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Published to Accelerate the Development of the Mining Industry in Alaska

William A. Egan - Governor

Charles F. Herbert - Commissioner

James A. Williams - Director



EDITOR'S COMMENTS

Anyone wishing to contribute articles of interest on mining, please send them to Edward Holmes, Editor-Researcher, State of Alaska, Division of Geological Survey, P. O. Box 5-300, College, Alaska 99701.

NEW OPEN FILE RELEASE

The U. S. Geological Survey has released on open file the following reports:

1. Reconnaissance geology and geochemistry of Forrester Island National Wildlife Refuge, Alaska, by Allen L. Clark, H. C. Berg, Donald Grybeck, and A. Thomas Oven-shine. 9 p., 1 fig. (scale 1:63,360), 1 table.
2. Geochemical reconnaissance of the McCarthy B-6 quadrangle, Alaska, by G. R. Winkler, E. M. MacKevett, Jr., and James G. Smith. 8 p., including 4 tables; 1 pl., scale 1:63,360.
3. Analyses of stream-sediment samples from the Taylor Mountains D-8 quadrangle, Alaska, by Allen L. Clark, W. H. Condon, J. M. Hoare, and Dennis H. Sorg. 60 p., including 50 p. tabular material, 1 pl.
4. Metallic mineral resources map of the Mount McKinley quadrangle, Alaska, compiled by Edward H. Cobb. 6 p., including 5 p. tabular material, 1 index, map, scale 1:250,000.

Copies are available for inspection in the following listed Alaskan offices of the USGS and ADGS and certain USGS offices in the other states:

U. S. Geological Survey:	402 Brooks Building, College
	108 Skyline Building, Anchorage
	441 Federal Building, Juneau
Division of Geological Survey:	College Road and University Ave., College
	323 East 4th Avenue, Anchorage
	509 Goldstein Building, Juneau

Material from which copy can be made at private expense is available at the Alaskan Mineral Resources Branch, USGS, 345 Middlefield Rd., Menlo Park, Calif. 94025.

U.S.G.S. BULLETINS, ALASKA

The following U. S. Geological Survey Bulletins may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. Price 25 cents (paper cover)

1. Geological Survey Bulletin 1315-Geochemical and Geological Reconnaissance in the Seventymile River area, Alaska.
2. Geological Survey Bulletin 1333-Geology of the McCarthy B-4 Quadrangle, Alaska.

STATE OF ALASKA
BIBLIOGRAPHY

The Division of Geological Survey currently is preparing a new bibliographic series entitled Bibliography of Alaskan Geology, which is being designed specifically for geologists and others who seek primarily published geological literature about any and all parts of Alaska. We hope to publish the first three volumes of this series by the end of 1971. These three volumes will contain all Alaskan entries listed in 20 volumes of the Bibliography of North American Geology, which has been published in bulletin form by the U. S. Geological Survey for many years. The first three volumes of the new Bibliography of Alaskan Geology will cover the following periods: 1785-1949, 1950-1959, and 1960-1964. Each is expected to contain between 500 and 700 bibliographic entries and to be about 80 pages long, including index and lists of sources. We plan to continue preparation of this series in volumes covering five years or less until we reach a point at which such information can be compiled and published on an annual basis. Compilation presently is being done by C. E. Fritts and Mrs. Mildred Brown.

MINES OPEN TO WOMEN

Women can now work in Colorado coal mines. Governor John Love of Colorado signed a bill recently removing a ban on the employment of women in mines. The measure was hailed as a women's rights proposal when it easily passed the legislature. (Western Mining News).

FOREST SERVICE MINING REGULATIONS

The U. S. Forest Service has under consideration proposed regulations to govern exploration and mining on federal forest lands. The proposal endeavors to accomplish by presumed administrative authority, the regulation of exploration and mining similar to the objectives in some of the bills before Congress.

The Forest Service, the U.S.G.S. and the B.L.M. want to draw up and enforce regulations on the public lands under their jurisdiction. In addition, States, such as Wyoming, are developing environmental regulations on exploration and mining. Possibly a U. S. Department of Natural Resources is needed to uncomplicate or further complicate the situation. (Wyoming Mining Association)

GOLD NOT FORGOTTEN

Some of the bills recently introduced into congress relating to gold are:

H.R. 4559 - to establish a strategic stockpile of newly mined domestic gold.

H.R. 5335 - to encourage gold mining by setting prices for gold above the \$35 per ounce.

H.R. 5978 - to permit Americans to own gold.

H.R. 5979 - to provide for adjustments in the price of gold.

H.R. 5980 - a gold mine assistance proposal.

SILVER CLIMB FALTERS

Despite its basic firmness, silver lost some ground during the month of April and drifted into the doldrums. Comex prices had dropped off to 172.6¢, after climbing to a recent high of 175.6¢. Profit taking accounted for the floundering. Much of the recent renewed interest in silver is based on the increased pressure on the dollar, it's felt, and investors begin dropping out when nothing exciting is happening in the market. However, experts feel that with improved market psychology the price of silver has nowhere to go but up. The free world silver supplies during 1970 show that total new production was 247.5 million oz. compared with total industrial uses of 356.0 million oz. This situation has prevailed over a five year period.

LOST RIVER MINING

Lost River Mining Corporation Ltd.

PCE Explorations Limited has announced that a total of \$1 million has now been placed in the treasury of Lost River Mining Corporation Ltd., part of the proposed \$2 million 1971 program of exploratory diamond drilling, metallurgical investigation, and feasibility studies on the company's fluorite-tin-tungsten deposits located in the Lost River area, Seward Peninsula, Alaska.

This financing was through purchase of 500,000 treasury shares of Lost River at \$2 per share, of which PCE supplied \$600,000 for 300,000 shares at \$2. PCE now owns 1,050,000 shares in Lost River, out of a total 2,250,000 issued Lost River shares.

PCE holds an option on an additional 500,000 treasury shares which, if, as and when exercised, will net Lost River a further \$1 million to provide the total of \$2 million for the 1971 program.

A contract for 40,000 feet of diamond drilling has been let to CTM Drillers, Inc., who carried out the 1970 drilling program which totalled 23,826 feet in 55 holes in the No. 1 and No. 2 zones. Results of this drilling are under extensive correlation and compilation, for purposes of establishing ore reserves, by the Lost River Mining staff, headed by G. Malcolm Hurd, newly-appointed resident manager, who for the past 12 years has been associated with the consulting firm of Chapman, Wood & Griswold, Vancouver, B.C. Willis K. Beach, formerly of Granduc Operating Company, British Columbia, has been appointed project engineer, while Dr. Michael Jeremic is chief geologist. (Western Miner)

URANIUM MINING IN ALASKA

All the known uranium-thorium deposits except a few near Gardner Bay and one on the headland between Stone Rock Bay and Mallard Bay are in or near the peralkaline granite boss. Most of these deposits are believed to have been formed chiefly by hydrothermal solutions and are probably early Tertiary in age.

The Kendrick Bay mine is on the southeast flank of Bokan Mountain, at an altitude of about 950 feet. Access is by the only road in the area, which is steep and unpaved and about 1 3/4 miles long. It was constructed during the summer of 1957 to link the mine and the dock on the West Arm of Kendrick Bay. Ill-defined trails provide shorter but more difficult routes between the mine and the West Arm of Kendrick Bay.

The Kendrick Bay deposit was discovered by Mr. and Mrs. Don Ross, while prospecting with an airborne Geiger counter on May 18, 1955; the discovery was confirmed by ground investigations within a few hours. During the summer of 1955, the Climax

Molybdenum Co. acquired controlling interest in the property and commenced exploratory diamond drilling, which, following curtailment during the winter, was resumed on a larger scale during the summer and fall of 1956.

Uranium ore mined from Kendrick Bay during 1957 was the only uranium production recorded from Alaska as of March 1959. Besides uranium, other commodities that have intermittently interested prospectors and mining companies in the area are thorium, copper, gold, and iron. The earliest known mining activity in the area during the early 1900's resulted in the location and development of most of the copper-gold prospects. The Nelson and Tift gold mine near the mouth of McLean Arm was located in 1935.

The discovery of the Kendrick Bay deposit in May 1955 inaugurated a period of fairly intensive uranium prospecting, which continued through 1956 and resulted in the location of many mining claims. Several claims for iron were staked in the pyroxenite near Mallard Bay during the summer of 1958, and a magnetic anomaly between McLean Arm and Gardner Bay has also been investigated by mining company geologists.

Other commodities of potential economic importance are rare earths, which are generally concentrated with the uranium-thorium deposits in pegmatites and in hydrothermally altered dikes and deposits of zircon and niobates in some of the pegmatites. One claim is in part for fluorite.

Mining took place between early July and late October 1957 and resulted in the production of approximately 15,000 tons of uranium ore that contained more than 0.80 percent U_3O_8 . The ore was shipped to the mill of the Dawn Mining Co. at Ford (near Spokane), Wash. The ore had a high thorium content, but costly extractive processes precluded its profitable recovery, and only uranium was recovered.

Early in the summer of 1958, the Climax Molybdenum Co. relinquished their interest in the mine, and its ownership reverted to a group of Ketchikan residents.

The mine workings consist of a northward-trending open pit about 370 feet long, between 25 and 75 feet wide, and about 30 feet in maximum depth.

The Kendrick Bay underground uranium mining operation is being developed by CM Incorporated under contract with the Dawn Mining Company a subsidiary of Newmont Mining Corp. This mine is located about 35 miles southwest of Ketchikan, Alaska at Kendrick Bay on Prince of Wales Island. The mining camp was set up in December 1970 and the initial work of driving a 13 x 16 foot haulage adit was begun on January 8, 1971. Within two months about 1300 feet of the adit had been driven and a load out dock facility was nearly completed by the first of March. Unconfirmed reports indicate that in the course of driving the haulage tunnel at Kendrick additional uranium ore has been found and this is expected to materially increase the life of the mine. When the mine is placed in operation a sub-level stoping method will be used to mine the orebody. The ore will be drawn from two raises, loaded and hauled out by diesel powered trackless equipment.

The formation of the Ross Adams deposit is probably attributable to two processes: first a local concentration of a small amount of late-stage accessory uranothorite and uranoan thorianite in the peralkaline granite and second a subsequent formation of numerous uranium and thorium bearing veinlets at the site of the lode. The second process probably formed most of the ore. Possibly some of the uranium thorium minerals in the veinlets were derived from reworking the earlier accessory uranium thorium minerals but it is unlikely that this mechanism was very effective.

The Kendrick Bay deposit is an uncommon type of uranium thorium deposit in mode of occurrence apparent genetic association with prealkaline granite and to a lesser extent in mineralogy. Full details of this mine is covered in USGS Bulletin 1154, pages 60 through 93.

URANIUM IN SOUTHEASTERN ALASKA

The Hyder district is at the head of Portland Canal near the Alaska-British Columbia border. The area is highly mineralized and includes a number of properties containing marginal deposits of gold, silver, copper, lead, zinc, and tungsten. Radioactive material, which apparently is uranium, is widely distributed. Mesozoic Coast Range granodiorite and quartz monzonite are intrusive into Jurassic greenstones, tuffs, graywackes, argillite, and quartzite. Most of the radioactive minerals are associated with sulfides, but some form thin secondary coatings on fracture surfaces. The well-known Premier mine is just across the border in British Columbia.

Uranium investigations have been concentrated on the Mountain View property, about five miles north of Hyder, where assays as much as 0.049 percent equivalent uranium were obtained. A sample of pitchblende, reportedly from the Canyon vein, assayed 0.7 percent equivalent uranium oxide, but this material was not found during a later U. S. Geological Survey examination.

The high radioactivity at several locations and the favorable mineral assemblage may be sufficient basis for more intensive exploration in this district. Of additional interest is the presence of radioactive minerals at 30 or more metallic mineral localities in nearby British Columbia, all of which are west of the Rocky Mountain trench.

Significant radioactivity in the Salmon Bay area, extends for eight miles along the northeastern coast of Prince of Wales Island. The radioactive material is in short irregular carbonate-hematite veins which cut graywacke of Silurian age. Many basic dikes also cut the country rock. The highest value obtained was from a grab sample collected by a prospector which assayed 0.13 percent equivalent uranium or 0.64 percent equivalent thorium. Seven channel samples covering 100 feet along one vein averaged 0.034 percent uranium or 0.16 percent equivalent thorium. The veins are generally less than one foot wide and 300 feet long. Some nonradioactive veins contain high-grade rare-earth oxides. It appears that the radioactivity in the area is due mainly to thorium.

The widespread presence of radioactive minerals in the northern part of Prince of Wales Island and the high grade uranium ore at Pokan Mountain on the south end suggest the intervening area is worth close examination.

A uranium prospect was discovered in 1956 almost in the town of Skagway. The deposit is in a bluff about 250 feet directly above railroad tracks and large oil storage tanks. Bedrock consists of altered rhyolite(?), quartz diorite, and andesite dikes. Large faults cut the quartz diorite. Uranium minerals with iron staining are present along a steeply dipping fracture in the rhyolite(?). No other ore minerals or vein material, except purple fluorite, have been reported.

The most radioactive sample analyzed by the U. S. Geological Survey was a small pod of clay, which assayed 0.72 percent equivalent uranium and 1.2 percent uranium. Other samples of the rhyolite contain up to 0.22 percent equivalent uranium. No ore has been produced, but the geology is favorable and additional prospecting is planned.

Further details on uranium in Alaska can be found in Geologic Report No. 38 "Uranium In Alaska" by Gilbert R. Eakins, Division of Geological Survey, Box 5-300, College, Alaska 99701, price \$1.00

GULF OF ALASKA BIBLIOGRAPHY

This bibliography entitled "Geological Literature on the Gulf and Southeastern Coastal Regions of Alaska" by W. M. Trollman and J. C. Maher has just been prepared by the U. S. Geological Survey and published by the Alaska Department of Natural Resources. It may be obtained for \$1.50, from the Alaska Department of Natural Resources, Division of Geological Survey at Pouch M, State Capital, Juneau, Alaska, 99801, 323 E. Fourth Ave., Anchorage, Alaska 99504, P. O. Box 2438, Ketchikan, Alaska 99901, and P. O. Box 5-300, College, Alaska 99701.

MINING CLAIMS

<u>Number of Claims</u>	<u>Creek or Area</u>	<u>Quadrangle</u>	<u>Date Notice Posted</u>
12	Rusaw Creek	Anchorage	March, 1971
2	Kiwalik River	Candle	February, 1971
2	Kasaan Peninsula	Craig	March, 1971
6	My and Our Creeks	Eagle	March, 1971
2	Sec. 24, T1N, R2W	Fairbanks	February, March, 1971
1	Sec. 34, T1N, R2W	Fairbanks	March, 1971
1	Goldstream Creek	Fairbanks	February, 1971
30	Bonanza River	Solomon	January, 1971
1	Daniels Creek	Solomon	January, 1971
21	Atsakovluk Creek	Taylor Mountains	March, 1971
18	Prospect Creek	Talkeetna Mountains	March, 1971
727	Lost River & Rapid River	Teller	February, March, 1971

METAL MARKET

<u>Metals</u>	<u>April 30, 1971</u>	<u>Month Ago</u>	<u>Year Ago</u>
Antimony ore, stu equivalent	\$11.34-14.06	\$11.34-14.06	\$38.39-40.17
European ore			
Barite (drilling mud grade per ton)	\$17-20	\$17-20	\$12-16
Beryllium powder, 98%, per lb.	\$54-66	\$54-66	\$54-66
Chrome ore per long ton	\$25-27	\$25-55	\$31-35
Copper per lb.	56.6¢	50.3¢	59.7¢
Gold per oz.	\$39.24	\$39.17	\$36.65
Lead per lb.	13.5¢	13.5¢	16.5¢
Mercury per 76# flask	\$307-310	\$325-330	\$467-473
Molybdenum conc. per lb.	\$1.72	\$1.72	\$1.72
Nickel per lb.	\$1.33	\$1.33	\$1.28
Platinum per oz.	\$120-125	\$120-125	\$130-135
Silver, New York, per oz.	173.3¢	170.9¢	185.9¢
Tin per lb	169.5¢	169¢	187.0¢
Titanium ore per ton	\$30-35	\$30-35	\$30-35
Tungsten per unit	\$55.00	\$55.00	\$43.00
Zinc per lb.	15.5¢	15.0¢	16.0¢