

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

By
Edward H. Cobb

Open-File Report 79-1247

1979

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

Introduction

These summaries of references are designed to aid in library research on metallic and nonmetallic (other than mineral fuels and construction materials) mineral occurrences in the Gulkana quadrangle, Alaska. All references to most reports of the Geological Survey, the U.S. Bureau of Mines, and the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before June 1, 1979, are summarized. Certain, mainly statistical, reports such as the Annual Minerals Yearbook of the U.S. Bureau of Mines and the biennial and annual reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor agencies are not included. Also not included are data on many claims about which little more than their locations is known (for example, some of those in MacKevett and Holloway, 1977 (OF 77-169A), p. 20). These omissions should not be interpreted as a judgement on my part that the claims are not valid mineral occurrences, but only that there are insufficient data to describe any mineral deposit that might be present.

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



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 first for metallic and then for nonmetallic commodities); the mining district (Ransome and Kerns, 1954 (IC 7679)) in which the occurrence is located; the name of the 1:250,000-scale topographic quadrangle (Gulkana); coordinates (as described by Cobb and Kachadoorian, 1961(B 1139), p. 3-4); the metallic mineral resources map number (MF-419) [Richter and Matson, 1972] and the occurrence number on the map if the occurrence is shown; and the latitude and longitude of the occurrence. Numerical coordinates become progressively less reproducible as their numbers increase because of the lack of scale stability of the paper base maps on which measurements were made.

These data, presented at the top of the page, are followed by a short, general summary of the published literature on the occurrence. This is followed (continued on additional pages, if necessary) by more detailed summaries, arranged chronologically, of references to the occurrence. Material in brackets is interpretive or explanatory and is not in the summarized reference.

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

Citations are given in standard bibliographic format with the exception that references to reports and maps in numbered publication series also show, in parentheses, an abbreviation for the report or map series and the report or map number. Abbreviations used are:

B U.S. Geological Survey Bulletin
C U.S. Geological Survey Circular
GR Alaska Division of Mines and Minerals Geologic Report
IC U.S. Bureau of Mines Information Circular
OF U.S. Geological Survey Open-file Report
MF U.S. Geological Survey Miscellaneous Field Studies Map
P U.S. Geological Survey Professional Paper
RI U.S. Bureau of Mines Report of Investigations

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

(Ahtell Cr.)

Gold

Chistochina district
MF-419, loc. 21

Gulkana (24.0, 13.4) approx.
62°45'N, 144°01'W approx.

Summary: Prospecting, 1936. Gold in gravel may not be recoverable at a profit. See also: (Ahtell Cr.) Nabesna quad., (Grubstake Cr.).

Moffit, 1938 (B 904), p. 51 -- Prospecting, 1936, 2 mi. above Slana Bridge. Relatively small amount of gravel in canyon of Ahtell Cr.; contains gold, which may not be workable at a profit.

Smith, 1939 (B 917-A), p. 38 -- Mining reported, 1938 [probably was on Grubstake Cr.].

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 20 -- Reference to Moffit, 1938 (B 904).

(Boulder Cr.)

Gold

Chistochina district
MF-419, loc. 22

Gulkana (24.0, 14.2)
62°47'N, 144°01'W

Summary: Has been placer mining. Production undoubtedly very small. In many references there is confusion between Boulder and Slope Creeks; some references probably apply to both, but do not identify either. See also (Slope Cr.).

Moffit, 1938 (B 904), p. 50-51 -- "Two short streams that flow eastward from the divide at the head of Grubstake Creek into Porcupine Creek carry sufficient gold to encourage prospecting."

Moffit, 1954 (B 989-D), p. 195 -- General reference to streams flowing from mountain east of Grubstake Cr. into Porcupine Cr. [probably is applicable (in part only) to Boulder Cr.]. Streams carry gold.

Richter, 1966 (GR 21), p. 34 -- "Other placer operations in the Slana district were on Boulder Creek, south of Slope Creek; -----.
Most of these were apparently exploration ventures, with little or no gold recovery." [Symbol on map near head of creek south of locality 11 (called Slope Cr.)].

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 21 -- Reference to Moffit, 1954 (B 989-D).

Burns

Copper, Gold, Lead, Silver

Chistochina district
MF-419, loc. 4

Gulkana (21.4, 15.5)
62°52'N, 144°20'W

Summary: Galena-bearing quartz vein 2-8 ft. wide in diorite of upper Paleozoic Ahtell pluton also carries a little chalcopyrite and tetrahedrite. Samples contained traces of gold and silver. Very little exploration was done. Includes references to (Indian Cr., West Fork).

Moffit, 1932 (B 824), p. 124 -- Galena-bearing quartz in diorite. Open cuts caved when visited by Moffit. Near West Fork of Indian Cr.

Moffit, 1938 (B 904), p. 46 -- About the same as above.

Thorne, 1946 (RI 3940), p. 5-6 -- In drainage of West Fork of Indian Cr. Vein of milky quartz 2-8 ft. wide exposed in 3 places at 1,500-ft. intervals. Sulfides (galena with minor quantities of chalcopyrite and tetrahedrite) in stringers from a few inches to nearly a foot thick along walls of vein. Samples of float and of vein material in place (6-in.-wide sample) contained as much as 0.01 oz. gold per ton, traces of silver, and as much as 12.37% lead and 0.22% copper.

Berg and Cobb, 1967 (B 1246), p. 46 -- Mineralized quartz vein similar to, but leaner than, that at Indian.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 4 -- References to Thorne, 1946 (RI 3940) and Moffit, 1932 (B 824) [given in error as Smith, 1932]. Quartz vein cut upper Paleozoic Ahtell pluton; contains argentiferous galena and minor chalcopyrite and tetrahedrite.

(Excelsior Cr.)

Gold(?)

Chistochina district

Gulkana (15.4, 15.75) approx.
62°53'N, 145°05'W approx.

Summary: Placer locations made in early 1900's. Location from Mulligan, 1974 (IC 8626), fig. 8.

Mendenhall and Schrader, 1903 (P 15), p. 49 -- Placer locations have been made [very early 1900's] on Excelsior Cr.

Mendenhall, 1905 (P 41), p. 109 -- Same as above.

Mulligan, 1974 (IC 8626), p. 17 -- Reference to Mendenhall and Schrader, 1903 (P 15). No record of any recent assessment work.

Gold-Quartz

Copper, Gold, Lead, Silver, Zinc

Chistochina district

Gulkana (24.05, 13.45)

MF-419, loc. 13

62°44'N, 144°00'W

Summary: Quartz-carbonate vein 3-5 ft. thick cuts upper Paleozoic volcanic rocks that are brecciated and iron stained. Vein carries sphalerite, smaller amounts of chalcopyrite, galena, and pyrite, and as much as 0.9 oz. gold and 0.76 oz. silver per ton. Adit run on vein encountered glacial material 55 ft. from portal.

Richter, 1964 (GR 6), p. 9 -- Quartz-carbonate vein trends N5°-8°W, dips 67°W; between hanging wall of serpentized basalt or gabbro with chrysotile-calcite veinlets and footwall of tuff(?); both walls brecciated and iron stained; slickensides and clay gouge containing fragments of vein material indicate post-mineralization movement. Vein 3-5 ft. wide and made up of locally brecciated milky quartz, pods of carbonate (ankerite?), sphalerite, smaller amounts of chalcopyrite, galena, and pyrite, and as much as 0.9 oz. gold and 0.76 oz. silver per ton. Adit driven on vein in 1955-56 encountered glacial material 55 ft. from portal.

Richter, 1966 (GR 21), p. 33 -- Same as above.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 12 -- Reference to Richter, 1966 (GR 21). Country rock upper Paleozoic.

(Granite Cr.)

Gold

Chistochina district
MF-419, loc. 19

Gulkana (22.6, 17.1) approx.
62°57'N, 144°10'W approx.

Summary: Placer gold, apparently not in profitable concentrations,
present.

Moffit, 1938 (B 904), p. 51 -- Placer gold present; prospectors have
spent several seasons on creek.

Moffit, 1954 (B 989-D), p. 195-196 -- A little placer gold has been found.

Cobb, 1973 (B 1374), p. 28 -- Gold has been found, apparently in unpro-
fitable amounts.

Cobb, 1977 (OF 77-168B), p. 23 -- Reference to Moffit, 1954 (B 989-D)
[incorrectly cited as B 898-D].

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 18 -- Reference
to Moffit, 1938 (B 904).

(Grubstake Cr.)

Copper, Gold, Silver

Chistochina district
MF-419, loc. 17

Gulkana (23.7-23.75, 14.25-14.35)
62°47'N, 144°03'W

Summary: Presence of placer gold long known, but no minable deposit discovered until 1934, after which there was small-scale mining until World War II; mining as recently as 1959. Country rock is volcanic and sedimentary rocks of Tetelna Fm. (upper Paleozoic) intruded by granitic rocks of Ahtell pluton and smaller, more mafic diorite-quartz diorite bodies (north of creek) which are the probable hosts for the source rocks of the gold in the creek. Concentrates contain gold and much native silver (both rough and dendritic and can not have travelled far), native copper nuggets, magnetite (some in slabs as much as a foot or more in diameter), and ilmenite. Total gold production almost certainly less than 1,000 oz. Unassimilated hornfelsed block of rock of Tetelna Fm. in border zone of pluton contains pyrite and minor chalcopyrite.

- Moffit, 1936 (B 868-C), p. 139-141 -- New placer gold discovery near forks of creek, 1934. Country rock mainly somewhat altered lava flows; interbedded sedimentary rocks, including limestone that contains Permian fossils. Mining cut shows 16 ft. of deposits; bedrock not reached. Gold accompanied by much native silver, native copper, and magnetite. Gold and silver rough; some dendritic; apparently of local origin; panning indicates that gold does not occur above a mineralized zone above forks of creek. Ground seems to run a little more than \$1 per cu. yd. Operations in 1934 little more than prospecting.
- Smith, 1936 (B 868-A), p. 32 -- Encouraging find of placer gold, 1934; little more than prospecting. Gold rough and associated with much silver and some copper; evidently has not travelled far.
- Moffit, 1937 (B 880-B), p. 106-107 -- Mining, 1935. Bedrock in placer cut is crushed and sheared diorite along a fault zone that trends N75°W. Exotic clasts in creek gravels; probably brought in by glaciers.
- Moffit, 1938 (B 904), p. 48-50 -- Prospecting in early days was not successful. Movable placer ground near forks of creek discovered in 1934; small-scale mining (hampered by water shortages) through 1936. Data on deposit about the same as in references summarized above. Concentrates contain some ilmenite.
- Smith, 1938 (B 897-A), p. 41 -- Mining, 1936.
- Smith, 1939 (B 910-A), p. 40 -- Mining, 1937; only 2 men working.
- Smith, 1939 (B 917-A), p. 38 -- [Mining in 1938 reported as being on Ahtell Cr. probably was on Grubstake Cr.]
- Smith, 1941 (B 926-A), p. 34 -- Hydraulic mining, 1939. Promising-appearing gold-quartz lode reported to have been uncovered.
- Smith, 1942 (B 933-A), p. 34 -- Hydraulic mining, 1940.
- Moffit, 1944 (B 943-B), p. 42-43 -- Mining, 1941. Data on deposit same as in several of references summarized above. Some of magnetite

(Grubstake Cr.) -- cont.

in slabs a foot or more in diameter.

Thorne, 1946 (RI 3940), p. 2 -- Mine closed during World War II.

Moffit, 1954 (B 989-D), p. 195 -- Data about the same as in Moffit, 1944 (B 943-B). Total production has been only a few thousand dollars.

Richter, 1964 (GR 6), p. 6-7 -- Limonite-stained pyrite-rich zones in both bedded and intrusive rocks in upper part of basin. Placer gold has been mined from creek. Pyrite and minor chalcopyrite in unassimilated inclusion of metamorphosed volcanic rock in hornblende quartz diorite (loc. 3).

p. 10 -- Reference to Moffit, 1938 (B 904). Placer gold (at loc. 2) associated with native silver and native copper; bedrock source probably very near.

Richter, 1966 (GR 21), p. 28 -- Placer gold has been recovered.

p. 31 -- Unassimilated hornfelsed block of Tetelna Volcanics in border zone of Ahtell pluton contains pyrite and minor chalcopyrite (loc. 5).

p. 33-34 -- Placers worked intermittently from early 1930's to about 1959. Total production probably less than \$25,000 [about 715 oz.]. Reference to Moffit, 1938 (B 904). Creek flows in quartz monzonite and border-zone rocks of pluton; hydrothermal alteration locally intense; gold undoubtedly derived from altered rocks of border zone. Concentrates contain magnetite, ilmenite, native copper, silver, and gold. Most of silver and gold wiry or dendritic; have not been transported far.

Berg and Cobb, 1967 (B 1246), p. 45-46 -- Small pyrite- and chalcopyrite-bearing quartz and calcite veins in diorite and hornblende-rich rocks near Grubstake Cr. [Probably refers to Lyons prospect as well as to occurrence nearer Grubstake Cr.]

Richter and Matson, 1968 (C 593), p. 2-3 -- Placer deposits on Grubstake and Slope Creeks worked intermittently since 1934; total production from both probably less than \$30,000 [about 857 oz.] in gold. Placer gold fine grained and wiry showing no evidence of lengthy transport; probably derived from lodes associated with small diorite-quartz diorite intrusives SW of Indian Pass Lake; more mafic than the border zone of the Ahtell Creek pluton, which previously had been thought to be host for lodes.

Cobb, 1973 (B 1374), p. 28 -- Total production from Grubstake and Slope Creeks probably not more than 1,000 oz. of gold. Reference to Richter and Matson, 1968 (C 593). Mineral assemblage in placers of area strikingly similar to that from placers in upper Chistochina River area [Mt. Hayes quad.].

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 16 -- References to Richter, 1966 (GR 21) and Moffit, 1938 (B 904). Country rock in area is upper Paleozoic volcanic and intrusive (Ahtell pluton) rocks.

(Hidden Cr.)

Gold

Chistochina district
MF-419, loc. 20

Gulkana (22.8, 13.8)
62°45'N, 144°10'W

Summary: Gold-bearing gravels have been prospected; little if any production

Moffit, 1938 (B 904), p. 51 -- Gold-bearing gravel; was prospecting in early days; remains of equipment on ground.

Richter, 1966 (GR 21), p. 34 -- Has been a placer operation; little or no production; probably mainly prospecting.

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 19 -- Reference to Moffit, 1938 (B 904).

(Hogan Hill)

Copper

Chistochina district
MF-419, locs. 2, 3

Gulkana (12.3-12.55, 11.75-12.2)
62°40'-62°41'N, 145°27'-145°29'W

Summary: Pyrite and traces of chalcopyrite in granodiorite and small chalcopyrite-quartz veins along foliation of amphibolite. Also copper minerals in greenstone near contact with diorite. Many old gold prospect pits, but no data on presence or absence of gold.

Rose and Saunders, 1965 (GR 13), p. 14 -- Pyrite and traces of chalcopyrite on fractures in granodiorite. Rock adjacent to fractures partly altered to orthoclase and chlorite [MF-419, loc. 2]. South of this occurrence are small chalcopyrite-quartz veins locally along foliation of amphibolite [MF-419, loc. 3]. Minor copper stain.

Berg and Cobb, 1967 (B 1246), p. 47 -- Data from above [not specifically cited].

Mulligan, 1974 (IC 8626), p. 17 -- Data from Rose and Saunders, 1965 (GR 13) and from unpublished notes in USBM files. Copper minerals in greenstone on or near a greenstone-diorite contact [in area between locs. 2 and 3, MF-419]; may be a trace of silver; many old gold prospect pits [no data on actual presence of gold].

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, locs 2, 3-- Reference to Rose and Saunders, 1965 (GR 13).

Indian

Copper, Gold, Lead, Silver

Chistochina district

Gulkana (22.2, 14.5)

MF-419, loc. 5

62°49'N, 144°14'W

Summary: Quartz veins (some calcite also present) in joints in zone 100-200 ft. wide in porphyritic quartz diorite of upper Paleozoic Ahtell pluton contain a small percentage of argentiferous sulfides, principally galena; smaller amounts of tetrahedrite and chalcopyrite; some secondary copper minerals. Iron sulfide(s) were probably present, but have been leached out. Assays of USBM samples showed maxima of 0.04 oz. gold and 15.56 oz. silver per ton, 19.92% lead, and 1.44% copper. Only exploration work was making several open cuts. Includes references to (Indian Cr.)

Moffit, 1932 (B 824), p. 122-124 -- Some development work, 1929. Country rock quartz diorite; coarsely granular with large feldspar phenocrysts; cut by many vertical fractures trending E-W and distributed over a width of 100-200 ft. Cavernous quartz vein 18 in. to 10 or more ft. thick contains galena; iron sulfides evidently have been leached out. Other, generally thinner, quartz veins mineralized with galena, chalcopyrite, and probably pyrite. Exposed in outcrops and open cuts.

Moffit, 1938 (B 904), p. 45-46 -- Description quoted from above.

Thorne, 1946 (RI 3940), p. 3-5 -- Quotation from Moffit, 1938 (B 904).

Open cuts expose several quartz veins, some of which carry galena, tetrahedrite, chalcopyrite, and secondary copper minerals in quartz-calcite gangue. Richest sample assayed (taken over a width of 9 inches) contained 0.04 oz. gold and 15.56 oz. silver per ton, 19.92% lead, and 0.71% copper; one other sample (taken over a width of 24 inches) contained less gold, silver, and lead, but 1.44% copper. Only development is several open cuts.

Wedow and others, 1953 (C 248), p. 7 -- Data from Thorne, 1946 (RI 3940) [not cited]. eU 0.004% or less.

Moffit, 1954 (B 989-D), p. 211 -- Reference to and most of data from Moffit, 1932 (B 824) [date given as 1931]. Galena by far the most abundant sulfide; occurs as well-defined veins in quartz and as irregular angular bunches. Proportion of sulfide minerals to quartz is small.

Nelson and others, 1954 (C 348), p. 2-4 -- Data from several of above references summarized. Galena, tetrahedrite, and chalcopyrite are all silver bearing. No radioactive anomalies. Concentrate from stream draining area contained zircon and 0.004% eU.

Richter, 1966 (GR 21), p. 29-30 -- Reference to Moffit, 1932 (B 824) and Thorne, 1946 (RI 3940). 2 or more quartz veins in locally coarse-grained, relatively dark-colored quartz monzonite carry minor galena and chalcopyrite or copper stain. Only vein well enough exposed to measure when visited by Richter is 5 ft. wide, strikes N84°W, and dips 86°S. Assay data from Thorne, 1946 (RI 3940). 800 ft. to SW a barren quartz vein fills a fault zone separating border

Indian -- cont.

zone of Ahtell pluton and Tetelna Volcanics.

Berg and Cobb, 1946 (B 1246), p. 46 -- Data from several of above reports [not specifically cited] summarized.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 5 -- References to Thorne, 1946 (RI 3940) and Richter, 1966 (GR 21). Quartz veins, generally less than 1 m thick, cut quartz monzonite phase of upper Paleozoic Ahtell pluton.

Judy

Copper, Gold

Chistochina district
MF-419, loc. 10

Gulkana (23.5, 17.8)
62°59'N, 144°03'W

Summary: Prospect with reported copper and gold. Apparent post-1950 activity.

Richter and Matson, 1972 (MF-419), loc. 10 -- Lode deposit carrying copper and gold. Source of data is personal communication from Kirk Stanley, 1969.

Mackevett and Holloway, 1977 (F 77-169A), p. 19, loc. 10 -- Reference to above. Probably copper-bearing veins in Ahtell pluton. Prospect with apparent post-1950 activity.

Lyons

Copper

Chistochina district
MF-419, loc. 16

Gulkana (23.7, 14.25)
62°46'N, 144°03'W

Summary: Band of chlorite-hornblende hornfels contains small, irregular, discontinuous quartz veins no more than 6 in. wide that carry minor pyrite and chalcopyrite. Explored by a 10-ft. adit and shallow pits. Includes reference to copper prospect south of Grubstake Cr. placer mine.

Richter, 1964 (GR 6), p. 7-8 -- [Described as locality 4; name Lyons not used.] Small, irregular, discontinuous quartz veins as much as 6 in. wide exposed in 10-ft. adit and pits contain minor pyrite and chalcopyrite. In a dark chlorite-hornblende rock similar to that in inclusion to north near Grubstake Cr.

Richter, 1966 (GR 21), p. 31 -- 10-ft. adit and a number of shallow pits exposed small, irregular, discontinuous quartz veins no more than 6 in. wide containing minor pyrite and chalcopyrite. In dark chlorite-hornblende hornfels.

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 15 -- Reference to Richter, 1966 (GR 21). Pyrite and chalcopyrite in disseminations and thin quartz veins in upper Paleozoic hornfels.

(Meier Lake)

Copper, Iron

Chistochina district
MF-419, loc. 1

Gulkana (12.0, 14.65)
62°50'N, 145°30'W

Summary: Traces of chalcopyrite with magnetite in irregular pods up to an inch wide and a few inches long in upper Paleozoic greenschist and associated sheared Mesozoic diorite.

Rose and Saunders, 1965 (GR 13), p. 13 -- Traces of chalcopyrite with magnetite in greenschist and sheared diorite; magnetite in irregular pods up to an inch wide and a few inches long.

Berg and Cobb, 1967 (B 1246), p. 47 -- Data from above [not specifically cited].

Mulligan, 1974 (IC 8626), p. 17 -- Data from Rose and Saunders, 1965 (GR 13).

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 1 -- Reference to Rose and Saunders, 1965 (GR 13). In upper Paleozoic greenschist and associated sheared Mesozoic diorite.

(Nadina R.)

Gold(?), Platinum(?)

Chistochina district

Gulkana

SE $\frac{1}{2}$ SW $\frac{1}{2}$ SE $\frac{1}{2}$ quad.

Summary: Reports of platinum and gold in valley of Nadina R., which drains Mt. Drum volcano and is choked by glacial deposits, unverified. Presence of any platinum or of much gold highly unlikely.

Mendenhall and Schrader, 1903 (P 15), p. 63-64 -- Since 1899 there have been extravagant claims of rich platinum- and gold-bearing sand in valley of Nadina R. Many claims staked and considerable fruitless work done. Valley choked with glacial material derived from volcanic rocks of Mt. Drum. Not a trace of gold or platinum in any of samples collected by Survey. [Not definitely stated, but conclusion to be drawn from description is that the whole thing was strictly promotional.]

Mendenhall, 1905 (P 41), p. 121-122 -- About the same as above.

Neversweat

Copper, Gold, Lead, Silver

Chistochina district

Gulkana (23.3, 14.95)

MF-419, loc. 8

62°49'N, 144°06'W

Summary: Thin (no more than 8 in. thick) irregular quartz veins in shear zone in quartz monzonite of Ahtell pluton contain galena, minor chalcopyrite, and traces of gold and silver. Explored by short adits and pits; activity as recently as 1965. Includes references to (Ahtell Cr., West Fork).

Moffit, 1938 (B 904), p. 46-47 -- Fractured zone in diorite strikes N30°E and dips steeply west; contains quartz veins no more than 8 in. thick that contain galena and iron sulfides; much copper stain. Tunnel driven 7-8 ft. sometime before 1925, at which time it was partly caved.

Thorne, 1946 (RI 3940), p. 6-7 -- Explored by 2 short tunnels. At lower tunnel quartz stringer 2-3 in. wide contains a little galena and chalcopyrite; country rock fractured diorite. Upper tunnel driven on shear zone 6 ft. wide that contains 3 quartz veins, all of which strike N15°E and dip 70°W; galena and smaller amounts of chalcopyrite deposited in open spaces between quartz crystals; secondary copper and iron minerals present. Samples across 40-in. and 42-in. widths in upper tunnel contained as much as 6.58% lead, 0.31% copper, 0.01 oz. gold per ton, and traces of silver.

Moffit, 1954 (B 989-D), p. 211 -- Shear zone 8 ft. wide in altered and much-fractured diorite strikes N30°E and dips steeply west; cut by quartz veins as much as 8 in. thick containing galena and iron sulfides; copper staining on surface.

Richter, 1966 (GR 21), p. 30-31 -- Prospect on West Fork of Ahtell Cr. At least 3 weak shear zones containing narrow, irregular quartz veins have been explored by short adits and pits. Westernmost vein is 4 in. thick, strikes N24°E, and dips 63°W in one exposure. About 300 ft. away an adit was driven on what appears to be the same vein; material on dump includes pieces of massively crystalline galena as much as 6 in. in diameter. Massive galena apparently discovered after USBM examination (Thorne, 1946 (RI 3940)).
p. 49 -- Prospect (locality 2) currently being explored.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 8 -- References to Richter, 1966 (GR 21) and Thorne, 1946 (RI 3940). Thin quartz veins in quartz monzonite of Ahtell pluton contain galena and minor chalcopyrite.

(Shnu Cr.)

Gold(?)

Chistochina district

Gulkana
NW $\frac{1}{4}$ NE $\frac{1}{4}$ quad.

Summary: Placer locations made in headwaters in early 1900's. No further mention of gold on this creek, which is now called Sinona Cr.

Mendenhall and Schrader, 1903, (P 15), p. 49 -- Placer locations made in very early 1900's in headwaters of Shnu.

Mendenhall, 1905 (P 41), p. 109 -- Same as above.

(Silver-Cr.)

Copper, Gold, Lead, Silver, Zinc

Chistochina district
MF-419, loc. 12

Gulkana (23.6, 13.4)
62°44'N, 144°04'W

Summary: Fault zone 100 or more ft. wide separates dioritic rocks of Ahcell pluton from upper Paleozoic volcanic and sedimentary rocks of Tetelna Fm. Hornfels in fault zone contains quartz-carbonate veins in cross fractures; veins carry minor amounts of galena, sphalerite, tetrahedrite, and pyrite. Assays of samples indicate as much as 0.04 oz. gold and 17.50 oz. silver (evidently mainly in tetrahedrite) per ton, 0.66% lead, and 1.59% copper. Exploration activity as recently as 1968; no record of production.

Moffit, 1938 (B 904), p. 46-47 -- Old prospect relocated. Country rock in area mainly diorite; also basaltic-looking rock. Old short tunnels, shafts, and open cuts are mostly caved or covered by slide rock; material on dumps includes quartz vein matter, sphalerite, galena, tetrahedrite, and pyrite or chalcopyrite; copper staining.

Thorne, 1946 (RI 3940), p. 7-8 -- Explored by at least 2 (now caved) adits, a 15-ft. inclined shaft, and at least 2 open cuts. 3 quartz veins in shear zone in hornblende diorite; sheared material much altered. 5 samples contained as much as 0.04 oz. gold and a trace to 17.5 oz. silver per ton, 0.10%-0.66% lead, and from a trace to 1.59% copper.

Wedow and others, 1953 (C 248), p. 8 -- Tetrahedrite, silver-bearing galena, and gold in quartz veins in a shear zone in diorite; rock in fracture zone altered to rather soft material. eU less than 0.001%.

Moffit, 1954 (B 989-D), p. 210-211 -- About the same as Moffit, 1938 (B 904).

Nelson and others, 1954 (C 348), p. 3-4 -- Most of data from Wedow and others, 1954 (C 331). No anomalous radiation found in traverses at prospect. Samples contained no more than 0.001% eU.

Wedow and others, 1954 (C 331), p. 16, 18 -- Data from Moffit, 1938 (B 904)[not specifically cited]. Samples of lode material contained less than 0.001% eU; unconcentrated samples of country rock contained 0.005% eU, but bromoform concentrate contained only 0.001% eU.

Richter, 1964 (GR 6), p. 9-10 -- In about 1962 some new work was done. Quartz-carbonate veins with minor sulfides occupy cross fractures in a fault zone 100 ft. or more wide that strikes N10°-20°E and dips 65°-80°W. Rock in fault zone is mainly silicified and pyritized hornfels of sedimentary origin. Nearby are a few outcrops of dark-gray, medium-grained, hornblende-bearing intrusive rock (probably a phase of biotite diorite stock); to north fault appears to mark a contact between intrusive rock and interbedded sedimentary and volcanic rocks. Near veins rock is carbonatized and limonite stained. Old dump material in area contains minor amounts of chalcopyrite, galena, sphalerite, and pyrite. Silver (as much as 17.5 oz. per ton across a 1-ft. channel sample) evidently in tetrahedrite.

(Silver Cr.) -- cont.

- Richter, 1966 (GR 21), p. 32-33 -- About the same as in Richter, 1964 (GR 6). Sedimentary and volcanic rocks are Tetelna Fm.
p. 49 -- Prospect (locality 8) currently being explored.
- Berg and Cobb, 1967 (B 1246), p. 45 -- Hornfels and diorite cut by fault zone at least 100 ft. wide, which strikes NE and dips steeply west. Fault zone contains bleached and altered hornfels and many quartz-carbonate veins as much as 4 ft. thick carrying sphalerite, pyrite, chalcopyrite, galena, and tetrahedrite and stained by secondary copper and iron minerals. Assay data from Thorne, 1946 (RI 3940)[not specifically cited].
- Richter and Matson, 1968 (C 593), p. 2 -- Prospect being explored in 1968.
- MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 11 -- References to Richter, 1966 (GR 21) and Thorne, 1946 (RI 3940). Mineralized quartz-carbonate veins in fault zone at least 30 m wide that separates dioritic rocks of Ahtell pluton from upper Paleozoic volcanic and sedimentary rocks.

Silver Shield

Gold, Lead, Silver, Barite

Chistochina district
MF-419, loc. 14

Gulkana (23.9, 13.7)
62°45'N, 144°02'W

Summary: Quartz veins and pods in vertical fault zone 35 ft. wide in volcanic and sedimentary rocks of upper Paleozoic Tetelna Fm. contain local segregations of massive barite with minor calcite and cerussite, argentiferous tetrahedrite, and disseminated galena crystals as much as an inch in diameter. Sulfides commonly make up no more than 5% of vein material. Channel samples contained as much as 21 oz. silver per ton, 2.4% lead, and traces of gold. Grab samples of tetrahedrite-rich rock contained as much as 400 oz. silver per ton. Staked in 1964; being developed as recently as 1968.

Richter, 1964 (GR 6), p. 8 -- Described as locality 6. Quartz vein containing minor galena, but assaying relatively high in silver, is at least 5 ft. wide and trends northeasterly. Hanging wall is calcareous sandstone, strikes N52°E, and dips 80°NW; footwall (covered by talus) probably tuff(?). Vein principally limonite-stained milky quartz; vugs lined with quartz crystals; occasional patches of coarse calcite. Coarsely crystalline galena restricted to a 2-ft. zone along hanging wall; constitutes not more than 5% of vein material. 3-ft. channel sample contained 19.8 oz. silver per ton and 1.6% lead; sample with more visible galena contained 21 oz. silver per ton and 2.4% lead; both contained a trace of gold. Other outcrops of sedimentary rocks in area contain pyrite.

Richter, 1966 (GR 21), p. 32 -- Staked in 1964; being explored. Deposit is in large veins and pods in 35-ft.-wide sheared and brecciated fault zone in sedimentary and volcanic rocks of Tetelna Fm. Fault zone is vertical and strikes N55°E. Quartz veins locally contain segregations of massive barite and minor calcite and cerussite. Veins also contain disseminated galena crystals as large as 1 in. in diameter and, along margins in vuggy zones, local concentrations of argentiferous tetrahedrite. Grab samples of tetrahedrite-rich rock contained as much as 400 oz. silver per ton.

Richter and Matson, 1968 (C 593), p. 2-3 -- Prospect being explored in 1968. Relatively high concentrations of lead in sediment samples from small stream draining prospect.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 13 -- Reference to Richter, 1966 (GR 21). Country rock upper Paleozoic in age.

(Slope Cr.)

Bismuth, Copper, Gold, Silver

Chistochina district
MF-419, loc. 18

Gulkana (24.05, 14.45)
62°48'N, 144°00'W

Summary: Stream draining mountains between heads of Grubstake and Porcupine (Nabesna quad.) Creeks. Heavy minerals probably derived from diorite-quartz diorite intrusives rather than from border zone of Ahtell quartz monzonite-granodiorite pluton. Placer concentrates contain gold, magnetite, native copper, native silver, and mineral(s) containing bismuth (possibly native bismuth). Small-scale placer mining from about 1934 to 1950's or possibly more recently. In some references there seems to be some confusion between Slope and Boulder Creeks. Some of mining on Slope Cr. was probably in Nabesna quad. See also (Boulder Cr.).

Moffit, 1938 (B 904), p. 50-51 -- "Two short streams that flow eastward from the divide at the head of Grubstake Creek into Porcupine Creek carry sufficient gold to encourage prospecting."

Moffit, 1944 (B 943-B), p. 43-44 -- Mining near head of tributary of Porcupine Cr. that heads against north branch of Grubstake Cr. was disrupted by heavy rains in July and August; no production in 1941. Gold associated with copper, silver, pyrite, and magnetite; native bismuth and barite(?) also present. Heavy minerals apparently derived from mountain between this creek and Grubstake Cr. [Description places placer about at east boundary of Gulkana quad.]

Moffit, 1954 (B 989-D), p. 195 -- Streams flowing into Porcupine Cr. across mountain from Grubstake Cr. carry gold, magnetite, native copper, native silver, and minerals containing bismuth. [Probably refers to Slope Cr.; in part probably includes Boulder Cr..]

Richter, 1964 (GR 6), p. 10 -- References to Moffit, 1938 (B 904) and Moffit, 1954 (B 989-D). Gold associated with native silver, native copper, and bismuth minerals. Short-lived placer operation in middle 1950's. [Shown on map as a few hundred feet into Nabesna quad.]

Richter, 1966 (GR 21), p. 28 -- Some gold has been recovered from Slope Cr. (locality 11). [Shown on map as being at the same place as Boulder Cr. as discussed in Richter, 1964 (GR 6).]

p. 34 -- Slope Cr. placer mined in 1950's. Gold similar to that at Grubstake Cr.; accompanied by magnetite, native copper, native silver, and a bismuth mineral (reference to Moffit, 1954 (B 989-D, p. 195).

Richter and Matson, 1968 (C 593), p. 2-3 -- Placer deposits in Grubstake and Slope Creeks worked intermittently since 1934; total production from both probably less than \$30,000 [about 857 oz] in gold. No activity in 1968. Placer gold fine grained and wiry, showing no evidence of lengthy transport. Gold probably not associated with Ahtell Creek [quartz monzonite-granodiorite] pluton, but with more mafic diorite-quartz diorite intrusives SW of Indian Pass Lake [in Nabesna quad.].

(Slope Cr.) -- cont.

Cobb, 1973 (B 1374), p. 28 -- Total production from Grubstake and Slope Creeks probably not more than 1,000 oz. of gold. Reference to Richter and Matson, 1968 (C 593). Mineral assemblage is placers of area strikingly similar to that from placers in the upper Chis-tochina area [Mt. Hayes quad.].

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 17 -- Reference to Richter, 1966 (GR 21). Uranium lode claim in vicinity.

(The Dome)

Copper, Lead

Chistochina district
MF-419, loc. 7

Gulkana (23.1, 14.75)
62°49'N, 144°07'W

Summary: Quartz-calcite veins as much as a foot thick in joints in hornfels along contact with quartz monzonite stock contain sparse galena and chalcopyrite. Nearby hornfelsic volcanic rocks contain disseminated pyrite and minor chalcopyrite.

Richter, 1964 (GR 6), p. 6-7 -- Pyrite associated with chalcopyrite. Quartz-calcite veins as much as a foot thick are apparently controlled by a local joint system confined to massive hornfels; prominent joints strike N6°W and dip 59°W; weaker joints strike N72°W and dip 79°N. Hornfels apparently in metamorphosed sedimentary rocks along contact with hornblende quartz monzonite stock. Veins exposed in 2 shallow prospect pits contain a few small grains of chalcopyrite and galena; some weak copper staining. Nearby hornfelsic volcanic rocks contain disseminated pyrite and minor chalcopyrite.

Richter, 1966 (GR 21), p. 31 -- Same as above.

Berg and Cobb, 1967 (B 1246), p. 45 -- Zone containing disseminated pyrite and minor chalcopyrite has been traced across the top of The Dome. Quartz-calcite veins carry a little chalcopyrite and galena.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 7 -- Reference to Richter, 1966 (GR 21).

Unnamed prospect

Copper

Chistochina district
MF-419, loc. 9

Gulkana (23.35, 16.45)
62°54'N, 144°05'W

Summary: Copper-bearing lode deposit reported. Probably in veins in Ahtell pluton. Prospect apparently with post-1950 activity.

Richter and Matson, 1975 (MF-419), loc. 9 -- Lode deposit carrying copper. Source of data personal communication from Kirk Stanley, 1969.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 9 -- Reference to above. Probably copper-bearing vein in Ahtell pluton. Prospect with apparent post-1950 activity.

Unnamed occurrence Copper, Molybdenum

Chistochina district Gulkana (22.7, 14.6)
MF-419, loc. 6 62°48'N, 144°10'W

Summary: In altered rocks of border facies of Ahtell pluton. Altered area contains veinlets and disseminations of pyrite and minor molybdenite associated with sericite, quartz, and clay minerals. Nearby a 2-ft.-wide quartz vein contains minor chalcopyrite and its alteration products.

Richter, 1966 (GR 21), p. 31, loc. 4 -- Brightly colored alteration area underlain by rocks of border facies of Ahtell pluton, which have been replaced by a mixture of sericite, quartz, and clay minerals. Locally contain veinlets and disseminations of pyrite and minor molybdenite. 2-ft.-wide quartz vein nearby contains minor chalcopyrite and is strongly copper stained.

Richter and Matson, 1968 (C 593), p. 2 -- Small scattered flakes of molybdenite associated with quartz, pyrite, and sericite.

MacKevett and Holloway, 1977 (OF 77-169A), p. 19, loc. 6 -- Reference to Richter, 1966 (GR 21).

Unnamed prospect

Copper, Gold(?)

Chistochina district

Gulkana (23.15, 13.35)

MF-419, loc. 11

62°44'N, 144°08'W

Summary: Minor disseminated chalcopyrite and a few quartz-carbonate veins in rocks of border zone of Ahtell pluton. Gold may be present.

Richter, 1966 (GR 21), p. 48 -- Minor disseminate chalcopyrite and a few quartz-carbonate veins in quartz-rich rock of border zone [of Ahtell pluton]. [Near map no. 39, fig. 6.]

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 27 -- References to above and USBM claim map overlay. Description is [abbreviations spelled out]: "Gold-bearing quartz veins and anomalous amounts of zinc and copper in geochemical samples; in an area of Ahtell pluton and upper Paleozoic volcanic rocks."

Synonyms, Owners and Operators, and Claim Names

(Ahtell Cr., West Fork) -- see Neversweat
Ahtell Mining Co. -- see (Grubstake Cr.)
Blue Ridge -- see Indian
Bronnicke -- see Gold Quartz, (Slope Cr.)
Conkle -- see Neversweat

Gamblin -- see Neversweat
(Indian Cr.) -- see Indian
(Indian Cr., West Fork) -- see Burns
Johnson -- see (Grubstake Cr.)
Lyons and associates -- see (Grubstake Cr.)

Routsen & Wallace -- see Neversweat
Silver Circle -- see Burns
(Sinona Cr.) -- see (Shnu Cr.)
Slana Co. -- see Silver Shield
Stanley -- see (Silver Cr.)

Swanson, Olson, Johnson & DeWitt -- see (Grubstake Cr.)
Whitham -- see Burns, Indian
Whitman -- see Indian

Unnamed prospect	Copper, Lead, Silver
Chistochina district	Gulkana (23.8, 13.9)
MF-419, loc. 15	62°46'N, 144°02'W

Summary: Swarm of discontinuous quartz veins in rocks of border phase of Ahtell pluton are as much as 3 ft. thick. Most veins contain galena (locally making up 50% of vein material); some contain minor chalcopyrite. Quartz float contain tetrahedrite. Silver not reported, but almost certainly present. Deposits covered by claims staked in middle 1960's.

Richter, 1966 (GR 21), p. 32, loc. 6 -- Swarm of discontinuous quartz veins as much as 3 ft. thick; veins strike N20°-80°E and dip irregularly. Galena in most of veins; locally constitutes 50% of vein material. Minor chalcopyrite in some veins. Quartz float containing tetrahedrite also has been found. Most of area staked within the last 2 years.

MacKevett and Holloway, 1977 (OF 77-169A), p. 20, loc. 14 -- Reference to above. In border phase of Ahtell pluton. Principal potentially valuable constituent listed as silver [silver not mentioned in cited reference, but, in view of amount of galena and presence of tetrahedrite, is almost certainly present]. Prospect with apparent post-1950 activity.

References Cited

Gulkana

- Berg, H. C., and Cobb, E. H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, 254 p.
- Cobb, E. H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, 213 p.
- Cobb, E. H., 1977, Placer deposits map of central Alaska: U.S. Geological Survey Open-file Report 77-168B, 64 p. + map, scale 1:1,000,000.
- Cobb, E. H., and Kachadoorian, Reuben, 1961, Index of metallic and nonmetallic mineral deposits of Alaska compiled from published reports of Federal and State agencies through 1959: U.S. Geological Survey Bulletin 1139, 363 p.
- MacKevett, E. M., Jr., and Holloway, C. D., 1977, Map showing metaliferous and selected nonmetalliferous mineral deposits in the eastern part of southern Alaska: U.S. Geological Survey Open-file Report 77-169A, 1 sheet + 99 p. tabular material, scale 1:1,000,000.
- Mendenhall, W. C., 1905, Geology of the central Copper River region, Alaska: U.S. Geological Survey Professional Paper 41, 133 p.
- Mendenhall, W. C., and Schrader, F. C., 1903, The mineral resources of the Mount Wrangell district, Alaska: U.S. Geological Survey Professional Paper 15, 71 p.
- Moffit, F. H., 1932, The Slana district, upper Copper River region: U.S. Geological Survey Bulletin 824, p. 111-124.
- Moffit, F. H., 1936, Upper Copper and Tanana Rivers: U.S. Geological Survey Bulletin 868-C, p. 135-143.
- Moffit, F. H., 1937, Recent mineral developments in the Copper River region: U.S. Geological Survey Bulletin 880-B, p. 97-109.
- Moffit, F. H., 1938, Geology of the Slana-Tok district, Alaska: U.S. Geological Survey Bulletin 904, 54 p.
- Moffit, F. H., 1944, Mining in the northern Copper River region, Alaska: U.S. Geological Survey Bulletin 943-B, p. 25-47.
- Moffit, F. H., 1954, Geology of the eastern part of the Alaska Range and adjacent area: U.S. Geological Survey Bulletin 989-D, p. 63-218.

- Mulligan, J. J., 1974, Mineral resources of the trans-Alaska pipeline corridor: U.S. Bureau of Mines Information Circular 8626, 24 p.
- Nelson, A. E., West, W. S., and Matzko, J. J., 1954, Reconnaissance for radioactive deposits in eastern Alaska, 1952: U.S. Geological Survey Circular 348, 21 p.
- Ransome, A. L., and Kerns, W. H., 1954, Names and definitions of regions, districts, and subdistricts in Alaska (used by the Bureau of Mines in statistical and economic studies covering the mineral industry of the Territory): U.S. Bureau of Mines Information Circular 7679, 91 p.
- Richter, D. H., 1964, Geology and mineral deposits of the Ahtell Creek area, Slana district, southcentral Alaska: Alaska Division of Mines and Minerals Geological Report 6, 17 p.
- Richter, D. H., 1966, Geology of the Slana district, southcentral Alaska: Alaska Division of Mines and Minerals Geologic Report 21, 51 p.
- Richter, D. H., and Matson, N. A., Jr., 1968, Distribution of gold and some base metals in the Slana area, eastern Alaska Range, Alaska: U.S. Geological Survey Circular 593, 20 p.
- Richter, D. H., and Matson, N. A., Jr., 1972, Metallic mineral resources map of the Gulkana quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-419, 1 sheet, scale 1:250,000.
- Rose, A. W., and Saunders, R. H., 1965, Geology and geochemical investigations near Paxson, northern Copper River Basin, Alaska: Alaska Division of Mines and Minerals Geologic Report 13, 35 p.
- Smith, P. S., 1936, Mineral industry of Alaska in 1934: U.S. Geological Survey Bulletin 868-A, p. 1-91.
- Smith, P. S., 1938, Mineral industry of Alaska in 1936: U.S. Geological Survey Bulletin 897-A, p. 1-107.
- Smith, P. S., 1939, Mineral industry of Alaska in 1937: U.S. Geological Survey Bulletin 910-A, p. 1-113.
- Smith, P. S., 1939, Mineral industry of Alaska in 1938: U.S. Geological Survey Bulletin 917-A, p. 1-113.

Smith, P. S., 1941, Mineral industry of Alaska in 1939: U.S. Geological Survey Bulletin 926-A, p. 1-106.

Smith, P. S., 1942, Mineral industry of Alaska in 1940: U.S. Geological Survey Bulletin 933-A, p. 1-102.

Thorne, R. L., 1946, Exploration of argentiferous lead-copper deposits of the Slana district, Alaska: U.S. Bureau of Mines Report of Investigations 3940, 9 p.

Wedow, Helmuth, Jr., Killeen, P. L., and others, 1954, Reconnaissance for radioactive deposits in eastern interior Alaska, 1946: U.S. Geological Survey Circular 331, 36 p.

Wedow, Helmuth, Jr., and others, 1953, Preliminary summary of reconnaissance for uranium and thorium in Alaska, 1952: U.S. Geological Survey Circular 248, 15 p.