 (C 265), p. 4 -- Unverified report of cassiterite.
Sainsbury and others, 1969 (OF 377), p. 22 -- Cinnabar nuggets in concentrates.
Cobb, 1973 (B 1374), p. 93 -- Only major production from basin of American R. was from near junction of Budd and Windy Creeks. Unsubstantiated report of cassiterite.

(Windy Cr., trib. Bluestone R.) Gold

Port Clarence district Teller (19.55, 1.65)
MF 426, loc. 79 65°04'N, 166°21'W

Summary: Tributary of Bluestone R. Mining reported in 1924, 1926-1931. For description of regional geology see (Bluestone R.).

Smith, 1926 (B 783), p. 17 -- Very small amount of gold recovered, 1924.
Smith, 1929 (B 797), p. 27 -- Mining, 1926.
Smith, 1930 (B 810), p. 36 -- Mining, 1927.
Smith, 1930 (B 813), p. 42 -- Mining, 1928.
Smith, 1932 (B 824), p. 47 -- Mining, 1929.
Smith, 1933 (B 836), p. 49 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 50 -- Mining, 1931.

Worcester — Copper, Lead

Kougarok district — Teller (28.0, 11.9)
MF-426, loc. 17 — 65°38'N, 165°08'W

Summary: Mineralization on 5 lode claims was reported (as of 1916) to be malachite and azurite accompanied by galena. Includes references to lode near Kougarok Mtn.

Mertie, 1918 (B 662), p. 442 -- 5 lode claims. Reported to Mertie that the copper ore is malachite and azurite and that galena is present.

Anderson, 1947 (TDM 5-R), p. 21, 28 -- Reference to B 442. [Anderson incorrectly gives reference as B 722].

Wedow and others, 1952 (OF 51), p. 46 -- Prospect with malachite, azurite, and a little galena reported.

Berg and Cobb, 1967 (B 1246), p. 118 -- Same as B 662.

(Yankee Cr.) (R.)	Tin (?)
Port Clarence district	Teller SE¼NW¼ quad.

Summary: Prospectors, before 1902, reported cassiterite; not confirmed.

Collier, 1902 (P 2), p. 49 -- Stream tin reported by prospectors.

Yankee Girl — Copper, Gold, Lead, Silver, Tin; Fluorite

Port Clarence district — Teller (13.65, 8.35)
MF-426, loc. 9 — 65°28'N, 167°08'W

Summary: A gossan in limestone contains cerussite, cassiterite, fluorite, chalcopyrite, arsenopyrite, and possibly galena. An assay of a sample from the dump outside a short tunnel indicated small amounts of gold and silver as well as 3.1% lead and 0.47% tin. No record of production. Includes references to lead prospect on Tin Cr.

Hess, 1906 (B 284), p. 150 — Prospecting in 1905.

Knopf, 1908 (B 345), p. 269 -- Galena prospect on a gossan 800 ft. above bed of Tin Cr. In a fracture zone in recrystallized limestone. Gossan consists of honeycombed masses of iron oxide containing abundant galena and crystals of cerussite. Small trench was dug nearby to try to find the source of boulders of arsenopyrite with some chalcopyrite; samples reported to have assayed $12 Au per ton.

Knopf, 1908 (B 358), p. 59-60 -- Same as B 345. [Incorrectly appears under heading for Idaho claim.]

Cathcart, 1922 (B 722), p. 182 -- Reference to B 358. [Page no. given is wrong; should be p. 59-60.]

Steidtmann and Cathcart, 1922 (B 733), p. 80 -- A few hundred feet southwest of granite boss near Tin Cr. Short tunnel was inaccessible in 1918. About a ton of lead-bearing material on dump. Part of material was yellow granular gossan with crystals of cerussite. Other material contained copper-bearing pyrite, arsenopyrite, fluorite, and small crystals of cassiterite.

Anderson, 1947 (TDM 5-R), p. 30 -- Reference to B 733. [In one place on this page Anderson calls this prospect Idaho; the description is of the Yankee Girl]. Sample collected in 1939 assayed 0.02 oz. Au and 0.6 oz. Ag per ton, 3.1% Pb, 0.47% Sn.

Wedow and others, 1952 (OF 51), p. 24 — In mineralized limestone near granite on Tin Cr. Mineralization said to be in a soft, yellow, granular gossan.

Berg and Cobb, 1967 (B 1246), p. 132 -- A gossan in limestone contains cerussite, cassiterite, arsenopyrite, chalcopyrite, fluorite, and calcite. Explored by short tunnel. Lead ore piled near entrance, but no record of production.

(York Cr.) Tin, Tungsten

Port Clarence district Teller (13.75-14.0, 10.05-10.15)
MF-426, loc. 47-48 65°34'N, 167°05'-167°06'W

Summary: Bedrock "shale" and "limey shale" [slate of York region]. Concentrates contain cassiterite, scheelite, powellite, barite. Mulligan (in 1959) did not consider any deposits on this creek to be minable.

Collier, 1902 (P 2), p. 49 -- Stream tin reported by prospectors.
Collier, 1904 (B 225), p. 166 -- Stream tin reported by prospectors.
Collier, 1904 (B 229), p. 36 -- Stream tin reported by prospectors.
Collier, 1905 (B 259), p. 126 -- Stream tin reported by prospectors for 10 mi. along stream. Samples shown to Collier (1904), contained fine grains of cassiterite, magnetite, garnet, tourmaline, and quartz.
Mulligan, 1959 (RI 5520), p. 7 -- Reference (though not so stated) to B 259.
p. 15-17 -- 9 churn-drill holes put down, 1956-57. Bedrock shale and limey shale containing some quartz and pyrite. Minerals identified in samples include: cassiterite, scheelite, barite, powellite, tourmaline, garnet, zircon. Cassiterite traces, only.
p. 23 -- Not considered economically promising.
Cobb, 1973 (B 1374), p. 98 -- Reference to RI 5520.

Unnamed creek — GOLD

Port Clarence district — Teller (21.4, 7.8)
65°25'N, 166°04'W

Summary: Placer gold has been mined; stream is east of Sunrise Cr. and flows into Agiapuk R.

Sainsbury and others, 1969 (OF 377) p. 20 -- Placer gold has been mined from small unnamed stream east of Sunrise Cr.; flows north into Agiapuk R.

Unnamed occurrence — COPPER

Kougarok district — Teller (28.0, 11.6)
MF-426, loc. 18 — 65°37'N, 165°08'W

Summary: Silicified contorted carbonate rock above thrust faults contains minute amounts of copper sulfides along joints; some copper stain. Two small adits. This prospect probably is not the Worcester prospect of Mertie (B662, p. 442).

Sainsbury and others, 1969 (OF 377), p. 22 -- At 2 places at head of Henry Cr. contorted carbonate rock above thrust faults has been completely replaced by silica. At more southerly of them prospecting adits expose minute amounts of copper sulphides along vertical joints; copper stains. "... the copper content of minable tonnages probably does not exceed 0.1 percent."

Unnamed occurrence — GOLD

Port Clarence district — Teller (27.7, 8.0)
MF-426, loc. 20 — 65°25'N, 165°12'W

Summary: Traces of gold in altered limestone with quartz veinlets at base of thrust block.

Sainsbury and others, 1969 (OF 377), p. 18 -- Samples of altered limestone with quartz veinlets at base of thrust block between Hunter and Johnston Creeks contained trace amounts of gold.

Unnamed occurrence — GOLD

Port Clarence district — Teller (28.6, 9.15)
MF-426, loc. 19 — 65°28'N, 165°04'W

Summary: Traces of gold in altered limestone along a thrust fault.

Sainsbury and others, 1969 (OF 377), p. 17-18 -- Altered blocks of limestone along thrust fault near Coco Cr. contained trace amounts of gold.

Unnamed occurrence	TIN; FLUORITE
Port Clarence district	Teller (24.65, 8.9) 65°28'N, 165°37'W

Summary: Tin-bearing skarn and fluorite in tactite.

Sainsbury, 1972 (I-685), p. 3 -- Tin-bearing skarn inferred from boulders of frost-riven bedrock on ridge between Igloo Cr. and American R. and from scattered outcrops of tactite containing fluorite, analyses of which contain anomalous amounts of Sn, Be, and Bi.

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. Descriptions of placer deposits commonly give little information on the location of individual mines or claims, so the names of all operators and owners of placer mines and claims are in this section with a notation to refer to the description of the stream that was mined or prospected.

Adams -- see (Cape Mtn.)
Alan Dale -- see (Potato Mtn.)
Alaska Graphite (Mining) Co. -- see (Graphite Cr.), (Ruby Cr.)
Alaska Tin Corp. -- see (Ear Mtn.), Eldorado Cr.), (Kreuger Cr.),
(Tuttle Cr.)
American Gold Dredging Co. -- see (Anikovik R.), (Buck Cr.), (Swanson Cr.)

American Tin (Dredging) Co. -- see (Buck Cr.)
American Tin Mining Co. -- see (Buck Cr.), (Grouse Cr.)
Andrews -- see (Sunset Cr.)
Anglo-American Gold Dredging Co. -- see (Sunset Cr.)
April -- see (Ear Mtn.)

Arctic -- see (Cape Mtn.)
Arkansas -- see Ward
Aspen -- see (Cape Mtn.)
August -- see (Ear Mtn.)
Aurora -- see (Cape Mtn.)

Bald Eagle -- see Lost River
Bartell(s) -- see (Cape Mtn.)
Bartell's Tin Mining Co. -- see (Cape Mtn.)
Bartels and associates -- see (Cape Mtn.)
Bartels (Tin Mining) Co. -- see (Cape Mtn.)

Bartholomae Oil Corp. -- see (Alder Cr.), (Gold Run)
Bear -- see (Cape Mtn.)
Bering Straits Tin Mining Co. -- see (Boulder Cr.), (Goodwin Cr.),
(Granite Cr.), (Village Cr.)
Bessie (& Mabel) -- see Bessie & Maple
Billy -- see (Sutter Cr.)

Birthday -- see (Cape Mtn.)
Blomquist & Goodwin -- see Yankee Girl
Bodis -- see (Dick Cr.)
Bronx -- see (Cape Mtn.)
(Buckner Cr.) -- see (Buhner Cr.)

Budd Creek Dredging Co. -- see (Budd Cr.)
Budd Creek Gold Dredging Co. -- see (American R.)
Butte -- see Ward
Cameron -- see (Brooks Mtn.)
(Camp Cr.) -- see Lost River

Canoe -- see (Cape Mtn.)
Carlson & Goodwin -- see (Cape Mtn.)
Carry Gow -- see Lost River
Cassiterite -- see Lost River
(Cassiterite Cr.) -- see Lost River

Champion -- see (Cape Mtn.)
Chloride -- see (Ear Mtn.)
Christensen -- see (Goodwin Cr.)
Collier -- see Lost River
Compass -- see (Cape Mtn.)

Comstock -- see (Cape Mtn.)
Crim, Randt & O'Brien -- see Lost River
Cub -- see (Buck Cr.)
Daisy -- see (Cape Mtn.), (Potato Mtn.)
Davis -- see (Eagle Cr.)

(Dease Cr.) -- see (Dese Cr.)
December -- see (Ear Mtn.)
Dick Creek Mining Co. -- see (Dick Cr.)
Dieter -- see (Cape Mtn.)
Dodson -- see (Budd Cr.)

Dolcoath -- see Lost River
Douglas and associates -- see (Goodwin Cr.), (Goodwin Gulch)
Elgin -- see (Cape Mtn.)
Empire Tin Mining Co. -- see (Cape Mtn.)
Engineer -- see Lost River

Estabrook -- see (Windy Cr., trib. American R.)
Eunson's shaft -- see (Ear Mtn.)
Eureka -- see (Potato Mtn.)
Excelsior -- see (Cape Mtn.)
Excelsor -- see Ward

Fairview -- see (Cape Mtn.)
Fidgeland Bros. -- see (Gold Run)
Foggy Day -- see (Brooks Mtn.)
Fourth of July -- see (Cape Mtn.)
Fox -- see (Grouse Cr.)

Gem -- see Ward
Gertrude -- see Lost River
(Glacier Canyon Cr. trib.) -- see (Ruby Cr.)
(Glacier Cr.) -- see (Graphite Cr.)
Goodwin & Carlson -- see (Cape Mtn.)

Granite -- see (Ear Mtn.)
(Graphite Bay) -- see (Christophosen Cr.)
Green -- see Lost River
Greenstone -- see Lost River
Grothe-Pearson -- see Bessie & Maple, Lost River

Halpin (and associates) -- see Lost River
Hellerich and associates -- see (Brooks Mtn.)
Hinton -- see (Cape Mtn.)
I -- see Bessie & Maple
Ida Bell -- see Lost River

(Igloo Cr., trib. Bluestone R.) -- see (Eagle Cr.)
(Ilene Cr.) -- see (Allene Cr.)
Iron Cap -- see (Brooks Mtn.)
J -- see Bessie & Maple
Jamme Syndicate -- see Lost River

January -- see (Ear Mtn.)
Jefferson -- see (Cape Mtn.)
Jenney Lyn -- see Lost River
Johnson -- see (Alder Cr.)
Johnson and associates -- see Lost River

Johnstone -- see (Budd Cr.)
July -- see (Ear Mtn.)
Junction Association -- see (Grouse Cr.)
June -- see (Ear Mtn.)
Jupiter -- see (Cape Mtn.)

Kendall -- see (Buck Cr.)
Klondike -- see Lost River
(Kougarok Mtn.) -- see Worcester
(Lagoon Cr.) -- see (Boulder Cr.)
Lincoln -- see Lost River

Lomen & Gabrielson -- see (Boulder Cr.), (Cape Cr.), (First Chance Cr.), (Goodwin Cr.), (Goodwin Gulch)
Lomen Commercial Co. -- see (Boulder Cr.), (Cape Cr.), (First Chance Cr.), (Goodwin Cr.), (Goodwin Gulch)
Lost River Tin Mining Co. -- see Lost River
Lucky Queen -- see (Cape Mtn.)
Luther -- see (Brooks Mtn.)

Madison -- see (Cape Mtn.)
Maple -- see Bessie & Maple
March -- see (Ear Mtn.)
Margaret -- see Lost River
Mars -- see (Cape Mtn.), Lost River

Martha -- see (Cape Mtn.)
Martinson and associates -- see (Gold Run)
Marvin -- see (Buck Cr.)
May -- see (Ear Mtn.)
Metalsmith Mines Corp. -- see (Bluestone R.), (Gold Run)

Midnight -- see (Cape Mtn.)
Midnight Sun -- see (Brooks Mtn.)
Mispickel -- see (Cape Mtn.)
Monroe -- see (Cape Mtn.)
(Moonlight Cr.)-- see (Igloo Cr., trib. Grantley Harbor)

Munz & Edwards -- see (Boulder Cr.)
Munz, Edwards & Worm -- see (Boulder Cr.)
National Tin Mining Co. -- see Lost River
Noble -- see (Cape Mtn.)
Northern Tin Mining Co. -- see (Buck Cr.), (Grouse Cr.), (Sutter Cr.)

North Star -- see (Cape Mtn.), Lost River
November -- see (Ear Mtn.)
(Oakland Cr.) -- see (Diomede Cr.)
O'Brien -- see Lost River
October -- see (Ear Mtn.)

Pageite -- see (Brooks Mtn.)
Palmer -- see (Boulder Cr.), (Cape Cr.)
Pasadena Gold Dredging Co. -- see (Budd Cr.)
Peck -- see (Allene Cr.)
(Peluck Cr.) -- see (Peluk Cr.)

Percy -- see (Cape Mtn.)
Peterson (and associates) -- see (Cape Cr.)
Planet -- see (Cape Mtn.)
Poorman -- see Bessie & Maple
Ptarmigan -- see (Buck Cr.)

Randt, Crim & O'Brien -- see Lost River
Randt Extension -- see Lost River
Read -- see (Brooks Mtn.)
Reaf -- see Lost River
Red Fox -- see (Potato Mtn.)

Rice -- see (Allene Cr.), (Sunset Cr.)
Rob Roy -- see Lost River
Rogers -- see (Cape Mtn.)
Rusty -- see (Cape Mtn.)
Saturn -- see (Cape Mtn.)

September -- see (Ear Mtn.)
Seward Tin Mining Co. -- see (Cape Mtn.)
Shon Rue -- see Lost River
Side -- see Ward
(Skookum Cr.) -- see (Grouse Cr.)

Southern Cross -- see Bessie & Maple
Square Zero -- see (Brooks Mtn.)
(Step Gulch Cr.)-- see (Step Gulch)
(Sterling Cr.) -- see (Grouse Cr.)
Stines & Kirklin -- see (Cape Cr.)

Stuart -- see (Buck Cr.)
Sullivan & Dobson -- see (American R.)
Sun -- see (Cape Mtn.)
Sun Drum -- see (Cape Mtn.)
Sunny Day -- see (Brooks Mtn.)

Sunrise -- see (Cape Mtn.)
Surprise -- see (Ear Mtn.)
Surveyor -- see Lost River
(Swanson Cr.) -- see (Allene Cr.)
Thrassa -- see Lost River

Three Prospectors -- see Lost River
Tiger -- see Bessie & Maple
(Tin City Cr.) -- see (Cape Cr.)
Tin Quartz -- see (Cape Mtn.)
Tourmaline -- see (Brooks Mtn.)

Tozer -- see (Lost R.)
(Tozer Cr., Willow Branch) -- see (Black Mtn.)
Tremont -- see (Cape Mtn.)
Triangle -- see Lost River
(Trilby Cr.) -- see (Windy Cr., trib. American R.)

Tweet -- see (Graphite Cr.), (Ruby Cr.)
Tweet & Sons -- see (Coyote Cr.), (Dese Cr.), (Graphite Cr.), (Ruby Cr.)
Tweet Bros. -- see (Eagle Cr.)
Uncle Sam Alaska Mining Syndicate -- see (Christophosen Cr.)
Uncle Sam Graphite Mining Co. -- see (Christophosen Cr.)

Uncle Sam Graphite Mining Syndicate -- see (Christophosen Cr.)
U.S. Alaska Tin (Mining) Co. -- see (Cape Mtn.)
U.S. Smelting, Refining & Mining Co. -- see (Brooks Mtn.)
U.S. Tin Corp. -- see Bessie & Maple, Lost River
Vatney -- see (Ear Mtn.)

(Vatney Gulch) -- see (Ear Mtn.)
Venus -- see (Ear Mtn.)
Victor -- see Ward
Vogen -- see (Allene Cr.)
(Wales Cr.) -- see (Goodwin Cr.)

Walker, Lovell & Co. -- see (Cape Mtn.)
(Ward Mtn.) -- see Ward
Washington -- see (Cape Mtn.)
Welch & Doren -- see (Budd Cr.)
Whibby -- see (Buck Cr.)

Wild Goose -- see (Buck Cr.)
Winfield -- see (Ear Mtn.)
Wolframite-topaz -- see (Lost R.)
York Dredging Co. -- see (Buck Cr.), (Grouse Cr.)
York Tin Dredging Co. -- see (Grouse Cr.)

York Tin Mining Co. -- see (Grouse Cr.)
Zenda Gold Mining Co. -- see (Boulder Cr.), (Cape Cr.), (First Chance Cr.), (Goodwin Cr.), (Goodwin Gulch)

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