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GEOLOGICAL SURVEY**

Territory of Alaska  
Department of Mines

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MINING ACTIVITIES

FIRST DIVISION - The Appellate Court decision on the Flynn vs. Vevelstad case over the Yakobi Island nickel claims has finally been received, and it upheld the District Court decision in favor of Flynn. Flynn intends to proceed with plans for exploitation work on the claims as soon as possible.

A second uranium deal has been made on a property in the vicinity of Bokan Mountain, Prince of Wales Island. Uranium Carbide Nuclear Co. of Grand Junction, Colorado, has signed a contract with Mr. and Mrs. Les Hollenbeak of Ketchikan on the I & L property, which adjoins the original Ross-Adams discovery where Climax Moly is now working. Development plans have not been announced.

MINING NEWS FROM WASHINGTON

A House Mines Subcommittee killed a bill that would have permitted Alaskan claim holders to pay \$100 cash in lieu of the annual assessment work on each claim. This bill was introduced in Congress as a result of a memorial from the Territorial Legislature asking for such a provision to relieve Alaskan prospectors of the hardship of travelling to remote claims under adverse conditions each year. The money received under this plan was to have been earmarked for mine access roads. The bill was voted down when Representative Engle of California testified that such a measure would defeat the development purpose of assessment work.

The National Park Service is protesting a bill which would open the Katmai National Monument to mining. The monument, 2-1/2 million acres in size, contains valuable deposits of pumice. It was argued that the monument will be one of the most important tourist attractions as the years go along, and that mining would tend to destroy the scenic values. No action was being taken on the bill at last report.

S. 1427 will, if passed, stop the existing Federal policy of purchasing newly-mined domestic silver. Congressmen from mining States, as well as mining industry representatives are opposing this bill. They point out that the silver purchasing has made it possible for many lead and zinc mines to stay in operation the last few years, and that many mines would be closed down if S.1427 were enacted. Needless to say, the silver-purchasing policy is also of assistance to the Alaskan gold miner.

It appears that military land withdrawals will be slowed down in the future. The House Interior Committee is holding back applications for several million acres of withdrawals presently pending before the Department of the Interior until they have an opportunity to study them further. The Committee intends to make a case-by-case study of present withdrawals and pending applications in relation to the overall public land policies.

ADDITIONAL TDM URANIUM ANALYSIS SERVICE

A substantial addition to the free technical services rendered Alaskan prospectors by the TDM was the installation, during the summer of 1955, of the

latest apparatus for quantitative uranium analysis. The Ketchikan office of the Department was selected to install this facility - a fortunate choice inasmuch as the uranium discoveries began in that same area almost coincidentally with the arrival of the equipment. Actually, in March of 1955, we began investigations to ascertain the type of procedure and apparatus best suited to our needs, and the order for a Jarrell-Ash fluorimeter was placed only a scant week or so before the initial discovery of uranium in the area. More than three months elapsed before operating procedures and techniques could be perfected, but it was placed in full operation during August, just in time to get a thorough work-out as a result of the local "uranium fever" and a multitude of encouraging finds.

We have been accused of keeping this information under "wraps", and perhaps we have been a little guilty; the reason, however, being that the Ketchikan office was already receiving more work than it could properly handle. Conditions may later require similar installations at other TDM laboratories, but until then the Ketchikan office will perform all of the quantitative uranium analyses for prospectors throughout the Territory. We anticipate another unusually busy year and therefore request that prospectors utilize the services of our other offices as fully as possible, and send to Ketchikan only those samples that require and warrant more detailed investigation and analysis.

The J-A fluorimeter was recommended by several agencies and individuals having widespread experience in the analysis of uranium-bearing materials. Especially helpful suggestions were obtained from Mr. C. A. Naeser, Chief, Geochemistry & Petrology Branch of the U. S. Geological Survey, Washington, D.C.. Identical apparatus is currently employed by various plants and laboratories of the Atomic Energy Commission and by a number of large uranium producers and processors.

The method is based upon measurement of the intensity of the fluorescence from controlled melts of the sample in a special flux, the intensity being proportional to the amount of uranium present. The procedure is comparatively rapid and accurate and has largely replaced the expensive and tedious chemical methods. Consequently, results can be reported to prospectors within a matter of hours, instead of days or weeks.

#### LITHIUM

As the result of the recent sudden strategic importance and accompanying publicity on lithium, a few facts on the subject will probably be of interest to prospectors who have been wondering about it. In spite of the demand, a deposit to be of possible commercial value will have to be big, rich, and close to cheap transportation. It is estimated that the break-even point of mining and concentrating would be about 1% Li<sub>2</sub>O stateside, and Alaskan deposits higher. Refineries are at Maywood, N.J., Sunbright, Va., Bessmer City, N.C., Hill City, S.D., Trona, Calif., and San Antonio, Texas. Producers are reported happy with their present reserves, but of course are still looking for rich deposits.

About 140 minerals contain lithium, but only five have possible commercial value. They are spodumene, amblygonite, lepidolite, zinnwaldite, and petalite. Briefly, their descriptions are as follows: **SPODUMENE** - prismatic crystals usually in log form and often of large size, hardness 6.5, sp. gr. 3.1-3.2, insoluble in acid, color from white to pale green, pink, and lilac, streak white, cleavage perfect, fracture uneven to splintery, luster vitreous to pearly, opaque to translucent, brittle. **AMBLYGONITE** - coarse cleavable mass, often of great size, massive hardness 6, sp. gr. 2.88 to 3.09, soluble in acid, color from white to yellow-brown,

green, and blue, streak white, cleavage perfect in one direction only, fracture uneven, luster vitreous to pearly, translucent to opaque, brittle. LEPIDOLITE - compact aggregate of small mica-like plates forming scaly granular mass, sometimes in short prismatic crystals (a lithia mica), hardness 2 to 4, sp. gr. 2.8-2.9, soluble in H<sub>2</sub>SO<sub>4</sub>, color from pink to lilac, gray-white, yellow, red and purple, streak white, cleavage basal, luster pearly, translucent to transparent, sectile. ZINNWALDITE - like lepidolite except sp. gr. is 2.0 and is slightly soluble in HCl. PETALITE - Hardness 6.5, sp. gr. 2.39-2.46, soluble in HF.

These minerals are essentially pegmatite minerals, so it follows that to find lithium, one must find pegmatites. Pegmatites are usually referred to as dikes, but they also exist as sheets, pipes, or irregular masses. They were formed by the slow cooling and differentiation of the molten magma. Steam and gases probably aid in the slow cooling, which tends to produce large crystals of the various minerals formed. Lithium in minerals can be identified by a crimson color in a hot flame, but the flame must be very hot. A blow pipe might not always give enough heat. Readers who wish further details are urged to see the last September issue of E&MJ which contains as complete a coverage on lithium as possible at the present time.

#### E. AND M. J. METAL MARKET PRICES

	<u>Jan. 26</u> <u>1956</u>	<u>Month</u> <u>Ago</u>	<u>Year</u> <u>Ago</u>
Copper, per lb.	43.7¢	43.1¢	29.7¢
Lead, per lb.	16¢	15-1/2¢	15¢
Zinc, per lb.	13-1/2¢	13¢	11-1/2¢
Tin, per lb.	\$1.03	\$1.10	88-7/8¢
Quicksilver, per flask	\$271-275	\$280-284	\$322-324
Silver, foreign, New York	90¢	91-1/2¢	85-1/4¢
Silver, domestic, per oz.	90-1/2¢	90-1/2¢	90-1/2¢
Platinum, per oz.	\$97-112	\$97-117	\$78-84
Nickel, per lb.	64-1/2¢	64-1/2¢	64-1/2¢
Molybdenum, per lb. in conc.	\$1.10	\$1.05	\$1.05
Tungsten ore, per unit	\$63	\$63	\$63
Titanium ore (ilmenite) per ton	\$26-29	\$20	\$18-20
*Chrome ore (40%, 3 to 1 ratio) per ton	\$115	\$115	\$115

\*GSA guaranteed stockpile price. Not quoted by E&MJ.

The following table covering Alaska's mineral production for 1954 and 1955 requires some explanation. Readers will note that the 1954 production is nearly two million dollars below that previously quoted as a preliminary figure. This is the result of a correction based on a unit price FOB mine, which is also used for the 1955 estimate.

Mineral production in Alaska, 1954-55 1/

Mineral	1954		1955 <u>2/</u>	
	Short tons (unless otherwise stated)	Value	Short tons (unless otherwise stated)	Value
<b>METALS:</b>				
Chromite - - - - - gross weight	2,953	\$ 208,257	7,067	\$ 552,000
Copper (recoverable content of ores, etc.) - - - - -	4	2,478	- - - - -	- - - - -
Gold (recoverable content of ores, etc.) - - - - - troy ounces	248,511	8,697,885	247,535	8,663,725
Mercury - - - - - 76-pound flasks	1,046	276,552	<u>3/</u>	<u>3/</u>
Silver (recoverable content of ores, etc.) - troy ounces	33,697	30,497	33,804	30,594
Tin (content of ore and concentrate) - - - - - long tons	199	409,953	85	180,232
<b>NONMETALLIC MINERALS (EXCEPT FUELS):</b>				
Sand and gravel - - - - -	6,639,638	6,301,939	6,625,000	6,288,045
Stone - - - - -	283,734	465,423	275,000	451,096
<b>MINERAL FUELS:</b>				
Coal (bituminous) - - - - -	<u>2/</u> 666,618	<u>2/</u> 6,442,414	633,000	<u>4/5</u> 6,97,000
<b>UNDISTRIBUTED:</b>				
Clay, gem stones, platinum-group metals (1954-55) and mercury (1955) - - - - -	- - - - -	1,576,380	- - - - -	1,316,000
Total - - - - -	- - - - -	<u>2/</u> 24,412,000	- - - - -	23,179,000

1/ These statistics prepared by William H. Kerns, Mineral Industry Division, U.S. Bureau of Mines, Juneau, Alaska

2/ Preliminary and subject to revision

3/ Value included with "Undistributed".

4/ Value estimated by TDM on basis of FOB mine.