UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

By

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Introduction

These summaries of references are designed to aid in library research on metallic and nonmetallic (other than mineral fuels and construction materials) mineral occurrences in the Anchorage quadrangle, Alaska. All references to most reports of the Geological Survey, the U.S. Bureau of Mines, and the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before January 1, 1979, 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. Also not included are data on many claims about which little more than their locations is known (for example, MacKevett and Holloway, 1977 (OF77-169A), p. 8-10). These omissions should not be interpreted as a judgment on my part that the claims are not valid mineral occurrences, but only that there are insufficient data to describe any mineral deposit that might be present.

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

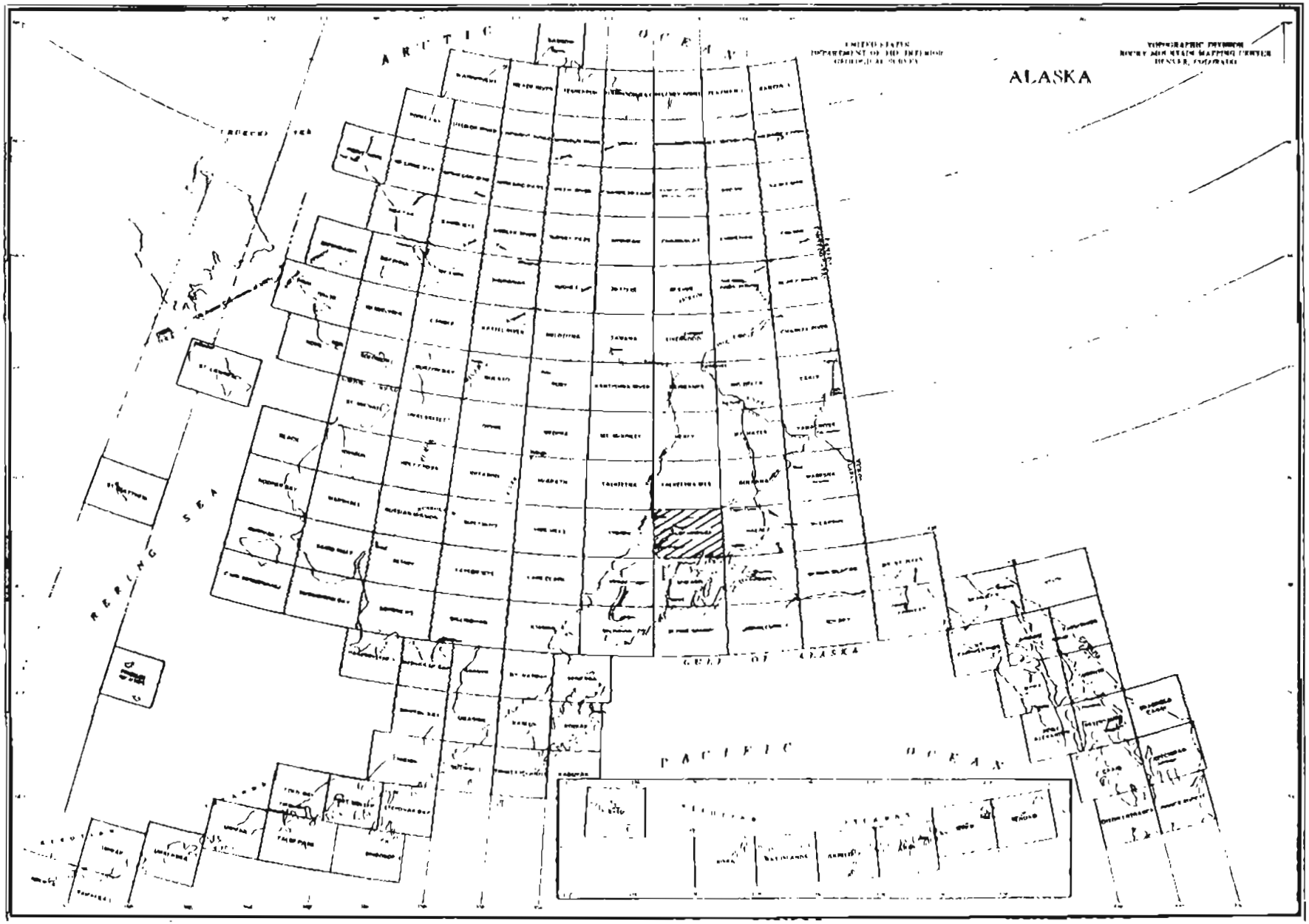

Figure 1 -- Index map showing location of Anchorage quadrangle.

Summaries of References

For each mineral occurrence there is a page that gives the name of the occurrence; the mineral commodities present (listed alphabetically); the mining district (Ransome and Kerns, 1954 (IC 7679)) in which the occurrence is located; the name of the 1:250,000-scale topographic quadrangle (Anchorage); coordinates (as described by Cobb and Kachadoorian, 1961 (B 1139), p. 3-4; and the latitude and longitude of the occurrence. Numerical coordinates become progressively less accurate as their numbers increase because of the lack of scale stability of the base maps on which I plotted localities; all, however, are probably accurate within about 0.1 inch (about 0.4 mile).

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 references to the occurrence. Material in brackets is interpretive or explanatory and is not in the summarized reference.

Proper names of mines, prospects, and other mineral occurrences usually are given if such names appear in the reports summarized. If a deposit does not have such a name, but is near a named geographic feature, the name of that feature is shown in parentheses in lieu of a proper name. All references to placer mining on a stream appear under the stream name rather than under the names of individual claims or of operators. Several deposits have no proper name and cannot be unambiguously referred to a named geographic feature; such occurrences are called "Unnamed occurrence" and appear at the end of this section.

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
GC	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geochemical Report
GR	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geologic Report
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 used only within the Alaskan Geology Branch of the U.S. Geological Survey)
MF	U.S. Geological Survey Miscellaneous Field Studies Map
P	U.S. Geological Survey Professional Paper
RI	U.S. Bureau of Mines Report of Investigations
SR	Alaska Division of Geological and Geophysical Surveys Special Report
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 grammatical consistency, although I have tried to avoid ambiguities.

Agostino

Copper, Gold, Lead, Molybdenum, Silver, Zinc

Anchorage district
MF-409, loc. 53

Anchorage (7.6, 0.85)
61°03'N, 149°07'W

Summary: Quartz veins 6 in. to 4 ft. thick in thin-bedded argillite-graywacke sequence of late Mesozoic age intruded by veins and irregular bodies of quartz diorite carry gold, 2 generations of quartz, calcite, galena, arsenopyrite, sphalerite, chalcopyrite, pyrrhotite, molybdenite, pyrite, and silver; silver alloyed with gold (75 parts gold, 25 parts silver) and in galena. Developed by more than 1,100 feet of workings. Discovered in 1909 and prospected or mined (with interruptions) until as recently as 1939; production not recorded, but probably small. In the literature there seems to be confusion between this mine and the Jewel mine, which apparently was connected to Agostino mill at one time. Includes references to: Alaska Gold Exploration & Development Co., Barnes, Edlund, Monarch (Mining Co.). See also Jewel.

Johnson, 1912 (B 520), p. 153-155 -- Discovered in 1909; development began in 1910. In 1910-11 there were about 675 ft. of underground workings on 3 levels and some open cuts. Main veins strike easterly and are from 8 in. to nearly 4 ft. thick; a cross vein strikes N 18° W and is much thinner. Country rock is Jurassic or Cretaceous slate, argillite, graywacke, and conglomerate, all folded and later intruded by dikes and small bosses of granitic rock. Ore is free milling. Veins contain gold, pyrite, arsenopyrite, sphalerite, galena (some altered to cerussite), and less common chalcopyrite, pyrrhotite, and molybdenite. Owners report that ore from main veins averages $35 to $40 a ton [gold at $20.67], with much higher assays from single samples. Wall rocks said to be nonauriferous.

Martin and others, 1915 (B 587), p. 173-176 -- Edited version (with added illustrations) of above.

Capps, 1916 (B 642), p. 188-191 -- Description from Martin and others, 1915 (B 587), p. 173-176, quoted.

Brooks, 1922 (B 722), p. 40-41 -- Plans for doing some work, 1920. Reference to Martin and others, 1915 (B 587).

Smith, 1929 (B 797), p. 12 -- Has been development; plans for adding machinery, 1926.

Smith, 1930 (B 810), p. 17 -- Work continued, 1927.

Smith, 1930 (B 813), p. 18 -- Active work reported on old Monarch claims in 1928; may have been some production.

Park, 1933 (B 849-G), p. 409 -- 3 of tunnels are between 100 and 200 ft. below surface.

p. 414-417 -- 2 parallel quartz veins in thin-bedded argillite-graywacke sequence cut by small irregular bodies and veins of quartz diorite strike eastward and dip 55°-70° northward; 6 in. to 4 ft. thick; contain many fragments of country rock. Several crosscutting veins 6 in. thick. Veins consist of 2 generations of quartz, calcite galena, arsenopyrite, sphalerite, chalcopyrite, pyrrhotite, molybdenite, pyrite, gold, and silver. Silver alloyed with gold (75 parts

Agostino -- Continued

gold, 25 parts silver) and in galena. Random sample of molybdenite-bearing cross vein contained 0.26% Mo. Developed by 1,072 ft. of underground workings; more than 50 ft. of winzes. One-stamp mill on property.

Smith, 1933 (B 844-A), p. 21 -- Development reported on Monarch property, 1931.

Smith, 1934 (B 864-A), p. 22 -- Operating mine, 1933.

Smith, 1936 (B 868-A), p. 24 -- Mining and milling, 1934.

Smith, 1937 (B 880-A), p. 27 -- Mining, 1935.

Smith, 1938 (B 897-A), p. 33 -- Seven men employed more or less continuously during open season, 1936.

Smith, 1939 (B 910-A), p. 29-30 -- Mine operated, 1937. New tram built to bring ore from Jewel. [Called Monarch-Jewel in this reference; probably refers to both properties and that both were under the same management (Crow Creek Gold Corp.).]

Smith, 1939 (B 917-A), p. 28 -- Operations in 1938 at Monarch-Jewel about the same as in 1937. [Ore may have come from both Agostino and Jewel.]

Smith, 1941 (B 926-A), p. 25-26 -- Operations probably on about the same scale as in preceding years, 1939. [Name used is Monarch-Jewel.]

Smith, 1942 (B 926-C), p. 187-188 -- Molybdenite present. Data from older reports summarized above.

Berg and Cobb, 1967 (B 1246), p. 18 -- Site of most extensive development in Girdwood area; by 1936 about 1,100 ft. of underground workings had been driven. Main veins averaged about a foot in thickness and were followed along strike for several hundred feet. No record of amount of gold recovered; probably small.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 42 -- Reference to Park, 1933 (B 849-G).

Alaska Quartz — Gold(?)

Willow Creek district — Anchorage (6.45, 3.35) approx. (?)
61°49'N, 149°13'W approx. (?)

Summary: Two tunnels at prospect. Longer (212 ft.) follows 16-inch quartz vein until it pinches out 40 ft. from portal; rest of tunnel along a slip zone that contains gouge. No data on possible gold content. This may be the same as the Gold Quartz prospect.

Capps, 1919 (B 692), p. 185 -- On ridge between Reed and Archangel Creeks; has been prospected by 2 tunnels 20 ft. and 212 ft. long. In longer tunnel vein carries 16 in. of quartz that pinches out 40 ft. from portal; beyond that point tunnel follows slip zone with gouge.

Alaska-Willow Creek

Gold(?)

Willow Creek district
MF-409, loc. 27

Anchorage (6.9, 14.1) approx.
61°48'N, 149°10'W

Summary: Adit being driven to intersect a quartz vein exposed on surface 240 ft. higher, 1923. No data on possible gold content of vein. May be the same prospect as Le Roi Mining Co.

Brooks, 1925 (B 773), p. 42 -- Adit has been driven 140 ft. in hope of striking a quartz vein exposed on surface 240 ft. higher, 1923.

(Alfred Cr.) Gold, Platinum

Willow Creek district
MF-409, loc. 88

Anchorage (20.4-21.2, 17.05-17.3)
61°57'-61°58'N, 147°26'-147°32'W

Summary: Lower part of stream course in Cretaceous shales; Jurassic sandstones and shales cut by small dikes farther upstream. Ridge north of creek capped by Tertiary volcanic rocks that may be underlain by conglomerate which could be source of placer gold in creek. Workable gold placers discovered in 1911 and worked sporadically on a small scale for many years. A little platinum accompanies the gold. Includes reference to (Caribou Cr.).

Brooks, 1913 (B 542), p. 44 -- Mining reported on Caribou Cr. in 1912.

Martin and Mertie, 1914 (B 592), p. 278-279 -- Lower part of stream course in Cretaceous shales; large diabase dike near mouth; upper part of course in Jurassic sandstones and shales cut by small dikes. Ridge north of creek capped by Tertiary volcanic rocks that may be underlain by conglomerate which could be source of placer gold. Creek staked in 1911, but work greater than assessment work on only a few claims; production [through 1913] said to be worth about $1,500 [about 70-75 fine oz.] in gold.

p. 281 -- Source of placer gold not known; glacial deposits unlikely; bedrock sources in rocks through which creek flows have not been found; might be Tertiary conglomerate if present.

Chapin, 1918 (B 668), p. 62-63 -- Quotation from above.

Brooks and Capps, 1924 (B 755), p. 28 -- Placer mining, 1922.

Brooks, 1925 (B 773), p. 30 -- Small quantities of platinum reported to be in placers.

Jasper, 1965 (GC 4), p. 4 -- Has been small-scale gold placer mining.

Cobb, 1973 (B 1374), p. 19 -- Workable gold placers discovered in 1911 and worked sporadically on a small scale for many years. A little platinum accompanies the gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 61 -- References to Martin and Mertie, 1914 (B 592) and Brooks, 1925 (B 773).

Arch

Gold

Willow Creek district
MF-409, loc. 21

Anchorage (6.35, 14.2)
61°48'N, 149°14'W

Summary: Quartz as much as 20 in. thick in clayey gouge in quartz diorite developed by 2 adits and some drifts in about 1913-15. Average gold content of vein in drifts reported to be about 1.45 fine oz. a ton. No data on production, if any.

Capps, 1914 (B 592), p. 263-264 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 70-71 -- 12-20 in. of quartz in clayey gouge in quartz diorite (total thickness of quartz and gouge as much as 40 in.). Developed by 2 adits and some drifts. Average gold content of vein where cut by drifts reported to be $32 a ton in gold [at $20.67]; only small amounts of sulfides.

Capps, 1916 (B 642), p. 200 -- Underground work reported, 1914 and/or 1915.

Capps, 1919 (B 692), p. 185 -- Little work in 1917. Old workings pretty well caved.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 17 -- Reference to Capps, 1915 (B 607).

Archangel

Gold

Willow Creek district
MF-409, loc. 27

Anchorage (6.9, 14.1) approx.
61°48'N, 149°10'W

Summary: 2 tunnels, each 35 ft. long, on a gold-quartz vein said to be as much as 38 in. thick. May be the same as Le Roi Mining Co.

Capps, 1916 (B 642), p. 200 -- Prospected by 2 tunnels, each 35 ft. long. Said to be on a gold-quartz vein as much as 38 in. thick .

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 21 -- Reference to above.

Bahrenberg — Gold, Lead, Zinc

Anchorage district — Anchorage (7.7, 1.0)
MF-409, loc. 52 — 61°03'N, 149°06'W

Summary: Thin quartz-calcite veins in argillite intruded by quartz diorite contain arsenopyrite, pyrite, galena, sphalerite, and gold. Developed by adit 65 ft. long and a surface cut. 7 tons of ore has been shipped. Includes references to Treasure Box.

Martin and others, 1915 (B 587), p. 176-177 -- Treasure Box claim staked in 1910. Quartz vein a foot thick strikes N 11° E, dips 70° E, and has been traced for about 50 ft. No development work and no data on gold content.

Capps, 1916 (B 642), p. 191 -- Above reference quoted.

Park, 1933 (B 849-G), p. 417-418 -- Country rock mainly argillite; quartz diorite forms part of one wall of one vein. Main vein averages about 8 in. thick; can be traced on surface for only about 75 ft.; strikes N. 80° W and dips 80° N. Several other small veins on property strike about W and dip 70° N. All of veins contain quartz and calcite; ore minerals are arsenopyrite, pyrite, galena, and sphalerite; a few spots of visible gold. In one vein gold is associated with galena; in another with arsenopyrite. 7 tons of ore shipped to Tacoma smelter; one lot of 1,500 lbs. returned $145 after smelter and shipping charges. Developments consist of 65 ft. of adit, a small surface cut, and an arrastre.

MacKevett and Holloway, 1977 (OF 169A), p. 6, loc. 41 -- Reference to Park, 1933 (B 849-G).

Bailey — Copper, Gold, Molybdenum, Silver

Willow Creek district — Anchorage (6.85, 14.65)
MF-409, loc. 32 — 61°50'N, 149°20'W

Summary: Shear zone in quartz diorite contains bornite, chalcopyrite, covellite, molybdenite, and pyrite. Samples assayed as much as 0.6 oz. gold and 1.81 oz. silver a ton. Old adit, said to have been 40 ft. long and to have exposed ore running over $40 a ton in gold, caved in 1963.

Maloney, 1966 (USBM OF 3-66) -- Shear zone in quartz diorite is apparently about 200 ft. wide and at least 1,500 ft. long; strikes east and dips 75°-80° N. Exposed in an area 50 ft. wide, 500 ft. long, and over a vertical distance of 300 ft. Contains bornite, chalcopyrite, covellite, molybdenite, and pyrite. Assays showed as much as 0.6 oz. gold and 1.81 oz. silver a ton. Old adit (caved in 1963) said to have been 40 ft. long; owners reported gold values of over $40.

(Barry Arm) Antimony, Gold(?)

Prince William Sound district Anchorage (15.7-16.05, 1.5-1.85)
MF-409, loc. 55 61°05'-61°06'N, 148°06'-148°09'W

Summary: Zone of brecciated slate along a thrust fault is cemented by quartz and contains a layer 1-8 in. thick of finely columnar and granular masses and acicular crystals of stibnite mixed with quartz. A wider part of layer said to have been mined and about 1,000 lbs. of stibnite ore taken out before 1910. Possibly gold-bearing quartz vein nearby.

Grant and Higgins, 1910 (B 443), p. 78 -- Zone of brecciated slate 6-8 ft. thick along a thrust fault strikes N 68° E, dips 45°-65° N, and is cemented by quartz. Next to hanging wall a layer 1-8 in. thick contains stibnite associated with the quartz, in places filling vugs in quartz; as much as 1/3 of mass is stibnite in places. About 1,000 lbs. of antimony ore said to have been taken out; layer reported to have been thicker and richer in places.

Brooks, 1916 (B 649), p. 60-61 -- Quotation from above. Specimens collected in 1913 indicate that the stibnite occurs in finely columnar and granular masses with which are associated some acicular crystals. Grains of vitreous quartz, some with crystal terminations, in masses of stibnite. Ferruginous carbonate intimately associated with the stibnite. Specimens indicate that a quartz vein was shattered and "subsequently intruded by the stibnite-bearing solutions."

Johnson, 1918 (B 662), p. 189 -- Discovery of a quartz vein about 5 mi. from mouth of arm, a mile from shore reported, 1916. [No mention of any possible gold content; in a section on gold mining.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 44 -- Reference to Grant and Higgins, 1910 (B 443).

Bartholf-Isaacs | Gold(?)

Willow Creek district | Anchorage (6.3, 14.55)
MF-409, loc. 19 | 61°49'N, 149°14'W

Summary: Claims staked in 1912 on quartz vein as much as 2 ft. thick with 5 ft. of gangue in quartz diorite. Probably the same as Fern.

Capps, 1914 (B 592), p. 264 -- Preliminary to Capps, 1915 (B 607).
Capps, 1915 (B 607), p. 76 — Staked in 1912; only assessment work as of 1914. Reported that 5 open cuts exposed vein containing as much as 2 ft. quartz and 5 ft. gangue cutting quartz diorite.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 16 — Reference to above.

(Bird Cr.) Gold

Anchorage district Anchorage (6.1, 1.0) approx.
61°03'N, 149°17'W approx.

Summary: Placer claims worked in a small way for several years between 1898 and as recently as [probably] 1938. Production very small. In 1898 sample from a lode claim was aplite and contained about 0.36 oz. a ton gold.

Mendenhall, 1900, p. 320-321 -- Believed to have some paying placer claims, but many have proved to be disappointing. Lode claim said [by owner] to be very rich; sample was aplite and assayed $7.50 a ton, mainly in gold.

Capps, 1916 (B 642), p. 187 -- Prospecting at various times since 1898; some ground said to have yielded as much as $6 per day per man, but large boulders caused discontinuance of mining. In 1915 tunnel driven 144 ft. in slate to tap an old channel; did not reach it during summer.

Smith, 1939 (B 917-A), p. 41 -- Some placer development reported in 1938.

MacKevett and Holloway, 1977 (OF 77-160A), p. 8, loc. 68 -- Reference to Capps, 1916 (B 642), p. 187.

Black & Hogan — Gold, Lead, Zinc

Prince William Sound district — Anchorage (14.7, 1.65)
MF-409, loc. 54 — 61°05'N, 148°16'W

Summary: About 250 feet of workings on quartz vein in graywacke cut by granite intrusives. Gold associated with galena, arsenopyrite, and sphalerite. Other veins on property. No record of production.

Johnson, 1914 (B 592), p. 228 -- Country rock is graywacke cut by many altered granite dikes and other bodies. Quartz-filled fissure veins in graywacke and one in graywacke and a granite dike are 2-18 in. thick, strike N 15°-40° W, dip steeply both sides of vertical. Ore contains galena, gold, arsenopyrite, and sphalerite. Staked in 1913; adit reported to have been driven 200 ft. on one vein.

Johnson, 1915 (B 622), p. 139 -- 250 ft. of tunnels and 2 shallow shafts reported to have been driven on vein about 100 ft. above sea level, 1914.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 43 -- Reference to Johnson, 1914 (B 592).

Bluebird	Gold
Willow Creek district MF-409, loc. 14	Anchorage (5.8, 14.2) approx. 61°48'N, 149°17'W

Summary: Large body of quartz with visible free gold reported to have been exposed by 30-ft. shaft.

Capps, 1919 (B 692), p. 185 -- South of Gold Cord. Developed by open cuts and a 30-ft. shaft, which is reported to show a large body of quartz with visible free gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 11 -- Reference to above.

Blue Quartz Mining Co.

Willow Creek district

Copper, Gold

Anchorage
NW 1/4 NW 1/4 quad.

Summary: Granitic dike cutting quartz diorite passes into a quartz fissure vein intersected by short gash veins. Main vein carries gold, chalcopyrite, and tetrahedrite. Said to be near head of north fork of Peterson Cr., which is not shown on available maps.

Chapin, 1912 (B 714), p. 203 -- Near head of north fork of Peterson Cr., a northern tributary of Willow Cr. [not shown on available maps]. 3 parallel granitic dikes with tourmaline cut quartz diorite country rock; strike N 63° E. One dike, about 8 ft. thick, passes along strike into a quartz fissure vein that carries some gold and visible chalcopyrite and tetrahedrite; several short intersecting gash veins consist of quartz with considerable pyrite. Persistence of fissure vein not known; exposed by open cuts, as are gash veins; tunnel started on main vein.

Brassel Bros. — Gold

Willow Creek district — Anchorage (5.6, 14.35)
MF-409, loc. 8 — 61°49'N, 149°20'W

Summary: Zone of altered quartz diorite and quartz between gouge zones is 19 ft. wide (width may include gouge zones; reference not clear). Parallel quartz-feldspar dike contains quartz and a little gold. Also several small veins of rich quartz exposed by surface excavations. No record of production.

Chapin, 1912 (B 714), p. 202 -- Large fissure vein 19 ft. wide; 6 in. gouge on footwall, 18 in. on hanging wall; made up of altered quartz diorite and quartz; strikes N 70° E, dips 42° NE; said to have been traced for 6 claim lengths. Parallel quartz-feldspar dike 100 ft. below it contains some vein quartz and a little gold. Also several small veins of rich quartz exposed by surface excavations; tunnel being driven, 1919.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 7 -- Reference to above.

Brenner

Copper, Gold, Lead, Molybdenum(?), Zinc

Anchorage district
MF-409, loc. 53

Anchorage (7.5, 0.85)
61°03'N, 149°07'W

Summary: Two thin quartz-calcite veins contain galena, sphalerite, pyrite, pyrrhotite, arsenopyrite, molybdenite(?), and marcasite; chalcopyrite and marcasite in veinlets in pyrrhotite. Native copper reported. Gold assumed to be present, but no data given on tenor of deposit. Explored by about 310 ft. of undergroumd workings. Country rock is massive coarse graywacke.

Park, 1933 (B 849-G), p. 406 -- Country rock coarse, massive graywacke rather than the banded argillite and graywacke in most other parts of area.

p. 408-410 -- Massive pyrrhotite occurs in veinlets in arsenopyrite; some isolated rhombic crystals of arsenopyrite in pyrrhotite; galena along fractures in both minerals. Some of veinlets in pyrrhotite have marcasite along sides with quartz and chalcopyrite in center; only found just below water table. Native copper also reported from prospect. Only prospect in area that has been opened below water table. Deepest oxidation is 30 ft. vertically below collar of shaft; below this are a few fresh sulfides and supergene marcasite and chalcopyrite.

p. 419 -- Two quartz veins, generally about 6 in. or less thick. One strikes N 45° W and dips 65° N; the other strikes N 35° E [dip not given]; vein intersection not exposed in workings. Gangue is quartz with some calcite; sulfides include galena, sphalerite, pyrite, pyrrhotite, arsenopyrite, molybdenite(?), and marcasite; copper carbonate stains. [No data on gold content.] Explored by drift 175 ft. long and an inclined shaft 54 ft. long from which 2 levels were run for a total of about 80 ft.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 42 -- Reference to Park, 1933 (B 849-G), p. 419.

Bronson & France — Gold(?)

Willow Creek district — Anchorage (5.9, 14.4)
MF-409, loc. 16 — 61°49'N, 149°17'W

Summary: Part of Little Willie property restaked. Small stringers of quartz in shear zone. Owners plan to develop prospect in 1963. No data on mineralogy or tenor of deposit. See also Little Willie.

Jasper, 1962, p. 79 -- Relocation of part of old Holland [Little Willie] ground. Small stringer veins in shear zone that strikes easterly and dips 50°-60° N. Owners plan to develop property in 1963. [No data on tenor of veins.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 13 -- Reference to above.

Cameron	Copper, Gold
Prince William Sound district MF-409, loc. 62	Anchorage (16.3, 0.35) 61°00'N, 148°05'W

Summary: Slightly mineralized quartz vein 10-15 in. thick in slate and argillite contains arsenopyrite, chalcopyrite, and pyrite; free gold reported. Explored by stripping and 25-ft. tunnel. Another vein exposed nearby. See also Last Chance No. 2.

Johnson, 1914 (B 592), p. 226-227 -- Quartz vein (average thickness 10-15 in.) strikes N and dips 50° E; in slate and argillite. Explored by 25-ft. adit and about 100 ft. of stripping. Walls generally free; in tunnel thin gouge along hanging wall. Said to carry free gold; mineralization slight, but calcite, an unidentified carbonate mineral, arsenopyrite, chalcopyrite, and pyrite recognized. Another quartz vein 8-15 in. thick exposed nearby.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 50 -- Reference to above.

Cann & Minor

Copper, Gold, Zinc

Prince William Sound district
MF-409, loc. 64

Anchorage (17.95, 2.15)
61°06'N, 147°53'W

Summary: Quartz veins as much as 6 ft. thick in graywacke and slate and an acidic dike are apparently only slightly mineralized. Pyrite, sphalerite, and chalcopyrite identified; gold assumed to be present. Explored by 65-ft. adit and surface stripping.

Johnson, 1914 (B 592), p. 218 -- Country rock slate and massive graywacke cut by acidic dike. Quartz vein as much as 6 ft. thick; in places cements shattered dike rock. Tunnel driven along fault that cuts both quartz and dike rock; 65 ft. long. Another quartz vein in graywacke exposed by stripping. Mineralization apparently slight; pyrite, sphalerite, and chalcopyrite present. [Gold assumed to be present, also, as heading of section of report is GOLD--QUARTZ PROSPECTS.].

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 52 -- Reference to above.

Capitol Hill — Copper, Gold, Silver

Prince William Sound district — Anchorage (15.75, 2.0) approx.
MF-409, loc. 55 — 61°06'N, 148°10'W approx.

Summary: Tunnel driven 40 ft. in ore carrying gold, silver, and copper. No ore shipped, 1918.

Martin, 1920 (B 712), p. 33 -- "At the Capitol Hill mine, on the north shore of Barry Arm, a 40-foot tunnel was driven in ore carrying gold, silver, and copper, but no ore was shipped." Entire reference.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 43 -- Reference to above.

(Chickaloon R.) (Cr.)	Gold
Willow Creek district	Anchorage (12.65,-13.15, 13.9-14.65) approx.
MF-409, loc. 86, in part	61°49'N, 148°26'W approx.

Summary: Colors of gold reported from lower part of stream course in late 1890's. Mining reported in 1911 and 1914 in upper part of basin may have been in Talkeetna Mountains quad. Unconfirmed report of an auriferous quartz vein on lower Chickaloon.

Mendenhall, 1900, p. 322 -- Colors of gold below mouth of Schoonoven [Boulder] Cr.; none above. Quartz vein assaying $7 or $8 reported on lower Chickaloon.

Brooks, 1912 (B 520), p. 37 -- Placer mining on upper Chickaloon reported, 1911. [May have been in Talkeetna Mts. quad.]

Brooks, 1915 (B 622), p. 47, 49 -- A little placer mining in upper tributaries in 1914. [May have been in Talkeetna Mts. quad.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 59 -- Reference to Mendenhall, 1900, p. 322.

(Craigie Cr.) Tungsten

Willow Creek district
MF-409, locs. 70-72

Anchorage (5.2-5.55, 13.8-14.1)
61°47'-61°48'N, 149°20'-149°23'W

Summary: Scheelite in float.

Jasper, 1967 (GC 14), p. 23 -- Concentrated samples of float contained scheelite.

(Crow Cr.) Gold

Anchorage district
MF-409, locs. 115, 116

Anchorage (7.55-7.85, 0.05-0.5)
61°00'-61°02'N, 149°05'-149°06'W

Summary: Staked in 1896 or 1897. Mined more or less continually until World War II. Drains area wehere lode gold deposits have long been known (some mined on a small scale). Bedrock is graywacke and slate cut by many small granitic bodies. History of creek complex, with repeated damming by ice in valley of Glacier Cr., into which Crow Cr. flows. Placers probably all postglacial; gold from glacial deposits concentrated in stream channels of several ages. One deposit is in an area behind a morainal dam near headwaters; this deposit not mined extensively. Most of mining about at boundary between Anchorage and Seward quads. No data on total production. See also (Crow Cr.) Seward quad.

Mendenhall, 1900, p. 278 -- Preparations for placer mining, 1898.
p. 320 -- Development, 1898; one nugget worth $50 found.
Moffit, 1905 (B 259), p. 92, 97 -- Preliminary to Moffit, 1906 (B 277).
Purington, 1905 (B 263), p. 207 -- Gold worth $14.80 an ounce.
Moffit, 1906 (B 277), p. 40-43 -- Creek heads in small glaciers. Most of mining in basin above canyon and in an old channel [both mainly in Seward quad.] and in another basin behind a morainal dam near the headwaters. At upper basin very coarse material makes up the dam and impounds beds of gravel, sand, and angular wash. Mined through a cut through the dam. Ground was well prospected before mining.
Paige and Knopf, 1907 (B 314), p. 119-122 -- Extensive hydraulic mining at lower basin [about at south boundary of quad.] and at upper basin behind morainal dam. Most of data are details of mining operations and equipment. About 250,000 yards of gravel moved in 1906. Mining at lower basin was mainly from old filled channel.
Brooks, 1911 (P 70), p. 164 -- Quartz lodes carrying free gold discovered, 1910, at head of creek.
Brooks, 1911 (B 480), p. 32 -- Promising auriferous quartz vein found at head of creek, 1910. 2-4-1/2 ft. wide; traced for several hundred feet. Specimens contained free gold, pyrite, and arsenopyrite.
p. 38 -- Placer mining, 1910 [may have been in Seward quad.].
Johnson, 1912 (B 520), p. 141 -- Staked in 1896; development began in 1898. Mining, 1911.
p. 161 -- Bench and lake-bed placers present.
p. 171-173 -- Most of data from Moffit, 1906 (B 277) and Paige and Knopf, 1907 (B 314) -- Mining in upper basin suspended in 1911 to avoid contaminating lower workings. [Most of work probably in Seward quad.]
Brooks, 1913 (B 542), p. 44 -- Mining, 1912 [may have been in Seward quad.].
Brooks, 1914 (B 592), p. 63 -- Mining, 1913 [may have been in Seward quad.].
Brooks, 1915 (B 622), p. 46 -- Mining, 1914 [may have been in Seward quad.].
Martin and others, 1915 (B 587), p. 189-192 -- Most of data from older reports. Only assessment work at upper basin in recent years.
Brooks, 1916 (B 642), p. 55 -- Placer mining, 1915.

(Crow Cr.) -- Continued

Capps, 1916 (B 642), p. 174-186 -- Creek valley glaciated at least twice, with glacial and proglacial material being alternately deposited and eroded in response to changes in position of terminus of glacier in Glacier Creek valley, into which Crow Cr. debouches. At least 2 old channels were cut and filled before present channel was established. Present channel has not been cut down far enough to reach bedrock except in rock canyon near mouth; upper part of course is on gravel; valley bordered by terrace gravels. First placer claims staked in 1897; mining annually since then (through 1915); most work below, in, and immediately above rock canyon [nearly all in Seward quad.]. First mining was by hand methods; more recently by hydraulicking. Old channel (deeper than present one) cleaned out to permit sluicing gravel in basin above rock canyon. Bedrock slate, graywacke, and conglomerate cut by granitic dikes and sills. 3 paystreaks; richest on bedrock. Gold fairly coarse, but with few nuggets worth more than $10; gold assays about $15 an ounce [gold at $20.67]. Data on basin behind moraine near head of creek from older reports; very little work there since 1908.

Smith, 1917 (BMB 153), p. 34 -- Data on mining plant.

Brooks, 1918 (B 662), p. 44 -- Placer mining, 1916 [may have been in Seward quad.].

Martin, 1919 (B 692), p. 32 -- Mining, 1917 [may have been in Seward quad.].

Brooks, 1923 (B 739), p. 24 -- Mining, 1921 [may have been in Seward quad.].

Brooks and Capps, 1924 (B 755), p. 29 -- Mining, 1922 [may have been in Seward quad.].

Capps, 1924 (B 755), p. 118 -- Data very briefly summarized from several of the above references [not specifically cited].

Park, 1933 (B 849-G), p. 398-405 -- Lengthy quotation from Capps, 1916 (B 642). Mining in 1931 was in Seward quad. Deposits farther upstream in Anchorage quad. minable, but stopped by litigation to keep tailings out of properties downstream. Has been prospecting to head of creek; gold present, but no deposits of any size.

Smith, 1933 (B 844-A), p. 30 -- Mining in 1931 [probably all in Seward quad.].

Smith, 1934 (B 857-A), p. 29 -- Mining in 1932 [probably all in Seward quad.].

Smith, 1934 (B 864-A), p. 33 -- Mining in 1933 [probably all in Seward quad.].

Smith, 1936 (B 868-A), p. 33-34 -- Mining, 1934 [probably in Seward quad.].

Smith, 1937 (B 880-A), p. 37 -- Mining, 1935 [probably in Seward quad.].

Smith, 1938 (B 897-A), p. 44 -- Mining, 1936 [probably in Seward quad.].

Smith, 1939 (B 910-A), p. 43 -- Mining, 1937; prospecting discovered bench gravels east of creek that are rich enough to mine [operations probably in Seward quad.].

Smith, 1939 (B 917-A), p. 40-41 -- Bench gravels being mined [probably in Seward quad.], 1938. Old Girdwood property being readied for production.

Smith, 1941 (B 926-A), p. 37 -- Mining, 1939 [probably in Seward quad.] and dead work, testing, and prospecting near head of creek.

Jasper, 1966 (GC 7), p. 3 -- Has been placer mining.

Clark and Yount, 1972 (MF-351), sheet 1 -- Placer gold discovered in 1896. Most of gold (lode and placer) from Girdwood area was from Crow Cr.

(Crow Cr.) -- Continued

Cobb, 1973 (B 1374), p. 16 -- Data from Moffit, 1906 (B 277), Paige and Knopf, 1907 (B 314) [references on fig. 5], and Capps, 1916 (B 642) [not specifically cited].

MacKevett and Holloway, 1977 (OF 77-169A), p. 8, locs. 66, 67 -- References to Moffit, 1906 (B 277), Paige and Knopf, 1907 (B 314), Capps, 1916 (B 624).

Dixie	Copper
Willow Creek district	Anchorage (6.0, 14.5)
MF-409, loc. 16	61°49'N, 149°17'W

Summary: Pegmatitic vein carries particles of chalcopyrite and irregular stringers of chalcopyrite and bornite. Very little development.

Chapin, 1921 (B 714), p. 202-203 -- Pegmatitic vein 8-1/2 ft. wide strikes N 55° W, dips 55° SE. Particles of chalcopyrite in coarse pegmatite (quartz, orthoclase, muscovite) along borders of vein. Central part of vein is milky quartz cut by irregular stringers of chalcopyrite and a little bornite. Opened in one place by an open cut across vein.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 13 -- Reference to above.

Eagle River — Copper, Gold, Lead, Silver, Zinc

Anchorage district — Anchorage (7.7, 2.35)
MF-409, loc. 51 — 61°08'N, 149°05'W

Summary: Quartz veins less than a foot thick in sheeted zones in graywacke with some interbedded conglomerate and argillite contain galena, pyrite, sphalerite, chalcopyrite, and probably arsenopyrite; assays show 0.05 oz. a ton gold and 10-25 oz. a ton silver. Has been little work on prospect. Includes references to: (Eagle Cr.), Mayflower.

Martin and others, 1915 (B 587), p. 178 -- Sheeted zones in graywacke are vertical and strike N. Traced for about 400 ft. 2 of zones, about 50 ft. apart, contain quartz veins carrying galena, pyrite, sphalerite, arsenopyrite, chalcopyrite, and a little malachite; a little calcite in gangue. Calcite veinlets also in joints in graywacke. No free gold seen in specimens; one specimen (probably consisting mainly of galena) contained 0.05 oz. gold and 24.8 oz. silver a ton.

Capps, 1916 (B 642), p. 193-194 -- Above reference quoted.

Park, 1933 (B 849-G), p. 419-420 -- Country rock is fine-grained massive graywacke with several large interbedded conglomerate lenses and minor argillite. Mineralized quartz stringers less than a foot thick in sheeted zones, the most conspicuous of which is about 50 ft. wide, can be traced for about 400 ft. south of river, and is probably also exposed north of river. Sheeted zones strike N 5° W and are vertical or dip about 65° NW. Metallic minerals identified are galena, pyrite, sphalerite, arsenopyrite(?), and chalcopyrite; some barren calcite veinlets and spots. Assays show 0.05 oz. a ton gold and 10-25 oz. a ton silver. Has been little work at prospect.

Smith, 1938 (B 897-A), p. 33 -- Prospecting, 1936. Vein has been opened by only a few open cuts; showing apparently encouraging.

White and others, 1952 (C 196), p. 10 -- Nelson and Tolbert could not find prospect in 1951.

Berg and Cobb, 1967 (B 1246), p. 18 -- Deposit not productive.

Clark and Yount, 1972 (MF-351), sheet 1 -- Reference to and data from Park, 1933 (B 849-G).

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 40 -- Reference to Park, 1933 (B 849-G).

(Eklutna Cr.)(R.) Chromite, Tin(?)

Anchorage district Anchorage (6.5, 7.95)
MF-409, loc. 41 61°27'N, 149°13'W

Summary: Chromite-rich dunite in "beds" up to an inch thick in a zone 10 ft. thick. Chip sample across 10 ft. contained 7.93 percent Cr_2O_3; Cr:Fe ratio 2.1. Unconfirmed report of tin ore. Includes reference to (West Twin Peak).

Brooks, 1918 (B 662), p. 47 -- "There is an unconfirmed report of the finding of some tin ore in the basin of Eklutna River, tributary to the upper part of Knik Arm."

Rose, 1966 (GR 18), p. 11-12 -- 10-ft.-thick zone contains numerous beds of chromite-rich dunite up to an inch thick. Chip sample across a 10-ft. zone contained 7.93 percent Cr_2O_3 (Cr:Fe ratio 2.1). Chromite-rich rock could be traced for about 30 ft. before it was covered by talus. Pieces of float containing about 90 percent chromite are as much as 4 in. in diameter.

Clark and Bartsch, 1971 (OF 475), p. 2 -- Reference to above.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 31 -- Reference to Rose, 1966 (GR 18).

(Eklutna Tunnel) Mercury

Anchorage district
MF-409, loc. 44

Anchorage (7.2, 8.25)
61°28'N, 149°08'W

Summary: Kidney of cinnabar in fault gouge about 300 ft. from north end of tunnel reported.

Rose, 1966 (GR 18), p. 13 -- Very small kidney of cinnabar in fault gouge about 300 ft. from north end of tunnel. Other cinnabar occurrences have been prospected in the area of Eklutna R. and to SW near Turnagain Arm; no record of exact location or extent of any of them.

Clark and Bartsch, 1971 (OF 475), p. 2 -- Kidney of cinnabar in fault gouge has been reported; reference to above.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 33 -- Reference to Rose, 1966 (GR 18).

(Fall Cr.) Tungsten

Anchorage district
MF-409, loc. 94

Anchorage (11.9, 8.15)
61°27', 148°35'W

Summary: Scheelite in stream-sediment concentrate.

Richter, 1967 (GR 25), p. 16 -- Scheelite in stream-sediment concentrate.
Cobb, 1973 (B 1374), p. 17 -- Reference to above.

Fern	Gold, Lead, Tungsten
Willow Creek district MF-409, loc. 19	Anchorage (6.3, 14.55) 61°49'N, 149°14'W

Summary: Country rock quartz diorite with main "vein" consisting of a fault zone as much as 17 ft. thick filled with quartz, gouge, and altered comminuted country rock. Considerable ore mined from smaller intersecting veins and from ore shoot along intersections of main and smaller veins. Wall rock intensely altered. Metallic minerals include pyrite, arsenopyrite, tetrahedrite, galena, nagyagite (for which gold shows a strong preference), and gold; sparse scheelite in some places. Veins displaced by major post-ore faults, which separate ground into distinct blocks. Located in about 1917; production (not continuous) from 1922 to 1941 and (on a smaller scale) for a few years after World War II. Total production worth probably well over $1,000,000; one of major mines of district. Includes references to: Fern & Goodell, Fern Gold Leasing Co., Fern Gold Mining Co. See also: Bartholf-Isaacs, Talkeetna.

Capps, 1919 (B 692), p. 186 -- Adit driven 40 ft. to vein and then 56 ft. along vein in attempt to find ore shoot exposed at surface. Vein in tunnel reported to have maximum width of 5-1/2 ft. and to carry gold throughout; rich streak a few inches wide along hanging wall. Vein also carries arsenopyrite. Tellurides reported, but not confirmed.

Chapin, 1920 (B 712), p. 176 -- Tunnel driven 300 ft. on lode, 1918.

Chapin, 1921 (B 714), p. 204 -- Underground work continued, 1919.

Brooks and Capps, 1924 (B 755), p. 31 -- Mill installed; mine and mill operated, 1922.

Brooks, 1925 (B 773), p. 12 -- Gold was mined, 1923.
p. 42 -- Milling, mining, and other development, 1923.

Smith, 1926 (B 783), p. 8 -- Mining, 1924; considerable increase in production because of discovery of a rich ore shoot.

Moffit, 1927 (B 792), p. 11 -- Mining, 1925.

Smith, 1929 (B 797), p. 12 -- Mining, 1926.

Smith, 1930 (B 810), p. 14 -- Mining, 1927.

Smith, 1930 (B 813), p. 16 -- Mining, 1928. [Does not agree with following reference].

Ray, 1933 (B 849-C), p. 222-226 -- Vein in stringer lode with no notably thick quartz lenses; thickest quartz stringers do not carry the most gold. Maximum observed thickness of stringer zone is 18-20 ft. Wall-rock alteration intense; much ankerite and secondary quartz. Gold is last metallic mineral deposited; associated with younger of 2 generations of quartz. Other metallic minerals include pyrite, arsenopyrite, tetrahedrite, and galena. Assays of channel samples showed $9.32 to $47.32 a ton; selected specimens as much as $98.52 a ton [gold at $20.67]. More than 4,000 ft. of workings plus stopes [scaled from mine map, pl. 20] on 2 levels. Vein cut by a transverse fault zone about 20 ft. wide about 1,200 ft. from portal of lower tunnel. Workings extend beneath those of adjoining Talkeetna mine (part of property), but do not connect with them. Mill and cyanide plant on property in 1931. Property idle, 1927-30. Reported that snowslide destroyed some of camp buildings in 1931-32.

Fern -- Continued

Smith, 1930 (B 836), p. 18 -- Examined by Canadian mining engineer, 1930.
Smith, 1933 (B 844-A), p. 17-18 -- Production reported, 1931.
Smith, 1934 (B 857-A), p. 17 -- Mining, 1932, in spite of heavy snow damage.
Smith, 1934 (B 864-A), p. 19 -- Increased production, 1933.
Smith, 1936 (B 868-A), p. 19 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 19-20 -- Mining and milling, 1935. Second most productive mine in district.
Smith, 1938 (B 897-A), p. 20 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 22-23 -- Mining, 1937. New mill installed.
Smith, 1939 (B 917-A), p. 23 -- Mining and milling, 1938; very good season.
Capps, 1940 (B 907), p. 176 -- Producing mine, 1936.
Smith, 1941 (B 926-A), p. 21-22 -- Mining and milling, 1939. Haulage tunnel driven about 2,000 ft.
Smith, 1942 (B 926-C), p. 188-189 -- Molybdenite present; reference to Capps, 1919 (B 692), p. 186. [Capps does not specify that molybdenite is at Fern; probably at Talkeetna, which later became part of Fern property; Capps's location is upper basin of Fairangel Cr.]
Smith, 1942 (B 933-A), p. 19-20 -- Accelerated mining and milling, 1940.
Thorne and others, 1948 (RI 4174), p. 35 -- Webfoot vein shows fairly persistent sparse distribution of tungsten throughout exposed length on 200-ft. level and in stope between 200- and 300-ft. levels; scattered grains and stringers in quartz. One stringer 8 in. long and 2 in. thick contains an estimated 15 percent scheelite.
Moxham and Nelson, 1952 (C 184), p. 5 -- Radioactivity insignificant.
Ray, 1954 (B 1004), p. 43-44 -- Nagyagite (a sulphotelluride of lead and gold) is an important mineral in deposit; free gold shows a strong preference for it.

p. 65-68 -- Located about 1917; production began in 1922. Owners took over Talkeetna in 1925, but later production was from Fern only. No ore milled, 1929-30; operated almost continually, 1931-41, with production worth somewhat more than $1,000,000. A little mining after World War II. Main Fern vein is a shear zone as much as 17 ft. wide made up of quartz, gouge, and altered comminuted quartz diorite; displaced by post-ore faults. Considerable ore mined from intersecting veins, with shoots along intersections of main and smaller veins. In places quartz contains tellurides; in others, scheelite. This report also refers to this deposit in general discussions of regional geology and ore deposition; in most instances those references are not summarized here.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 16 -- Reference to Ray, 1954 (B 1004).

(Fishhook Cr.) Gold

Willow Creek district Anchorage (6.4, 13.4)
MF-409, loc. 76 61°46'N, 149°14'W

Summary: Placer gold, probably derived from morainal deposits, is fairly coarse, but there are too many large boulders for profitable mining.

Capps, 1914 (B 592), p. 253 -- Preliminary to Capps, 1915 (B 607).
Capps, 1915 (B 607), p. 55 -- Placer gold found in 1906. Gold fairly coarse, but large boulders too abundant for profitable mining. Gold probably derived from morainal deposits.
MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 58 -- Reference to above.

Galena-Gold	Copper, Gold, Lead
Willow Creek district	Anchorage (6.0, 14.5) (?)
MF-409, loc. 16	61°49'N, 149°17'W (?)

Summary: Surface showing of a foot of "good ore" containing chalcopyrite, pyrite, galena, and free gold. Probably the same Prospect as Dixie, which see also.

Capps, 1919 (B 692), p. 186-- Staked in 1917 at head of Purches Cr. Little development; said to be 1 ft. of "good ore" showing on surface and containing chalcopyrite, pyrite, galena, and free gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 13 -- Reference to above.

Globe	Copper
Prince William Sound district MF-409, loc. 67	Ancorage (23.7, 0.75) approx. 61°01'N, 147°13'W

Summary: Undeveloped copper lode; discovered 1917.

Johnson, 1919 (B 692), p. 146 -- New copper discovery, 1917. Ore body reported to be low grade, several feet wide, and 2 claims long. No development.

Berg and Cobb, 1967 (B 1246), p. 71 -- Nonproductive copper lode.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 55 -- Reference to Johnson, 1919 (B 692).

Gold Bullion (Mining Co.) — Copper, Gold, Mercury

Willow Creek district — Anchorage (5.6, 13.9)
MF-409, loc. 9 — 61°47'N, 149°20'W

Summary: Staked in 1907; for many years was one of the major mines in district. Mining reported in nearly all years from 1909 to 1927. Production reported in 1936 and 1938 from New Bullion and Ready Bullion, respectively, may have been from Gold Bullion or some other mine(s). Tailings cyanided, 1939-40. More than a mile of underground workings. Mine developed on a quartz vein as much as 14 ft. thick and broken by at least 3 faults. Ore contained free gold, small amounts of pyrite, chalcopyrite, and other sulfides, and copper staining; cracks in quartz in one tunnel filled with cinnabar. Ore mined reported to have averaged about 1.7 fine oz. gold a ton. No data on amount of production. Includes references to: New Bullion, Ready Bullion.

Brooks, 1910 (B 442), p. 35 -- Open-cut mining on a vein 18 in. to 5 ft. wide that has been traced through several claims. 2-stamp mill installed in 1908 and operated for about 3 weeks in 1909.

Katz, 1911 (B 480), p. 146-147 -- Mountain side at prospect mantled with glacial debris and talus; where exposed, bedrock is frost heaved. Work has mainly been cleaning bedrock surfaces; 2 open cuts and a short adit. Ore mined was mainly hand-picked quartz gathered while uncovering solid bedrock. Deposit is one or more quartz veins 2-2-1/2 ft. thick intermittently exposed over a distance of 3,000 ft. Quartz contains a little free gold and specks of sulfide. Vein walls generally slickensided and with gouge along them; both quartz and quartz diorite wall rock crushed and seamed. 2-stamp mill on property.

Brooks, 1912 (B 520), p. 29 -- Mining and milling, 1911. Mill enlarged to 7 stamps; most of ore from open cut.

Brooks, 1913 (B 542), p. 39 -- Mining and milling, 1912.

Brooks, 1914 (B 592), p. 65 -- Mining, 1913.

Capps, 1914 (B 592), p. 260-262 -- Preliminary to Capps, 1915 (B 607).

Brooks, 1915 (B 622), p. 48 -- About 500 ft. of underground work was done and a cyanide plant added in 1914.

Capps, 1915 (B 607), p. 50 -- Claims staked, 1907. Mill installed, 1909.

p. 66-69 -- Mine consists of several hundred feet of underground workings, a mill with cyanide plant, numberous open cuts, and other surface improvements, including several trams. Workings are near crest of ridge on segments of one or more quartz veins of variable thickness (maximum 14 ft.) that contain free gold, small amounts of pyrite, chalcopyrite, other sulfides, and copper carbonate stains. Cracks in quartz in one tunnel filled with cinnabar. Mill tailings said to average over $16 a ton in gold before cyaniding.

Capps, 1916 (B 642), p. 197 -- Mine and mill operated, 1915. Considerable ore blocked out for future mining. Tailings cyanided.

Smith, 1917 (BMB 142), p. 44 -- Mainly data on transportation and milling.

Smith, 1917 (BMB 153), p. 40-42 -- Mainly data on trams and mill.

Brooks, 1918 (B 662), p. 48 -- Mining and milling, 1916. In 1915 1,500 ft. of underground work was done, mainly to block out ore.

Gold Bullion (Mining Co.) -- Continued

Capps, 1919 (B 692), p. 178-179 -- Mainly descriptions of physical plant. Underground workings (exclusive of stopes) total more than 5,220 ft. in length. About 20 tons loose ore picked up from quartz showing on ridge between Craigie and Willow Creeks and sent to mill (1917).
Martin, 1919 (B 692), p. 32 -- Mining, 1917.
Chapin, 1920 (B 712), p. 173 -- Mine developed on a single vein that strikes about N 10° E and dips 14° NW; broken by three normal faults with small displacement. Mining and milling, 1918.
Martin, 1920 (B 712), p. 34 -- Mining, 1918.
Brooks and Martin, 1921 (B 714), p. 77 -- Mining, 1919.
Chapin, 1921 (B 714), p. 202 -- Mining and milling, 1919; 60-70 men employed, late May to mid-October.
Brooks, 1922 (B 722), p. 41 -- Mining, 1920.
Brooks, 1923 (B 739), p. 25 -- Mining, 1921.
Brooks and Capps, 1924 (B 755), p. 30 -- Mining, 1922.
Brooks, 1925 (B 773), p. 15 -- Gold produced, 1923.
p. 40 -- Mining and Milling, 1923.
Moffit, 1927 (B 792), p. 11 -- Small production, 1925.
Smith, 1929 (B 797), p. 12 -- May have been production, 1926 [reference does not specify which mines of Willow Creek Mines (Inc.) were being worked].
Smith, 1930 (B 810), p. 14 -- May have been production, 1927 [reference states that some of Willow Creek Mines properties other than War Baby and Lucky Shot were under lease to small groups of miners].
Smith, 1930 (B 813), p. 16 -- May have been mining in 1928; lessee have worked the mine successfully.
Ray, 1933 (B 849-C), p. 213-214 -- Was second largest producer in district; worked from 1909 to 1927; ore reported to have averaged about $35 [about 1.7 fine oz. gold] a ton. Ground much broken by faults, two of which may be correlated with faults exposed on valley wall across Craigie Cr.
Smith, 1938 (B 897-A), p. 20 -- Production at New Bullion [probably Gold Bullion] reported, 1936.
Smith, 1939 (B 917-A), p. 23 -- Production at Ready Bullion [probably Gold Bullion] reported, 1938.
Smith, 1941 (B 926-A), p. 21 -- Production reported, 1939.
Smith, 1942 (B 933-A), p. 21 -- Old tailings being cyanided with good results, 1940.
Ray, 1954 (B 1004), p. 83 -- Mine long closed and workings inaccessible, 1950. Old tailings were cyanided in 1939-40 and several thousand dollars worth of gold recovered.
Berg and Cobb, 1967 (B 1246), p. 34 -- Cinnabar in cracks in quartz vein.
MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 8 -- References to Capps, 1915 (B 607) and Ray, 1933 (B 849-C).

Gold Cord (Mining, Milling & Power Co.) — Copper, Gold, Lead, Tungsten, Zinc

Willow Creek district — Anchorage (5.9, 14.05)
MF-409, loc. 14 — 61°48'N, 149°17'W

Summary: Country rock quartz diorite. Principal vein is a shear zone as much as 25 ft. wide with quartz along foot wall and hanging wall separated by sheared quartz diorite, some of which is practically unaltered. Vein displaced by wide transverse fault zones and further complicated by both normal and reverse strike faults. Metallic minerals include pyrite, arsenopyrite, tetrahedrite, galena, minor chalcopyrite and sphalerite, and gold. Small amounts of scattered scheelite in places. Developed by several levels over a vertical distance of about 200 ft. At least 2,500 ft. of workings and several diamond-drill holes were driven in attempts to find faulted-off segments of veins. Limited exploration of other veins on property not very successful. Deposit located in 1915. Most development and production were between 1931 and World War II; some development, but very little production, after War. No data on total production. Includes reference to Golden Bear Mining Co.

Capps, 1919 (B 692), p. 180-181 -- Discovered in 1915. By end of 1917 included 245 ft. of underground workings, aerial tram to Independence Mill, and other surface improvements. Vein 2 to 9 or more ft. thick cuts diorite country rock; strikes about N and dips 40°-44° W; carries pyrite, arsenopyrite, and visible free gold. Mill test indicated that some of gold is locked in sulfides.

p. 185 -- One what owners consider an extension of main Gold Cord deposit open cuts show a few inches of quartz with copper carbonate stains; free gold also said to be present.

Martin, 1919 (B 692), p. 32 -- Operated, 1917. Promising new quartz vein has been traced for several claim lengths.

Chapin, 1920 (B 712), p. 174-175 -- Reticulating quartz veins in quartz diorite form a stringer lode along a joint plane along which there was post-ore faulting; lode as much as 13 ft. wide; strikes N 10° W and dips 30°-65° (average about 40°) SW. Quartz diorite included in quartz veins altered and mineralized with sulfides. Developments at end of 1918 were 500 ft. of tunnel, a crosscut, 2 small stopes, and an open cut.

Martin, 1920 (B 712), p. 34 -- Mining, 1918.

Chapin, 1921 (B 714), p. 204 -- Had been production, 1917-18; not in operation, 1919.

Brooks, 1925 (B 773), p. 39-40 -- Development, 1923, including new machinery. Main adit now 575 ft. long. Lode includes irregular bunches [of quartz(?)] that pinch and swell; faulted along many planes; gouge. Another vein exposed in open cut contains considerable chalcopyrite. In the past one batch of 11 tons of ore yielded $225 [about 10.9 oz. gold] a ton when milled.

Smith, 1930 (B 813), p. 16 -- Mining, 1928.

Gold Cord (Mining, Milling & Power Co.) -- Continued

Smith, 1932 (B 824), p. 19 -- In 1929 main activity was crosscutting trying to find a faulted-off vein; some mining.

Ray, 1933 (B 849-C), p. 217-220 -- Quartz vein opened by shallow tunnel nowhere as much as 100 ft. below surface or more than 180-200 ft. downdip of vein, which strikes N 10° W and dips 30°-42° W. Tunnel follows vein for about 225 ft. and then a nearly vertical fault plane. Intersects ore shoot between 360 and 495 ft. from portal. Hits transverse fault 630 ft. from portal; fault drifted along for about 300 ft. [scaled from mine map, pl. 18]; vein not definitely found, although quartz stringers and altered rock were encountered. Wall rock intensely altered. Gold is last metallic mineral deposited. Other metallic minerals include pyrite, arsenopyrite, tetrahedrite, galena, and minor chalcopyrite and sphalerite. Surface improvements include a mill and several camp buildings. Originally staked in 1915. Mine being operated under lease in 1931. Tenor of ore [based on assay data on pl. 18] ran as high as $186.45; most values much lower [gold at $20.67].

Smith, 1933 (B 844-A), p. 17-18 -- Production reported, 1931.

Smith, 1934 (B 857-A), p. 17 -- Mining, 1932, in spite of heavy snow damage.

Smith, 1934 (B 864-A), p. 19 -- Mining, 1933.

Smith, 1936 (B 868-A), p. 19 -- Mining, 1934; fire destroyed some of surface plant.

Smith, 1938 (B 897-A), p. 20 -- Production reported, 1936.

Smith, 1939 (B 917-A), p. 23 -- Production reported, 1938.

Smith, 1941 (B 926-A), p. 21 -- Production reported, 1939.

Smith, 1942 (B 933-A), p. 19-21 -- Production reported, 1940. Property taken over by new management and considerable surface work done.

Thorne and others, 1948 (RI 4174), p. 35 -- Scattered grains of scheelite in quartz vein; in most places present in insignificant amounts. In In one place a 2-inch quartz stringer for a length of one foot contains several percent scheelite.

Moxham and Nelson, 1952 (C 184), p. 5 -- Radioactivity insignificant.

Ray, 1954 (B 1004), p. 54-58 -- Claims located in 1915. Sporadic activity (including small production in 1917-18) until 1931. Considerable mining and production, 1931 to World War II closing; old tailings reprocessed, 1939. Some development, but little production, after World War II; discontinued in 1949 and lower levels allowed to flood. Mine developed by several levels over a vertical distance of about 200 ft. Main vein consists of a shear zone (possibly 2 parallel shear zones) about 25 ft. wide filled with footwall and hanging-wall quartz separated by sheared quartz diorite, some of which is practically unaltered. Vein cut off by thick transverse fault zones and further complicated by strike faults (both normal and reverse). At least 2,500 ft. of workings and some diamond-drill holes driven trying to find continuations of faulted-off ore bodies. Prospect adits driven on other veins in 1947-48 were not particularly successful, although a little material carrying 2 oz. a ton gold was found.

This report also refers to this deposit in general discussions of regional geology and ore deposition; those references are not summarized here.

Gold Cord (Mining, Milling & Power Co.) -- Continued

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 11 -- Reference to Ray, 1933 (B 849-C), p. 217-220.

Golden Light — Gold (?)

Willow Creek district — Anchorage (5.35., 13.85)
MF-409, loc. 6 — 61°47'N, 149°22'W

Summary: Development and erection of mill reported, 1919. No data on gold content (if any), or on type of deposit.

Chapin, 1921 (B 714), p. 202 -- "Some development work was done on the Golden Light claims, on the southeast side of Craigie Creek, and a mill was erected, but no production was made." Entire reference.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 5 -- Reference to above.

Gold Quartz

Gold

Willow Creek district
MF-409, loc. 26

Anchorage (6.45, 3.35) approx.
61°49'N, 149°13'W

Summary: Quartz vein said to be 2 ft. thick and to contain considerable gold prospected by 2 tunnels 20 and 30 ft. long. See also Independence; claim of same name.

Capps, 1916 (B 642), p. 200 -- Vein, said to be 2 ft. thick and to contain considerable gold, prospected by 2 tunnels 20 and 30 ft. long.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 20 -- Reference to above.

Gold Top Mining Co.	Gold(?)
Willow Creek district	Anchorage (5.6, 13.9) approx. 61°47'N, 149°20'W

Summary: Property next to Gold Bullion of Willow Creek Mines. No more than assessment work reported. May have become part of Gold Bullion sometime after 1911.

Brooks, 1910 (B 442), p. 36 -- "No details were learned regarding the Gold Top Mining Company."

Brooks, 1912 (B 520), p. 29 -- "Only assessment work was done [in 1911] on the adjacent [to Gold Bullion] Gold Top Mining Co. property."

Good Hope — Gold

Willow Creek district — Anchorage (6.75, 14.3) approx. 61°49'N, 149°11'W approx.

Summary: Quartz vein said to be several feet wide contains free gold. Exposed by 2 open cuts. Only location given is east side of lower Reed Cr.

Capps, 1919 (B 692), p. 186 -- Staked on east side of lower Reed Cr. in 1916. Vein reported to be several feet wide; a few colors of free gold can be panned from it. Exposed by 2 large open cuts.

Grimes

Copper, Gold

Willow Creek district
MF-409, loc. 20

Anchorage (6.25, 14.3) approx.
61°49'N, 149°15'W

Summary: Quartz vein, probably following a joint in quartz diorite, is probably as much as 2 ft. thick. Some of quartz contains free gold and sulfides; some malachite stained. Near or possibly the same as Webfoot.

Capps, 1914 (B 592), p. 265 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 77 -- Staked in 1912. Explored by open cuts over a vertical range of 300 ft., supposedly on the same vein. Vein contains probably as much as 2 ft. of quartz, some of which contains sulfides and free gold. Malachite staining on some quartz on a dump. Country rock is jointed quartz diorite; vein probably is a joint filling.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 17 -- Reference to above.

Griset & Benson — Gold(?)

Prince William Sound district — Anchorage (16.6, 0.65)
MF-409, loc. 63 — 61°01'N, 148°03'W

Summary: Nearly vertical quartz vein with average thickness of 3 ft. has been traced for about 300 ft. Explored by 30-ft. crosscut and surface excavation. No data on possible gold content.

Johnson, 1914 (B 592), p. 227 -- Quartz vein that has been traced about 300 ft. has average thickness of 3 ft.; nearly vertical. Explored by 30-ft. crosscut, open cuts, and stripping. [no data on possible gold content.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 51 -- Reference to above.

(Grubstake Gulch) (Cr.) Gold

Willow Creek district Anchorage (4.7-4.85, 13.2-13.35)
MF-409, loc. 69 61°45'N, 149°25'-149°26'W

Summary: Has been placer mining here and on Willow Cr. below mouth of Grubstake Gulch. Claims staked as early as 1897; mining in progress as recently as 1969. Gold derived from quartz veins in mica schist bedrock; one probable source is veins at Thorpe lode gold mine near head of gulch. Both creek and bench gravels mined.

Paige and Knopf, 1907 (B 314), p. 116-118 -- Preliminary to Paige and Knopf, 1907 (B 327).

Paige and Knopf, 1907 (B 327), p. 65-66 -- Hanging valley tributary to Willow Cr. Bedrock schist with many small quartz veins, which are the probable source of the placer gold. Schistosity dips downstream and forms natural riffles. Gold coarse and rough; very little black sand. 900 ft. of creek worked out from 1904 to 1906; pay 200 ft. wide and 2-1/2 to 3 ft. deep; creek gravels only. Gold worth $16.58 an ounce. Creek first staked in 1899.

Brooks, 1910 (B 442), p. 42 -- Placer mining, 1909; short season.

Brooks, 1911 (P 70), p. 165 -- Reference to above; most of gold on bedrock or in crevices in bedrock. Hydraulic plant in operation since 1904.

Katz, 1912 (B 480), p. 139 -- Placer prospects on Grubstake and Willow Creeks principal mining interest until 1906, when first lode location in area was made.

p. 150-151 -- Most of data from Paige and Knopf, 1907 (B 327). Preparations for hydraulicking bench at mouth, 1910.

Capps, 1914 (B 592), p. 250-253 -- Preliminary to Capps, 1915 (B 607).

Brooks, 1915 (B 622), p. 48 -- Placer mining at mouth of gulch, 1914.

Capps, 1915 (B 607), p. 53-54 -- Same basic data as in earlier reports. In 1913 a good paystreak was said to have been discovered east of the creek. Total placer production from Grubstake and Willow Creeks said to be about $25,000 [about 1,200 fine oz.] as of 1914.

Capps, 1916 (B 642), p. 200 -- Bench gravels near mouth being prospected, 1915.

Smith, 1932 (B 824), p. 31 -- A little placer gold recovered, 1929.

Ray, 1933 (B 849-C), p. 188 -- Placer gold discovered in district in 1897; several thousand dollars worth recovered between 1897 and 1905 from Grubstake Gulch and Willow Creek; very little since then. Derived from quartz veins in schist.

p. 228 -- Gold derived from quartz veins in mica schist, including those at Clyde Thorpe lode property.

Smith, 1933 (B 836), p. 31 -- A little placer gold recovered, 1930.

Smith, 1939 (B 910-A), p. 43-44 -- For a number of years there has been small placer-gold production; area underlain by schist. [Statement as of 1937.]

Smith, 1939 (B 917-A), p. 41 -- Same statement as in Smith, 1939 (B 910-A).

Capps, 1940 (B 907), p. 176 -- Has been placer mining. Data from older reports.

Moxham and Nelson, 1952 (C 184), p. 5 -- Has been placer gold mining. Radioactivity of samples no higher than 0.001% eU.

(Grubstake Gulch) (Cr.) -- Continued

Ray, 1954 (B 1004), p. 83 -- Has been site of most successful placer operations in district. Bench gravels near mouth contain pannable free gold, but boulders make mining difficult.

Jasper, 1962, p. 81 -- Claims staked in 1950's.

Jasper, 1966 (GC 7), p. 3 -- Past efforts at placer mining have not been successful.

Cobb, 1973 (B 1374), p. 19 -- Grubstake Gulch and part of Willow Cr. immediately below mouth of gulch probably accounted for considerably more than half the placer gold mined in the Willow Creek district. Gold derived from auriferous quartz veins in mica schist. Claims staked as early as 1897; mining still in progress in 1969.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 57 -- References to Capps, 1915 (B 607), and Jasper, 1962.

Gunnysack

Gold

Anchorage district
MF-409, loc. 53

Anchorage (7.6, 0.8) approx.
61°03'N, 149°06'W approx.

Summary: Active work reported, 1928; may have been a little production of gold. May have become part of Jewel.

Smith, 1930 (B 813), p. 18 -- Active work reported, 1928; may have been a little production [presumably of gold].

MacKevett and Holloway, 1977 (OF 77-169-A), p. 6, loc. 42 -- Reference to above.

(Hatcher Cr.) Gold

Willow Creek district Anchorage (5.9, 13.6)
MF-409, loc. 75 61°46'N, 149°18'W

Summary: Trace of gold in float.

Jasper, 1967 (GC 14), p. 26 -- Grain of gold in concentrated float sample.

High Grade | Gold

Willow Creek district | Anchorage (5.85, 14.1)
MF-409, loc. 14 | 61°48'N, 149°18'W

Summary: Nearly 1,000 ft. of workings intersect 3 quartz veins in shear zones. One vein 1-2 in. wide contained specimen ore that netted more than $1,200 (gold at $20.67) from a one-ton shipment in 1930. May also have been production in 1932, 1934, and 1935; data inconsistent. Includes references to: Kloss and associates, Kloss & Snyder.

Ray, 1933 (B 849-C), p. 220 -- Specimen rock from a quartz stringer 1-2 in. wide; a one-ton shipment to smelter netted the owners more than $1,200 in 1930. Drift has been run along the thicker of two quartz stringers and developed a few tons of low-grade ore; stringer as much as 12 in. thick. Ankerite in wall rock and "fill" [wall rock inclusions in vein]. Commercial ore bodies have not been found.

Smith, 1933 (B 836), p. 18 -- Prospecting, 1930. A ton of hand-sorted ore shipped to smelter returned more than $1,000.

Smith, 1934 (B 857-A), p. 17 -- Mining, 1932.

Smith, 1936 (B 868-A), p. 19 -- Production reported, 1934.

Smith, 1937 (B 880-A), p. 20 -- Production reported, 1935.

Ray, 1954 (B 1004), p. 76 -- Small amount of ore shipped to smelter, 1930; since then only assessment and a little development work. Nearly 1,000 ft. of workings. Small amounts of quartz that locally contained high-grade pockets of ore in one of 3 shear zones (all strike N 10°-20° W and dip about 40° SW) encountered in workings.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 11 -- References to Ray, 1933 (B 894-C), and Ray, 1954 (B 1004).

Highway

Chromite, Copper, Gold, Platinum

Anchorage district
MF-409, loc. 42

Anchorage (6.7, 8.35)
61°28'N, 149°12'W

Summary: Staked in 1948; very little development other than USBM trenches and one diamond-drill hole. Deposit is a zone of lenses, bands, and stringers of chromite in dunite near the base of the Eklutna ultramafic body; zone in highway cut is about 8 ft. thick and averages 11.5% Cr_2O_3. Some samples contain grains of gold and of native copper. 12 of 16 samples contained average concentrations of 0.042 ppm platinum and 0.060 ppm palladium. Includes references to Eklutna ultramafic body unless specifically to another occurrence.

Bjorklund and Wright, 1948 (RI 4356) -- Staked in 1942. Chromite is in nearly vertical stringers and poorly defined bands in dunite. Near highway the strike is N 17° E and the dip about 85° NW; zone is 7.8 ft. wide; individual chromite bands are 1/4 inch to 0.7 ft. wide; displaced as much as 5 ft. by faults. At higher altitudes chromite zone is wider and lower grade. Trenched and one diamond drill hole put down by USBM in 1942. No massive high-grade chromite found; calculated grade, based on weighted average analysis for each trench, is 5.7% Cr_2O_3. Deposit too small and too low grade to be minable under conditions prevailing in 1940's.

Rose, 1966 (GR 18), p. 9-10 -- Reference to Bjorklund and Wright, 1948 (RI 4356). Graded bedding in chromite lenses suggests layering is right side up. Zone in road cut is about 8 ft. thick and averages 11.5% Cr_2O_3; individual bands 1/4 to 1 in. thick and made up of euhedral chromite grains 1-2 mm in diameter separated by olivine and minor clinopyroxene. Grade of material decreases going uphill. Samples from near road contained numerous grains of gold up to 20 mesh in size; also grains of native copper.

p. 13 -- Gold in banded chromite.

Berg and Cobb, 1967 (B 1246), p. 20 -- Data from Bjorklund and Wright, 1948 (RI 4356). [Not specifically cited.]

Clark and Bartsch, 1971 (OF 475), p. 2 -- Reference to Bjorklund and Wright, 1948 (RI 4356).

Clark and Greenwood, 1972 (P 800-C), p. C157 -- Olivine-bearing rocks near base of ultramafic complex. Chromite locally makes up 5%-16% of dunite; occurs as disseminations, isolated pods, stringers, and rarely as discontinuous layers.

p.C159 -- Of 16 samples, 12 each contained platinum and palladium. Maximum concentrations are 0.100 ppm Pt and 0.140 ppm Pd; average concentrations are 0.042 ppm Pt and 0.060 ppm Pd. Dominant rock types are peridotite-dunite and hornblendite-pyroxenite. Positive correlation between concentrations of Pt-Pd and Cu. Pt-Pd associated with chromite and native copper.

Bird, 1977 (OF 77-236), samples 250-252 -- Only identification is samples of chromite in dunite and peridotite from Eklutna complex. In chromite Cr_2O_3 41.78 to 55.93 weight percent; number cations/4 oxygens 1.010 to 1.473. In olivine Cr_2O_3 0.06 to 0.46 weight percent; number cations/4 oxygens 0.001 to 0.009.

Highway -- Continued

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 32 -- References to Bjorklund and Wright, 1948 (RI 4356), and Rose, 1966 (GR 18).

Homebuilder

Gold

Willow Creek district
MF-409, loc. 29

Anchorage (6.6, 14.45)
61°49'N, 149°12'W

Summary: Quartz vein as much as 5 ft. thick contains free gold and pyrite; exposed in open cuts. Crosscut being driven in 1923 to intersect vein at depth.

Brooks and Capps, 1924 (B 755), p. 31 -- Development, 1922.

Brooks, 1925 (B 773), p. 42 -- Being explored, 1923. Open cuts expose a vein zone as much as 5 ft. wide; quartz and "mixed vein material." Quartz said to pan gold; considerable pyrite. Vein strikes N. 70° E, dips 35° NW. Crosscut being driven to intersect vein 300 ft. below surface workings.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 20 -- Reference to Brooks, 1925 (B 773).

Homesteader-Martha

Gold(?)

Willow Creek district

Anchorage
NW 1/4 quad.

Summary: Development, but no production, reported, 1922. No data on exact location, type of deposit, or gold content, if any.

Brooks and Capps, 1924 (B 755), p. 31 -- Development, but no production, 1922.

(Horn Mts.) Zeolites

Willow Creek district Anchorage (20.25-21.2, 17.35-18.0)
61°58'-62°00'N, 147°26'-147°32'W

Summary: Submarine tuffs of Jurassic Talkeetna Fm. altered by burial diagenesis and low-grade regional metamorphism (fluid pressures of 0.5-3 kilobars at less than 200°C) with formation of mordenite which makes up half of a 30-m thickness of altered tuff that extends for 14 km. Mordenite is of commercial grade. Heulandite and laumontite present in smaller amounts.

Hawkins, 1973 (SR 6) -- Mordenite is an alteration product of volcanic sandstones and replacement of glassy shards in vitric tuffs. Heulandite in thin, tabular crystals in altered silicic volcanic rocks, as aggregates in vug fillings, and replacing glass in altered tuff. Laumontite in one sample. Formed as a result of burial diagenesis and low-grade regional metamorphism.

Hawkins, 1976 (SR 9) -- Zeolites formed by burial diagenesis and regional metamorphism of lava and volcanic detritus of Talkeetna Fm. (Jurassic) deposited in a eugeosynclinal trough. Maximum temperature probably 200°C at fluid pressures of 0.5 to 3 kilobars (equivalent to burial depths of 1-10 km).

Hawkins, 1976 (SR 11) -- Zeolitized tuff beds at least 30 m thick extending for 14 km consist of 50% mordenite of commercial grade. Individual beds and entire unit are graded. Tuff probably formed by submarine explosion of dacitic(?) magma. Zeolites probably formed by chemical reactions controlled by composition and permeability of parent material and composition of pore water. During time of formation of zeolites rock subjected to fluid pressures of 0.5 to 3 kilobars and temperatures less than 200°C.

MacKevett and Holloway, 1977 (OF 77-169A), p. 8, loc. 71 -- Reference to Hawkins, 1976 (SR 9).

Idamar	Gold(?)
Willow Creek district MF-409, loc. 29	Anchorage (6.65, 14.45) 61°49'N, 149°12'W

Summary: Claims staked in 1919 and a little surface stripping done. No data on type of deposit or gold content, if any.

Chapin, 1921 (B 714), p. 205 -- "The Idamar claims, adjoining the Skarstad property on the northeast, were staked by J. B. Larsen in 1919, and a little surface stripping was done." Entire reference.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 20 -- Reference to above.

Independence — Copper, Gold, Lead, Tungsten, Zinc

Willow Creek district — Anchorage (5.85, 14.95)
MF-409, loc. 12 — 61°48'N, 149°18'W

Summary: Has been a major mine of district. Discovered in 1907; largest scale mining between 1937 and 1943; not much since World War II. No data on amount of total production. Several miles of workings on 3 veins in quartz diorite. Most mining was on Independence vein, which consists of quartz generally 1-6 ft. thick (much not rich enough to be ore) and, in places, altered quartz diorite and gouge. Vein cut off by regional fault at south end of principal workings. Minerals in ore include quartz, calcite, pyrite, arsenopyrite, spottily distributed scheelite, sphalerite, galena, chalcopyrite, and gold (last deposited metallic mineral). Rolls in vein (marked by abrupt changes in strike and dip) do not appear to have had much influence on ore deposition. Includes references to: Alaska Gold Quartz (Mining Co.), Alaska-Pacific Consolidated Mining Co., Gold Quartz, Independent.

Brooks, 1910 (B 442), p. 35 -- By end of 1909 veins 2-5 ft. wide had been followed by an adit for 140 ft. 3-stamp mill operated for part of 1909. Vein changed from free-milling to base ore about 50 ft. from portal.

Katz, 1911 (B 480), p. 147-148 -- Quartz vein averaging 2 ft. in thickness explored by adit 150 ft. long and 300-400 ft. of surface stripping. Vein offset 4 ft. by fault 143 ft. from portal of adit. Walls of vein sharp and marked by gouge. All parts of vein reported to yield free gold on panning. 2-stamp mill on property.

Brooks, 1912 (B 520), p. 29 -- Mining, milling, and considerable surface stripping, 1911.

Brooks, 1913 (B 542), p. 39 -- Mining and milling, 1912.

Brooks, 1914 (B 592), p. 65 -- Mining, 1913.

Capps, 1914 (B 592), p. 257-260 -- Preliminary to Capps, 1915 (B 607).

Brooks, 1915,(B 622), p. 48 -- Mining and milling, 1914. Company taken over by Independence Gold Mining Co.

Capps, 1915 (B 607), p. 50 -- Staked in 1907; first mill in district put into operation here in 1908 and enlarged in 1911.

p. 64-66 -- Country rock quartz diorite. Principal vein, from which there has been most of the production (Granite Mountain vein), averages about 22 in. thick, but pinches and swells and contains some country rock horses; strikes N 14°-20° W, and dips 10°-42° SW; a few inches of gouge along vein walls. Vein contains free gold, much pyrite, some chalcopyrite, and specks of unidentified sulfide. Ore oxidized near surface. Developments include about 500 ft. of workings, plus stopes and open cuts. Upper vein (Independence vein) is similar, but has not been developed much.

Capps, 1916 (B 642), p. 197-198 -- Mining, milling, and blocking out more ore; several hundred feet of underground workings and surface stripping.

Smith, 1917 (BMB 142), p. 44 -- 2 veins being mined, 1915. Data on aerial trams and mill.

Smith, 1917 (BMB 153), p. 40 -- Mainly data on mining and milling methods.

Brooks, 1918 (B 662), p. 48 -- Operated, May-September, 1916.

Independence -- Continued

Capps, 1919 (B 692), p. 180 -- No mining, 1917; mining costs too high to yield a profit. Some ore from Gold Cord milled, 1917.
Brooks, 1922 (B 722), p. 41 -- Mining, 1920.
Brooks and Capps, 1924 (B 755), p. 30 -- One of group of mines being investigated and developed by Kelly Mines Co. in 1922.
Brooks, 1925 (B 773), p. 40 -- Part of consolidated properties being developed by Kelly Mines Co. from Willow Cr. side of divide, 1923.
Smith, 1932 (B 824), p. 19 -- Property examination by private engineers, 1929.
Ray, 1933 (B 849-C), p. 215-216 -- Upper workings on what is thought to be an extension of Skyscraper vein of Martin mine. Lower workings in what appears to be hanging wall of a mineralized lode 25-30 ft. thick that has not been completely crosscut; strike is approximately south; dip 10°-40° (generally about 20°) W. Vein quartz is from a knife edge to 4 ft. thick; walls slickensided. Ore running $30 a ton or more was stoped; workings no wider than the $30 ore except where narrowness of vein required taking out more material. Mine has been inactive for several years [as of 1931] and surface plant dismantled.
Smith, 1934 (B 868-A), p. 19 -- Production reported, 1934. [Possibly was referring to ore from Gold Cord that was milled at Independence.]
Smith, 1937 (B 880-A), p. 20 -- Production reported, 1935.
Smith, 1938 (B 897-A), p. 20 -- Production of a small amount of gold from property of Bralaska Co. (Independence and Martin properties now combined) reported, 1936.
Smith, 1939 (B 917-A), p. 23 -- Alaska-Pacific Consolidated Mining Co. brought under single control several independent companies near head of Fishhook Cr.; one of major producers of district in 1938.
Smith, 1941 (B 926-A), p. 20-21 -- One of major producers of district, 1939. Management of company estimates that on all of its properties there is a total of about 8 miles of underground workings [no way to tell in what old mines; Independence is principal mine of company].
Smith, 1942 (B 933-A), p. 19-20 -- One of principal producers of district, 1940. Consolidation of properties being continued; low-level tunnel being driven to crosscut several of veins mained at higher levels.
Stoll, 1944 (B 933-C) -- Independence vein follows fault zone in quartz diorite; average strike is N 10 W; average dip is 25° W (maximum 55° W; other extreme 2° E); maximum thickness 8 ft. Attitude modified by 3 rolls that trend NW-SE. Internal structure the result of minor faulting during and after mineralization. Wall rock intensely altered near vein. Vein is mainly quartz with minor amounts of calcite, pyrite, arsenopyrite, scheelite, sphalerite, galena, and (youngest) gold. Values practically all in gold; not much silver. Maximum thickness of quartz is where dip is lowest; highest gold tenor where dip is greatest. Gold in zones of microbrecciation of quartz.
Thorne and others, 1948 (RI 4174), p. 34 -- Spottily distributed small grains, blebs, and stringers of scheelite in quartz. Most of quartz does not carry scheelite. In one stope pockets of ore as large as 8 in. in diameter contained 50% scheelite.
Moxham and Nelson, 1952 (C 184), p. 5 -- Radioactivity of samples generally insignificant; highest (diorite) was 0.003% eU.

Independence -- Continued

Ray, 1954 (B 1004), p. 58-65 -- First staked in 1907. Major activity began in 1937; from 1937 to World War II closing in 1943 was one of principal mines in district; a little mining in 1949-50; closed down in 1950;. Independence vein exhibits abrupt changes in strike and dip at rolls, which do not seem to have had any great influence on ore deposition. Quartz generally 1-6 ft. thick; not all is ore, as many workings have exposed barren or low-tenor quartz; in places vein is composed of narrow bands of quartz mixed with altered quartz diorite and gouge. Vein has been explored down to 1,500 level (more than 1,500 ft. down dip from surface). Vein cut off at south end of main workings by a regional fault (Martin fault); has not been found farther south; may have been displaced upward and eroded away. Many minor transverse faults cut vein cleanly rather than drag the vein. Some strike faults also; at least one is reverse fault. A second parallel vein (Skyscraper vein) has not been developed much. Another vein encountered in workings was thought to be an extension of vein at Gold Cord mine (1/2 mi. to north); probably is not same vein unless displaced at least 300 ft. by a transverse fault.
This report also refers to this deposit in general discussions of regional geology and ore deposition; those references not summarized here.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 10 -- References to Ray, 1933 (B 849-C) and Ray, 1954 (B 1004).

Jap

Gold

Willow Creek district
MF-409, loc. 12

Anchorage (5.7, 13.8) approx.
61°48'N, 149°18'W approx.

Summary: At least 2 quartz veins as much as 18 in. thick were developed by about 555 ft. of workings during several years before about 1925. An unspecified amount of ore running not less than $100 [about 4.85 oz.] a ton was mined.

Capps, 1916 (B 642), p. 199 -- Has been prospecting for several years. Reported that in fall of 1915 a small mill was installed and that some ore of encouraging gold tenor was run through it.

Capps, 1919 (B 692), p. 184-185 -- About 375 ft. of workings by end of 1917. 2 auriferous quartz veins, one richer than the other.

Brooks, 1925 (B 773), p. 41 -- Mine developed by 4 adits (total length 555 ft.); veins as much as 18 in. thick. No ore running less than $100 a ton in free gold is mined.

Ray, 1954 (B 1004), p. 31 -- Now-inaccessible prospect tunnels reliably reported to have penetrated a quartz vein that yielded assays high in gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 10 -- Reference to Brooks, 1925 (B 773).

Jewel(1) — Copper, Gold, Lead, Molybdenum, Silver

Anchorage district — Anchorage (7.6, 0.8)
MF-409, loc. 53 — 61°03'N, 149°06'W

Summary: Quartz vein in banded argillite and graywacke is from 2 in. to 1 ft. thick. Contains arsenopyrite, pyrite, chalcopyrite, pyrrhotite, molybdenite, galena, and free gold. 150 or more feet of underground workings; at one time had own mill; later was connected to mill at Agostino. Sporadic operations from 1921 to as recently as 1939. Production not recorded, but probably small. See also Agostino; the two are probably confused or combined in some references.

Brooks, 1923 (B 739), p. 24 -- Mill, water power, and tram installed, 1921.

Brooks and Capps, 1924 (B 755), p. 30 -- Work continued, 1922. Some ore run through mill.

Smith, 1930 (B 813), p. 18 -- Active work reported, 1928; may have been some production.

Park, 1933 (B 849-G), p. 409 -- Face of tunnel about 100 ft. vertically below outcrop; vein materials partly oxidized.

p. 418-419 -- Country rock is banded argillite and graywacke that strike N 30° W and dip 60° SE, the same attitude as the vein; numerous quartz diorite intrusions in vicinity. Vein is mineralized quartz from 2 in. to 1 ft. thick; contains arsenopyrite, pyrite, chalcopyrite, pyrrhotite, molybdenite, galena, and free gold; some oxidation products. Tunnel driven about 145 ft. along vein; contract for more drifting in 1931. Had been considerable surface improvements, including a mill; some destroyed by snow slides. Production certainly no more than a few tons of ore. [No data on tenor of ore.]

Smith, 1939 (B 910-A), p. 29-30 -- Mine operated, 1937. New tram built to take ore from Jewel to mill. [Called Monarch-Jewel in this reference probably refers to both Monarch (Agostino] and Jewel; both probably were under the same management (Crow Creek Gold Corp.).]

Smith, 1939 (B 917-A), p. 28 -- Operations in 1938 at Monarch-Jewel about the same as in 1937. [Ore may have come from both Agostino and Jewel.]

Smith, 1941 (B 926-A), p. 25-26 -- Operations probably on about the same scale as in preceding years, 1939. [Name used is Monarch-Jewel.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 42 -- Reference to Park, 1933 (B 849-G).

(Jim Cr.) Copper, Silver, Zinc

Anchorage district
MF-409, loc. 45

Anchorage (9.95, 10.05)
61°34'N, 148°49'W

Summary: Vein about a foot thick in silicified greenstone is made up of about 40% each chalcopyrite and pyrrhotite, 15% sphalerite, and 5% calcite gangue. Assay showed 15.08% copper, 2.95% zinc, 1.75 oz. a ton silver, and a trace of gold. Discovered in 1906, but very little work done on prospect.

Landes, 1927 (B 792), p. 58 -- Greenstone country rock heavily silicified.
p. 69-70 -- Practically vertical vein strikes N 80° W, is about a foot thick, and consists of about equal parts chalcopyrite and pyrrhotite, about 15% sphalerite, and about 5% calcite gangue. Can be traced by gossan for several hundred feet. Sample assayed 15.08% copper, 2.95% zinc, 1.75 oz. a ton silver, and a trace of gold. Wall rock greenstone largely replaced by quartz and calcite; sample assayed 0.41 oz. a ton silver and 0.04% copper. Belt of slate about 50 ft. downhill from prospect; alaskite dike 500 ft. above prospect [from pl. 1]. Discovered and staked in 1906. Very poor accessibility. No record of any great development or of any production.

Berg and Cobb, 1967 (B 1246), p. 18-19 -- Data from above [not specifically cited].

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 34 -- Reference to Landes, 1927 (B 792), p. 69-70.

(Jim Lake)

Tungsten

Anchorage district
MF-409, loc. 93

Anchorage (9.2, 9.75)
61°33'N, 148°54'W

Summary: Scheelite in float.

Jasper, 1967 (GC 14), p. 31 -- Scheelite in concentrated float sample.

(Kashwitna R.)

Willow Creek district

Copper, Gold, Silver

Anchorage (8.35-8.7, 16.1-16.5) approx.
61°55'-61°56'N, 148°57'-148°59'W approx.

Summary: Quartz veins as much as 2 ft. thick and small quartz veinlets contain small amounts of gold, as much as 2 oz. a ton silver, and seams of chalcopyrite. Copper-bearing lodes somewhere in basin have been staked; specimens said to be from them are bornite; free gold reported; may be in Talkeetna Mountains quad.

Capps and Tuck, 1935 (B 864-B), p. 111 -- Quartz veinlets and veins as much as 2 ft. thick and traceable for several hundred feet in hornblende diorite and quartz diorite gneiss contain small amounts (no more than 0.02 oz. a ton) gold and as much as 5 oz. a ton silver; veinlets contain seams of chalcopyrite. 3 occurrences.

Capps, 1940 (B 907), p. 179 -- Copper-bearing lodes have been staked. Little information available. Samples reported to be from a prospect in Kashwitna basin are nearly pure bornite; said to contain specks of visible free gold. [May be in Talkeetna Mountains quad.]

Wedow and others, 1952 (OF 51), p. 80 -- Copper claims have been staked.

Kelly Gold Mint	Gold
Willow Creek district	Anchorage SE 1/4 NW 1/4 NW 1/4 quad.(?)

Summary: Mining or development reported in 1921. Name used in only one report; probably a lapsus for Independence or Kelly-Willow.

Brooks, 1923 (B 739), p. 25 -- Mining or development work, 1921. [No other reference to mine with this name; probably meant to be Independence or Kelly-Willow.]

Kelly-Willow (Creek Mining Co.) — Gold, Lead (?)

Willow Creek district — Anchorage (5.75, 13.8)
MF-409, loc. 11 — 61°47'N, 149°18'W

Summary: Several hundred (possibly as much as 1,000) ft. of workings, mainly along barren shear zones. Samples from at least one of 3 quartz veins (each about 6 in. thick) exposed in a tunnel reported to assay $44 (gold at $35) a ton. Galena(?) reported in one reference. Sporadic activity from about 1909 to as recently as 1948. Mill on property may never have been operated. Data in references not consistent; may be confused with neighboring properties which, at times, were under the same ownership. May have been some production; mine map and section show a stoped area. Includes references to: Brooklyn Development Co., Brooklyn-Willow Creek Gold Mining Co., Gold Center.

Brooks, 1910 (B 442), p. 35-36 -- In 1909 contract was let to drive 100 ft. of tunnel and a mill was transported to Knik for later installation.

Katz, 1911 (B 480), p. 147 -- Fractured quartz diorite with lenses and stringers of quartz. Pyrite and galena(?) in small specks in some of quartz. Gold values reported to be high. Developed by 3 small cuts and an adit 150 ft. long.

Brooks, 1912 (B 520), p. 29 -- Mining resumed, 1911. Mill not yet installed. Underground workings total 245 ft. in length.

Capps, 1914 (B 592), p. 264-265 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 71 -- 2 adits with combined length of about 220 ft. plus 30 ft. of crosscuts. Most of workings in barren quartz diorite with a few clayey seams along fractures. Vein at surface in one tunnel faulted off and not relocated. Some small quartz stringers encountered, but no ore body was developed. Stamp mill freighted part way to prospect, but not installed.

Smith, 1917 (BMB 153), p. 40-41 -- Operated by Willow Creek Mines Co., 1916.

Capps, 1919 (B 692), p. 182 -- Described as consisting of 5 full and 3 fractional claims north of and adjoining Independence. Owners report 5 veins, one of which is probably an extension of the Independence vein; development has been directed toward establishing this continuity. Vein has general strike of N 23° W and dip of 35° SW. Development is 2 short adits and numerous open cuts. [This description does not agree with older descriptions of Brooklyn Development Co., which was later known as Kelly-Willow (Creek); may refer to other parts of property or to some other prospect also called Kelly-Willow; location data obviously not correct if this is the same Kelly-Willow described in other references.]

Chapin, 1921 (B 714), p. 204 -- Some development work, 1919.

Brooks, 1922 (B 722), p. 41 -- Mining, 1920 [reference ambiguous; production may have all been from Independence and/or Martin].

Brooks and Capps, 1924 (B 755), p. 30 -- One of group of mines being explored and developed by Kelly Mines Co. in 1922.

Kelly-Willow (Creek Mining Co.) -- Continued

Brooks, 1925 (B 773), p. 40 -- Company driving adit to undercut veins exposed in mines on other side of divide in Fishhook Cr. drainage; adit has been driven (1923) 975 ft.; several veins intersected, all smaller and less rich than expected; veins may carry better ore along strike, as they all pinch and swell where they have been mined in other workings.

Ray, 1954 (B 1004), p. 78, 80-82 -- Said to have been located in 1909; has been only sporadic work. Under lease in 1946-48. Chilean mill on property. Prospected by 4 tunnels and an inclined shaft. Good showings reported from vein exposed in uppermost tunnel; crosscut driven to undercut this vein encountered 2 shear zones containing clay gouge, broken quartz diorite country rock, and little or no quartz; shear zones drifted along for a total of about 700 ft.; one of shear zones may correlate with vein in upper tunnel. Development work in 1948 on vein in upper workings exposed vein about 4 ft. wide (strike 168° and dip about 40° SW) with 3 quartz stringers each about 6 in. wide. Assays of $44 a ton reported for samples of narrow quartz stringer. [No mention of production, but property had mill at one time and map and section (fig. 29) show stoped area.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 9 -- References to Capps, 1915 (B 607), and Ray, 1954 (B 1004).

Kempf

Gold

Willow Creek district
MF-409, loc. 5

Anchorage (5.0, 13.95)
61°47'N, 149°24'W

Summary: Several hundred feet of underground prospecting, 1932-33. With that amount of work there must have been some gold, even though the deposit apparently was not economic.

Smith, 1934 (B 857-A), p. 16-17 -- Prospecting, including several hundred feet of underground work, 1932.

Smith, 1934 (B 864-A), p. 18 -- Work continued for part of season, 1933, and was then stopped.

Smith, 1936 (B 868-A), p. 18 -- No work, 1934.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 4 -- Reference to Smith, 1934 (B 857-A).

(Kings R.) Copper

Willow Creek district Anchorage (12.25, 17.5) approx.
61°57'N, 148°30'W approx.

Summary: Malachite and chalcopyrite in blebs in and above limestone north of east fork of Kings R. No details available.

Brooks, 1918 (B 662), p. 47 -- Copper deposit similar to that on Moose Cr. said to have been found, 1916. [Location very vague.]

Jasper, 1965 (GC 4), p. 4 -- Copper mineralization reported north of east fork; prospector noted occasional blebs of malachite and chalcopyrite in and above limestone. Extent of mineralization not known.

(Knik R., Glacier Fork) | Copper, Gold, Silver, Tungsten

Anchorage district | Anchorage (14.45-15.05, 8.45-10.5)
MF-409, locs. 47, 110-113 | 61°28'-61°35'N, 148°12'-148°17'W

Summary: Quartz veins in Cretaceous sedimentary rocks adjacent to a Tertiary quartz diorite pluton and also in pluton carry pyrrhotite and small amounts of chalcopyrite; samples contained small amounts of gold and silver. Stream-sediment samples contained scheelite. Copper, gold, and silver at 61° 35' N, 148° 12' W (15.05, 10.5); scheelite at 61° 28'-61° 32' N, 148°15'-148° 17' W (14.45-14.6, 8.45-8.85).

Richter, 1967 (GR 25), p. 7-8 -- Host sedimentary rocks around a small quartz diorite stock are iron stained and contain abundant irregular quartz veins with pyrrhotite and minor chalcopyrite. Quartz veins in shear(?) zone in intrusive also contain pyrrhotite and chalcopyrite. Assays of vein and float samples showed 0.02 oz. gold and 0.08-0.26 oz. silver a ton.

p. 15-16 -- Lode deposits do not appear to be rich enough or large enough to warrant further exploration. Scheelite in stream-sediment concentrates.

Cobb, 1973 (B 1374), p. 17 -- Reference to Richter, 1967 (GR 25); scheelite in samples.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 36 -- Weakly mineralized zone of pyrrhotite-chalcopyrite-quartz veins in flysch of Valdez Gp. (Cretaceous) adjacent to Tertiary granitic pluton.

Lane — Gold

Willow Creek district — Anchorage (6.35, 14.85)
MF-409, loc. 18 — 61°51'N, 149°14'W

Summary: 8-in. vein of vuggy quartz contains free gold, pyrite, and another sulfide. Developed by 20-ft. tunnel. Includes reference to Anchorage Gold Mines Co.; if not the same prospect must be very close.

Chapin, 1920 (B 712), p. 176 -- Newly organized company (in 1918) plans work as soon as weather conditions permit.

Ray, 1954 (B 1004), p. 82 -- 20-ft. tunnel has been driven on an 8-in. vein of coarse, vuggy quartz containing numerous isolated pieces of free gold; free gold also as hairlike masses in pyrite and in a dark-gray sulfide. Assays of several hundred dollars have been made on samples. Vein trends 150°-165° and dips 35°-38° SW. Aerial tram being installed in 1950.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 15 -- Reference to Ray, 1954 (B 1004).

Last Chance No. 2 — Gold

Prince William Sound district — Anchorage (16.3, 0.6)
MF-409, loc. 61 — 61°01'N, 148°05'W

Summary: Quartz vein as much as 3 ft. thick in massive graywacke and minor slate contains arsenopyrite; assay indicating about 0.63 oz. a ton gold reported. Quartz said to pan gold.

Johnson, 1914 (B 592), p. 227 -- Country rock massive graywacke and a little slate. Quartz vein as much as 36 in. thick strikes N 10° E, dips 10° W, and has been traced for about 150 ft. Walls free; no gouge. Quartz vuggy in places; contains large quartz crystals and a little arsenopyrite. Said to pan gold; $13 assay reported [gold at $20.67].

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 50 -- Reference to above.

Le Roi Mining Co. — Gold

Willow Creek district — Anchorage (6.9, 14.1)
MF-409, loc. 27 — 61°48'N, 149°10'W

Summary: Discovered 1917; development, 1918-19. No other data, but gold probably can be assumed to be present because of statement that development in 1919 was preparatory to active mining.

Chapin, 1920 (B 712), p. 176 -- Discovered in 1917; work started, 1918.
Chapin, 1921 (B 714), p. 205 -- Development preparatory to active mining, 1919.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 21 -- Reference to Chapin, 1921 (B 714).

Little Gem

Gold

Willow Creek district
MF-409, loc. 19

Anchorage (6.3, 14.6)
61°50'N, 149°14'W

Summary: 8-in. vein contains a very rich streak 1/2 to 2 in. thick with abundant free gold. At least 85 ft. of underground workings. Includes references to: Gem, Hatcher on Archangel Cr. Probably eventually became part of Fern property.

Capps, 1914 (B 592), p. 266 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 76 -- Staked in 1913. Tunnel 15 ft. long reported to have disclosed a quartz vein 1-10 in. thick in quartz diorite; vein reported to be traceable for 1,500 ft. Specimen showed abundant coarse specks of free gold.

Capps, 1916 (B 642), p. 200 -- Short tunnel said to have been driven, 1915.

Capps, 1919 (B 692), p. 185-186 -- 2 tunnels (one 25 ft. and the other 60 ft. long) driven on vein with maximum thickness of 8 in. Vein contains very rich streak from 1/2 to 2 in. thick with abundant visible gold. Mill and material of tram on ground, but not installed, 1917.

Chapin, 1920 (B 712), p. 176 -- Development, 1918.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 16 -- Reference to Capps, 1919 (B 692).

(Little Susitna R.)

Copper, Tungsten

Willow Creek district
MF-409, loc. 77-84

Anchorage (6.95-7.3, 13.8-13.95)
61°47'N, 149°07'-149°11'W

Summary: Traces of scheelite and chalcopyrite in float.

Jasper, 1967 (GC 14), p. 27-49 -- Concentrated float samples contain a few grains of scheelite and chalcopyrite.

Little Willie — Copper, Gold, Molybdenum

Willow Creek district — Anchorage (5.9, 14.4)
MF-409, loc. 16 — 61°49'N, 149°17'W

Summary: Central quartz zone and (to a lesser extent) pegmatitic material in a sheared composite pegmatite dike in quartz diorite country rock contain chalcopyrite, bornite, and pyrite; sulfides also replaced orthoclase of pegmatite. The quartz (or possibly another quartz vein on property) contains free gold. Pieces of float quartz contain disseminated molybdenite. Little development. Includes references to Holland.

Chapin, 1921 (B 714), p. 2-3 -- Principal vein strikes N 77° W, dips 26° NE, is made up of quartz stringers 1-6 in. thick, and closely follows an older altered dike. Vein is very persistent and (from the amount of free gold in the outcrop) appears to be very rich.

Ray, 1933 (B 849-C), p. 184 -- Pegmatite dike shows that reopening took place after consolidation of pegmatite; glassy quartz deposited between fractured pegmatite walls; this quartz and pegmatite again fractured and chalcopyrite and bornite deposited in fractures and replacing orthoclase in pegmatite.

Capps and Tuck, 1935 (B 864-B), p. 109-110 -- Principal vein of 2-8 in. of quartz; well-defined walls in some places; in other places vein breaks into small quartz stringers. Contains free gold and small amounts of chalcopyrite and bornite. Explored by several small inclines, in which sulfides are more numerous and free gold less common, indicating some surface enrichment. Vein traced for several hundred feet; cut off to NW by a fault. Vein dips 25° N 20° E. Another vein in a pegmatite dike contains chalcopyrite and bornite. Quartz float contains disseminated molybdenite flakes.

Wedow and others, 1952 (OF 51), p. 80 -- Reference to Ray, 1933 (B 849-C); name of prospect not used. Later investigation failed to disclose radioactive material of interest.

Moxham and Nelson, 1952 (C 184), p. 5 -- Reference to Ray, 1933 (B 849-C), p. 184. Radioactivity insignificant.

Ray, 1954 (B 1004), p. 82-83 -- Composite quartz vein and pegmatite dike contains copper sulfides. Quartz is 6 ft. wide with 1 ft. pegmatite on hanging wall and 16 in. pegmatite on footwall; general strike 128° and dip 35° SW. Pyrite, bornite, and chalcopyrite mainly along contacts between quartz and pegmatite; some in irregular masses in quartz and in blebs in unidentified bismuth(?) mineral. Sulfide stringers as much as 1 ft. long; none more than 2 in. wide. Thin pyrite seams in quartz diorite country rock of hanging wall. Little development.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 13 -- References to Chapin, 1921 (B 714), and Ray, 1954 (B 1004).

Silberman and others, 1978 (OF 78-233), p. 5 -- 1.5-meter-wide composite pegmatite has heavy concentrations of chalcopyrite and bornite in sheared quartz that comprises its center.

p. 14-15 -- Heavy copper-sulfide concentrations in pegmatite dike.

(Little Willow Cr.)

Willow Creek district

Copper

Anchorage (4.0, 3.4) approx.
61°56'N, 149°31'W approx.

Summary: Thin stringers of bornite and chalcocite in quartz monzonite.

Capps and Tuck, 1935 (B 864-B), p. 110-111 -- Irregular small stringers of bornite and chalcocite in quartz monzonite; none more than one inch wide or 1-4 ft. long.

Lonesome

Copper, Gold, Silver

Willow Creek district
MF-409, loc. 35

Anchorage (7.3, 13.85)
61°47'N, 149°07'W

Summary: Quartz vein in fine-grained, fractured diorite or gabbro contains free gold, pyrite, chalcopyrite, and the tellurides nagyagite and altaite. Considerably more silver than in other veins of district; assay from one place in workings contained 19 oz. gold and 22 oz. silver per ton; sample from a weathered vein at surface (probably the same vein as underground) showed 400 oz. a ton silver. Mineralization may be younger than Eocene continental rocks overlying batholith. Mine consists of three levels. Mill on property. Mine operated intermittently from 1931 to 1949. Includes references to: Gold Mint, Mint, Marion Twin near Lone Tree Gulch; Marion Twin in Little Susitna valley.

Chapin, 1921 (B 714), p. 205-206 -- Several veins intersect; upper one strikes N 50° W, dips 42° SW, is 10-17 in. thick, and consists of quartz with considerable pyrite and chalcopyrite and visible free gold; lower vein strikes N 30° W, dips 62° SW, and consists of quartz with rusty streaks and blotches from oxidation of pyrite; two or three other veins strike about N and appear to be barren. Tunnel being driven on upper vein and surface pits on others.

Brooks and Capps, 1924 (B 755), p. 31 -- Work continued and mill run, 1922. Underground workings comprise about 435 ft. of adit, crosscut, shaft, and raise.

Brooks, 1925 (B 773), p. 41 -- Closed in 1923.

Smith, 1929 (B 797), p. 12 -- Marion Twin Mining Co. organized to develop old property. [on basis of next reference, this is probably the mine later called Lonestome.]

Smith, 1930 (B 810), p. 14 -- Mine being developed by Marion-Twin Mining Co. was formerly known as the Gold Mint or Hatcher property; on Little Susitna R. Mill was run one shift a day for most of open season; results satisfactory.

Smith, 1930 (B 813), p. 16 -- One of largest gold producers in district, 1928.

Smith, 1932 (B 824), p. 19 -- No. 5 tunnel being driven to intersect vein that is believed to lie some 75 ft. ahead.

Ray, 1933 (B 849-C), p. 227-228 -- Lower workings (2 tunnels and open cuts) explored narrow quartz stringers from which a few tons of ore was mined; Wall rock fine-grained diorite. Upper workings consist of several hundred feet of tunnels and drifts (some caved) on a vein containing as much as 3-1/2 ft. of quartz that strikes N 35° W and dips 40° SW and along a fault zone apparently more than 70 ft. wide that intersects the vein; amount of vein material in block being explored probably small. Ore running $30 a ton reported to have been found in now-flooded winze; adit being run to undercut it.

Smith, 1933 (B 836), p. 17-18 -- Mine idle, 1930. Some ore from Marion Twin at head of Craigie Cr. was milled.

Smith, 1933 (B 844-A), p. 17-18 -- Production reported, 1931.

Lonesome -- Continued

Smith, 1934 (B 857-A), p. 17 -- Considerable flood damage, 1932; production not reported.

Smith, 1934 (B 864-A), p. 19 -- Idle, 1933; preparatory work for mining in 1934.

Smith, 1936 (B 868-A), p. 19 -- Company plans to concentrate on prospect at head of Craigie Cr. rather than on old mine on Little Susitna R. [Lonesome], 1934.

Ray, 1954 (B 1004), p. 70-73 -- Property worked intermittently, 1931-38; abandoned in 1940; restaked in 1946. From 1946 to 1949 a new mill was installed and some underground development done; some ore was milled in 1948-49. Mine consists of workings on 3 levels. Country rock is fine-grained, highly fractured gabbro. Vein is nowhere more than 18 in. thick; strikes generally 140°-150° and dips 43°-62° SW; contains much more silver than other veins in Willow Creek area (at one place assays 19 oz. gold and 22 oz. silver a ton); also contains the tellurides nagyagite and altaite. Vein displaced several feet by transverse fault; locally splits along strike; most faulting does not hinder following vein underground. Trenching exposed what is probably the same vein for several hundred feet. Trenching 0.6 mi. east of main workings on what may be the same vein exposed oxidized vein material that carries as much as 400 oz. a ton silver; similar material exposed to SE in area of Eocene conglomerate [Arkose Ridge Fm.] that overlies batholith of Willow Creek district; therefore a post-Eocene(?) age for gold deposits is indicated if this vein belongs to the same metallogenic epoch as the others of the district.

Berg and Cobb, 1967 (B 1246), p. 34 -- Data from Ray, 1954 (B 1004) summarized [not cited].

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 25 -- References to Chapin, 1921 (B 714), Ray, 1933 (B 849-C), and Ray, 1945 (B 1004).

(Lone Tree Gulch)

Copper

Willow Creek district
MF-409, loc. 36

Anchorage (7.6, 13.75) approx.
61°47'N, 149°04'W

Summary: Scattered copper occurrences; probably mostly copper stain; no visible continuity between occurrences.

Jasper, 1967 (GC 14), p. 3 -- Scattered occurrences of copper mineralization; lack of visible continuity for appreciable distances has deterred prospecting.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 26 -- Reference to above.

(Long Bay) — Copper

Prince William Sound district — Anchorage (23.7, 0.75) approx.
MF-409, loc. 67 — 61°01'N, 147°13'W approx.

Summary: Considerable work on copper claim(s) reported. May be the same occurrence as Globe.

Moffit and Fellows, 1950, p. 77 -- "Mineralized areas of sulfides of copper and other metals are found at many places in the mainland area between Long Bay and Port Wells ..... Considerable work has been done on claims at the head of Wells Bay and on Long Bay."

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 55 -- Reference to above.

Lucky Shot — Copper, Gold, Lead, Zinc

Willow Creek district — Anchorage (4.9, 13.75)
MF-409, loc. 3 — 61°47'N, 149°24'W

Summary: Staked in 1918 or earlier. One of major gold producers (also minor copper production) of district; no data on amount of production. Nearly continuous production from 1923 to 1942 except for interruptions caused by fire damage to surface plant on several occasions. Mine developed on several levels; many thousand feet of workings plus stopes; eventually operated with War Baby. Country rock is quartz diorite that is jointed and sheeted near surface. Veins apparently belong to a single system with a general N 80 ° E strike and an average dip of 40° N; by 1931 had been developed to a maximum depth of 800 ft. below outcrop; displaced by major cross faults; vein picked up in War Baby; had been offset 600-700 ft. to east. Veins contain 2 generations of quartz, gold in well-defined ore shoots, pyrite, arsenopyrite, chalcopyrite, sphalerite, tetrahedrite, galena, and tellurides. Wall rock near veins intensely chloritized, sericitized, and ankeritized; no gold in wall rock. Includes references to Willow Creek Mines unless specifically to another mine.

Chapin, 1920 (B 712), p. 173-174 -- Taken under option by Willow Creek Mines, 1918. West of War Baby; apparently on same lode. Development begun, 1918.

Chapin, 1921, (B 714), p. 202 -- Vein traced across 5 claims by open pits; short tunnel started, 1919. Vein strikes N 60° E, dips 45° NW.

Brooks, 1923 (B 739), p. 25 -- Mining, 1921.

Brooks and Capps, 1924 (B 755), p. 30 -- Mining, 1922.

Brooks, 1925 (B 773), p. 15 -- Gold produced, 1923.

p. 40-41 -- Operated with War Baby, 1923. 3 levels with about 2,075 ft. of adits and drifts, plus stopes.

Moffit, 1927 (B 792), p. 11 -- Principal gold producer of district, 1925.

Smith, 1929 (B 797), p. 12 -- Willow Creek Mines (Inc.) was one of principal producers of district, 1926. [Some of production was probably from War Baby.]

Smith, 1930 (B 810), p. 14 -- Mining, 1927.

p. 46 -- Company shipped some concentrates containing copper, 1927. [Some or all probably was from Lucky Shot.]

Smith, 1930 (B 813), p. 16 -- Mining by lessees, 1928. Mill burned at end of season.

Smith, 1932 (B 824), p. 18 -- Mill construction and mine development at Lucky Shot and/or War Baby, 1929. Presence of tellurides confirmed by USBM chemist.

Ray, 1933 (B 849-C), p. 204-212 -- Has been a steady producer since 1923 [as of 1931] except for interruptions caused by fires that damaged mill in 1923 and 1928. Reference gives many data on surface plant, milling practice, mine map, and details of mine workings, which total several thousand feet (plus stopes) in a block about 1,200 ft. wide between northeastward-dipping fault zones that have not been driven through because of

heavy ground. Country rock is quartz diorite that is jointed and sheeted near surface. Vein system has general strike of N 80° E and average dip of 40° N; has been developed to maximum depth of 800 ft. below outcrop. Veins appear to belong to a single system that in places branches in hanging wall; footwall marked by slickensides separating lode from fresh, unaltered country rock. Lode cut off to east by a fault; has been identified (offset 600-700 ft. to east) in workings of adjacent War Baby mine. At least 2 generations of quartz; earlier generation shows evidence of crumpling and recementation by later generation. Some quartz deposited in fissures and some in open spaces. Abnormally thick quartz lenses appear to be due to openings caused by repeated movement along fissures. In shattered areas wall rock alteration (chloritization, sericitization, and ankeritization) is intense. Gold in well-defined shoots in quartz veins; none has been found in wall rock. Ore minerals include pyrite, arsenopyrite, chalcopyrite, sphalerite, tetrahedrite, galena, and free gold. Gold tellurides have been reported, but were not found in this [Ray's] study.

Considerable data applicable to the lode system of the district as a whole are given in other sections of this report with specific illustrations from the Lucky Shot mine; those references not summarized here.

Smith, 1933 (B 836), p. 16-17 -- Mining and milling, 1930. Much of season spent rebuilding surface plant after a fire.

Smith, 1933 (B 844-A), p. 17 -- Major producer of district, 1931. [Some ore may have come from War Baby.]

Smith, 1934 (B 857-A), p. 17 -- Major producer of district, 1932. [Some of ore may have come from War Baby.]

Smith, 1934 (B 864-A), p. 18 -- Major producer of district, 1933. Mill heads (ore from Lucky Shot and War Baby) average nearly $50 a ton.

Smith, 1936 (B 868-A), p. 18 -- Company was major producer of district, 1934. Operated all year. Cyanide plant installed and operated.

Smith, 1937 (B 880-A), p. 19 -- Company was largest producer of district, 1935. Several thousand feet of underground development here and at War Baby.

Smith, 1938 (B 897-A), p. 19-20 -- Mining, 1936. Old tailings being cyanided.

Smith, 1939 (B 910-A), p. 22 -- In 1937 operations were about the same as in 1936.

Smith, 1939 (B 917-A), p. 23 -- Company changed hands; some production, but most of work in 1937 was exploratory. [Reference probably applies to both Lucky Shot and War Baby.]

Capps, 1940 (B 907), p. 176 -- Producing mine, 1936.

Smith, 1941 (B 926-A), p. 20-21 -- Production reported, 1939. Considerable underground exploration. Faulted-off part of vein found and new level (725-foot level) partly opened up [probably at Lucky Shot, possibly at War Baby].

Smith, 1942 (B 933-A), p. 19-20 -- Mining and considerable underground development, 1940. New ball mill installed.

Ray, 1954 (B 1004), p. 83 -- Until 1942 was one of principal mines of district. Only main crosscuts accessible in 1950.

This report also refers to this deposit in general discussions of regional geology and ore deposition; those references are not summarized here.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 3 -- References to Ray, 1933 (B 849-C), and Ray, 1954 (B 1044).

Lydell

Gold(?)

Willow Creek district

Anchorage (1.7, 13.5) approx.
61°46'N, 149°19'W approx.

Summary: Quartz veins along contact between quartz diorite and schist and in schist. No important mineral values reported.

Katz, 1911 (B 480), p. 149 -- On contact between quartz diorite and mica schist in pass between Willow and Fishhook Creeks. Large quartz vein along contact and smaller ones in schist. No important mineral values found.

Mabel — Copper, Gold, Lead, Molybdenum(?), Zinc

Willow Creek district — Anchorage (6.5, 14.0)
MF-409, loc. 25 — 41°48'N, 149°13'W

Summary: Main deposit consists of quartz veins and stringers in lode as much as 10 ft. wide; displaced 250 ft. by transverse faults; movement in fissure containing lode was reverse. Minerals in lode include free gold, pyrite, arsenopyrite, tetrahedrite, galena, and minor amounts of chalcopyrite and sphalerite; reports of tellurides not confirmed; molybdenite reported to be a constituent of a nearby vein. Mined intermittently from about 1911 to 1947; was one of district's major producers from 1917 to 1930. Total production probably well over 5,000 fine oz. of gold. Most mining was below main level; further development would be both difficult and expensive. Includes references to Mabel Mining (, Milling & Power) Co.

Capps, 1914 (B 592), p. 263 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 69-70 -- Staked in 1911. By 1914 developments included open cut, incline (both caved and/or flooded), and a crosscut being driven to undercut lode. Vein said to be 2-18 in. thick; banded white quartz and dark-colored fine-grained quartz. 6 tons of ore shipped to Tacoma in 1912. A second vein encountered in crosscut is 6-8 in. thick, strikes N 52° W, dips 55° SW, and contains visible free gold; sulfides mostly oxidized.

Capps, 1916 (B 642), p. 198 -- Work continued, 1915. Tunnel driven to vein and short drifts run in both directions. Vein almost continuously exposed by stripping and open cuts for about 2,000 ft. on surface; from a few inches to about 2 ft. thick.

Smith, 1917 (BMB 153), p. 40 -- Mine being opened, 1916. Mill and aerial tram being installed.

Brooks, 1918 (B 662), p. 48 -- Mining and some milling, 1916. Molybdenite-bearing vein reported to have been discovered nearby in 1916.

Capps, 1919 (B 692), p. 181-182 -- Mining and milling, 1917. As of September, workings consisted of 2 tunnels (aggregate length 460 ft.) and stopes. 2 main veins about 70 ft. apart that strike NE and dip about 30° NW; intersected by a third flat vein that has not been followed by workings. Veins pinch and swell; gold irregularly distributed. Rich stringer in one vein contains abundant visible free gold, patches of sulfides, and copper carbonate stains. Analysis showed that material considered by owners to contain tellurides did not.

Martin, 1919 (B 692), p. 32 -- Mine operated, 1917.

Chapin, 1920 (B 712), p. 175-176 -- Vein traced for about a claim length on surface by open cuts and short tunnels; strikes about N and dips W at a low angle. Tunnels and drifts follow fault and veins, most of which are displaced by faults. Some veins practically barren; some contain very rich pockets and stringers. Ore taken to mill by aerial tram; tailings saved for future treatment.

Martin, 1920 (B 712), p. 34 -- Mining, 1918.

Brooks and Martin, 1921 (B 714), p. 77 -- Mining, 1919.

Mabel -- Continued

Chapin, 1919 (B 714), p. 204 -- Mine operated, 1919; mainly tests and development; about 490 ft. of crosscut and drifts driven.
Brooks, 1922 (B 722), p. 41 -- Mining, 1920.
Brooks, 1923 (B 739), p. 25 -- Development [or mining], 1921.
Brooks and Capps, 1924 (B 755), p. 31 -- Some development and test mill runs, 1922.
Brooks, 1925 (B 773), p. 15 -- Gold produced, 1923.
p. 41 -- Mining, milling, and driving workings to block out ore, 1923.
Smith, 1926 (B 783), p. 8 -- Mining, 1924.
Moffit, 1927 (B 792), p. 11 -- Mining, 1925.
Smith, 1929 (B 797), p. 12 -- One of principal producing mines in district, 1926.
Smith, 1930 (B 813), p. 16 -- Mining, 1928.
Smith, 1932 (B 824), p. 19 -- Work on about the same scale as the year before, 1929.
Ray, 1933 (B 849-C), p. 220-222 -- As of 1931 mine had been worked intermittently since 1912; production probably worth more than $100,000 [about 4,840 fine oz. of gold]; ore probably averaged more than $30 a ton. Has own mill and cyaniding plant. Developed by two drifts and several winzes below lower drift. Proved ore largely mined out. Gold associated with pyrite, arsenopyrite, tetrahedrite, galena, and minor amounts of chalcopyrite and sphalerite. Vein pinches and swells; much disturbed by faults, which have broken ground into many small blocks; some of ore shoots terminated by faults. At one place what appears to be a single vein extending across a fault is probably sections of two veins (one mineralized and the other barren) juxtaposed by chance. Future exploration likely to be expensive because of lack of data on faulting.
Smith, 1933 (B 836), p. 18 -- Production reported, 1930.
Smith, 1933 (B 844-A), p. 17-18 -- Production reported, 1931.
Smith, 1938 (B 897-A), p. 21 -- No mining, 1936.
Smith, 1939 (B 917-A), p. 23 -- Production reported, 1938.
Smith, 1941 (B 926-A), p. 21 -- Production reported, 1939.
Smith, 1942 (B 933-A), p. 19-20 -- Production reported, 1940.
Ray, 1954 (B 1004), p. 68-70 -- Staked, 1911; intermittent mining and development to 1917; almost continuous production, 1917-30; small production, 1937-39; some development, 1946-47; closed down in 1947. Vein strikes northward and dips 23°-66° (more commonly 35°-45°) W. Offset by 2 normal faults that strike 125° and dip 74° NE; right lateral displacements; net offsets 150 and 100 ft. Most of mining south of major fault. Vein is from a few inches to as much as 10 ft. wide; quartz may follow either wall, be in middle of vein, consist of narrow stringers between walls, or make up entire vein; pinches, swells, and splits. Some of movement in fissure containing vein was (on basis of drag and offset of aplite dikes) reverse. Extensive workings are nearly all below main level; some water problems. Development would be expensive and difficult.
This report also refers to this deposit in general discussions of regional geology and ore deposition; those references are not summarized here.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 18 -- References to Ray, 1933 (B 849-C), and Ray, 1954 (B 1004).

Mammoth — Copper, Gold

Willow Creek district — Anchorage (5.65, 13.6)
MF-409, loc. 10 — 61°46'N, 149°19'W

Summary: Quartz body 28-30 ft. wide contains gold (tenor low for district), pyrite, chalcopyrite, and copper carbonates. Several hundred feet of workings; quartz was faulted away about 30 ft. from entrance of tunnel; rest of workings followed a slip zone (with gouge) in quartz diorite looking for extension of quartz. Not successful, as only a small fragment was found in a raise.

Capps, 1914 (B 592), p. 266-267 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 71-72 -- Large body of quartz 28-30 ft. wide, striking about E, and dipping 68° N. Faulted away about 30 ft. from entrance to tunnel. Workings consist of about 285 ft. of tunnel, crosscuts, and a raise, most of which were driven trying to find an extension of the quartz body; one small, isolated piece found in raise. Most of workings on slip zone with gouge in quartz diorite. [Gold] tenor of quartz is low for the district; some pyrite, chalcopyrite, and copper carbonates.

Capps, 1916 (B 642), p. 199 -- Since last visited by Capps (1913) about 100 ft. of underground workings have been added.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 9 -- Reference to Capps, 1915 (B 607).

Marion Twin — Copper, Gold, Lead

Willow Creek district — Anchorage (5.8, 14.3)
MF-409, loc. 15 — 61°49'N, 149°18'W

Summary: Thin, gently dipping quartz vein carries considerable free gold, and some pyrite, galena, and chalcopyrite; in shear zone in quartz diorite; ore plays out where vein rolls upward; has been post-mineralization faulting along vein. Small-scale mining during a few years between 1928 and 1935. See also Lonesome (owned by same company at times).

Smith, 1932 (B 824), p. 18-19 -- Mining, 1929; some selected ore shipped to smelter yielded high returns.

Smith, 1933 (B 836), p. 17 -- Extensive prospecting and mining of a few tons of ore for mill test at mill [at Lomesome], 1930. Veins are narrow, but carry ore with high gold content.

Smith, 1934 (B 857-A), p. 17 -- Considerable damage from snowslides during winter of 1931-32.

Smith, 1934 (B 844-A), p. 18 -- No work, 1933.

Capps and Tuck, 1935 (B 864-B), p. 109 -- When visited by Survey party in 1933 principal exposures were covered by snow. One opening showed a quartz vein 2-10 in. thick dipping 45° SW [strike not given] which contained free gold and minor galena and chalcopyrite. Vein well defined with distinct walls; in a fissure in quartz diorite; has been post-mineralization faulting along vein. In 1929-30 a few tons of rich ore was mined; some sent to smelter and some to company's mill on Little Susitna R. [Lonesome mine].

Smith, 1936 (B 868-A), p. 18-19 -- Work, 1934; company apparently plans to concentrate its efforts here rather than at Hatcher [Lonesome].

Smith, 1937 (B 880-A), p. 20 -- Some production reported, 1935.

Smith, 1938 (B 897-A), p. 21 -- No mining, 1936; company reported to have sold its holdings in district.

Ray, 1954 (B 1004), p. 76 -- Has been some production; 1928-31, 1935. Last work was in 1937. Gold recovered from a flat vein segment dipping gently NW; where exposed in open cut (source of all ore mined) vein is 1-1/2 in. wide and consists of coarsely crystalline quartz containing pyrite, galena, and free gold. Vein rolls upward and becomes a barren shear zone; prospecting beyond roll was not successful.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 12 -- Reference to Ray, 1954 (B 1004).

Marmot — Gold(?)

Willow Creek district — Anchorage (6.25, 14.55)
MF-409, loc. 19 — 61°50'N, 149°15'W

Summary: Some work reported, winter of 1919-20. No data on mode of occurrence of ore minerals, if any. Probably eventually became part of Fern property.

Chapin, 1921 (B 714), p. 204 -- "The recently formed Giant Gold Mining Co. is developing the Marmot group of claims, on Archangel Creek. Supplies and equipment were sledded into the property in the fall, and work was continued during the winter." Entire reference.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 16 -- Reference to above.

(Marshall Cr.) Gold

Willow Creek district Anchorage (12.75, 14.1) approx.
61°48'N, 148°28'W approx.

Summary: Fine gold, probably not of local derivation, present. Stream below Chickaloon; name not currently in use, so exact location cannot be determined.

Mendenhall, 1900, p. 321-322 -- Small stream below Chickaloon. Fine gold present. Stream course in gravel not of local derivation.

Martin — Copper, Gold, Lead

Willow Creek district — Anchorage (5.9, 13.85)
MF-409, loc. 13 — 61°47'N, 149°17'W

Summary: Site of first lode discovery in district, 1906. Veins in shear zones in quartz diorite; some probably continuous with veins at neighboring Independence mine. 2 major veins separated by a transverse fault. Attempt to undercut veins with long tunnel from other side of ridge did not find veins; probably displaced by faults exposed in Cold Bullion mine. Veins contain quartz, gold (both free and in sulfides), pyrite, chalcopyrite, and a little galena. Mining from about 1911 to about 1920, during which it was one of the major mines of the district. Closed and surface plant dismantled sometime in 1920's.

Katz, 1911 (B 480), p. 148 -- Vein about 16 in. thick and similar to that at Carle [Independence] has been stripped for about 500 ft. along outcrop. Slope adit partly filled with water.

Brooks, 1912 (B 520), p. 29 -- Assessment and other work, 1911. Some ore milled at a neighboring property.

Brooks, 1913 (B 542), p. 39 -- Mining and milling, 1912.

Brooks, 1914 (B 592), p. 65 -- Mining, 1913.

Capps, 1914 (B 592), p. 255-257 -- Preliminary to Capps, 1915 (B 607).

Brooks, 1915 (B 622), p. 48 -- Mining, 1914.

Capps, 1915 (B 607), p. 50 -- Located in 1906; first lode location in area. Mill began crushing ore in September, 1912.

p. 60-64 -- More than 250 ft. of tunnels with drifts and stopes, numerous other short tunnels, and open cuts and pits. Principal veins are the Homestake (6-24 in. thick), which may be continuous with the Granite Mountain vein of the [Independence] mine to the north, and the higher Skyscraper vein (18 in. to 8 ft. thick). Both are quartz veins in joints or shear zones in quartz diorite. Gold is both free milling and associated with sulfides, including pyrite, chalcopyrite, and a little galena. Gouge and clayey material associated with veins. Some ore has also been mined from a third vein. In 1911 some ore was milled at Alaska Gold Quartz Mining Co. [Independence] mill; mine's own mill was installed in 1912 and enlarged and a cyanide plant added in 1914. Recovery from ore from Homestake vein averaged about a fine ounce per ton.

Capps, 1916 (B 642), p. 196-197 -- Mining and milling, 1915. Skyscraper vein renamed Smuggler-Union vein.

Smith, 1917 (BMB 142), p. 43-44 -- Mainly data on aerial tram and mill.

Smith, 1917 (BMB 153), p. 37 -- Mainly data on aerial tram and mill.

Brooks, 1918 (B 662), p. 48 -- Operated, 1916.

Capps, 1919 (B 692), p. 179-180 -- Mining and milling, 1917. Cyanide plant idle. Many surface improvements.

Capps, 1919 (B 692), p. 199 -- Lode discovered, 1906.

Martin, 1919 (B 692), p. 32 -- Mining, 1917.

Chapin, 1920 (B 712), p. 174 -- Development and milling, 1918. 9 tunnels with aggregate length of about 3,400 ft. plus connecting winzes and stopes.

Martin, 1920 (B 712), p. 34 -- Mining, 1918.

Brooks and Martin, 1921 (B 714), p. 77 -- Mining, 1919.

Martin -- Continued

Chapin, 1921 (B 714), p. 204 -- Mine, mill, and cyanide plant operated, 1919.

Brooks, 1922 (B 722), p. 41 -- Mining, 1920.

Brooks and Capps, 1924 (B 755), p. 30 -- One of mines being developed and explored by Kelly Mines Co. in 1922.

Brooks, 1925 (B 773), p. 40 -- Part of consolidated properties being developed by Kelly Mines Co. from Willow Cr. side of divide, 1923.

Smith, 1929 (B 797), p. 12 -- New company formed to develop mine, 1926.

Smith, 1932 (B 824), p. 19 -- Property examination by private engineers, 1929.

Ray, 1933 (B 849-C), p. 215-216 -- Site of first lode-gold discovery in district, 1906. Two veins: Skyscraper, which is probably continuous with upper vein of Independence mine; and Homestake. Skyscraper vein strikes about N10°E and dips 45° NW; Homestake strikes about N. 10° E and dips 30°-42° [direction not given]; veins separated by a transverse fault. Attempt was made to intersect veins with a tunnel driven 1,200 ft. from west side of ridge [from Brooklyn Development Co. (Kelly-Willow)]; passed beyond projected location of veins, which probably are displaced by faults (probably those in Gold Bullion mine). As of 1931 mines had been closed for several years and camp and surface plant dismantled.

Smith, 1938 (B 897-A), p. 20 -- One of group of properties consolidated in 1936 by Bralaska Mining Co.

Ray, 1954 (B 1004), p. 31-32 -- Some of ore mined came from within a major regional fault.

p. 83 -- Was a major producer of district, but has been long abandoned [as of 1950].

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 10 -- Reference to Ray, 1933 (B 849-C).

Mary Ann — Gold(?)

Willow Creek district — Anchorage (6.85, 14.45)
MF-409, loc. 30 — 61°49'N, 149°10'W

Summary: In 1919 a tunnel was being driven to intersect a vein that had been traced on surface. No data on possible gold content.

Chapin, 1921 (B 714), p. 205 -- Tunnel being driven to intersect a vein that has been traced along surface. [No data on gold content, if any.]
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 22 -- Reference to above.

(Matanuska R.) Gold

Willow Creek district Anchorage
N 1/2 quad.

Summary: Fine colors of gold along river.

Mendenhall, 1900, p. 322 -- "All along the Matanuska itself fine colors are found, but these are not significant, since the stream rises in the gravels of the Copper River Plateau."

Maverick — Copper(?), Gold

Willow Creek district — Anchorage (7.4, 14.0)
MF-409, loc. 34 — 61°48'N, 149°06'W

Summary: Quartz vein 2 ft. thick. Gold assumed to be present; chalcopyrite possibly there also.

Chapin, 1921 (B 714), p. 206 -- Quartz vein 2 ft. thick reported to be similar in appearance to upper Gold Mint vein [Lonesome mine]. [Upper Gold Mint vein contains pyrite, chalcopyrite, and free gold. Assumed that Maverick vein contains gold and possibly chalcopyrite.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 25 -- Reference to above [given as p. 205 rather than p. 206].

McCoy

Gold

Willow Creek district
MF-409, loc. 29

Anchorage (6.6, 14.45)
61°49'N, 149°12'W

Summary: Open cuts exposed quartz veins, one of which is said to be as much as 9 ft. thick and to carry much gold. Includes reference to Babcock-McCoy. Probably included in Homebuilder and/or Idamar.

Capps, 1914 (B 592), p. 266 -- Preliminary to Capps, 1915 (B 607).
Capps, 1915 (B 607), p. 76 -- Quartz veins prospected by many open cuts, only some of which reached undisturbed bedrock. Largest vein reported to be 7 ft. thick. Reported to strike NW and dip SW. [No data on possible gold content.]
Capps, 1916 (B 642), p. 199 -- Prospecting, mainly stripping, 1914-15. Vein reported to be 9-10 ft. thick and to contain much gold in places.
Capps, 1919 (B 692), p. 185 -- Crosscut being driven in 1917 to undercut an auriferous vein that ranges from a few inches to 9 ft. in thickness.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 20 -- Reference to Capps, 1915 (B 607), p. 76.

(McRoberts Cr.) Mercury, Tungsten

Anchorage district
MF-409, loc. 91

Anchorage (8.45, 10.5)
61°35'N, 148°59'W

Summary: Sample of float contained a little scheelite and a trace of cinnabar.

Jasper, 1967 (GC 14), p. 30 -- Float material contains magnetite, a little scheelite, pyrite, ilmentite, and a trace of cinnabar.
Cobb, 1973 (B 1374), p. 17 -- Cinnabar in a concentrate sample.

(Metal Cr.) Gold, Platinum, Silver, Tungsten

Anchorage district
MF-409, locs. 95-109

Anchorage (12.65-14.0, 8.2-11.05)
61°26'-61°37'N, 148°20'-148°32'W

Summary: Country rock slate, graywacke, and greenstone with quartz diorite stock near head [see Knik R., Glacier Fork) sheet]. Placer gold discovered in about 1906 and mined on a small scale intermittently since then; total production probably worth no more than a few thousand dollars. Gold probably ultimately derived from sources in Metal Cr. basin; possibly quartz veins such as those exposed near mouth of creek; proximate source probably glacial deposits. Concentrates contain a little native silver; production of platinum metals reported, but source of metals not known. Many concentrate samples contain fairly abundant scheelite.

Paige and Knopf, 1907 (B 314), p. 118 -- Preliminary to Paige and Knopf, 1907 (B 327).

Paige and Knopf, 1907 (B 327), p. 67 -- Report that prospectors had discovered gold on Metal Cr.; claimed $7 or $8 a day to the shovel [per man/day].

Brooks, 1910 (B 442), p. 42 -- Prospecting, 1909; results said to be encouraging.

Brooks, 1911 (P 70), p. 165 -- Same as Brooks, 1910 (B 442), p. 42.

Brooks and Capps, 1924 (B 755), p. 32 -- A little placer gold recovered incidental to development in 1922.

Smith, 1926 (B 783), p. 25 -- Platinum recovered from placer gold concentrates, 1924.

Landes, 1927 (B 792), p. 71 -- Has been desultory gold placer mining for about 20 years [as of 1925]. Gold on bedrock well below high-water mark; mining during low-water periods in fall. Colors can be panned anywhere along lower Metal Cr.; gold reported to become coarser upstream; country rock slate and graywacke near mouth; greenstone farther upstream; granite (diorite?) reported from headwaters. Gold probably derived from lodes in or near granite.

Moffit, 1927 (B 792), p. 33 -- Platinum recovered, 1924.

Smith, 1929 (B 797), p. 40 -- Platinum has been found.

Smith, 1930 (B 810), p. 53 -- Platinum has been recovered in the past.

Smith, 1930 (B 813), p. 60 -- Platinum has been recovered in the past.

Smith, 1938 (B 897-A), p. 84 -- Platinum has been recognized.

Richter, 1967 (GR 25), p. 2 -- Gold discovered in about 1906; intermittent small-scale mining since then; total production worth probably not more than a few thousand dollars. Platinum metals reported to be in concentrates; no data on amount and nature of platinum metals.

p. 8-10 -- Gold in lower part of stream course; probably derived from source in basin (may have been small quartz veins such as those exposed near mouth), deposited in glacial lake, and further concentrated by present stream.) Source of platinum not discovered. Native silver in one sample. Gold generally well rounded and less than 1 mm in diameter.

(Metal Cr.) -- Continued

p. 15-16 -- Scheelite fairly abundant in many concentrate samples. Data on p. 8-10 summarized. Prospecting in high country between Metal Cr. and Glacier Fork of Knik R. probably is warranted.

Cobb, 1973 (B 1374), p. 17 -- Data from Richter, 1967 (GR 25) summarized.

MacKevett and Holloway, 1977 (OF 77-169A), p. 8, locs. 64, 65 -- References to Richter, 1967 (GR 25).

Miller — Gold(?)

Willow Creek district — Anchorage (6.1, 13.0) approx. 61°44'N, 149°14'W approx.

Summary: Tunnel driven 30 ft. along an altered alaskite dike. Unspecified sulfides present. No data on possible gold tenor of material.

Katz, 1911 (B 480), p. 149 -- Large mass of quartz with scattered pyrite crystals and no known gold values in what is probably a brecciated fault zone. The exposed wall appears to be brecciated and altered quartz diorite(?).

Capps, 1914 (B 592), p. 268-269 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 74 -- Tunnel driven 30 ft. along an altered alaskite dike that in places carries considerable sulfides [which ones not specified]. Wall rock coarsely crystalline gneiss. "Nothing definite was learned of the value of the ore, as assays are said to have given conflicting returns."

(Miners R.) Copper(?), Nickel

Prince William Sound district
MF-409, loc. 65

Anchorage (21.4, 1.7) approx.
61°04'N, 147°29'W

Summary: Pyrrhotitized diorite in zones as much as 2 in. thick. Reported to carry "considerable" values in nickel and cobalt. Minor physical exploration. Unpublished assay data confirm presence of nickel and copper, but not cobalt. No copper mineral reported. Includes reference to (Miners Bay).

Grant, 1906 (B 284), p. 86 -- Zones of pyrrhotitized diorite from 1/4 to 2 in. wide in an overall zone about 10 ft. wide; pyrrhotite also in pegmatitic veins. Pyrrhotite was considered to carry "considerable" values in nickel and cobalt, but assays of samples of the best material that could be found showed neither cobalt nor nickel. Explored by a tunnel 8 ft. long.

Grant and Higgins, 1910 (B 443), p. 77 -- Same as above. Work done since 1905 said to have been encouraging.

Moffit and Fellows, 1950 (B 963-B), p. 77 -- Two copper prospects in Miners Bay area.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 53 -- Reference to Grant and Higgins, 1910 (B 443).

Mitchell & Myers — Gold, Lead

Prince William Sound district — Anchorage (15.4, 0.65)
MF-409, loc. 57 — 61°01'N, 148°11'W

Summary: Shattered acidic dike cemented by quartz contains gold, arsenopyrite, galena, and pyrite. Samples of dike contain as much as 0.34 oz. a ton gold; quartz richer. Very little development.

Johnson, 1914 (B 502), p. 227-228 -- Acidic dike 60-67 in. thick shattered and cemented by quartz; strike N 50° E, dip 53°-75° W. Quartz stringers as much as 8 in. thick. 3-ft.-wide quartz vein nearby strikes N 51° W and dips 60° E. Metallic minerals are gold, arsenopyrite, galena, and pyrite in quartz-calcite gangue. Assays of samples of dike reported to run $1.40-$7.00 [gold at $20.67]; higher assays on quartz reported. Explored by a few open cuts.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 46 -- Reference to above.

Mogul

Gold

Willow Creek district
MF-409, loc. 32

Anchorage (6.8, 14.7)
61°50'N, 149°10'W

Summary: Gouge zone in quartz diorite with one(or more) quartz vein that is said to yield high gold assays; unspecified sulfides also present. Only development is 3 open cuts across vein.

Capps, 1914 (B 592), p. 269 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 74 -- Staked in 1912. Quartz vein and gouge zone exposed by three open cuts; country rock quartz diorite. Quartz vein exposed in all pits is 1-4 in. thick; in one pit this vein is separated from another that is 12 in. thick by 18 in. of altered diorite. Vein quartz drusy; much iron oxide, and some sulfides [which not specified]. High assays in gold reported.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 22 -- Reference to above.

Mohawk (Mining Co.) — Gold

Willow Creek district — Anchorage (6.3, 14.2)
MF-409, loc. 20 — 61°48'N, 149°15'W

Summary: Quartz vein as much as 30 in. thick along gouge zone in diorite contains arsenopyrite and (determined by assay) gold. Developed by tunnel 160 ft. long.

Capps, 1919 (B 692), p. 183 -- Vein developed by tunnel 160 ft. long; a second tunnel 30 ft. long did not penetrate loose surficial material. Vein is white banded quartz in a gouge zone in diorite; carries some arsenopyrite and (by assay) gold. Vein pinches and swells; maximum thickness of quartz is 30 in.; strikes N 35° W and dips 45° SW.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 17 -- Reference to above.

Moose Creek — Copper, Gold, Nickel, Silver, Zinc

Willow Creek district — Anchorage (7.85-7.95, 14.0)
MF-409, loc. 37 — 61°48'N, 149°02'-149°04'W

Summary: Country rock is hornblendic gneissic quartz diorite; deposit capped by a rusty gossan. Heavily mineralized zone 25±30 ft. thick with disseminated sulfides on both sides; has been traced on surface for 7,000 ft. Sulfides include pyrite, pyrrhotite, chalcopyrite, and sphalerite in irregular masses, veins, and disseminated grains. Assays show as much as 0.08 oz. a ton gold, 1.2 oz. a ton silver, 5.6% copper, and (one sample only) 0.03% nickel. Explored by open cuts and an adit at least 33 ft. long. No record of production. Includes references to Northwestern.

Brooks, 1918 (B 662), p. 47 -- "A low-grade deposit of chalcopyrite ore has been found on Moose Creek, ----."

Capps, 1919 (B 692), p. 183-184 -- Country rock is gneissic phase of diorite of Talkeetna Mts.; locally highly hornblendic. Developed by 33-ft. tunnel, open cuts, and strippings. Rusty gossan on surface. Mineral deposit formed by replacement of country rock by sulfides, chiefly pyrrhotite, pyrite, and chalcopyrite; sphalerite also present. Deposit parallel to gneissic banding (N 60°-75° W, dip 65° S to vertical). Heavily mineralized zone is 25-30 ft. thick; disseminated sulfides extend to both sides. Principal sulfides occur either in segregated masses or in masses containing all three. Beneath gossan sulfides are unoxidized. Assays of samples indicate 0.04-0.08 oz. a ton gold, 0.8-1.2 oz. a ton silver, trace to 4.6% copper, and (one assay only) 0.03% nickel.

Chapin, 1921 (B 714), p. 206 -- Data abstracted from a private report. 11 claims located in 1914-15. Ore deposit is 30-100 ft. wide, strikes about N 75° E and dips about 80° SE. Does not appear to have a well-defined wall, but gradually merges into quartz diorite country rock. Open cut has been made 25 ft. diagonally across deposit, which there consists of pyrite, pyrrhotite, chalcopyrite, and sphalerite carrying gold and silver. Said to have been traced for 7,000 ft. along surface, but has not been explored at depth. Copper, gold, and silver contents said to be low.

Capps, 1940 (B 907), p. 178-179 -- Reference to and data extracted from Capps, 1919 (B 692), p. 183-184.

Wedow and others, 1952 (OF 51), p. 80 -- Reference to Capps, 1940 (B 907), p. 178.

Jasper, 1965 (GC 4), p. 4 -- Chalcopyrite associated with magnetite; adit has been driven 50-75 ft.

Berg and Cobb, 1967 (B 1246), p. 34 -- Staked in 1914. In quartz diorite; consists of disseminated grains, masses, and veins of sulfides in a zone 30-100 ft. wide; reportedly traced for 7,000 ft. on surface. One massive sulfide body 25 ft. wide and at least 80 ft. long exposed in open cuts. Metallic minerals include pyrite, pyrrhotite, chalcopyrite, and sphalerite; small amounts of gold and silver. Assays showed 0.04-0.08 oz. gold

Moose Creek -- Continued

and 0.8-1.2 oz. silver per ton, as much as 5.6% copper, and, in one sample, 0.03% nickel. In addition to open cuts a short tunnel was driven. No recorded production.

MacKevett and Holloway, 1977 OF 77-169A), p. 5, loc. 27 -- Reference to Capps, 1919 (B 692).

(Mt. Eklutna) — Chromite

Anchorage district — Anchorage (5.4, 7.1)
MF-409, loc. 39 — 61°24'N, 149°22'W

Summary: Poor exposures of chromite; probably generally similar to Highway prospect. See also Myers.

Rose, 1966 (GR 18), p. 11 -- Poor exposures; apparently the same as other occurrences of chromite in general area [for example, Highway]. May be source of the chromite on Peters Cr. reported by Martin, 1920 [(B 712), p. 23, 34].

Clark and Bartsch, 1971 (OF 484), p. 8 -- Reference to above.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 29 -- Reference to Rose, 1966 (GR 18).

Myers

Copper, Lead, Zinc

Anchorage district
MF-409, loc. 38

Anchorage (5.1, 7.4)
61°25'N, 149°24'W

Summary: Country rock greenstone and silicified rhyolite. 3-ft. wide zone impregnated with scattered crystals and small masses of arsenopyrite, pyrite, sphalerite, and galena; also a vein less than 2 in. thick in rusty gouge contains calcite and scattered bits of sphalerite, galena, and chalcopyrite. Includes references to copper, lead, and zinc on Mt. Eklutna and to prospect between Peters and Eklutna Creeks.

Landes, 1927 (B 792), p. 71 -- Country rock is greenstone and associated rhyolite; silicified. Vertical zone about 3 ft. wide is impregnated with scattered crystals and small masses of arsenopyrite, pyrite, sphalerite, and galena. Also a distinct vein less than 2 in. wide between walls (each about 6 in. thick) of rusty gouge; contains calcite and scattered bits of sphalerite, galena, and chalcopyrite. Not enough base-metal minerals exposed to encourage development work.

Rose, 1966 (GR 18), p. 12 -- Reference to above.

Berg and Cobb, 1967 (B 1246), p. 19 -- Data from Landes, 1927 (B 792) [not specifically cited].

Clark and Bartsch, 1971 (OF 484), p. 8 -- Data from Landes, 1927 (B 792).

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 28 -- Reference to Landes, 1927 (B 792).

Newman & Miller — Gold

Willow Creek district — Anchorage (5.8, 14.2)
MF-409, loc. 15 — 61°48'N, 149°18'W

Summary: Quartz vein, said to be very rich in gold, exposed by open cut. Includes reference to Miller-Newman.

Chapin, 1921 (B 714), p. 202 -- Development work, 1919.
Brooks, 1925 (B 773), p. 42 -- New find of reportedly very rich quartz vein 4-10 in. thick; exposed by open cut 60 ft. long; 1923.
MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 12 -- Reference to Brooks, 1925 (B 773).

Nugget	Gold
Willow Creek district	Anchorage (5.7, 13.85) approx. 61°47'N, 149°19'W approx.

Summary: Property between Gold Bullion and Kelly-Willow. Operated by Willow Creek Mines Co. in 1916.

Smith, 1917 (BMB 153), p. 40-41 -- Between Gold Bullion and Brooklyn Development Co. [Kelly-Willow]. Being operated by Willow Creek Mines Co. in 1916.

Opal

Gold

Willow Creek district
MF-409, loc. 28

Anchorage (6.55, 14.35)
61°49'N, 149°13'W

Summary: Two auriferous veins of quartz and gouge in altered diorite. Explored by surface excavations and 300 ft. of underground workings. One vein is richer in free gold than the other, which also contains pyrite. No record of production.

Chapin, 1921 (B 714), p. 205 -- 2 parallel veins that strike N 50° E and dip 50° NW were traced by pits for 2 claim lengths. Veins 3-5 ft. thick; made up of quartz and gouge in altered diorite. Both veins contain gold; lower one also contains pyrite. Tunnel started in 1919.

Brooks and Capps, 1924 (B 755), p. 31 -- Development, but no production, 1922.

Brooks, 1925 (B 773), p. 42 -- Developed by 300 ft. of workings; maximum width of 2 ft. of quartz at breast on main adit. Vein carries free gold; tenor said to be high in places. Vein faulted; much gouge. Another vein in workings is of lower tenor. Data as of 1923.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 20 -- References to Chapin, 1921 (B 714), and Brooks, 1925 (B 773).

Osceola	Gold
Prince William Sound district	Anchorage (17.95, 2.15) approx.(?) 61°06'N, 147°53'W approx.(?)

Summary: Vein explored by tunnel about 400 ft. long, 1916-17. Gold assumed to be present, though not specifically so stated.

Johnson, 1918 (B 662), p. 189 -- "A 120-foot tunnel was driven during the year [1916] on the Osceola vein, on College Fiord."

Johnson, 1919 (B 692), p. 150 -- Drifting continued, 1917. Main tunnel said to have been extended to total length of about 400 ft. Operations being carried on only part of summer.

Panhandle

Gold

Willow Creek district
MF-409, loc. 4

Anchorage (5.05, 13.9)
61°47'N, 149°24'W

Summary: Quartz vein with horses of quartz diorite country rock. Apparently same lode as at War Baby. A little development in 1918-19.

Chapin, 1920 (B 712), p. 173-174 -- Taken under option by Willow Creek Mines, 1918; just west of War Baby and apparently on the same lode. Development begun, 1918.

Chapin, 1921 (B 714), p. 202 -- Some development work, 1919. Quartz vein with horses of country rock strikes N 85° W, dips 38° N. Not much work has been done on it.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 4 -- Reference to Chapin, 1921 (B 714).

Paymaster	Gold
Prince William Sound district MF-409, loc. 58	Anchorage (16.05, 1.75) 61°05'N, 148°07'W

Summary: According to the locator, a quartz vein 1.5-3 ft. thick contains gold. Assay or pan samples as rich as about 4.25 oz. a ton reported.

Johnson, 1914 (B 592), p. 225 -- Data from locator. Vein 1.5-3 ft. thick strikes about north and can be traced for 200-300 ft. Pans and assays of gold from $18 to $88 a ton reported [gold at $20.67].

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 47 -- Reference to above.

(Peters Cr., trib. Knik Arm) — Chromite(?), Copper, Gold, Lead; Jade(?)

Anchorage district — Anchorage (7.75, 4.1) approx. (in part)
MF-409, loc. 50 (in part) — 61°14'N, 149°05'W approx. (in part)

Summary: Prospects (including several probably short adits) near terminus of glacier exposed quartz veins in greenstone, greenstone, and a little interbedded shale; veins carry pyrite, galena, and chalcopyrite; gold assays as high as $38 (about 1.84 fine oz.) a ton reported. Some ore may have been mined, but not shipped, in 1917. Chromite and jade reported to have been found in basin; locations uncertain. Includes reference to Jessie B. See also (Mt. Eklutna).

Capps, 1916 (B 642), p. 192-193 -- 2 prospects near terminus of glacier. Country rock is greenstone and greenstone tuff with small amounts of interbedded shale. At lower prospect adit 37 ft. long driven along a quartz vein no more than 2 in. thick that strikes N 60° W and dips 75° SW; intersected by 2 similar quartz veins that strike N 77° W and dip 60° N (one vein as much as 8 in. thick). Little mineralization seen; pyrite and lesser amounts of galena and chalcopyrite reported; assay of $12.60 a ton in gold [at $20.67] reported. At higher prospect several tunnels (probably hidden by snow when visited by Capps) driven on quartz veins (one at least 10 in. thick); assays said to show $38 a ton in gold [at $20.67]; small amount of pyrite.

Capps, 1919 (B 692), p. 186 — Quartz vein 2-5 ft. thick reported to carry gold; copper carbonate stained. Ore said to have been mined and stacked during development, 1917. [This is called Jessie B. in this reference; probably the same occurrence(s) described above.]

Martin, 1920 (B 712), p. 23 -- Discovery of chromite on Peters Cr. reported, 1918.

p. 34 -- Discovery of chrome ore reported, 1918.

Rose, 1966 (GR 18), p. 1 -- Reference to Martin, 1920 (B 712).

p. 13 -- Local prospector reports finding jade in Peters Cr. drainage; location and geologic occurrence not known.

Berg and Cobb, 1967 (B 1246), p. 18 -- Data from Capps, 1916 (B 642) [not specifically cited].

Clark and Bartsch, 1971 (OF 475), p. 2 -- Reference to Capps, 1916 (B 642).

Clark and Yount, 1972 (MF-351), sheet 1 -- Reference to Capps, 1916 (B 642).

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 39 -- Reference to Capps, 1916 (B 642).

(Peters Cr., trib. Willow Cr.)	Copper, Gold, Silver
Willow Creek district	Anchorage (5.75-6.1, 15.5-15.6) approx. 61°53'N, 149°16'-149°18'W approx.

Summary: Float contains small amounts of chalcopyrite, bornite, gold, and silver. Country rock quartz diorite.

Capps and Tuck, 1935 (B 864-B), p. 110 -- Pieces of quartz float contained trace to small amounts of gold and silver; one piece contained small amounts of chalcopyrite and bornite. Country rock quartz diorite.

(Pioneer Cr.) Chromite

Anchorage district Anchorage (6.8, 8.2)
MF-409, loc. 43 61°28'N, 149°11'W

Summary: In two poorly defined mineralized zones about 400 ft. apart is chromite occurring as stringers, small pods, and elliptical segregations of disseminated material in shattered dunite. Trenched by USBM in 1942. Calculated grades, based on weighted average analysis for each trench, are 6.8% Cr_2O_3 for one zone and 6.9% Cr_2O_3 for the other. Higher zone may be in talus blocks rather than in bedrock in place. USBM considered deposits too small and too low grade to be minable under conditions in 1940's. Includes references to (Pioneer Peak).

Barnes, 1947 (OF 54), p. 5 -- Rocks exposed along creek between 800- and 1,500-ft. contours consist largely of basic intrusive rocks, including pyroxenite that is locally chromite bearing.

Bjorklund and Wright, 1948 (RI 4356) -- Staked in 1940. Two poorly defined mineralized zones about 400 ft. apart. Chromite in stringers, small pods, and elliptical segregations of disseminated material in shattered dunite. Trenched by USBM in 1942. No massive high-grade chromite found; calculated grades, based on weighted average analysis for each trench, are 6.8% Cr_2O_3 for one zone and 6.9% Cr_2O_3 for the other. Too small and too low grade to be minable under conditions prevailing in 1940's.

Rose, 1966 (GR 18), p. 9-11 -- Reference to Bjorklund and Wright, 1948 (RI 4356). Occurrences similar to those at Highway prospect. Lower zone strikes about N 50° W, dips 37°-78° NE; traced about 50 ft. in outcrops and trenches; best exposure assayed 7.5% Cr_2O_3 across 13.5 ft. In higher zone chromite bands strike about N 10° W, dip 35° NE; traced about 30 ft. in trenches; maximum width of 30 ft. Blocks of diorite and dunite may have moved downslope as talus rather than being in place.

Berg and Cobb, 1967 (B 1246), p. 20 -- Data from Bjorklund and Wright, 1948 (RI 4356) [not specifically cited].

Clark and Bartsch, 1971 (OF 475), p. 2 -- Reference to Bjorklund and Wright, 1948 (RI 4356).

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 32 -- References to Bjorklund and Wright, 1948 (RI 4356) and Rose, 1966 (GR 18).

(Poorman Cr.) Gold

Nelchina district
MF-409, loc. 90

Anchorage (22.45, 17.95)
62°00'N, 147°17'W

Summary: Prospecting and a little placer mining, 1914. Ground about 6 ft. deep. Gold flaky; some small nuggets.

Chapin, 1915 (B 622), p. 128-129 -- Preliminary to Chapin, 1918 (B 668).

Chapin, 1918 (B 668), p. 62 -- Prospecting and a little placer gold production, 1914. Bedrock in lower part of stream course [in Talkeetna Mountains quad.] is conglomerate, shale, and sandstone; in upper part is andesitic lava and tuff. Placer ground about 6 ft. deep. Gold flaky; some small nuggets.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 63 -- Reference to above.

(Potter)

Molybdenum

Anchorage district
MF-409, loc. 114

Anchorage (1.8, 0.95)
61°03'N, 149°47'W

Summary: Trace of molybdenite in float concentrate.

Jasper, 1967 (GC 14), p. 31 -- Trace of molybdenite in concentrate from float.

(Purches Cr.) Copper, Gold, Silver

Willow Creek district Anchorage (4.9-5.4, 14.1-14.3) approx.
MF-409, loc. 7 (in part) 61°48'-61°49'N, 149°21'-149°25'W approx.

Summary: Bull quartz vein contains a little chalcopyrite and small amounts of gold and silver. Quartz float contains small amounts of gold and silver.

Capps and Tuck, 1935 (B 864-B), p. 110 -- 2 occurrences. One (at 61°49'W, 149°21'W, approx.) is a 1-ft.-wide vein of bull quartz that dips 30° S 20° W and can be traced for several hundred feet. Contains a little chalcopyrite; sample assayed 0.16 oz. a ton gold and 0.2 oz. a ton silver. Other (at 61°48'N, 149°25'W, approx.) is quartz float containing pyrite, 0.01 oz. a ton gold, and 0.2 oz. a ton silver.

Q. & Q.

Gold(?)

Prince William Sound district

Anchorage
SE 1/4 quad.

Summary: 150-ft. tunnel driven in 1918. This may be the Cann & Minor prospect, the Griset & Benson prospect, or neither.

Martin, 1920 (B 712), p. 33 -- "At the Q. & Q. property, on College Fiord, a 150-foot tunnel was driven in 1918." Entire reference.

Rae

Copper, Gold, Lead

Willow Creek district
MF-409, loc. 23

Anchorage (6.2, 13.65)
61°47'N, 149°15'W

Summary: Gouge or other clayey material in fault or shear zone in gneissic quartz diorite contains quartz carrying free gold, chalcopyrite, galena, and copper carbonates. Exposed by open cuts. Not enough data to evaluate as an ore deposit.

Capps, 1914 (B 592), p. 269 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 77 -- Country rock is somewhat gneissic quartz diorite cut by a fault or shear zone. Open cuts expose oxidized altered zone 8-18 in. thick of clay or gouge with some quartz containing free gold, chalcopyrite, pyrite, galena, and copper carbonates. Not enough work to prove or disprove the presence of valuable ore bodies.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 19 -- Reference to above.

Rae-Wallace (Mining Co.) Gold

Willow Creek district Anchorage (6.3, 13.9)
MF-409, loc. 22 61°47'N, 149°15'W

Summary: At least two quartz veins as much as 3 ft. thick contain free gold, pyrite, and arsenopyrite. Has been production (amount not known). Several hundred feet of workings. No activity reported since 1929. Includes references to: Ray-Wallace (Mining Co.), Rosenthal.

Capps, 1914 (B 592), p. 270 -- Preliminary to Capps, 1915 (B 607).
Brooks, 1915 (B 622), p. 48 -- Development work reported, 1914.
Capps, 1915 (B 607), p. 74-75 -- 2 tunnels (total length 125 ft.) driven on a quartz vein 1-3 ft. thick that strikes N 40° W and dips 10° SW. Vein carries visible free gold and finely disseminated pyrite. Vein is so close to mountain top that amount of mineralized material is small. Gold reported to be irregularly distributed with rich ore and almost barren quartz next to each other.
Capps, 1916 (B 642), p. 198-199 -- Has been recent work. Ore mined on property awaiting transportation to mill. Property acquired by Alaska Free Gold Mining Co. [owner of Martin], 1915.
Capps, 1919 (B 692), p. 183 -- In 1917 old tunnel was extended to length of 330 ft. New crosscut being driven to undercut vein. Another vein (exposed by open cuts) contains as much as 6 in. of quartz and a foot or more of crushed and oxidized vein matter; strikes about E and dips 55° S; contains pyrite and arsenopyrite; analysis did not confirm presence of tellurides. [no data on possible gold content.].
Brooks and Capps, 1924 (B 755), p. 31 -- Long crosscut being run, 1922; mill operated intermittently.
Smith, 1932 (B 824), p. 19 -- A little ore mined, 1929.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 18 -- Reference to Capps, 1915 (B 607).

(Rainbow Cr.) Gold

Anchorage district Anchorage (3.1, 0.05) approx. 61°00'N, 149°38'W

Summary: By inference there was some mining before 1906; some activity reported in 1937-38, but no definite statement that there was mining.

Paige and Knopf, 1907 (B 314), p. 120 -- Hydraulic plant not working in 1906.
Smith, 1939 (B 910-A), p. 43 -- Hydraulic pipe being brought in, 1937.
Smith, 1939 (B 917-A), p. 41 -- Development reported, 1938.
MacKevett and Holloway, 1977 (OF 77-169A), p. 8, loc. 69 -- Reference to Smith, 1939 (B 910-A), p. 43.

(Raven Cr.) Gold

Anchorage district Anchorage
W 1/2 SE 1/4 SW 1/4 quad.

Summary: Colors reported; very little work done.

Park, 1933 (B 849-G), p. 406 -- "A few prospect pits have been sunk on Raven Creek, and some colors were reported to have been obtained. Eight claims were staked in 1929, but the owner was killed in an accident, and no work has been done since then."

MacKevett and Holloway, 1977 (OF 77-169A), p. 8, loc. 70 -- Reference to above.

Reed & Fiske

Gold

Willow Creek district
MF-409, loc. 20

Anchorage (6.1, 14.3) approx.
61°49'N, 149°16'W approx.

Summary: Quartz vein (assumed to be auriferous) on divide between Fairangel and Fishhook Creeks. Averages 4 ft. in width; open cuts indicate length of 300 ft. In places contains granite breccia and gouge or clay. Probably was later relocated under a different name.

Katz, 1911 (B 480), p. 148 -- Open cuts on divide between Fairangel and Fishhook Creeks indicate a quartz vein continuous for 300 ft. and averaging 4 ft. in width. In some places includes granite breccia and has gouge or clay along walls. [Assumed to carry gold because preceding sentence states that quartz from which gold can be panned is all around Fishhook Creek basin.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 17 -- Reference to above.

(Reed Cr.) — Copper, Molybdenum, Tungsten

Willow Creek district — Anchorage (6.8-7.0, 14.5-15.0) approx.
MF-409, locs. 33, 85 — 61°50'-61°51'N, 149°10'-149°11'W

Summary: Low-grade molybdenum-copper mineralization, probably in a pegmatite dike in tonalite; adit driven in 1917 or earlier now largely covered by talus. Float concentrate contained a little scheelite.

Martin, 1919 (B 692), p. 23 -- Work on molybdenite prospect reported, 1917. [Called Reid Cr. in this reference.]

Smith, 1942 (B 926-C), p. 189 -- Reference to above. Martin probably meant "Reed Cr.," which would put the reported occurrence within 3 mi. of the Talkeetna mine, where molybdenite is known.

Jasper, 1967 (GC 14), p. 3 -- Low-grade molybdenum-copper mineralization at head of creek; on steep talus-covered slope; old adit driven before 1917 now largely covered by talus; width and character of deposit has not been reported.

p. 26 -- Float concentrate sample contained some scheelite.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 24 -- Reference to Jasper, 1967 (GC 14), p. 3. Probably scattered molybdenite and chalcopyrite in a pegmatite dike that cuts tonalite.

Reiter & Olson — Antimony, Copper, Gold(?), Lead

Prince William Sound district — Anchorage (15.55, 1.35)
MF-409, loc. 56 — 61°04'N, 148°10'W

Summary: Quartz veins, at least some in graywacke, contain stibnite, chalcopyrite, and galena; no data on possible gold content. Information supplied by one of locators.

Johnson, 1914 (B 592), p. 228 -- Data from one of locators. Vein 8 in. to 3 ft. wide can be traced for about 200 ft. Nearby are 6 parallel veins in graywacke; quartz 6-30 in. thick. Veins contain stibnite, chalcopyrite, and galena [no data on possible gold content].

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 45 -- Reference to above.

(Rusaw Cr.)

Copper

Willow Creek district
MF-409, loc. 49

Anchorage (21.3, 13.4) approx.
61°44'N, 147°26'W

Summary: Disseminated chalcopyrite and magnetite in basic segregation in quartz diorite. See also (Sheep Mtn.).

Jasper, 1965 (GC 4), p. 4 -- "....disseminated chalcopyrite and magnetite in a small, more basic segregation in a quartz diorite mass."

Berg and Cobb, 1967 (B 1246), p. 34 -- [Copper] deposits probably similar to those on Sheep Mtn. have been reported.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 38 -- Reference to Jasper, 1956 (GC 4).

San Juan | Gold

Willow Creek district | Anchorage (6.25, 13.85)
MF-409, loc. 23 | 61°57'N, 149°15'W

Summary: Encouraging assays reported from samples of pegmatitic material. Minor exploration by open cuts.

Capps, 1914 (B 592), p. 270 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 77-78 -- Pegmatitic rock with large crystals of quartz and feldspar in ledge 9 ft. wide. Encouraging assays [of gold] reported. Not similar to ore in the rest of the district. Explored by open cuts only.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 19 -- Reference to above.

(Schoonoven Cr.) Gold

Willow Creek district Anchorage (13.15-16.5, 14.6-16.9) approx.
MF-409, loc. 87 61°50'N, 148°18'-148°25'W approx.

Summary: Gold prospects in and below canyon in Tertiary Chickaloon Fm. cut by diabase intrusive bodies. Stream now called Boulder Cr. No record of commercial production.

Mendenhall, 1900, p. 322 -- Best placer gold prospects in area; all in and below canyon. "Within the canyon the stream flows through a portion of the Matanuska sediments most affected by the diabase intrusions, and these probably have a genetic relation to the gold content." [Bedrock is Tertiary Chickaloon Fm.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 60 -- Reference to above.

Schroff-O'Neil — Copper, Gold, Lead, Zinc

Willow Creek district — Anchorage (5.8, 14.3)
MF-409, loc. 15 — 61°49'N, 149°18'W

Summary: Erosional remnant of quartz vein nearly mined out, 1950. Vein contains coarsely crystalline quartz, gold [showing a preference for tellurides nagyagite, altaite, and coloradoite(?)], galena in large cubes, pyrite, sphalerite, chalcopyrite, and tetrahedrite. Ore may have been localized by intersection with barren copper-stained quartz vein.

Ray, 1954 (B 1004), p. 43-44 -- Nagyagite (sulphotelluride of lead and gold) is an important mineral; free gold shows a preference for it, especially in richer ore; some of deposition appear to be contemporaneous.

p. 73 -- Altaite (another telluride) also present.

p. 75-76 -- Coarsely crystalline quartz vein 1-6 in. thick, mostly vuggy, on pass between Craigie and Fishhook Creeks; strikes 070° and dips 21°-34° NW. Most of erosional remnant was mined out in 1950. Crossed by barren copper-stained quartz vein; ore deposition apparently was localized by intersection. Vein contains abundant coarse gold, common large cubes of galena, pyrite, sphalerite, chalcopyrite, tetrahedrite, and the tellurides nagyagite, altaite, and coloradoite(?).

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 12 -- Reference to above.

(Sheep Mtn.) Copper, Gold, Gypsum

Willow Creek district Anchorage (20.45-21.0, 14.75-15.1)
MF-409, loc. 48, in part 61°49'-61°50'N, 147°28'-147°32'W

Summary: Sheep Mtn. is made up of Lower Jurassic greenstone intruded by many mafic dikes and at least one body of unaltered Jurassic granite. Hydrothermal alteration of greenstone, particularly along joints and shears, has formed pods and stringers of gypsiferous material that also contains considerable alunite and quartz-sericite rock. In 6 deposits the indicated and inferred reserves (as of 1953) were calculated as 659,000 short tons of material averaging 25%-30% gypsum. About 50 tons of this material has been mined and calcined. Also produced about 55 tons of clay used for making fire brick and as boiler liner. Farther east small, irregular quartz, calcite, and epidote veins in shattered greenstone contain chalcopyrite, malachite, azurite, and possibly bornite and chalcocite. A large area on the south flank of Sheep Mtn. is stained dark red from oxidation of pyrite in greenstone. Samples of pyritic greenstone assayed a trace of gold.

Brooks, 1913 (B 542), p. 39 -- Bornite reported; mountain made up of greenstones and other volcanic rocks and at least one granitic intrusive.

Martin and Mertie, 1914 (B 592), p. 281-282 -- Mountain consists of Jurassic volcanic rocks with some interbedded sandstone and shale; intruded by at least one granitic mass. Volcanic rocks much sheared and altered and traversed by calcite veins. A zone approximately parallel to bedding contains disseminated sulfides (mainly chalcopyrite) through a thickness of about 5 ft.; malachite and azurite staining. Also present are veins of quartz, calcite, chalcopyrite, and secondary copper minerals. Float samples also contain bornite and chalcocite; some appear to represent sulfide replacement of basic igneous rocks; epidote in gangue.

Brooks, 1915 (B 622), p. 47 -- Reference to above.

Capps, 1927 (B 791), p. 73 -- Data from Martin and Mertie, 1914 (B 592), p. 281-282.

Eckhart, 1953 (B 989-C) -- Country rock is a thick section of Jurassic volcanic rocks intruded by many mafic dikes; granitic mass reported in older references not found in this investigation. Volcanic rocks hydrothermally altered to greenstone, which in places has been further altered to irregular masses of gypsiferous rock and quartz-sericite rock. Small pods and stringers of gypsum intricately cut greenstone; calcite and quartz stringers also present; many stringers follow joints and shears in greenstone. Gypsiferous rock composed of varying amounts of gypsum, quartz, alunite, and kaolin minerals; pyrite cubes and antigorite and/or chrysotile occasionally present. Near-surface samples of gypsiferous rock contained an average of 25%-30% gypsum; some contained as much as 50%. 6 of the largest and most accessible deposits were calculated to contain an aggregate of about 311,000 short tons of indicated gypsiferous rock; 4 of the deposits contain about 348,000 short tons of inferred

(Sheep Mtn.) -- Continued

gypsiferous material. Production has been 50 tons of calcined material and about 55 tons of clay used in the manufacture of fire brick and as boiler lining.

Rutledge and others, 1953 (RI 4932), p. 34-39, 47 -- Mainly data on ownership of deposits and data on ceramic clay associated with gypsiferous material.

p. 126-129 -- Repetition of data on ownership. Geologic data from Eckhart, 1953 (B 989-C). Gypsum particles all minus-100-mesh; most minus-200-mesh; accompanying alunite particles larger. Conclusion; "The Sheep Mountain deposits of gypsiferous material cannot be used as a source of low-cost, high-grade gypsum for cement production." Production has been about 50 tons of calcined gypsiferous material.

Jasper, 1965 (GC 4), p. 4 -- East of Yellow Jacket Gulch bornite has replaced hornblende in gabbro; grab samples contained as much as 3% copper. Calcite-quartz veins and a shear zone also contain copper sulfides. Similar mineralization farther east.

Berg and Cobb, 1967 (B 1246), p. 34 -- Copper deposit prospected early in century consists of small, irregular quartz, calcite, and epidote veins in shattered greenstone; contains chalcopyrite, malachite, azurite, and possibly bornite and chalcocite. Several square miles of south flank of Sheep Mtn. stained dark red from oxidation of pyrite in greenstone. samples of pyritic greenstone assayed a trace of gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 37 -- Strongly altered zones in Lower Jurassic Talkeetna Fm. contain gypsum, alunite, and pyrophyllite; near apparently unaltered Jurassic granite; minor anomalous concentrations of Cu and Au associated with some of the alteration zones and in nearby veins.

p. 9, loc. 113 -- Reference to Eckhart, 1953 (B 989-C).

Sherry	Gold(?)
Willow Creek district MF-409, loc. 31	Anchorage (6.6, 14.65) 61°50'N, 149°12'W

Summary: 120-ft. adit said to show small quartz vein at face, 1923. Probably the same as *Snowbird*.

Brooks, 1925 (B 773), p. 43 -- "Mike Sherry has a prospect on the west side of Reed Creek valley about a mile north of Homebuilder. He is reported to have an adit in 120 feet, of which 30 feet was driven this year [1923]. This adit is said to show a small quartz vein at the face."

Simonton & Mills	Copper, Gold, Lead
Prince William Sound district	Anchorage (15.95, 1.55)
MF-409, loc. 59	61°05'N, 148°07'W

Summary: Quartz veins in graywacke and slate contain gold, galena, pyrite, and chalcopyrite. Very little physical exploration.

Johnson, 1914 (B 592), p. 226 -- A northward-striking vertical quartz vein 6 in. to 5.75 ft. thick in graywacke with some slate has been traced about 200 ft. Joined by another quartz vein about 4 ft. thick. Ore minerals are gold, galena, pyrite, and chalcopyrite. Surface stripping only development.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 48 -- Reference to above.

Singletary-O'Neil	Gold(?)
Prince William Sound district	Anchorage(?) SW 1/4 SE 1/4 quad.(?)

Summary: Probably a gold prospect; on Harriman Fiord; some work reported, 1912. May be in Seward quad.

Brooks, 1913 (B 542), p. 37 -- "Some work has also been done on the Singletary-O'Neil property, on Harriman Fiord." [may be in Seward quad.]

Smith	Gold
Willow Creek district MF-409, loc. 17	Anchorage (5.5, 14.5) 61°50'N, 149°20'W

Summary: Quartz in shear zone in quartz diorite reported to carry gold.

Capps and Tuck, 1935 (B 864-B), p. 110 -- Small tunnel and pits expose shear zone 2-3 ft. wide in quartz diorite; dips 25° S 80° W; contains sheared diorite, gouge, and quartz that is reported to carry gold.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 14 -- Reference to above.

Smith & Sutherland	Gold(?)
Willow Creek district	Anchorage (6.3, 13.9) approx. 61°47'N, 149°15'W

Summary: Caved tunnel reported on claims in Sidney Cr. basin. No data on possible presence of gold.

Capps, 1919 (B 692), p. 185 -- 4 claims in southeastern part of Sidney Cr. basin. Reported that 40-ft. tunnel driven on property has caved, 1917.

Snowbird — Gold

Willow Creek district — Anchorage (6.6, 14.65)
MF-409, loc. 31 — 61°50'N, 149°12'W

Summary: About 2,000 ft. of crosscut and drifts explored 4 shear zones in quartz diorite, two of which contained gold in quartz lenses in gouge and sheared quartz diorite. A little ore mined and milled in 1950.

Ray, 1954 (B 1004), p. 73-75 -- First prospected, 1921; further work just before and just after World War II. About 2,000 ft. of crosscuts and drifts driven, aerial tram and mill installed, and a little ore mined and milled, 1950. Workings encountered 4 shear zones in quartz diorite; zones strike generally northeastward and dip 52°-70° NW. 2 shear zones barren; one yielded a few good assays, but was nearly barren overall; fourth was more encouraging, but bad ground was met as a raise was being put up. Shear zones with gold in them contain lenses of quartz in gouge and sheared quartz diorite.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 23 -- Reference to above.

Snow King — Gold(?)

Willow Creek district — Anchorage (6.4, 14.55)
MF-409, loc. 31 — 61°50'N, 149°12'W

Summary: Work in 1919 reported. Vein said to have been stripped for 4,000 ft. No data on mineralogy or possible gold content.

Chapin, 1921 (B 714), p. 205 -- Work to open up a quartz vein that is said to have been stripped for 4,000 ft., 1919. [No data on possible gold content.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 23 -- Reference to above.

(South Cr.) Gold

Nelchina district
MF-409, loc. 89

Anchorage (22.1, 17.75)
61°59'N, 147°19'W

Summary: Placer gold reported and claims staked, 1913. Prospecting, 1914.

Martin and Mertie, 1914 (B 592), p. 278 -- Gold reported and claims staked, 1913.
Chapin, 1915 (B 622), p. 129 -- Preliminary to Chapin, 1918 (B 668).
Chapin, 1918 (B 668), p. 62 -- Prospecting, 1914.
MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 62 -- Reference to above.

Stiles — Copper, Gold, Lead

Willow Creek district — Anchorage (6.45, 13.85)
MF-409, loc. 24 — 61°47'N, 149°13'W

Summary: Quartz vein(s) parallel to large aplite dike carry gold, azurite, chalcocite(?), iron oxide, and galena. Assays of several thousand dollars a ton reported. Veins strike E to N 13° E and are 15 in. to 3 ft. thick. Exposed in open cuts, an adit, and a crosscut. Work reported in about 1914-15 and 1931. No data on production, if any. Includes reference to Shough.

Brooks, 1913 (B 542), p. 39 -- Report of discovery (by A. C. Shough) of auriferous quartz vein, 1912. [Said to be on east side of upper Little Susitna basin; other references place it on west side.]

Capps, 1914 (B 592), p. 270 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 75-76 -- Quartz vein with maximum thickness of 15 in. strikes N 13° E and dips 62° W; in pinkish decayed dioritic country rock. Remarkably high assays (several thousand dollars a ton) reported; little or no free gold; principal visible metallic minerals are azurite, chalcocite(?), iron oxide, and galena. A similar vein no more than 12 in. thick with variable strike and dip encountered in a crosscut driven to undercut first vein. A third vein about 3 ft. thick is exposed in an open cut; strikes E and dips 68° N. Prospect is just east of a fault zone (in diorite) that may have been a conduit for mineralizing solutions. Not enough work has been done to evaluate fully the property.

Capps, 1916 (B 642), p. 199 -- Vigorous prospecting, 1914-15. Tunnel (total length 150 ft.) being driven on vein with moderate amounts of gold; objective is a fault zone exposed on surface. Where ground-sluiced off, zone is 60 ft. wide and is said to carry several dollars a ton in gold.

Ray, 1933 (B 849-C), p. 226-227 -- Reference to Capps, 1915 (B 607), p. 75-76. In 1931 adit was being driven to crosscut a large aplite dike in hope of finding a vein supposed to parallel it on north side. Adit had been driven about 270 ft.; last 100 ft. in aplite. Dike shows evidence of hydrothermal alteration. Largest and most persistent aplite dike in district; can be traced for more than 6 mi.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 18 -- References to Capps, 1915 (B 607) and Ray, 1933 (B 849-C).

(Summit Mtn.) Gold

Anchorage district
MF-409, loc. 52

Anchorage (7.7, 1.0)
61°03'N, 149°06'W

Summary: Small quartz vein in argillite and graywacke near irregular intrusive body of quartz diorite reported to have been worked in 1931. Rich float (presumably rich in gold) reported.

Park, 1933 (B 849-G), p. 420-421 -- Small vein reported to have been worked in 1931. Rich [in gold] float reported. Country rock is banded argillite and graywacke intruded and distorted by irregular mass of quartz diorite. Vein strikes N 30° W and dips 60° W.

Talkeetna (Gold Mining Co.) — Gold, Molybdenum

Willow Creek district — Anchorage (6.2, 14.5)
MF-409, loc. 19 — 61°50'N, 149°15'W

Summary: Country rock is coarse quartz diorite. Ore deposits are quartz veins along fractures and an alaskite dike. Free gold and sulfides (mainly pyrite) in veins; molybdenite also present. Some of ore very rich. Developed by several hundred feet of workings, but mine was not one of the major producers of district. Staked in 1909 and explored for a few years; mining reported 1917 to 1922 or 1923. Includes references to: Consolidated Mining Co., Matanuska Gold Mining Co. See also Fern.

Katz, 1911 (B 480), p. 148 -- "Vein" is an aplitic or pegmatitic dike in places 9 ft. thick in "granite" and carries a few scattered black minerals, hornblende, and tourmaline; shattered and cemented by quartz; 8-in. quartz vein along hanging wall. Specks of sulfide minerals visible in quartz; values in gold associated with quartz and, reportedly, in decomposed wall rock. Developed by 2 small open cuts in 1910; tunnel planned for 1910-11.

Brooks, 1912 (B 520), p. 29 -- Development, 1911; open cuts and a 40-ft. adit.

Capps, 1914 (B 592), p. 267-268 -- Preliminary to Capps, 1915 (B 607).

Capps, 1915 (B 607), p. 50 -- Property staked in 1909 and prospected vigorously until the company was involved in litigation; no production as of 1914.

p. 72-73 -- Country rock is coarse gray quartz diorite cut by aplite dikes (locally called quartzite) and younger quartz veins. Explored by open cuts and over 200 ft. of tunnels. Ore deposits are quartz veins [that probably follow conjugate fractures] and along an alaskite dike. The veins not following the dike contain considerable gold (average nearly 5 fine oz. a ton) and sulfide, principally pyrite, much of which has been leached from cubical cavities; veins 1-12 in. thick. No data given on gold content of vein (as much as 30 in. thick) that follows alaskite dike; another alaskite dike contains disseminated pyrite, but very little gold.

Capps, 1916 (B 642), p. 200 -- Assessment work only, 1914-15.

Brooks, 1918 (B 662), p. 48 -- 4 adits (total length about 140 ft.) driven in 1916; also some open cuts.

Capps, 1919 (B 692), p. 182 -- Considerable surface improvements. Mining in 1917. More than 160 ft. of underground workings. Veins pinch and swell; main vein from 2 in. to 3 ft. thick.

p. 186 -- Molybdenite in upper basin of Fairangel Cr. [undoubtedly refers to Talkeetna].

Martin, 1919 (B 692), p. 32 -- Mining, 1917.

Chapin, 1920 (B 712), p. 176 -- Mining and milling, 1918.

Martin, 1920 (B 712), p. 34 -- Mining, 1918.

Brooks and Martin, 1921 (B 714), p. 77 -- Mining, 1919.

Chapin, 1921 (B 714), p. 204 -- Mining, 1919. Work restricted to one tunnel extending about 300 ft. along a vein that is 5-18 in. wide for 200 ft. and then widens to 5-8 ft.; contains quartz, gouge, and visible gold. Ore very rich in spots; workable ore in definite pay shoots.

Talkeetna (Gold Mining Co.) -- Continued

Brooks and Capps, 1924 (B 755), p. 31 -- Development and mill tests, 1922.
Brooks, 1925 (B 773), p. 42 -- Work in 1923 [probably; reference is somewhat ambiguous]. Rich ore reported at bottom of 30-ft. winze in main tunnel. Old tunnel is in about 500 ft. and is expected to cut a lode that crops out above it. Mine has one vein 30 in. wide and another 15 in. wide.
Moffit, 1927 (B 792), p. 11 -- Acquired by Fern Gold Mining Co. in about 1925.
Ray, 1933 (B 849-C), p. 222-223 -- Property consolidated with Fern. Undercut by, but not connected with, workings of Fern mine.
Smith, 1942 (B 926-C), p. 188-189 -- Molybdenite present.
Ray, 1954 (B 1004), p. 83 -- Inaccessible in 1950; part of Fern Mining Co. holdings. Was not an important mine in district.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 16 -- References to Ray, 1933 (B 849-C) and Ray, 1954 (B 1004).

Thorpe — Gold, Silver

Willow Creek district — Anchorage (4.75, 13.05)
MF-409, loc. 1 — 61°45'N, 149°25'W

Summary: Only productive mine in Willow Creek area that is in mica schist rather than quartz diorite. Quartz veins in shear zones that cut across foliation and bedding of schist; as much as 3 ft. thick. Staked before 1924; mining reported, 1924-25, 1942-43; probably was some at other times also; amount of production not known. Gold higher in silver content than that from other mines in area; assays as high as $25.92 [gold at $20.67] reported. These and other similar veins in schist were the probable sources of placer gold in Grubstake and Willow Creeks. Includes references to Elder & Thorpe.

Smith, 1926 (B 783), p. 8 -- Gold produced, 1924.

Moffit, 1927 (B 792), p. 11 -- Small gold production, 1925. Mine is of interest becuase it is the only one in the district that is in mica schist rather than in quartz diorite.

Smith, 1932 (B 824), p. 19 -- "The work done during 1929 on the Thorpe property consisted almost entirely in digging numerous open cuts on the surface in order to trace out the course of the veins." [This reference may be to a Thorpe prospect near the head of Craigie Cr. that is shown on pl. 1, Ray, 1954 (B 1004), but is not discussed in any report available to me.]

Ray, 1933 (B 849-C), p. 228 -- Quartz stringers from a fraction of an inch to 3-1/2 ft. thick parallel to foliation of mica schist; exposed in open cuts and shallow tnnels. Assays of $8.25 to $25.92 reported; tenor not consistent along strike. Gold contains more silver than that from mines in quartz diorite [all the others in the general area.] These and similar veins in neighborhood were sources of placer gold in Grubstake and Willow Creeks.

Smith, 1942 (B 933-A), p. 21 -- According to local reports a company took over the old Thorpe mine, installed a mill and tram, and did underground development work in 1940.

Ray, 1954 (B 1004), p. 78-79 -- Only productive gold quartz vein in area in mica schist rather than in quartz diorite. Vein as much as 3 ft. wide in shear zone that strikes 130° and dips 53° NE (intersects foliation and bedding of schist at about 60°). Another nearly parallel shear zone reported to have high gold values; very little quartz visible. Shear zones have different attitudes from those of productive veins in quartz diorite. Developed by several hundred feet of workings. Located before 1930; mining as recently as 1942-43.

Berg and Cobb, 1967 (B 1246), p. 31, 34 -- Data from Ray, 1954 (B 1004) summarized [not specifically cited].

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 1 -- References to Ray, 1933 (B 849-C) and Ray, 1954 (B 1004).

(Thunder Bird Cr.) Chromite

Anchorage district Anchorage (5.9, 7.6)
MF-409, loc. 40 61°26'N, 149°18'W

Summary: Chromite occurrence apparently similar to others in Eklutna area. See also Highway.

Rose, 1966 (GR 18), p. 11 -- Exposures not good; apparently similar to other chromite occurrences in Eklutna area.
Clark and Bartsch, 1971 (OF 484), p. 8 -- Reference to above.
MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 30 -- Reference to Rose, 1966 (GR 18).

(Upper Willow Cr.) Copper, Gold

Willow Creek district Anchorage (5.55-5.65, 14.6-14.7)
MF-409, locs. 73, 74 61°46'-61°47'N, 149°19'-149°20'W

Summary: Traces of chalcopyrite and gold in float concentrates.

Jasper, 1967 (GC 14), p. 25-26 -- Traces of chalcopyrite and gold in float concentrates.

Walters, Brasslin & Atkinson — Gold, Lead, Zinc

Prince William Sound district — Anchorage (16.45, 1.15)
MF-409, loc. 60 — 61°03'N, 148°04'W

Summary: Thin quartz vein in slate and graywacke contains much arsenopyrite and also galena, gold, and sphalerite. Assays as high as about 4.25 oz. a ton reported. Explored by 77 ft. of underground workings and surface excavations. No record of production.

Johnson, 1914 (B 592), p. 225-226 -- Vertical quartz vein 2-8 in. thick strikes N 11°-40° E. In slate and graywacke. Explored by adit and crosscut (total length 77 ft.) and surface excavations. One wall bounded by gouge; the other frozen. Considerable arsenopyrite; also galena, gold, and sphalerite. Oxidized at outcrop. Assays said to range from $23 to $88 a ton [gold at $20.67].

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 49 -- Reference to above.

War Baby — Copper(?), Gold

Willow Creek district — Anchorage (5.0, 13.75)
MF-409, loc. 3 — 61°47'N, 149°24'W

Summary: Located in 1918 and development begun. Mined (with interruptions) from 1919 to 1940; operated with Lucky Shot after 1923. One of major mines of district; no data on amount of production. Ore from stope mined through 1927 averaged about 2.18 fine oz. gold a ton. Lode is an offset continuation of lode at Lucky Shot. Company shipped concentrates containing copper in 1927; some or all may have been from War Baby, or all may have been from Lucky Shot. See also Lucky Shot.

Chapin, 1920 (B 712), p. 173-174 -- Mineralized zone about 33 ft. thick contains 4 or 5 parallel quartz veins that strike N 80° E and dip 17°-62° NW. Footwall of zone is altered granite with 9 in. of quartz; above are 3 quartz veins 1-5 in. thick in 30-ft. interval of quartz diorite. Hanging wall is NW-dipping fissure parallel to veins. To SW, on what appears to be the same lode, a zone of altered granite 3-4 ft. thick contains a quartz vein 15 in. thick and quartz stringers. Development work, 1918.

Martin, 1920 (B 712), p. 34-35 -- Development work carried on and a small mill erected, 1918.

Brooks and Martin, 1921 (B 714), p. 77 -- Mining, 1919.

Chapin, 1921 (B 714), p. 202 -- First production in 1919. 2 short openings on vein; crosscut being driven to intersect vein at depth.

Brooks and Capps, 1924 (B 755), p. 30 -- Development including building aerial tram, 1922.

Brooks, 1925 (B 773), p. 15 -- Gold produced, 1923.

p. 40-41 -- Operated with Lucky Shot, 1923. 3 levels with about 1,115 ft. of adits and drifts.

Smith, 1926 (B 783), p. 8 -- Mining, 1924; largest producer in district.

Moffit, 1927 (B 792), p. 11 -- Production, 1925; less than Lucky Shot or Fern.

Smith, 1929 (B 797), p. 12 -- Willow Creek Mines (Inc.) one of principal producers in district, 1926. [Some production was probably from War Baby.]

Smith, 1930 (B 810), p. 14 -- Mining, 1927.

p. 46 -- Company shipped concentrates containing copper, 1927. [Some or all may have come from War Baby.]

Smith, 1930 (B 813), p. 16 -- Mining by lessees, 1922.

Smith, 1932 (B 824), p. 18 -- Development work at Lucky Shot and/or War Baby and mill construction, 1929.

Ray, 1933 (B 849-C), p. 212-213 -- Claims first located in 1918; mined from 1922 through 1927. Workings terminate westward against fault that separates War Baby from Lucky Shot. Production from War Baby was from a single stope about 175 by 250 feet and in places 10-12 ft. wide; average gold content of ore mined said to have been $45 [about 2.18 fine oz.] a ton. Other mineralized material too low grade to mine.

Smith, 1934 (B 864-A), p. 18 -- Supplied some ore to company mill, 1933.

War Baby -- Continued

Smith, 1936 (B 868-A), p. 18 -- Mining, 1934. Shaft deepened and crosscut driven to intercept Lucky Shot vein.

Smith, 1937 (B 880-A), p. 19 -- Operated, 1935. Several thousand feet of underground development here and at Lucky Shot.

Smith, 1938 (B 897-A), p. 19-20 -- Mining, 1936. Winze sunk 500 ft. below old adit level and drift run from bottom toward Lucky Shot. Exploration drilling between War Baby and Gold Bullion [no data on results].

Smith, 1939 (B 910-A), p. 22 -- Mining, 1937.

Capps, 1940 (B 907), p. 176 -- Producing mine, 1936.

Smith, 1941 (B 926-A), p. 19 -- Mining, 1940. [Mining in 1938-39 probably reported with that of Lucky Shot.]

Ray, 1954 (B 1004), p. 83 -- Mine long closed; workings inaccessible in 1950.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 3 -- References to Ray, 1933 (B 849-C), and Ray, 1954 (B 1004).

Webfoot — Gold

Willow Creek district — Anchorage (6.25, 14.3)
MF-409, loc. 20 — 61°49'N, 149°15'W

Summary: Large tonnage of low-grade gold "ore" in a vein with 2-1/2 to 4 ft. of quartz explored by open cuts and about 300 ft. of drifts. Work reported in about 1910, 1918-1922, 1947-48. No record of production. Includes reference to Conroy.

Katz, 1911 (B 480), p. 148-149 -- One or more quartz veins exposed by a little stripping, 1910. Deposit not similar to that at adjoining Talkeetna prospect [which is called Matanuska Gold Mining Co. in this reference].

Capps, 1919 (B 692), p. 185 -- Developed by stripping along vein, which is said to have an average width of several feet of quartz and to carry encouraging amounts of gold.

Chapin, 1920 (B 712), p. 176 -- Development work, 1918. Vein reported to be exposed by surface stripping for a claim length.

Chapin, 1921 (B 714), p. 204 -- Development work, winter of 1919-20.

Brooks and Capps, 1924 (B 755), p. 31 -- Development, but no production, 1922.

Ray, 1954 (B 1004), p. 78 -- Believed to have been staked in about 1917; 2 patented claims. Large tonnage of low-grade material in a vein with 2-1/2 to 4 ft. of quartz, some of which is banded. Vein strikes about due north and dips 33°-40° W. Explored by open cuts and about 300 ft. of drifts. Some development, 1947-48; idle, 1948-50.

MacKevett and Holloway, 1977 (OF 77-169A), p. 5, loc. 17 -- References to Katz, 1911 (B 480), and Ray, 1954 (B 1004).

(Wells Bay) Copper

Prince William Sound Anchorage (22.1, 0.75)
MF-409, loc. 66 61°01'N, 147°24'W

Summary: Non productive copper prospect; has been considerable work. No data on mineralogy or mode of occurrence of deposit.

Moffit and Fellows, 1950 (B 963-B), p. 77 -- Mineralized areas of sulfides of copper and other metals found at many places on mainland between Long Bay and Port Wells. None has produced any ore. "Considerable work has been done on claims at the head of Wells Bay and on Long Bay."

Berg and Cobb, 1967 (B 1246), p. 71 -- Nonproductive sulfide deposit on which considerable work has been done.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, loc. 54 -- Reference to Moffit and Fellows, 1950 (B 963-B). Probably in volcanic rocks of Valdez Group or in Tertiary intrusive rocks.

(Wet Gulch) — Gold(?)

Willow Creek district — Anchorage (4.3, 13.35) approx. 61°46'N, 149°30'W

Summary: Placer gold claims; assessment work, 1950.

Ray, 1954 (B 1004), p. 83 -- Assessment work on placer claims, 1950.
Jasper, 1962, p. 81 -- Reference to above.

Wheeler, Betts & Dimmick	Gold
Willow Creek district MF-409, loc. 2	Anchorage (4.95, 13.15) 61°45'N, 149°24'W

Summary: Quartz vein in graphitic mica schist reported to carry good gold values; no visible free gold.

Jasper, 1962, p. 79-81 -- Prospecting, 1962. Auger-hole sampling led uphill to rediscovery of quartz vein 17 in. thick in two old open cuts. Vein below zone of surface creep appears to strike N 30° W and to dip 55° SW (across schistosity of graphitic mica schist country rock). No visible gold, but sample across vein carried high gold values. Vein contains quartz, pyrite, cryptocrystalline hematite, and bands of schist. Vein reported to have been traced in auger holes for several thousand feet.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 2 -- Reference to above.

(Willow Cr.) Gold

Willow Creek district Anchorage (4.2-4.7, 3.3S-3.4)
MR-409, locs. 68, 69 61°46'N, 149°26'-149°30'W

Summary: Has been placer mining here and on Grubstake Gulch. Claims staked as early as 1897; mining as recently as 1969. Gold derived from quartz veins in mica schist bedrock, mainly in basin of Grubstake Cr. Both creek and bench gravels have been mined.

Brooks, 1906 (B 284), p. 7 -- Small hydraulic plant produced a little gold, 1905.

Paige and Knopf, 1907 (B 314), p. 116-117 -- Preliminary to Paige and Knopf, 1907 (B 327).

Paige and Knopf, 1907 (B 327), p. 65-66 -- Staked in 1898; about $4,000 recovered. Recent [as of 1906] prospecting discovered commercial quantities of gold in a bench about 75 ft above creek bed near Wet Gulch.

Brooks, 1911 (P 70), p. 165 -- Only easterly tributary of Susitna River on which commercial gold placers have been found. [Valdez Cr. (Healy quad.) is evidently not considered an easterly tributary.]

Katz, 1911 (B 480), p. 139 -- Placer prospects on Grubstake and Willow Creeks principal mining interest until 1906, when first lode location in area was made.

p. 150-151 -- Most of data from Paige and Knopf, 1907 (B 327). Project to mine bench gravels downstream from Wet Gulch apparently was abandoned.

Brooks, 1912 (B 520), p. 37 -- Mining, 1911 [may have been on Grubstake Gulch].

Brooks, 1913 (B 542), p. 44 -- Mining, 1912 [may have been on Grubstake Gulch].

Capps, 1914 (B 592), p. 250-253 -- Preliminary to Capps, 1915 (B 607).

Brooks, 1915 (B 622), p. 47-48 -- Has been placer mining; some gold recovered incidental to prospecting, 1914.

Capps, 1915 (B 607), p. 52-55 -- Most placer mining in basin has been on Grubstake Cr. and on Willow Cr. at mouth of Grubstake. Gold in benches near Wet Gulch has not been mined on any appreciable scale. Historical data same as in earlier reports.

Capps, 1916 (B 624), p. 200 -- Bench gravels near mouth of Grubstake Cr. being prospected by hydraulicking, 1915.

Brooks, 1918 (B 662), p. 47-48 -- A little gold recovered incidental to performing assessment work, 1916.

Brooks, 1922 (B 722), p. 41-42 -- Total placer production has been worth about $30,000 [about 1,450 fine oz. of gold]; began in 1897; none for the last 10 years [as of 1920]. [This production figure probably includes that from Grubstake Cr.].

Ray, 1933 (B 849-C), p. 188 -- Placer gold discovered in district in 1897; several thousand dollars worth recovered between 1897 and 1905 from Grubstake Gulch and Willow Creek; very little since then. Derived from quartz veins in schist.

p. 228 -- Gold derived from quartz veins in mica schist, including those at Clyde Thorpe lode property.

(Willow Cr.) -- Continued

Smith, 1939 (B 910-A), p. 43-44 -- For a number of years (as of 1937) there has been small placer-gold production; area underlain by schist.

Smith, 1939 (B 917-A), p. 41 -- Same statement as in Smith, 1939 (B 910-A).

Capps, 1940 (B 907), p. 176 -- Has been placer mining; data from older reports.

Moxham and Nelson, 1952 (C 184), p. 5 -- Panned concentrate samples contained as much as 0.004% eU.

Jasper, 1962, p. 81-82 -- Prospect holes drilled, 1959. 2,000 yd^3 mined in 1960. More drilling, 1962.

Jasper, 1966 (GC 7), p. 3 -- Past efforts at placer mining have not been successful.

Cobb, 1973 (B 1374), p. 19 -- Grubstake Gulch and part of Willow Cr. immediately below mouth of gulch have probably accounted for well over half the placer gold from the Willow Creek district. Gold derived from quartz veins in mica schist country rock; most probably from basin of Grubstake Cr. Claims staked as early as 1897; mining still in progress in 1969.

MacKevett and Holloway, 1977 (OF 77-169A), p. 7, locs. 56, 57 -- References to Paige and Knopf, 1907 (B 327), Capps, 1915 (B 607), and Jasper, 1962.

Wolverine	Copper, Gold
Willow Creek district	Anchorage (5.25, 14.1)
MF-409, loc. 4	61°48'N, 149°23'W

Summary: Quartz veins in shear zones in quartz diorite carry gold (as much as 3.6 oz. a ton, but commonly less than 0.5 oz. a ton), pyrite, arsenopyrite, and a little chalcopyrite. Small pod of bornite in quartz diorite near a vein. Explored by about 475 ft. of underground workings and surface excavations. No known production.

Jasper, 1962, p. 75-79, 84 -- 3 claims explored over the last 35 years (as of 1962) by about 475 ft of underground workings, open-cuts, and trenches. Workings have exposed 4 faults and 16 shear zones. Country rock is quartz diorite cut by a granite dike. Shear zones with general easterly strikes and northward dips contain quartz veins as much as 16 in. wide; quartz also is in narrow stringers in silicified quartz diorite. Total sulfides estimated to make up less than 2% of quartz veins; sulfides are pyrite, arsenopyrite, and minor chalcopyrite. Small pod of bornite found in country rock near a quartz vein. Assays of samples ran as high as 3.6 oz. a ton gold; most ran well below 0.5 oz. a ton.

MacKevett and Holloway, 1977 (OF 77-169A), p. 4, loc. 4 -- Reference to above.

Unnamed occurrence

Chromite

Willow Creek district
MF-409, loc. 46

Anchorage (11.4, 11.0)
61°37'N, 148°38'W

Summary: Chromite-rich layers ½ to 1 in. thick at the bases of "bed" 6-12 in. thick in olivine cumulate comprise about 5% of exposure; not economic.

Clark, 1972 (OF 522), p. 5 -- Chromite-rich layers ½ to 1 in. thick (30%-60% opaque minerals) at the bases of beds 6-12 in. thick in olivine cuculate. Chromite-rich layers comprise about 5% of total outcrop. Concentration of chromite not economic.

MacKevett and Holloway, 1977 (OF 77-169A), p. 6, loc. 35 -- Reference to above.

Unnamed occurrence	Gold, Lead, Silver
Anchorage district	Anchorage (7.5, 0.45) 61°01'N, 149°07'W

Summary: Thin vein (average thickness 7 in.) of shattered quartz contains galena, pyrite, and limonite. Assays show 0.01 oz. a ton gold, 1.4 oz. a ton silver, and 1.12% lead. Vein exposed by an open cut.

Park, 1933 (B 849-G), p. 421 -- Shattered quartz vein 1 in. to 2 ft. (average about 7 in.) thick in banded argillite and graywacke strikes N 50° W and dips 40° W; contains galena, pyrite, and limonite. Sample assayed 0.01 oz.a ton gold, 1.4 oz.a ton silver, and 1.12% lead. Vein exposed in an open cut.

Unnamed occurrence

Lead

Anchorage district
MF-409, loc. 92

Anchorage (8.75, 10.25)
61°35'N, 148°57'W

Summary: Float concentrate contained traces of galena.

Jasper, 1967 (GC14), p. 31 -- Float concentrate contained traces of galena.

Unnamed occurrence	Talc (soapstone)
Willow Creek district	Anchorage (5.25, 12.8) 61°44'N, 149°22'W

Summary: Talc (soapstone) associated with serpentinite in shear zone in Upper Paleozoic metamorphic rocks.

MacKevett and Holloway, 1977 (OF 77-169A), p. 10, loc. 143 -- "Talc (soapstone) associated with serpentinite in a shear zone that cuts Upper Paleozoic metamorphic rocks."

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. Many descriptions of some groups of deposits give information applicable to most or all of the individual occurrences, so the names of all the prospects or mines and their owners and operators are in this section with a notation to refer to the description of the entire group, which commonly is a geographic location and therefore shown in parentheses.

Agra -- see Agostino
Alaska Crow Creek Mining Co. -- see (Crow Cr.)
Alaska Free Gold -- see Martin
Alaska Free Gold Mining Co. -- see Gold Cord, Martin, Rae-Wallace
Alaska Gold Exploration & Development Co. -- see Agostino

Alaska Gypsum Products Co. -- see (Sheep Mtn.)
Alaska Gypsum Queen Corp -- see (Sheep Mtn.)
Alaska Hoosier Co. -- see (Willow Cr.)
Alaska Gold Quartz (Mining Co.) -- see Independence
Alaskan Wonder -- see Simonton & Mills

Alaska-Pacific Consolidated Mining Co. -- see Independence
Alaska Placer Gold Mining Co. -- see (Alfred Cr.)
Anchorage Gold Mines Co. -- see Lane
Anchorage Gypsum Products Co. -- see (Sheep Mtn.)
Anna -- see Agostino

Austin -- see Snow King
Babcock-McCoy -- see McCoy
Barnes -- see Agostino
Bartholf, B., & Bartholf, C. -- see Gold Cord
Bartholf, C. -- see Rae-Wallace

Bartholf, W. -- see Gold Bullion
Bartholf, W., & Bartholf, E. -- see (Willow Cr.)
Bartholf, Horning & Black -- see Gold Cord
Big Mogul -- see (Pioneer Cr.)
Black -- see Paymaster

(Boulder Cr.) -- see (Schoonoven Cr.)
Bralaska Mining Co. -- see Independence, Martin
Brooklyn (Development Co.) -- see Kelly-Willow
Brooklyn-Willow Creek Gold Mining Co. -- see Kelly-Willow
Brown -- see (Wet Gulch)

Bruno Agostino (Mining Co.) -- see Agostino
Bullion -- see Gold Bullion
Burr -- see Mary Ann
(Caribou Cr.) -- see (Alfred Cr.)
Carle -- see Independence

Conroy -- see Webfoot
Conroy & Marion -- see (Jim Cr.)
Consolidated Gold Mines -- see Alaska-Willow Creek, Newman & Miller, Talkeetna
Consolidated (Mining Co.) -- see Talkeetna
Conwest Exploration Co. -- see Lucky Shot

Crow Creek Consolidated Mining Co. -- see (Crow Cr.)
Crow Creek Gold Corp. -- see Agostino, Jewel
Crow Creek Mining Co. Inc. -- see Agostino
Danich -- see Gullysack
Dodson -- see Fern

Doheny & Thomson -- see Gold Bullion
Dolores -- see Grimes
Eagle -- see Agostino, Jap
(Eagle Cr.) -- see Eagle River
Edlund -- see Agostino

Elder & Thorpe -- see Thorpe
Eldorado -- see Martin
Erickson -- see (Crow Cr.)
Eureka -- see Griset & Benson
Evening Star -- see Rae-Wallace

Fairangel -- see Talkeetna
Fennimore -- see (Sheep Mtn.)
Fern & Goodell -- see Fern
Fern Gold Leasing Co. -- see Fern
Fern Gold Mining Co. -- see Fern

Fern, Taulman & Goodell -- see Arch
Fiske & Reed -- see Reed & Fiske
Free Gold (Mining Co.) -- see Martin
Gaikema & Conroy -- see Fern, Webfoot
Gem -- see Little Gem

Giant Gold Mining Co. -- see Marmot
Gilbert -- see (Grubstake Gulch)
Girdwood -- see (Crow Cr.)
Glacier -- see Lane
Gold Center -- see Kelly-Willow

Gold Bullion Mining Co. -- see Gold Bullion
Gold Dust -- see Gold Bullion
Golden Bear Mining Co. -- see Gold Cord
Golden Top -- see Kempf
Golden Wonder -- see Gold Bullion

Gold King -- see Brassel Bros.
Gold Mint -- see Lonesome
Gold Top Syndicate -- see Kempf
Hanson -- see Wolverine
Hanson & Richter -- see Homebuilder

Hartung & Murphy -- see Bailey
Hatcher -- see Little Gem, Lonesome
Herning -- see (Grubstake Gulch), (Willow Cr.)
Hi Grade -- see High Grade
Hill -- see (Grubstake Gulch), (Willow Cr.)

Hill & Cope -- see Lonesome
Hillis -- see Fern
Holland -- see Little Willie
Holmgren -- see Jewel
Holmgren-Erickson -- see (Crow Cr.)

Homestake -- see Martin
Horning, Bartholf, Miller & Rock -- see Lucky Shot, War Baby
Hornung & Bartholf -- see Gold Cord
Hottentot -- see Bahrenberg
Independence Gold Mines Co. -- see Independence

Independence (Gold) Mining Co. -- see Independence
Independent -- see Independence
Jennings -- see Rae
Jessie B. -- see (Peters Cr., trib. Knik Arm)
Johnson -- see Lonesome

Kelly (Mines) Co. -- see Independence, Kelly-Willow, Martin
Klondike & Boston Co. -- see (Grubstake Gulch), (Willow Cr.)
Klondike Boston (Mining) Co. -- see (Grubstake Gulch), (Willow Cr.)
Kloss and associates -- see High Grade
Kloss & Snyder -- see High Grade

Larsen -- se Idamar
Leona -- see Brassel Bros.
Lindblad -- see (Crow Cr.)
Little Gem Gold Mining Co. -- see Little Gem, Webfoot
Long & Holland -- see Little Willie

Loveland-Alaska Mining Co. -- see Mabel
Mabel Mining (, Milling & Power) Co. -- see Mabel
Marion Twin (Gold) Mining Co. -- see Lonesome, Marion Twin
Mary -- see Jap
Matanuska (Gold Mining Co.) -- see Talkeetna

Mayflower -- see Eagle River
McCallie -- see Moose Creek
McDougall -- see Fern
Miller-Newman -- see Newman & Miller
(Miners Bay) -- see (Miners R.)

Mint -- see Lonesome
Monarch-Jewel -- see Agostino, Jewel
Monarch (Mining Co.) -- see Agostino
Moon -- see Rae-Wallace
Morning Star -- see Rae-Wallace

Morris & Herndon -- see (Willow Cr.)
Murphy & Hartung -- see Bailey
New Bullion -- see Gold Bullion
North Homestake -- see Martin
Northwestern -- see Moose Creek

Nutter-Dawson (Mining) Co. -- see (Crow Cr.)
Oregon -- see Stiles
Patchell -- see Bahrenberg
Pearl -- see Lane
Pioneer -- see (Pioneer Cr.)

(Pioneer Peak) -- see (Pioneer Cr.)
Rapp & Till -- see Gold Bullion
Ray-Wallace (Mining Co.) -- see Rae-Wallace
Ready Bullion -- see Gold Bullion
Red Hills -- see Fern

(Reid Cr.) -- see (Reed Cr.)
Renshaw -- see Gold Cord
Richter -- see Homebuilder
Rosenthal -- see Rae-Wallace
Ruth -- see Agostino

Rutland -- see Fern
Ryan and associates -- see Highway
Shough -- see Stiles
Skarstad (& Laubner) -- see Opal
Skinner, Johnson & Ohlson -- see (Pioneer Cr.)

Smith (& Swan) -- see Gold Cord
South Homestake -- see Martin
Spruce -- see Griset & Benson
Staser -- see Agostino
Stella -- see Agostino

Styles -- see Agostino, Stiles
Sumner & Andrulli -- see (Metal Cr.)
Sun -- see Rae-Wallace
Tar Flat -- see Black & Hogan
Teddy -- see Lane

Thomas -- see Martin
Tony -- see Agostino
Treasure Box -- see Bahrenberg
Trickster -- see Rae-Wallace
(Twin Peaks) -- see (Eklutna Cr.)

Wadman -- see (Crow Cr.)
(West Twin Peak) -- see (Eklutna Cr.)
Willow Creek Mines (, Inc.) -- see Gold Bullion, Lucky Shot, Panhandle, War Baby
Willow Creek Mines Co. -- see Gold Bullion, Kelly-Willow, Nugget
Willow Creek Mines, Ltd. -- see Gold Bullion, Lucky Shot, War Baby

Willow Creek Mining Co. -- see Gold Bullion, Lucky Shot, War Baby
Wilson -- see Maverick
Yago -- see Jap

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