



Summary of references to mineral occurrences (other than mineral fuels and construction materials) in the Sillingham, Sleetmute, and Taylor Mts. quadrangles, Alaska / by E.H. Cobb. 1976.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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series]

SUMMARY OF REFERENCES TO MINERAL OCCURRENCES

(OTHER THAN MINERAL FUELS AND CONSTRUCTION MATERIALS)

IN THE DILLINGHAM, SLEETMUTE, AND TAYLOR MOUNTAINS QUADRANGLES,

ALASKA

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Journals



OPEN-FILE REPORT 76-606

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

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Menlo Park, California
1976

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By

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Edward H. Cobb, 1916-

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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 Dillingham, Sleetmute, and Taylor Mountains quadrangles in southwestern Alaska. All references to reports of the Geological Survey, to most reports of the U.S. Bureau of Mines, and to most reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before January 1, 1976, are summarized. Certain, mainly statistical, reports such as the annual Minerals Yearbook of the U.S. Bureau of Mines and the biennial and annual reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies are not included.

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

Summaries of References

For each mineral occurrence there is a page that gives the name of the occurrence; the mineral commodities present (listed alphabetically for metallic commodities and then for nonmetallic commodities); the mining district (Ransome and Kerns, 1954) in which the occurrence is located; the name of the 1:250,000-scale topographic quadrangle; coordinates (as described by Cobb and Kachadoorian, 1961, p. 3-4); the metallic mineral resources map number (Cobb, 1972, in the reference list for each quadrangle) and the occurrence number on that map if the occurrence is shown; and the latitude and longitude of the occurrence. These data, presented at the top of the page, are followed by a short, general summary of the published information on the occurrence. This is followed (continued on additional pages, if necessary) by more detailed summaries, arranged chronologically, of all references to the occurrence. Material in brackets is interpretive or explanatory and is not in the summarized reference.

Proper names of mines, prospects, and other mineral occurrences are given if such names appear in the reports summarized. If a deposit does not have such a name, but is near a named geographic feature, the name of that feature is shown in parentheses in lieu of a proper name. If a deposit has no proper name and is not near a named geographic feature, it is titled "Unnamed occurrence" and appears at the end of the list. If a part of a proper name is not always used in a reference, that part of the name is shown in parentheses. This is most common in company names and in place names with minor variations in spelling.

Citations are given in standard bibliographic format with the exception that references to reports and maps in numbered publication series also show,

in parentheses, an abbreviation for the report or map series and the report or map number. Abbreviations used are:

B	U.S. Geological Survey Bulletin
C	U.S. Geological Survey Circular
GC	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geochemical Report
IC	U.S. Bureau of Mines Information Circular
OF	U.S. Geological Survey Open-file Report (numbers are informal and used only within the Alaskan Geology Branch of the U.S. Geological Survey)
MF	U.S. Geological Survey Miscellaneous Field Studies Map
P	U.S. Geological Survey Professional Paper
RI	U.S. Bureau of Mines Report of Investigations
TDM	Alaska Territorial Department of Mines Pamphlet
USBM OF	U.S. Bureau of Mines Open-file Report

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

References cited only in these introductory paragraphs are:

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

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

Humble Oil & Refining Co.

Iron

Bristol Bay region
MF-375, loc. 2

Dillingham (11.25-12.3, 11.7-12.7)
59°40'-59°47'N, 157°36'-157°43'W

Summary: A buried deposit of titaniferous magnetite disseminated in pyroxenite contains several billion tons of material containing 15-17 percent total iron. No ore has been produced.

Berg and Cobb, 1967 (B 1246), p. 11 -- Large buried iron deposit discovered by airborne geophysical exploration in 1959. Exploratory diamond drilling disclosed several billion tons of material containing 10.5-12 percent magnetite iron and 15-17 percent total iron. Deposit is titaniferous magnetite disseminated in pyroxenite.

Eakins, 1968 (GC 17), p. 8 -- Large low-grade magnetite deposit; several billion tons of material containing 15-17 percent total iron.

(Koktalee R.)

Gold

Bristol Bay region

Dillingham

NE 1/4 NE 1/4 quad. (?)

Summary: Fine flour gold on river bars.

Katz, 1910 (B 442), p. 202 -- Preliminary to B 485.

Martin and Katz, 1912 (B 485), p. 133 -- Fine flour gold found on all river bars.

Smith, 1915 (B 622), p. 263 -- Quotation from B 485.

Smith, 1917 (B 655), p. 136 -- Quotation from B 485.

(Lake Nerka)

Gold

Bristol Bay region

Dillingham (1.75, 9.0) approx.
59°30'N, 158°45'W approx.

Summary: A little placer gold reported.

Eakins, 1968 (GC 17), p. 8 -- A little placer gold reportedly was found at a small lake between the two arms of Lake Nerka.

(Marsh Mtn.)

Mercury

Bristol Bay region
MF-375, loc. 3

Dillingham (4.15-4.25, 1.6-2.1)
59°02'N, 158°32'W

Summary: Graywacke and shale of Gemuk Gp. (Carboniferous (?) to Cretaceous) in open fold cut by major fault zone with undetermined amount of right-lateral displacement. Fault zone is complexly sheared and brecciated through width of more than 100 ft. Cinnabar is the only ore mineral and occurs disseminated and as pods and veinlets up to 4 in. wide and 30 ft. long. Gangue is dolomite or ankeritic dolomite, calcite, and locally dickite. Ore localized along open channels; some deposited in open spaces; some replaced breccia fragments and dolomite. Ore only where wall rock is graywacke. Placer cinnabar discovered in Arcana Cr. in 1941 and traced to lode source in 1942. Lode explored by 10,000 ft. of trenches and 560 ft. of underground workings. Production (all from lode) was 60 flasks of mercury; more ore stockpiled. Placer deposit thin and lean. Includes references to: (Arcana Cr.), Feeder, Red Top, 3 "W".

Joesting, 1943 (TDM 2), p. 18 -- A cinnabar lode and associated placers reported by Frank Waskey, 1942 or early 1943.

Webber and others, 1947 (RI 4065), p. 54-57 -- Placer cinnabar found in Arcana Cr., 1941; 4 placer claims staked. Float traced to lode, 1942. Test shipment of 470 lbs. high-grade hand-picked ore from prospect pits, 1942; analyzed 1,287 lbs. mercury per ton. Placers are shallow, poorly sorted, and contain only a little cinnabar in pieces up to half an ounce; richest in fan at mouth of a tributary that drains area of lode. Sampling and sluicing from a small cut showed no more than 1.66 lbs. mercury per cu. yd.; some of cinnabar on clay false bedrock. Lode appears to be along bedding planes in graywacke. A few trenches and pits exposed erratic ore zones of cinnabar and calcite.

Pennington, 1959 (IC 7941), p. 12 -- Recent exploration; ore estimated to contain 1,400 flasks of mercury was discovered.
p. 85 -- DMEA contract.

Sainsbury and MacKevett, 1960 (P 400-B), p. B36-B38 -- Mine has had small production. Ore along a steep fault zone where it intersects minor folds that plunge southward. Fault zone is parallel to regional attitude of graywackes and siltstones of Gemuk Gp. (Carboniferous to Cretaceous). Ore is cinnabar in dolomite gangue; localized in breccia zones and veinlets along fractures in graywacke; no cinnabar in siltstone. Two adits; some material on a dump runs 1.1% Hg.

Malone, 1962 (IC 8131), p. 8 -- Had been found before World War II; reference to RI 4065.

p. 51-54 -- Ore in brecciated zone (100 or more feet wide) in graywacke; ore in 2 parallel series of stringers about 50 ft. apart. 550 ft. of drifts and crosscuts (DMEA contract). Mineralization extends downward without improvement in grade. A few flasks of mercury has been produced.

Malone, 1965 (IC 8252), p. 32-33, 51, 56 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 3 -- Ore (not yet fully explored) was discovered with DMEA loan.

p. 57-66 -- Placer cinnabar discovered in Arcana Cr. in 1941 and traced to lodes. Under DMEA contracts 10,000 ft. of bulldozer trenches were

excavated and 560 ft. of underground workings driven; another adit driven by mining companies (1952-58); total production was 60 flasks of mercury; ore that would yield at least as much was stockpiled in 1959. Area is underlain by graywacke and siltstone of the Gemak Gp. (Carboniferous (?) to Cretaceous); fairly open folds. Fault zone with an undetermined amount of right-lateral displacement is complexly sheared and brecciated (particularly noticeable in underground workings); more than 100 ft. wide. Cinnabar is only ore mineral (no stibnite); gangue is dolomite or ankeritic dolomite and calcite; locally some dickite; quartz scarce. Some argillized rock contains specks of pyrite. Mineralizing solutions introduced along fault zone; ore deposited along open channels. Some ore replaced breccia fragments and dolomite. Some movement along faults was post-ore. All cinnabar where wall rock is graywacke; none in siltstone.

Berg and Cobb, 1967 (B 1246), p. 11 -- Cinnabar localized along a 100-foot-wide steeply dipping fault zone cutting folded graywacke and siltstone. Gangue is secondary iron minerals, dolomite, and minor amounts of clay. About 60 flasks of mercury recovered, 1952-55.

Eakins, 1968 (GC 17), p. 4 -- Reference to B 1187 and statement that in 1967 stockpiled ore was being hand sorted.

p. 7-8 -- Discovered, 1941. Ore localized along open channels in zone where a major fault zone cuts a large fold. 10,000 ft. of trenching and 560 ft. of adits and drifts exposed a 100-foot-wide shear zone that can be traced on surface for 2,000 ft. Cinnabar occurs as fine disseminations and as pods and veinlets up to 4 in. wide and 30 ft. long. Limonite associated with deposit; no stibnite.

Hawley and others, 1969 (C 615), p. 18-20 -- Reference to B 1187. Analyses of 2 ore samples; gold less abundant than in several common rock types.

(Muklung Hills)

Gold

Bristol Bay region

Dillingham (7.0, 7.0) approx.
59°25'N, 158°15'W approx.

Summary: Coarse gold on tributary of Kokwok R. on NE slopes of Muklung Hills.

Mertie, 1938 (B 903), p. 91 -- Some coarse gold has been found in a tributary of the Kokwok R. along the NE slopes of the Muklung Hills.

Eakin, 1938 (GC 17), p. 8 -- Placer gold has been found on NE side of Muklung Hills.

(Mulchatna R.)

Gold

Bristol Bay region

Dillingham
NE 1/4 quad.

Summary: Fine flour gold on river bars above mouth of Kuktalee (Koktuli) R.
Some of very small amount of gold from Mulchatna R. probably comes
from part of stream in Dillingham quadrangle.

Katz, 1910 (B 442), p. 202 -- Preliminary to B 485.

Martin and Katz, 1912 (B 485), p. 133 -- Fine flour gold on all river bars
above Kuktalee R.

Smith, 1915 (B 622), p. 263 -- Quotation from B 485.

Smith, 1917 (B 655), p. 136 -- Quotation from B 485.

Cobb, 1973 (B 1374), p. 12 -- Mulchatna R. known to be auriferous and the source
of very small amounts of gold in late 1800's and early 1900's.

(Wood R.)

Mercury (?)

Bristol Bay region

Dillingham

W 1/2 SW 1/4 quad.

Summary: Cinnabar in gravels reported. No source of data given; no mention of such an occurrence in any other reports, so this one is suspect. Occurrence may be Arcana Cr. See also (Marsh Mtn.).

Malone, 1962 (IC 8131), p. 57 -- Reported to carry cinnabar in gravels.

Malone, 1965 (IC 8252), p. 56 -- Reference to IC 8131.

Alice & Bessie

Antimony, Mercury

Aniak district
MF-368, loc. 7

Sleetmute (13.75, 14.2)
61°48'N, 157°20'W

Summary: Cretaceous graywacke and shale intruded by dikes and sills now altered to a mixture of clay and carbonate minerals, quartz, and limonite; relict diabasic texture. Bedding-plane faults extend into intrusive bodies. Ore is cinnabar, stibnite, and pyrite in quartz-carbonate-clay gangue in veins and veinlets (no more than 1 ft. thick and as much as 50 ft. long) in fractured igneous rocks and graywacke and along faults. Debris in small stream nearby contains much native mercury. Discovered, 1906, and developed by surface diggings and several hundred feet of adit and drift. Production about 120 flasks of mercury before 1924 and possibly a little more in early 1930's. Exploration (mainly trenching) in 1950's did not result in production, but some ore was stockpiled in trenches. Includes references to Parks unless specifically to Barometer.

Brooks, 1915 (B 622), p. 67 -- Has been small production of quicksilver [as of 1914].

Smith, 1915 (B 622), p. 266 -- Stibnite present.

Smith and Maddren, 1915 (B 622), p. 272, 274-280, 288 -- Preliminary to B 655.

Brooks, 1916 (B 649), p. 45 -- Reference to and quotation from B 622, p. 274-280.

Mertie and Harrington, 1916 (B 642), p. 259 -- Reference to B 622, p. 274-280.

Smith, 1917 (B 655), p. 139-144 -- Discovered, 1906. Small-scale development work ever since [as of 1914]. 700 lbs. mercury produced, using small retort. Adit 200 ft. long from river bluff and several prospect pits and shafts. Country rock is sandstone and shale of probable Upper Cretaceous age; shattered and slickensided near mineralized area. Adit penetrates 2 dikes of altered rock that apparently was a rhyolite or dacite. Ore in shattered sedimentary rocks near dikes. One is mixed stibnite and cinnabar in veins and anastomosing stringers and lenses. Minor pyrite appears to be of a different age. Gangue is variable, but mainly quartz and siderite or ferruginous dolomite. Some quartz crystals in vugs have cinnabar crystals grown on them. Debris in small stream near adit mouth contains much native mercury.

p. 147 -- Mercury minerals near dikes.

p. 152 -- Stibnite present.

Brooks, 1918 (B 662), p. 25, 60 -- Development work continued, 1916.

Brooks, 1919 (B 666), p. 97 -- Some cinnabar has been retorted and the mercury sold to placer miners on Seward Peninsula.

Brooks, 1921 (B 714), p. 39-40 -- Some cinnabar has been retorted and the mercury sold to placer miners on Seward Peninsula.

Brooks and Martin, 1921 (B 714), p. 93-94 -- About 30 men employed, 1919.

Brooks, 1922 (B 722), p. 23, 60 -- Mine operated, 1920.

Brooks, 1923 (B 739), p. 13 -- Some underground work, but no production, 1921.

Mertie, 1923 (B 739), p. 159 -- An example of dikes and small intrusive bodies as metallizing agents.

Mertie and Harrington, 1924 (B 754), p. 117 -- Reference to B 622 [same as B 655]. Mining, 1919, but none reported for 1920 [Brooks in B 722 reported mining in 1920].

Brooks, 1925 (B 773), p. 47 -- Reference to B 622 [same as B 655]; also, small production until 1921.

- Smith, 1929 (B 797), p. 41 -- Small-scale operation, 1926.
- Smith, 1932 (B 824), p. 79-80 -- Small-scale operation, including small production, 1929.
- Smith, 1933 (B 836), p. 81 -- Small production, 1930.
- Smith, 1933 (B 844-A), p. 79 -- 60 tons of ore mined, 1931; some retorted.
- Smith, 1934 (B 857-A), p. 74 -- 35 tons of ore mined, 1932; most retorted.
- Smith, 1934 (B 864-A), p. 79 -- May have been a little mining, 1933.
- Mertie, 1936 (B 864-C), p. 243-244 -- Reference to B 622 [same as B 655]; also, small intermittent production to 1933.
- Smith, 1936 (B 868-A), p. 81 -- Negotiations for starting new developments on an enlarged scale, 1934.
- Smith, 1937 (B 880-A), p. 86 -- Arrangements made for large-scale systematic prospecting, which did not begin in 1935.
- Smith, 1938 (B 897-A), p. 97 -- During 1936 5 men were prospecting. Development work [probably including all since 1906] consisted of numerous open cuts and pits, an adit 600 ft. long with a drift 110 ft. long 75 ft. from face. Country rock is Upper Cretaceous (?) shale and sandstone cut by dikes and sills that have been hydrothermally altered, largely to clayey material. Cinnabar, stibnite, pyrite, and chalcopyrite [only reference in which chalcopyrite is mentioned; report is therefore suspect] in dikes and wall rocks. Some very rich bunches of intergrown stibnite and cinnabar in lenses and vugs; lenses parallel to bedding of sandy shale. Other prospecting in area.
- Joesting, 1942 (TDM 1), p. 24 -- Reference to B 655.
- Smith, 1942 (B 933-A), p. 90-91 -- Legal complications following death of owner (Parks) precluded negotiations for property in 1940. [Possibly this also applies to Barometer.]
- Bain, 1946 (IC 7379), p. 63 -- Produced 120 flasks of mercury, 1906-23.
- Webber and others, 1947 (RI 4065), p. 8-9 -- Reference to B 622 [same as B 655].
- p. 19-23 -- 2 unpatented claims. Production, 120 flasks from 1906 to 1923, sold locally to placer gold miners. No production since 1923. Underground workings consisted of adit 525 ft. long and a drift 240 ft. long on an ore zone. Also many shallow surface excavations. Bedrock is graywacke and shale with altered sill-like andesite intrusive bodies. All ore associated with altered andesite. 3 ore bodies; one that was mined, one on bank above adit, and one in river bed. Details of USBM sampling program.
- Cady and others, 1955 (P 268), p. 65 -- Extensive biotite basalt sill.
- p. 109-110 -- Discovered, 1906. Regional bedrock is interbedded graywacke and shale of Kuskokwim Gp. (Cretaceous) intruded by sheets, sills, and dikes of silica-carbonate rock and albite rhyolite. Mine has not produced since 1923. Total production of about 100 flasks came mainly from surface pits. 765 ft. of adit and drift. Ore (cinnabar and some stibnite) in zones in and adjacent to a silica-carbonate sill 5-20 ft. thick and at least 700 ft. long; in fractures nearly perpendicular to sill and bedding; also disseminated in sill. Ore also found associated with a dike and in bed of Kuskokwim R.
- Pennington, 1959 (IC 7941), p. 12 -- Small production, reserve of indicated ore.
- Jasper, 1961, p. 69-70 -- Claims staked, 1906. Trenching, an adit, and a 200-ft. crosscut during next 18 years; 120 flasks mercury produced for local placer miners. Underground workings extended to 765 ft. in 1936. USBM trenching and sampling in 1942 disclosed 3 ore bodies. Some bedrock ground sluiced clean in 1954; no discoveries. More surface work and drilling, 1956; results not encouraging. Ore (cinnabar-stibnite) deposited along cross-fracture

system in a sill; post-ore movement along fractures; horizontal displacements of 5-20 ft. More stripping and a winze sunk in 1957.

Malone, 1962 (IC 8131), p. 7-8 -- Reference to B 655. Deposit found before World War II. Reference to RI 4065.

p. 13 -- On NE flank of an anticline. Altered diabasic (?) dikes and sills.

p. 15 -- Dikes at Red Devil, Barometer, Willis and Park appear megascopically to be about the same.

p. 34-36 -- Discovered, 1906. Production to end of 1959 estimated at 130 flasks of mercury. Country rock is graywackes and shales. Cinnabar mineralization associated with altered andesite sills and dikes. 3 ore zones, including one in bed of Kuskokwim R. Most mineralization in andesite, but some in wall rock.

MacKevett and Berg, 1963 (B 1142-G), p. G7 -- Relict diabasic textures in thin sections of dikes.

Malone, 1965 (IC 8252), p. 32, 41-43, 53 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 2-3 -- Reference to RI 4065.

p. 11-15 -- Staked in 1906. By 1923 had produced and sold 120 flasks of mercury for local use. Underground and surface exploration from time to time through 1958. No recent production, but rich ore stockpiled in trenches. Bedrock is graywacke and shale intruded by several dikes and sills that are extensively altered to a mixture of clay minerals, quartz, carbonate minerals, and limonite. The sill has crosscutting apophyses and blocky contacts that follow joint orientations in the sedimentary rocks. A dike is offset by bedding-plane faults. Ore is cinnabar, stibnite, and pyrite in quartz-carbonate-clay gangue; in fractures in brittle rock in sill and bordering graywacke and in fractures along bedding-plane faults that extend into igneous rocks. Ore bodies are veins and veinlets no thicker than 1 ft. and as much as 50 ft. long. Adit 540 ft. long with a drift 220 ft. long cut to explore hanging wall of a sill.

Berg and Cobb, 1967 (B 1246), p. 89, 92 -- Staked in 1906, developed by several hundred feet of underground workings and shallow surface diggings. About 120 flasks of mercury produced and sold to local placer miners before 1924.

Hawley and others, 1969 (C 615), p. 16, 18-19 -- Reference to B 1187 and analysis of sample of ore .

Ammiline

Antimony (?), Mercury

Aniak district

Sleetmute (13.75, 14.2)

MF-368, loc. 7

61°48'N, 157°20'W

Summary: Cinnabar in fractures in albite rhyolite that intrudes Cretaceous sedimentary rocks. Cady and others mention stibnite as a vein constituent on p. 70, but not on p. 111; reference on p. 70 may refer to stibnite at Fairview prospect only.

Cady and others, 1955 (P 268), p. 70 -- Quartz-stibnite-cinnabar veins cut rhyolite.

p. 111 -- Cinnabar occurs in fractures in albite rhyolite.

Sainsbury and MacKevett, 1965 (B 1187), p. 20 -- Cinnabar in fractures in albite rhyolite that intrudes sedimentary rocks of [Cretaceous] Kuskokwim Gp. Data from P 268, p. 111.

Barometer

Antimony, Mercury

Aniak district
MF-368, loc. 10

Sleetmute (13.85, 13.7)
61°46'N, 157°20'W

Summary: Cretaceous shale and graywacke are cut by dikes now altered to rocks made up mainly of silica and carbonate minerals. Igneous and sedimentary rocks cut by faults parallel to bedding planes. Ore may be localized by dikes and faults. Cinnabar, stibnite, realgar, and orpiment deposited along joints and fractures. Several discrete ore zones. Developed by adit, crosscut, pits, and trenches. Production was 16 flasks of mercury in 1938 and 1940. Some ore mined more recently during assessment work (50-75 tons in 1961, for example). See also: Alice & Bessie [some of references to Parks may include Barometer], (Napamute).

Brooks, 1922 (B 722), p. 60-61 -- Stibnite-realgar lode reported to have been discovered, 1920. Said to be no cinnabar. 100-ft. adit said to have been driven. Reported by E. W. Parks.

Joesting, 1942 (TDM 1), p. 24 -- Lode cinnabar deposit.

Bain, 1946 (IC 7379), p. 63 -- Mercury prospect.

Webber and others, 1947 (RI 4065), p. 9 -- Lode discovered, 1921.

p. 24-27 -- 6 unpatented claims; same ownership as Alice & Bessie. Discovered, 1921. Explored by adit 122 ft. long and a crosscut. 10 flasks mercury retorted from float ore and some from a pit in 1938. A few more flasks recovered in 1930 and in 1939 and 1940 during assessment work. Bedrock mainly shale with some sandstone and graywacke. More faulting than at neighboring prospects. Sulfides recognized are cinnabar, stibnite, realgar, orpiment; more arsenic than at neighboring prospects. Altered andesite intrusives present. Details of USBM trenching and sampling.

Cady and others, 1955 (P 268), p. 110 -- Surface pits and 175 ft. of underground workings. Discovered, 1921. Production was 10 flasks of mercury in 1938 and 6 flasks in 1940. Cinnabar distributed irregularly and unpredictably along bedding joints and in fault and fracture zones. Realgar and stibnite rather abundant. In shaly zone of interbedded graywacke and shale; intrusive silica-carbonate rock.

Jasper, 1961, p. 72-73 -- Discovered, 1921. Underground work consisted of 122-ft. adit and a crosscut. Production from float, a shallow pit, and during assessment work was 10 flasks in 1938 and a few more in 1939-40. More stripping and sampling in late 1950's. 50-75 tons of surface ore mined, 1961. Mineralization associated with andesite dikes in shale, graywacke, and sandstone. Ore is cinnabar, stibnite, and realgar.

Malone, 1962 (IC 8131), p. 8 -- Had been found before World War II. Reference to RI 4065.

p. 13 -- Altered diabasic (?) dikes and sills. Mine is on Red Devil fault (strike slip) zone.

p. 15 -- Dikes at Red Devil, Barometer, Parks, and Willis all appear megascopically to be about the same.

p. 37-39 -- Discovered, 1921. 8 flasks of mercury produced from 25 tons of ore in 1938. Small quantities produced later in connection with assessment work. Country rock largely shale. Hydrothermally altered intrusive rocks associated with mineralization. Cinnabar, stibnite, and realgar along bedding joints and in openings along faults and fracture zones, particularly near altered intrusives. 200 ft. of adit, crosscut, and drift.

Barometer - Continued

Reference to RI 4065 on USBM trenching and sampling. Trenching in 1957-58 found no new ore.

Malone, 1965 (IC 8252), p. 32, 38, 43, 53 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 18-19 -- Staked, 1921. Sporadic trenching until 1960; also a 122-ft. adit and a short crosscut. 16 flasks of mercury produced, 1938 and 1940. On SW limb of Sleetmute anticline in geologic setting similar to that of Red Devil. Cretaceous shale and graywacke cut by altered dikes and bedding faults. Several discrete mercury-bearing zones. Ore may be localized by intersections of dikes and bedding-plane faults. Ore is cinnabar, stibnite, and realgar in quartz gangue.

Berg and Cobb, 1967 (B 1246), p. 92 -- Discovered, 1921; developed by a 122-ft. adit, a crosscut, and pits and trenches. 16 flasks of mercury produced in 1938 and 1940 and a smaller amount during more recent assessment work.

(California Cr.)

Gold

Aniak district
MF-368, loc. 20

Sleetmute (11.6, 15.75) approx.
61°53'N, 157°35'W approx.

Summary: A little placer gold; bedrock in area is Cretaceous graywacke and shale cut by sheets of albite rhyolite. Geologically similar to Donlin Cr., Iditarod quadrangle.

Cady and others, 1955 (P 268), p. 69 -- Sheets of albite rhyolite cross bedding of strata [graywacke and shale of Kuskokwim Gp. (Cretaceous)]; similar to relations near Donlin Cr. [Iditarod quad.]. A little placer gold has been found.

p. 120 -- Has been prospecting.

(Central Cr.)

Gold

Aniak district
MF-368, loc. 19

Sleetmute (8.8, 15.7) approx.
61°53'N, 157°46'W approx.

Summary: Some placer gold; has been prospecting.

Cady and others, 1955 (P 268), p. 120 -- Has been prospecting. Some gold has been found; albite rhyolite intrusions abundant in general area. [Geologic map shows bedrock to be graywacke and shale of Kuskokwim Gp. (Cretaceous) in entire drainage basin.]

Cinnabar Chief

Mercury

Aniak district

Sleetmute (13.55, 14.4) (?)
61°49'N, 157°22'W (?)

Summary: Quicksilver deposit. Probably in area covered by Willis property.

Smith, 1929 (B 797), p. 41 -- Quicksilver deposit; prospecting or operating in 1926.

Joesting, 1942 (TDM 1), p. 24 -- Reference to B 797.

(Crooked Cr.)

Gold

Aniak district
MF-368, loc. 16

Sleetmute (6.1-6.2, 17.3-17.6)
61°59'-62°00'N, 158°15'W

Summary: Placer gold in benches east of creek; most of mining in part of basin in Iditarod quadrangle. See also (Donlin Cr.) Iditarod quad.
Note: Area shown as loc. 16, MF-368, possibly should be shown as entirely east of creek.

Maddren, 1915 (B 622), p. 351-353 -- Stream into which Donlin Cr. [Iditarod quad.] flows. Most of mining in basin was near Donlin Cr. Bedrock [Cretaceous] sandstone and shale cut by siliceous intrusive rocks. Placer gold in bench deposits east of creek; found as far downstream as mouth of Crevise Cr.

Cobb, 1973 (B 1374), p. 43 -- Mining [mainly in part of basin in Iditarod quad.] from 1910 to as recently as 1956.

(Egnaty Cr.)

Mercury

Aniak district
MF-368, loc. 3

Sleetmute (9.4, 15.2)
61°52'N, 157°52'W

Summary: USBM exploration program in 1966-67 found a little very fine-grained cinnabar in Cretaceous sandstone and graywacke and somewhat more in the overlying soil. No igneous rocks found near prospect.

Maloney, 1968 (USBM OF 16-68)-- In 1966-67 the USBM carried out an exploration program of auger sampling material above bedrock, bulldozer trenching, diamond drilling, and soil sampling. Bedrock is Cretaceous sandstone, graywacke, and minor shale. No igneous rocks were found near the prospect. Cinnabar was found in few places in the exposed bedrock, but could be panned from samples taken from overburden in trench walls and from about 100 of the 350 auger holes. Selected samples of sandstone and graywacke bedrock assayed almost 1 percent Hg; As and Sb were found only in trace amounts. No mineralization found in shale beds. Some drill-hole samples contained very fine-grained cinnabar.

(Eightmile Cr.)

Gold

Aniak district
MF-368, loc. 21

Sleetmute (11.7, 14.0) approx.
61°47'N, 157°36'W approx.

Summary: Has been prospecting; some placer gold present.

Cady and others, 1955 (P 268), p. 120 -- Has been prospecting; some placer gold present; albite rhyolite intrusions in general area. [Geologic map shows small albite rhyolite bodies on divides; rest of bedrock is all Cretaceous graywacke and shale of Kuskokwim Gp.]

Fairview

Antimony, Mercury

Aniak district

Sleetmute (13.55, 13.65)

MF-368, loc. 8

61°46'N, 157°22'W

Summary: Staked in 1935 or 1936. Only work was excavation of surface pits and trenches. Porphyritic albite rhyolite sill, about 120 ft. thick, intruded Cretaceous graywacke and shale. Cinnabar and stibnite veinlets in fractures in central part of sill. Some USBM samples contained as much as 8 lbs. mercury per ton of rock, but most were much leaner.

Bain, 1946 (IC 7379), p. 63 -- Mercury prospect.

Webber and others, 1947 (RI 4065), p. 27-28 -- First staked in 1935 or 1936.

Shale and sandstone intruded by fresh-appearing rhyolite dike. Cinnabar and stibnite mineralization localized by intersection of fracture zone and dike. USBM trenching found some samples with 8 lbs. mercury per ton of rock, but most were much leaner.

Cady and others, 1955 (P 268), p. 70 -- Quartz-stibnite-cinnabar veins cut rhyolite.

p. 111 -- A few surface pits and trenches. Cinnabar-stibnite veinlets in fractures in central part of porphyritic albite rhyolite sill (about 120 ft. thick) in interbedded graywacke and shale.

Malone, 1962 (IC 8131), p. 8 -- Discovered before World War II.

p. 38 -- Same data as in P 268, p. 111 [not cited]. Also reference to RI 4065.

Malone, 1965 (IC 8252), p. 32, 39, 53 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 19-20 -- Data from P 268 and RI 4065.

(Fortyseven Cr.)

Antimony, Gold, Silver, Tungsten

Aniak district

Sleetmute (6.95-7.3, 0.75-1.0)

MF-368, locs. 15, 18

61°02'-61°03'N, 158°08'-158°11'W

Summary: A silicified shear zone in Cretaceous graywacke and shale at head of creek contains quartz veins with gold, scheelite, wolframite, arsenopyrite, jamesonite, stibnite, argentite, traces of gold and silver tellurides, and tourmaline and sericite. Placer deposit below shear zone has been mined, with both gold and scheelite recovered and sold. Stream crosses major fault at foot of mountain. Below fault placers developed on bedrock and on false bedrock of yellow clay.

Cady and others, 1955 (P 268), p. 119-121 -- Bedrock is graywacke and shale of the Cretaceous Kuskokwim Gp. A shear zone in the ridge at the head of the creek is silicified and contains much vein quartz; 1,000 ft. wide and 1-1/2 mi. long. Metallic minerals include gold, scheelite, wolframite, arsenopyrite, jamesonite, stibnite, argentite, and traces of gold-silver tellurides; quartz is chief gangue mineral and is accompanied by tourmaline and sericite. A placer deposit immediately downstream from the shear zone has been mined, with gold and scheelite mined and sold. A fault marks the base of the mountain front; below it there are 2 types of placers. One is on bedrock, with a little gold scattered in the overlying gravel; the other is on a yellow clay false bedrock where gold and scheelite are concentrated. Depth to bedrock increases rapidly below fault. Deposits discovered in 1947.

Berg and Cobb, 1967 (B 1246), p. 93 -- Shear zone in graywacke and slate contains quartz veins carrying small amounts of native gold, scheelite, wolframite, arsenopyrite, jamesonite, stibnite, argentite, and traces of gold-silver tellurides. No record of production, but gold and scheelite have been recovered from placers.

Eakins, 1968 (GC 17), p. 8 -- Tungsten has been mined.

Cobb, 1973 (B 1374), p. 43 -- Gold and scheelite have been mined from placers below a scheelite- and gold-bearing lode in a silicified shear zone in graywacke and shale.

(Fuller Cr.)

Gold

Aniak district
MF-368, loc. 22

Sleetmute (13.1, 13.4) approx.
61°45'N, 157°26'W approx.

Summary: Placer gold present; has been prospected.

Cady and others, 1955 (P 268), p. 120 -- Placer gold present; has been prospecting. Albite rhyolite intrusions abundant in area. [Geologic map shows bedrock as Cretaceous graywacke and shale of Kuskokwim Gp. with several large albite rhyolite intrusive bodies across upper part of valley.]

(George R.)

Gold, Mercury

Aniak district

Sleetmute (10.5-10.85, 16.1-16.2)
61°55'N, 157°41'-157°43'W

Summary: Bars carry very fine colors of gold and considerable fine cinnabar.

Maloney, 1969 (USBM OF 16-69) - Bar sediments contain very fine (requires hand lens to see) gold and fine cinnabar.

(Girl Cr.)

Gold

Aniak district

Sleetmute (5.0, 4.5) approx.
61°15'N, 158°25'W approx.

Summary: Placer gold present; has been prospecting.

Cady and others, 1955 (P 268), p. 120 -- Gold present; has been prospecting.

Albite rhyolite intrusions in area. [Geologic map shows basin to be underlain by Cretaceous graywacke and shale of Kuskokwim Gp. intruded by small bodies of albite rhyolite and quartz diabase.]

(Gold Run)

Gold

Aniak district

Sleetmute (4.5, 7.5) approx.
61°25'N, 158°28'W approx.

Summary: Placer gold present; has been prospecting.

Cady and others, 1955 (P 268), p. 120 -- Placer gold present; has been prospecting. Albite rhyolite bodies in area. [Geologic map indicates that basin is underlain by Cretaceous graywacke and shale of Kuskokwim Gp.; small intrusive bodies of albite rhyolite.]

Harvison

Mercury

Aniak district
MF-368, loc. 4

Sleetmute (11.45, 17.05)
61°58'N, 157°37'W

Summary: Small lenses or pods of cinnabar in brecciated silicified shaly sandstone intruded by a now-altered dike or sill. Exploration, in 1963, by shallow stripping and trenching.

Jasper, 1963 -- Discovered about 1963 by panning soil samples. Bedrock is slightly silicified sandstone; cut by weathered and oxidized dike (or sill?). Cinnabar in voids in a breccia zone and in veinlets along fractures. No stibnite was noted. Exploration consisted (in 1963) of a trench and a 3-1/2 foot "winze."

Berg and Cobb, 1967 (B 1246), p. 92 -- Small lenses or pods of cinnabar in brecciated silicified shaly sandstone cut by a dike or sill similar to one exposed at Alice and Bessie mine. Deposit discovered by soil sampling followed by shallow stripping and trenching.

(Holitna R.)

Gold

Aniak district

Sleetmute

S. central part of quad. (?)

Summary: Very fine colors of gold have been found in river bars near mouth. All other references are to vague reports of placer gold in basin; no better data on location; may apply to tributaries in Taylor Mts. quad.

Martin, 1919 (B 692), p. 40 -- Prospecting reported to have yielded encouraging results, 1917.

Brooks, 1922 (B 722), p. 60 -- Drilling of prospective dredging ground reported, 1920.

Smith, 1934 (B 864-A), p. 45-46 -- Some placer gold reported to have been found in winter of 1932-33 and claims staked. No details on supposed find; not even the approximate location.

Smith, 1936 (B 868-A), p. 46 -- About the same as B 864-A, except that winter of 1933-34 is mentioned.

Smith, 1937 (B 880-A), p. 49 -- Prospecting, 1935.

Smith, 1938 (B 897-A), p. 58 -- Have been repeated reports of rich placer ground that is reportedly too wet to prospect by ordinary hand methods.

Smith, 1939 (B 910-A), p. 60-61 -- Same as B 897-A, p. 58.

Smith, 1939 (B 917-A), p. 59-60 -- Same as B 897-A, p. 58; may be prospect drilling in the future.

Maloney, 1969 (USBM OF 16-69) -- Very fine colors of gold in river bars near mouth.

(Horn Mts.)

Tungsten (?)

Aniak district

Sleetmute

E 1/2 NW 1/4 quad.

Summary: Placer scheelite reported near west foot of mountains.

Cady and others, 1955 (P 268), p. 121 -- Placer scheelite reported near west foot of Horn Mts. [Geologic map shows Horn Mts. as largely fault bounded mass with core a quartz monzonite pluton largely surrounded by rhyolitic and basaltic volcanic rocks, all of Tertiary age. Older rocks are Cretaceous graywacke and shale of Kuskokwim Gp.; contact metamorphosed at one place where not in fault contact with quartz monzonite and basalt.]

(Kay Cr.)

Antimony (?)

Aniak district

Sleetmute (2.5, 5.5) approx.
61°18'N, 158°42'W approx.

Summary: Antimony reported.

Cady and others, 1955 (P 268), p. 122 -- Natives report antimony localities.

Aniak district
MF-368, loc. 1

Sleetmute (0.4, 10.5)
61°36'N, 158°57'W

Summary: Cretaceous graywacke and shale intruded by a sill 25 ft. thick and other smaller bodies of rock now altered to silica and carbonate (and probably clay) minerals. Rocks sheared parallel to bedding. Cinnabar (without accompanying stibnite) in narrow stringers and disseminations in fractures and brecciated zones in sill and enclosing rocks. First cinnabar discovery in Alaska (about 1838). Explored by extensive trenching and a short (now caved) adit. Production consisted of a small shipment of ore in 1890's and about 2 flasks of mercury in about 1910. Recent exploration did not find more ore.

Spurr, 1900, p. 261-262 -- Vein of cinnabar in shale where cut by siliceous yellowish-weathering dikes. Mineralized rock in a pinching irregular zone a foot or two wide. A little ore mined and shipped out before 1898, but miner (Lind) lost money on the venture.

Brooks, 1911 (B 480), p. 93 -- Reference to Spurr, 1900.

Smith and Maddren, 1915 (B 622), p. 272-274 -- Deposits in general area known before 1884. Quotation from Spurr, 1900. Statement that Spurr did not notice deposit, but got information in Bethel from Lind [see above].

p. 280-286 -- Bedrock is a great thickness of shale and sandstones (some quartzose and some arkosic) cut by many sills (many of which follow a bedding plane for a distance and then cross to another) and fewer dikes. Sills are altered andesite of various kinds; in thicker sill small crystals of cinnabar are near inclusions of shale; possible genetic significance? Next to, but not in, a smaller sill are quartz-cinnabar lenses. Very little development and very little ore in sight.

Joesting, 1942 (TDM 1), p. 24 -- Reference to B 622.

Webber and others, 1947 (RI 4065), p. 49-50 -- 2 claims. Sandstone and shale intruded by rhyolite dikes and sills. USBM hand trenching showed cinnabar in a stringer in a rhyolite sill, in a shear zone parallel to the sill, and in cross fractures between the shear zone and the sill.

Cady and others, 1955 (P 268), p. 116 -- Cinnabar in bluffs of Kuskokwim R. Known by Russians as early as 1838. Only production was about 2 flasks of mercury in 1909 or 1910. Interbedded graywacke and shale of Kuskokwim Gp. (Cretaceous) intruded by a sill of silica-carbonate rock 25-30 ft. thick and other smaller bodies. Shear zones parallel bedding; irregular fractures and breccia zones at or near upper contact of large sill. Cinnabar (no stibnite) in quartz gangue in brecciated zones and disseminated in silica-carbonate rock and adjacent graywacke.

Jasper, 1961, p. 67-68 -- First cinnabar occurrence known to white men in Alaska. Small ore shipment made before 1898. More work in early 1900's; 2 flasks produced. USBM trenching and sampling, 1944. Further trenching and stripping, 1954. Ore in sheared shale and sandstone near a rhyolite sill. Cinnabar (only sulfide mineral) in short stringers and veinlets, small lenses, and pods.

Malone, 1962 (IC 8131), p. 7-8 -- References to Spurr, 1900; and RI 4065.

p. 33-34 -- References to Spurr, 1900; Smith and Maddren, 1914 (B 622), and RI 4065. More USBM sampling, 1958.

Malone, 1965 (IC 8252), p. 32, 39-40, 53 -- Same as IC 8131.

(Kolmakof) -- Continued

- Sainsbury and MacKevett, 1965 (B 1187), p. 49-50 -- Russians probably were aware of deposit as early as 1838. Exploratory workings consisted of a caved adit and shaft, 29 hand-dug trenches, and a few bulldozed trenches (that did not reach bedrock) (as of 1959). Only production was about 2 flasks of mercury in 1909 or 1910. Rest of data from P 268 and RI 4065.
- Berg and Cobb, 1967 (B 1246), p. 92 -- Site of first cinnabar discovery in Alaska (about 1838). Altered sill 25 ft. thick in graywacke and shale exposed for horizontal distance of about 400 ft. Cinnabar in narrow stringers in sill and enclosing sedimentary rocks. Stripping in 1954 did not reveal a minable ore body. Small shipment of ore in 1890's and 2 flasks of mercury produced in about 1910.
- Merrill and Maloney, 1974 (USBM OF 21-75) -- In 1969 and 1970 the USBM attempted to delineate possible extensions of the known mercury deposit or other deposits in the immediate vicinity by sampling auger holes and in bulldozed trenches. The attempt was not successful, possibly because of the heavy moss and loess overburden.

(Kuskokwim R.)

Gold

Aniak district

Sleetmute (7.7-15.3, 13.0-15.25)
61°44'-61°54'N, 157°09'-158°04'W

Summary: Very fine colors of gold in bar sediments.

Maloney, 1969 (USEM OF 16-69) -- River bar sediments contain very fine
(requires hand lens to see) gold.

Landru

Mercury

Aniak district
MF-368, loc. 13

Sleetmute (15.1, 12.6) approx.
61°42'N, 157°11'W approx.

Summary: Rich cinnabar float; not traced to bedrock source.

Joesting, 1942 (TDM 1), p. 23-24 -- Rich cinnabar float; not traced to source.
Area said to be geologically similar to Red Devil.

(McCally Cr.)

Mercury

Aniak district
MF-368, loc. 12

Sleetmute (13.75, 13.0) approx.
61°44'N, 157°21'W approx.

Summary: Traces of cinnabar in Cretaceous graywacke and shale near contact with albite rhyolite near head of creek. Native mercury reported to have been panned from creek.

Cady and others, 1955 (P 268), p. 111 -- Traces of cinnabar at elevation of about 1,000 ft. on slope of Barometer Mtn. near head of McCally Cr. in [Cretaceous] graywacke and shale [of Kuskokwim Gp.] near contact with porphyritic albite rhyolite.

Jasper, 1961, p. 75 -- Native mercury reported to have been panned from creek.
Sainsbury and MacKevett, 1965 (B 1187), p. 21 -- Reference to P 268, p. 111.

(Mellick's)

Mercury

Aniak district
MF-368, loc. 14

Sleetmute (15,05, 12,3)
61°41'N, 157°11'W

Summary: Small amount of cinnabar in bedrock.

Cady and others, 1955 (P 268), p. 111 -- Small amount of cinnabar in bedrock back of Mellick's trading post. [Geologic map shows Cretaceous graywacke and shale of Kuskokwim Gp. and several small albite rhyolite intrusions.]
Sainsbury and MacKevett, 1965 (B 1187), p. 21 -- Reference to P 268, p. 111.

Mercury

Antimony (?), Mercury

Aniak district
MF-368, loc. 11

Sleetmute (13.95, 13.55)
61°46'N, 157°19'W

Summary: Cinnabar (and possibly stibnite) in stringers along bedding planes of shale.

Cady and others, 1968 (P 268), p. 111 -- Claim between Red Devil and Barometer mines. Ore minerals [assumed to be cinnabar and possibly stibnite] as bedding stringers in shaly zone of interbedded graywacke and shale [of Cretaceous Kuskokwim Gp.].

Sainsbury and MacKevett, 1965 (B 1187), p. 20 -- Cinnabar as stringers along bedding planes of shale; reference to P 268, p. 111.

Mountain Top

Antimony, Mercury

Aniak district

Sleetmute (8.75, 7.0)
61°24'N, 157°58'W

Summary: Discovered in 1968. Cinnabar in veins near or along slip surfaces of faults that cut basaltic dikes now largely altered to silica-dolomite-clay minerals - "iddingsite" rock. Dikes cut Cretaceous graywacke and shale. Stibnite in float fragments and as crystal aggregates in quartz veinlets. Explored by trenching and drilling. Reserves in sight amount to 200 flasks of mercury.

Sorg and Estlund, 1972 (MF-449) -- Discovered in 1968 by panning stream sediments of Chineekluk Cr. and Oskawalik R. and following detrital cinnabar to bedrock source. Five cinnabar veins exposed by trenching. Seven drill holes put down by USBM in 1970. One ton of high-grade residual cinnabar recovered and stockpiled during exploration. Reserves in sight estimated at 200 flasks of mercury. Interbedded Cretaceous graywacke and shale of Kuskokwim Gp. intruded by faulted, pervasively altered olivine basalt dike. Sedimentary rocks intensely altered near dikes; most highly altered dikes now almost completely changed to cryptocrystalline silica. Near faults basalt is brecciated and consists mainly of "iddingsite," quartz, dolomite, and clay minerals. Cinnabar in veins (1) within 6 in. of fault slip surfaces with much dolomite and (2) along slip surfaces and without dolomite. Stibnite found only as deeply weathered float fragments and as crystal aggregates in small quartz veinlets.

(Murray Gulch)

Gold

Aniak district
MF-368, loc. 17

Sleetmute (3.3-3.5, 9.8-10.0)
61°34'N, 158°35'-158°36'W

Summary: Interbedded sandstone (or graywacke) and shale intruded by felsic dikes in upper part of gulch. Veins and lenticular stringers of quartz and calcite along borders of dikes and in joints and shear zones in wall rock. Stream placers frozen and 35 ft. deep at mouth; less upstream. Two levels of bedrock benches with auriferous gravel. Discovered in 1910 and mined sporadically on a small scale for 10 or more years. Includes references to (Mary Cr.); see also (New York Cr.).

Maddren, 1915 (B 622), p. 353-355 -- Placer gold discovered, 1910; coarse gold in deep gravels beneath stream and in bench gravels on both sides of valley. Country rock is steeply dipping interbedded sandstone and shale intruded by siliceous dikes one to more than 3 ft. thick. Veins and lenticular stringers of quartz and calcite along borders of dikes and in joints and shear zones in wall rock. Dikes cross Murray Gulch about a mile above mouth. Stream gravels 35 ft. deep at mouth and less upstream; most are frozen; drift mining, 1914. Two levels of bedrock benches on left slope of gulch are covered with gravel containing coarse unworn gold; prospecting, 1914.

Brooks, 1918 (B 662), p. 61 -- Mining on Mary Cr., 1916. [This information must be confused, as reference states that this is first production, which is at variance with Maddren's description (B 622).]

Brooks, 1922 (B 722), p. 60 -- Gold mined on Mary Cr., 1920.

Cady and others, 1955 (P 268), p. 119 -- Gold discovered, 1910. Mined sporadically since then; total production worth only a few thousand dollars. Bedrock is interbedded graywacke and shale; rhyolite dikes across upper part of gulch; all gold downstream from dikes. Stream gravels under silt and muck. Reference to B 622, p. 355.

Cobb, 1973 (B 1374), p. 43 -- Area geologically similar to that near Donlin and Julian Creeks [Iditarod quad.]. Has been mining.

(Napamute)

Mercury

Aniak district

Sleetmute (13.85, 13.7)
61°46'N, 157°20'W

Summary: Mining, 1925. This occurrence may be the same as the Barometer.
See also Barometer.

Moffit, 1927 (B 792), p. 33-34 -- Ten tons of cinnabar ore mined in 1925;
not retorted.

Joesting, 1942, (p. 24 -- Reference to B 792, p. 33.

Brooks, 1922 (B 722), p. 50-51 -- Hydraulic plant installed, 1916.

Brooks, 1922 (B 722), p. 50 -- Mining, 1920.

Sady and others, 1953 (B 268), p. 119 -- Mining at mouth of Purray Gulch.

Small sporadic production. For data on regional geology see Purray

Cobb, 1973 (B 1374), p. 43 -- Has been mining. Geologically similar to at
near Joubin and Joubin Brooks (labeled quad.).

(New York Cr.)

Gold

Aniak district
MF-368, loc. 17

Sleetmute (3.5, 10.0)
61°34'N, 158°35'W

Summary: Sporadic small-scale mining at mouth of Murray Gulch from 1914 to about 1920. See also (Murray Gulch).

Maddren, 1915 (B 622), p. 304 -- Gold prospects being developed in basin, 1914.
p. 353 -- Gold in gravels at mouth of Murray Gulch. Prospecting,
1914.

Brooks, 1916 (B 642), p. 68 -- Mining, 1915.

Brooks, 1918 (B 662), p. 60-61 -- Hydraulic plant installed, 1916.

Brooks, 1922 (B 722), p. 60 -- Mining, 1920.

Cady and others, 1955 (P 268), p. 119 -- Mining at mouth of Murray Gulch.

Small sporadic production. For data on regional geology see (Murray Gulch).

Cobb, 1973 (B 1374), p. 43 -- Has been mining. Geologically similar to area near Donlin and Julian Creeks [Iditarod quad.].

(Oskawalik R.)

Gold

Aniak district

Sleetmute

SE 1/4 SE 1/4 NW 1/4 quad.

Summary: Some placer gold; has been prospecting near Henderson Mtn., which is a small quartz monzonite stock.

Cady and others, 1955 (P 268), p. 120 -- Placer gold present; has been prospecting near Henderson Mtn.; albite rhyolite intrusions in area. [Geologic map shows bedrock as Cretaceous graywacke and shale of Kuskokwim Gp. Many small bodies of albite rhyolite and quartz diabase. Henderson Mtn. is small quartz monzonite stock surrounded by hornfels zone as much as about 1-1/2 mi. wide.]

Red Devil

Antimony, Mercury

Aniak district
MF-368, loc. 11

Sleetmute (13.95, 13.55)
61°46'N, 157°19'W

Summary: Cretaceous graywacke and argillaceous rocks were intruded by probably diabasic dikes that are now altered to rocks consisting mainly of quartz and carbonate and clay minerals. All rocks are cut by faults most of which are parallel to bedding. Ore is cinnabar, stibnite (generally in amounts equal to or greater than cinnabar), and minor realgar and orpiment. Most ore bodies were localized at intersections of dikes and bedding-plane faults and are crudely prismatic. They range in thickness from a few inches to 4 ft., are elongate (a few to several hundred feet long), and plunge southward. Most were formed by open-space filling; a few by replacement of dike rock. Deposits in zone at least 600 ft. wide and 1,500 ft. long. Alaska's largest (and a major U.S.) mercury mine. Discovered in 1933; most development was since World War II. Workings aggregate about 9,600 ft. on 5 main levels. Production through 1962 was 31,718 flasks of mercury, 28,765 of which was from 1950 to 1962. A small amount of antimony also was sold [to Japan as soot], but most was not saved; stibnite interfered with mercury recovery.

- Joesting, 1942 (TDM 1), p. 21, 23-24 -- Only property producing mercury in significant amounts in 1941. Production was 167 flasks in 1940 and 80 flasks in 1941 to Sept. 15. Cinnabar occurs as stringers in large lenses in a shear zone in sandstone and shale. Stibnite with cinnabar. Metacinnabar abundant at surface. Rhyolite dikes apparently associated with mineralization.
- Smith, 1942 (B 933-A), p. 90 -- Considerable development, 1940. Enough ore taken out to keep 2 retorts (capacity 1 ton per day each) busy for nearly 3 months.
- Joesting, 1943 (TDM 2), p. 17 -- Mercury produced, 1941. Several minable bodies opened. Deposits said to be larger, but lower grade, than at DeCourcy [Iditarod quad.].
- Bain, 1946 (IC 7379), p. 63 -- Estimates in March 1943 suggested 11,360 tons of material containing 45.3 lbs. Hg per ton and 15,900 tons containing 36.7 lbs. Production 1944-45 was 2,060 flasks. About equal amounts of mercury and antimony in ore.
- Webber and others, 1947 (RI 4065), p. 3 -- Production, 1933-42, from mined and float material, was 419 flasks of mercury. USBM exploration program 1942-43. p. 9-18 -- Found in 1933 by tracing float found in small stream bed. Property is 9 unpatented claims. Several hundred feet of adits and crosscuts. In 1944-45 2,052 flasks was produced from 4,166 tons of ore. Details of USBM exploration (surface and subsurface) and sampling, 1942-43. Bedrock is shale with interbedded sandstone and graywacke and andesite sills. Ore (cinnabar and stibnite) principally along hanging-wall contacts of sills. Data on retorting and finances.
- Cady and others, 1955 (P 268), p. 65 -- Altered biotite basalt (silica-carbonate rock) in echelon systems of sills and sill-like bodies connected locally by dikes on SW limb of syncline; follow faint flexures in sedimentary rocks. p. 108-110 -- Yield of metallurgical plant low because of high antimony content of ore. When mine shut down in 1946 there were 2 adit levels, 2 shaft levels, 2,000 ft. of drifts and crosscuts, and 20 stopes. Bedrock

Red Devil - Continued

is graywacke and shale [of Kuskokwim Gp. of Cretaceous age] on SW limb of Sleetmute anticline. Workings in zone at least 250 ft. thick (chiefly shale) with silica-carbonate sills and sill-like bodies. Ore (cinnabar-stibnite) commonly on hanging-wall borders of sills (some thin sills completely replaced by stibnite) and beyond upper ends of sills along bedding. One ore body follows a dike. Some ore zones contain more stibnite than cinnabar. Production [determined by adding amounts listed] was about 3,060 flasks of mercury from 4 of 6 ore zones.

Pennington, 1959 (IC 7941), p. 12 -- Interbedded Cretaceous graywacke and shale cut by sills and dikes of hydrothermally altered biotite basalt. Ore in irregular veins and veinlets in fault zones and at contacts between silicified basalt and graywacke. Much stibnite with cinnabar in quartz gangue; calcite, realgar, and orpiment also present. Measured reserve is over 10,000 flasks in ore averaging 15 lbs. per ton and 3,000 flasks in ore averaging 40 lbs. per ton. Additional ore can be inferred.

p. 52 -- Plant, camp buildings, and mill destroyed by fire, October 1954.

p. 85 -- Had DMEA contract.

Chapman and Shacklette, 1960 (P 400-B), p. B105 -- As, Sb, and Hg anomalous in soil samples.

Sainsbury and MacKevett, 1960 (P 400-B), p. B35 -- Has produced more than 20,000 flasks of mercury. Mine in graywacke and argillaceous rocks of Cretaceous Kuskokwim Gp. and in altered dikes that cut them. Ore bodies at and near intersections between NE-trending dikes and NW-trending faults that are essentially parallel to bedding. Ore bodies pencil shaped.

Jasper, 1961, p. 73-75 -- Discovered, 1933. Residual material retorted before 1940; 11 flasks recovered. Bedrock material exposed by ground-sluicing in 1940-42 yielded 410 flasks. Underground workings begun, 1940. Data from RI 4065 for period 1942-46, when production was 500 flasks. Assessment work only until 1952. Production 1953-61 was nearly 25,000 flasks. Ore shoots associated with andesite dike fragments in echelon pattern along bedding plane faults. Ore grade tends to fall off with depth. Ore is cinnabar and stibnite with rare realgar, pyrite, and arsenopyrite.

Malone, 1962 (IC 8131), p. 2 -- One of principal mercury producers in Alaska; major production during and immediately after World War II and after 1954.

p. 8 -- Discovered before World War II; reference to RI 4065.

p. 11-33 -- Stibnite has caused difficulty in retorting the ore. Deposit discovered, 1933. Exploration and mining until 1946 [production data given are not complete]. Mine reopened, 1952. Fire damage halted operations from late 1954 to early 1956. Production, 1940-59 was 19,530 flasks [15,486 after March, 1956]. Bedrock is Upper Cretaceous graywacke and mudstone folded into the Sleetmute anticline and cut by the Red Devil strike-slip right-lateral fault. Altered diabasic (?) dikes and sills. Ore shoots along Red Devil fault or along subsidiary slips in footwall. Mine is on SW flank of Sleetmute anticline. 2 sets of joints perpendicular to bedding. 3 dikes of diabasic rock altered to quartz, chalcedony, carbonate, and sericite. Red Devil and subsidiary bedding faults have offset dike segments 800 ft. Ore localized at intersections of bedding plane faults and dikes; ore bodies pencil shaped. Other ore bodies along faults connecting bedding-plane faults. Ore is cinnabar and stibnite with local small amounts of realgar and orpiment and rare pyrite films on joint

surfaces; gangue mainly quartz and clay. Stibnite-cinnabar ratio increases with depth and with width of ore shoots. Ore shoots surrounded by halos of quartz, clay, and cinnabar. Ore probably formed no earlier than late Miocene. [Pages 20-33 are details of mining methods, costs, and metallurgy.]

MacKevett and Berg, 1963 (B 1142-G) -- Claims originally staked, 1933. Production, 1939-46 and 1952-59, was about 20,000 flasks of mercury. About 9,600 ft. of underground workings on 5 main levels. Sedimentary rocks are about 1,300 ft. of graywacke and argillaceous rocks of Cretaceous Kuskokwim Gp. Three hydrothermally altered dikes varying in thickness from 1 to 14 ft. exposed in mine area. Dikes have relict porphyritic texture and consist entirely of fine- and very fine-grained calcite, chalcedony, limonite, and sericite with subordinate quartz, hematite, and clay minerals (silica-carbonate rock of Cady and others, 1955 (P 268)). Mine is on SW limb of NW-trending Sleetmute anticline. The dominant faults strike NW and commonly are parallel to bedding; minor gouge and breccia; contorted and pliated argillite in zones up to 10 ft. thick. Individual faults cannot be traced far; are in an echelon pattern. A few faults transect bedding. Movement mainly right lateral; cumulative displacement of several hundred feet. Very few transverse faults. Ore in many discrete bodies mainly localized along and near intersections of NE-trending altered dikes and NW-trending faults; crudely prismatic in shape; range from a few inches to 2 ft. thick and 1-30 ft. in strike length; several hundred feet in plunge direction. Some ore very rich (30% Hg), but most contains 2-5 percent Hg. Larger and richer bodies in and near dikes. They grade outward into networks of closely spaced cinnabar veins, then into widely spaced veinlets in protore with less than 1% Hg. Most ore formed by open-space filling; some probably partially formed by replacement. High-grade ore is intimately associated cinnabar and stibnite. Ore also contains some realgar, orpiment, secondary antimony minerals, and minor iron minerals. Quartz, carbonate, and clay gangue. Ore probably late Miocene or early Pliocene, of hydrothermal origin, and younger than most of faults.

Bailey and Smith, 1964 (C 496), p. 2 -- Ore contains more antimony than mercury; no antimony recovered.

p. 9-10 -- Total production through 1962 was 31,718 flasks; production 1950-62 was 28,765 flasks; not operating in 1964.

U.S. Geological Survey, 1964 (P 501-A), p. A5 -- Summary of B 1142-G.

Malone, 1965 (IC 8252), p. 31-33, 42-45, 53 -- Data from IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 2-3 -- Produced more than 20,000 flasks of mercury by 1960. Rich ore discovered (with DMEA loan); in 1957 mine became one of the largest producers of mercury in the U.S. By 1964 known ore bodies had been exhausted; new exploration failed to find ore. By late 1964 all production was by small leasers.

p. 8-11 -- Summary of data from P 268 and B 1142-G.

p. 81 -- Semiquantitative spectrographic analyses of samples.

Berg and Cobb, 1967 (B 1246), p. 89 -- Graywacke and shale intruded by altered diabasic dikes consisting of silica, carbonate, and clay minerals. Rocks cut by many faults parallel to bedding. Ore bodies which consist of massive aggregates and encrustations of quartz, clay, calcite, cinnabar, stibnite, and minor realgar and orpiment, formed near intersections of dikes and faults in a zone at least 600 ft. wide and 1,500 ft. long. Ore

bodies are elongate, plunge southward, and ranged from a few inches to about 4 ft. in thickness and from a few to several hundred feet in length. Most ore formed by open-space filling; some by replacing altered dike rock. Mine was Alaska's leading mercury producer until it suspended operations in 1963. From 1939 to 1963 produced 20,000-25,000 flasks of mercury and a little byproduct antimony from about 9,600 ft. of underground workings on 5 main levels.

Hawley and others, 1969 (C 615) -- Reference to B 1187. Analyses of 3 samples of ore; in two Au is less than in several common rock types.

Rhyolite

Antimony, Mercury

Aniak district
MF-368, loc. 2

Sleetmute (5.2, 16.8)
61°57'N, 158°22'W

Summary: On Juninggulra Mtn., which is a large rhyolite porphyry body intrusive into Cretaceous graywacke and shale. Related rhyolite porphyry dikes and older, probably unrelated trachitic (?) or diabasic (?) dikes and sills now altered to clay and carbonate minerals, quartz, and limonite cut sedimentary rocks. Small amounts of cinnabar in veinlets and pods in faults and shear zones in dikes and shattered graywacke. Only stibnite found in area was a piece of float on mountain top. Discovered, 1956. Only exploration was trenching through 5-16 ft. of perennially frozen overburden.

Malone, 1962 (IC 8131), p. 43, 45 -- Bedrock is Upper Cretaceous graywacke and shale and rhyolite extrusive rocks forming Juninggulra Mtn. Stringers and lenses of cinnabar and stibnite occur near rhyolite-shale contacts. Maximum observed width of mineralized zones is 2 ft.; cinnabar stringers are short, discontinuous, and erratic. A silica-carbonate sill contains irregularly disseminated mercury mineralization. No mineralization in main rhyolite mass of Juninggulra Mtn., but a few small cinnabar stringers were found in rhyolite about 3 mi. away.

Maloney, 1962 (RI 6141) -- Discovered, 1956. Some trenching and test pitting, 1957. USBM trenching, 1958-59. Country rock is Cretaceous sedimentary rocks, mainly shale and graywacke, of Kuskokwim Gp. Igneous rock are intrusive albite rhyolite of Juninggulra Mtn. and probably older biotite basalt dikes and sills. Bedrock commonly covered by 5-16 feet of permanently frozen overburden. At prospect, dikes and sills of basalt now altered to silica-carbonate rock intrude sedimentary rocks. Cinnabar in small lenses or short, thin stringers in silica-carbonate dikes and sills or along their borders. No cinnabar in rhyolite. Only stibnite found was a piece of float near top of mountain. USBM bulldozed 26 trenches, collected 92 samples, and drilled 12 auger holes.

Sainsbury and MacKevett, 1965 (B 1187), p. 46-49 -- Graywacke and shale of Kuskokwim Gp. [Cretaceous] is cut by complexly oriented dikes and sills of at least 3 types and by a large mass of rhyolite porphyry. All dikes and sills except rhyolite porphyry are so intensely altered that the original composition is difficult to determine. Most common type is altered porphyritic rock containing pyrite; relict trachitic texture. Other dikes have amygdaloidal texture. Youngest dikes are rhyolite porphyry; undoubtedly offshoots of large mass of porphyry. Trenching through permanently frozen overburden disclosed small amounts of cinnabar in veinlets and pods; none more than a few inches thick. In faults and shear zones in dikes and adjacent shattered graywacke. Some of cinnabar intergrown with small grains of hematite. Minerals in altered dikes are mainly clay and carbonate minerals, quartz and limonite. Property staked in 1957 and explored by pits and trenches. No production.

p. 80 -- Semiquantitative spectrographic analysis of a sample; 0.0015% silver.

Berg and Cobb, 1967 (B 1246), p. 92 -- Graywacke and shale cut by altered basaltic dikes and sills and still younger albite rhyolite dikes and sills.

Rhyolite - Continued

Cinnabar, accompanied by small amounts of clay, occurs in small lenses and stringers in altered basaltic intrusives and along contacts between them and graywacke and shale.

Hawley and others, 1969 (C 615), p. 16, 18-19 -- Reference to B 1187. Analysis of ore sample; 15 ppm Ag.

(Timber Cr.)

Gold

Aniak district

Sleetmute (0.75, 0.5) approx.
61°02'N, 158°55'W approx.

Summary: Placer gold in creek that drains area of Paleozoic (?)–Cretaceous clastic, volcanic, and carbonate rocks intruded by small albite-rhyolite bodies.

Cady and others, 1955 (P 268), p. 120 -- Placer gold present; has been prospecting; albite rhyolite intrusions in area. [Geologic map shows headwaters draining area underlain by Paleozoic (?)–Cretaceous clastic, volcanic, and carbonate rocks of Gemuk Gp. Rest of basin in Cretaceous graywacke and shale of Kuskokwim Gp. Four small albite rhyolite intrusions shown near one fork.]

Two Genevieves

Mercury

Aniak district
MF-368, loc. 6

Sleetmute (13.95, 14.5)
61°49'N, 157°19'W

Summary: Cinnabar in vugs and breccia zone near upper contact of a sill altered to silica-carbonate rock; fragments of graphite also present in sill.

Cady and others, 1955 (P 268), p. 65 -- Fragments of graphite in altered basalt.
p. 111 -- Cinnabar localized in vugs and a breccia zone at upper border of a sill of silica-carbonate rock.

Sainsbury and MacKevett, 1965 (B 1187), p. 20 -- Reference to P 268, p. 111.
Cinnabar localized in vugs in a breccia zone near upper contact of an altered sill in graywacke and shale of Kuskokwim Gp.

Vermillion

Antimony (?), Mercury

Aniak district
MF-368, loc. 10

Sleetmute (13.85, 13.7)
61°46'N, 157°20'W

Summary: Cinnabar (and possibly stibnite) in stringers along bedding planes of shale.

Cady and others, 1955 (P 268), p. 111 -- Claim between Red Devil and Barometer mines. Ore minerals [assumed to be cinnabar and possibly stibnite] as bedding stringers in shaly zone of interbedded graywacke and shale [of Cretaceous Kuskokwim Gp.].

Sainsbury and MacKevett, 1965 (B 1187), p. 20 -- Cinnabar as stringers along bedding planes of shale; reference to P 268, p. 111.

Willis

Antimony, Mercury

Aniak district

Sleetmute (13.55, 14.4)

MF-368, loc. 5

61°49'N, 157°22'W

Summary: Cretaceous graywacke and shale that dip steeply SW are cut by dikes now altered to silica, limonite, and carbonate and clay minerals; small but abnormal amounts of apatite and sphene. Largest dike (20 ft. thick) nearly horizontal. All bedrock cut by faults parallel to bedding. Cinnabar-bearing veins (as much as 50 ft. long and 6 in. thick) in or near intrusive rocks. Cinnabar locally disseminated in fractures in dikes and enclosing rocks and in argillized rock near dike contacts. Discovered, 1909. Developed by short adits, pits, and trenches. Production was a few flasks of mercury during World War I; some rich ore stockpiled in 1958.

Smith and Maddren, 1915 (B 622), p. 286 -- As of 1914, cinnabar had been found. Smith, 1917 (B 655), p. 144-145 -- Cinnabar has been found; similar to Parks property.

Brooks, 1923 (B 739), p. 13 -- Development, 1921.

Smith, 1929 (B 797), p. 41 -- Small-scale operation, 1926.

Joesting, 1942 (TDM 1), p. 24 -- Reference to B 655.

Smith, 1942 (B 933-A), p. 91 -- Property leased, 1940.

Bain, 1946 (IC 7379), p. 63 -- Mercury prospect.

Webber and others, 1947 (RI 4065), p. 28-29 -- 16 unpatented claims. Discovered in 1909. Developed by numerous test pits and trenches and a few short adits. Only production was a few flasks of mercury retorted from material removed during assessment work. Country rock is graywacke, sandstone, and shale intruded by andesite dikes now hydrothermally altered. Cinnabar and stibnite mineralization mainly along hanging-wall contacts of dikes; some in fractures in dikes.

Cady and others, 1955 (P 268), p. 65 -- Long, crosscutting biotite basalt dike; one of few known in region.

p. 111 -- Discovered, 1909. Numerous pits, trenches, short adits. During World War I a little more than 2 flasks of mercury was produced in an extemporized retort. Dikes of silica-carbonate rock cut interbedded graywacke and shale; section overturned. Rocks above a dike are fractured and brecciated and dike is broken by joints perpendicular to contact; cinnabar and stibnite in veins and incrustations in openings.

Sainsbury and MacKevett, 1960 (P 400-B), p. B38 -- Cretaceous graywackes and shales strike NW, dip steeply SW; altered dikes nearly horizontal. Ore bodies at and near intersections between altered dikes and faults that commonly strike parallel to bedding; ore bodies elongate horizontally and dip southward.

Jasper, 1961, p. 70-72 -- Discovered 1909. Considerable test pitting and several adits. A few flasks of mercury produced in home-made retort. USBM trenching and sampling in 1943. More by owners in 1953-54. Stibnite and cinnabar in thin discontinuous veinlets and stringers, in small lenses or pods, and as blebs along fractures and shears in dikes and sills. Best concentrations in sheared shales and shear zone in sill parallel to border. Property might develop a large-tonnage, low-grade operation.

Malone, 1962 (IC 8131), p. 8 -- Discovered before World War II. Reference to RI 4065.

p. 13 -- Altered diabase (?) dikes and sills.

p. 15 -- Dikes appear megascopically to be the same as those at Red Devil, Barometer, and Parks.

p. 35 -- Reference to RI 4065.

MacKevett and Berg, 1963 (B 1142-G), p. G7 -- Relict diabasic textures in thin sections of dikes.

Malone, 1965 (IC 8252), p. 32, 46-47, 54 -- References to RI 4065 and IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 15-18 -- Staked in 1909. Development consisted of pits, trenches, and short adits before 1942. Later work was excavation of bulldozer trenches that exposed some new ore. Only a few flasks of mercury ever produced; some rich ore stockpiled in 1958. Bedrock exposed only in trenches. Graywacke and shale intruded by altered dikes and sills. Main intrusive appears to be a complex dike at least 20 ft. thick. Dikes not all same age; some crosscut others. All bedrock cut by bedding-plane faults. Cinnabar-bearing veins (up to 50 ft. long and 6 in. wide) in or near igneous rocks. Cinnabar disseminated locally in fractures in dikes and nearby sedimentary rocks or in argillized rock at contacts between intrusive rock and graywacke. Ore is cinnabar with or without stibnite; some pyrite, stibiconite (?), and hematite. Gangue is quartz, carbonate, limonite, and dickite. Altered dike rock contains apatite and sphene. Ore formed principally in veins along fractures where bedding-plane faults intersect intrusive rocks.

p. 81 -- Semiquantitative spectrographic analysis of sample.

Berg and Cobb, 1967 (B 1246), p. 92 -- A few flasks of mercury produced during World War I.

Hawley and others, 1969 (C 615), p. 16, 18-19 -- Reference to B 1187. Analysis of an ore sample.

Unnamed prospect

Antimony, Mercury

Aniak district

Sleetmute (13.75, 13.6)

MF-368, loc. 9

61°46'N, 157°21'W

Summary: Prospect reported to show cinnabar and stibnite.

Cady and others, 1955 (P 268), p. 111 -- Prospect reported to show cinnabar and stibnite; SW of head of small creek that flows past Barometer mine. Sainsbury and MacKevett, 1965 (B 1187), p. 21 -- Reference to P 268, p. 111.

(Alder Gulch)

Mercury

Aniak district

Taylor Mts. (1.4, 13.0)
60°44'N, 158°50'W

Summary: Float cinnabar

Rutledge, 1950 (RI 4719), p. 1, 3 -- Float cinnabar found in 1941.

Broken Shovel

Antimony, Mercury

Aniak district
MF-384, loc. 1

Taylor Mts. (1.25, 14.05)
60°48'N, 158°51'W

Summary: Bedrock is Triassic siltstone intruded by a diabase dike or sill. A fault follows one margin of the dike or sill and contains discontinuous quartz veins that locally contain stibnite. No cinnabar seen in place, but it and, reportedly, native mercury are common in float fragments as fillings of cross fractures and breccia openings. Staked in 1941 and explored by a little surface work that was not adequate to evaluate the prospect. Vague reports of minor production may be in error.

Webber and others, 1947 (RI 4065), p. 44-46 -- Located, 1941. Bedrock in region is interbedded graywacke and shale of possible late Paleozoic age; some interbedded chert and limestone. Mainly basaltic sills and lava flows. Some of sills hydrothermally altered. Cinnabar in all alluvial deposits near altered sills. Cinnabar associated with small amounts of stibnite and minute amounts of native mercury; localized in bedding joints and small cross joints and breccia zones lined with vein quartz. [From a report preliminary to P 268].

Rutledge, 1950 (RI 4719), p. 4 -- Staked, 1941.

p. 8 -- Shallow prospect pits excavated to trace float cinnabar in Broken Shovel Gulch to source. Main showing is a narrow, irregular quartz vein locally containing small lenses of stibnite and minor amounts of cinnabar.

Cady and others, 1955 (P 268), p. 115 -- Bedrock is siltstone of Gemuk Gp. (Triassic, see p. 33) and sills of silica-carbonate rock. Based on study of float fragments, minerals are coarsely crystalline, fill cross joints and breccia openings; cinnabar gives way to stibnite and quartz at lower elevations; native mercury reported. Fine particles of cinnabar fill cracks in altered olivine phenocrysts in partially altered sills.

Jasper, 1961, p. 77-78 -- Staked, 1941.

Malone, 1962 (IC 8131), p. 39 -- Small production.

p. 41, 43 -- Located, 1941. Mineralization in sedimentary rocks intruded by sills. Lode is irregular quartz vein with small lenses of cinnabar and stibnite. Native mercury reported. Reference to P 268.

Malone, 1965 (IC 8252), p. 39, 53 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 40 -- Vertical diabase dike or sill 1-3 ft. wide; followed by a fault in which discontinuous quartz veins locally contain stibnite. No cinnabar seen in place, but has been panned from nearby stream. Not enough exploration for a valid evaluation of prospect.

Berg and Cobb, 1967 (B 1246), p. 93 -- Small amount of ore shipped during World War II.

(Caribou Cr.)

Gold (?)

Bristol Bay region

Taylor Mts.

SE 1/4 NE 1/4 quad. (?)

Summary: May have been small-scale gold placer mining in early 1900's.

Mertie, 1938 (B 903), p. 91 -- Said to have been small-scale gold placer mining in early 1900's.

Cinnabar Creek

Antimony, Gold, Mercury, Zinc

Aniak district
MF-384, loc. 1

Taylor Mts. (1.25, 14.05)
60°48'N, 158°51'W

Summary: Diabase dike, hydrothermally altered with much dickite, cuts sheared and faulted graywacke and siltstone. Ore is along vertical faults parallel to dike; consists of small irregular veinlets mainly of cinnabar, stibnite, and quartz; cinnabar also disseminated and smeared on slickensided surfaces. Tenor of ore changes abruptly; ore bodies have assay walls. Vein material contains minor amounts of pyrite, sphalerite, dickite, gypsum, and dolomite. Locally native mercury is common. Cinnabar in splits of a sample contained 0.14 ppm gold, the highest concentration in any Alaskan cinnabar sample. Mined by open cuts. Production, 1955-60, was more than 500 flasks of mercury (all from cinnabar; native mercury was not saved).

Jasper, 1961, p. 78-79 -- Deposit is north of Cinnabar Gulch. Source of all production from area, 1943-60; more than 500 flasks of mercury. Bedrock is interbedded shale and graywacke intruded "by sills of interlayered lava flows and dikes that are commonly porphyritic andesite." Quartz diorite dikes and sills reported in district. Ore shoot mined in open cut is in a shear zone along a bedding fault at shale-andesite contact; mineralization largely in shale; some in outer foot or two of sill. Maximum width of one zone is 12 ft.; 90-100 ft. long. Mineralization is in discontinuous veinlets and stringers, short lenses and blebs. Ore minerals are cinnabar and native mercury. Some post-ore movement on fault.

Malone, 1962 (IC 8131), p. 2, 8 -- Has been production; discovered before [actually, during] World War II.

Malone, 1965 (IC 8252), p. 31, 53 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 3 -- In 1950's substantial amounts of mercury was produced.

p. 35-40 -- Development began in 1954. Production, 1955-60, amounted to several hundred flasks. Diamond drilling in 1961. Bedrock is Upper Triassic interbedded graywacke, siltstone, volcanic rocks and minor chert and limestone of Gemuk Gp. Structure is complex; rocks at mine dip SW. Ore is along vertical faults parallel to an altered diabase dike; wall rocks are graywacke and siltstone and are extensively sheared and altered. Most of movement was before injection of dike. Degree of alteration of dike decreases away from mine. Ore is sheared, argillized, iron-stained graywacke and siltstone cut by many small irregular veinlets of cinnabar and stibnite; cinnabar also disseminated in altered rocks and smeared on slickensided surfaces. Locally rich ore occurs along rolls in faults. Tenor of ore changes abruptly; ore bodies have assay walls. Native mercury very abundant in gouge and quartz vein that branches from a fault; not recovered in mining. Some pyrite in ore. Alteration of dike and wall rocks hydrothermal; much dickite. Mining was from an open pit.

Berg and Cobb, 1967 (B 1246), p. 92 -- More than 500 flasks of mercury recovered from ore mined from open cuts between 1955 and 1960.

Hawley and others, 1969 (C 615), p. 18-20 -- Reference to B 1187. Analyses of splits of a sample of cinnabar ore showed an average of 0.14 ppm Au. The highest of any of the 19 samples of Alaskan mercury ore analyzed.

Cinnabar Creek - Continued

U.S. Geological Survey, 1971 (P 750-A), p. A52-A53 -- Vein minerals at Cinnabar Creek mine and adjacent prospects are primarily cinnabar, stibnite, and quartz with minor amounts of pyrite, sphalerite, dickite, gypsum, and dolomite; native mercury common. Deposits emplaced within major fault zones; at least 3 phases of cinnabar emplacement.

Showing, 1942 (USGS, p. 1-2) -- Several large-scale cinnabar veins and a wide variety of other minerals (stibnite, quartz, pyrite, sphalerite, dickite, gypsum, and dolomite) are reported from the Cinnabar Creek mine and adjacent prospects. The veins are generally 1 to 2 feet thick and contain 1 to 2 percent cinnabar. The veins are generally 1 to 2 feet thick and contain 1 to 2 percent cinnabar. The veins are generally 1 to 2 feet thick and contain 1 to 2 percent cinnabar.

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(Cinnabar Cr.)

Antimony, Mercury

Aniak district
MF-384, loc. 9

Taylor Mts. (1.15-1.25, 13.9-14.05)
60°48'N, 158°51'-158°52'W

Summary: Placer deposits extend downstream from Cinnabar Creek lode mine. Cinnabar in stream gravels and on terrace remnants about 60 ft. above creek. Test pits showed a mining section 5-14 ft. thick with mercury content varying from less than 0.1 pound to 0.84 pound per cubic yard. Has been production; amount of mercury recovered probably was small. Includes references to: (Cinnabar Gulch), (Cinnabar Run); see also Cinnabar Creek, Lucky Day.

Joesting, 1942 (TDM 1), p. 23-24 -- Several low-grade cinnabar lode occurrences and a rich placer deposit (on Cinnabar Gulch). Pay gravel said to be about a foot thick, on shale bedrock, and covered by 4-10 ft. of overburden. Has been a small shipment cinnabar concentrates. Schaeffer and Winchell prospects. [Reference includes lode prospects, but does not identify them.]

Joesting, 1943 (TDM 2), p. 17 -- Recent production (1942).

Webber and others, 1947 (RI 4065), p. 4 -- Examined by USBM, 1943.

p. 44-46 -- Located, 1941. For data on regional geology see entry under Broken Shovel. Placer deposits on Cinnabar Cr. and Cinnabar Run are not far from a source of cinnabar near head of Cinnabar Gulch; lode looked for but not found. Some of placer material appears to have been reconcentrated from a bench 40 ft. above Cinnabar Run.

p. 48 -- In Cinnabar Run and Cinnabar Gulch alluvium is slide rock and gravel 5-10 ft. thick; cinnabar concentrated on bedrock. Some systematic prospecting in 1943.

Rutledge, 1950 (RI 4719), p. 1 -- High-grade cinnabar float found, 1941.

p. 3-4 -- Placer claims staked, 1941, by Schaefer & Winchell and Landru.

p. 9 -- Trench 390 ft. long on Cinnabar Gulch upstream from Discovery claim; maximum overburden was 18 ft.; cinnabar on bedrock for length of trench, but no lode occurrence found. Altered basalt sill with quartz veins crosses head of gulch. Rest of data same as RI 4065 [quoted from USGS preliminary report].

Cady and others, 1955 (P 268), p. 66 -- Mercury deposits in area are associated with altered biotite basalt sills of probable earliest Tertiary age.

p. 108 -- Deposits do not persist far below surface.

p. 115 -- Average depth to bedrock about 7 ft. Tested placer deposits from 1,000 ft. above mouth of Cinnabar Gulch down to mouth of Cinnabar Run. Pay streak 2-6 in. thick and 25 ft. wide; cinnabar nuggets up to size of a fist. Nuggets increase in roundness downstream. Some have stibnite, quartz, and breccia fragments of siltstone attached. Lode source has not been found. At least one silica-carbonate sill crosses gulch.

Jasper, 1961, p. 77-78 -- Staked, 1941. Prospecting and sampling in 1943 did not develop an economically interesting yardage of material.

Malone, 1962 (IC 8131), p. 39 -- Placer ground located, 1941.

p. 57 -- Reference to p. 39.

Malone, 1965 (IC 8252), p. 40 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 35 -- Placer claims staked, 1941.

(Cinnabar Cr.) - Continued

p. 42-43 -- Placer deposit extends downstream from pit of Cinnabar Creek lode mine. In stream gravels and remnants of terrace gravels. Test pits showed a mining section 5-14 ft. thick with a mercury content from less than 0.10 lb. to 0.84 lb. per cu. yd. of gravel.

Berg and Cobb, 1967 (B 1246), p. 92 -- Placer cinnabar has been mined.

Cobb, 1973 (B 1374), p. 46 -- Cinnabar has been mined from placer; amount recovered was probably small.

(Gemuk Mtn.)

Antimony, Gold, Mercury

Aniak district
MF-384, locs. 5, 10

Taylor Mts. (0.05-0.15, 10.25-10.35)
60°35'N, 158°59'-159°00'W

Summary: 3 randomly selected samples of stibnite-rich pods and lenses in vein quartz in fault gouge and breccia contained 82-100 ppm gold. Zone is along contact between biotite diorite and hornfelsed quartzite and shale. Cinnabar panned from creek draining area of veins, but not found in bedrock.

Clark and others, 1970 (OF 439), p. 3, 6-7 (locality 6) -- Quartz-stibnite vein appears to be in a sheared contact between biotite diorite and hornfelsed quartzite and shale. Zone nearly vertical and at least 2 ft. wide. Vein material in pods and lenses from 1 in. to more than 6 in. thick in fault gouge and breccia. Individual anhedral grains of gold associated with stibnite-rich margins of pods and lenses; 3 randomly selected samples contained 82-100 ppm gold. Cinnabar panned from small stream draining vein area; none found in vein material.

(King Salmon R.)

Gold

Bristol Bay region

Taylor Mts.
SW 1/4 quad.

Summary: Coarse gold in upper valley; found in 1907.

Mertie, 1938 (B 903), p. 91 -- Coarse gold found in upper valley in 1907.

(Little Taylor Mts.)

Copper

Aniak district

Taylor Mts.

NW 1/4 NE 1/4 quad.

Summary: Traces of copper.

Cady and others, 1955 (P 268), p. 122 -- Traces of copper were noted.
[No other data given.]

Lucky Day

Antimony, Mercury

Aniak district
MF-384, loc. 3

Taylor Mts. (1.35, 13.15)
60°45'N, 158°51'W

Summary: Triassic siltstone and graywacke intruded by sills or dikes nearly parallel to bedding. Some intrusives altered to silica-carbonate-clay rock. Cinnabar-stibnite-native mercury mineralization in shear zone along margin of a sill, along bedding-plane faults, in cross joints, and in breccia zones. Explored by open cuts and shallow shafts. 26 flasks of mercury produced from hand-sorted residual float, 1942-43. Some ore mined from altered intrusive rock in 1954 stockpiled. See also (Cinnabar Cr.).

Webber and others, 1947 (RI 4065), p. 4 -- Sampled by USBM, 1943.

p. 44-49 -- Located, 1941. 15 flasks of mercury produced from 2,300 lbs. of detrital material in 1942; 11 flasks from 1,300 lbs. detrital material in 1943; no ore from lode itself. For data on regional geology see entry for Broken Shovel. Deposit is a breccia filling in a fractured zone in graywacke. Cinnabar intergrown with stibnite and quartz in small, irregular, lenticular masses. Gangue is quartz, calcite, sand, clay, gouge, and altered graywacke. Explored by trenches and short adits through overburden. 9 channel samples by USBM contained a weighted average of 10.5 lbs. per ton in a possible mineralized zone 632 ft. long and 3.2 ft. wide. Overburden 5-10 ft. thick.

Rutledge, 1950 (RI 4719), p. 1 -- 26 flasks of mercury recovered from 3,600 lbs. of detrital ore, 1942-43.

p. 3-4 -- Staked, 1941, by Schaefer & Winchell. 26 flasks of mercury from detrital ore; no mining of lode.

p. 6-8 -- Thin films of cinnabar associated with quartz and stibnite and small amount of native mercury along bedding-plane faults, cross joints, and brecciated zones in graywacke and shale. Samples contained 0.03-1.35% Hg and less than 0.2% Sb (only 3 Sb analyses). Another type of deposit is associated with sill-like basalt intrusives; lenticular pods of cinnabar parallel intrusives; lower grade mineralization along bedding-plane faults between pods and intrusives. Production was from hand-sorted residual material derived from these deposits. Pods of cinnabar (with stibnite, quartz, native mercury) pinch out horizontally and vertically.

Cady and others, 1955 (P 268), p. 113-115 -- 26 flasks of mercury produced mainly from surface pits and trenches. Biotite basalt sills, some now altered to silica-carbonate rocks, intruded shaly rocks of Cretaceous Kuskokwim Gp. Lode contains cinnabar, stibnite, native mercury, and dickite localized along and near hanging walls of sills. In upper part of lode cinnabar in bedding-plane fractures; in lower part in cross joints and breccia openings. "Ore" decreases in richness with decrease in elevation. Operator (Schaefer) believes that material that remains is too low grade to mine [as of about 1950?].

Jasper, 1961, p. 77-78 -- Located, 1941. 26 flasks of mercury recovered from weathered material, 1942-43.

Malone, 1962 (IC 8131), p. 8 -- Found before World War II.

p. 39-43 -- Located, 1941. 26 flasks of mercury recovered from 3,600 lbs. of high-grade float, 1942-43. References to P 268, RI 4065, RI 4719.

Lucky Day - Continued

Malone, 1965 (IC 8252), p. 32, 40-41, 53 -- Same as IC 8131.

Sainsbury and MacKevett, 1965 (B 1187), p. 35 -- Reference to RI 4719.

p. 41-42 -- By 1943, 26 flasks of mercury was produced from hand-sorted ore from residual placers. In 1954 more than a ton of rich ore was mined from altered intrusive rock and stockpiled. Country rock is massive siltstone and graywacke (Late Triassic age) of Gemuk Gp. intruded by sills or dikes nearly parallel to bedding; some of intrusives altered to silica-carbonate-clay rock. Explored by trenches, pits, shallow shafts. In one trench contact between a sill and siltstone is a fault. Contact zone sheared and altered; cinnabar and stibnite in quartz veinlets; small amounts of native mercury.

p. 80-81 -- Analysis of ore sample.

Berg and Cobb, 1967 (B 1246), p. 93 -- 26 flasks of mercury recovered during World War II.

Hawley and others, 1969 (C 615), p. 18-19 -- Reference to B 1187. Analyses of 2 samples of cinnabar ore.

(Mulchatna R.)

Gold

Bristol Bay region

Taylor Mts.

E 1/2 SE 1/4 quad.

Summary: Fine flour gold on river bars, .

Martin and Katz, 1912 (B 485), p. 133 -- Fine flour gold on all river bars above
Koktalee R.

(Pulchatnachakcharak R.)

Gold

Bristol Bay region

Taylor Mts.
NW 1/4 SE 1/4 quad.

Summary: Colors of gold have been found. This is the stream now called
McGeary Cr.

Mertie, 1938 (B 903), p. 91 -- Colors of gold have been found.

Redskin

Mercury

Aniak district
MF-384, loc. 4

Taylor Mts. (1.4, 13.0)
60°44'N, 158°50'W

Summary: Sparse films of cinnabar along bedding planes, cross joints, and in breccia zones in graywacke and shale. No record of any production.

Webber and others, 1947 (RI 4065), p. 4 -- Investigated by USBM, 1943.

p. 44-47 -- For data on regional geology see entry for Broken Shovel.

No cinnabar occurrences found by USBM in 1943; examination was cursory.

Rutledge, 1950 (RI 4719), p. 4 -- Claim staked by Schaefer & Winchell.

p. 8 -- Brief examination by USBM in 1947. Sparse films of cinnabar along bedding planes, cross joints, and in breccia zones in graywacke and shale.

Cady and others, 1955 (P 268), p. 115 -- Lode said to be comparable with, but less extensive than, Lucky Day.

Malone, 1962 (IC 8131), p. 39 -- Claim staked, 1941.

Sainsbury and MacKevett, 1965 (B 1187), p. 42 -- Quotation from RI 4719.

Schaefer

Mercury

Aniak district
MF-384, loc. 2

Taylor Mts. (1.35, 13.8)
60°47'N, 158°51'W

Summary: Cinnabar and stibnite in quartz gangue in breccia zone in siltstone and graywacke. No record of any production. See also: Broken Shovel, Cinnabar Creek, (Cinnabar Cr.), Lucky Day, Redskin (Schaefer owned all of them).

Sainsbury and MacKevett, 1965 (B 1187), p. 40-41 -- Breccia zone of variable width parallel to bedding of chert and siltstone. Cinnabar and stibnite in a quartz gangue that cements breccia fragments. Sulfides in part interstitial and in part replacing quartz and breccia fragments. Cinnabar erratically distributed. Owner reported finding fossils replaced by solid cinnabar.

(Sleitat Mtn.)

Gold, Tungsten

Bristol Bay region
MF-384, loc. 8

Taylor Mts. (17.0, 1.2) approx.
60°03'N, 157°04'W approx.

Summary: Small granitic intrusive body; gold discovered in about 1930 in small quartz veins around periphery; wolframite in a pegmatite vein. Gold worth \$200 was recovered. Coarse colors of gold in a nearby creek.

Mertie, 1938 (B 903), p. 91 -- Small body of granitic rocks. Gold in small gash veins around periphery. Lode gold worth \$200 was recovered. A few coarse colors of gold in a nearby creek.

Berg and Cobb, 1967 (B 1246), p. 14 -- Gold lode discovered about 1930; small quartz veins near periphery of small granitic intrusive. A little wolframite in a pegmatite vein in same granitic body.

(Stevens Cr.)

Tungsten

Aniak district
MF-384, loc. 7

Taylor Mts. (14.1, 16.85) approx.
60°57'N, 157°21'W approx.

Summary: Wolframite in vein-quartz float from contact aureole around Taylor Mts. granite stock.

Cady and others, 1955 (P 268), p. 83 -- Wolframite was found in a loose fragment of a milky quartz vein like those that extend from borders of granite stock into contact metamorphic zone [developed in rocks of Kuskokwim Gp. (Cretaceous), according to geologic map].

p. 121 -- Loose specimen of wolframite, associated with vein quartz, collected from ridge west of Stevens Cr.; apparently weathered from contact-metamorphic zone north of Taylor Mts. granite stock.

Cobb, 1973 (B 1374), p. 43, 46 -- Wolframite in float.

(Taylor Cr.)

Gold, Mercury, Tin

Aniak district
MF-384, loc. 11

Taylor Mts. (14.0-15.05, 15.45-16.0)
60°53'-60°54'N, 157°15'-157°22'W

Summary: Placer deposits contain gold, cinnabar, cassiterite, and pyrite. Production, mainly in 1950-51, was about 2,500 fine ounces of gold. Placers were probably derived from contact zones around felsic bodies that intruded and altered clastic Cretaceous rocks to hornfels.

Cady and others, 1955 (P 268), p. 71 -- Gold concentrates contain much pyrite, possibly from source rocks similar to those exposed on summit of Little Taylor Mts. where albite rhyolite sheets and surrounding sedimentary rocks are pyritized and sericitized or silicified.

p. 116 -- Placer gold probably derived from quartz fracture fillings in breccia zones at or near contacts between silicified and sericitized rhyolite and adjacent graywackes and shales of Kuskokwim Gp. [Cretaceous].

p. 119 -- Bedrock interbedded shale and graywacke intruded by large albite rhyolite sheets. Gold in stream gravel; average depth to bedrock about 10 ft. Cinnabar and cassiterite with gold. Below Fork Cr. concentrates contain much pyrite probably derived from silicified and pyritized zone near rhyolite dikes at summit of Little Taylor Mts. Production, mainly in 1950-51, was worth about \$90,000.

Cobb, 1973 (B 1374), p. 43 -- 2,000 [arithmetic error; should be about 2,500] ounces of gold has been mined; accompanied by cassiterite, cinnabar, and pyrite. Probably derived from mineralized zones in Cretaceous clastic rocks altered to hornfels around quartz monzonite stock in Taylor Mts. or from mineralization associated with rhyolite intrusives in Little Taylor Mts.

(Tikchik Mtn.)

Gold

Bristol Bay region

Taylor Mts.

S. cen. 1/4 SW 1/4 quad.

Summary: Fine placer gold reported to have been found on north and west sides of Tikchik Mtn.

Mertie, 1938 (B 903), p. 91 -- Fine gold has been found along north and west flanks of mountain.

Eakins, 1968 (GC 17), p. 8 -- A little placer gold reportedly has been found on north and west sides of mountain.

Unnamed occurrences

Copper

Aniak district
MF-384, loc. 6

Taylor Mts. (2.2, 8.9)
60°30'N, 158°45'W

Summary: Arsenopyrite and chalcopyrite in quartz veins in hornfelsed shale and graywacke near a felsic dike. Copper stain on fracture surfaces.

Clark and others, 1970 (OF 439), p. 3, 6 (locations 11-13) -- Shale and graywacke hornfelsed by rhyolite to dacite dike about 15 ft. wide. Quartz veins in hornfels contain arsenopyrite and minor chalcopyrite; fracture surfaces copper stained. Stibnite may be present, as antimony content of analyzed samples was high.

Synonyms, Claim Names, Operators, and Owners

Many mines and prospects have undergone changes in both their own names and in the names of their operators and owners. All names that appear in the cited references appear in this summary either in the first section as occurrence names or in this as synonyms. Descriptions of placer deposits commonly give little information on the location of individual mines or claims, so the names of all operators and owners of placer mines and claims are in this section with a notation to refer to the description of the stream that was mined or prospected.

(Arcana Cr.) -- see (Marsh Mtn.)
 DeCoursey Mountain Mining Co. -- see (Marsh Mtn.)
 Feeder -- see (Marsh Mtn.)
 (Feeder Cr.) -- see (Marsh Mtn.)
 (Kemuk Mtn.) -- see Humble Oil & Refining Co.

 (Kuktuli R.) -- see (Koktalee R.)
 Moneta Porcupine Mines, Ltd. -- see (Marsh Mtn.)
 Moneta Porcupine Mining Co. -- see (Marsh Mtn.)
 Rasmussen -- see (Marsh Mtn.)
 Red Cap -- see (Marsh Mtn.)

 Red Top -- see (Marsh Mtn.)
 Red Top Mercury Mines, Inc. -- see (Marsh Mtn.)
 Red Top Mining Co. -- see (Marsh Mtn.)
 Ryan -- see (Marsh Mtn.)
 3"W" -- see (Marsh Mtn.)

 Waskey (, Wren & Wolf) -- see (Marsh Mtn.)

Alaska Mines & Minerals, Inc. -- see Barometer, Fairview, Red Devil
Alice -- see Alice & Bessie
Bessie -- see Alice & Bessie
Bettles -- see Cinnabar Chief, (Kolmakof)
Buck -- see Willis

Cordero Mining Co. -- see Alice & Bessie, Rhyolite
Decoursey Mountain Mining Co., Inc. -- see Barometer, Red Devil
Dunkle -- see Alice & Bessie
Eurica -- see Red Devil
Fuller & Willis -- see Willis

Halvorson -- see Barometer, Red Devil
Halvorson & Mellick -- see Red Devil
Headache -- see Willis
Jack -- see Willis
Jaufok -- see (Kolmakof)

Kusko -- see Red Devil
Kuskokwim Mercury Co. -- see Cinnabar Chief
Kuskokwim Mining Co. -- see Red Devil
Lind -- see (Kolmakof)
Lyman -- see Red Devil

Lyman & Struver -- see Rhyolite
(Mary Cr.) -- see (Murray Gulch)
Mellick & Halvorson -- see Red Devil
Murphy & Willis -- see Barometer
New Idria-Alaska Quicksilver Mining Co. -- see Red Devil

Nick -- see Willis
Parks -- see Alice & Bessie, Barometer
Rabidoux -- see (Kolmakof)
Relief -- see Willis
Rhophs -- see Barometer

Sam -- see Willis
Schaefer -- see (Fortyseven Cr.)
Schmidt & Stampe -- see Red Devil
Skidmore -- see Barometer
Struver & Lyman -- see Rhyolite

Stuver -- see Rhyolite
Wamco -- see (Kolmakof)
Western Alaska Mining Co. -- see (Kolmakof)
Willis & Fuller -- see Willis
Willis, Lyman (& Mellick) -- see Alice & Bessie

Wylie -- see Mountain Top

Bristol Bay Mining Co. -- see (Cinnabar Cr.)

(Canary Gulch) -- see Lucky Day

(Cinnabar Gulch) -- see (Cinnabar Cr.)

(Cinnabar Run) -- see (Cinnabar Cr.)

Landau -- see Broken Shovel

Landru -- see Broken Shovel, (Cinnabar Cr.)

(McGeary Cr.) -- see (Pulchatnachakcharak R.)

New York-Alaska (Gold Dredging) Corp. -- see Broken Shovel, (Cinnabar Cr.),

Lucky Day, Redskin

Schaefer & Winchell -- see (Cinnabar Cr.), Lucky Day, Redskin

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References are listed, by quadrangle, in standard format alphabetically by author and, secondarily, chronologically if an author prepared more than one report or map. This section was prepared by stacking bibliography cards in a document protector and duplicating them on an office copying machine. This procedure makes retyping unnecessary, but has the disadvantages that the edges of cards reproduce as horizontal lines between entries and that margins and spacing are not constant.

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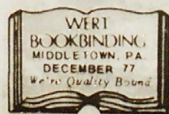
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