UNITED STATES

DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

SUMMARY OF REFERENCES TO MINERAL OCCURRENCES

(OTHER THAN MINERAL FUELS AND CONSTRUCTION MATERIALS)

IN THE TANANA QUADRANGLE, ALASKA

OPEN-FILE REPORT 77-432

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

Menlo Park, California

1977

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

By

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Introduction

These summaries of references are designed to aid in library research on metallic and nonmetallic (other than mineral fuels and construction materials) mineral occurrences in the Tanana quadrangle, Alaska. All references to reports of the Geological Survey, to most reports of the U.S. Bureau of Mines, and to most reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before January 1, 1977, 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 by occurrence name; a section that lists synonyms for names in the first section, claim names, and the names of operators and owners of mines and prospects; and a section that lists, by author, all references summarized in the first section.

ALASKA
ARCTIC OCEAN
PACIFIC OCEAN
GULF OF ALASKA
CANADA
U.S.A.

Index Map

Summaries of References

For each mineral occurrence there is a page that gives the name of the occurrence; the mineral commodities present (listed alphabetically for metallic commodities and then for nonmetallic commodities [FM is used for uranium and(or) thorium determined chemically or present as a constituent of an identified mineral other than monazite; RE is used if a mineral (other than monazite) containing any rare-earth element was identified]; the mining district (Ransome and Kerns, 1954) in which the occurrence is located; the name of the 1:250,000-scale topographic quadrangle (Tanana); coordinates (as described by Cobb and Kachadoorian, 1961, p. 3-4]; the metallic mineral resources map number (MF-371) 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 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 excep-

tion that references to reports and maps in numbered publication series also show, in parentheses, an abbreviation for the report or map series and the report or map number. Abbreviations used are:

B	U.S. Geological Survey Bulletin
BMB	U.S. Bureau of Mines Bulletin
C	U.S. Geological Survey Circular
GC	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geochemical Report
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 Miscallaneous 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.

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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 or other deposit that was mined or prospected.

Abe Lincoln -- see (Sullivan Cr.)
Alaska Gold Dredging Co., Ltd. -- see (Idaho Gulch), (Sullivan Cr.), (Tofty Gulch)
Albrecht & Hanson -- see (Woodchopper Cr.)
Albrecht & Hanson Co. -- see (Deep Cr.)
Albrecht, Mellianic & Dean -- see (Deep Cr.)

American Creek Dredging Co. -- see (American Cr.)
American Creek Mining Co. -- see (American Cr.)
American Creek Operating Co. -- see (American Cr.)
American Eagle -- see (Tofty Gulch)
Bargery -- see (Woodchopper Cr.)

Barrett -- see (Hot Springs Dome)
Beardsley, Belsea & Dillon -- see (Glen Cr.)
Benson -- see (Cache Cr.)
Besonen (& McKinzie) -- see (Deep Cr.)
(Big Boulder Cr.) -- see (Boulder Cr.)

(Big Denver Cr.) -- see (Hot Springs Dome)
(Big Minook Cr.) -- see (Minook Cr.)
Bittner -- see Avnet
Bock -- see (Deep Cr.), (Tofty Gulch), (Woodchopper Cr.)
Bock & Co. -- see (Woodchopper Cr.)

Bock & Danielson -- see (Deep Cr.)
Bock & Hanson -- see (Deep Cr.)
(Boothby Cr.) -- see (Pioneer Cr.)
Borghill -- see (Deep Cr.)
Boston Boys -- see (Eureka Cr.)

Brock and associates -- see (Pioneer Cr.)
Brock & Johnson -- see (Eureka Cr.)
Busby -- see Avnet
Cameron & Midgeley -- see (Cache Cr.)
Cessford, Albrey & Amlon -- see (Tofty Gulch)

Cleary Hill Mines, Inc. -- see (Idaho Gulch), (Quartz Cr. tributary to Sullivan Cr.), (Sullivan Cr.), (Tofty Gulch)
Cleopatra -- see (Deep Cr.)
(Columbe Cr.) -- see (Tozimoran Cr.)
(Coonie Cr.) -- see (Cooney Cr.)
Cunningham and associates -- see (Little Minook Cr.)

(Dakota Bar) -- see (Sullivan Cr.)
Danielson -- see (Deep Cr.)
Dean -- see (Miller Gulch)
Deep Creek Mining Co. -- see (Deep Cr.)
Dellas & Hanson -- see (Deep Cr.)

Dietz, Kobich and others -- see (Dalton Gulch)
Donahue -- see (Idaho Gulch)
Donnelly -- see (Hot Springs Dome)
(Doric Cr.) -- see (Pioneer Cr.)
Eagle Mining Co. -- see (Glen Cr.)

Eglar, Wallick and others -- see (Tofty Gulch)
Erickson -- see (Cache Cr.)
Fisher (& Fisher) -- see (Grant Cr.)
Frank & Graham -- see (Pioneer Cr.)
Frank, J. R., & Co. -- see (Eureka Cr,), (Pioneer Cr.)

Gill -- see (Eureka Cr.), (Pioneer Cr.)
Golden Straw -- see (Deep Cr.)
Good Hope -- see (Deep Cr.)
Granite Quartz -- see (Hot Springs Dome)
Hansen (& Albrecht) -- see (Deep Cr.)

Hansen & Linberg -- see (Woodchopper Cr.)
Hanson & Albrecht -- see (Deep Cr.)
Hanson & Bock -- see (Gold Basin Cr.), (Killarney Cr.)
Hanson & Hasler -- see (Woodchopper Cr.)
Hanson, Tilleson & Linder -- see (Woodchopper Cr.)

Hard Luck -- see (Deep Cr.)
Harter -- see (Tofty Gulch)
Hartner -- see (Sullivan Cr.)
Hillside Association -- see (American Cr.)
(Hokeley Gulch) -- see (Deep Cr.)

(Homestake Bar) -- see (Quartz Cr., tributary to Sullivan Cr.)
(Hootlenana Cr.) -- see (Hutlinana Cr.)
Hovley -- see (Cache Cr.)
Howell -- see (Deep Cr.), (Miller Gulch), (Sullivan Cr.)
Howell & Bargery -- see (Gold Basin Cr.), (Killarney Cr.)

Howell & Cleveland -- see (Boulder Cr.), (Sullivan Cr.), (Woodchopper Cr.)
Howell & Stewart -- see (Miller Gulch)
Howell & Sullivan -- see (Cache Cr.)
Hunter -- see (Hunter Cr.)
(Hutlina Cr.) -- see (Hutlinana Cr.)

(Innesvale Gulch) -- see (Deep Cr.)
Iron Mask -- see (Hot Springs Dome)
Jarvi -- see (Woodchopper Cr.)
Jarvi & Linder -- see (Deep Cr.)
Johnson & Johnson -- see (Glen Cr.)

Johnson & Toftaker -- see (Glen Cr.), (Shirley Bar)
(Jordan Bar) -- see (Pioneer Cr.)
Jorgensen (& Clegg) -- see (Woodchopper Cr.)
Junction -- see (Sullivan Cr.)
Kemper -- see (Tofty Gulch)

Lake -- see (Deep Cr.)
Langford -- see (Little Minook Cr.)
Larsen -- see (Deep Cr.)
(Last Bench) -- see (Pioneer Cr.)
Lieber & File -- see (Sullivan Cr.)

(Little Mynook Cr.) -- see (Little Minook Cr.)
Lorain -- see (Woodchopper Cr.)
(Lynx Cr.) -- see (Grant Cr.)
Marietta -- see (Deep Cr.)
McGee -- see (Idaho Gulch), (Sullivan Cr.), (Tofty Gulch)

McLaughlin -- see (Harter Gulch)
McLean -- see (Little Minook Jr. Cr.)
McVicar, Snyder & Marshall -- see (Sullivan Cr.)
Midnight Sun -- see (Sullivan Cr.)
Millianich -- see (Miller Gulch)

Minook -- see (Little Minook Cr.)
Minook, Ltd. -- see (Little Minook Cr.)
Mohawk Association -- see (Woodchopper Cr.)
Montana Mining Co. -- see (Omega Cr.)
(Moraine Cr.) -- see (Tozimoran Cr.)

(Moran Cr.) (Gulch) -- see (Tozimoran Cr.)
(Mynook Cr.) -- see (Minook Cr.)
Nelson & Johnson -- see (Deep Cr.)
(Oakley Cr.) -- see (Deep Cr.)
Olga -- see (Deep Cr.)

(Orange Cr.) -- see (Omega Cr.)
Pearl -- see (Deep Cr.)
Pringle and associates -- see (Rhode Island Cr.)
Purkeypile & Webories -- see (Tozimoran Cr.)
Rachel -- see (Deep Cr.)

Radovich -- see (Miller Gulch)
Rampart Gold Mining Co. -- see (Minook Cr.)
Richards -- see (Dalton Gulch), (Harter Gulch)
Rolke -- see (Woodchopper Cr.)
(Seattle Bar) -- see (Pioneer Cr.)

(Seattle Jr. Cr.) -- see (Pioneer Cr.)
(Shevlin Cr.) -- see (Schieffelen Cr.)
(Skookum Cr.) (Gulch) -- see (Pioneer Cr.)
Snyder (, Harter & Kamper) -- see (Tofty Gulch)
Snyder & Kempter -- see (Sullivan Cr.)

Stewart, McLean & McKinzie -- see (Miller Gulch)
Strandberg Mines, Inc. -- see (Deep Cr.), (Idaho Gulch), (Sullivan Cr.), (Tofty Gulch), (Woodchopper Cr.)
Tilleson & L'Heureux -- see (Sullivan Cr.)
(Tufty Gulch) -- see (Tofty Gulch)
U.S. Association -- see (Miller Gulch)

Vogt -- see (Bonanza Cr.), (Morelock Cr.)
Webories & Purkeypile -- see (Tozimoran Cr.)
(What Cheer Bar) -- see (Pioneer Cr.)
Wild Goose -- see (Deep Cr.)
Wild Goose Association -- see (American Cr.)

Zickwolff -- see (Tozimoran Cr.)

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References are listed in standard bibliographic 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 retying unnecessary, but has the disadvantages the the edges of cards reporduce as horizontal lines between entries and that margins and spacing are not constant.

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(American Cr.) Chromite, Gold

Hot Springs district Tanana (13.2-13.55, 1.5-2.15)
MF-371, loc. 20 65°05'-65°07'N, 151°10'-151°13'W

Summary: Stream roughly parallel to regional strike; valley asymmetrical with south wall much steeper than north wall. Depth to bedrock generally about 15 ft.; alluvium frozen and must be thawed before mining. Gold in lower 4 ft. of gravel and in crevices in top 2-3 ft. of bedrock. Concentrates contain chromite, barite, gold, and iron minerals. Gold discovered in 1911 and mined in most years through 1940; dredge installed in 1927. Production to summer of 1931 was about 34,000 oz. of gold; probably was at least as much more, 1931-40. Includes references to: American Creek Dredging Co., American Creek Operating Co.

Eakin, 1912 (B 520), p. 281, 283-284 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 33 -- Auriferous gravels similar to those of Patterson Cr.
p. 35 -- Mining, 1911.
p. 37 -- Gold discovered, 1911. Ground 12-15 ft. deep. Considerable production from one claim.
Ellsworth and Davenport, 1913 (B 542), p. 220 -- Prospects found, 1911. Three pans from a rich spot on a claim yielded about $100. Average depth to bedrock about 14 ft.
Brooks, 1914 (B 592), p. 68 -- Mining, 1913.
Chapin, 1914 (B 592), p. 362 -- Mining, 1913.
Eakin, 1915 (B 622), p. 239 -- New machinery; good mining year.
p. 245 -- Upper valley is steep sided, narrow, and cut in bedrock. Lower part is gentle and in a flat continuous with that of lower Sullivan Cr. Mining in upper part where alluvium is 12-18 ft. deep. Pay streak 40-100 ft. wide; some ground runs as much as $1.35 a bedrock foot. Five claims being mined in 1914.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMB 153), p. 52 -- Mining, 1916.
Brooks, 1918 (B 662), p. 57 -- Mining, 1916.
Chapin, 1919 (B 692), p. 335 -- Mining in upper part of valley, 1917.
Martin, 1919 (B 692), p. 37 -- Mining, 1917.
Brooks and Martin, 1921 (B 714), p. 82 -- Mining, 1919.
Capps, 1924 (B 755), p. 149-150 -- Bench gravels have no apparent relation to present streams. Stream scraper used to mine ground 9 or 10 ft. deep.
Smith, 1926 (B 783), p. 14 -- Increase in production, 1924.
Smith, 1929 (B 797), p. 22 -- No mining, 1926. Ground to be dredged later.
Smith, 1930 (B 810), p. 28, 40-41 -- New dredge began mining, 1927.
Smith, 1930 (B 813), p. 32, 47 -- Dredge operated, 1928.
Smith, 1932 (B 824), p. 36, 52 -- Dredge operated part of season, 1929.
Smith, 1933 (B 836), p. 36, 54-55 -- Mining, 1930, but dredge did not operate.
Smith, 1933 (B 844-A), p. 37 -- Preparatory work, 1931. Dredge operated only a few hours.

(American Cr.) - Continued

Mertie, 1934 (B 844-D), p. 213-214 -- Stream roughly parallel to regional strike; valley asymmetrical with steeper south wall. Gold placers discovered, 1911; dredging began, 1917. Near mouth of Colorado Cr. gravel is 7-8 ft. thick beneath 5-7 ft. of muck; lower 4 ft. of gravel is abnormally coarse and carries gold throughout. Ground frozen and must be thawed ahead of dredge. Dredge also takes up top 2-3 ft. of bedrock. Sample of concentrate contained magnetite, pyrite, ilmenite, barite, chromite, and hematite. Mining (dredge and open cuts), 1931. Total production to summer of 1931 worth about $702,000 [about 34,000 fine oz.].

Smith, 1934 (B 857-A), p. 33, 71 -- Dredge operated, 1932.

Smith, 1934 (B 864-A), p. 39, 57 -- Dead work; dredge did not operate, 1933.

Waters, 1934 (B 844-D), p. 241 -- Minerals in concentrate samples included magnetite, pyrite, ilmenite, barite, chromite, hematite, garnet, gold, and one piece of tourmaline.

Smith, 1936 (B 868-A), p. 41, 59 -- Dredge operated, 1934.

Smith, 1937 (B 880-A), p. 42, 61 -- Dredge operated, 1935.

Smith, 1938 (B 897-A), p. 51, 71 -- Dredge operated, 1936.

Smith, 1939 (B 910-A), p. 52, 77 -- Preparatory work, dredge did not operate, 1937.

Smith, 1939 (B 917-A), p. 50, 75 -- Dredge operated, 1938.

Smith, 1941 (B 926-A), p. 47, 71 -- Dredge operated, 1939; other mining also.

Smith, 1942 (B 933-A), p. 43, 67 -- Dredge reported to have mined out all ground available to owners, 1940.

Wayland, 1961 (B 1058-I), p. 396 -- No cassiterite; has been extensively dredged since 1917 [should be 1927].

Cobb, 1973 (B 1374), p. 141 -- Has not been studied in detail; shape and orientation of mined area suggest that much may be a stream placer, probably derived only in part from an older bench deposit.

p. 143 -- Dredge was only one in district; ground had to be thawed and stripped before mining.

(American Gulch) Gold

Melozitna district Tanana (0.4, 4.8)
MF-371, loc. 14 65°16'N, 152°56'W

Summary: Unfrozen auriferous gravel 10-12 ft. deep. No record of successful mining. Gulch is assumed to be headwater tributary of Lynx Cr., which was called Grant Cr. in 1911.

Eakin, 1912 (B 520), p. 282 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 34 -- Small tributary of Grant Cr. Gravels 10-12 ft. deep and unfrozen. Some of ground said to run as high as $1 per bedrock foot.
Martin, 1919 (B 692), p. 39 -- Dead work only, 1917.

(Ash Cr.)

Gold, Tin

Melozitna district

Tanana (1.35, 6.7)
65°23'N, 152°48'W

Summary: Cassiterite in gravels within 1,200 ft. of mouth. Placer gold in valley. No record of any mining.

Chapman and others, 1963 (OF 239), p. 16 -- Not known to have been systematically prospected. Some placer gold reported from valley.

p. 25.-- Gold and cassiterite in drill-hole samples taken within 1,200 ft. of mouth.

p. 39-32 -- Samples from 5 drill holes into bedrock contained 5,529 grams of tin in 190.35 grams of sample. Ash Cr. drainage probably is the source of more tin mineralization than that of Tozimoran Cr. above mouth of Ash Cr.

Avnet — Manganese, Silver

Rampart district — Tanana (19.3, 5.0)
MF-371, loc. 7 — 65°16'N, 150°22'W

Summary: Psilomelane as surficial coatings on, and veinlets and small irregular masses in, quartzite rubble derived from Paleozoic metamorphic rocks. Found in area 3,000 ft. by 600 ft.; abundant in frost boils. USBM assays showed 0.59% to 34.4% manganese and as much as 0.28 oz. silver per ton. See also (Baldry Mtn.)

Thomas, 1965 (USBM OF 10-65) -- Along crest of ridge between Granite and Rock Creeks 5-1/2 mi. SW of Baldry Mtn.; altitude about 3,000 ft. Work consisted of a trench 40 ft. long, 3 ft. wide, and 2 ft. deep; 2 pits; and some surface scrapings. In loose quartzite rubble and frost boils. Bedrock is Paleozoic metamorphic rocks (reference to B 535, p. 16-27). Small fragments of psilomelane thinly scattered in an area 3,000 ft. by 600 ft., in frost boils, and in talus. Psilomelane, of probable hydrothermal origin, occurs as irregular masses 2-3 in. in longest dimension, as lattice of thin seams in vein quartz, and as thin surface coatings on rubble. Analyses of samples showed from 0.59% to 34.4% Mn and from none to 0.28 oz. Ag per ton. Recommends more exploration and sampling.

Berg and Cobb, 1967 (B 1246), p. 236-237 -- Same data as above.

(Baldry Mtn.) Manganese

Rampart district Tanana (19.5, 5.8) approx.
MF-371, loc. 10 65°18'N, 150°26'W approx.

Summary: Has been exploration work on a psilomelane prospect. See also Avnet.

Burand and Saunders, 1966 (GC 12), p. 5 -- "Some exploration work has been done on a manganese deposit (psilomelane) west of Baldry Mountain..."

(Bear Cr.)

Gold (?)

Melozitna district

Tanana
NW 1/4 SE 1/4 quad.

Summary: Has been prospecting and (possibly) mining. References may not all be to the same Bear Cr.

Mertie, 1934 (B 844-D), p. 192 -- Has been prospecting. [No data on location or results.]

Smith, 1936 (B 868-A), p. 44 -- "Some gold was also produced at camps in the valleys of Big Minook, Little Minook, Jr., Bear, Slate, and Hoosier Creeks," 1934. [May not be the same Bear Cr. as in above reference.]

Smith, 1937 (B 880-A), p. 47 -- Identical to reference in B 868-A, except applicable to 1935.

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(Bonanza Cr.) Gold, Tin

Melozitna district Tanana (12.2, 5.9)
MF-371, loc. 18 65°19'N, 151°20'W

Summary: Tributary of Morelock Cr. Bedrock is schist, greenstone, cherty dolomite and limestone, and barren milky quartz veins. Gold and cassiterite in basal part of 5-6 ft. of gravel, on irregular bedrock surface, and in crevices in bedrock; 0.0443 lb. tin and 0.00973 oz. gold per cu. yd. in USBM drill holes. Concentrates contain gold, magnetite, cassiterite, and ilmenite. All work was prospecting rather than mining. See also (Morelock Cr.).

Mertie, 1934 (B 844-D), p. 192 -- Principal heavy minerals in concentrate sample were magnetite, cassiterite, and ilmenite. [Creek erroneously identified as tributary of Bear Cr.]

Thomas and Wright, 1948 (RI 4322), p. 6-7 -- Drilling indicated average of 0.0443 lb. Sn and 0.00972 oz. Au per cu. yd.

Chapman and others, 1963 (OF 249), p. 5-12 -- Reference to B 844-D, p. 192. No granite in drainage basin; bedrock is greenstone, schist, recrystallized cherty dolomite and limestone, and abundant milky quartz veins without metallic minerals. Alluvium in valley is generally 5-6 ft. of gravel and 2-3 ft. of silt. Cassiterite and gold in bottom few inches of gravel, on irregular surface of bedrock, and in crevices in top few inches of weathered bedrock; weathering and erosion produced natural riffles. Tin- and gold-bearing gravels extend at least 900 ft. upstream from mouth. Samples from a line of drill holes indicated averages of 0.1492 lb. Sn and 0.0328 oz. Au per square yard [of bedrock].

(Boulder Cr.) Chromite, Gold, Monazite, RE (?)

Hot Springs district Tanana (14.0-15.6, 2.55-3.0)
MF-371, locs. 4, 22, 23 65°08'-65°09'N, 150°53'-151°06'W

Summary: Asymmetrical valley with a broad bench in gentler north wall; placers are part of a large body of low-grade gravel with a workable width of 1,200 ft. that extend for several miles along the stream about 1,000 ft. from it. Minerals in concentrate samples included magnetite, ilmenite, zircon, gold, rutile, garnet, sphene, monazite, and aeschynite (?). Mining, 1915-17, 1930-39. Total production not known. Serpentinized ultramafic rock on ridge south of creek contains disseminated grains of chromite; pieces of chromite in float are as much as 6 inches in diameter. Includes reference to (Big Boulder Cr.).

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Brooks, 1918 (B 662), p. 57 -- New discoveries of placer ground, 1916.
Chapin, 1919 (B 692), p. 331 -- Large bodies of low-grade gravel being worked, 1917.

p. 335 -- South valley wall steep; no gravel. North valley wall gentle with alluvial cover 8-12 ft. deep that contains gold. Placer extends for several miles along bench; workable width 1,200 ft. Over 200,000 ft. of bedrock cleaned in 1917.

Martin, 1919 (B 692), p. 37-38 -- Mining, 1917. Large bodies of low-grade gravel.
Smith, 1933 (B 836), p. 36 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 214-215 -- Mining, 1931; 7,000 sq. ft. of bedrock cleaned. Sample of concentrates contained magnetite and ilmenite. Gold worth $16.90 an ounce [old price].
Smith, 1934 (B 857-A), p. 33 -- Mining, 1932.
Waters, 1934 (B 844-D), p. 241 -- Minerals in concentrate samples included magnetite, ilmenite, zircon, gold, rutile, garnet, and sphene.
Smith, 1937 (B 880-A), p. 42 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.
Moxham, 1954 (C 317), p. 6 -- Serpentinized ultramafic rock near head. Chromite float on slope to south and lenses and stringers of chromite in bedrock. Has been sporadic mining of placer gold from Tertiary gravels; zircon and monazite are radioactive; probably derived from quartz monzonite of Roughtop Mtn. Eschynite (?) in radioactive pebbles reportedly from Boulder Cr.
Wayland, 1951 (B 1058-I), p. 396 -- No cassiterite in concentrates.
Berg and Cobb, 1967 (B 1246), p. 223 -- Grains of chromite disseminated in serpentinized ultramafic rock and as pieces of float up to 6 in. in diameter on ridge to S.
Overstreet, 1967 (P 530), p. 111 -- Reference to C 317, p. 6.
Cobb, 1973 (B 1374), p. 141 -- Most mining was on a bench 1,000 ft. N of stream.

(Cache Cr.) Chromite, Gold, RE, Silver, Tin

Hot Springs district Tanana (16.15, 2.0-2.05)
MF-371, loc. 33 65°06'N, 150°49'W

Summary: Bedrock phyllite, slate, graywacke, quartzite, sandstone; many essentially barren quartz veins. Gravels mainly locally derived; some cobbles of serpentinized gabbroic rock. Gravel overlain by muck and loess several 10's of feet thick; entire deposit frozen. Gold and cassiterite discovered 1909-10. Main pay streak in upper valley essentially mined out by 1913; very rich in places. Later mining (continued until as recently as 1940 or 1941) farther downstream. Total production through 1956 was 3,650 oz. gold, 409 oz. silver, and 5,155 lb. cassiterite concentrate. Heavy minerals in concentrates include cassiterite (mainly intergrown with tourmaline), gold, magnetite, ilmenite, barite, picotite, and eschynite (Nb, Ti, Ce metals). Chromite fragments in gravel. See also: (Ferguson Draw), (Sullivan Cr.).

Ellsworth, 1910 (B 442), p. 243 -- Mining began, winter 1908-09.
Ellsworth and Parker, 1911 (B 480), p. 166 -- Increased production, 1910.
Eakin, 1912 (B 520), p. 283-284 -- Preliminary to B 535.
Hess, 1912 (B 520), p. 92 -- Placer cassiterite present.
Eakin, 1913 (B 535), p. 33 -- Placers 30-75 ft. below surface. Gravel mainly angular pieces of country rock; some rounded quartzite boulders. Bedrock surface weathered and brecciated; gold in top foot or more.
p. 35-36 -- Mining, 1911. At one mining plant gravel is 50 ft. deep.
Ellsworth and Davenport, 1913 (B 542), p. 221 -- Mining, 1912. Much placer tin present; bedrock source being sought.
Eakin, 1915 (B 622), p. 242, 245 -- Prospecting and mining, 1914.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMB 142), p. 25 -- Mining, 1915.
Brooks, 1918 (B 662), p. 57 -- Mining, 1916.
Chapin, 1919 (B 692), p. 334 -- A little sniping for tin, 1917.
Smith, 1929 (B 797), p. 22 -- Mining, 1926.
Mertie, 1934 (B 844-D), p. 212 -- Section at one mine was 45 ft. muck and 10 ft. gravel (phyllite, slate, crystalline limestone, diabase) resting on phyllite and slate (presumably Lower Cretaceous). Minerals in concentrates included gold, magnetite, pyrite, ilmenite, barite, and picotite. Sample from farther upstream contained cassiterite.
Waters, 1934 (B 844-D), p. 240-241. Minerals in samples from upper Cache Cr. include magnetite, pyrite, ilmenite, zircon, barite, cassiterite, garnet, sphene, andalusite, picotite, aeschynite, and gold.
Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 844-D, p. 240.
Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.

(Cache Cr.) - Continued

Thomas, 1957 (RI 5373), p. 6-8 -- Has been drift mining. Total production through 1956 was 3,650 oz. Ag, and 5,155 lb. cassiterite concentrate. Creek in "tin belt."

p. 48 -- Sampling a tailing pile indicated recoverable content of 4.27 lb. concentrate (2.26 lb. Sn and 0.025 oz. Au) per cu. yd.

Wayland, 1957 (B 1058-I), p. 365-374 -- [general discussion of Tofty tin belt.] Placer deposits are at base of early Quaternary unconsolidated gravels that lie on Cretaceous phyllite and slate with discontinuous lenses of graywacke, interbedded quartzite, sandstone, and a lens of limestone. Gravel buried by 10-170 ft. of frozen muck and silt (loess). Igneous rocks are Tertiary granite (Roughtop Mtn.) and monzonite (Hot Springs Dome) and small bodies of serpentinized and chloritized mafic rocks in a belt north of the placer deposits. No lode source of cassiterite has been found, but Hot Springs Dome is a more likely source than Roughtop Mtn. Most creek gravels contain metadiorite cobbles and pebbles. Cache Cr. gravels contain oxidized cobbles of serpentinized gabbroic rock. Gravels appear to be of local derivation. Sparsely mineralized quartz veins with little if any gold are common. Placer deposits appear to be related to drainage basin before silt was deposited. Tourmaline is a constituent of most placer deposits; brown tourmaline is present in most cassiterite pebbles.

p. 374-375 -- Cassiterite and gold discovered, 1909-10. Upper pay streak was about mined out by 1913; some parts very rich (26.3 oz. Au and "large amount" of cassiterite taken from a pillar in 1 day). Cassiterite and gold commonly, but no invariably, found together. Some gold nuggets as large as 4 oz. Most of gravel locally derived and angular. Chromite and ilmenite in gravel.

p. 397 -- No cassiterite reported from lower Cache Cr.

p. 402 -- More tourmaline in cassiterite pebbles than at west end of tin belt.

p. 409-410 -- Old tailing pile reworked in 1915 yielded 200 lb. cassiterite and 20 oz. Au from about 370 cu. yds. of gravel (0.54 lb. cassiterite and $1.41 (1941 price) in gold). Testing of remainder of pile indicated lower and erratic values.

(California Cr.) Gold

Hot Springs district Tanana
SE 1/4 quad.

Summary: Small-scale mining reported, 1932. Location uncertain.

Smith, 1934 (B 857-A), p. 33 -- Small-scale mining reported, 1932.

(Chapman Cr.) Antimony, Gold

Rampart district Tanana (21.1-22.0, 6.05)
MF-371, locs. 11, 43 65°19'N, 150°00'-150°07'W

Summary: Auriferous gravel present. Small-scale mining in 1912. Lode stibnite prospect in headwaters.

Ellsworth, 1910 (B 442), p. 241 -- Values sufficient to attract prospectors. Some development, 1909.
Ellsworth and Davenport, 1913 (B 542), p. 222 -- 4 men mining, 1912.
Burand and Saunders, 1966 (GC 12), p. 5 -- Stibnite prospect in headwaters has been reported. Has been placer mining.

(Chicago Cr.) Gold

Hot Springs district Tanana (19.45, 3.5)
MF-371, loc. 38 65°11'N, 150°22'W

Summary: Gold discovered, 1904. Mining reported in 1917, 1935-37.

Prindle and Hess, 1906 (B 280), p. 45 -- Preliminary to B 337.
Hess, 1908 (B 337), p. 92 -- Pay reported to have been discovered near mouth in 1904.
Chapin, 1919 (B 692), p. 334 -- Mining, 1917.
Smith, 1937 (B 880-A), p. 42 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.

(Chicken Cr.) Gold (?)

Melozitna district Tanana (1.5, 6.7)
65°23'N, 152°49'W

Summary: Tributary of Tozimoran Cr. Placer gold reported, but no systematic prospecting.

Chapman and others, 1963 (OF 239), p. 16 -- Tributary of Tozimoran Cr. Has not been systematically prospected; gold reported.

(Colorado Cr.) Gold

Hot Springs district Tanana
SE 1/4 quad.

Summary: Small-scale mining, 1937. Identification of creek uncertain; somewhere in general area of Tofty.

Smith, 1939 (B 910-A), p. 53 — One man mining, 1937.

(Cooney Cr.) Gold

Hot Springs district Tanana (16.8, 2.35)
MF-371, loc. 36 65°07'N, 150°44'W

Summary: A large area of very low-grade (gold) ground was reported in 1912. Small production reported in 1938. Includes reference to (Coonie Cr.)

Ellsworth and Davenport, 1913 (B 542), p. 221 -- Prospecting in 1912 showed large body of very low-grade ground with irregularly distributed gold.
Chapin, 1914 (B 592), p. 362 -- Prospecting, 1913.
Smith, 1939 (B 917-A), p. 50 -- Small production, 1938.
Wayland, 1961 (B 1058-I), p. 394 -- Large area of very low-grade ground reported in 1912.

(Dalton Gulch)(Cr.) Gold, Tin

Hot Springs district Tanana (16.0, 2.0)
MF-371, loc. 32 65°06'N, 150°50'W

Summary: Mining, 1910 to World War I. Total production was 466 oz. gold and 3,000 lb. cassiterite concentrate. Source of one of first cassiterite shipments from district. Overburden about 60 ft. thick; gravels thin. Most pay streaks small and discontinuous; localized on steeper parts of terraced bedrock surface.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.

Moxham, 1954 (C 317), p. 5 -- eU of a concentrate sample was 0.007%. Wording of reference is unclear; eschynite, columbite, monazite, and zircon may be present.

Thomas, 1957 (RI 5373), p. 7-8 -- Production through 1956 was 466 oz. Au and 3,000 lb. cassiterite concentrate. Gulch is in "tin belt."

p. 48 -- Per cu. yd. recovery from channel samples of a tailing pile averaged 10.28 lb. concentrate (3.90 lb. Sn and 0.014 oz. Au).

Wayland, 1961 (B 1058-I), p. 376 -- Pay streaks worked from 1910 to World War I. Source of one of earliest cassiterite shipments from district. Gravels thin (2-4 ft.); overburden about 60 ft. thick. Bedrock terraced with richest placer concentrations on steepest slopes. Most pay streaks small and discontinuous. A little cassiterite and gold in old dumps east of creek.

(Deep Cr. and tributaries) — Chromite, Columbium, Gold, Monazite, Niobium, RE, Silver, Tin, Tungsten

Hot Springs district — Tanana (14.85-15.1, 1.2-1.35)
MF-371, loc. 26 — 65°04'N, 150°57'-151°00'W

Summary: Bench north of creek is crossed by small tributaries in poorly defined valleys. In most places bedrock (mainly phyllite and slate) is well over 100 ft. deep. Mining by drifting in basal few feet of gravel and top foot of bedrock. Placer discovered by prospect drilling in 1913; mining continued until as recently as 1955. Production was 7,684 oz. gold, 653 oz. silver, and 64,200 lb. cassiterite concentrate. Concentrates contained gold, cassiterite (some in the form of wood tin), ilmenite, picotite, zircon, pyrite, magnetite, monazite, much chromite in places, rutile, scheelite, columbite, aeschynite, and ellsworthite. Report of lead (galena) in MF-371, loc. 26, is an error caused by misinterpretation of original reference (B 1058-I, p. 374) and should be deleted. Average recovery per cubic yard of channel samples of tailings piles was 7.09 lb. concentrate containing 4 lb. tin and 0.0105 oz. gold. Includes references to: Bock & Hanson, (Hokeley Gulch), Innesvale Gulch), (Oakley Cr.).

Eakin, 1915 (B 622), p. 241-243 -- Gold found on Hokeley Gulch as the result of an extensive drilling program, 1913. Shafts sunk 130 ft. to bedrock, mainly through frozen silt. Gravel 6-8 ft. thick on bedrock. Gold on or near bedrock. Bedrock surface slopes southeastward. Tenor variable; some of ground runs $4-$6 or more per bedrock foot. Cassiterite present, but not saved. Large-scale mining, 1914.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915, on a tributary.

Smith, 1917 (BMB 142), p. 25 -- Mining, 1915.

Smith, 1932 (B 824), p. 37 -- Mining (Bock & Hanson), 1929.
p. 68 -- Tin ore mined, 1929.

Smith, 1933 (B 836), p. 36 -- Mining, 1930.
p. 70-71 -- Placer tin has been found.

Smith, 1933 (B 844-A), p. 37 -- Large-scale drift mining on Innesvale Gulch, 1931.
p. 69 -- Byproduct tin ore recovered, 1931.

Mertie, 1934 (B 844-D), p. 210-212 -- Mining in 1931 was on Innesvale Gulch; ground frozen. 5-6 ft. of gravel beneath 90 ft. of muck. Gold in lower 2 ft. of gravel and upper foot of weathered phyllite and slate bedrock; bedrock very uneven. Average value of gold is $17.52 an ounce. Much cassiterite in concentrates; larger pieces mixed with quartz and country rock. Other heavy minerals include ilmenite, pyrite, picotite, and magnetite. Some wood tin present.

Waters, 1934 (B 844-D), p. 238-239 -- Minerals in concentrate samples include gold, cassiterite, ilmenite, picotite, zircon, pyrite, magnetite, monazite, and aeschynite (?).

Smith, 1936 (B 868-A), p. 41 -- Pay streak 145 ft. below surface; had been prospected by drilling.

Smith, 1939 (B 910-A), p. 52-53 -- Preparation for large-scale mining; also other mining, 1937.

(Deep Cr. and tributaries) -- Continued

Smith, 1939 (B 917-A), p. 50 -- Large-scale drift mining, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 844-D, p. 238.
Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.
Thomas, 1957 (RI 5373), p. 6-9 -- Many piles of drift-mine tailings. Total production through 1956 from Deep Cr. and Hokeley Gulch was 7,684 oz. Au, 653 oz. Ag, and 64,200 lb. cassiterite concentrate. Creek and tributaries in "tin belt." Drift mine, 1953-55, by 2 partners. Quartz-tourmaline cobbles in gravel composed mainly of quartz.

p. 12 -- USBM drilled prospect holes across head of creek.

p. 17 -- Data on individual drill holes.

p. 45-48, 55 -- Petrographic examination of concentrate samples from tailing piles in Deep Cr. area indicated that gold, cassiterite, ilmenite, rutile, chromite, magnetite, scheelite, zircon, monazite, columbite, eschynite, and ellsworthite were present. Recovery per cu. yd. of channel samples of tailing piles averaged 7.09 lb. concentrate containing 4.0 lb. Sn and 0.0105 oz. Au. Description of drift mine system in use at Larsen mine, 1953-55; steam points; advancing room-and-pillar system.

Wayland, 1961 (B 1058-I), p. 367 -- Chromite, picotite, ilmenite, and magnetite in buried gravels may be derived from serpentinized igneous rocks.

p. 372 -- At Innesvale Gulch most boulders are rounded sandstone. Rounded and angular quartzite boulders at Hokeley Gulch. Coarse-grained biotite granite cobbles in tailings and gravels.

p. 374 -- Chromite abundant; more than 10% of concentrates from some claims.

p. 385-392 -- Older reports and detailed data from local miners are summarized. Rich ground discovered at mouth of Hokeley Gulch by drilling in 1913. 130 ft. to bedrock; 6-8 ft. of gravel under silt. Gold in basal gravel and on bedrock. Cassiterite has been produced from tailings. Near Innesvale Gulch 5-6 ft. of gravel that contains vuggy iron-stained quartz is beneath 60 ft. of muck; concentrates include ilmenite, pyrite, picotite, magnetite, and chromite. Isolated gravel lenses in muck contain gold and cassiterite (generally not in minable concentrations or amounts). Tailings near Hokeley Gulch are among the richest in the district; sampling indicates 4.3 lb. cassiterite per cu. yd.

p. 407-408 -- Data on USGS sampling methods.

p. 410 -- On richer tailings piles cassiterite pebbles exposed on surface are easily found; smaller pieces are washed into voids in gravel.

Barton, 1962 (IC 8120), p. 31 -- Reference to RI 5373 (spec. analyses showed 0.1-5.0 percent Cb).
Kauffman and Holt, 1965 (IC 8268), p. 31 -- Spec. analyses of concentrates showed 1-5 percent Zr; about 0.3 lb. per cu. yd. of recoverable zircon.
Overstreet, 1967 (P 530), p. 111 -- Reference to B 844-C, p. 239.
Cobb, 1973 (B 1374), p. 143 -- More than 10% of concentrates below Hokeley Gulch are chromite.

(Dry Cr.) Gold

Hot Springs district Tanana
NW 1/4 SW 1/4 SE 1/4 quad.

Summary: In Boulder Cr. basin. Slate, graywacke, quartzite, and schist make up bedrock and gravel. Small-scale mining in 1917.

Chapin, 1919 (B 692), p. 335 -- One plant was mining, 1917. A branch of Trail Cr., which is a tributary of Boulder Cr. Angular gravels 3-6 ft. deep are composed of slate, graywacke, quartzite, and schist similar to rock types exposed on bedrock.

(Eureka Cr.) Gold, Tin

Hot Springs district Tanana (20.45-20.7, 3.7-4.15)
MF-371, loc. 40 65°11-65°13'N, 150°11'-150°13'W

Summary: Site of first gold discovery in district, 1898. Valley markedly asymmetrical with 2 well-defined benches along more gentle NW valley wall; other bedrock terraces have no surface expression. Bedrock is Cretaceous quartzite, sheared grit, and argillaceous rock; small quartz veins; locally much disseminated pyrite. Gold in base of gravel and in cracks in blocky bedrock. Gold bright and chunky; some has attached vein quartz. Our small pebble of cassiterite has been found; possibly could have been planted as a prank. Mining from about 1899 to as recently as 1940; total production unknown but large. See also Farmer & Jones.

Collier, 1903 (B 213), p. 51 -- Carries gold in paying quantities.
p. 55 -- Mining for last 2 years [as of 1902]; confined to one-mile section of creek.

Prindle and Hess, 1905 (B 259), p. 115 -- Creek of importance in 1904.
p. 117 -- Steep slope southeast of creek; gentle slope to northwest. Depth to bedrock is 6-20 ft. Pay in as much as 6 ft. of gravel and 3 ft. of bedrock where it is blocky. Some of gold is rough and has attached quartz.

Prindle, 1906 (B 284), p. 126 -- Ditches extended to bench, 1905.

Prindle and Hess, 1906 (B 280), p. 38-40, 49-50 -- Preliminary to B 337.

Hess, 1908 (B 337), p. 82-85 -- Bedrock is schistose grits, slates, and thin (1-3 ft. thick) beds of quartzite. Regional strike NW. Small quartz veins; considerable disseminated pyrite in places. Bench and creek gravels of local origin; contains sticky clay, which makes sluicing difficult. Gold discovered, 1899. Near mouth of Boston Cr. gold is in lower part of gravel and top part of bedrock where blocky.
p. 98 -- Production through fall, 1904, was worth $85,300 [about 4,125 fine oz.]; includes production from Dome Cr. [see (Pioneer Cr.)].

Brooks, 1909 (B 379), p. 56 -- Mining, 1908.

Ellsworth, 1910 (B 442), p. 242 -- Mining, 1909. Ditch built.

Ellsworth and Parker, 1911 (B 480), p. 166 -- Mining, 1910. Ground about 12 ft. deep.

Eakin, 1912 (B 520), p. 283 -- Preliminary to B 535.

Eakin, 1913 (B 535), p. 35 -- Mining near mouth of Boston Cr., 1911.

Ellsworth and Davenport, 1913 (B 542), p. 221 -- Mining, 1912.

Chapin, 1914 (B 592), p. 362 -- Mining, 1913.

Eakin, 1915 (B 622), p. 242 -- Mining, 1914.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.

Smith, 1917 (BMB 153), p. 52 -- Mining, 1916. Production worth about $60,000 [about 2,900 fine oz.].

Chapin, 1919 (B 692), p. 334 -- Mining, 1917.

Martin, 1919 (B 692), p. 37 -- Mining, 1917.

Smith, 1926 (B 783), p. 14 -- Mining, 1924.

Smith, 1929 (B 797), p. 22 -- Bench deposits mined, 1926.

Smith, 1932 (B 824), p. 37 -- Mining, 1929.

(Eureka Cr.) - Continued

Smith, 1933 (B 836), p. 36 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 166 -- Gold discovered, 1898. Stampede from Rampart, 1899.

p. 192-195 -- Valley markedly asymmetrical; SW wall steep, NW wall gentle. One fairly well defined old erosion level is about 250 ft. above creek; another, less well defined, is 50-70 ft. above creek. Other bedrock terraces exposed only in mines have no surface expression. Bench (called bar) deposits are on old terraces on NW side of creek from Boston Cr. upstream. Upper valley follows strike of Lower Cretaceous rocks, mainly quartzite. Just below mouth of Boston Cr. pay streak is 25-70 ft. wide; gravel 10-18 ft. thick beneath as much as 8 ft. of muck. Bedrock mainly Lower Cretaceous sheared grit and argillaceous rocks and fractured quartzite. Gold bright and chunky; considerable attached vein quartz; minimum value of $16.90 an ounce [old price]. Low-grade placers on bench 75 ft. above and E. of creek. Considerable mining on sloping bench 2 mi. upstream from Boston Cr.; gravel 8-20 ft. deep.

Smith, 1934 (B 857-A), p. 33 -- Mining on benches, 1932.
Smith, 1936 (B 868-A), p. 41 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 42 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.
Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.
Wayland, 1961 (B 1058-I), p. 396 -- One small cassiterite pebble found at junction of Eureka and Pioneer Creeks; resembles cassiterite at Tofty. Might be work of pranksters or might be a real occurrence.
Malone, 1962 (IC 8131), p. 57 -- Incorrect reference citation.
Malone, 1965 (IC 8252), p. 55 -- Incorrect reference citation.
Koschmann and Bergendahl, 1968 (P 610), p. 27 -- Gold discovered, 1898.
Cobb, 1973 (B 1374), p. 140-141 -- First discovery of gold in district, 1898. Placers are in buried terrace (bench) gravels parallel to upper part of creek.

Farmer & Jones — Gold

Hot Springs district — Tanana (20.45-20.8, 3.35-4.15)
65°10'-65°13'N, 150°11'-150°13'W

Summary: Operated a hydraulic mine in 1928. Only location given is Eureka Cr. area. See also: (Eureka Cr.), (McCaskey Bar).

Smith, 1930 (B 813), p. 32 -- Operated one of major producing hydraulic mines in Eureka Cr. area in 1928.

(Ferguson Draw) Gold, Tin

Hot Springs district Tanana (16.2, 2.05)
MF-371, loc. 33 65°06'N, 150°49'W

Summary: Small tributary of Cache Cr. Gravel thin or absent; in places 40 ft. of muck rests directly on bedrock placer. Pay streak ran 0.3-0.4 oz. gold and 0.1-0.4 lb. cassiterite per square foot of bedrock. Terminated upstream against bedrock terrace. See also (Cache Cr.).

Thomas, 1957 (RI 5373), p. 8 -- In "tin belt."
Wayland, 1961 (B 1058-I), p. 374-375 -- Small tributary of Cache Cr. Similar in occurrence to Cache Cr. placers, but gold is finer, flaky, and well worn. Gravel thin or absent; in some places 40 ft. of muck rest directly on bedrock placer concentrations. Pay streak yielded 0.3-0.4 oz. Au and 0.1-0.4 lb. cassiterite per bedrock foot; terminates upstream against a bedrock terrace.

(Florida Cr.) Gold

Rampart district Tanana (21.1-21.25, 7.65-7.85)
MF-371, loc. 47 65°25'N, 150°06'-150°07'W

Summary: Small stream in narrow, deep valley in bench east of Minook Cr. Bedrock mainly diabase. Placers narrow and as much as 15-20 ft. deep. Small-scale mining in early 1900's and 1939-40. Total production probably no more than 200-300 fine oz. of gold.

Prindle and Hess, 1905 (B 259), p. 111 -- Gold has been produced.
p. 113 -- Has been a little gold production; little work in 1904.
Prindle and Hess, 1906 (B 280), p. 36-37, 49-50 -- Preliminary to B 337.
Hess, 1908 (B 337), p. 79 -- Stream 2 mi. long; flows narrow, steep valley in bench of Minook Cr. Deposits narrow; in places as much as 15-20 ft. deep. Bedrock mainly diabase. Some nuggets worth as much as $33. Total production through 1904 worth no more than $2,000.
p. 98 -- Total production to fall, 1904 worth about $2,000 [less than 100 fine oz.].
Mertie, 1934 (B 844-D), p. 175 -- Florida and Little Minook Jr. are the only small eastern tributaries of Minook Cr. of any economic importance.
p. 191 -- Reference to B 280, p. 36. No mining, 1931.
Smith, 1941 (B 926-A), p. 53 -- One producing mine, 1939.
Smith, 1942 (B 933-A), p. 49 -- Mining, 1940.

(Glen(n) Cr.) (Gulch)

Gold, Tin

Hot Springs district
MF-371, loc. 39

Tanana (20.2-20.25, 3.5-3.6)
65°11'N, 150°15'-150°16'W

Summary: Small stream that flows in an open, shallow valley in the bench between Eureka and Omega Creeks. Bedrock is slate and quartzite. In some places slide rock overlies pay gravels. Pay streak 50-100 ft. wide and was very rich (more than $10 per pan when gold was $20.67 an ounce) in spots. Pay extended 2 ft. into crevices in bedrock. Mined from 1901 to 1939. Production to 1931 was about 48,500 fine oz. A few cassiterite pebbles have been found.

Brooks, 1903 (B 213), p. 47 -- Gulch has proved to be phenomenally rich.
Collier, 1903 (B 213), p. 51-52 -- Productive mining on 4 or 5 claims near head of creek. Bedrock is schist cut by many quartz stringers; 5-20 ft. deep. Pay streak 20-60 ft. wide; as much as 7 ft. thick. Mining began in 1901. By Aug. 1, 1942, production totalled about $150,000 [about 7,250 fine oz.].
Prindle and Hess, 1905 (B 259), p. 115 -- Creek of economic importance, 1904.

p. 117-118 -- Creek occupies small depression in gravel bench. Production through 1904 worth about $275,000 [about 13,300 fine oz.]. Bedrock is schistose slate covered by 3-10 ft. of slide rock and gravel. Some nuggets worth over $90. Deposit probably the result of secondary concentration.

Purington, 1905 (B 263), p. 208 -- Gold worth $16.00 an ounce.
Prindle, 1906 (B 284), p. 126 -- Hydraulic elevator installed, 1905.
Prindle and Hess, 1906 (B 280), p. 38-39, 42-43, 48-50 -- Preliminary to B 337.
Brooks, 1908 (B 345), p. 49 -- Ditch built, 1907.
Hess, 1908 (B 337), p. 82-83 -- Gold discovered, July, 1901.

p. 87-89 -- Cuts gravels of bench between Eureka and Omega Creeks. Valley open and shallow. Gold discovered in July, 1901. Production to fall of 1904 was worth more than $277,500 [13,425 fine oz.]. Bedrock is slate and quartzite; stream gravels in places are overlain by blocks of quartzite slide rock. Pay mainly in part of stream that cuts bench gravel; pay streak 50-100 ft. wide; some very rich spots (more than $10 per pan); in lower part of gravel and upper 2 ft. of bedrock. Some large nuggets (one nearly 6 oz.).

p. 96 -- Gold reconcentrated from older gravels.

p. 98 -- Same production data as given above.

Brooks, 1909 (B 379), p. 56 -- Mining, 1908.
Chapin, 1914 (B 592), p. 362 -- Mining, 1913.
Smith, 1933 (B 836), p. 36 -- Mining, 1930.
Mertie, 1934 (B 844-D), p. 203 -- Small stream that reconcentrated gold from Shirley Bar. Deposit worked twice. Total production said to have been worth more than $1,000,000 [about 48,500 fine oz.]. Considered worked out, 1931.
Smith, 1934 (B 857-A), p. 33 -- Mining, 1932.
Smith, 1936 (B 868-A), p. 41 -- Mining, 1934.

(Glen(n) Cr.) (Gulch) - Continued

Smith, 1937 (B 880-A), p. 42 -- Principal source of production in Eureka Cr. area, 1935.
Smith, 1938 (B 897-A), p. 51 -- Principal source of production in Eureka Cr. area, 1936.
Smith, 1939 (B 910-A), p. 53 -- A major producer in Eureka Cr. area, 1937.
Smith, 1939 (B 917-A), p. 50 -- A major producer in Eureka Cr. area, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939; not one of major producers.
Wayland, 1961 (B 1058-I), p. 396 -- A few cassiterite pebbles that look like those from Tofty were found in 1939. Probably a real occurrence, but might have been the work of pranksters.

(Gold Basin Cr.) Gold, Tin

Hot Springs district Tanana (16.5, 2.25)
MF-371, loc. 34 65°07'N, 150°46'W

Summary: Small amounts of rounded cassiterite and fine gold on phyllite bedrock at depths of 40-80 ft.

Martin, 1919 (B 692), p. 38 -- In 1917 prospectors found considerable tin, but little gold.

Wayland, 1961 (B 1058-I), p. 394-395 -- Drilling and shaft prospecting beginning in about 1912 lasted a few years and was resumed in the 1930's. Depth to bedrock 40-80 ft. Cassiterite with fine gold on phyllite bedrock.

p. 399 -- Cassiterite as rounded as that at Woodchopper Cr.

(Golden Cr.) Gold

Melozitna district Tanana (0.05, 5.2)
MF-371, loc. 13 65°18'N, 153°00'W

Summary: Placer gold has been mined; no cassiterite reported. See also (Golden Cr.) Melozitna quad.

Chapman and others, 1963 (OF 239), p. 16 -- Placer gold has been mined; no tin reported.

p. 24 -- No tourmaline in rock specimens from drainage basin. Gold, but no cassiterite, known in placers.

(Gold Hill) Gold, Silver

Melozitna district Tanana (1.65, 3.6)
MF-371, loc. 2 65°12'N, 152°46'W

Summary: In about 1890 in the first attempt at lode mining in interior Alaska a tunnel was driven 110 ft. on a vein of sheared and rusty quartz in micaceous quartz schist. Vein contained small amounts of gold and silver, but not enough to establish a mine.

Spurr, 1898, p. 293 -- Tunnel has been driven 110 ft. on quartz vein in Birch Creek schists; vein pinched and faulted. Random sample assayed 0.05 oz. Au and 0.3 oz. Ag per ton.
Brooks, 1908 (B 345), p. 46 -- Reference to Spurr, 1898, p. 293.
Maddren, 1909 (B 379), p. 236 -- Preliminary to B 410.
Maddren, 1910 (B 410), p. 82 -- First attempt to open a lode mine in interior Alaska in about 1890. Tunnel run 110 ft. on a vein of sheared and broken rusty quartz. 2 or 3 ft. wide at surface. Vein reported to have become more and more broken underground; only a few streaks left at face of tunnel in decomposed schist, between talcose schist walls, in micaceous quartz schist country rock. Quartz known to be gold bearing.
Brooks, 1911 (P 70), p. 184 -- Tunnel driven about 100 ft. on a quartz vein, 1890. Vein contained a little gold and silver, but the venture was not a success.
Eakin, 1912 (B 520), p. 277 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 29-30 -- Auriferous quartz vein could not be mined profitably.
Eakin, 1914 (B 592), p. 383 -- Preliminary to B 631.
Eakin, 1916 (B 631), p. 82 -- Reference to B 410, p. 82.
Berg and Cobb, 1967 (B 1246), p. 236 -- Same data as in B 410, p. 82.
Cobb, 1973 (B 1374), p. 163 -- Reference to B 1246, p. 236.

(Gold Run) Gold

Hot Springs district Tanana (20.15, 3.65)
MF-371, loc. 39 65°11'N, 150°16'W

Summary: Very small stream that cuts bench gravels from which it has reconcentrated gold. Some of gold exhibited crystal faces. Bedrock schist; gravel 16-18 ft. thick; frozen; gold extends 3-4 ft. into cracks in bedrock. Ground staked in 1899; mined intermittently until 1938. Total production probably 9,700 to 10,000 fine oz. No data on other minerals in concentrates.

Collier, 1903 (B 213), p. 51-53 -- Very small stream with enough water for sluicing only when snow is melting. Ground 10-15 ft. deep and frozen; bedrock is blocky schist. Pay streak 12-40 ft. wide. Area of 300 sq. ft. mined in 1901-02 yielded more than $3.33 per bedrock foot.

Prindle and Hess, 1905 (B 259), p. 115 -- Of economic importance in 1904.

p. 118 -- Drains part of western side of Shirley Bench. Depth to bedrock is 16-18 ft. Deposit probably the result of secondary concentration.

Purington, 1905 (B 263), p. 208 -- Gold worth $16.00 an ounce.

Prindle and Hess, 1906 (B 280), p. 38, 42-44, 48-50 -- Preliminary to B 337.

Hess, 1908 (B 337), p. 82 -- One of principal placer creeks in Baker Cr. area.

p. 87 -- Cuts gravel bench that extends from Eureka Cr. to Omega Cr.

p. 89-90 -- Small, frequently dry, open, shallow valley that cuts bench gravel west of Glenn Cr. Staked in 1899. Bedrock is schistose grit (slaty in places). Well-rounded gravels also contain quartzite; are 16-18 ft. thick beneath 2 ft. of muck. Pay extends 3 or 4 ft. into bedrock. Some of gold exhibits crystal faces. Gold probably derived from both bench gravels and local bedrock.

p. 96 -- Placers formed by reconcentration of older gravels.

p. 98 -- Total production to fall, 1904, was worth about $25,000 [1,210 fine oz.].

Chapin, 1914 (B 592), p. 362 -- Mining, 1913.

Eakin, 1915 (B 622), p. 242 -- Mining, 1914.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.

Smith, 1933 (B 836), p. 36 -- Mining, 1930.

Mertie, 1934 (B 844-D), p. 200-201 -- Reference to B 280, p. 43-44. Gold reconcentrated from Shirley Bar. In 1931 was considered to have been worked out. Total production worth $200,000 [9,675 fine oz.].

Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.

Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.

(Grant Cr.) Gold, Tin

Melozitna district Tanana (1.1, 4.1)
MF-371, loc. 15 65°14'N, 152°51'W

Summary: Bedrock is a complex of intensely folded schist, limestone, quartzite, and greenstone. Placer gold deposits prospected or mined sporadically from 1909 into 1940's. Production probably small (several hundred ounces?). Depth to bedrock reported to be 5-30 ft. Placer tin said to have been collected in 1929; none found during mining in 1942-43. Report of pitchblende probably in error; material found probably was black hematite. Includes references to Lynx Cr.

Maddren, 1909 (B 379), p. 235 -- Preliminary to B 410.
Brooks, 1910 (B 442), p. 44-45 -- Mining, 1909.
Maddren, 1910 (B 410), p. 81 -- Placer locations have been made.
p. 83 -- Mining, 1909. Deposits said to be 5-7 ft. deep, more than 100 ft. wide.
Brooks, 1911 (P 70), p. 184 -- References to B 379 and B 410.
Eakin, 1912 (B 520), p. 281-282 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 34 -- Bedrock 20-30 ft. deep. Trouble operating because of live water. Some of gravel (a foot thick) said to carry $10-$12 a yard [does not state whether a cubic yard or a square yard of bedrock].
Eakin, 1914 (B 592), p. 383 -- Preliminary to B 631.
Eakin, 1916 (B 631), p. 82 -- Has been a little desultory mining; production negligible.
Martin, 1919 (B 692), p. 39 -- Dead work, 1917.
Smith, 1932 (B 824), p. 40 -- Prospecting, 1929.
p. 68 -- Placer tin collected in connection with gold mining, 1929.
Smith, 1933 (B 836), p. 42 -- Prospecting, 1930.
p. 70-71 -- Placer tin has been found.
Smith, 1933 (B 844-A), p. 41 -- Prospecting, 1931; only a little gold recovered.
Smith, 1934 (B 864-A), p. 43 -- Prospecting, 1933; only a little gold recovered.
Smith, 1938 (B 897-A), p. 56 -- Gold production, 1936.
Smith, 1939 (B 910-A), p. 57-58 -- Mining, 1937 [in Grant Cr. area; reference does not specifically state that it was on Grant Cr.].
Smith, 1939 (B 917-A), p. 56 -- Dragline operated full season in Grant Cr. area, 1938.
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 824, p. 67 [should be p. 68].
Wedow and others, 1954 (C 331), p. 33-36 -- Bedrock in area is a complex of intensely folded and metamorphosed schist, limestone, quartzite, and greenstone. Attempts to find reported pitchblende were not successful; material reported probably was black hematite. Fisher placer mine inactive in 1946; owner had died.
Chapman and others, 1963 (OF 239), p. 16 -- Reference to B 824, p. 40, 68. Small-scale placer gold mining, 1942-43; no placer tin.
p. 24 -- No tourmaline in rock specimens from drainage basin. Placer gold present, but no cassiterite known. [This does not agree with B 824, p. 68, and B 836, p. 70-71.

(Grant Cr.) - Continued

Cobb, 1973 (B 1374), p. 163 -- Has been small-scale mining.

(Harter Gulch) — Gold, Tin

Hot Springs district — Tanana (15.9, 1.9)
MF-371, loc. 31 — 65°06'N, 150°51'W

Summary: Has been mining (probably about 5,000 fine oz. gold produced). Tailings piles contain cassiterite and more gold than is usual in tailings piles in district. Magnetite and hematite in crystalline limestone bed near a small mafic intrusive body.

Moxham, 1954 (C 317), p. 5 -- eU of concentrate sample was 0.030%. Wording of reference is unclear; eschynite, columbite, monazite, and zircon may be present.

Thomas, 1957 (RI 5373), p. 8 -- In "tin belt."

p. 48 -- Recovery per cu. yd. from channel samples of tailing pile averaged 0.84 lb. concentrate that contained 0.27 lb. Sn and 0.017 oz. Au.

Wayland, 1961 (B 1058-I), p. 376 -- Was mining in early days of the district. Production from a small area during one summer said to have been worth $90,000 [about 4,350 fine oz. of gold]; low concentrations of gold and little cassiterite in adjoining areas. Sampling of old tailings piles showed more gold than usual in tailings and some cassiterite; gravel probably had not been well washed.

p. 398 -- Small mafic intrusive body conformable with country rock on ridge between Harter Gulch and Sullivan Cr. Nearby crystalline limestone bed contains magnetite and hematite.

(Homestake Cr.)

Gold

Melozitna district
MF-371, loc. 17

Tanana (12.05, 5.8)
65°19'N, 151°21'W

Summary: Placer gold has been mined.

Brooks, 1911 (P 70), p. 184 -- Placer gold has been mined near mouth of creek. Little is known about this occurrence.

(Hoosier Cr.) Copper, Gold, Lead, Mercury, Tungsten

Rampart district Tanana (21.2-21.45, 8.15-8.35)
MF-371, loc. 48 65°26'-65°27'N, 150°04'-150°06'W

Summary: Poorly defined shallow (6-15 ft.) pay streak 100-150 ft. wide. Some of gold is coarse; a nugget worth $250 (gold at $20.67 an ounce) was recovered. Gold is high grade; one assay indicated 0.941 1/2 Au and 0.053 Ag. Heavy minerals in concentrates include hematite, ilmenite, barite, magnetite, pyrite, gold, garnet, picotite, scheelite, zircon, native copper, galena, and a few grains of cinnabar. Gold was discovered in 1898 or soon thereafter and was mined in most years until as recently as 1938.

Prindle and Hess, 1905 (B 259), p. 111-113 -- Gravels 4-20 ft. thick; gold mostly on bedrock. Upper part of valley has not been productive. Preparations for hydraulicking 2 mi. above mouth, 1904.
Prindle, 1906 (B 284), p. 126 -- Hydraulic plant being installed, 1905.
Prindle and Hess, 1906 (B 280), p. 27, 36, 50 -- Preliminary to B 337.
Brooks, 1907 (B 314), p. 37 -- Hydraulic plant operated, 1906.
Hess, 1908 (B 337), p. 65 -- Gold discovery 1898 or soon thereafter.
p. 79 -- Quartz veins as much as 18 in. wide in diabase bedrock; also some disseminated pyrite. Live water makes prospecting difficult; 6-15 ft. of muck and gravel above bedrock.
p. 98 -- Total production to fall of 1904 worth about $2,000 [less than 100 fine oz.].
Brooks, 1909 (B 379), p. 55 -- Mining, 1908.
Ellsworth, 1910 (B 442), p. 240 -- Hydraulic plant operated, 1909.
Ellsworth and Parker, 1911 (B 480), p. 166-167 -- Mining, 1910; hydraulic plant closed down.
Brooks, 1915 (B 622), p. 64 -- Mining, 1914.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1929 (B 797), p. 23 -- Mining, 1926.
Smith, 1930 (B 813), p. 35 -- Preparations for drift mining, 1928.
Smith, 1933 (B 836), p. 42 -- Prospecting, 1930.
Mertie, 1934 (B 844-D), p. 165 -- Discovery of gold before 1902.
p. 186-187 -- Poorly defined shallow pay streak 100-150 ft. wide in creek gravels mined mainly by winter drifting; open cuts about 2-1/2 mi. above mouth. Some of gold coarse; a nugget worth $250 was recovered. Gold is high grade; one assay indicated 0.941 1/2 Au and 0.053 Ag. Heavy minerals in concentrates include hematite, ilmenite, barite, magnetite, pyrite, picotite, scheelite, native copper, and cinnabar.
Smith, 1934 (B 857-A), p. 39 -- Mining, 1932.
Smith, 1934 (B 864-A), p. 43 -- Mining, 1933.
Waters, 1934 (B 844-D), p. 234 -- Minerals in concentrate sample included hematite, ilmenite, barite, magnetite, pyrite, gold, garnet, picotite, scheelite, zircon, native copper, and a few grains of cinnabar.
Smith, 1936 (B 868-A), p. 44 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 47 -- Mining, 1935.
Smith, 1939 (B 910-A), p. 57 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 56 -- Mining, 1938.

(Hoosier Cr.) -- Continued

Joesting, 1942 (TDM 1), p. 27, 39 -- References to B 844-D, p. 234.
Malone, 1962 (IC 8131), p. 56 -- Reference to B 844-D, p. 234.
Malone, 1965 (IC 8252), p. 55 -- Reference to B 844-D.
Burand and Saunders, 1966 (GC 12), p. 5 -- Has been a productive creek. Concentrates contain native copper, galena, and cinnabar.

(Hot Springs Dome) — Cobalt, Copper, Gold, Lead, Manganese, Monazite, Nickel(?), Silver

Hot Springs district — Tanana (16.7, 0.8)
MF-371, loc. 6 — 65°02'N, 150°45'W

Summary: At least 6 mineralized shear zones in metamorphosed sedimentary rocks close to and roughly parallel to the contact with a biotite granite intrusive body. Most of the material oxidized to a depth of at least 446 ft. (deepest diamond drill hole). Sulfides identified are galena, chalcopyrite, pyrrhotite, and pyrite. Other minerals include siderite, cerussite, limonite, goethite, hematite, quartz, calcite, malachite, azurite, and erythrite (cobalt bloom). Assays of oxidized material indicated $1-$2 in gold (at $20.67 an ounce) and 5-8 oz. silver per ton. Sample from a dike that cuts granite contained monazite; dikes also contain as much as 15% tourmaline. Unverified report of nickel in a pyrrhotized basalt dike. Only exploration was at Barrett prospect, where 3 shallow shafts were sunk, a short adit driven, and several trenches and pits excavated. No production.

Mertie, 1934 (B 844-D), p. 215-216 -- Metamorphosed sediments that strike N 45° E and dip about 60° S are just N of a large body of biotite granite that forms the south slopes of Hot Springs Dome and extends NW and SE for about 10 mi. Metamorphosed sediments on NW side of granite body are sheared in 6 or more east-trending zones with gold and silver mineralization. At the Barrett prospect a short tunnel, a shaft 40 ft. deep, and several open cuts had been made, but were caved in 1931. Surface ore is essentially veins of galena and pockets of limonite. Siderite and possibly manganese minerals with limonite. Sulfides with galena include chalcopyrite, pyrrhotite, and pyrite. Malachite or azurite present; chalcocite reported. Erythrite (pink cobalt bloom) in quartz stringers and in crevices in schistose rock. Unverified report of nickel in pyrrhotized basalt dike. Native sulfur in small balls at surface of lode. Assays of oxidized material indicate $1-$2 in Au and 5-8 oz. Ag per ton. Very little exploration of any other shear zones, but they appear to be similar to lode at Barrett prospect.

Waters, 1934 (B 844-D), p. 229 -- Dikes 3 in. to 4 ft. thick that cut granite of Hot Springs Dome contain as much as 15% tourmaline similar to that in tin placers of the district. Monazite identified in one specimen.

Joesting, 1942 (TDM 1), p. 18-19 -- Reference to B 844-D, p. 215.

Wedow and others, 1952 (OF 51), p. 99-100 -- Barrett prospect originally developed for gold, but the important metals present are silver and lead. Veins in shear zone in schist; metallic minerals are argentiferous galena, chalcopyrite, pyrrhotite, pyrite, limonite, hematite, and siderite. Erythrite in quartz stringers and in crevices in schist country rock.

Moxham, 1954 (C 317), p. 3-4 -- At Barrett prospect shear zone in hornfels and schist contains metallic minerals in zone 20-35 ft. wide that has been traced 2,000 ft. horizontally. Minerals in zone include limonite, cerussite, siderite, copper carbonate, galena, chalcopyrite, pyrrhotite, pyrite, and erythrite.

(Hot Springs Dome) -- Continued

Wayland, 1961 (B 1058-I), p. 369-370 -- At NW border of intrusive mass quartz-siderite-galena veins (one traced for 1,500 ft. and another for 500 ft.) also contain calcite, pyrite, chalcopyrite, pyrrhotite and alteration products (including erythrite) in a gossan.

Bilbrey, 1962 (IC 8103), p. 27 -- Erythrite reported in narrow quartz vein.

Berg and Cobb, 1967 (B 1246), p. 223 -- Low-grade mineralized belt in sheared metasedimentary rocks near a biotite granite intrusive. At least 6 gold-silver lodes. Barrett prospect contains argentiferous galena, limonite, and minor amounts of gold, hematite, chalcopyrite, chalcocite, pyrrhotite, pyrite, quartz, secondary copper minerals, and erythrite. Nickel reported in pyrrhotite-bearing basalt dike south of Barrett prospect.

Maloney, 1971 (USBM OF 8-71) -- USBM drilled 8 diamond-drill holes with a total length of 3,197.9 ft.; deepest penetration was 515 ft., which bottomed 446 ft. below the surface. Except for a few pockets containing small amounts of galena, pyrrhotite, chalcopyrite, and pyrite, all metallic minerals were oxidized; limonite, goethite, pyrolusite, hematite, magnetite, and rutile, some anglesite and erythrite. Most geologic data from C 317. Deposits in "shear" zones up to 50 ft. wide roughly parallel to contact between granite and metamorphosed sedimentary rocks. Claims (Barrett prospect) staked in 1914 and 1924; patented, 1937. Exploration was by 3 shafts about 20 ft. deep, an adit 20 ft. long, and several trenches and prospect pits. Analyses of USBM samples indicated maximum values of 0.02% Co, 3.7% Pb, 0.32% Zn, 1.20% Cu, 3.90% Mn, 0.17 oz. Au per ton, and 0.53 oz. Ag per ton; most values were traces only. [No Zn mineral identified.]

(Hunter Cr.) Gold

Rampart district
MF-371, locs. 51-52

Tanana (21.35-21.8, 8.8-8.9)
65°29'N, 150°00'-150°04'W

Summary: Stream cuts through benches E. of Minook Cr. and into fractured greenstone country rock in a narrow V-shaped valley with low gravel benches. Both creek and bench deposits have been mined; in places 16 in. of bedrock had to be mined with the gravel. Mining had begun in 1896 and continued until as recently as 1940. Most concentrate samples and much of mining in part of creek in Livengood quad. Total production not known, but probably was a few tens of thousands of fine oz. of gold. See also (Hunter Cr.) Livengood quad.

Spurr, 1898, p. 294 -- Quartz veins in shear zones, not known to be auriferous.

p. 358-359 -- Except near mouth and in extreme headwaters, bedrock is shales, tuff, and diabase of Rampart series. Much jointed, silicified shear zones impregnated with sulfides; occasional quartz and calcite veins. Schist reported near head of creek [in Livengood quad.]. Prospectors have found gold through entire length of creek, but only mining in 1896 was 1-1/4 mi. above mouth.

Collier, 1903 (B 213), p. 55 -- Mining, 1902.

Brooks, 1904 (B 225), p. 58 -- Hydraulic plant installed on bench, 1903.

Prindle and Hess, 1905 (B 259), p. 112 -- Maximum depth to bedrock about 40 ft.; about 12 ft. of gravel. Hydraulic plant operated, 1904. Barite in concentrates. Bedrock near mouth is decomposed tuff and poorly consolidated shale and sandstone.

Purington, 1905 (B 263), p. 208 -- Gold worth $19.00 an ounce.

Prindle and Hess, 1906 (B 280), p. 31-33, 48-50 -- Preliminary to B 337.

Brooks, 1907 (B 314), p. 37 -- Hydraulic plant operated, 1906.

Hess, 1908 (B 337), p. 65 -- Mining, 1897 [and probably, 1896].

p. 72=75 -- Cuts through high bench E. of Minook Cr. Bedrock near head [in Livengood quad.] is slate and quartzite; tuffaceous greenstone in lower part of valley; Kenai [Tertiary] sandstone and conglomerate near mouth. Sloping bench on south side of valley. Gravels 2-12 ft. thick overlain by as much as 40 ft. of frozen muck. Gold discovered, 1896. Production, to fall of 1904, was worth probably about $24,000 [about 1,160 fine oz.]. Bench gravels near mouth mined, 1904; much of gold in bedrock cracks; considerable barite and some hematite in concentrates. Hydraulicking in 1904 on part of creek 4 mi. above mouth [Livengood quad.].

p. 97-98 -- Copper in concentrates. Total production to fall of 1904 worth $24,000 [about 1,160 fine oz.]. [Probably in Livengood quad.].

Brooks, 1908 (B 345), p. 49 -- Hydraulic plant operated, 1907 [probably in Livengood quad.].

Brooks, 1909 (B 379), p. 55 -- Mining, 1908 [some probably in Livengood quad.].

Ellsworth, 1910 (B 442), p. 240 -- Mining, 1909 [some in Livengood quad.].

Ellsworth and Parker, 1911 (B 480), p. 167 -- Steam shovel introduced, 1910.

(Hunter Cr.) - Continued

Eakin, 1912 (B 520), p. 278-279, 282-283 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 30-31 -- Most of gold has come from terrace gravel on a bench 15-20 ft. above stream. Bedrock surface uneven; overburden thickens away from creek.
p. 35 -- Mining, 1911 [some or all probably in Livengood quad.].
Ellsworth and Davenport, 1913 (B 542), p. 222 -- Mining, 1912.
Chapin, 1914 (B 592), p. 362 -- Mining, 1913.
Brooks, 1915 (B 622), p. 64 -- Mining, 1914 [some in Livengood quad.].
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMB 153), p. 53 -- Mining, 1916.
Brooks, 1918 (B 662), p. 57 -- Mining, 1916. Also preparations preparatory for a hydraulic plant.
Martin, 1919 (B 692), p. 37 -- Mining, 1917.
Martin, 1920 (B 712), p. 42 -- Mining, 1918.
Brooks and Martin, 1921 (B 714), p. 83 -- Mining, 1919.
Brooks, 1923 (B 739), p. 32 -- Mining, 1921.
Smith, 1926 (B 783), p. 14 -- Mining, 1924.
Smith, 1929 (B 797), p. 23 -- Mining, 1926.
Smith, 1930 (B 813), p. 35 -- Mining, 1928.
Smith, 1932 (B 824), p. 40 -- Mining, 1929.
Smith, 1933 (B 836), p. 42 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 41 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 165 -- Mining in progress by 1896.
p. 177-181 -- Creek in narrow V-shaped valley with low gravel benches. Gold discovered, 1896. Data from B 280 summarized. Mining on south bench (rim about 20 ft. above creek level; 5-6 ft. gravel overlain by 12-15 ft. muck; bedrock is fractured greenstone; 16 in. of bedrock must be taken up. Some pieces of gold weigh as much as 1/2 oz.
Smith, 1934 (B 857-A), p. 39 -- Mining, 1932.
Smith, 1934 (B 864-A), p. 43 -- Mining, 1933.
Smith, 1936 (B 868-A), p. 44 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 47 -- Mining, 1935.
Smith, 1939 (B 910-A), p. 57 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 56 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 53 -- Mining, 1939.
Smith, 1942 (B 933-A), p. 49 -- Mining, 1940.
Cobb, 1973 (B 1374), p. 165-166 -- Stream and bench placers have been mined.

(Hutlinana Cr.) Gold

Hot Springs district Tanana
SE 1/4 SE 1/4 quad.

Summary: Placer gold in upper part of basin, but there has been no successful mining. The ground is deep and unfrozen. Some (or possibly all) of the reported gold may be in the part of the basin in the Livengood quad. Includes references to: (Hootlenana Cr.), (Hutlina Cr.).

Collier, 1903 (B 213), p. 56 -- Placers reported in northern tributaries [may be in Livengood quad.].
Prindle and Hess, 1905 (B 259), p. 115 -- No work in 1904.
Prindle and Hess, 1906 (B 280), p. 46 -- Preliminary to B 337.
Hess, 1908 (B 337), p. 93 -- Stampede in 1902; colors and occasionally good prospects reported; live water in gravels prevented small-scale mining.
Eakin, 1912 (B 520), p. 283 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 35-36 -- Small-scale mining on upper Hutlinana, 1911 [may be in Livengood quad. and(or) on a tributary].
Mertie, 1934 (B 844-D), p. 205 -- Gold has been found on most of northwest tributaries, but no paystreak has been located. Ground in headwater parts is deep and unfrozen; can not be worked economically on a small scale.

(Idaho Gulch) (Cr.)

Columbium, Gold, Monazite, RE, Silver, Tin

Hot Springs district
MF-371, locs. 5, 28

Tanana (15.2-15.4, 1.6-1.85)
65°05'N, 150°55'-150°57'W

Summary: Small gossan [at 65°05'N, 150'57'W (15.2, 1.85)] in quartzite; random sample contained 1.34 oz. silver per ton. Placer deposit [at 65°05'N, 150°55'W (15.4, 1.6)] consisted of small, discontinuous, not particularly rich concentrations in 30-40 ft. of gravel; total depth to bedrock is 24-85 ft. Total recorded production, 1907-1956, was 61 oz. gold and 300 lbs. cassiterite concentrate; probably considerably more was included with that from Sullivan Cr. Concentrates contained gold and cassiterite and (by implication in a general statement) aeschynite, columbite, monazite, and zircon. Tailings piles contain cobbles of brecciated quartz with brown tourmaline and cassiterite. Recovery from samples of tailings averages 2.67 lb. concentrate per cu. yd. that contained 1.00 lb. tin and 0.02 oz. gold. See also (Sullivan Cr.).

Brooks, 1918 (B 662), p. 57 -- Mining, 1916.

Mertie, 1934 (B 844-D), p. 212 -- Has been mining, but much of ground is worked out [as of 1931].

Moxham, 1954 (C 317), p. 5 -- A concentrate sample contained 2.3% eU. Concentrates collected in 1948 contained 0.015% to 0.035% eU. Though not specifically so stated, wording in reference infers the presence of eschynite, columbite, monazite, and zircon.

Thomas, 1957 (RI 5373), p. 6-8 -- Old tailing piles from drift mines. Production through 1956 was 61 oz. Au, 300 lbs. cassiterite concentrate. In "tin belt."

p. 12 -- USBM drilled prospect churn-drill holes.

p. 24-26 -- Data on individual churn-drill holes.

p. 47 -- Per cu. yd. recovery from channel samples of tailing pile averaged 2.67 lb. concentrate that contained 1.00 lb. Sn, 0.02 oz. Au.

Wayland, 1961 (B 1058-I), p. 369 -- Random sample from small gossan in quartzite contained 1.34 oz. Ag per ton; no gold.

p. 372 -- Gravels with local concentrations of gold and cassiterite are 30-40 ft. thick on lower Idaho Gulch; contain cobbles of coarse-grained biotite granite.

p. 379 -- Ground first staked, Aug. 1907.

p. 382-384 -- Some of data in old reports were not separated from those for Sullivan Cr. In general placer concentrations were small, discontinuous, and not very rich. Drift mining in 1919-21 recovered 0.77 lb. cassiterite per bedrock foot. Gold found farther upstream than cassiterite. Overburden 24-85 ft. thick. Well-rounded cobbles of brecciated quartz containing brown tourmaline and cassiterite on some tailings piles.

p. 397-398 -- Shafts to bedrock showed dark phyllite or sporadic graywacke, sandstone, quartzite, and rare barren quartz veins.

Berg and Cobb, 1967 (B 1246), p. 223 -- Random sample from small gossan contained 1.34 oz. Ag per ton.

Johnson & Hensley — Gold

Hot Springs district — Tanana
SE 1/4 SE 1/4 quad.

Summary: Operated hydraulic mine in 1928. No location data other than Eureka Creek area.

Smith, 1930 (B 813), p. 32 -- Hydraulic mine was a major producer in the Eureka Cr. area in 1928.

(Joseph Cr.)

Antimony

Rampart district
MF-371, loc. 8

Tanana (20.2, 4.7)
65°15'N, 150°15'W

Summary: Oxidized stibnite float on ridge. Bedrock source not found.

Martie, 1934 (B 844-D), p. 217 -- Scattered pieces of oxidized stibnite float on top of ridge between Granite and Minook Creeks. Residual material too thick to find bedrock source.

Burand and Saunders, 1966 (GC 12), p. 5 -- Stibnite prospect reported in headwaters of Joseph Cr.

Berg and Cobb, 1967 (B 1246), p. 236 -- Stibnite occurrence between upper Minook and Granite Creeks.

(Karshner Cr.)

Monazite

Hot Springs district
MF-371, loc. 37

Tanana (17.6, 0.35)
65°00'N, 150°38'W

Summary: Sample of sand contained tourmaline, andalusite, brookite, zircon, and monazite.

Waters, 1934 (B 844-D), p. 242 -- Sample of sand from stream bed 100 yds. upstream from Hot Springs Slough contained tourmaline, magnetite, andalusite, brookite, zircon, monazite, and common rock-forming minerals. Stream drains granite of Hot Springs Dome.

(Killarney Cr.) Gold, Tin

Hot Springs district Tanana (16.7, 2.35)
MF-371, loc. 35 65°07'-150°44'W

Summary: Marks NE limit of Tofty tin belt. Prospecting reported, 1912 to about 1915; fine cassiterite and very fine gold on phyllite bedrock at depths of 40-80 ft. No record of mining.

Chapin, 1914 (B 592), p. 362 -- Prospecting, 1913.
Brooks, 1916 (B 642), p. 28 -- Prospecting for tin with a churn drill, 1915.
Thomas, 1957 (RI 5373), p. 8 -- Marks NE limit of "tin belt."
Wayland, 1961 (B 1058-I), p. 372 -- Cobbles of coarse-grained biotite granite and pebbles and cobbles of monzonite (probably from Roughtop Mtn.) in gravels.

p. 394-395 -- Prospected for several years after 1912 by drilling and sinking shafts. Fine cassiterite and very fine gold on phyllite bedrock at depths of 40-80 ft.

p. 399 -- Cassiterite as rounded as that from Woodchopper Cr.
Cobb, 1973 (B 1374), p. 141 -- Marks limit of Tofty tin belt.

(Lancaster Cr.) Gold (?)

Melozitna district Tanana (1.75, 3.75) approx.
65°13'N, 152°45'W approx.

Summary: Open cut, 1917. No production reported.

Martin, 1919 (B 692), p. 39 -- Open cut made, 1917. No production.

(Little Boulder Cr.) Gold (?)

Hot Springs district Tanana (13.75, 2.75) approx.
65°09'N, 151°08'W approx.

Summary: Prospecting, 1918-19. Angular slate fragments in 6-12 ft. silt.

Brooks, 1918 (B 662), p. 57 -- Discovery of new placer ground reported, 1916. Said to be shallow and "gold content not high."

Chapin, 1919 (B 692), p. 335 -- Prospecting, 1919. Alluvium 6-12 ft. deep; silt with layers and lenses angular slate fragments.

(Little Monook Cr.)

Bismuth, Chromite, Copper, Gold, Lead, Manganese, Mercury (?), Silver, Tungsten

Rampart district
MF-371, locs. 12, 50

Tanana (21.45-21.8, 8.45-8.5)
65°27'N, 150°00'-150°04'W

Summary: Cuts auriferous gravel benches E. of Minook Cr.; gold in placers largely reconcentrated from bench gravels. Bedrock is slate, sandstone, and diabase; rocks jointed and sheared; mineralized with pyrite and chalcopyrite; many quartz veins, at least one of which is auriferous. Lode occurrence of rhodonite or rhodochrosite. Depth to bedrock as much as 25 ft. Concentrates contain gold, native copper, native silver, hematite, barite, pyrite, galena, chromite, ilmenite, magnetite, argentite, tetradymite, picotite, scheelite, cinnabar(?), garnet, zircon, and sphene. Gold discovered in 1893; mining began in 1896; continued until as recently as 1940; nearly all by groundsluicing and shovelling in. Total production probably 50,000-65,000 fine oz. of gold; over half of total for district. Includes reference to (Little Mynook Cr.).

Spurr, 1898, p. 294 -- White, crystalline quartz veins in shear zones. One about 6 ft. wide was staked; samples when panned yielded small quantities of fine gold.

p. 356-357 -- Steep-sided narrow valley cut in slate, sandstone, and diabase of Rampart series. Rock jointed and sheared and mineralized with pyrite and chalcopyrite; quartz veins, some with comb structure. Placers 10-20 ft. deep; much slide rock; gold in top foot of decomposed bedrock. Pyrite common; native copper and silver in concentrates.

Collier, 1903 (B 213), p. 55 -- Mining, 1902.

Prindle and Hess, 1905 (B 259), p. 111-112 -- Narrow v-shaped canyon. All mining in lower 3 mi. of stream course. Production through 1904 worth about $475,000 [about 23,000 fine oz.]. Depth to bedrock from a few feet to 25 ft.; maximum thickness of muck 16 ft. and of gravel about 12 ft. Gravel made up of diabase, tuff, quartzite, vein quartz; some derived from high bench gravels. Very little gold upstream from drainage from bench gravel.

Purington, 1905 (B 263), p. 208 -- Gold worth $19.24 an ounce.

Prindle and Hess, 1906 (B 280) -- Preliminary to B 337.

Hess, 1908 (B 337), p. 65 -- First placer claim in district located and worked in 1896.

p. 75-77 -- Lower 3 mi. of course is through bench E. of Minook Cr.; valley is straight, v-shaped, and cut 500-700 ft. below surface of bench. Gold discovered in early 1890's; first claim staked and mining begun in 1896. Production to fall of 1904 was worth $486,100 [about 23,515 fine oz.]. Heads in area of "slates and quartzites cut by small decomposed acid dikes." Other bedrock is limestone, shale, chert, sandstone, and greenstone. Small quartz and calcite veins; disseminated pyrite. All gravel in stream bed. Mammalian bones reported. Gold in base of gravel and in crevices in top 1-2 ft. of diabase bedrock. Most of gold smooth and worn; nuggets weigh as much as 12 oz. No minable placers upstream from bench gravels, the source of most of the gold. Native copper and silver in concentrates.

(Little Minook Cr.) - Continued

p. 98 -- Same data on production as given above.
Brooks, 1909 (B 379), p. 55 -- Mining, 1908.
Brooks, 1910 (B 442), p. 239-240 -- Mining, 1909. Cheaper mining methods will have to be used soon.
Ellsworth and Parker, 1911 (B 480), p. 167 -- Mining, 1910. Chief producer in district.
Eakin, 1912 (B 520), p. 277, 282-283 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 28-29 -- Systematic mining begun, 1896. Quartz vein 6 ft. wide said to yield gold when crushed and panned.
p. 35 -- Mining, 1911.
Ellsworth and Davenport, 1913 (B 542), p. 222 -- Mining, 1912.
Chapin, 1914 (B 592), p. 362 -- Mining, 1913.
Brooks, 1915 (B 622), p. 64 -- Mining, 1914.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMB 153), p. 53 -- Mining, 1916.
Brooks, 1918 (B 662), p. 57 -- Mining, 1916.
Martin, 1919 (B 692), p. 37 -- Mining, 1917.
Brooks, 1923 (B 739), p. 32 -- Mining, 1921.
Brooks and Capps, 1924 (B 755), p. 37 -- Largest producer in district, 1922.
Smith, 1926 (B 783), p. 14 -- Mining, 1924.
Smith, 1929 (B 797), p. 23 -- Mining, 1926.
Smith, 1930 (B 810), p. 30 -- Mining, 1927.
Smith, 1930 (B 813), p. 35 -- Mining, 1928.
Smith, 1932 (B 824), p. 40 -- Mining, 1929.
Smith, 1933 (B 836), p. 42 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 41 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 165 -- Mining in progress in 1896.
p. 181-183 -- Valley v-shaped; almost a gorge near lower end. Remnants of 500-ft. bench of Minook Cr. preserved near mouth. Gold discovered, 1893; mining begun, 1896. Has been largest producer in district (about $1,000,000 in gold [more than 48,000 fine oz.] from one claim). All productive placers are in the present creek gravels. Early mining was by drifting, but in 1931 mining was from open cuts. Gold is high grade (worth $19 or more an ounce [old price] and generally coarse. Heavy minerals in concentrates include gold, native copper, hematite, barite, pyrite, galena, chromite, ilmenite, magnetite, argentite, tetradymite, picotite, scheelite, and cinnabar(?).
Smith, 1934 (B 857-A), p. 39 -- Mining, 1932.
Smith, 1934 (B 864-A), p. 43 -- Mining, 1933.
Waters, 1934 (B 844-D), p. 232-234 -- Samples contained minerals listed above [B 844-D, p. 181-183], plus garnet, zircon, sphene, and other nonmetallic minerals.
Smith, 1936 (B 868-A), p. 44 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 47 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 56 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 57 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 56-57 -- Mining, 1938. Plans to bring in a dragline.
Smith, 1941 (B 926-A), p. 53 -- Principal producer in district, 1939; power equipment used.
Joesting, 1942 (TDM 1), p. 27, 39 -- References to B 844-D, p. 233.

(Little Minook Cr.) -- Continued

Smith, 1942 (B 933-A), p. 49 -- Mining with power equipment, 1940.
Malone, 1962 (IC 8131), p. 56 -- Reference to B 844-D, p. 233.
Malone, 1965 (IC 8252), p. 55 -- Reference to B 844-D.
Burand and Saunders, 1966 (GC 12), p. 5 -- Creek has been productive. Lode deposits of rhodochrusite or rhodonite. Concentrates contain native copper, galena, and cinnabar(?).
Koschmann and Bergendahl, 1968 (P 610), p. 30 -- References to B 280, p. 26; B 844-D, p. 181.
Cobb, 1973 (B 1374), p. 165, 167 -- Cuts gravel-covered terraces E. of Minook Cr. Creek was the source of more than half of the 80,000-90,000 fine oz. of gold mined in the district; most was probably reconcentrated from benches of Minook Cr. Galena, argentite, and native copper in concentrates.

(Little Minook Jr. Cr.) Gold, Lead

Rampart district Tanana (21.5-21.65, 8.3-8.4)
MF-371, loc. 49 65°27'N, 150°02'-150°03'W

Summary: Short, frequently dry creek with headwaters in high gravel bench E. of Minook Cr.; lower part of course sharply cut into greenstone bedrock. Most of placers are in gravels of present stream; a few bedrock benches with no surface expression. Some of gold very coarse; one nugget was worth $200 (old price of gold); most reconcentrated from bench gravels, but some probably of local origin. Minerals in concentrates include gold, galena, pyrite, hematite, barite, ilmenite, magnetite, garnet, zircon, and sphene. Gold discovered about 1898. Small-scale mining from time to time; total production probably no more than a few thousand ounces. Many vertebrate remains in overburden.

Prindle and Hess, 1905 (B 259), p. 111-112 -- Creek 2 mi. long. Narrow lower valley; more open depression in bench near head. 12 ft. of muck over 4-5 ft. of gravel. Width of pay about 60 ft. Said to be worked out as of 1904.

Purington, 1905 (B 263), p. 208 -- Gold worth $19.00 an ounce.

Prindle and Hess, 1906 (B 280), p. 27, 35-36,50 -- Preliminary to B 337.

Hess, 1908 (B 337), p. 65 -- Gold discovered 1898 or soon thereafter.

p. 77-78 -- Valley almost all in high bench E. of Minook Cr.; creek generally dry in summer. Lower part of valley cut in diabase. Total output [to fall of 1904] estimated at about $150,000 [about 1,250 fine oz.]. Many mammalian bones, including a bison skull. Pay streak is 30-60 ft. wide and 1-6 ft. thick. Most of gold smooth and probably reconcentrated from bench gravels; some rough and probably of local derivation.

p. 98 -- Same production data as given above.

Brooks, 1909 (B 379), p. 55 -- Small-scale mining, 1908.

Ellsworth, 1910 (B 442), p. 240-241 -- Small-scale mining, 1909.

Ellsworth and Parker, 1911 (B 480), p. 167 -- Mining, 1910.

Ellsworth and Davenport, 1913 (B 542), p. 222 -- Mining, 1912.

Chapin, 1914 (B 592), p. 362 -- Mining, 1913.

Smith, 1932 (B 824), p. 40 -- Mining, 1929.

Smith, 1933 (B 836), p. 42 -- Mining, 1930.

Mertie, 1934 (B 844-D), p. 165 -- Gold discovered before 1902.

p. 175 -- Little Minook Jr. and Florida Creeks are only small tributaries of Minook Cr. from E. of any economic importance.

p. 184-185 -- Short creek that rises in area of Pliocene(?) gravels of benches of Minook Cr. Valley narrow with steep walls. Most of gold in stream placers; a few bedrock benches with no surface expression. Greenstone bedrock has uneven surface. A nugget worth $200 has been recovered. Heavy minerals in concentrates include gold, pyrite, hematite, ilmenite, barite, magnetite, and galena.

Waters, 1934 (B 844-D), p. 234 -- Concentrate sample contained pyrite, hematite, ilmenite, barite, magnetite, garnet, sphene, zircon, gold, galena, and various nonmetallic minerals.

(Little Minook Jr. Cr.) -- Continued

Smith, 1936 (B 868-A), p. 44 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 47 -- Mining, 1935.
Burand and Saunders, 1966 (GC 12), p. 5 -- Has been a productive creek.
Cobb, 1973 (B 1374), p. 167 -- Galena in concentrates.

(McCaskey Bar) | Gold, Mercury

Hot Springs district | Tanana (20.6-20.8, 3.35-3.4)
MF-371, loc. 42 | 65°10'N, 150°11'-150°13'W

Summary: Low-grade placer at least 100 ft. wide in bench gravels; 15-18 ft. of frozen overburden. Bedrock is altered phyllite and argillite cut by quartz veins. Most of gold within 1 ft. of bedrock. Minerals in concentrate sample included ilmenite, picotite, gold, cinnabar, magnetite, zircon, and tourmaline. Mining, 1924-39. See also Farmer & Jones.

Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.

Mertie, 1934 (B 844-D), p. 193 -- Old gravel deposit on bench E. of Eureka Cr.

p. 198-199 -- At end of spur between Pioneer and Kentucky Creeks. Ground opened up in 1924 and mined continuously through 1931. Low-grade placer at least 100 ft. wide. 15-18 ft. of frozen overburden. Gravel largely subangular quartzite in brown clay; Aucella [Buchia] crassicolis in some fragments. Bedrock mainly altered phyllite and argillite cut by quartz veins. Most of gold within a foot of bedrock, but a little throughout the gravel. Assay indicated 0.802-1/2 Au, 0.191 Ag. Heavy minerals in concentrates include ilmenite, picotite, cinnabar, and magnetite.

Waters, 1934 (B 844-D), p. 237 -- Heavy minerals (heavier than bromoform) in a sample included ilmenite, picotite, garnet, zircon, gold, cinnabar, magnetite, and tourmaline.

Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.

Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.

Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.

Joesting, 1942 (TDM 1), p. 27 -- Reference to B 844-D, p. 238 [should be p. 237].

Malone, 1962 (IC 8131), p. 56 -- Reference to B 844-D, p. 238 [should be p. 237].

Malone, 1965 (IC 8252), p. 55 -- Reference to B 844-D [called McKaskey Creek in IC 8252].

Cobb, 1973 (B 1374), p. 141 -- Bench gravels on terrace remnant preserved on spur between Pioneer and Kentucky Creeks.

(McKinley Cr.) Gold (?)

Hot Springs district Tanana (19.75, 3.5) approx.
65°10'N, 150°19'W approx.

Summary: Prospects reported in 1902. No further mention of this creek in the literature.

Collier, 1903 (B 213), p. 55 -- Good prospects reported, 1902; near Glenn Cr., but exact location not known. Not visited by Collier.

(Melozimoran Cr.) Gold (?), Tin (?)

Melozitna district Tanana (0.55, 7.5)
65°26'N, 152°55'W

Summary: Drains north flank of Moran Dome. Bedrock is metamorphosed sedimentary and mafic igneous rocks and granite. Valley alluvium and a few bench gravels in broad, swampy valley. A little prospecting, 1913-18; unconfirmed reports of finding gold and cassiterite.

Martin, 1920 (B 712), p. 22, 47-48 -- Placer tin said to have been discovered, 1918.

Joesting, 1942 (TDM 1), p. 34 -- Reference to B 712, p. 22.

Chapman and others, 1963 (OF 239), p. 14-18 -- Drains north flank of Moran Dome; flows in broad, swampy, alluvium-filled, flat-floored valley. A few prospect pits said to have been sunk near mouth, 1913-18, and a little gold and cassiterite reportedly recovered. Little other prospecting. Bedrock is a thick sequence of metamorphosed sedimentary and mafic igneous rocks and some granite. Lenticular veins of barren milky quartz are common. Original bedding obliterated in most places, but appears to be parallel to schistosity; dip is to north and steeper than on south flank of Moran Dome.

p. 20-26 -- Alluvium largely confined to valley floor; a few benches. Little information on valley-bottom alluvium; probably frozen in some places and not in others. Bedrock not reached in any of 10 test pits (deepest 6.5 ft.) dug in 1943; no gold or cassiterite found. Bedrock said to be slightly more than 12 ft. deep near mouth. Gravel from pit that went through bench gravel contained no gold, cassiterite, or other heavy minerals.

(Miller Gulch) (Cr.)

Columbium, Gold, Monazite(?), RE(?), Silver, Tin

Hot Springs district
MF-371, loc. 27

Tanana (15.3, 1.5)
65°04'N, 150°56'W

Summary: Discovered by drilling program in 1912. Sporadic drift mining and resluicing of old tailings piles until 1940. Old channel cut across a series of terraces in bedrock with local enrichment at each channel-terrace scarp intersection. Pay gravel in fairly continuous narrow pay streak beneath 35-120 ft. of muck. Concentrates contain gold, cassiterite, columbite, and probably aeschynite, monazite, and zircon (reference, C 317, p. 5, is not clear). Total production through 1956 was 17,576 oz. gold, 668 oz. silver, and 101,875 lb. cassiterite concentrate. Analyses of channel samples of tailings piles indicated per cubic yard recovery of 2.635 lb. concentrate containing 0.775 lb. tin, 0.0175 lb. Cb_2O_5, and 0.0175 oz. gold. As much as 7.0% Cb_2O_5 in individual samples. See also (Sullivan Cr.).

Ellsworth and Davenport, 1913 (B 542), p. 221 -- Mining, 1912.

Eakin, 1915 (B 622), p. 241-244 -- Gold discovered, 1912, as a result of a major drilling program. Bedrock surface marked by bold scarps without surface expression. Much cassiterite with the gold; about 30 tons of tin concentrate reported to have been saved. Large-scale mining, 1914.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.

Smith, 1917 (BMB 142), p. 25 -- Mining, 1915.

Chapin, 1919 (B 692), p. 334 -- Mining, 1917.

Smith, 1932 (B 824), p. 68 -- Tin ore mined, 1929.

Smith, 1933 (B 836), p. 36 -- Mining, 1930.

p. 70-71 -- Placer tin has been found.

Smith, 1933 (B 844-A), p. 69 -- Tin ore recovered incidental to gold mining, 1931.

Mertie, 1934 (B 844-D), p. 212 -- Much of ground has been worked out, 1931.

Smith, 1939 (B 910-A), p. 53 -- Small-scale mining, 1937.

Smith, 1939 (B 917-A), p. 50 -- Small-scale mining, 1938.

Joesting, 1942 (TDM 1), p. 34 -- Reference to B 824, p. 67 [should be p. 68].

Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.

Moxham, 1954 (C 317), p. 5 -- eU of 2 samples was 0.026% and 0.017%. Though not specifically so stated, wording in reference infers the presence of eschynite, columbite, monazite, and zircon.

Thomas, 1957 (RI 5373), p. 6-8 -- Piles of drift-mine tailings. Total production through 1956 was 17,576 oz. Au, 2,668 oz. Ag, 101,875 lb. cassiterite concentrate. In "tin belt."

p. 12-13 -- Churn-drill sampling by USBM. "Pay channel" had been drilled earlier.

p. 17, 23 -- Data on each drill hole.

p. 45-46 -- Recovery per cu. yd. from channel samples of tailing piles averaged 2.635 lb. concentrate that contained 0.775 lb. Sn, 0.065 lb. Cb_2O_5, 0.0175 oz. Au. Individual analyses of concentrates showed as much as 7.0% Cb_2O_5.

(Miller Gulch) (Cr.) -- Continued

Wayland, 1961 (B 1058-I), p. 370 -- Old channels cut across a system of bedrock terraces causing local enrichment of gravels at each terrace.

p. 373-374 -- In a phyllite fragment, tourmaline replaced micaceous layers and filled fractures. In and near fractures are many cassiterite crystals and some bladelike poorly crystallized grains.

p. 384-385 -- Gold and cassiterite placers discovered by drilling in 1912; followed by sinking prospect shafts. 5 mining operations in 1914; activity fell off in 1915; cassiterite recovered from tailings, 1917-20; small-scale drift mining, 1930-31 and 1937-40. Pay is beneath 35-120 ft. of muck; bedrock surface slopes gently to south except for some prominent terraces. Pay streak is narrow and quite continuous. 30 tons cassiterite concentrate recovered in 1914. Gravel tailings contain more brecciated quartz cobbles with brown tourmaline and cassiterite than on creeks to east.

p. 410 -- On tailings piles, cassiterite pebbles are part of a surface lag concentrate, but finer pieces are washed down into gravel. These probably cancel out, so surface sampling is fairly accurate.

Barton, 1962 (IC 8120), p. 31 -- Reference to RI 5373 (chem. analyses of concentrate samples showed 0.2-7.0 percent Cb_2O_5.

Cobb, 1973 (B 1374), p. 141 -- In a piece of subangular phyllite fine brown tourmaline replaced all micaceous layers, and dense tourmaline filled crosscutting fractures.

(Minook Cr.) Gold, Silver

Rampart district Tanana (20.95-21.0, 6.9-7.5)
MF-371, loc. 45 65°22'-65°24'N, 150°08'W

Summary: Gold discovered in 1890's. Valley narrow; incised into closely folded slate, limestone, quartzite, garnet schist, greenstone, and (near mouth) Tertiary continental rocks. Valley has several terraces on E. side at elevations above creek of 10 to about 1,000 ft. near mouth; some terraces extend up tributary valleys; terraces approach creek gradient upstream. Top terrace capped by 100 ft. of Pliocene(?) gravel. Terrace gravels auriferous; gold reconcentrated into rich placers on some of tributaries, but placers on main stream too low grade to support small-scale mining. Much of mining was bar sniping and small operations in richer spots. In places most of gold (probably of local derivation rather than from benches) was in nuggets weighing 1-4 oz. Total production certainly was no more than a few thousand ounces; may have been less than 1,000 oz.; much of reported mining probably was on tributaries. Nuggets of native silver accompany gold. Includes references to: (Big Minook Cr.), (Mynook Cr.).

Spurr, 1898, p. 355 -- Probably prospected as early as 1882; coarse gold found in 1893. [Tertiary] conglomerate, sandstone, and shale near mouth; farther upstream are diabase, tuff, and shale of Rampart series. Pay streak hard to find; all mining on tributaries.

Collier, 1903 (B 213), p. 55 -- Mining, 1902.

Prindle and Hess, 1905 (B 259), p. 114 -- Gold found on several claims. Ground not favorable for small-scale mining.

Prindle, 1906 (B 284), p. 126 -- Large hydraulic plant installed, 1905.

Prindle and Hess, 1906 (B 280), p. 26-30, 37, 48, 50 -- Preliminary to B 337.

Hess, 1908 (B 337), p. 65-72 -- Probably was prospected before first mining on Little Minook Cr. in 1896. Basin much narrower on W than on E side. Much aufeis [term not used] forms in places where gradient becomes less steep. 5 benches on E side of valley; highest is about 500 ft. above creek. Auriferous gravel on highest bench. Bedrock in valley is closely folded slate and limestone and some quartzite; garnet schist near Ruby Cr.; lower valley in greenstone; some Kenai [Tertiary continental] rocks near mouth. Much quartzite in gravel. Placers not amenable to small-scale mining; most of production from area is from tributaries. Small areas said to have run $3-4 a square yard of bedrock; some nuggets worth $90. High bench probably represents old valley floor of Minook Cr.

p. 97-98 -- Native silver in placers; little silver alloyed with gold. Total production to fall of 1904 worth about $10,000 [about 485 fine oz.].

Ellsworth, 1910 (B 442), p. 241 -- Small-scale mining on bars, 1909.

Brooks, 1911 (P 70), p. 183 -- Gold in high bench east of creek carries gold, but has not been mined. Creek mining on Minook Cr. and tributaries in 1907.

(Minook Cr.) -- Continued

Ellsworth and Parker, 1911 (B 480), p. 167 -- Mining, 1910.
Eakin, 1912 (B 520), p. 276, 278 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 28 -- First discoveries in district on Minook Cr. and tributaries as early as 1893.
p. 30 -- Stream gravels from a few to 15 or 20 ft. thick.
Ellsworth and Davenport, 1913 (B 542), p. 222 -- Gold mined from bars; using rockers.
Brooks, 1915 (B 622), p. 64 -- One man mining near head, 1914. Gold chiefly in nuggets weighing 1-4 oz. each.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMR 153), p. 53 -- Mining, 1916.
Brooks, 1923 (B 739), p. 32 -- Report in 1921 that dredge is to be installed.
Brooks and Capps, 1924 (B 755), p. 37 -- Dredge in transit, summer of 1924. [Never installed.].
Mertie, 1934 (B 844-D), p. 165 -- Gold discovered, 1893.
p. 174-177 -- Creek deeply incised in a narrow v-shaped valley with prominent benches on E. side in lower valley. The four most prominent are about 1,000, about 500, 90, and 19-20 ft. above the creek. Gravel is not sufficiently high grade to be worked by small-scale methods. Most of gold came from local sources in lower part of valley (below Slate Cr.) and from reworked bench gravels. Reference to B 280, p. 30, for data on mining in 1904. Mining in 1931 was on W. bank 1-1/2 mi. below Slate Cr. Bedrock chert and phyllite; gravel 3-5 ft. thick. Several large-scale operations were planned, but none materialized.
Smith, 1934 (B 857-A), p. 39 -- Mining in valley, 1932.
Smith, 1934 (B 864-A), p. 43 -- Mining in valley, 1933.
Smith, 1936 (B 868-A), p. 44 -- Mining in valley, 1934.
Smith, 1937 (B 880-A), p. 47 -- Mining in valley, 1935.
Smith, 1939 (B 910-A), p. 57 -- Mining in valley, 1937.
Smith, 1939 (B 917-A), p. 56 -- Mining in valley, 1938.
Smith, 1942 (B 933-A), p. 49 -- Mining, 1940.
Burand and Saunders, 1966 (GC 12), p. S -- Gold discovered, 1893. Mining began in 1896 [probably an error; mining began on Little Minook Cr. in 1896].
Koschmann and Bergendahl, 1968 (P 610), p. 30 -- Gold discovered, 1882 [may not have been on Minook Cr.]. Low-grade placers on terraces along valley.
Cobb, 1973 (B 1374), p. 165 -- Coarse gold discovered, 1893 [may have been on Little Minook Cr.]. Creek is deeply incised in narrow valley with 4 prominent and several more indistinct terraces on E. side of valley from 10 to about 1,000 ft. above stream near mouth; some extend up tributary valleys and all approach grade of Minook Cr. near head of valley. Pliocene(?) gravel as much as 100 ft. thick caps highest terrace. Stream placers generally too low grade to support small-scale mining.

(Morelock Cr.) Gold, Tin

Melozitna district Tanana (12.2, 5.8)
MF-371, loc. 19 65°19'N, 151°20'W

Summary: Bedrock is Paleozoic (possibly some Precambrian and Mesozoic) metamorphosed sedimentary and mafic igneous rocks; many quartz veins barren except for minute pyrite crystals. Bedrock surface irregular; average thickness of gravel 5-6 ft. beneath 2-3 ft. of silt. Heavy minerals in basal few inches of gravel, on bedrock, and in crevices in bedrock. Concentrates contain gold, cassiterite, magnetite, ilmenite, hematite, and garnet. No lode sources for gold or cassiterite found. Exploration by prospectors, USBM, and USGS. Sporadic prospecting and small-scale mining from about 1901 into 1940's. Total production probably no more than a few hundred ounces of gold.

Brooks, 1909 (B 379), p. 55 -- Has been prospecting for 2 years. Sluicing on bench claim at confluence of Bonanza and Morelock Creeks, 1908.
Eakin, 1914 (B 592), p. 383 -- Preliminary to B 631.
Eakin, 1916 (B 631), p. 82 -- Has been a little desultory mining; production insignificant.
Mertie, 1934 (B 844-D), p. 192 -- Has been considerable prospecting and some mining.
Smith, 1934 (B 864-A), p. 43 -- Prospecting, 1933; only a little gold recovered.
Smith, 1936 (B 868-A), p. 45 -- Prospecting, 1934; only a little gold recovered.
Smith, 1937 (B 880-A), p. 47 -- Prospecting, 1935; only a little gold recovered.
Smith, 1939 (B 910-A), p. 57-58 -- 4 open-cut mining operations, 1937.
Smith, 1939 (B 917-A), p. 56 -- Open-cut mining, 1938.
Joesting, 1943 (TDM 2), p. 18-19 -- Abundant cassiterite in placer-concentrate sample.
Thomas and Wright, 1948 (RI 4322) -- Gold discovered, 1901. Has been intermittent hand mining and considerable prospecting, but no large areas of minable ground have been found. Bedrock is various kinds of schist and a bed of limestone; all complexly deformed. Bedrock surface irregular; heavy minerals concentrated on high spots (called "reefs"). Heavy minerals include gold, cassiterite, magnetite, pyrite, and limonite. Gravels are about 6 ft. thick and generally unfrozen; overburden is about 2-1/2 ft. of frozen muck. Heavy minerals in basal 2 ft. of gravel and in crevices along joint planes in bedrock. Richest deposits below mouths of Bonanza and Homestake Creeks. 2 lines of chain-drill holes indicated averages of 0.1227 lb. Sn and 0.00378 oz. Au per cu. yd. Small cuts mined from "reefs" in 1943 yielded 6.054 lb. Sn concentrate and 1.951 oz. Au from 71.3 cu. yd. of material excavated.
Wedow and others, 1952 (OF 51), p. 97 -- Cassiterite in gravel.
Wayland, 1961 (B 1058-I), p. 396 -- Closest place to Tofty tin belt where placer cassiterite is relatively abundant.

Ness — Gold

Hot Springs district — Tanana
SE 1/4 SE 1/4 quad.

Summary: Operated a hydraulic mine in 1928. Only location given is in Eureka Cr. area.

Smith, 1930 (B 813), p. 32 -- Hydraulic mine was a major producer in Eureka Cr. area in 1928.

(New York Cr.) Gold

Hot Springs district Tanana
SE 1/4 quad.

Summary: Small-scale mining, 1937. This stream may be the New York Cr. that is tributary to the North Fork of Baker Cr. or possibly the New York Gulch that is tributary to American Cr.; in list that includes Sullivan, Deep, Boulder, Colorado, Miller, and Cache Creeks.

Smith, 1939 (B 910-A), p. 53 -- One-man mining camp, 1937.

(New York Gulch) (Cr.) | Gold

Hot Springs district | Tanana (13.55, 2.0)
MF-371, loc. 21 | 65°06'N, 151°10'W

Summary: Tributary of American Cr. Prospecting or mining reported in 1921 and 1926. Concentrates contain magnetite, barite, ilmenite, picotite, and gold.

Smith, 1929 (B 797), p. 22 -- Mining, 1926.
Mertie, 1934 (B 844-D), p. 214 -- Work that was essentially prospecting, 1921. Concentrate sample contained magnetite, barite, ilmenite, and picotite.
Waters, 1934 (B 844-D), p. 241 -- Mineral content similar to that of samples from American Cr., but without pyrite.
Cobb, 1973 (B 1374), p. 141 -- Deposit not studied in detail; probably similar to those near Eureka and Tofty.

(Omega Cr.) Gold, Mercury, Tungsten

Hot Springs district Tanana (19.5-19.7, 3.5-3.55)
MF-371, loc. 38 65°11'N, 150°19'-150°21'W

Summary: Bedrock mainly Lower Cretaceous black slate; quartzite in valley wall to south. Upper part of creek flows along strike; N. wall gentler than S. wall. Gravel 5-10 ft. thick beneath variable thin layer of muck. Concentrates contain gold (some exhibiting crystal faces), many pyrite crystals, ilmenite, zircon, picotite, garnet, scheelite, and cinnabar. Gold discovered in 1899; mining from 1901 to as recently as 1940. No data on total production; probably was many 10's of thousands of ounces of gold. Includes reference to (Orange Cr.).

Collier, 1903 (B 213), p. 55 -- Good prospects reported, 1902. Not visited by Collier.

Prindle and Hess, 1905 (B 259), p. 115 -- Of economic importance in 1904.

p. 118 -- SW side of valley steep; NW side gentle. Bedrock is schistose grit and slate; gravel made up of these rocks, vein quartz, and quartzite. Much of gold is rough; nuggets contain quartz. Production begun in 1903.

Prindle, 1906 (B 284), p. 126 -- On bench, pay gravels found over a distance of more than 2 mi., 1905.

Prindle and Hess, 1906 (B 280), p. 38, 44-45, 48-50 -- Preliminary to B 337.

Hess, 1908 (B 337), p. 82 -- One of principal producing creeks in Baker Cr. area.

p. 91 -- S side of valley steep; N side gentle. Bedrock black slate and yellowish, schistose grit; strikes N 70° E, dips steeply N. Gravel about 7 ft. deep; little or no muck. Many pieces of gold show crystal faces; many have attached quartz. Many pyrite crystals in concentrates.

p. 98 -- Combined production of Omega and Thanksgiving Creeks to fall of 1904 worth $18,200 [about 880 fine oz.].

Brooks, 1911 (P 70), p. 183 -- Cuts bench north of Baker Cr.

Eakin, 1912 (B 520), p. 283 -- Preliminary to B 535.

Eakin, 1913 (B 535), p. 35 -- One claim being mined, 1911.

Chapin, 1914 (B 592), p. 362 -- Mining, 1913.

Chapin, 1919 (B 692), p. 334 -- Mining, 1917.

Smith, 1926 (B 783), p. 14 -- Mining, 1924.

Smith, 1929 (B 797), p. 22 -- Mining, 1926.

Smith, 1930 (B 836), p. 36 -- Mining, 1930.

Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.

Mertie, 1934 (B 844-D), p. 203-204 -- Gold discovered, 1899. First mining, 1901. Country rock is mainly Lower Cretaceous black slate that strikes N 70° E and dips steeply N. Upper stream course is parallel to strike; quartzite in valley wall to south. South valley wall steeper than north. Gravel 5-10 ft. thick beneath muck of variable thickness. Concentrates contain pyrite, ilmenite, picotite, scheelite, and cinnabar. 2 open cuts being mined, 1931.

(Omega Cr.) -- Continued

Smith, 1934 (B 857-A), p. 33 -- Mining, 1932.
Waters, 1934 (B 844-D), p. 238 -- Minerals in concentrate sample included pyrite, ilmenite, zircon, gold, picotite, garnet, scheelite, and cinnabar.
Smith, 1936 (B 868-A), p. 41 -- Mining on Orange Cr., 1934.
Smith, 1937 (B 880-A), p. 42 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 53 -- Ground being prepared for mining, 1937.
Smith, 1939 (B 917-A), p. 50 -- Largest producer in Eureka Cr. area, 1938.
Smith, 1941 (B 926-A), p. 47 -- A major producer in Eureka Cr. area, 1939.
Joesting, 1942 (TDM 1), p. 27, 39 -- References to B 844-D, p. 235, 238 [both should be p. 238].
Smith, 1942 (B 933-A), p. 43 -- A major producer in Eureka Cr. area, 1940.
Malone, 1962 (IC 8131), p. 56 -- Reference to B 844-D, p. 238.
Malone, 1965 (IC 8252), p. 55 -- Reference to B 844-D.
Cobb, 1973 (B 1374), p. 143 -- Scheelite in concentrates.

(Patterson Cr.) Gold, Silver, Tin

Hot Springs district Tanana
MF-371, locs. 25-33 SW 1/4 SE 1/4 quad.

Summary: Gold discovered, 1907, at mouth of Sullivan Cr. Most (if not all) of mining was on tributaries and benches between tributaries. According to Thomas, production through 1956 was 2,599 oz. gold, 385 oz. silver, and 20,282 lb. cassiterite concentrate; he also lists production from many of tributaries, so the source of the reported production is not clear. See also: (Cache Cr.), (Deep Cr.), (Sullivan Cr.), (Woodchopper Cr.).

Brooks, 1908 (B 345), p. 49 -- Gold discovered, 1907.
Hess, 1908 (B 337), p. 93 -- Gold discovered, 1907, at mouth of Easy Money and Sullivan Creeks. Slate bedrock; gravels 35-70 ft. deep; no mining in 1907. [Reference probably is garbled.]
Brooks, 1911 (P 70), p. 183 -- Gold discovered, 1907.
Brooks, 1911 (B 480), p. 88 -- Much cassiterite in concentrates from some of tributaries.
Brooks, 1914 (B 597), p. 68 -- Mining, 1913.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Martin, 1920 (B 712), p. 40 -- Prospect drilling, 1918.
Brooks and Martin, 1921 (B 714), p. 82 -- Mining, 1919 [probably mainly in Sullivan Cr. basin]. About 20 tons of tin concentrates recovered incidental to gold mining in district.
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 480, p. 88-90 [should be p. 88].
Thomas, 1957 (RI 5373), p. 7 -- Production through 1956 was 2,599 oz. Au, 385 oz. Ag, 20,282 lb. cassiterite concentrate [may include some from tributaries].

(Pioneer Cr.) Gold, Mercury, Tungsten

Hot Springs district Tanana (20.55-21.05, 3.7-4.0)
MF-371, loc. 41 65°11'-65°12'N, 150°09'-150°13'W

Summary: Asymmetrical valley (steeper on S. side) parallel to upper Eureka Cr. Several gravel-covered terraces on N. valley slope. Richest is about 250 ft. above and 2,000 ft. north of creek; lower benches lower grade but minable in places. Bedrock is pyritized sheared sandstone and slate, phyllite, and quartzite; cut by a few quartz veins. Gravels (locally derived) are 3-12 ft. thick; gold reconcentrated into rich placers where benches are crossed by small tributary streams. Concentrates contain picotite, ilmenite, pyrite, zircon, gold, sphene, barite, magnetite, garnet, scheelite, cinnabar, and tourmaline. Mining from 1902 to as recently as 1940. No data on total production; probably was many 10's of thousands of ounces of gold. Includes references to: (Boothby Cr.), (Doric Cr.), (Jordan Bar), (Last Bench), (Seattle Bar), (Seattle Jr. Cr.), (Skookum Cr.), (What Cheer Bar).

Collier, 1903 (B 213), p. 55 -- Gold prospects found, 1902.

Prindle and Hess, 1905 (B 259), p. 115-117 -- Placers are in benches extending half a mile or so NW of creek; cut by several small tributaries. Practically no work on main creek as of 1904. Bedrock mainly jointed schistose grit. Gravels contain much quartzite and vein quartz; many large boulders.

Prindle, 1906 (B 284), p. 126 -- Further discoveries extend limits of possible productivity from What Cheer Bar toward head of creek, 1905.

Prindle and Hess, 1906 (B 280), p. 38-42, 48-50 -- Preliminary to B 337.

Brooks, 1907 (B 314), p. 37 -- Mining on Boothby and Skookum Creeks, 1906.

Hess, 1908 (B 337), p. 82-83 -- Gold discovered on benches, 1902. Producing creek in 1904.

p. 85-87 -- SE side of valley steep; NW side gentle with benches (one persistent); auriferous gravel on persistent bench. Bench crossed by 5 small tributaries. Pay discovered on What Cheer Bar in 1902. Bedrock is slate, grit, and quartzite; strikes N 70°-75° E, dips steeply N; much disseminated pyrite and some small quartz veins. Bench gravels (local rock types and conglomerate and vein-quartz boulders) 12 ft. or less thick; mining, 1904; gold in basal gravel and top 1-2 ft. of bedrock.

p. 96 -- Placer on Doric Cr. formed by secondary concentration.

p. 98 -- Production from Eureka and Doric Creeks and bench bars to fall of 1904 was worth $85,300 [about 4,125 fine oz.].

Brooks, 1909 (B 379), p. 56 -- Rich ground has been found on tributaries, 1908.

Ellsworth, 1910 (B 442), p. 242 -- Nonfloat mining on What Cheer Bar, 1909. Winter mining elsewhere.

Brooks, 1911 (P 70), p. 183 -- Cuts bench north of Baker Cr.

Ellsworth and Parker, 1911 (B 480), p. 166 -- Open-cut mining, 1910. Hampered by water shortage.

Eakin, 1912 (B 520), p. 277, 279-280, 283 -- Preliminary to B 535.

(Pioneer Cr.) -- Continued

Eakin, 1913 (B 535), p. 30 -- Nuggets from What Cheer Bar contain slate.
p. 32 -- What Cheer Bar is typical of bench deposits of district. Bench 250 ft. vertically above Pioneer Cr. and 2,000 ft. from it on valley side. Slight slope (enough for sluice boxes) toward creek; bedrock surface steepens near uphill limit. Area 2,000 by 150-200 ft. has been mined. Gravels 3-10 ft. deep; contains quartzite and a few conglomerate boulders.
p. 35-36 -- Mining, 1911.

Ellsworth and Davenport, 1913 (B 542), p. 221 -- Mining, 1912.

Chapin, 1914 (B 592), p. 362 -- Mining, Seattle Jr. Cr., 1913.

Eakin, 1915 (B 622), p. 239-240 -- New deposits discovered, 1914. Placers on tributaries reconcentrated from bench deposits.
p. 242 -- Mining, 1914. Newly discovered deposits being hydraulicked on Seattle Jr. Cr.

Chapin, 1919 (B 692), p. 334 -- Mining, 1917. Rich gravel on Seattle Jr. Cr. and lower grade material down slope from rich bench deposits being mined.

Smith, 1929 (B 797), p. 22 -- Mining, 1926.

Smith, 1933 (B 836), p. 36 -- Mining, 1930.

Smith, 1933 (B 844-A), p. 37 -- Mining on Last Bench and Doric and Seattle Jr. Creeks, 1931.

Mertie, 1934 (B 844-D), p. 195-198 -- Creek is roughly parallel to upper Eureka Cr. All tributaries enter from NW; cross several gravel-covered terraces, the most prominent of which is 250 ft. above creek and SW of Doric Cr. and is called What Cheer Bar. All mining has been on benches or on tributaries that cut them. Bench gravels are 3-12 ft. thick and mainly locally derived. Bedrock types include pyritized sheared sandstone and slate, phyllite, and quartzite. Minerals in concentrates include gold, picotite, ilmenite, pyrite, barite, scheelite, magnetite, and cinnabar. Lower bench at upstream end of productive terrace gravels (Jordan Bar) is of lower grade than deposits on higher benches. Creek gravels of Pioneer Cr. generally too low grade to mine.
p. 201 -- On Doric Cr. bench gravels were reconcentrated to form a rich placer.

Smith, 1934 (B 857-A), p. 33 -- Mining on benches, 1932.

Waters, 1934 (B 844-D), p. 236-237 -- Heavy minerals in 2 samples included picotite, ilmenite, pyrite, zircon, gold, sphene, barite, magnetite, garnet, scheelite, cinnabar, and tourmaline.

Smith, 1936 (B 868-A), p. 41 -- Mining on Jordan Bar, 1934.

Smith, 1937 (B 880-A), p. 42 -- Mining, 1935.

Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.

Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.

Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.

Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.

Joesting, 1942 (TDM 1), p. 27, 39 -- References to B 844-D, p. 235, 237 [should be p. 236-237].

Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.

Malone, 1962 (IC 8131), p. 56-- Reference to B 844-D,p. 237[should be p.236-237].

Malone, 1965 (IC 8252), p. 55 -- Reference to B 844-D.

Cobb, 1973 (B 1374), p. 141 -- Mining in buried auriferous gravels on bench parallel to creek.

(Poker Cr.)

Gold (?)

Hot Springs district

Tanana (19.75, 3.5) approx.
65°10'N, 150°19'W approx.

Summary: Prospecting, 1931. No data on results.

Smith, 1933 (B 844-A), p. 37 -- Prospecting, 1931.
Mertie, 1934 (B 844-D), p. 205 -- Prospecting, 1931. Small tributary of McKinley Cr. No data on results.

(Quartz Cr., tributary to Sullivan Cr.) Gold, RE, Tin

Hot Springs district — Tanana (15.7, 2.45)
MF-371, loc. 24 — 65°08'N, 150°52'W

Summary: Bench deposit consists largely of creep and slopewash material with a thin cover of silt. Not a rich placer; small-scale mining, 1908-14 and 1930. Extensive prospect drilling, 1940. About 2 mi. north of Tofty tin belt. A concentrate sample contained a little xenotime and a few grains of cassiterite. Both gold and cassiterite are different from those in samples from within the tin belt.

Ellsworth, 1910 (B 442), p. 243 -- Coarse gold; mining, 1908-09.
Ellsworth and Parker, 1911 (B 480), p. 166 -- Mining, 1910.
Eakin, 1912 (B 520), p. 280, 283-284 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 32-33 -- Homestake Bar is on slightly sloping hillside 1/4 mi. from creek; 3-4 ft. of gravel beneath 3 ft. of silt; except for basal 1 ft., gravel little worn. Bedrock surface slopes toward creek more gently than ground surface; bedrock surface steepens at uphill margin and marks limit of richer deposit.
p. 35-37 -- Mining, 1911. Water supply inadequate for continuous sluicing.
Eakin, 1915 (B 622), p. 244-245 -- Small-scale operation on Homestake Bar, 1914.
Smith, 1933 (B 836), p. 36 -- Mining, 1930.
Mertie, 1934 (B 844-D), p. 212-213 -- Some gold has been mined; little or no cassiterite.
Waters, 1934 (B 844-D), p. 240 -- Sample said to have come from prospect ditch on Sullivan Cr. 2 mi. above old Tofty. [Detailed description fits bench between Quartz and Ready Money Creeks (Quartz Cr. bench of B 1058-I).] Heavy minerals in sample include ilmenite, pyrite, zircon, gold, xenotime [yttrium phosphate], tourmaline, and a few grains of cassiterite.
Wayland, 1961 (B 1058-I), p. 396 -- Reference to B 844-D, p. 240. Cassiterite is different from that in the tin belt to the south. Extensive drilling program in 1940 encountered no cassiterite; gold is greenish and more angular than that in the tin belt. Depth of burial on bench is 5-10 ft.; overburden mainly creep and wash material.
Cobb, 1973 (B 1374), p. 141 -- Bench not mined extensively; low gold content.
p. 143 -- A little cassiterite in a concentrate sample from about 2 mi. from tin belt.

(Quartz Cr. tributary to Yukon R.) Gold (?), Lead, Silver

Melozitna district
MF-371, loc. 3

Tanana (12.0, 4.85)
65°16'N, 151°22'W

Summary: 10-foot-wide stockwork of argentiferous galena veins in limestone; some galena veins as much as several inches across. Said to carry gold. Tunnel driven in about 1915, but soon abandoned; no production.

Eakin, 1914 (B 592), p. 383 -- Preliminary to B 631.

Eakin, 1916 (B 631), p. 82-83 -- Mouth of tunnel 1/2 mi. from Yukon R. and 200-300 ft. above river level. Stockwork of silver-bearing galena veins in limestone; 10 ft. wide. Some galena veins as much as several inches across; quartz veins separate some of galena veins; also euhedral quartz crystals embedded in galena. One said to carry gold and silver.

Wedow and others, 1952 (OF 51), p. 97 -- Silver-lead ore (galena) in quartz and calcite stringers and veins cutting quartz-mica schist.

White and others, 1963 (B 1155), p. 82 -- Argentiferous galena prospect.
p. 86 -- Reference to B 631, p. 82. No radioactive anomalies found.

Berg and Cobb, 1967 (B 1246), p. 236 -- Stockwork of silver-bearing galena veins that may also contain gold; in limestone. Tunnel driven in about 1915; no recorded production.

(Rhode Island Cr.) Gold

Hot Springs district Tanana (20.05-20.15, 3.6-3.7)
MF-371, loc. 39 65°11'N, 150°16'-150°17'W

Summary: Flows across strike of Lower Cretaceous phyllite with quartz stringers. Both stream and bench deposits mined. Many vertebrate remains in silt overburden on benches. Gold on or in cracks in top few feet of bedrock. No data on composition of concentrates. Gold discovered in early 1900's but major mining was from 1931 to as recently as 1940. No data on amount of production; probably in 10's of thousands of ounces.

Collier, 1903 (B 213), p. 51 -- Carries placer gold in paying quantities.
p. 53-54 -- Schist bedrock; no quartz stringers have been found. Gravels contain schist fragments and pebbles and boulders of mafic igneous rocks. Creek has not been thoroughly prospected.
Prindle and Hess, 1905 (B 259), p. 115 -- Of economic importance in 1904.
p. 118 -- No summer work in 1904; ground more favorable for drift mining.
Prindle and Hess, 1906 (B 280), p. 42-44 -- Preliminary to B 337.
Hess, 1908 (B 337), p. 87 -- Cuts bench gravels.
p. 90 -- Similar to Gold Run. Has been considerable work, but none was in progress in 1904.
Brooks, 1911 (P 70), p. 183 -- Crosses bench north of Baker Cr.
Chapin, 1919 (B 692), p. 334 -- Mining, 1917.
Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 199-201 -- Stream flows across strike of Lower Cretaceous rocks. Bedrock at site of hydraulic mining in 1931 is phyllite with quartz stringers. Both bench and stream placers mined. Overburden (mainly silt) on benches contains many vertebrate remains. Gold is on bedrock or in cracks in top few feet. Largest nugget found was worth $18 [old price of gold].
Smith, 1936 (B 868-A), p. 41 -- Major producer in Eureka Cr. area, 1934.
Smith, 1937 (B 880-A), p. 42 -- Mining, 1935.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.
Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.
Malone, 1962 (IC 8131), p. 57 -- Incorrect reference citation.
Malone, 1965 (IC 8252), p. 55 -- Incorrect reference citation.
Cobb, 1973 (B 1374), p. 141 -- Auriferous terrace deposits extend from Thanksgiving Cr. to and beyond Rhode Island Cr. nearly to Eureka.

(Ruby Cr.) Bismuth, Gold, Silver

Rampart district Tanana (20.4-20.85, 7.4-7.55)
MF-371, loc. 46 65°23'-65°24'N, 150°09'-150°13'W

Summary: Drains area of Paleozoic schists; some greenstone and pyritiferous slate. All pay within 1-1/2 mi. of mouth on bedrock. Small-scale mining intermittently from 1902 to 1916. Concentrates contained gold, barite, garnet, native silver, and native bismuth.

Collier, 1903 (B 213), p. 55 -- Mining, 1902.

Prindle and Hess, 1905 (B 259), p. 114 -- Drains area underlain in part by garnetiferous quartz-mica schists. All pay within 1-1/4 mi. of mouth. Gravel about 10 ft. thick. Much garnet and some native silver with the placer gold.

Prindle, 1906 (B 284), p. 126 -- Hydraulic plant being installed, 1905.

Prindle and Hess, 1906 (B 280), p. 27, 37-38, 48, 50 -- Preliminary to B 337.

Brooks, 1907 (B 314), p. 37 -- Hydraulic plant operated, 1906.

Hess, 1908 (B 337), p. 65 -- Gold discovery postdated those on Little Minook, Hunter, and Quail [Livengood quad.] Creeks.

p. 80-81 -- First mining in 1901. No pay found more than 1-1/2 mi. above mouth. Bedrock is schist (some garnetiferous), slate, chert, grit, and intrusive greenstone; strikes N and dips E. 6-10 ft. to bedrock. Many garnets, scarce native silver, and barite in concentrates. Pyrite disseminated in carbonaceous slate. Gold probably locally derived.

p. 96-98 -- Placers of local derivation from bedrock. Pyrite and garnets in concentrates. Production to fall of 1904 was worth $13,500 [about 650 fine oz.].

Brooks, 1909 (B 379), p. 55 -- Small-scale mining, 1908.

Ellsworth, 1910 (B 442), p. 241 -- Mining, 1909.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.

Smith, 1917 (BMB 153), p. 53 -- Mining, 1916.

Mertie, 1934 (B 844-D), p. 188-189 -- Most of data from B 280, p. 37-38. Creek heads in area of highly metamorphosed Paleozoic rocks, mainly schists. No mining in 1931.

Burand and Saunders, 1966 (GC 12), p. 5 -- Native bismuth in concentrate sample. Native copper and galena have been reported [but not in reference cited, so report is suspect].

Cobb, 1973 (B 1374), p. 167 -- Native silver nuggets (one weighed 2 oz.).

(Schieffelin Cr.) Gold

Melozitna district Tanana
SW 1/4 NW 1/4 SE 1/4 quad.

Summary: Gold-bearing gravels prospected, 1907-08. No further data on this creek. Includes reference to (Shevlin Cr.).

Brooks, 1909 (B 379), p. 55 -- Prospecting, 1907-08; gravels contain gold. [Called Shevlin Cr. in this reference; Schieffelin is modern preferred spelling.]

(Seattle Cr.) Gold

Hot Springs district Tanana (20.05, 3.7)
MF-371, loc. 39 65°11'N, 150°17'W

Summary: Bedrock is slaty graphitic arkose. Overlain by 8-30 ft. of gravel and 1-3 ft. of muck. Gravel is fragments of local bedrock, quartzite, and vein quartz. A little mining in 1904 and 1931.

Prindle and Hess, 1906 (B 280), p. 42, 44, 48-50 -- Preliminary to B 337.
Hess, 1908 (B 337), p. 87 -- Cuts bench gravels.

p. 90 -- Some of bedrock is schistose calcareous grit. Gravels also contain quartzite, vein quartz, and slate. Gravels 8-30 ft. thick beneath 1-3 ft. of muck; frozen. Prospecting, 1903-04; a little gold recovered.

p. 96 -- Placer reconcentrated from older gravels.

p. 98 -- Gold recovered to fall of 1904 worth $100 [less than 5 fine oz.]

Mertie, 1934 (B 844-D), p. 200 -- Headwater tributary of Rhode Island Cr. Bedrock is graphitic slaty arkose; overlain by 8-30 ft. of fine gravel and 1-3 ft. of muck. Quartzite and vein quartz in gravel. One small open cut being mined in 1931.

(Shirley Bar) (Bench) — Gold, Lead, Mercury

Hot Springs district — Tanana (20.05-20.35, 3.5-3.7)
MF-371, loc. 39 — 65°11'N, 150°14'-150°17'W

Summary: Bench between Glenn Cr. and Gold Run. Gravel 2-10 ft. thick; gold distributed throughout, with largest nuggets near surface. Contributed gold to gulches to form high-grade placers. Bench placer semiresidual; gravel angular. Sporadic mining until as recently as 1938; no data on amount of production (records not good). Minerals in concentrates include gold, pyrite, cinnabar, picotite, barite, galena, ilmenite, garnet, and sphene.

Collier, 1903 (B 213), p. 54-55 -- Bench between Glenn Cr. and Gold Run carries paying quantities of placer gold. Pay is in gravel on bedrock or on a thin layer of residual clay on bedrock. Gold is coarse and rough. [Name Shirley Bench not used.]

Prindle and Hess, 1905 (B 259), p. 118 -- Gravel 2-9 ft. thick; gold throughout. Water is scarce, but there has been considerable production.

Prindle and Hess, 1906 (B 280), p. 42, 48 -- Preliminary to B 337.

Hess, 1908 (B 337), p. 87-88 -- Bench gravels first worked in 1901. Gravel 2-9 ft. thick with gold distributed throughout; nuggets from near surface.

p. 96 -- Gold distributed throughout gravel.

Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.

Mertie, 1934 (B 844-D), p. 193 -- Sloping bench between Eureka and Rhode Island Creeks. Contributed gold to gulches to form high-grade placers.

p. 201-202 -- Semiresidual body of angular auriferous gravel 2-10 ft. thick. Has been considerable mining of which there are no good records. Pay streak continues downhill as a body of subangular gravel on muck. Assays show gold to be worth about $16.45 an ounce (1930-31 prices of Au and Ag). Concentrate sample contained pyrite, cinnabar, picotite, barite, galena, ilmenite, and limonite.

Waters, 1934 (B 844-D), p. 237-238 -- Minerals in concentrate sample included pyrite, cinnabar, picotite, barite, galena, ilmenite, gold, garnet, limonite pseudomorphous after pyrite, and sphene.

Smith, 1939 (B 910-A), p. 53 -- Mining, 1937.

Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.

Joesting, 1942 (TDM 1), p. 27 -- Reference to B 844-D, p. 238.

Malone, 1962 (IC 8131), p. 56 -- Reference to B 844-D, p. 238.

Malone, 1965 (IC 8252), p. 55 -- Reference to B 844-D.

(Slate Cr., tributary to Minook Cr.) Copper, Gold, Silver

Rampart district
MF-371, loc. 44

Tanana (20.55-20.8, 6.75-6.85)
65°22'N, 150°09'-150°11'W

Summary: Narrow valley in schistose chert, slate, and phyllite; limestone near mouth; many quartz veins. Creek placers 26 ft. deep; gold in basal 3 ft. of gravel and in crevices in top 1-1/2 ft. of bedrock. Bench placer 15-20 ft. above creek on NW side. Concentrates contain nuggets of native copper and native silver. Mining 1902-16, 1926-39. No data on amount of production.

Collier, 1903 (B 213), p. 55 -- Mining, 1902.
Prindle and Hess, 1905 (B 259), p. 114 -- Valley narrow; bedrock includes limestone, shale, chert, and graphitic schist. Ground worked is as much as 26 ft. deep. Gold in 3 ft. of gravel and top 1-1/2 ft. of bedrock. Silver nuggets common; native copper reported. No garnets.
Prindle and Hess, 1906 (B 280), p. 27, 38, 48, 50 -- Preliminary to B 337.
Hess, 1908 (B 337), p. 65 -- Discovery of gold postdates that on Little Minook, Hunter, and Quail [Livengood quad.] Creeks.

p. 81-82 -- Creek worked since 1902. Valley narrow. Bedrock is NE-striking limestone, shale, chert, and carbonaceous schist with many quartz veins. Most of mining 2 mi. above mouth; deposits 26 ft. thick; gold in basal 3 ft. of gravel and top 1-1/2 ft. of bedrock over a width of 50 ft. Concentrates contain native silver; copper reported; no garnets. Gold probably derived from quartz veins.

p. 96-98 -- Placer gold derived from local bedrock. Copper in concentrates. Production to fall of 1904 worth $15,000 [about 725 fine oz.].

Brooks, 1909 (B 379), p. 55 -- Small-scale mining, 1908.
Ellsworth, 1910 (B 442), p. 241 -- Mining, 1909.
Ellsworth and Parker, 1911 (B 480), p. 167 -- Mining, 1910.
Ellsworth and Davenport, 1913 (B 542), p. 222 -- Mining, 1912.
Chapin, 1914 (B 592), p. 362 -- Mining, 1913.
Brooks, 1915 (B 622), p. 64 -- Mining, 1914.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMB 153), p. 53 -- Mining, 1916.
Smith, 1929 (B 797), p. 23 -- Mining, 1926.
Smith, 1930 (B 813), p. 35 -- Mining, 1928.
Smith, 1932 (B 824), p. 40 -- Mining, 1929.
Smith, 1933 (B 836), p. 42 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 41 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 165 -- Mining began, 1902.

p. 187-188 -- Gold in creek (now worked out) and bench placers on NW side of creek. Bedrock is sheared or schistose chert; slate, phyllite, and near mouth, limestone. Gravel also contains vein quartz and schist fragments. Vein quartz is probable source of gold. Data on creek placers from B 280, p. 38. Bench placer is 15-20 ft. above creek. Nuggets worth as much as $100 [old price of gold] have been found. Average fineness of gold reported to be 0.915 Au (no data on Ag). Placer contains cobbles of barite and nuggets of native silver.

(Slate Cr., tributary to Minook Cr.) -- Continued

Smith, 1934 (B 857-A), p. 39 -- Mining, 1932.
Smith, 1934 (B 864-A), p. 43 -- Mining, 1933.
Smith, 1936 (B 868-A), p. 44 -- Mining, 1934.
Smith, 1937 (B 880-A), p. 47 -- Mining, 1935.
Smith, 1939 (B 910-A), p. 57 -- Mining, 1937.
Smith, 1939 (B 917-A), p. 56 -- Mining, 1938.
Burand and Saunders, 1966 (GC 12), p. 5 -- Has been a productive creek. Concentrates contain native silver and native copper.

(Slate Cr., tributary to Tozimoran Cr.) Gold (?)

Melozitna district — Tanana
NW 1/4 NW 1/4 SW 1/4 quad.

Summary: Placer gold reported; no systematic prospecting.

Chapman and others, 1963 (OF 239), p. 16 -- Gold reported; creek not systematically prospected.

(Sullivan Cr.)

Chromite, Columbium(?), Copper, Gold, Lead, Monazite, RE, Tin

Hot Springs district
MF-371, locs. 24, 30

Tanana (15.5-15.65, 1.75, 2.4)
65°05'-65°07'N, 150°53'-150°54'W

Summary: Mining on benches, 1907 to 1940's; 2-14 ft. of gravel overlain by 40-70 ft. of silt and muck containing many vertebrate remains. Heavy minerals mainly in basal 1-2 ft. of gravel and in crevices in top few inches of bedrock. Some very rich "spots" in benches; in places selected pans ran $10-$15 in gold (at $20.67 an ounce) and as much as 1/2 lb. cassiterite. Total production through 1956 (including that from reworking old tailings) was 58,156 oz. gold, 5,463 oz. silver, and 215,445 lb. cassiterite concentrate. Heavy minerals in concentrates include cassiterite, pyrite, ilmenite, picotite, magnetite, zircon, monazite, aeschynite, xenotime, gold, native copper, galena, arsenopyrite, chromite, apatite, brookite, and anatase; columbite may also be present; reference (C 317, p. 5) is ambiguous. In upper basin N. of tin belt gold is greenish and more angular than in tin belt. Includes references to: Abe Lincoln, Lieber & File, Midnight Sun, and bench placer E. of Sullivan Cr. See also: (Idaho Gulch), (Miller Gulch), (Quartz Cr. tributary to Sullivan Cr.), (Tofty Gulch).

Brooks, 1909 (B 379), p. 56 -- Good prospects found, 1907. Considerable production, 1908.

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

Ellsworth, 1910 (B 442), p. 242-243 -- Gold discovered, Jan. 1, 1907. Mining on bench claims, 1908-09, where depth to bedrock is 40-60 ft.; no very definite pay streak.

Ellsworth and Parker, 1911 (B 480), p. 166 -- Increased production; new deposits found, 1910.

Eakin, 1912 (B 520), p. 276-277, 283-285 -- Preliminary to B 535.

Hess, 1912 (B 520), p. 89, 92 -- Very smooth cassiterite pebbles in placers.

Eakin, 1913 (B 535), p. 28-30 -- Tin occurs with gold; a little may have been saved. Miners think the richer (in gold) ground is in areas with unusually abundant quartz veins. Tiny stringers of gold along cleavage planes in a fragment of quartzite.

p. 33 -- Placers 30-75 ft. below surface; gravels 10-35 ft. thick.

p. 35-38 -- Major mining in area in 1911. Gold in lowest 2-3 ft. of gravel and in shattered bedrock. Some of material very rich; selected pans carried $10-$15 in gold. Smoothly rounded pebbles of cassiterite in gravels; in richest spots as much as 1/2 lb. per pan. Source of cassiterite not known; probably is quartz veins (same source as for gold). Cassiterite occurs as cement in breccia of vein quartz fragments; tourmaline and fluorite also present.

Ellsworth and Davenport, 1913 (B 542), p. 221 -- Much mining, 1912.

Brooks, 1914 (B 592), p. 68 -- Mining, 1913.

Chapin, 1914 (B 592), p. 362 -- Principal producing creek in 1913.

(Sullivan Cr.) -- Continued

Eakin, 1915 (B 622), p. 92-93 -- Placer tin discovered, probably in 1908. Tin accompanies gold in most placers of the Tofty area, but was not saved until 1911, when 1,200 lbs. of concentrate was saved and shipped. In 1912, 20 tons was shipped; in 1914, about 48 tons of concentrate was produced.

Eakin, 1915 (B 622), p. 240-241 -- Bench placers in Sullivan Cr. valley have rich "spots" with elliptical (in plan) areas with the richest material in the middle and progressively less rich material toward the periphery; may be on one or a series of adjoining bedrock terraces. At one mine $200,000 was produced "almost entirely from a space of 5,000 square feet." Cassiterite accompanies the gold; hematite and pyrite also present.

Brooks, 1916 (B 642), p. 64 -- Mining, 1915.

Smith, 1917 (BMB 142), p. 25 -- Mining, 1915.

Smith, 1917 (BMB 153), p. 52 -- Mining, 1916.

Chapin, 1919 (B 692), p. 333-334 -- Cassiterite is practically confined to Sullivan Cr. basin. Upstream limit seems well defined. No lode source found. Both gold and tin mined, 1917.

Martin, 1919 (B 692), p. 37-38 -- Mining, 1917. Tin production from basin was estimated at 25 tons [of concentrate?]. Tin in placers downstream from area that has been mined [for gold].

Martin, 1920 (B 712), p. 40 -- Ditch construction, 1918. In entire district 44 tons of tin concentrates were produced, mainly by sluicing old tailings piles.

Capps, 1924 (B 755), p. 149-150 -- Principal mining activities in district on Sullivan Cr. near Tofty. Cold-water thawing used before hydraulicking. Considerable cassiterite in placers; several hundred tons of tin ore produced as byproduct of gold mining. No source of cassiterite is known.

Smith, 1926 (B 783), p. 14 -- Mining, including on tributaries, 1924.

Smith, 1932 (B 824), p. 36-37 -- Company that had done extensive prospect drilling dropped options, 1929.

Smith, 1933 (B 836), p. 36 -- Mining, 1930.

Smith, 1933 (B 844-A), p. 37 -- Mining on bench, 1931.

Mertie, 1934 (B 844-D), p. 209-210 -- Large open cut in 1931 was at least 1,500 ft. long and 500 ft. wide. Bedrock is pyritized phyllite and slate cut by quartz veins; surface decomposed. Overlain by 55 ft. of overburden (3-12 ft. gravel at base) that contains many vertebrate remains. Assays show gold worth $16.88 an ounce [old price]; largest nugget worth about $11. Concentrates contain much cassiterite (some hand picked and shipped to Singapore for smelting), pyrite, ilmenite, picotite, magnetite, and native copper.

Smith, 1934 (B 857-A), p. 33 -- Mining, 1932.

Waters, 1934 (B 844-D), p. 239 -- Minerals in 5 concentrate samples included cassiterite, pyrite, ilmenite, picotite, magnetite, zircon, monazite, aeschynite(?), xenotime, gold, and copper.

Smith, 1936 (B 868-A), p. 41 -- Ground being prepared for large-scale mining, 1934.

Smith, 1937 (B 880-A), p. 42 -- Dragline mining plant operated, 1935.

Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.

(Sullivan Cr.) -- Continued

Smith, 1939 (B 910-A), p. 52-53 -- Major production, 1937.
Smith, 1939 (B 917-A), p. 50 -- Major production, 1938.
Smith, 1941 (B 926-A), p. 47 -- Major production, 1939.
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 844-D, p. 239.
Smith, 1942 (B 933-A), p. 43 -- Major production, 1940.
Thorne and Wright, 1948 (RI 4346) -- Data on Sullivan Pit only. More recent production data in RI 5373. Bedrock phyllite and slate; top 2 ft. easily removed; no gold or cassiterite penetrated farther. 3-10 ft. of pay gravel beneath 50-60 ft. of muck; all frozen. Area had been drift mined before current (1930's and 1940's) operations. USBM sampled tailings. Overall averages were 0.241 lb. Sn and 0.0015 oz. Au per cu. yd.; averages of selected parts were 0.777 lb. Sn and 0.0028 Au.
Moxham, 1954 (C 317), p. 5 -- eU of 5 samples was 0.009% to 0.027%. Though not specifically so stated, wording reference infers the presence of eschynite, columbite, monazite, and zircon.
Thomas, 1957 (RI 5373), p. 6-8 -- Plans to reopen mines, 1956. Total production through 1956 was 58,136 oz. Au, 5,463 oz. Ag, 215,445 lb. cassiterite concentrate. In "tin belt."

p. 22-23, 27-31 -- Data on individual drill holes (USBM and Strandberg).

p. 55 -- Reference to RI 4346.

Wayland, 1961 (B 1058-I), p. 367 -- Chromite, picotite, ilmenite, and magnetite may be derived from serpentinized igneous rocks; cassiterite probably was not.

p. 372 -- At Sullivan Bench pit gravel is 2-14 ft. thick; some iron-stained and weakly cemented. Bedrock is soft, weathered, dark graphitic phyllite; not iron stained.

p. 374 -- Chromite in concentrates.

p. 377-379 -- Ground located in 1907; averaged about $3.50 a bedrock foot, but some ran as high as $20 a bedrock foot (gold at $20.67). Most of gold and cassiterite in basal 1-2 ft. of gravel and in crevices in top few inches of phyllite bedrock. Cassiterite pebbles are well rounded and polished. Concentrates contain gold, cassiterite, ilmenite, picotite, chromite, pyrite, magnetite, galena, arsenopyrite, native copper, zircon, monazite, aeschynite, xenotime, apatite, brookite, and anatase. Gravels are 2-14 ft. thick and overlain by 40-70 ft. of silt and muck.

p. 396 -- Gold in upper basin has a greenish cast and is more angular than gold in tin belt 2-3 mi. to the south. [See also (Quartz Cr. tributary to Sullivan Cr.)].

p. 403-411 -- Data on sluicing procedures, recovery effectiveness, and sampling methods. Some of data are general and some apply only to Sullivan Bench pit.

Overstreet, 1967 (P 530), p. 111 -- Reference to B 844-D, p. 239.
Cobb, 1973 (B 1374), p. 143 -- Native copper in placers.

(Thanksgiving Cr.) Gold

Hot Springs district Tanana (19.3-19.45, 3.5)
MF-371, loc. 38 65°11'N, 150°22'-150°23'W

Summary: A small gulch in the broad bench N. of Baker Cr.; tributary to Omega Cr. Bedrock is schistose grit with quartz veins. Gravel mainly subangular pieces of quartzite, grit, vein quartz, slate, and monzonitic rock. Magnetite in concentrates. Pay streak 25-45 ft. wide, 1-1/2-9 ft. thick; some gold in overlying muck. Sporadic mining, 1903-36; no data on production; probably no more than a few thousand ounces.

Prindle and Hess, 1905 (B 259), p. 115 -- Of economic importance in 1904.
p. 118-119 -- Gold discovered, 1903. Bedrock 6-18 ft. deep. Gold probably from small quartz veins in schistose rocks rather than from bench gravels. Pay is 1-1/2-7 ft. of gravel over width of 40-45 ft.
Purington, 1905 (B 263), p. 208 -- Gold worth $15.17 an ounce.
Prindle and Hess, 1906 (B 280), p. 38-39, 45-46, 48-50 -- Preliminary to B 337.
Brooks, 1908 (B 345), p. 49 -- Ditch built, 1907.
Hess, 1908 (B 337), p. 82-83 -- Site of some of major mining in Baker Cr. area. Gold discovered, 1903.
p. 92-93 -- Small tributary of Omega Cr. Bedrock is yellowish, somewhat schistose grit. Gravel is 6-18 ft. deep; largely subangular pieces of quartzite, grit, vein quartz, slate, and small amount of monzonitic rock. Gravel mixed with sticky, yellow clay. Paystreak 25-45 ft. wide, 1-1/2-9 ft. thick. Gold generally rough and somewhat iron stained; some bright and "shotty."
p. 97-98 -- Magnetite in concentrates. Production from Thanksgiving and Omega Creeks to fall of 1904 was worth $18,200 [about 880 fine oz.].
Brooks, 1909 (B 379), p. 56 -- Much dead work but very little mining, 1908.
Ellsworth, 1910 (B 442), p. 242 -- Mining, 1909; gold found in muck that overlies gravel.
Brooks, 1911 (P 70), p. 183 -- Crosses bench north of Baker Cr.
Ellsworth and Parker, 1912 (B 480), p. 166 -- Mining in 1910 hampered by water shortage.
Eakin, 1912 (B 520), p. 283 -- Preliminary to B 535.
Eakin, 1913 (B 535), p. 35 -- Mining, 1911.
Ellsworth and Davenport, 1913 (B 542), p. 221 -- Mining, 1912.
Chapin, 1914 (B 592), p. 362 -- Mining, 1913.
Eakin, 1915 (B 622), p. 242 -- Mining, 1914.
Chapin, 1919 (B 692), p. 334 -- Mining, 1917.
Smith, 1933 (B 836), p. 36 -- Mining, 1930.
Smith, 1933 (B 844-A), p. 37 -- Mining, 1931.
Mertie, 1934 (B 844-D), p. 204-205 -- Essentially a gulch in broad bench north of Baker Cr. Reference to B 280, p. 92-93.
Smith, 1934 (B 857-A), p. 33 -- Mining, 1932.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Cobb, 1973 (B 1374), p. 141 -- Terrace deposits extend from Thanksgiving Cr. nearly to Eureka.

(Tofty Gulch) — Chromite, Columbium(?), Gold, Monazite(?), RE(?), Silver, Tin

Hot Springs district — Tanana (15.5, 1.75)
MF-371, loc. 29 — 65°05'N, 150°54'W

Summary: Open-cut mining; gravel averaged 3 ft. thick beneath a few feet of frozen silt and muck that contained many remnants of trees. Heavy minerals in gravel and upper 2-3 ft. of phyllite and interbedded graywacke with many quartz veins that carry pyrite but no gold or cassiterite. Concentrates contained gold, cassiterite, chromite. Columbite, aeschynite, monazite, and zircon may also have been present; reference (C 317, p. 5) is ambiguous. Gold discovered in winter of 1906-07; mining, 1909-12, 1917, 1929, 1941 (some of mining may have been reworking old tailings). Total production through 1956 was 8,855 oz. gold, 1,376 oz. silver, and 19,600 lb. cassiterite concentrate. Includes reference to (Tufty Gulch). See also (Sullivan Cr.).

Brooks, 1909 (B 379), p. 56 -- Mile of ditch built for open-cut mining, 1908.
Ellsworth, 1910 (B 442), p. 242-243 -- Mining, 1909. Much difficulty thawing overburden.
Ellsworth and Parker, 1911 (B 480), p. 166 -- Mining, 1910.
Eakin, 1912 (B 520), p. 280 -- Preliminary to B 535.
Hess, 1912 (B 520), p. 92 -- Smooth cassiterite pebbles in placer.
Eakin, 1913 (B 535), p. 32-33 -- Large open cut in bench gravels 1,000 ft. from Sullivan Cr. 4-6 ft. of gravel beneath a few feet of yellow silt and black muck that contains many remnants of trees.
Ellsworth and Davenport, 1913 (B 542), p. 221 -- Mining, 1912.
Chapin, 1919 (B 692), p. 334 -- Tin and gold recovered, 1917.
Mertie, 1934 (B 844-D), p. 166 -- Gold discovered, winter of 1906-07.
p. 209 -- Discovery of gold followed by stampede in 1907.
p. 212 -- Considered to be worked out [1931].
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 813, p. 59 [reference cited is not applicable].
Moxham, 1954 (C 317), p. 5 -- eU of 9 samples was between 0.011% and 0.017%. Though not specifically so stated, the reference infers the presence of eschynite, columbite, monazite, and zircon.
Thomas, 1957 (RI 5373), p. 6-8 -- In 1929 shipment of cassiterite concentrate that assayed 57.9% Sn was sold in Singapore; net to shipper was $400 a ton. Total production through 1956 was 8,855 oz. Au, 1,376 oz. Ag, 19,600 lb. cassiterite concentrate. In "tin belt."
p. 24-26 -- Data on individual USBM churn-drill holes.
Wayland, 1961 (B 1058-I), p. 374 -- Chromite in concentrates.
p. 379-382 -- Gold discovered, winter of 1906-07. Quotation from B 535, p. 32. In 1911 1,200 lb. cassiterite was shipped. In dragline mining in 1941 upper 2-3 ft. of bedrock (phyllite and minor interbedded graywacke) was mined and sluiced with the gravel, which is mainly of local derivation, but contains quartzite and other exotic boulders; a cobble of altered phyllite containing a quartz-tourmaline veinlet and another of quartzite containing a quartz vein and tourmaline

(Tofty Gulch) -- Continued

crystals were found. Average thickness of gravel is about 3 ft. Bedrock contains many quartz veins that carry a little pyrite, but no gold or cassiterite. Disseminated pyrite in phyllite below depth of 1-3 ft.; pyrite nearer surface weathered out.

p. 397 -- Prospect drilling W. of gulch in 1941.

p. 403-411 -- Data on mining and recovery methods, sampling procedures, etc.

Cobb, 1973 (B 1374), p. 140 -- Gold discovered, winter 1906-07.

(Tozimoran Cr.) Gold, Lead, Silver, Tin

Melozitna district Tanana (1.35-1.5, 6.6-6.7)
MF-371, locs. 1, 16 65°22'-65°23'N, 152°48'-152°49'W

Summary: Gold discovered in 1902. Considerable prospecting and a little hand mining on a bench downstream from Ash Cr. Total production probably no more than a few ounces of gold and a few hundred pounds of cassiterite concentrate (which may not have been sold). Bedrock is metamorphosed sedimentary and mafic igneous rocks; large granite pluton cut by younger granite dikes. Argentiferous galena and cerussite in quartz-calcite veins in quartz-mica schist are only unweathered sulfides found. Alluvium on isolated remnant of a bench consists of 4 ft. of gravel beneath 3 ft. of muck; a little gold and cassiterite in bottom 2 ft. of gravel. A little gold and cassiterite in unfrozen creek alluvium. Includes references to: (Columbe Cr.), (Moraine Cr.), and to (Moran Cr.) unless specifically to Melozimoran Cr.

Brooks, 1908 (B 345), p. 46 -- Gold discovery reported, 1907, on Columbe Cr.
Smith, 1932 (B 824), p. 40 -- Prospecting on Moraine Cr., 1929.
Smith, 1933 (B 836), p. 42 -- Prospecting on Moran Cr., 1930.
p. 70-71 -- Placer tin has been found.
Smith, 1933 (B 844-A), p. 41 -- Prospecting on Moran Cr., 1931. Only a little gold recovered.
Smith, 1936 (B 868-A), p. 45 -- Prospecting on Moran Cr., 1934. Only a little gold recovered.
Smith, 1937 (B 880-A), p. 47 -- Prospecting on Moran Cr., 1935. Only a little gold recovered.
Thomas and Wright, 1948 (RI 4323) -- Gold discovered in 1902. Intermittent prospecting and a little hand mining on a left-limit bench 2,000 ft. downstream from Ash Cr. Total production probably not more than a few ounces of gold and a few hundred pounds of tin. Most of gold and cassiterite on bench; a little in valley-floor gravels below bench. Bedrock mainly quartz-mica schist; surface fairly even. On bench gravel is about 4 ft. thick beneath 3 ft. of muck; both frozen in most places. Cassiterite (1/16 to 1-1/2 in. in diameter) and gold in bottom 2 ft. of gravel; accompanied by considerable clay. Heavy minerals do not penetrate bedrock more than 6 in. Valley-floor deposits similar, but gravel not frozen and heavy minerals and clay distributed through entire thickness. USBM exploration (channel samples in open cuts and shafts) did not disclose a pay streak. Channel samples from bench indicated averages of 0.731 lb. Sn and 0.0228 oz. Au per cu. yd. in block 650 ft. long and 80 ft. wide.
Wedow and others, 1952 (OF 51), p. 97 -- Silver-lead ore has been found in headwaters area; galena in quartz and calcite stringers and veins cutting quartz-mica schist. Cassiterite in stream gravels.
Wedow and others, 1954 (C 331), p. 35 -- Galena veins south of creek near head. Cassiterite in creek gravels; source not known.

(Tozimoran Cr.) -- Continued

Chapman and others, 1963 (OF 239), p. 14-20, 22, 24-32 -- About 1,800 ft. of local relief. Bedrock is a thick sequence of metamorphosed sedimentary and mafic igneous rocks; granite also present, both as part of a large pluton and as dikes that cut the main body. Apparently barren quartz veins are common. Two small galena-cerussite veins are only unweathered sulfides found; also is one gossan with no visible sulfides. Two ages of alluvium. Older in isolated remnants of benches, one of which carries gold and cassiterite. Younger is deposits of present stream and tributaries and (in area tested) is about 15 ft. thick. Origins of gold and cassiterite not known; tinstone pebbles are micaceous quartzite with veinlets of cassiterite and light-brown tourmaline. Cassiterite in older alluvium in angular and subangular fragments mainly in coarse (1/4 in. or greater) grains or fragments as heavy as 3 lb. Gold is clean and angular; fineness determinations of 895 and 835 have been reported. Both near or on bedrock; gold penetrates cracks for a few inches; cassiterite does not. Gold and cassiterite in younger alluvium also, but few data on these deposits. Deposits were explored and sampled by USBM, USGS, and owner (partly under DMEA contract). Very little prospecting has been done.

Berg and Cobb, 1967 (B 1246), p. 236 -- Small galena veins.

Sainsbury, 1969 (B 1301), p. 10 -- More information has been obtained since last comprehensive report on tin was published (1953). [New information not given.]

Cobb, 1973 (B 1374), p. 163 -- Galena veins near Tozimoran Cr. Have been tin investigations. Tourmaline accompanies cassiterite in veinlets in micaceous quartzite pebbles.

(Wells Cr.) Gold (?)

Melozitna district Tanana
NW 1/4 NW 1/4 SW 1/4 quad.

Summary: Tributary of Tozimoran Cr.; placer gold reported; no known systematic prospecting

Chapman and others, 1963 (OF 239), p. 16 -- Gold reported; no systematic prospecting in valley. Tributary to Tozimoran Cr.

(Woodchopper Cr.) Gold, Silver, Tin

Hot Springs district Tanana (14.65-14.7, 1.1-1.2)
MF-371, loc. 25 65°03'N, 151°01'W

Summary: Gold and cassiterite discovered in deep channel and on buried benches (100-200 ft. below surface) in 1913; large-scale drift mining preceded by prospect drilling until 1941. Total production through 1956 was 28,501 oz. gold, 3,402 oz. silver, and 40,300 lb. cassiterite concentrate. Average per cubic yard recovery from channel samples of tailings pile was 1.54 lb. concentrate containing 0.72 lb. tin and 0.045 oz. gold. Gravel contains quartz-tourmaline cobbles. Concentrates contained gold, cassiterite, ilmenite, picotite, pyrite, and magnetite. Includes references to: Albrecht & Hanson (if no other location is given), Bock & Co.

Chapin, 1914 (B 592), p. 362 -- Auriferous gravel discovered in flats near mouth of creek.
Brooks, 1916 (B 642), p. 64 -- Mining, 1915.
Smith, 1917 (BMB 142), p. 25 -- Development work, 1915.
Smith, 1917 (BMB 153), p. 52 -- Mining, 1916.
Brooks, 1918 (B 662), p. 57 -- Mining, 1916. Placer in deep channel 150-200 ft. below surface.
Chapin, 1919 (B 692), p. 331-332, 334 -- No mining, 1917.
Martin, 1919 (B 692), p. 37 -- No mining, 1917.
Capps, 1924 (B 755), p. 149-150 -- Bench gravels have no evident relation to present stream.
Smith, 1929 (B 797), p. 22 -- Mining, 1926.
Smith, 1930 (B 810), p. 28 -- Drift mining, 1927. Gold and tin [cassiterite] recovered.
p. 53 -- Tin mined, 1927.
Smith, 1933 (B 836), p. 36 -- Mining, 1930.
Mertie, 1934 (B 844-D), p. 212 -- Mine on bench just E. of Woodchopper Cr. (visited in 1922) showed 20 ft. of gravel on bedrock; overlain by 20 ft. of muck, 40 ft. of gravel, and another 40 ft. of muck. Concentrates contain gold, cassiterite, ilmenite, picotite, pyrite, and magnetite.
Smith, 1934 (B 857-A), p. 33 -- Mining, 1932.
Smith, 1936 (B 868-A), p. 41 -- Prospect drilling, 1934.
Smith, 1937 (B 880-A), p. 42 -- Largest mining camp in Tofty area, 1935.
Smith, 1938 (B 897-A), p. 51 -- Mining, 1936.
Smith, 1939 (B 917-A), p. 50 -- Mining, 1938.
Smith, 1941 (B 926-A), p. 47 -- Mining, 1939.
Joesting, 1942 (TDM 1), p. 34 -- Reference to B 813, p. 59 [reference cited is not applicable].
Smith, 1942 (B 933-A), p. 43 -- Mining, 1940.
Thomas, 1957 (RI 5373), p. 6-9 -- Piles of drift-mine tailing mark positions of old shafts. Total production through 1956 was 28,501 oz. Au, 3,402 oz. Ag, 40,300 lb. cassiterite concentrate. Marks SW end of "tin belt." Gravels chiefly quartz. Quartz-tourmaline cobbles in gravel.

(Woodchopper Cr.) -- Continued

p. 47 -- Average per cu. yd. recovery from channel samples of tailing pile was 1.54 lb. concentrate that contained 0.72 lb. Sn and 0.045 oz. Au.

Wayland, 1961 (B 1058-I), p. 370 -- Marks SW end of tin belt.

p. 372 -- Gravels as much as 40 ft. thick; resistant boulders are sandstone and quartzite.

p. 388-389 -- Prospect drilling by Adolph Bock, 1926-41. Of 43 holes, 20 had gold, 21 cassiterite, and 5 cassiterite without gold.

p. 392-394 -- Gold and cassiterite discovered, 1913. Large-scale drift mining, 1915-16. From 1917 to 1919 drift mining at south end of pay streak recovered about 1.2-1.3 lb. cassiterite per bedrock foot. Mining (with a few interruptions) continued until 1941. Gravel in pay streak is relatively thick (40 ft. on one claim); consists of phyllite, quartzite, quartz, sandstone, and a little graywacke.

p. 399 -- Cassiterite pebbles rounded.

p. 402-403 -- Cassiterite more dense than that from creeks farther east. One pay streak mined in 1918 yielded 1.2 lb. cassiterite per bedrock ft. (about 5.4 lb. per cu. yd.).

p. 405 -- Double-sluicing system (2 lines of boxes used alternately) used during World War I to increase cassiterite recovery.

Cobb, 1973 (B 1374), p. 141 -- Marks SW end of Tofty tin belt.

Unnamed occurrence	Lead, Silver
Hot Springs district	Tanana (21.4, 4.6)
MF-371, loc. 9	65°14'N, 150°05'W

Summary: Lead-silver prospect reported. Assays of sulfide said to have indicated 100 oz. silver per ton and 70% lead.

Mertie, 1934 (B 844-D), p. 217 -- Lead-silver deposit found by prospector several years before 1931. Assays of sulfides said to have shown 100 oz. Ag per ton and 70% Pb. In headwaters of Eureka Cr. or Pioneer Cr.

Berg and Cobb, 1967 (B 1246), p. 273 -- Lead-silver (argentiferous galena) prospect reported.