UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUMMARY OF REFERENCES TO MINERAL OCCURRENCES (OTHER THAN MINERAL FUELS AND CONSTRUCTION MATERIALS) IN NORTHERN ALASKA

OPEN-FILE REPORT 75-628

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

Menlo Park, California
December 1975

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By
Edward H. Cobb

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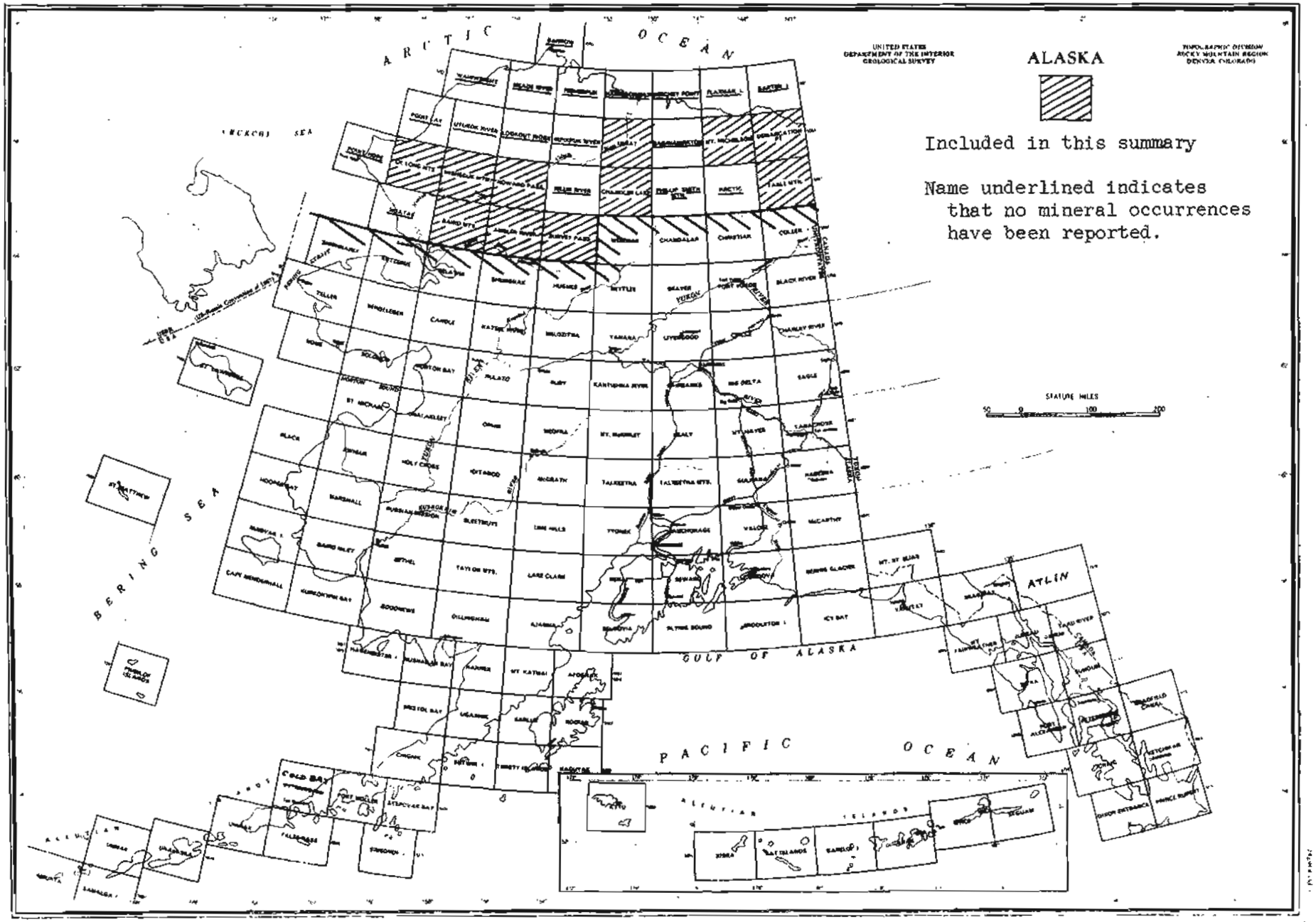
Illustration

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 11 quadrangles in northern Alaska. All references to published and open-filed reports of the Geological Survey, to most published and open-filed reports of the U.S. Bureau of Mines, and to most published reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies released before January 1, 1975, are summarized. Occasionally reports from other sources have been included; in such instances references have been summarized in greater detail than those to the kinds of reports listed above. Certain, mainly statistical, reports such as the annual Minerals Yearbook of the U.S. Bureau of Mines and the biennial and annual reports of the State of Alaska Division of Geological and Geophysical Surveys and its predecessor State and Territorial agencies are not included.

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



Quadrangle location map, northern Alaska

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

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

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

B	U.S. Geological Survey Bulletin
GR	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geological Report
IC	U.S. Bureau of Mines Information Circular
OF	U.S. Geological Survey Open-file Report (numbers with a hyphen in them are formal. Numbers without a hyphen are informal and are used only within the Alaskan Geology Branch of the Geological Survey).
MF	U.S. Geological Survey Miscellaneous Field Studies Map
P	U.S. Geological Survey Professional Paper
RI	U.S. Bureau of Mines Report of Investigation
TDM	Alaska Territorial Department of Mines Pamphlet

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

References cited only in these introductory paragraphs are:

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

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

(Agnes Cr.) Gold

Kiana district Ambler River (10.3, 3.9) approx.
67°13'N, 157°29'W approx.

Summary: A little gold was mined, though most of the work was prospecting rather than mining. See also (Ambler Valley).

Brooks, 1925 (B 773), p. 51 -- Placer gold has been mined (as of 1923).
Smith, 1933 (B 836), p. 51 -- One man reported to have done some winter mining, 1929-30.
Smith, 1933 (B 844-A), p. 52 -- One man reported to have done some winter mining, 1930-31.
Smith, 1939 (B 910-A), p. 73 -- One man prospecting, 1937.
Smith, 1939 (B 917-A), p. 71 -- One man prospecting, 1938.
Cobb, 1973 (B 1374), p. 58 -- Work more in the nature of prospecting than mining.

(Ambler Valley) Gold

Kiana district Ambler River
E ½ quad.

Summary: Coarse gold reported to have been mined. See also (Agnes Cr.), to which this reference probably refers.

Brooks and Martin, 1921 (B 714), p. 95 -- Gold reported to have been found and at least $1,000 taken out in 1919. Gold said to be bright and coarse and to include flat nuggets. [Probably refers to Agnes Cr.].

(Asbestos Mtn.) Asbestos, Jade, Quartz, Talc

Shungnak district Ambler River (14.9, 0.45)
67°01'N, 156°50'W

Summary: Serpentinite contains veins and veinlets of cross- and slip-fiber tremolite and chrysotile asbestos, small deposits of talc and soapstone, and nephrite. During World War II about 36.5 tons of tremolite was mined from a trench and shipped to use in filters. About 1 ton of chrysotile was shipped at the same time. A little over 1/2 ton of USBM samples was tested and found not suitable for spinning. Float quartz crystals from veins near head of Dahl Cr. were shipped during World War II. Includes references to bedrock occurrences near head of Dahl Cr.; see also (Dahl Cr.) Shungnak quad.

Smith and Eakin, 1911 (B 480), p. 304 -- Asbestos has been found, upper Dahl Cr.; associated with greenstone.

Smith, 1913 (B 536), p. 154 -- Asbestos has been found in or near greenstone intrusives near upper Dahl Cr.

Smith and Mertie, 1930 (B 815), p. 344-345 -- Asbestos, some fibers several inches long. Not suitable for high-grade uses.

Reed, 1931a, p. 31-32 -- Seams of asbestos (largest about 3 in. thick) in serpentine; some fibers more than 1 ft. long. Between Dahl and Stockley Creeks. Near top of mountain serpentine and nephrite outcrop contains 3 seams of asbestos. Short-fiber asbestos float near monument on highest part of mountain. Nephrite contains numerous magnetite inclusions.

Coats, 1944 (OF 7), p. 3 -- Float with irregular stringers (as much as 1/2 in. thick) of poor-quality cross-fiber crysotile on west peak of mountain. 4 small trenches through talus encountered mat of loose, finely divided, short fibers of asbestos. Vein (2-6 in. thick) of tremolite asbestos in one trench. Walls of vein are platy nephrite.

Anderson, 1945 (TDM 3-R), p. 14-18 -- Zone of sheared serpentine and nephrite. Much tremolite float and narrow vein of tremolite exposed in trench at summit of mountain. Chrysotile float several thousand ft. to east. Tremolite prospect opened by adit and raise and by several trenches. About 47 tons of hand-picked high-grade material shipped in 1944 and 1945. Ore bodies are lenticular; no reserves blocked out. Chrysotile a few hundred ft. from tremolite zone on Asbestos Mtn. [Distance given as a few thousand ft. on p. 15 and as a few hundred ft. on p. 18].

p. 25 -- Green translucent nephrite reported on east side of summit.

Bain, 1946 (IC 7379), p. 75-76 -- Partial summary of RI 4414.

Anderson, 1947 (TDM 5-R), p. 14-15 -- Slip-fiber chrysotile with fibers up to 12 in. long. Also much tremolite asbestos float. Trench exposed 6-in. vein of white tremolite with long but weak fibers; hand-picked bundles up to 2 ft. long.

p. 47-48 -- At head of Dahl Cr. vugs in quartz veins contain clear to milky well-formed quartz crystals. Nearby veins about 6 in. wide are almost wholly made up of crystals. In 1943 a small shipment of crystals picked up from float was made.

(Asbestos Mtn.) - Continued

Heide and others, 1949 (RI 4414), p. 2 -- USBM cleaned out and deepened older trenches and sampled them and a 228-ft. adit. Sample (1,090 lb.) shipped for testing.

p. 6-7 -- Prospecting at head of Dahl Cr. in 1931-1932; samples of slip-fiber chrysotile sent to USBM. Claims lapsed. Tremolite asbestos discovered in 1943. By November, 1945, 36.5 tons tremolite and 1 ton slip-fiber chrysotile had been shipped. Asbestos in serpentinized basic intrusive in mica schist; much magnetite in serpentine.

p. 11-13 -- Best deposits near top of mountain. Slip-fiber tremolite asbestos in 6-in. vein exposed in 4 trenches. A 2.5-ft. vein in one trench; some fibers 18 in. long; weak, but free of impurities; 36.5 tons mined and shipped for use in filters. 225-ft. adit driven to intersect the 2.5-ft. vein indicated that vein had pinched out; 5 smaller veins encountered. Much chrysotile in float; some slip fibers very long. 1 ton mined from trenches in 1945. Small deposits of talc and soapstone common. USBM cleaned out and deepened trenches. Collected 1,090 lb. of chrysotile long-fiber asbestos for testing. Much disseminated magnetite but no large concentrations.

p. 19-20, 22-24 -- Details of sample tests. In general, lower grade than Canadian material. Could possibly be used for filters, asbestos shingles, and asbestos board; not suitable for spinning.

Fritts, 1969 (GR 37), p. 5, 29 -- References to RI 4144 and OF 7.

Fritts, 1970 (GR 39), p. 28, 59 -- References to RI 4414 and OF 7.

(Aurora Mtn.) Copper, Gold, Lead, Silver, Zinc

Shungnak district
MF-454, loc. 4

Ambler River (13.5, 1.3)
67°03'N, 157°02'W

Summary: Structure is generally synclinal with dolomitic limestone (some reefoid) above (probably fault contact) phyllitic schist. Near contact chalcopyrite, bornite, galena, and secondary copper minerals are in reef breccia. Selected samples of sulfide minerals contained $1.73 in gold and $0.20 in silver per ton; other assays of bornite showed less gold and more silver. Explored by 22-ft. shaft and an adit. No mining recorded. Includes references to (Pardners Hill) and to lodes at head of Cosmos Cr.

Brooks, 1909 (B 379), p. 31 -- Body of chalcopyrite and bornite opened by 70-ft. tunnel. Picked samples said to have contained about $2 in gold and silver and 28%-58% copper.

Smith and Eakin, 1911 (B 480), p. 300-303 -- Structure generally synclinal with brecciated limestone above dark slate and schist. Sulfide mineralization near contact; almost entirely in limestone. Much copper carbonate float. 22-ft. shaft reported to have cut chalcopyrite and bornite about 11 ft. below surface. Galena has been found with copper sulfides. Analyses of bornite and chalcopyrite showed gold and silver worth $1.73 and $0.20 per ton. No gold placers found at Aurora Mtn.

Smith, 1913 (B 536), p. 147,149-150, 153 — Same as in B 480, p. 300-303.

Brooks, 1921 (B 714), p. 36 -- Reference to B 536.

Smith and Mertie, 1930 (B 815), p. 341-342 -- Quotation from B 536.

Anderson, 1947 (TDM 5-R), p. 24 — Reference to B 815.

Wedow and others, 1952 (OF 51), p. 48 — Copper mineralization in limestone near contact with schist.

Berg and Cobb, 1967 (B 1246), p. 106 -- Lode may be similar to one on Ruby Cr. Bornite sample assayed 0.04 oz. Au and 1.4 oz. Ag per ton.

Fritts, 1970 (GR 39), p. 39 -- Reference to B 480.

p. 49 -- Vein quartz float contained euhedral chalcopyrite on euhedral quartz and supergene malachite and azurite.

p. 51 -- Malachite and azurite visible in dolomite breccia.

p. 62 -- Macroscopic chalcopyrite, malachite, azurite, and galena.

(Bismark Cr.) Gold

Shungnak district
MF-454, loc. 9

Ambler River (12.15, 0.85) approx.
67°02'N, 157°13'W approx.

Summary: Creek gravels near mouth, as much as 20 ft. thick, contain flour gold. Two small prospect pits yielded $1.55 and $0.93 per cu. yd.

Reed, 1931a, p. 14-15 -- Two small prospect pits 180 ft. upstream from mouth yielded $1.55 and $0.93 per cu. yd. Creek gravel may be worked at a profit.

Fritts, 1970 (GR 39), p. 55 -- Near mouth auriferous gravel is as much as 20 ft. thick. Gold is mainly flour gold.

(Bismark Mtn.) Asbestos

Shungnak district Ambler River (11.85-11.9, 0.95-1.1)
67°03'N, 157°15'-157°16'W

Summary: Asbestos in highly serpentinized zones of a large mass of ultramafic rocks in schist. Short cross-fiber chrysotile in veins and slip-fiber veinlets 1/2 to 2 in. wide. Magnesite veinlets also present. 2 tons of bulk samples shipped for testing; asbestos not suitable for high-class industrial uses. See also (Shungnak R.).

Anderson, 1945 (TDM 3-R), p. 19-20 -- On east slope of large area of ultrabasic rocks in schist; some highly serpentinized zones that carry asbestos. Just below summit on east slope claims were staked long ago; no development until 1944. Thick sheared serpentine float contained some strong, short, silky cross-fiber crysotile. Some slip-fiber crysotile covers flakes of serpentine. Veinlets of magnesite in area. In 1944 USBM did hand and bulldozer trenching and shipped material for mill tests.

Anderson, 1947 (TDM 5-R), p. 15 -- Ultrabasic rocks contain highly serpentinized areas and some asbestos. Data the same as TDM 3-R, p. 19-20.

Heide and others, 1949 (RI 4414), p. 10 -- Trenched by USBM in 1944. 3 trenches exposed very short-fiber chrysotile and much nemalite (an asbestiform variety of brucite). Fourth trench encountered slip-fiber veinlets 1/2 to 2 in. wide. 2 tons of samples from trenches was shipped out for testing.

p. 16-18 -- Data on beneficiation tests. Most of the products of the testing were not suitable for high-class industrial uses.

Fritts, 1970 (GR 39), p. 59 -- Bulk sampling by USBM, 1944-45.

(Boulder Cr.) Gold

Shungnak district Ambler River (15, 0) (?)
67°01'N, 156°45'W approx. (?)

Summary: Small-scale gold mining was reported from 1933 to 1939. Location uncertain.

Smith, 1934 (B 864-A), p. 53 -- Small-scale mining, 1933; tributary of Kugoluktuk R.
Smith, 1936 (B 868-A), p. 55-56 -- Small-scale mining, 1934.
Smith, 1937 (B 880-A), p. 58 -- Small-scale mining, 1935.
Smith, 1938 (B 897-A), p. 68 -- Small-scale mining, 1936.
Smith, 1939 (B 910-A), p. 73 -- Small-scale mining, 1937.
Smith, 1939 (B 917-A), p. 71 -- Small-scale mining, 1938.
Smith, 1941 (B 926-A), p. 67 -- Small-scale mining, 1939.
Fritts, 1970 (GR 39), p. 58 -- Reference to above. Location of creek uncertain.

(Cosmos Cr.) Gold; Asbestos, Jade

Shungnak district Ambler River (12.9, 0.5)
67°01'N, 157°07'W

Summary: Low-grade chrysotile asbestos deposits in sheared serpentinite near creek. Colors of gold in 40 ft. of gravel penetrated by prospect shafts. Nephrite boulders in creek gravels have been collected and sold. See (Aurora Mtn.) for data on metallic lodes at head of creek.

Reed, 1931a, p. 16-17 -- Prospect shafts above canyon showed fine colors throughout about 40 ft. of gravel, but no minable concentrations of gold. Old ditch and some evidence of shovelling in, but nothing known about results.

p. 31 -- Low-grade asbestos associated with greenstone and serpentine.

Anderson, 1945 (TDM 3-R), p. 7 -- Cross-fiber chrysotile has been found.

p. 9 -- Occurrences examined by Terr. Dept. Mines and USBM during World War II.

p. 20-21 -- West of creek just above canyon serpentine zone is cut by veinlets (no more than 3/4 in. thick) of cross-fiber chrysotile.

p. 25-26 -- Nephrite boulders in creek gravel; some sold in 1945.

Anderson, 1947 (TDM 4414), p. 11 -- Slip fibers of chrysotile on foliations of serpentine and in a stockwork that also contains cross fibers in serpentine. 115 sacks of sample material collected from 3 of 4 trenches dug by USBM.

p. 21-22 -- Data on treatment of samples. High percentages of dusty fines.

(Hunt R.) Gold (?); Asbestos

Kiana district Ambler River
SW¼ quad.

Summary: Quartz vein with more than $100 per ton in gold reported, but not confirmed; near Jade Mts. Tremolite asbestos with 2-in. fibers came from vein not more than 1/2 in. wide.

Smith, 1913 (B 536), p. 146 -- According to a newspaper clipping [not further identified], specimens of a quartz vein from Hunt R. near Jade Mts. are reported to have yielded over $100 a ton in gold.
Anderson, 1945 (TDM 3-R), p. 11 -- Asbestos deposit investigated, 1945(?).
Anderson, 1947 (TDM 5-R), p. 16 -- Mountain leather and fibrous amphibole asbestos with fibers 2 in. long from seam not more than 1/2 in. wide.

(Iron Mtn.) Iron

Shungnak district
MF-454, loc. 5

Ambler River (13.85, 1.0)
67°03'N, 156°59'W

Summary: Float specimens of magnetite weighing as much as 100 lb. are common, but none of this material has been found in place. Magnetite seems to be most common near bedrock contacts between limestone and schist.

Smith, 1913 (B 536), p. 153-154 -- Magnetite masses as much as 100 lbs. or so in weight in float; none found in place.
Smith and Mertie, 1930 (B 815), p. 343 -- Quotation from B 536.
Anderson, 1947 (TDM 5-R), p. 26 -- Reference to B 815.
Berg and Cobb, 1967 (B 1246), p. 106 -- Float specimens of magnetite weigh as much as 100 lb.; seem to be most common near bedrock contacts between limestone and schist; none found in place.

(Jade Cr.) Asbestos, Jade

Kiana district Ambler River (6.5, 3.5) approx.
67°12'N, 158°03'W approx.

Summary: Gem-quality nephrite jade has been collected from stream gravel and possibly mined from bedrock and sold for jewelry manufacturing. High-quality cross-fiber chrysotile asbestos in float. See also (Jade Mtn.).

Anderson, 1945 (TDM 3-R), p. 24-26 -- Gem-quality nephrite in float. Placer jade shipped in 1945.

Anderson, 1947 (TDM 5-R), p. 16 -- Float near head contains high-quality cross-fiber chrysotile asbestos.

Cobb, 1973 (B 1374), p. 57-58 -- Nephrite boulders have been collected and sold for jewelry manufacturing; some may have been mined from bedrock.

(Jade Hills) Nickel; Asbestos, Jade

Kiana district Ambler River (8.2, 3.5) approx.
MF-454, loc. 3 67°12'N, 157°48'W approx.

Summary: Garnierite (or a closely related nickel mineral) has been found in the eastern Jade Hills near the Ambler R. Jade and asbestos have been found, but not developed. See also: (Jade Cr.), (Jade Mtn.).

Smith, 1913 (B 536), p. 155 -- Several attempts to develop jade were unsuccessful; jade of inferior quality and inaccessible. [Other references make it clear that the jadelike rock collected by Stoney and described here is from the Jade Hills. In this bulletin, Jade Hills are called Jade Mountains.]

Brooks, 1921 (B 714), p. 55 -- Reference to B 536.

Smith and Mertie, 1930 (B 815), p. 344-346 -- Asbestos has been found; data on jade same as in B 536.

Anderson, 1945 (TDM 3-R), p. 24 -- Specimens of bedrock from near Ambler R. at eastern foot of Jade Hills contain nickel in garnierite or a closely related mineral. Nephrite has been found in float and bedrock in Jade Hills as part of bedrock in asbestos-bearing areas.

Berg and Cobb, 1967 (B 1246), p. 104 -- Garnierite has been found.

(Jade Mtn.) Asbestos, Jade

Kiana district Ambler River (6.5, 4.25) approx.
67°14'N, 158°02'W approx.

Summary: Highly serpentinized ultramafic rock underlies an area of at least 2 sq. mi. Schistose nephrite contains veins of slip-fiber and cross-fiber chrysotile and tremolite asbestos; some slip-fiber chrysotile fibers as much as 5 in. long. Some nephrite is gem quality. See also: (Jade Cr.), (Jade Hills).

Anderson, 1945 (TDM 3-R), p. 7 -- Asbestos deposits have long been known.
p. 13 -- Deposits on south slope.
p. 22-25 -- Highly serpentinized ultrabasic rock (probably originally a peridotite) underlies an area of at least 2 sq. mi. Schistose nephrite contains cross-fiber tremolite veins up to 1 in. thick. Many veinlets of cross-fiber chrysotile; generally less than 1 in. thick. Short tunnel driven many years ago; no other development. Some gem-quality and much lower-grade nephrite jade present.

Bain, 1946 (IC 7379), p. 82 -- Reference to TDM 3-R.

Anderson, 1947 (TDM 5-R), p. 16 -- Cross-fiber chrysotile and tremolite asbestos in float. Short tunnel said to have been driven on a narrow vein many years ago. Tremolite asbestos float is in a zone of schistose nephrite.

Heide and others, 1949 (RI 4414), p. 13-14 -- Asbestos-bearing serpentinized ultrabasic rocks in schist, "Large boulders and ledges of nephrite..." Small amounts of slip-fiber (up to 5 in.) and cross-fiber (1/4 to 1/2 in.) chrysotile; some tremolite asbestos also.

Fritts, 1969 (GR 37), p. 29 -- Nephrite found by Cantwell, 1884.

Fritts, 1970 (GR 39), p. 60 -- Nephrite found by Cantwell, 1884.

(Jade Mts.) Copper, Lead

Kiana district
MF-454, loc. 2

Ambler River (5.7, 4.4)
67°15'N, 158°10'W

Summary: A vein in limestone contains malachite, azurite, and galena.

Brosgé and others, 1967 (OF 274), sample M98(A) -- Mineralized vein in limestone contains malachite, azurite, and galena.

(Jay Cr.) Gold

Shungnak district
MF-454, loc. 10

Ambler River (13.95, 1.55)
67°05'N, 156°57'W

Summary: Bedrock is phyllite. A little placer gold was recovered in 1931.

Reed, 1931a, p. 18 -- Pay streak said to have been found in 1931.
Fritts, 1970 (GR 39), p. 58 -- A little gold was recovered in 1931. Bedrock is phyllite.

Malfiatti

Copper

Kiana district
MF-454, loc. 1

Ambler River (0.0, 9.25)
67°32'N, 159°00'W

Summary: Prospect on copper lode; reported to be between limestone and schist. Some work done in 1913.

Brooks, 1914 (B 592), p. 72 -- Some work done, 1913. Results said to be satisfactory. Copper prospect.

Berg and Cobb, 1967 (B 1246), p. 104 -- Copper lode, discovered about 1912, reported to be between limestone and schist; no other data available.

(Midas Cr.) Gold

Noatak district
MF-454, loc. 12

Ambler River (18.3, 15.2)
67°51'N, 156°14'W

Summary: Small particles of gold found in 1904 may have been derived from metamorphic rocks south of the Noatak R. or concentrated from glacial outwash.

Smith, 1912 (B 520), p. 336-337 -- Placer gold present; particles small and well worn. Probably derived from older metamorphic rocks on south flank of Noatak basin or by concentration from glacial deposits.
Smith, 1913 (B 536), p. 141-142 -- Same as B 520, p. 336-337.
Brooks, 1925 (B 773), p. 51 -- Gold has been mined (as of 1923).
Smith and Mertie, 1930 (B 815), p. 332 -- Gold discovered, 1904. Otherwise is quotation from B 536.
Cobb, 1973 (B 1374), p. 59 -- Small particles of gold found in 1904 may have come from glacial outwash or from unexplored mountains south of Noatak R.

(Pearl Cr.) Gold

Shungnak district Ambler River (14.85, 1.8) approx. (?)
67°05'N, 156°50'W approx. (?)

Summary: Small-scale mining in 1933; tributary of Shungnak R.; location uncertain.

Smith, 1934 (B 864-A), p. 53 -- Small-scale mining, 1933; tributary of Shungnak R.

Fritts, 1970 (GR 39), p. 58 -- Reference to B 864-A.

(Riley Cr.) Gold

Shungnak district
MF-454, locs. 7, 11

Ambler River (14.5, 1.0) approx.
67°03'N, 156°53'W approx.

Summary: Eluvial placers near head are about 7 ft. thick and contain large exotic greenstone boulders. Gold is fine, angular and spongy with considerable attached quartz. Much of gold in bedrock crevices. Bedrock is black slate, phyllite, and limestone with many quartz veins, some of which carry visible free gold. Mining before 1910, in 1917, and annually from 1933 to 1940. Total production probably small.

Brooks, 1910 (B 442), p. 46 -- Some gold mined, 1909.

Smith and Eakin, 1911 (B 480), p. 294-296 -- Desultory mining, 1908-1910, on headwaters. Bedrock is black slate, limestone, and a few intrusive rocks. Many quartz veins in slate. [Description of gravel in placers sounds like eluvial placers.] Many exotic (glaciofluvial) greenstone boulders. Gold in crevices in bedrock and in angular material on bedrock. Placers more like residual placers than stream placers. Gold sharp, angular; much has attached quartz. Production through 1910 probably not more than $1,000. Water too scarce for efficient mining.

p. 299 -- Specks of gold in quartz veins in slate. Probable source of gold in Riley Cr. placers.

Smith, 1913 (B 536), p. 129-131, 145 -- Same as B 480.

Martin, 1919 (B 692), p. 42 -- Small-scale mining, 1917.

Smith and Mertie, 1930 (B 815), p. 324-325, 336 -- Quotation or paraphrase of B 536.

Reed, 1931a, p. 22-24 -- All mining near head of west fork. Bedrock is slate; gravel is slate, limestone, and quartz; a few greenstone boulders. Gold is coarse, rough, and dendritic. Depth to bedrock is about 7 ft. Mining in 1931.

p. 30 -- Veins dip steeply; quartz unshattered. No data on possible gold content.

Smith, 1934 (B 864-A), p. 53 -- Small-scale mining, 1933.

Smith, 1936 (B 868-A), p. 55-56 --Small-scale mining, 1934.

Smith, 1937 (B 880-A), p. 58 -- Small-scale mining, 1935.

Smith, 1938 (B 897-A), p. 68 -- Small-scale mining, 1936.

Smith, 1939 (B 910-A), p. 73 -- Small-scale mining, 1937.

Smith, 1939 (B 917-A), p. 71 -- Small-scale mining, 1938.

Smith, 1941 (B 926-A), p. 67 -- Small-scale mining, 1939.

Smith, 1942 (B 933-A), p. 64 -- Small-scale mining, 1940.

Berg and Cobb, 1967 (B 1246), p. 106 --Auriferous quartz veins cut black slate and schist.

Fritts, 1970 (GR 39), p. 58 -- Pit 700 ft. long and a few tens of feet wide was mined. Gravel is really colluvium about 7 ft. thick that contains erratic greenstone boulders. Gold fine, sharp, angular, and spongy with attached quartz. Probably derived from quartz veins in phyllite or limestone near head. Some veins contain free gold.

Cobb, 1973 (B 1374), p. 60 -- Has been placer gold production.

(Ruby Cr.) Cobalt, Copper, FM, Germanium, Gold, Lead, Silver, Zinc; Fluorite

Shungnak district Ambler River (14.0-14.2, 1.4-1.7)
MF-454, loc. 6 67°04'-67°05'N, 156°56'-156°57'W

Summary: Sulfide minerals constitute a copper deposit that appears to be structurally, stratigraphically, and lithologically controlled by thrust faults that brought Devonian dolomitic brecciated reefoid carbonate rocks and slaty, schistose, and phyllitic rocks in imbricate sheets from the south or southwest. Mineralization generally seems to have been Cretaceous or younger and was probably low-temperature hydrothermal and contemporaneous with serpentinization of ultramafic rocks in the region. Metallic elements, however, may have been mobilized from nearby stratified volcanic and sedimentary rocks during regional metamorphism. The deposits have been known since the early 1900's, but most exploration (many tens of thousands of feet of diamond-drill holes, a shaft more than 1,000 ft. deep, and drifting on 2 levels) has been since 1957. Metallic minerals include iron and copper sulfides (some containing cobalt and germanium), galena, sphalerite, and tennantite-tetrahedrite; secondary minerals include copper carbonates and oxide, native copper and silver. Other minerals include cymrite, barite, fluorite, and an unidentified radioactive mineral. A little placer gold is reported to have been recovered from Ruby Cr. many years ago. Includes references to (Bornite).

Smith and Eakin, 1911 (B 480), p. 300-303 — Copper deposits known for many years (as of 1910); very little work since 1906. Mineralization in a brecciated zone or zones in limestone; sulfide minerals deposited in open spaces and replaced brecciated dolomite. Sulfides include bornite, chalcopyrite, galena, and pyrite; secondary copper carbonates and limonitic gossan. Some gold can be panned from gossan material. Exploration by short tunnel, drifts, and open cuts. Colors of gold in Ruby Cr., but no major placers were formed.

Smith, 1913 (B 536), p. 147-150, 153 -- Same as B 480.

Brooks, 1921 (B 714), p. 36 -- Reference to B 536.

Smith and Mertie, 1930 (B 815), p. 339-341 -- Quotation from B 536.

Reed, 1931a, p. 18 -- Said to have been a small gold producer in early days.
p. 31 -- No work since USGS visit in 1910. At 1931 price of copper, nothing in this area could be economic.

Anderson, 1947 (TDM 5-R), p. 24 -- Reference to B 815.

Wedow and others, 1952 (OF 51), p. 48-49 -- Sulfide mineralization in brecciated limestone; chalcopyrite, bornite, galena, sphalerite, and pyrite; malachite and azurite also present. Radioactivity (0.007% or less eU) due to uranium associated with sphalerite.

Matzko and Freeman, 1963 (B 1155), p. 39-40 -- Maximum eU was 0.02%; no uranium mineral was recognized in the highly weathered sample that was collected from a vein of limonite(?) with minor secondary copper carbonates. Coarse-grained fluorite near, but not in, vein.

Berg and Cobb, 1967 (B 1246), p. 105-106 -- Copper discovered in 1901, but most exploration has been since about 1955. In Devonian limestone and dolomite reef breccia on north flank of an anticline; disseminated sulfides, chiefly chalcopyrite and bornite, with smaller amounts of galena and sphalerite; gold has been panned from a gossan. Copper may have been mobilized during metamorphism of nearby stratified rocks or may be hydrothermal from a concealed magmatic source.

Fritts, 1969 (GR 37), p. 3-6 -- Copper deposit stratigraphically controlled and possibly hydrothermal; source of copper not known. Copper-bearing unit thins westward and abruptly terminates on east, which could have been caused by faulting or erosion. According to a summary of work by Chadwick, a Bear Creek Mining Co. geologist, primary copper minerals are chalcopyrite, bornite, and chalcocite in dolomitic reef breccia; stratigraphic ore control; no strong hydrothermal alteration; low-temperature hydrothermal origin; copper postulated to have migrated from mafic lava flows or sills to reef breccia during late stages of regional metamorphism. Some of pyrite is of sedimentary origin. Runnells (Bear Creek) concluded that primary copper minerals and part of pyrite are of low-temperature, magmatic, hydrothermal origin and may have come from chloritized gabbro exposed to southeast; gabbro and mineralization post-metamorphism.

p. 9 -- Copper-bearing dolomitic reef breccia is Middle Devonian in age. The formation contains some interbedded phyllite.

Fritts, 1970 (GR 39), p. 39-54 -- Summary of old reports and of recent reports by Bear Creek Mining Co. geologists on work since 1957; Fritts's interpretation of regional geology and company geologists' data on the copper deposit. Copper mineralization is strata bound in dolomitic reef breccia in a Devonian sequence of limestones, some dolomitic, and schistose and phyllitic rocks, some metavolcanic; these rocks are allochthonous and were brought in from the south or southwest. Copper and iron minerals seem to be most abundant where dolomite breccia is near the thrust faults above and below it; some pyrite is of sedimentary origin. Mineralization is probably (according to Fritts) low-temperature hydrothermal in origin and post-metamorphism in age; no older than Early Cretaceous; probably contemporaneous with serpentinization in region. Minerals reported from surface exposure and drill cores include chalcopyrite, pyrite, bornite, chalcocite, pyrrhotite, marcasite, siderite, cymrite (hydrous silicate containing barium), fluorite, galena, sphalerite, tennantite-tetrahedrite, carrollite (a cobalt-copper sulfide), germanite (a germanium-bearing copper-iron sulfide), covellite, malachite, azurite, native copper, native silver, cuprite, and barite. A radioactive mineral that is too fine-grained and scarce for identification occurs in the matrix of carbonate breccia and as stringers parallel to bedding in a micaceous rock. Recent physical exploration included geochemical and geophysical surveys, many tens of thousands of feet of diamond-drill holes, a vertical shaft more than 1,070 ft. deep, and drifting at 2 levels. Reserves were estimated in 1961 to be more than 100 million tons of ore averaging better than 1.2% copper; these figures "are believed to have been generous."

p. 58 -- Prospecting for gold, about 1931. Till rather than normal placer gravel.

(Ruby Cr.) - Continued

p. 63 -- Summary of data on p. 39-54.

Cobb, 1973 (B 1374), p. 57 -- Lode has been extensively explored.

p. 60 -- Has been placer gold production.

Cox and others, 1973 (P 820), p. 180 -- Replacement ore body in carbonate rocks far from an igneous source.

(Shishakshinovik Pass) Copper, Gold, Lead, Silver

Noatak, Shungnak districts
MF-454, loc. 8

Ambler River (18.05, 8.2)
67°27'N, 156°19'W

Summary: Selected specimens assayed 9.81% copper, 27.73% lead, and $1.24 per ton in gold and silver. Tetrahedrite in one specimen. Native copper in streams.

Smith, 1913 (B 536), p. 150 -- Prospector reported "a considerable deposit of copper ore..." Native copper in streams. Assays of selected samples showed 9.81% Cu, 27.73% Pb and gold and silver worth $1.24 per ton.

Smith and Mertie, 1930 (B 815), p. 342 -- Quotation from B 536.

Anderson, 1947 (TDM 5-R), p. 23 -- Float copper ore on north side of divide. Specimen containing quartz and tetrahedrite brought out by Lewis Lloyd.

Berg and Cobb, 1967 (B 1246), p. 105-106 -- Selected specimens from Noatak side of divide reported to have assayed 9.81% Cu, 27.73% Pb, and some gold and silver. Vein material from south side of divide assayed $1.24 per ton in gold and silver.

(Shungnak R.) Copper, Gold, Silver; Asbestos, Jade

Shungnak district Ambler River (11.75-12.15, 0.2-0.9)
MF-454, loc. 9 67°00'-67°02'N, 157°13'-157°17'W

Summary: Intermittent mining from 1898 to as recently as 1940; only slight activity 1915-1928. Both creek and bench placers. Bedrock of black slate, limestone, and schist in canyon; deeply buried by glacial deposits elsewhere. Coarse gold on and in crevices of bedrock in canyon; very fine gold on false bedrock below canyon. Concentrates mainly magnetite; nuggets of native copper and silver. Data on production poor; total may have been as much as 10,000 oz. Serpentinite with nephrite and some asbestos about half way up canyon. Good quality nephrite jade boulders have been collected from gravels and shipped. Includes references to (Shingnak Cr.); see also (Bismark Mtn.).

Brooks, 1909 (B 379), p. 59 -- Has been mining for nearly 10 years (as of 1908); entire production estimated at about $50,000. Bedrock mica schist and greenstone schist. Gravels 1-3 ft. deep. Most of gold fine, but one nugget weighed 2-3/4 oz.

Brooks, 1910 (B 442), p. 46 -- Gold production worth not more than a few thousand dollars, 1909.

Smith and Eakin, 1911 (B 480), p. 296-298 -- Mining below canyon since 1898 (as of 1910). Bedrock mainly black slate and schist in mined area; limestone further upstream; serpentinite. Placers are shallow and in pockets; gold in base of gravel and in bedrock crevices. Gold in small pieces except for a few nuggets of an ounce or two. Magnetite (major constituent) and nuggets of native silver and copper in concentrates. Total production through 1910 not more than $50,000.

Smith, 1913 (B 536), p. 131-132 -- Same as B 480.

Brooks, 1914 (B 592), p. 72 -- A little mining, 1913.

Brooks, 1916 (B 642), p. 71 -- Small-scale mining, 1915.

Martin, 1919 (B 692), p. 42 -- Small-scale mining, 1917.

Moffit, 1927 (B 792), p. 23 -- Small-scale mining, 1925.

Smith and Mertie, 1930 (B 815), p. 321-322 -- Quotation from B 536.

Reed, 1931a, p. 12-15 --Mining from 1901 or 1902 to 1915 and from 1928 to 1931. Both creek and bench placers. Bedrock in canyon; the rest is glacial outwash and till. Bedrock deeply buried downstream from canyon. Gold in and just below canyon is coarse and rough; elsewhere it is very fine. Outwash contains only a few cents worth of gold per cu. yd. Where concentrated in benches and stream in canyon, gravel yielded close to $2.50 per cu. yd.

p. 31-32 -- Low-grade asbestos associated with greenstone and serpentine about half way up canyon. Nephrite on mountain side grades into serpentine and contains inclusions. Some good-quality nephrite found along river.

Smith, 1932 (B 824), p. 49 -- Prospecting and small-scale mining, 1929.

Smith, 1933 (B 844-A), p. 51-52 -- Hydraulicking, 1931.

Smith, 1934 (B 857-A), p. 48 -- Hydraulicking, 1932; hampered by water shortage.

Smith, 1934 (B 864-A), p. 53-54 -- Hydraulicking, 1933.

Smith, 1936 (B 868-A), p. 55-56 -- Mining, 1934.

(Shungnak R.) - Continued

Smith, 1937 (B 880-A), p. 58 -- Small-scale mining, 1935.
Smith, 1938 (B 897-A), p. 68 -- Small-scale mining, 1936.
Smith, 1939 (B 910-A), p. 73 -- Small-scale mining, 1937.
Smith, 1939 (B 917-A), p. 71 -- Small-scale mining, 1938.
Smith, 1941 (B 926-A), p. 67 -- Small-scale mining, 1939. Very poor season; high water.
Smith, 1942 (B 933-A), p. 64 -- Small-scale mining, 1940.
Anderson, 1945 (TDM 3-R), p. 24-26 -- Much good-quality nephrite float in gravels. Derived from altered ultrabasic rocks in canyon. Several tons shipped in 1945.
Anderson, 1947 (TDM 5-R), p. 15-16 -- Asbestos deposit reported.
p. 23 -- Reference to B 815.
Fritts, 1969 (GR 37), p. 26 -- Some mining in 1905. [Fritts's cited reference (Brooks, 1906 (B 284), p. 8), does not mention any streams in district.]
Fritts, 1970 (GR 39), p. 54-55 -- Intermittent placer mining 1898-1940; not much activity, however, 1915-1928. Creek placers and bench placers as much as 25 ft. above river. Gold below canyon is fine and largely on false bedrock above till. Near mouth of canyon gravel is 1-3 ft. thick on bedrock and gold is coarse and rough. Total production may have been as much as 10,000 oz., but good data are lacking.
Cobb, 1973 (B 1374), p. 59-60 -- One of more productive placer-gold streams in Shungnak district.

(Bear Cr.) GOLD

Kiana district
MF-386, loc. 9

Baird Mountains (11.65-11.75, 2.85-2.95)
67°09'N, 160°16'-160°17'W

Summary: Bedrock limestone and schist. Mining 1/2 mile below forks. Production through 1930 was about 95 oz. of gold.

Reed, 1931b, p. 11 -- Creek about 5 mi. long. Where creek emerges from the hills the valley is about 200 ft. wide, rim to rim. Bedrock is limestone. About 1/2 mi. below has been intermittent mining; bedrock said to be schist.

p. 14 -- Production through 1930 said to have been about $2,000 [about 95 oz. gold].

Smith, 1936 (B 868-A), p. 55 --Option on prospective placer ground taken in 1934.

(Boldrin Cr.) GOLD

Kiana district
MF-386, loc.5

Baird Mountains (10.4, 2.8)
67°09'N, 160°28'W

Summary: Fine flaky gold reported; bedrock mainly schist. Includes reference to (Baldwin Cr.).

Reed, 1931b, p. 11 -- Bedrock seems to be mainly schist; gold is fine and flaky. Mining before 1930 was probably only prospecting, as Reed states that only 4 holes were sunk.

(Canyon Cr.) GOLD(?)

Kiana district Baird Mountains (11.4, 1.4) approx. 67°04'N, 160°20'W approx.

Summary: Unconfirmed reports of placer gold prospects.

Reed, 1931b, p. 13 --Prospects reported from early days, but no work in 1931. No data available [to Reed] on any work that may have been done or values that may have been found. [Index maps in B 536 and B 815 show symbols for reported prospects on a tributary (?) not shown on modern maps.]

(Caribou Cr.) GOLD

Kiana district
MF-386, loc. 6

Baird Mountains
SW¼SE¼ quad.

Summary: Small tributary (not shown on available maps) of Klery Cr. from which 45-50 oz. of coarse gold with much attached quartz was mined.

Reed, 1931b, p. 12 — Small right-limit tributary of Klery Cr. Small amount of coarse gold with much quartz attached was recovered near mouth.
p. 14 -- Production estimated at $1,000 [45-50 oz. gold].

(Central Cr.) GOLD

Kiana district
MF-386, loc. 10

Baird Mountains (11.5-11.7, 2.2)
67°07'N, 160°16'-160°18'W

Summary: Bedrock mainly limestone. Gold fine and flaky. Some of gravel contained about 50 cents worth of gold per cu. yd. Total production through 1930 was about 145 oz. Includes reference to (Center Cr.).

Reed, 1931b, p. 6 -- Gold discovered in 1909.
p. 12-13 -- Bedrock mainly limestone. Gold fine and flaky; worth about $18 per oz. Gravel mined in early days contained about 50 cents worth of gold per cu. yd.
p. 14 -- Total production through 1930 possibly $3,000 [about 145 oz. of gold].
Smith, 1933 (B 844-A), p. 51 — 24 prospect holes drilled, winter of 1930-31.
Smith, 1934 (B 864-A), p. 53 — Looking for dredging ground, 1933.
Smith, 1936 (B 868-A), p. 55 -- Option on prospective ground, 1934.
Smith, 1937 (B 880-A), p. 58 — "Considerable activity" in 1935.
Smith, 1938 (B 897-A), p. 67 -- "Considerable activity" in 1936.
Cobb, 1973 (B 1374), p. 58 -- Gold has been mined.

(Cross Cr.) GOLD(?)

Kiana district Baird Mountains (8.9, 3.35) approx.
67°11'N, 160°42'W approx.

Summary: Unconfirmed placer gold prospects.

Reed, 1931b, p. 11 -- Prospects said to have been found in early days, but Reed found no data on this creek or on work on it. [Placer symbols shown on index maps in B 536 and B 815.]

(Eli R.) COPPER

Noatak district
MF-386, loc. 1

Baird Mountains (3.8, 11.25)
67°38'N, 161°26'W

Summary: Malachite in quartz vein.

Brosgé and others, 1967 (OF 274), sample R190 -- Mineralized quartz vein in limestone contains malachite and limonite.

(Gold Run Cr.) GOLD

Kiana district
MF-386, loc. 8

Baird Mountains (11.2, 5.3)
67°18'N, 160°21'W

Summary: A few ounces of gold recovered during assessment work.

Reed, 1931b, p. 12 -- 2 or 3 oz. of gold recovered during assessment work. [Probably near mouth.]

(Homestake Cr.) GOLD

Kiana district
MF-386, loc. 7

Baird Mountains (10.8, 6.45) approx.
67°22'N, 160°24'W approx.

Summary: One man mined gold for 12 summers.

Reed, 1931b, p. 13 -- A man mined for 12 summers about 1/2 mi. above mouth. He reportedly took out several hundred dollars worth of coarse gold.

Cobb, 1973 (B 1374), p. 58 -- Gold has been mined.

(Joe Gulch) GOLD

Kiana district
MF-386, loc. 6

Baird Mountains
SW¼SE¼ quad.

Summary: Gold near mouth is fine and flaky; more than 1/2 mi. upstream it is coarse. Prospecting, but not mining, reported. Small tributary of Klery Cr.

Reed, 1931b, p. 12 -- Small left-limit tributary of Klery Cr. on which only prospecting has been reported. From mouth upstream for 1/2 mi. gold is fine and flaky; farther upstream it is coarse and nuggety.

(Klery Cr.) COPPER (?), GOLD, LEAD (?), TIN (?)

Kiana district Baird Mountains (10.5-11.1, 2.4-5.4)
MF-386, loc. 6 67°08'-67°18'N, 160°21'-160°28'W

Summary: Bedrock is limestone and schist with many small veins and stringers of quartz that are the probable source of the gold in the placers. Gold moved was from the lowest part of the stream gravel and the upper foot of weathered bedrock. Magnetite was major constituent of concentrates; very little garnet. Gold from several claims was coarse (at least one nugget weight 8½ oz.), but the rest was fine and flaky. Gold discovered in 1909 and mining was reported in almost all years thereafter, mainly by hand methods, though draglines, hydraulic plants, and a small dredge were also used. Some of the richest deposits may have been reconcentrated from an old channel. Copper minerals, galena, and cassiterite have been reported from the area, but the presence of more has been confirmed. Includes references to (Kiana) and (Squirrel R.) and general references to Kiana district. Some of references may be to mining on tributaries or neighboring streams rather than to Klery Cr.

Smith, 1911 (B 480), p. 312-318 -- Preliminary to B 536.
Brooks, 1912 (B 520), p. 42 -- Only stream in area with activity in 1911.
Smith, 1913 (B 536), p. 133-138 -- Only about 10 claims were being worked in 1910, and probably no more than 4 or 5 produced more than $1,000; at least 84 claims had been staked. Most of work in 1910 was near mouth of Jack Cr., where bedrock is mainly schist; contorted limestone farther downstream. Bottom 12-18 inches of gravel and upper 6-12 inches of disintegrated bedrock not through sluice boxes. Schist contains many small veins and stringers of quartz. Gold coarse; one nugget weighed nearly 7 oz.; many nuggets have attached quartz or black graphitic schist. Production from one placer cut was about $4.50 per sq. ft. of cleaned bedrock. Magnetite major mineral in concentrates; also some ilmenite, pyrite, and limonite, but very little garnet. Similar placer about 1¼ mi. upstream; gold between these areas and downstream from lower one is much finer and flaky. Gold probably derived from several sources near claims with coarse gold.
Brooks, 1914 (B 592), p. 72 -- Mining, 1913.
Brooks, 1915 (B 622), p. 68 -- Mining, 1914.
Brooks, 1916 (B 642), p. 71 -- Mining, 1915. 8½-oz. nugget found.
Martin, 1919 (B 692), p. 42 -- Mining, 1917.
Brooks and Martin, 1921 (B 714), p. 95 -- Mining, 1919.
Brooks, 1922 (B 722), p. 67 -- 4 small mines, 1920.
Brooks, 1923 (B 739), p. 44 -- Mining, 1921.
Brooks and Capps, 1924 (B 755), p. 49 -- Mining, 1922.
Brooks, 1925 (B 773), p. 51 -- Gold has been found in both creek and beach gravels.
Smith, 1926 (B 783), p. 17 -- 1 small mine, 1924.
Moffit, 1927 (B 792), p. 23 -- Mining, 1925.
Smith, 1929 (B 797), p. 27-28 -- Mainly prospecting and assessment work, 1926.

(Klery Cr.) - continued

Smith, 1930 (B 810), p. 37 -- Prospecting and small-scale mining, 1927.
Smith, 1930 (B 813), p. 43-44 -- Prospecting and small production, 1928.
Smith and Mertie, 1930 (B 815), p. 327-330 -- Quotation from B 536.
Reed, 1931b, p. 4-14 -- Gold discovered, 1909, and most of creek above Bear Cr. staked. Gold is generally fine and flaky, but is coarse and nuggety on all or parts of 10 claims. Coarse gold may be from an old channel out by present stream. Mining in 1931 was by ground sluicing and shovelling in and by hydraulicking. Geologic data from B 536.

p. 13-14 -- Total production through 1931 estimated at $647,500 [about 31,300 oz.]. Values per bedrock-foot estimated to have been from $0.08 to $1.51.

Smith, 1932 (B 824), p. 49 -- Small gold production, 1929.
Smith, 1933 (B 836), p. 50 -- Small gold production, 1930.
Smith, 1933 (B 844-A), p. 51 -- Small gold production, 1931.
Smith, 1934 (B 857-A), p. 48 -- Small gold production assumed, 1932.
Smith, 1934 (B 864-A), p. 53 -- Small-scale mining (2 camps), 1933.
Smith, 1936 (B 868-A), p. 55 -- 10-12 men mining, 1934. Prospect drilling on benches on southeast side of creek.
Smith, 1937 (B 880-A), p. 58 -- Dragline scraper plant and much dead work, 1935.
Smith, 1938 (B 897-A), p. 67 -- Mining, 1936; same scale as at end of 1935 season.
Smith, 1939 (B 910-A), p. 71-72 -- 2 large mining plants operated, 1937.
Smith, 1931 (B 917-A), p. 70-71 -- Mining and much dead work, including ditch building, 1938.
Smith, 1941 (B 926-A), p. 67 -- Large-scale non-float mining, 1939.
Smith, 1942 (B 933-A), p. 63-64 --Production small because major mining company was shut down by litigation.
Anderson, 1947 (TDM 5-R), p. 23 -- Lode prospecting for copper in general area; all that is known is that samples submitted for assay contained 7% to 50% copper. [With this little information the occurrence must be considered unconfirmed.]

p. 32 -- Specimens of galena are said to have come from the Kiana district.

p. 41 -- A sample of cassiterite was sent to assay office in College from Kiana. Source of sample not known, but may have been from the area north of Kiana.

Cobb, 1973 (B 1374), p. 57-58 -- Placer gold discovered in 1909 and mined in nearly every year since then, mainly by hand methods; small dredge in lower part of stream for a few years. Bedrock limestone and schist. Much of gold coarse and with quartz fragments attached, indicating that source was quartz veins. Magnetite was commonest constituent of concentrates. Some of richest deposits may have been reconcentrated from an old channel.

(Mink Cr.) GOLD (?)

Kiana district Baird Mountains (11.65, 11.75) approx. 67°02'N, 160°18'W approx.

Summary: Unconfirmed placer gold prospects.

Reed, 1931b, p. 13 -- Prospects said to have been found in early days, but Reed found no data on this creek or on work on it. [Placer symbols shown on index maps in B 536 and B 815.]

(Nakolikurok Cr.) COPPER

Noatak district
MF-386 loc. 2

Baird Mountains (10.75, 11.25)
67°38'N, 160°23W

Summary: Quartz vein in greenstone sill contains 1% copper.

Brosgé and others, 1967 (OF 274), sample B178 -- Quartz vein in greenstone sill contains 1% copper; greenstone contains only 0.02% copper.

(Peluk Cr.) GOLD

Kiana district
MF-386 loc. 4

Baird Mountains (9.8, 2.75)
67°09'N, 160°33'W

Summary: Prospector reported to have found coarse gold.

Reed, 1931b, p. 11 -- Coarse gold said to have been found. One man does winter prospecting. [Placer prospect symbols on index maps in B 536 and B 815. Reed calls this stream Peluck Cr.; all maps spell it Peluk.]

(Salmon R.) COPPER

Kiana district
MF-386 loc. 3

Baird Mountains (16.45, 10.4)
67°35'N, 159°33'W

Summary: Chalcopyrite in pyritic quartz vein in phyllite.

Brosgé and others, 1967 (OF 274), sample B203 — Pyritic quartz vein in phyllite contains chalcopyrite. Vein contains 1.5% copper.

(Spruce Cr.) GOLD (?)

Kiana district Baird Mountains (9.1, 4.7) approx.
67°16'N, 160°42'W approx.

Summary: No data on prospecting available.

Reed, 1931b, p. 13 -- "No one is on this creek at present, nor could any information be obtained on the prospects found there in early days." [Prospect symbols shown on index maps in B 536 and B 815.]

(Timber Cr.) GOLD

Kiana district Baird Mountains (9.0-10.2, 5.3-6.4) approx.
67°18'-67°22'N, 160°30'-160°40'W approx.

Summary: Placer gold prospects have been reported.

Reed, 1931b, p. 13 -- "Although prospects were reported here in the early days, no information could be obtained at the present time." [Prospect symbols shown on index maps in B 536 and B 815.]

(Anaktuvuk R.) Fluorite, Phosphate

Colville district Chandler Lake (9.25-10.1, 4.8) approx. 68°31'N, 151°27'-151°35'W approx.

Summary: Samples of phosphatic rock from black chert and shale unit of Alapah Ls. [Mississippian] contained as much as 21.4% P_2O_5. Purple fluorite present.

Wedow and others, 1952 (OF 51), p. 113 -- Uraniferous sedimentary phosphate rock in Mississippian Lisburne ls.

Patton and Matzko, 1959 (P 302-A), p. 11, 13, 15 -- Samples 50ABo76 and 50ABo78 are of phosphate rock from a black chert and shale member of the Alapah ls. Phosphatic pellets in calcite matrix. Quartz in the phosphatic pellets. Purple fluorite, commonly with centers of carbonaceous matter. P_2O_5 content of one sample was about 15% and of the other was 21.4%. Highest radioactivity was 0.014% eU.

(Chandler Lake) Vanadium; Fluorite, Phosphate

Colville district Chandler Lake (3.1, 5.8) approx. 68°20'N, 152°31'W approx.

Summary: Phosphatic rock from Alapah Ls. (Mississippian) contained 25.6% P_2O_5 and 0.02% V_2O_5. Purple fluorite present.

Wedow and others, 1952 (OF 51), p. 113 -- Uraniferous sedimentary phosphate rock in Mississippian Lisburne ls.

Patton and Matzko, 1959 (P 302-A), p. 11-12, 15 -- Sample 45AGr21 was of black, medium to coarsely oolitic phosphate rock from (probably) near the top of the Alapah ls. Phosphatic pellets partly replaced by calcite; in calcite matrix. Purple fluorite in and around edges of phosphatic pellets and in veinlets in calcite. 25.6% P_2O_5, 0.02% V_2O_5, 0.009% eU.

(Kiruktagiak R.) FM, VANADIUM; FLUORITE, PHOSPHATE

Colville district Chandler Lake (0.75-0.9, 6.6-6.65)
69°23'N, 152°51'-152°53'W

Summary: A 38-foot-thick zone of a chert and shale unit in the Alapah Ls. (Mississippian) contains an average of 12% P_2O_5; a 27-inch sequence contains 27% P_2O_5. Samples analyzed for vanadium contained 0.07-0.49% V_2O_5. One sample contained 0.021% uranium. Fluorite was a constituent of all samples studied.

Wedow and others, 1952 (OF 51), p. 113 -- In Mississippian Lisburne ls. a zone of oolitic phosphate, phosphatic shale, and limestone is about 40 ft. thick. Random samples averaged 31.94% P_2O_5, 0.11% V_2O_5, 0.015% eU, and 0.013% U. Highest uranium content, 0.021% U, was from a bed 1/2 ft. thick at base of zone.

Patton and Matzko, 1959 (P 302-A), p. 1-2 -- Phosphate rock discovered in 1949 and examined in detail in 1953.

p. 6 -- Phosphate deposits restricted to black chert and shale unit of Alapah ls. of late Mississippian age.

p. 9-11 -- Rocks of phosphatic zone are chiefly a mixture of phosphatic material. $CaCO_3$, silt, and clay; in some places secondary purple fluorite is on bedding surfaces and in veinlets. Phosphatic material in pellets (oolites) as much as 10 mm long; composed of carbonate-fluorapatite similar to that in Phosphoria fm. of conterminous U.S. All samples contained cacite, dolomite, fluorite, and quartz. Spectrographic analyses of samples showed the presence of as many as 30 elements, including yttrium in ranges as high as 0.1-0.5 percent. On Kiraktagiak R. and Monotis Cr. measured sections indicate that the phosphatic units are either lenticular or displaced by small folds and faults. Sections 13-19 ft. thick averaged 17-19 percent P_2O_5; parts of these sections contained 25-27 percent P_2O_5. Seven samples analyzed for vanadium contained 0.07- 0.49 percent V_2O_5.

p. 15 — Marked lateral variations in lithologic character and phosphate content.

Patton and Tailleur, 1964 (P 303-G), p. 497 -- Phosphate zone is 38 ft. thick and averages 12% P_2O_5; upper 19 ft. averages 19% P_2O_5; a 27-in. sequence contains 27% P_2O_5.

(Natvakruak Lake) PHOSPHATE

Colville district Chandler Lake (8.5, 5.6) approx.
68°19'N, 151°41'W approx.

Summary: Sample of phosphate rock, probably from black chert and shale unit of Alapah Ls. [Mississippian] contained 27.9% P_2O_5.

Patton and Matzko, 1959 (P 302-A), p. 11, 13, 15 -- Sample 50AKe279 is of phosphate rock in a sequence of black chert, lenticular dark siltstone, dark brittle shale, and oolitic phosphate rock that is probably part of the black chert and shale unit of the Alapah limestone; on thrust plate overlying Siksikpuk fm. Contains 27.9% P_2O_5 and 0.020% eU.

(Tiglukpuk Cr.) VANADIUM; FLUORITE, PHOSPHATE

Colville district Chandler Lake (7.05-7.4, 5.2-5.25)
68°18'N, 151°52'-151°55'W

Summary: A 36-foot-thick sequence of the black chert and shale unit of Alapah Ls. (Mississippian) averages 8% P_2O_5; a 43-inch sequence averages 21% P_2O_5; and 6 beds, none more than 5.5 in. thick, contain 30% P_2O_5. Samples analyzed for vanadium contained 0.04-0.10 percent V_2O_5. Fluorite was a constituent of all samples studied.

Patton and Matzko, 1959 (P 302-A), p. 2 -- Phosphate rock discovered in 1950 and examined in detail in 1953.

p. 6 -- Phosphate deposits restricted to black chert and shale unit of Alapah ls. of late Mississippian age.

p. 9-11 -- For general data on mode of occurrence see (Kiruktagiak R.). Content of yttrium in range 0.01-0.05 percent. Measured sections on a small tributary of Skimo Cr. and on Tiglukpuk Cr. indicate bed-to-bed correlations cannot be made probably because of facies changes and lensing out of beds. Samples from several individual beds (none more than 9.5 in. thick) contained 30% P_2O_5, but most of the sections of phosphatic material contained no more than 10% P_2O_5. Four samples analyzed for vanadium contained 0.04-0.10 percent V_2O_5.

p. 15 — Marked variation in lithologic character and phosphate content.

Patton and Tailleur, 1964 (P 303-G, p. 497 --Phosphatic zone in Alapah Is. is 36 ft. thick and averages 8% P_2O_5. A 43-inch sequence averages 21% P_2O_5. Six beds, from 1 to 5.5 in. thick, contain 30% P_2O_5.

(Ikuk Cr.) GOLD (?)

Lisburne district De Long Mountains
SE¼NW¼ quad.

Summary: Auriferous pyrite (?) reported on Ikuk Cr. in late 1880's was said to carry $3.50 to $8.00 in gold per ton. Iron-sulfide nodules known from sedimentary formations that extend into area, but no gold known or considered likely. Includes reference to (Pitmegea R.); see also (Mt. Kelly).

Smith and Mertie, 1930 (B 815), p. 339 -- Quotation from Stockton's report of cruise of U.S.S. Thetis in 1889 on discovery of gold by a prospector named Kelley on Ikuk Cr., a tributary of the Pitmegea R. Gold reported to be contained in "sulphurets of iron". $3.50 to $8.00 worth of gold per ton.

Berg and Cobb, 1967 (B 1246), p. 101 -- Pyrite (?) containing $3.50-$8.50 in gold per ton reported to have been found in late 1880's. Recent work in neighboring areas indicates that area is not favorable for auriferous lodes. Iron-sulfide nodules are common in Mesozoic rocks that extend into Pitmegea basin.

(Mt. Kelly) GOLD (?)

Lisburne district De Long Mountains
Central ¼ quad.

Summary: Rich gold quartz reported from near Mt. Kelly, which may be the same mountain now called by that name at the head of the Pitmegea R. Region is geologically not likely to contain gold. May be the same reported occurrence as that on Ikuk Cr. See also (Ikuk Cr.).

Smith, 1913 (B 536), p. 146-147 — Rich gold quartz discovery reported in vicinity of Mt. Kelly; location very indefinite. Smith doubted the report because "the region is probably formed of the higher Paleozoic sediments, which as a rule are but little mineralized," but did not deny the possibility that erosion might expose older mineralized schists.

Smith and Mertie, 1930 (B 815), p. 338-339 — Reference to B 536. Smith and Mertie conclude that Mt. Kelly [called Kelley in this reference] is the peak at the heads of the Kukpowruk, Kukpuk, and Pitmegea Rivers [now called Mt. Kelly] in an area of Cretaceous rocks not known to be mineralized. [This could be the same occurrence as that on Ikuk Cr.]

(Red Dog Cr.) LEAD, ZINC; BARITE

Lisburne district
MF-404 loc. unnumbered

De Long Mountains (14.8, 2.05)
68°06'N, 162°44'W

Summary: Weathered cherty rocks contain lead, zinc, and iron sulfides and barite. Analyses of hand specimens showed greater than 2% lead and greater than 1% zinc. A stream-sediment sample contained greater than 10% lead.

Tailleur, 1970 (OF 445) -- Bedrock probably is Permian and Triassic chert, cherty shale, and shale above Mississippian chert, all exposed as outcrops, rubble, or talus. At least one overlying thrust plate of Paleozoic rocks has been removed by erosion. The rocks are intensely weathered. Semiquantitative analyses of hand specimens showed greater than 2% lead and 1% zinc; one stream-sediment sample contained more than 10% lead. All samples were high in barium, undoubtedly due to megascopically visible barite. No geologic or geophysical data suggest exposed or buried plutonic rocks that might have been a source of hydrothermal solutions. Metals and sulfur may have been remobilized and concentrated from the sedimentary sequence by post-depositional deformation. Petrographic examination showed sphalerite, galena, pyrite, and barite in a quartz-vein host. Quartz probably deposited by circulating solutions in open fractures. Plumbojarosite was tentatively identified.

(Aichilik R.) RE

Canning district Demarcation Point (5.75, 9.25)
69°32'N, 143°09'W

Summary: High yttrium and ytterbium in sample of efflorescent salt that is mainly aluminum sulfate.

Tourtelot and Tailleur, 1971 (OF 462), p. 33, 61 --Efflorescent salts coat outcrops of Kingak Shale and accumulate along the margins of ephemeral pools at the foot of cut banks. The salt coating is primarily aluminum sulfate, but contains high contents of several metals, including yttrium (300 ppm) and ytterbium (15 ppm).

(Boulder Cr.) COPPER (?)

Canning district Demarcation Point (2.5, 5.8) approx.
69°20'N, 143°36'W approx.

Summary: Chalcopyrite in quartz was tentatively identified.

Sable, 1965 (OF 257), p. 207 -- Chalcopyrite in quartz was tentatively identified in sheared zones parallel to bedding in lower part of Neruokpuk Fm.

(Dark Cr. tributary) COPPER, LEAD, ZINC (?)

Canning district Demarcation Point (0.5, 5.4) approx.
69°18'N, 143°55'W approx.

Summary: Galena, sphalerite (?), and chalcopyrite in highly deformed vein quartz along sheared contact between granite and quartz monzonite dikes.

Sable, 1965 (OF 257), p. 207-208 -- Galena, sphalerite (?), and chalcopyrite with pyrite occur in highly deformed vein quartz and schistose rock along sheared contacts between granite and quartz monzonite dikes.

(Lisburne Ridge) Vanadium; Phosphate

Colville district Howard Pass (14.4, 11.4) approx. 68°38'N, 156°45'W

Summary: A sample of phosphate rock from the Lisburne Group contained 24.8% P_2O_5 and 0.17% V_2O_5.

Patton and Matzko, 1959 (P 302-A), p. 11-12 -- Sample 50ATr61 of phosphate rock of the Lisburne Group contained 24.8% P_2O_5 and 0.17% V_2O_5. Sample was from an 8-ft. zone of rubble of black chert, black paper shale, black shaly dolomite, and oolitic phosphate rock; beneath outcrop and float of interbedded black chert and dark-gray dolomite. Probably are 2 horizons (each about 6 in. thick) of phosphate rock. Large dolomite rhombs replacing phosphatic pellets.

p. 15 -- Stratigraphic position in Lisburne Gp. uncertain.

(Mt. Bupto) FM; Phosphate

Colville district Howard Pass (9.5, 9.2) approx. 68°51'N, 157°30'W

Summary: 13.7% P_2O_5 and 0.004% U in sample of phosphatic mudstone that is probably correlative with Alapah Ls. of Lisburne Gp.

Patton and Matzko, 1959 (P 302-A), p. 11-12 -- Sample 50ATr160 of phosphatic mudstone of the Lisburne Group contained 13.7% P_2O_5 and 0.004% U. Sample came from a badly slumped cut bank exposure of black bituminous shale, sooty chert, and fine-grained limestone with fetid odor. Underlies Siksikpuk Fm.; probably Alapah Ls. equivalent. On north limb of overturned anticline.

p. 15 -- Sample probably from a stratigraphic level correlative with the black chert and shale member of Alapah Ls. in Tiglukpuk Cr. and upper Kiruktagiak R. areas.

(Kugururok R.) Chromite

Noatak district Misheguk Mountain
SW¼SW¼SW quad.

Summary: Chromite specimen reported to have come from near mouth of river.

Anderson, 1947 (TDM 5-R), p. 18 -- "A specimen of chromite which contained 20% chromium was brought in by Peter Wood, Eskimo, from a deposit near the mouth of the Kugururok River. A large amount of similar material is said to occur in that area."

(Canning R.) GOLD (?), MERCURY (?)

Canning district Mt. Michelson
SW¼ quad. (?)

Summary: Doubtful reports of an auriferous quartz vein and of cinnabar.

Leffingwell, 1919 (P 109), p. 178 — Auriferous quartz vein reported to have been found in valley; not good enough to warrant staking. [Unconfirmed, at best.]

Anderson, 1947 (TDM 5-R), p. 34 — High-grade cinnabar specimens said to have been found by prospectors on Canning R. were sent to Dept. of Mines assay office. [The accuracy of this report is doubtful.]

(Fire Cr.) RE; PHOSPHATE

Canning district Mt. Michelson (11.0, 9.5)
69°32'N, 145°12'W

Summary: Phosphatic rock from the Shublik Fm. (Triassic) contains as much as 19.17% P_2O_5 and several times the average concentrations of rare-earth elements for similar rocks.

Detterman, 1971 (OF 404) -- Analyses of 88 samples, mainly of carbonate rocks and shale, from the Shublik Fm.(Triassic), each sample representing a 5-ft. interval and composed of rock chips taken at 1-ft. intervals, indicate from less than 1% to 19.17% P_2O_5; 6 samples contain more than 10% P_2O_5. Semiquantitative spectrographic analyses show several times the average concentrations (in limestone or black shale) of rare-earth elements and vanadium.

Tourtelot and Tailleur, 1971 (OF 462), p. 21-22, 54-55 -- Samples of phosphatic rock from the Shublik Fm. contained large amounts of rare-earth elements (spectrographic analyses).

(Hulahula R.) PHOSPHATE

Canning district Mt. Michelson (16.2, 8.7)
69°28'N, 144°22'W

Summary: Sample of black limestone with phosphatic nodules contained about 15% P_2O_5.

Patton and Matzko, 1959 (P 302-A), p. 12-13, 15 -- Sample 48AWh89 is from a 20-ft. black limestone containing numerous phosphatic nodules; at top of exposed section of Shublik fm. (Triassic); steeply dipping beds on north flank of anticline on east bank of Hulahula R. at mountain front. Sample contained about 15% P_2O_5 and 0.003% eU. At base of Shublik fm. a dark siltstone and shale unit 120 ft. thick also contains phosphatic nodules; samples contained from less than 5 to about 10 percent P_2O_5.

(Katak Cr.) TIN

Canning district
MF-462, loc. 4

Mt. Michelson (14.25, 5.45)
69°18'N, 144°42'W

Summary: Cassiterite in Kekiktuk Conglomerate; may have been derived from apophyses of granitic mass of Romanzof Mts.

Reed, 1968 (B 1236), p. 31, 33-34 -- Thin section of specimen from Kekiktuk Conglomerate (Paleozoic) contained cassiterite, tourmaline, sphene, magnetite, and ilmenite. Cassiterite in heavy mineral suite is in small (0.1-0.8 mm) angular grains. Source probably was to east. May have been in area of present-day Romanzof Mts., where granitic mass had not been unroofed, but was the source of offshoots into Neruokpuk Fm.

(Katakturuk R.) FM, PHOSPHATE

Canning district
MF-462, loc. 3

Mt. Michelson (8.6, 10.35)
69°35'N, 145°36'W

Summary: Phosphate rock from Shublik Fm. (Triassic). Sample contained 35.8% P_2O_5 and 0.008% uranium.

Patton and Matzko, 1959 (P 302-A), p. 12, 14-15 -- Sample 51AGr11 is phosphate rock from basal 20 ft. of a 100-ft. sequence of black oolitic limestone near base of Shublik fm. (Triassic). Sample contained 35.8% P_2O_5 and 0.008% uranium. Phosphate rock is fine grained containing equigranular phosphatic pellets that average 0.2 mm long and 0.1 mm along short axis; angular quartz grains make up 3% of rock. Sample has highest phosphate content of any collected from Shublik fm.

(Leffingwell Glacier) Molybdenum

Canning district Mt. Michelson (17.75, 6.0) approx.
69°16'N, 144°07'W approx.

Summary: Scattered molybdenite in relatively fresh granite.

Sable, 1965 (OF 257), p. 207 -- Molybdenite in scattered single crystals and small crystal aggregates less than ½ in in diameter in relatively fresh granite. Distribution and visible concentration not sufficient to constitute even a low-grade deposit.

(Okpilak R.) GOLD; PHOSPHATE

Canning district Mt. Michelson
E½SE¼ quad (?)

Summary: Two prospectors have reported placer gold on Okpilak R. A sample of phosphate rock from Shublik Fm. contained 22% P_2O_5.

Leffingwell, 1919 (P 109), p. 178 — Two prospector reports of alluvial gold.

Patton and Matzko, 1959 (P 302-A), p. 12, 14 --Sample 48ASa22 is of phosphate rock that contained 22% P_2O_5 and 0.007% eU. Stratigraphic position uncertain; possibly from Shublik fm.

Sable, 1965 (OF 257), p. 210 — Reference to P 302-A; sample definitely from Shublik Fm.

(Sadlerochit R.) PHOSPHATE

Canning district Mt. Michelson (10.9, 8.0) approx.
69°27'N, 145°14'W approx.

Summary: Sample of phosphate rock from basal Shublik Fm. contained 18.4% P_2O_5.

Patton and Matzko, 1959 (P 302-A), p. 12-13, 15 -- Sample 48AWh123 is of phosphate rock from a black siltstone unit containing black phosphate nodules; basal Shublik fm. (Triassic). Phosphate content was 18.4% P_2O_5; 0.003% eU.

(Shublik I.) FM

Canning district Mt. Michelson (5.3, 7.1)
MF-462, loc. 2 69°24'N, 146°08'W

Summary: Sample of limestone from Shublik Fm. contained 0.001% uranium.

Patton and Matzko, 1959 (P 302-A), p. 12, 14 -- Sample 50AGr44 is from a 20-ft. black limestone with abundant brachiopod shells and "nodules" that appear to be shell fillings. Shublik fm. (Triassic). Contained 0.001% uranium and 1.55% P_2O_5.

Unnamed occurrence | FM; PHOSPHATE

Canning district | Mt. Michelson (4.8, 8.4) approx.
MF-462, loc. 1 | 69°29'N, 146°13'W approx.

Summary: Sample from Shublik Fm. contained 14.7% P_2O_5 and 0.001% uranium.

Patton and Matzko, 1959 (P 302-A), p. 12, 14-15 —Sample 50AGr38 is of phosphate rock from 165 ft. above the base of a 265-ft. section of Shublik fm. (Triassic); bluish-black shale and limestone common throughout section. Sample contained 14.7% P_2O_5 and 0.001% uranium.

(Alatna R.) Gold

Koyukuk district
MF-382, loc. 67

Survey Pass (17.4-18.1, 0.5-2.9) approx.
67°00'-67°09'N, 153°22'-154°25'W approx.

Summary: Placer gold, probably derived from quartz veins in schist and slate, from south boundary of quadrangle to 8-10 mi. south of Takahula R. and near mouth of Kutuk R. Apparently not enough gold for profitable mining; mining reported in 1937 and 1939, but no location other than Alatna R. given.

Mendenhall, 1902 (P 10), p. 50 -- Colors found on upper Allen [Alatna] and some of its tributaries. Practically no work since 1898 rush, when colors were found in many places, but nothing rich enough to justify much time or money.

Smith, 1913 (B 536), p. 143 -- A little gold in gravels in part of valley where southern belt of schists occurs, but indications too poor to induce further work.

Smith, 1930 (B 813), p. 45 -- Prospecting near Iniakuk R. in 1928. No data on results.

Smith and Mertie, 1930 (B 815), p. 334-335 -- Most promising indications of gold between mouth of Helpmejack Cr. and a point 8-10 mi. south of Takahula R.; bedrock schist cut by quartz stringers. Also some prospecting near mouth of Kutuk; some gold, probably derived from quartz veins in slate. Magnetite common in concentrates.

Smith, 1939 (B 910-A), p. 56 -- "....a number of reports came from other small producers at points as far remote as the Alatna R." (1937).

Smith, 1941 (B 926-A), p. 52 -- 1 mining camp on Alatna R., 1939.

Cobb, 1973 (B 1374), p. 158 -- Gold could not be mined profitably.

(Angunelechak Pass) Silver (?)

Noatak district Survey Pass (4.9, 6.0)
MF-382, loc. 1 67°21'N, 155°16'W

Summary: Silver ore reported by Lewis Lloyd, a prospector, from Noatak side of divide near Angunelechak Pass. Includes references to silver near head of Mauneluk R.

Smith, 1912 (B 520), p. 334 -- Preliminary to B 536.
Smith, 1913 (B 536), p. 150 -- Silver ore on north side of Noatak-Kobuk divide near head of Reed and Mauneluk Rivers. Reported by Lewis Lloyd. No data on mode of occurrence.
Smith and Mertie, 1930 (B 815), p. 342 -- Quotation from B 536.
Anderson, 1947 (TDM 5-R), p. 32 -- Lewis Lloyd reported silver ore.
Berg and Cobb, 1967 (B 1246), p. 105 -- Silver ore reported by a prospector.

(Helpmejack Cr.) Gold

Koyukuk district
MF-382, loc. 5

Survey Pass (16.85, 0.35) approx.
67°00'N, 153°32'W approx.

Summary: Colors of gold, but not enough for profitable mining.

Mendenhall, 1902 (P 10), p. 50 -- Colors found; practically no work since 1898 rush; nothing found that was rich enough to justify much time or money.

Cobb, 1973 (B 1374), p. 158 — Gold could not be mined profitably.

Lucky Six | Antimony, Copper, Gold

Noatak district | Survey Pass (8.0, 10.85) approx.
MF-382, loc. 3 | 67°37'N, 154°48'W approx.

Summary: Quartz veins in quartzite, slate, and schist contain probably non-economic amounts of gold, copper sulfides, and stibnite.

Schrader, 1904 (P 20), p. 102-104 -- Discovered winter of 1902-03. Country rock quartzite, slate, schist. On strike with mineralized zone 60 mi. to east on John R. Lucky Six deposit consists of 6 or more veins in a belt 6-7 mi. wide. Ore is essentially pyrite and quartz with some chalcopyrite, bornite, and malachite. One specimen stibnite and epidote. Assays indicated trace to 0.10 oz. Au per ton and 0 to 0.08 oz. Ag per ton (USGS); owners reported $40-$90 in Au per ton.

Smith and Mertie, 1930 (B 815), p. 337-338 -- Quotation from P 20.
p. 342 -- Deposit do not appear to have any value.

Berg and Cobb, 1967 (B 1246), p. 105 -- Summary of some of data in P 20.

(Lucky Six Cr.) Gold, Silver; Graphite

Noatak district Survey Pass (7.5-7.6, 10.1-10.3) approx.
MF-382, locs. 2, 4 67°34'-67°35'N, 154°52'-154°53'W approx.

Summary: Site of only recorded mineral production in Noatak district; a few ounces of gold mined, probably before 1911. Discovered, 1898. Gold coarse; in cracks in schist bedrock and in shallow stream gravels. Small lens of silver ore reported; lens narrow and only a few feet long. Graphite reported. See also Lucky Six.

Smith, 1912 (B 520), p. 335-336 -- Preliminary to B 536.
Smith, 1913 (B 536), p. 140-141 -- Gold discovered, 1898. Granite reported by prospectors. Much of bedrock schist. Gold in cracks in bedrock or in shallow gravels. Said to be notably coarse and to assay about $19.20 per oz.
Brooks, 1925 (B 773), p. 51 -- Some gold has been mined in the past.
Smith and Mertie, 1930 (B 815), p. 331-332 -- Quotation from B 536.
Smith, 1932 (B 824), p. 50 -- Natives said to have been prospecting in 1929.
Anderson, 1947 (TDM 5-R), p. 25 -- Graphite found "many years ago" [as of 1940's], according to Lewis Lloyd. [USGS seems generally to have accepted reports by Lloyd, so this occurrence is not questioned.]
p. 32 -- Small lens of high-grade silver ore found by prospectors; lens narrow and only a few ft. long. [Report credited to Lewis Lloyd; see note above.]
Berg and Cobb, 1967 (B 1246), p. 105 -- Source of only recorded mineral production (gold) in Noatak district.
Cobb, 1973 (B 1374), p. 59 -- Only recorded production from Noatak district; a few ounces of coarse gold. Bedrock mainly schist; sulfide minerals and a little gold in a nearby lode.

(Pingaluk R.) Gold (?)

Koyukuk district Survey Pass
E½ quad.

Summary: Prospecting, 1931. No data on results.

Smith, 1933 (B 844-A), p. 39 -- 2 prospectors in valley in 1931. No data on results.

(Reed R.) Gold (?)

Shungnak district Survey Pass
E½SW¼ quad.

Summary: Prospecting reported, 1929-30. No data on results.

Smith, 1932 (B 824), p. 50 -- Prospecting, 1929. No data on results.
Smith, 1933 (B 836), p. 51 -- 3 men trapping and prospecting, winter and spring of 1929-30. No data on results.

(Walker Lake) Gold (?)

Shungnak district Survey Pass
SE¼SW¼, SW¼SE¼ quad.

Summary: Prospecting; no data on results.

Smith, 1930 (B 813), p. 44-45 -- Prospecting in 1928. No data on results.
Smith, 1932 (B 824), p. 50 -- Men who had prospected in 1928 did not go back in 1929.
Smith, 1939 (B 910-A), p. 73 -- Late in 1937 five men went to area to prospect and trap. No data on results.

(Bear Mtn.) LEAD

Sheenjek district Table Mountain NW¼SE¼ quad.

Summary: Galena has been found at Bear Mtn.

Cobb, 1973 (B 1374), p. 172 -- Galena has been found.

Unnamed occurrence | COPPER

Sheenjek district | Table Mountain NE¼NW¼ quad.

Summary: Chalcopyrite found between extreme headwater forks of Coleen R.

Cobb, 1973 (B 1374), p. 172 -- Chalcopyrite found a few miles south of Brooks Range divide between extreme headwater forks of Coleen R.

(Chandler R.) BENTONITE

Colville district Umiat (9.45, 3.3)
69°11'N, 151°29'W

Summary: Cretaceous rocks contain bentonite beds from less that 2 ft. to 5 ft. in thickness.

Detterman and others, 1963 (P 303-E), p. 319 — Bentonite beds from 2 to 5 ft. thick are in the Tuluvak tongue [of the Prince Creek fm.] and less than 2 ft. thick in the Barrow Trail member of the Schrader Bluff fm. [both Upper Cretaceous].

(Colville R.) BENTONITE

Colville district Umiat (3.9, 5.0)
69°17'N, 152°22'W

Summary: Cretaceous rocks contain bentonite beds from less than 2 ft. to 5 ft. in thickness.

Detterman and others, 1963 (P 303-E), p. 319 -- Bentonite beds 2-5 ft. thick are in the Tuluvak tongue [of the Prince Creek fm.] and less than 2 ft. thick in the Barrow Trail member of the Schrader Bluff fm. [both Upper Cretaceous].

(Schrader Bluff) BENTONITE

Colville district Umiat (12.4, 3.0)
69°10'N, 151°00'W

Summary: Cretaceous rocks contain bentonite beds from less than 2 ft. to 5 ft. in thickness.

Detterman and others, 1963 (P 303-E), p. 319 -- Bentonite beds 2-5 ft. thick are in the Tuluvak tongue [of the Prince Creek fm.] and less than 2 ft. thick in the Barrow Trail member of the Schrader Bluff fm. [both Upper Cretaceous].

Synonyms, Claim Names, Operators, and Owners

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

For several quadrangles only one name for each deposit appears in the literature searched. Therefore this section of this report does not have a page for every quadrangle for which there are entries in the other two sections.

Arctic Circle Exploration Co., Inc. -- see (Asbestos Mtn.), (Cosmos Cr.)
Bear Creek Mining Co. -- see (Ruby Cr.)
Berg -- see (Ruby Cr.)
Bismark Association -- see (Shungnak R.)
(Bornite) -- see (Ruby Cr.)

Brown -- see (Shungnak R.)
Clark Association -- see (Shungnak R.)
Dugan -- see (Riley Cr.)
Ferguson -- see (Cosmos Cr.)
Garland -- see (Cosmos Cr.)

Gold Bank Association -- see (Bismark Cr.)
Ing-Ihk -- see (Asbestos Mtn.)
Ingik -- see (Asbestos Mtn.)
Jim Association -- see (Shungnak R.)
Joe Association -- see (Shungnak R.)

Kennecott Copper Corp. -- see (Ruby Cr.)
Kobuk Alaska Mines (Co.) -- see (Shungnak R.)
Neversweat Association -- see (Shungnak R.)
Norsworthy & Crangle -- see (Shungnak R.)
Northwest Alaska Mines -- see (Shungnak R.)

(Pardners Hill) -- see (Aurora Mtn.)
Primer -- see (Jay Cr.)
(Shingnek Cr.) -- see (Shungnak R.)
313 Association -- see (Shungnak R.)
Twins Association -- see (Shungnak R.)

Wien -- see (Shungnak R.)

Armstrong & Baldwin -- see (Boldrin Cr.)
(Baldwin Cr.) -- see (Boldrin Cr.)
(Center Cr.) -- see (Central Cr.)
Columbia -- see (Klery Cr.)
Geffe -- see (Klery Cr.)

Gopher -- see (Klery Cr.)
Greenberg and associates -- see (Klery Cr.)
Hansen -- see (Central Cr.)
Hark Luck -- see (Klery Cr.)
(Kiana) -- see (Klery Cr.)

Klery Creek Mines Co. -- see (Klery Cr.)
Klery Placers, Inc. -- see (Klery Cr.)
Kozak -- see (Peluk Cr.)
Lesamis and associates -- see (Klery Cr.)
Liberty -- see (Klery Cr.)

Missing Link -- see (Klery Cr.)
Oregon -- see (Klery Cr.)
(Peluck Cr.) -- see (Peluk Cr.)
(Squirrel R.) -- see (Klery Cr.)
Star -- see (Klery Cr.)

Suksdorf -- see (Central Cr.)
Teddy -- see (Klery Cr.)
Vera -- see (Klery Cr.)
Westlake -- see (Klery Cr.)
Wise -- see (Homestake Cr.)

Wood -- see (Bear Cr.), (Klery Cr.)
Xavier & Quillen -- see (Gold Run Cr.),(Joe Gulch), (Klery Cr.)
Xavier & Southward -- see (Klery Cr.)

(Monotis Cr.) -- see (Kiruktagiak R.)
(Skimo Cr.) -- see (Tiglukpuk Cr.)

(Pitmegea R.) -- see (Ikuk Cr.)

(Allen R.) -- see (Alatna R.)
Arctic Prospecting & Development Co. -- see (Alatna R.), (Walker Lake)
Copper King -- see Lucky Six
Copper Queen -- see Lucky Six
Gray Eagle -- see Lucky Six

Ground Hog -- see Lucky Six
Iowa -- see Lucky Six
Mammoth -- see Lucky Six
(Mauneluk R.) -- see (Angunelechak Pass)
Silver King -- see Lucky Six

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