Territory of Alaska
Department of Mines

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T D M BULLETIN

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MINING ACTIVITIES

FIRST DIVISION - In addition to the groups formed in Juneau and Ketchikan for aerial uranium prospecting, there are now additional groups operating out of Petersburg, Haines and Skagway. At least one individual is flying out of Sitka, and a group has been reported to be organizing in Wrangell.

Climax Molybdenum Co. (not Climax Uranium Co. as reported earlier) has moved drills and supplies to the Ross-Adams uranium property by helicopter, and is now drilling to check the mineralization at depth. About 2,000 feet of drilling is planned. Ground prospecting by other parties in the same general area is producing some promising new prospects. The area is in the vicinity of Kendrick Bay and Moira Sound on the slopes of Bokan Mountain. The I & L property held by Irma and Les Hollenbeak of Ketchikan is one of these promising prospects.

SECOND DIVISION - Very little is known by the TDM about the reported uranium strike northwest of Nome discovered by George Lilly of Fairbanks and associates. Samples submitted by the discoverers to our Ketchikan Assay Office have given promising returns, some samples showing one percent material.

THIRD DIVISION - The Mrak Coal Company has stepped up its production in the Matanuska Field by installation of a washing plant at their operation near Eska. Kenai Chrome Company has nearly reached the half-way point in their production goal of 6,000 tons of metallurgical grade chrome. Since late July, 90 tons per day have been delivered to the beach for barge shipment stateside. Alaska Chrome and Seldovia Chrome are exploring their deposits, also in the Red Mountain area near Seldovia.

OIL NEWS

Drilling by Iniskin Unit Operators at the Havenstrite well has passed the 8600-ft. mark. Aledo Oil Company has resumed drilling on the Alaska Oil and Gas Development Company acreage near Eureka. Anchorage Gas and Oil Development, Inc. has assembled a drill rig capable of 10,000 feet on their holdings near Houston, and is ready to explore the gas and oil possibilities in that area. Phillips Petroleum Company, after thorough testing of the Sullivan No. 1 well to a depth of 10,000 feet, plans to move this rig to the Katalla area. A second drill rig of greater depth capacity is to start another hole in the Icy Bay area.

THORIUM

The TDM has received a reply from the Atomic Energy Commission on the thorium question, and the following is a partial quotation from their reply:

"Since 1947 the Commission has been purchasing by-product thorium salts from domestic processors of monazite sands. Thorium is a source material under the Atomic Energy Act and shipments and sales are subject to the licensing regulations of the Commission. By-product thorium production in excess of licensed domestic

and export sales has been purchased by the Commission for research and development purposes and also for stockpiling against possible future needs. The Commission has established a limited stockpile goal. Contracts concluded now reasonably assure the fulfillment of the goal within the time limit set by the Commission. Consequently, at present no new contracts are being negotiated. Because of the Commission's limited requirements for stockpiling, at no time have we had a thorium ore buying program similar to that for uranium ores.....It should be added that thorium has potential uses in the atomic energy program and may possibly be converted into a satisfactory nuclear fuel for the production of industrial power. When and to what extent these uses may become important will be dependent upon the results of research and development programs."

MISCELLANEOUS

Having first-hand information on the recent helicopter freight lift to the Ross-Adams property from Kendrick Bay, we think that many Alaskan prospectors and mining operators will be interested in knowing what a helicopter can do under favorable conditions. The property is located at an elevation of 1,000 feet and a distance of 1-1/4 to 1-1/2 miles from salt water. Eight and one-half tons of drilling equipment and supplies were lifted from a barge to the camp in less than seven hours. Forty-seven trips were made, and the heaviest loads were 440 pounds. Some of the loads were placed on the side racks of the 'copter, but the heaviest were slung underneath. It is obvious that there were efficient ground crews on both ends of the run. The craft was a Hiller 360 helicopter piloted by Dean Johnson of McMinnville, Oregon, who operates a helicopter sales, service, and flight training organization. He is looking for other Alaska business.

NOTES ON URANIUM PROSPECTING

With the rapid upsurge of airborne prospecting, many people are beginning to think that the airplane is replacing the foot prospector. Such is not the case. The prospector on foot is, of course, necessary to check out the anomalies detected from the air; but more important, prospecting on foot is the only means by which many of the radioactive prospects under the heavy, wet Alaskan muskeg will be discovered in the first place. We are referring to the blanketing effect of overburden on radioactivity. Further, the TDM has examined one prospect which, though exposed, is in such a location that it is unlikely that a plane could approach it closely enough to pick up the anomaly, even if the prospect were of a very high grade. There are likely to be more of these. So it behooves the foot prospectors to keep trying and not just sit around wishing they had a plane at their disposal. All the fancy gear in existence will not fully take the place of a good prospector patiently examining this country on foot. On the other hand, a foot prospector will have greater chances of success when working in an area where aerial work has disclosed above-normal radioactivity.

More promising finds are being turned up in the general area of the Ross-Adams prospect. Prospectors on foot have been carefully working in the muskeg areas and are uncovering some good mineralization. From the appearance of these developments, and since the original claims have been established, the TDM now urges that the whole section be investigated on foot. We think more discoveries will be made there. Interested prospectors should study the geological report on the area given elsewhere in this Bulletin, and note particularly the mineral associations.

A good technique in prospecting for uranium in a suspected area where the muskeg is heavy is to take careful readings with the counter on the surface of the muskeg at close intervals. Where a count definitely above background is obtained, dig down a foot or two and take another reading. If the reading improves, keep digging; and if not, move on to the next spot. When bedrock is reached, the high count should be substantiated by taking samples that will still give the counter a "kick" when carried away from the "hot spot". If no such samples can be found in a "hot spot", the question of whether to dig further or not is a hard one to answer. It could improve with depth, but it's quite a gamble.

Remember that in either aerial or ground prospecting, comparable radiometric anomalies are likely to mean more over muskeg than over exposed rock.

BOKAN MOUNTAIN URANIUM OCCURRENCE, KENDRICK BAY, PRINCE OF WALES ISLAND

In place of the usual mineral of the month, we are presenting the promised description of the geology and mineralogy of the uranium deposits on Prince of Wales Island.

This preliminary account of the geology and mineralogy of this locality must be qualified as a "current opinion", but certain general features are apparent and may be described for the guidance of uranium prospectors. The principal prospects occur in an intrusive stock (?) (Bokan Mountain) of diorite, granodiorite, and quartz diorite, and are characterized by numerous gradational facies and differentiates which probably include monzonite, syenite, and other alkaline varieties. Uranium-bearing zones have not yet been correlated with any particular type of these granitic rocks, but structurally the zones appear to be controlled by a system of close fractures and joints. The mineralized areas are conspicuously iron-stained, varying in color from a light tan to rust-brown, reddish, and black. The same colorations are apparent when muskeg or other overburden is removed from the buried portions. A distinctive reddish clay or soil is often found immediately above the richer radioactive ore after stripping off the overburden. Lower grade ores may occasionally be associated with comparatively unstained material, however.

At the surface, the uranium minerals are largely secondary and probably consist of a variety of uranium arsenates, phosphates, carbonates, silicates, etc., with slight copper and lead content. Where actually exposed, these have often been found to be highly fluorescent under the ultraviolet light. The predominant fluorescent color is bright green or yellow-green. The TDM found that the surface waters in the muskeg swamps and creeks all show the typical uranium fluorescence when properly tested under the UV light. This technique is considered worthy of further study and wider application as an adjunct in uranium prospecting.

From the appearance of the deposits, there seems to be every reason to suspect that primary minerals occur below the surface weathering zone. In fact, at one very recent discovery, a heavy black mineral has been noted and tentatively identified as uraninite or pitchblende. Associated minerals include red, brown, and black hematite (including sparse specularite), manganese oxides, some rhodonite (pink manganese silicate), a trace of magnetite, purple fluorite, galena, chalcopyrite and pyrite.

Actually, the uranium occurrences have been recognized in three sub-areas. The principal deposits seem confined to the central granitic area. Thorium and rare-earth minerals have been recognized in the ores, but uranium predominates.

About a mile away on the opposite (north) side of the mountain, the occurrences occupy similar but narrower zones of fracturing, and in this sub-area, thorium is the principal radioactive identified thus far. The third sub-area extends northwest from the head of Kendrick Bay to the vicinity of the principal uranium claims on the south side of Bokan Mountain. To date, there have been a number of discoveries of low grade material extending northward from the beach. These reportedly are dike-like bodies of a more basic rock, the better ore accompanied by quartz, coarser-grained feldspar, and considerable pink manganese silicate. As in the other areas, differentiates are common and some purple fluorite accompanies certain of these differentiates (alkaline varieties ?). Fracturing seems more intense in this vicinity (near the head of Kendrick Bay) and it is suspected that a fault zone may exist along a contact near here and extend westerly several miles to a point where a diorite-slate contact has actually been observed. Near the latter locality, there is a substantial amount of purple fluorite and a low percentage of galena, but very low radioactivity.

Much of the region is either muskeg-covered or heavily forested. Only above timberline (about 1,000 feet) is the country rock frequently exposed to view. Detailed observations can only be made after chipping to expose fresh rock, since lichen growths, iron and manganese stainings, and other effects result in a uniform and misleading appearance over the surfaces of all the rocks. Generally there are no visible sulfides or ore minerals, but detailed study shows the presence of scarce pyrite, rare chalcopyrite, galena, purple fluorite, etc.

The most important associations with the uranium in the general locality seem to be the colored stainings, the purple fluorite, the pink and reddish colors of the manganese, and the hematite. There is also an apparent copper association which suggests search of other areas within five or ten miles of known copper deposits with special attention being paid to granitic rocks in these areas.

E. AND M. J. METAL MARKET PRICES

	Aug. 25, 1955	Month Ago	Year Ago
Copper, per lb.	40.6¢	35.7¢	29.7¢
Lead, per lb.	15¢	15¢	14-1/4¢
Zinc, per lb.	12-1/2¢	12-1/2¢	11¢
Tin, per lb.	96-1/4¢	98¢	93-1/4¢
Quicksilver, per flask	$254-256	$259-261	$290-293
Silver, foreign, New York	90-3/4¢	90-3/4¢	85-1/4¢
Silver, domestic, per oz.	90-1/2¢	90-1/2¢	90-1/2¢
Platinum, per oz.	$88-90	$80-87	$84-87
Nickel, per lb.	64-1/2¢	64-1/2¢	60¢
Molybdenum, per lb.	$3	$3	$3
Tungsten ore, per unit	$63	$63	$63
Titanium ore (ilmenite), per ton	$20	$20	$18-20