

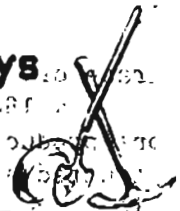
STATE OF ALASKA
Department of Natural Resources



Division of Geological & Geophysical Surveys

San Francisco, California

MINES BULLETIN



VOL. XXII

November 1973

No. 11

P. O. Box 80007

College, Alaska 99701

Published to Accelerate the Development of the Mining Industry in Alaska

William A. Egan - Governor

Charles F. Herbert - Commissioner

Donald C. Hartman - State Geologist

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CURRENT PRODUCTION IN KANTISHNA AREA

by

C.N. Conwell, Mining Engineer

The Kantishna mining region is located north of McKinley National Park in an area designated for study and possible inclusion in one of the four major park systems (National Parks, Wild Rivers, Scenic Rivers, and Game Refuges). Because of this proximity, it could be closed to future mining.

Gold was first discovered in the Kantishna region in 1905, and was found in shallow diggings that were quite rich. Some major creeks—Spruce, Glen, Eureka, Friday, Glacier, and Caribou—are still producing gold. Much of the gold originally mined in 1906 was coarse, with some of the larger pieces weighing more than 3 ounces; half-ounce nuggets were not uncommon. The same remains true today. With some of the nuggets are fairly large pieces of white quartz laced with gold. This indicates there should be lode deposits very near the present placers.

The Kantishna region is rich in other minerals besides gold. As early as 1906, when the area was visited by a member of the U.S. Geological Survey, scattered pieces of galena several inches in diameter were found along stream gravels. One of these assayed 184.76 ounces of silver and 0.20 ounces of gold to the ton. Stibnite, the antimony sulfide, was found in both lenses and placer deposits along Caribou Creek and Eureka Creek. The area also contains coal; there is a 12-foot bed of lignite that has been used locally for fuel.

The collection of accurate statistics of mineral production is a task that is beset with many difficulties, even in a well-settled region. In Alaska it is a near-hopeless situation. Nevertheless, the Kantishna is a region that has been in continuous production, despite its ups and downs, since 1905.

By 1930, the Kantishna district had produced \$500,000 in gold and \$200,000 in high-grade lead-silver-zinc ores. The silver-lead ores were mined when the price of silver was high. Transportation costs were so great that only the richest of the ores could be shipped at a profit; the lower-grade ores were rejected. (No concentrating mill had yet been constructed.) The stibnite deposit near Stampede Creek was well known, and although mining had taken place and high-

2.

grade ore was stockpiled (after a fall in the price of antimony), no ore was shipped.

By 1940, the value of mineral production exceeded \$2,000,000. Kantishna had one producing lode gold mine, owned by the Red Top Mining Company, which had constructed a 50-ton/day concentrating mill on the Banjo claim. Also, a concentrating plant had been constructed at the Stampede Mine. In 1940, the U.S. Geological Survey reported placer-gold production of \$139,000 in the Kantishna district.

Although mining operations nearly stopped during World War II, placer mining operations increased with the war's end. However, with the price of gold pegged at \$35.00 per ounce and production costs continually rising, mining dwindled until 1970, when a mere 150 ounces of gold, valued at \$6,000 was produced (but gold nuggets were then selling at a premium price). Then the price of gold started to increase--to over \$100.00 per ounce in 1973.

Statistics on the Kantishna mining district, gathered by the Conservation Section of the Division of Geological and Geophysical Surveys, relate the sensitivity of mining in a small district to an increase in metal price. Table 1 shows the gold, antimony, and total value of metal production in the Kantishna district for the past 4 years.

Table 1 Metal Production, Kantishna District

<u>Year</u>	<u>Gold, \$</u>	<u>Antimony, \$</u>	<u>Total Metal, \$</u>
1970	6,000	43,000	49,000
1971	45,000	78,000	123,000
1972	66,000	28,000	94,000
1973	214,000	96,000	320,000

Table 2 shows the average price of gold, stibnite ore (antimony), and silver during the summer months for 1970-1973.

Table 2. Metal Prices

<u>Year</u>	<u>Gold, \$/oz</u>	<u>Stibnite, /stu* equivalent</u>	<u>Silver, \$/oz</u>
1970	36.00	38.00	1.72
1971	40.00	10.00	1.65
1972	59.52	7.00	1.61
1973	118.05	13.00	2.75

*Standard ton unit = 20 pounds

These tables show how the production of gold increased with the increase in price. Placer gold does not require the elaborate preparation for development that is required of lode mining. The equipment necessary for the recovery of placer gold from the gravels is relatively simple and easy to operate. Placer-gold production in an area such as Kantishna, which does not require thawing of frozen ground, can respond rapidly to a price increase.

The operation of a lode mine is more complex. Time is required to develop a block of ground for mining. As a result, response to price is slower, and ore developed and prepared for mining during a time of high prices may well be shipped after the price has fallen. In the Kantishna district, the mining was limited to shipping hand-sorted ore extracted from a pit or surface cut. (The production from the Stampede mine, near the Kantishna district, is not known and is not included in table 1.)

The tables demonstrate the fluctuation of metal prices against the output. Antimony ore in 1969 hit a high of \$40 per unit and sank to a low of \$7 in 1972. Table 1 indicates that ore was prepared for mining in 1970 with a high price. There is a carryover of volume sale a year after the high price. In 1972, with a low price of \$7 per unit, production hit its lowest level, and then responded to the price increase. A price of \$10 per unit of stibnite seems to be the minimum for a ready market and a profitable operation of an antimony mine.

Table 1 shows that in 1970-72, the total metal value is from gold and antimony only, but in 1973 there is an added value: the increase in the price and production of silver enabled a lead-silver concentrate to be profitably produced from a lode mine and mill on Friday Creek.

In conclusion, mining is a viable business--one that responds to the demand and price of the product.

The Kantishna area is well-mineralized, containing both lode and placer gold deposits. Lead, silver, zinc, and antimony ores with commercial value have been mined and shipped at such times as price would permit a profitable operation.

As the demand for metal continues, consideration must be given to finding new reserves and keeping operating districts in business. It is this writer's opinion that this old mining area should be exempt from inclusion in a National Park system and that the road from Mt. McKinley to Kantishna should remain open for truck traffic.

LEAD-SILVER OCCURRENCE IN SOUTHWESTERN BROOKS RANGE

While continuing geologic field investigations in the southwestern Brooks Range during the 1973 field season, the members of the joint Alaska DGGs-U.S. Geological Survey Brooks Range Project discovered and sampled a previously unreported lead-silver occurrence. The occurrence, located approximately 28 miles west of Walker Lake between the Mauneluk River and Beaver Creek drainages, is in the so-called "schist belt" of rocks that forms the southern flank of the Brooks Range in this region and that has several copper prospects.

The data listed below are the results of DGGs laboratory analysis, by the atomic absorption spectrophotometric method, of 25 representative bedrock samples across the mineralized zone.

The occurrence is located at approximately 3900 ft elevation on a narrow ridge extending south-southwest from peak 4440 between the Mauneluk River and Beaver Creek drainages in the Survey Pass, A-5 quadrangle, at 67°06.9'N lat., 155°23.7'W long.

The samples were collected within a quarter-mile traverse along the ridge crest; direction of traverse was north to south. Samples 73B64H-2, 73B64H-3, and 73B64H-4 were taken from a thin, discontinuous seam of macroscopic galena mineralization along the contact of a prominent white quartz vein and an actinolite-bearing carbonate rock (73B64I). Samples were selected as representative of the bedrock lithologies encountered along the traverse.

ATOMIC ABSORPTION SPECTROPHOTOMETRY DATA*

<u>Sample</u>	<u>Description*</u>	<u>Au</u>	<u>Ag</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>
73B64A	garnetiferous(?) quartz-sericite-chlorite calcareous schist	0.06	1.7	5	115	35
73B64B	quartz-sericite schist	0.06	0.5	15	25	35
73B64C	limonitic sericitic schistose black quartzite	0.1	1.3	10	130	10
73B64D	limonitic quartz-sericite schist	0.06	0.2	16	35	5

Sample	Description *	Au	Ag	Cu	Pb	Zn
73B64E	crystalline calcite, light powder gray weathering, heavy	N.D.	8.5	5	1000	10
73B64F	actinolite-sericite calcareous schist	0.04	3.0	10	525	350
73B64G	green/brown sulfide-bearing dolomitic (?) marble	N.D.	3.7	20	4750	195
73B64H-1	contact of 73B64G with quartz and calcite veins	N.D.	1.0	10	150	400
73B64H-2	crystalline galena from quartz vein margin (concentrate)	0.03	2800	80	77%	5500
73B64H-3	crystalline galena from quartz vein margin (concentrate)	0.02	2650	225	70%	19,400
73B64H-4	crystalline galena from quartz vein margin (random composite)	N.D.	1965	80	57%	1820
73B64I	actinolitic, dolomitic (?) marble	N.D.	1.3	10	240	420
73B64J	same as 73B64I with visible sulfides (galena)	N.D.	150	145	8.7%	63,000
73B64K	limonitic quartz-mica schist	N.D.	0.5	5	5	10
73B64L	actinolite-bearing quartzite (?) meta-volcanic (?)	N.D.	2.4	25	500	10
73B64M	actinolitic (?) black marble	N.D.	5.0	5	160	5
73B64N	actinolitic-sericitic quartzite with visible sulfides	N.D.	3.0	25	1200	60
73B64"O"	same as 73B64N, with no visible sulfides	N.D.	0.5	10	20	10
73B64P	garnetiferous white marble	N.D.	2	25	65	30
73B64Q	chloritic (?) quartzite	N.D.	1	45	50	55
73B64R	calcareous micaceous quartzite	N.D.	2.5	5	45	15
73B64S	white quartzite	N.D.	1.5	55	35	25
73B64T	limonitic, feldspathic (?) meta-volcanic (?) with disseminated sulfides (galena)	N.D.	1.5	65	365	35
73B64U	same as 73B64T with greater amount of sulfides (chalcopyrite, galena)	2	45	325	1.1%	45
73B64V	calcareous limonitic quartzite with disseminated sulfides, rutile	N.D.	2	15	55	125

* Descriptions based on hand samples only; thin-section evaluations not yet available.
 ** Data given in ppm except where percent values are indicated.

Persons considering further investigation of this lead-silver occurrence are advised to check the land status of the area with the U.S. Bureau of Land Management and the Alaska State Division of Lands.

U. OF A. TO OFFER MINING EXTENSION COURSES
(Office of the Dean, October 4, 1973)

Fairbanks--The University of Alaska will offer mining extension courses in basic prospecting, rock identification, and geochemical prospecting in eight Alaskan communities during the 1973-74 academic year, according to Dr. Charles W. Lafferty, Dean of the Division of Statewide Services.

Basic prospecting will be offered at Seward, November 5-30; Pt. Barrow, November 26-December 21; Wrangell, January 7-February 1; Skagway, February 4-March 1; Ft. Yukon, March 25-April 19, and Fairbanks, April 22-May 17.

Rock identification will be offered at Wasilla, December 5-21, and Aniak, March 4-22.

Geochemical prospecting will be offered at Fairbanks from November 8-21. Interested students may contact either the Division of Statewide Services at Box 95204, University of Alaska, Fairbanks, Alaska 99701; or their nearest community college.

NEW DIVISION REPORT

Fairbanks--The DGGs has released Geochemical Report 26, Analyses of Rock and Stream-Sediment Samples, Mt. Hayes A6 Quadrangle, South-Central Alaska, by T. E. Smith, T.C. Tribble, and D.R. Stein. It contains one map sheet and one table. The report is \$1.00, and may be obtained from the Division of Geological and Geophysical Surveys, P. O. Box 80007, College, AK, 99701; 323 E. Fourth Ave., Anchorage, AK, 99501; Goldstein Bldg., Rm 359, Juneau, AK, 99801; or 306 Main Street, Rm 312, Ketchikan, AK, 94901.

THE SMALL MINER--MONEY SOURCES

(The Mining Record - July 25, 1973)

Editor's note: The following is from a series of guest articles submitted to The Mining Record by Arden L. Larson, Geologist.

There is an old saying about the geological occurrence of gold. Gold is where you find it. I suppose the same saying could be applied to venture capital, but I don't think that is going to help a promoter raise money for his mine. So I will tell you small miners where I do my looking; perhaps you, too, can find financial help in one of these nooks or crannies.

The most often used route to raise a little money for a mining venture is through the unsophisticated investor route. Many of you guys have used this method; it is where a couple of pals of the miner say "Hell yes, I will put in a couple of hundred dollars." This method is a good one in the very early stages of development because the small miner can spread the risk (and potential rewards) among his friends. You are limited in just how much money you can raise through your friends by the number of friends like this you have. Of course, if you have a rich gold mine, you will probably have friends you haven't even met yet!

One of the biggest costs in developing a mining property is labor. Often times, a person who doesn't have any money will be willing to work for an interest in the mine. This, then, is very similar to the use of friends' money and shouldn't be overlooked when you are trying to figure out what to do.

The amount of money generally needed to properly evaluate a mining prospect is more than can be raised through your friends. Thus, a small miner must go promote his property to strangers. I would recommend that you go to the so-called sophisticated investor rather than a door-to-door approach. But who or what is a sophisticated investor?

I really don't think there is any firm definition to fit a sophisticated investor. I suppose that in the eyes of the court a sophisticated investor is a guy who is smart enough to look after his own money. It's sort of the opposite of "a fool and his money are soon parted."

Generally, people in professional walks of life qualify as a sophisticated investor. They also make more money than the average person and thus have more to speculate with on mining ventures. The obvious sources are doctors, lawyers, dentists, professors and businessmen. The latter group should really be looked at when you go searching for money.

Businessmen are perhaps the easiest group to talk to when you try to raise money. They are much more aware of the difference between a profit and a loss than some people in the other groups. It is easier to educate a businessman about mining economics than it is a doctor. A doctor very often has to be taught much about business also. This is simply due to the type of life they lead, always busy with patients but out of touch with the dollar and cents world (until you get his bill)!

I try to avoid interesting people in investing in mining if they have no idea of what is involved. Too often the results of this type of partnership is an unhappy investor, because he really didn't understand but thought he did, and an unhappy miner because he was too eager to take the first offer to help when it came. Remember, you have the mine, there is only one like it, but the money can come from many different types of people. So don't be greedy and don't let anyone else become greedy because of you. No one gets rich quick in mining.

Perhaps the most sophisticated of investors in mining are mining companies and the people behind them. You don't have to explain what a vein is to a mining company. You can walk in a door like one old prospector did. He walked into an office of one of our largest mining companies with an assay map under his arm and laid it on the desk in front of their chief geologist. He looked at it and said he didn't believe it. The old prospector had made a detailed map of old workings and had channel sampled every ten feet. His map indicated a large, low grade silver deposit. After checking the prospector's work, the company bought the property. The old prospector had to do nothing, the facts spoke for themselves, providing the person listening understood the language.

Often times a company may turn down a prospect because it is too small for them or not the metal they are looking for. If this happens to you, ask the guy if he personally is interested in investing or if he knows someone who is. Mining has the most effective grapevine there is; if you start showing your prospect to very many people, it doesn't take long for everyone to hear about it.

There are several people who advertise that they will help you find capital if you pay them a fee first. I really believe that a person can do just as well on his own by going to the same people these advisers go to. They talk with stock-brokers, investment houses, trust officers and the like. Very seldom does a person find speculative money in these places but sometimes a person makes the right contact.

I believe that the way to find money for a mining venture is to penetrate the groups of people who have speculative money. Talk with everyone about your property; you might just find the right person by chance. Talk to the people who do have money, talk with people who know people with money.

Finding money is not an easy task, ask any businessman. You must keep looking and looking. Persistence and perseverance are a trademark of the miner, especially the small miner. A person who gives up easily will never make it as a miner. If you believe sincerely in your property, you can find the money. Remember, facts speak very loud by themselves, but someone has to hear them.

AEROMAGNETIC MAPS IN PROCESS

Fairbanks--The DGGs completed its 1973 Aeromagnetic Field Program in mid-September, and the contractor is working on final analysis and preparation. Areas flown were Big Delta, Fairbanks, and the rest of the East Alaska Range. The maps are expected to be released to the public sometime in December. Further details will be included in the next issue of the Mines Bulletin.

NEW ANCHORAGE AREA MAP NOW AVAILABLE

Washington, D.C.--A new slope-stability map of Anchorage and vicinity is available. The map shows areas that might be prone to massive earth or mud slides in the event of an earthquake, and could prove especially useful to builders, engineers, and architects.

The chart (OF 580), scaled 1:24,000, was compiled by Ernest Dobrovolyay and Henry Schmoll, and is available for inspection at the following offices of the U.S. Geological Survey:

.Brooks Building, University of Alaska, College, Alaska 99701

.441 Federal Building, Juneau, Alaska 99801

.108 Skyline Building, 508 Second Avenue, Anchorage, Alaska 99501.

THE GEOLOGIST'S TWENTY-THIRD

Fairbanks--Seen on a University of Alaska bulletin board:

Geology is my major, I shall not want another.
It maketh me to go down in dark places;
It leadeth me to running waters,
It ruineth my soles.
It leadeth me on the path of outcrops
For its name's sake.
Yea, though I search through the valleys,
I find rocks on the hills.
I fear great evil when on the cliffs;
The hammer and chisels discomfort me.
It preparest a bedding plane for me in the
Presence of my Brunton;
It anointeth my body with mud,
My collecting sack runneth over.
Surely to goodness, if I follow this vocation
All the days of my life, I shall be buried in a
landslide forever.

Robert C. Rasely

METAL MARKET

<u>Metals</u>	<u>Oct. 26, 1973</u>	<u>Month Ago</u>	<u>Year Ago</u>
Antimony ore, stu equivalent, European ore	\$15.1-16.5	\$15.1-16.1	\$7.83-8.35
Barite (drilling mud grade per ton)	\$14-18	\$14-18	\$18-22
Beryllium Powder, 98%, per lb.	\$53-56	\$53-56	\$54-66
Chrome ore per long ton	\$33-34	\$24-27	\$25-27
Copper per lb.	60c	60c	50.6c
Gold per oz.	\$98.75	\$103.33	\$64.51
Lead per lb.	16.5c	16.5c	14.5c
Mercury per 76# flask	\$282.00	\$270-290	\$255.00
Molybdenum conc. per lb.	\$1.72	\$1.72	\$1.72
Nickel per lb. (cathode)	\$1.53	\$1.53	\$1.53
Platinum per oz.	\$163.00	\$150-155	\$130.42
Silver, New York, per oz.	289c	269.2c	184c
Tin per lb., New York	251c	240.9c	178.3c
Titanium ore per ton (Ilmenite)	\$32.00	\$32.00	\$30-35
Tungsten per unit	\$41.00	\$55.00	\$55.00
Zinc per lb.	20.3c	20.307c	18.0c