INTRODUCTION

From 1956 to 1964 the Bancroft Camp produced 10 million pounds of U_3O_8 valued at about $100 million, mostly from the Faraday and Bicroft Mines. In 1976 the Faraday Mine reopened with a new $100 million sales contract. These and other properties with substantial reserves are shown in Fig. 1. Besides obvious geological potential, the area is favoured with a location close to the Ontario market, a well developed infrastructure and a stable labour force.

In the past few years uranium prices have gone up from about $6/lb. to over $40. The Bancroft Camp is the scene of renewed interest in uranium exploration with many of the old showings being re-examined and some new ones discovered.

Since the period of intensive uranium exploration in the 1950s techniques have improved, most notably with the development of reliable, portable gamma-ray spectrometers with discrimination on the spot between uranium and thorium. This is particularly important in the Bancroft Camp where thorium is commonly associated with uranium.

This report describes the uranium potential of properties held by R. Rosenblat. Some of the showings were known in the 1950s but were thought to contain only thorium. Others were discovered in 1975 by T. Dancey.

PROPERTY AND ACCESS

This report describes a uranium property totalling about 1600 acres in the east central part of Monmouth Township, Haliburton County, Ontario (Figs. 1 and 2). The property comprises 6 miningclaims staked by R. Rosenblat in April 1977 and 24 miningclaims and 1 patented lot optioned to him, as follows:

Staked by R. Rosenblat:

Concession	X	lot 24 N½	#EO 497946
"	X	lot 24 S½	#EO 497947
"	IX	lot 22 S½	#EO 497957
"	IX	lot 23 N½	#EO 497948
"	IX	lot 25 N½	#EO 501938
"	VIII	lot 23 N½	#EO 501937

Optioned from T. H. Dancey and R. O. Bambrough:

Concession	IX	lot 27 S½	#EO 416466
"	IX	lot 28 S½	#EO 416467
"	IX	lot 29 N½	#EO 416465
"	IX	lot 29 S½	#EO 416462
"	IX	lot 30 N½	#EO 416464
"	IX	lot 30 S½	#EO 416463
"	VIII	lot 28	Patented
"	VIII	lot 29 N½	#EO 416454
"	VIII	lot 29 S½	#EO 416456
"	VIII	lot 30 N½	#EO 416455
"	VIII	lot 30 S½	#EO 416457
"	VII	lot 24 N½	#EO 454526
"	VII	lot 24 S½	#EO 454529
"	VII	lot 25 N½	#EO 454527
"	VII	lot 25 S½	#EO 454530
"	VII	lot 26 N½	#EO 454528
"	VII	lot 26 S½	#EO 454531
"	VI	lot 24 N½	#EO 454532
"	VI	lot 24 S½	#EO 454534
"	VI	lot 25 N½	#EO 454533
"	VI	lot 25 S½	#EO 454535
"	VI	lot 26 N½	#EO 431394
"	VI	lot 26 S½	#EO 431395
"	VI	lot 27 N½	#EO 431396
"	VI	lot 27 S½	#EO 431397

The property is 130 miles by highway northeast from Toronto and 100 miles north of Port Hope. Paved Highway 121 crosses the north end of the property. Access within the property is provided by the Hadlington Lake Road and by a road running south from Highway 121 along Cope Creek.

GEOLOGICAL SETTING

As part of the Grenville Province of the Canadian Shield, the Bancroft Camp (Fig. 3) is characterized by large areas of granitic gneiss, surrounded by high grade metamorphic rocks, mainly marble, paragneiss, amphibolite and calc-silicate rocks (Satterly, 1957). Other plutonic rocks include syenite, gabbro and diorite. A band of syenitic rocks extends throughout the camp in a northeasterly direction and, with the metasedimentary rocks, surrounds the bodies of granite-gneiss. The Cheddar granite and the Cardiff plutonic complex are round in shape and show concentric foliation. The Cheddar granite is completely enveloped by conformable sheets of marble and paragneiss which wrap around it.

The relative ages of the granitic and metasedimentary rocks are a subject of some disagreement. Earlier workers, such as Satterly (1957), concluded that the granites were intrusive into the younger metasediments and acted as the source of the uraniferous pegmatites. The modern concensus favours deposition of the sedimentary sequences over a granitic basement after a long period of erosion followed by regional metamorphism during which uranium was extracted from the sediments and deposited in pegmatites (E. Bright, personal communication).

Most of the uranium deposits in the Bancroft Camp are found near the margins of, and between, the granite-gneiss bodies (see Figs. 1 and 3). Faraday and Greyhawk are on the south side of

the Faraday granite. Bicroft, including its northward extension held by Kerr Addison, lies in a re-entrant between the Faraday and Cardiff granites. Halo is on the east side of the Cardiff granite. Dyno and the Landair property are on the east and north sides respectively of the Cheddar granite. Amalgamated Rare Earth is in between the Cheddar granite and the Glamorgan granite-gneiss. Camindex and Cavendish are on the east and west sides respectively of the Anstruther granite-gneiss. Part of the Rosenblat property lies in marble and paragneiss bordering conformably the Cheddar granite on the northwest and part lies further into the metasediments between the Cheddar granite and the Glamorgan granite-gneiss on strike with Amalgamated Rare Earth (Fig. 4).

Concentration of uranium near this contact is consistent with both the above theories. If the granites are younger the uraniferous pegmatites would have been deposited close to the contact with the cooler metasedimentary rocks. If the granites are an old basement, then the uranium would have been concentrated initially near the base of the overlying sedimentary sequences, either in conglomerates as in Elliot Lake, or in veins as in Northern Saskatchewan. In either case, the logical exploration approach in the Bancroft Camp is to concentrate along the margins of, and in between, the major granite-gneisses.

An airborne gamma spectrometer survey at ¼-mile spacing (Darnley, 1972) supports this pattern of concentration of uranium

around the edges of major granite-gneiss bodies. A strong north-easterly trending anomaly occurs along the south edge of the Faraday granite. Another strong anomaly extends north from Bicroft Mine into the Kerr Addison property in the re-entrant mentioned above. A smaller anomaly lies on the east side of the Cardiff granite although this is unfortunately cut off by the west edge of the map, at 78°05'. This survey did not cover the Rosenblat property.

A hydrogeochemical reconnaissance, at a spacing of 1 sample/ 3 sq. miles, was carried out by the present writer (Boyle et al, 1971). This likewise shows concentration of radon and uranium in lake and stream water associated with the known uranium deposits between and marginal to these granite-gneiss bodies. Part of the Rosenblat property is within this hydrogeochemical anomaly.

In summary, the Rosenblat claims are located in an especially favourable part of the Bancroft Uranium Camp. Uranium mineralization on the property, local geology, and relationship of nearby uranium occurrences are described in the following section.

DESCRIPTION OF THE PROPERTY

The Rosenblat property lies in a northeasterly trending zone of favourable geology between the Cheddar granite to the southeast and the Glamorgan granite-gneiss to the northwest. Most of the property is underlain by carbonate metasediments, paragneiss and pegmatite. The southeast corner overlaps the Cheddar granite and the northwest corner reaches the major zone of syenitic rocks mentioned above.

Adjacent to the Cheddar granite to the northwest is a 2000-foot-wide band of calc-silicate rocks, calc-silicate-calcite rocks, and pegmatite, with much of the latter radioactive. This unit strikes north-northeasterly and dips steeply to the east, conformable with the granite. It passes through the centre of the Dancey option in a north-northeasterly direction. Detailed mapping by Sharpley (1976) shows that these pegmatites are much more abundant than are shown on the O.D.M. map (Fig. 4). Their economic potential is described below.

Adjacent to the northwest is a band of paragneiss almost a mile wide. This has been sub-divided into hornblende gneiss, biotite gneiss and quartzo-feldspathic gneiss and contains areas of carbonate rocks as well as bodies of pegmatite, gabbro and syenite. This unit also strikes north-northeasterly and dips steeply to the southeast (Armstrong, 1970 and Sharpley, 1976).

Still further to the northwest is a 400-foot-wide north-northeasterly trending band of biotite granite and granite pegmatite followed by another 600-foot-wide band of pegmatites and an 800-foot-wide band of calc-silicate rock and phlogopite marble. Uranium occurrences here and their relationship with Amalgamated Rare Earth to the southwest are discussed below. The geology in the extreme northeast corner of the Rosenblat claims is more complex and includes syenitic rocks, nepheline rocks, paragneiss and granite.

Turtle Zone

The Turtle Zone (Fig. 5), previously known as the Zircon Zone and the West Zone, lies in the south half of lot 24, Concession X, 2000 feet south of Highway 121. It was explored by Saranac Uranium Mines Ltd. in 1954-56 who carried out a scintillometer survey, an open cut 150 feet long, six trenches, bulldozed strippings and ten drill holes totalling 1212 feet over a strike length of 150 feet. The present writer visited this location twice in May 1977, and in June a radon-in-soil-gas survey was carried out. No drill logs are available nor could any sign of the drilling be found on the property.

When Satterly (1957) examined this property he found very high geiger-counter readings, exceeding 125 times background in places. Because he identified thorite in the specimens, however, he concluded that nearly all the radioactivity was due to thorium. He didn't report any assays although Hodgson (1956) did report

that thorium assays were about 3 times as high as uranium. Today reliable portable gamma-ray spectrometers are available which permit discrimination between uranium and thorium on the spot. When I examined the property with one of these -- a McPhar model TV-1A -- I found the uranium content to be more than double the thorium. Satterly's negative interpretation may explain why the property was overlooked for so long and why it was open for Rosenblat to stake.

At the bottom of the open cut I found a highly radioactive skarn horizon. A thickness of 4 feet is exposed but the bottom is not visible, so it may be much thicker. The spectrometer indicates a uranium content of .046% uranium (.054% U_3O_8) and .026% thorium. Assays of two chip samples from here are .010 and .015% U_3O_8. The spectrometer reading may in fact be more accurate than the assays because it represents a larger volume of rock, at least several hundred pounds, whereas any assay is limited to the size of the sample collected. Generally the two techniques give the same results. This skarn horizon strikes at 10° and dips 30°E.

Elsewhere in the pit a spectrometer value of .084% uranium was found and in the dump a value of .074%, in both cases with much lower thorium. Satterly also reported radioactivity in zircon leucogranite.

The 10 drill holes, according to Satterly (1957), were planned to intersect zircon-bearing sills below the open cut

over a length of 150 feet. Four of these intersected albite granite pegmatite.

Hodgson (1956) reported

> the presence of one continuous zone of mineralization in excess of 100 feet long with an average width of more than 2 feet and containing more than 5% $Zr\ O_2$. This work, in conjunction with previous work, as well as prospecting, has indicated that this zone is considerably longer, and that there are at least 2 additional similar zones.
>
> Zircon mineralization has been discovered at various places along a strike length in excess of 2000 feet, with surface indications that several sections more than 100 feet in length will contain in excess of 5% $Zr\ O_2$. In conjunction with the zirconium, assays indicate that these sections will contain approximately 0.05% U_3O_8 and 0.15% $Th\ O_2$.

Nine hundred feet south of the south end of the large pit I found a radioactive spot in a soil-covered area. The TV-1A gives a broad band (Tl) reading of 6500 cpm here, compared with general background levels of 1000 to 2000 cpm. Not only does this extend the Turtle Zone 900 feet to the south, it also lies on the projected strike connection between the large pit and the Amalgamated Rare Earth ore, another 7000 feet to the south-southwest. Surface discoveries, confirmed by scattered drilling, are reported (Bayne, 1968) along this zone on the Amalgamated Rare Earth property, providing further evidence that the zone continues north from the No. 1 shaft, although the precise location is not known.

The geology of the No. 1 shaft area is quite similar to the Turtle Zone. Satterly (1957) reports that the country rock

underground is phlogopite-diopside quartzite with interbeds of marble. These strike north to northeast and dip 15-55°E. The principal ore occurs in granite or granite pegmatite bodies intruding these metasediments. There is every reason to believe that these are one and the same zone and that drilling on the Rosenblat property south of the Turtle exposure will confirm this (see Fig. 4).

The potential length of this zone on the Rosenblat property is 8000 feet, 4500 of which are to the south of the large pit. Uranium ore reserves developed by the two shafts on the Amalgamated Rare Earth property are officially estimated at just over half a million tons grading just over 2 lbs. per ton U_3O_8.

Recommendation: Four 500-foot holes should be drilled from east to west under the Turtle Zone to test for ore down dip and along strike. At the same time a surface scintillometer survey should be carried out at a line spacing of 200 feet or less with fill-in between lines in radioactive areas. Further radon surveys should also be carried out for detail in overburden-covered areas. Further drilling will be contingent on the results of the above.

Beaver Zone

Saranac Uranium Mines Ltd. also explored the "east pegmatite zone", referred to here as the "Beaver Zone" (Fig. 5), in the south halves of lots 23 and 24 and the north half of lot 25, Concession IX, 400 feet east of Hadlington Lake Road. The present writer visited this location twice in May 1977 and in June a radon survey was carried out. The exposures are just off the north edge of Rosenblat's Claim No. 501937 but the mineralization probably extends onto this claim and is reported on his Claim No. 501938 (Hodgson, 1956).

Country rock here, according to Satterly (1957), is a biotite amphibolite or hornblende gneiss and metagabbro. These rocks have been intruded by a series of lenticular bodies of granite, parts of which are radioactive.

Uranium mineralization is well exposed in an open cut 100 feet by 20 feet, near the south end of lot 23, Concession IX. This is shown in O.D.M. map 2174 south of the concession line but this is apparently an error. Satterly (1957) has it in Concession IX.

The radioactive rock is a dark red pegmatitic granite similar in appearance to the Bicroft and Faraday ore. Satterly (1957) describes it as a sill striking N35^{o}E and dipping 45^{o} - 52^{o}SE with an exposed thickness of 7 feet. The writer obtained a spectrometer determination of .021% U_3O_8 and a representative sample assayed .010% U_3O_8.

This zone appears to be a continuation of the cliff zone (Fig. 4) on the Amalgamated Rare Earth property, 8000 feet to the south-southwest. It is also reported to extend through Rosenblat's Claim No. 501938, 4000 feet to the north-northeast, where it has been intersected by drilling (Hodgson, 1956).

Saranac Uranium Mines Ltd. drilled 32 holes totalling 7286 feet on this zone. Seven of these were on Rosenblat's Claim No. 501938 to the north, but no drilling has been done on his Claim No. 501937 to the south. No drill logs are available and the reporting by Hodgson (1956) is sketchy. Further work is warranted on the Rosenblat property at the north and south ends of this zone.

Recommendation: Two 300-foot holes should be drilled on the Beaver Zone in Claim No. 501937. Surface scintillometer and radon surveys should be carried out on this and Claim No. 501938 as described for the Turtle Zone. Further drilling will be contingent on the results of the above.

Dancey Zone

In 1975, T. Dancey discovered radioactive pegmatites in lot 28, Concession VIII, and staked a group of claims. I visited the property twice in 1975 and recommended it to Lacana Mining Corporation, who optioned it and carried out geological mapping, trenching and radon and magnetometer surveys (Sharpley, 1976).

I also supervised the radon survey (Morse, 1976), which occasioned many visits to the property. The property is now under option to Rosenblat and is referred to here as the Dancey option.

Detailed geological mapping by Sharpley (1976) revealed numerous radioactive pegmatites in the zone of carbonate metasediments adjacent to the Cheddar granite. Trenches were blasted in two of these and chip samples taken for assay. In a trench in the north group, between lines 10N and 12N at 1W, an average assay of .011% U_3O_8 and .027% ThO_2 was obtained over a width of 34 feet. In the south group

> a pegmatite zone 100 to 200 feet wide within calc-silicate rocks 200 feet west of the granite contact is radioactive in outcrop over a minimum strike length of 1600 feet. On lines 0 and 2N the total count on the BGS-1SL varies from 400 to 1500 cps before rock trenching and 500 to 2500 cps after trenching. Chip samples from the 60 foot trench of the pegmatite on line 2N from 2+64W to 3+14W returned an average assay of 0.011% U_3O_8 or 0.22 pounds per ton over a width of 13 feet.

Recommendation: Four 300-foot holes should be drilled to test the radioactive pegmatite zones, on lines 12N and 24N on the north group, and lines 0N and 16N on the south group.

Radon-Magnetometer Anomaly

Some of the highest radon readings in the survey of the Dancey property were obtained in a low area just west of Irondale River on the south group. The anomaly follows the

RADON SURVEYS

In order to add definition to some of the drilling targets, radon surveys were carried out by R. Devonshire in June 1977, under the supervision of the writer.

Radon values over parts of the Turtle and Beaver Zones are presented on Fig. 5. These results do not strengthen the interpretation; however, it must be remembered that radon geochemistry is not well understood and depth penetration is not great. Lack of a radon anomaly does not preclude buried mineralization because factors such as impermeable soil can prevent upward migration of radon.

The radon-magnetometer anomaly was confirmed although at a much lower level, owing to diurnal variations in radon flux. The readings obtained on line 44N were among the highest among 487 readings taken in June 1977 in various parts of the Bancroft Camp.

contact between calc-silicate rocks and paragneiss from line 40N to 52N and perhaps beyond. The highest readings, on line 44N, are coincident with a strong magnetometer anomaly.

Satterly (1957) described the "Pyroxenite Zone", explored by Amalgamated Rare Earth Mines Ltd., which is on strike with this anomaly to the north (see Fig. 4). It is off the property and off the grid at a position equivalent to line 70N. It is described as "pyroxene skarns in rusty-weathering gneisses striking N20^{o}E and dipping 65^{o}E." Pyroxenite has a high magnetic susceptibility and could easily explain the magnetometer anomaly as well as the radon anomaly.

Recommendation: This anomaly should be tested by two 300-foot holes on lines 44N and 52N.

REFERENCES

ARMSTRONG (1970)
Ontario Department of Mines Map 2174, Monmouth Township, and open file report.

BAYNE, A.S. (1957 and 1968)
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BOYLE, R.W., HORNBROOK, E.H.W., ALLAN, R.J. and SMITH, A.Y. (1971)
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Airborne gamma-ray survey techniques;
Uranium Prospecting Handbook, Inst. of Mining and Metallurgy, p. 174-211.

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The surficial geochemistry of radium, radon and uranium near Bancroft, Ontario, with applications to prospecting for uranium; Ph.D. thesis, Queen's University, Kingston, Ontario.

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Presented at IAEA/NEA Int. Symposium on Exploration of Uranium Ore Deposits, Vienna.

ONTARIO DEPARTMENT OF MINES
Preliminary Map P-687, Data Series, Monmouth Township

Map 146G, Aeromagnetic Map

Map 1957b, Haliburton-Bancroft Area

SATTERLY, J. (1957)
Radioactive Mineral Occurrences in the Bancroft Area
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Lacana Mining Corporation

SUMMARY OF RECOMMENDATIONS

The following program of drilling is recommended with large-diameter holes to allow for probing with a gamma logging system:

Turtle Zone	4	500-foot holes
Beaver Zone	2	300-foot holes
Dancey Zone	4	300-foot holes
Radon-Magnetometer Anomaly	2	300-foot holes
TOTAL	4400 feet	

Further surface scintillometer and radon surveys are recommended as well, to provide additional targets and add definition. The above drilling program should, however, be carried out regardless of these.

Ontario

900

Ministry of Natural Resources

Notification of recording of assessment work credits

Supervisor, Projects Unit
Mining Lands Section
Ministry of Natural Resources
Room 1617, Whitney Block
Queen's Park, Toronto
M7A 1W3

Date of recording of work: May 19, 1978

Recorded holder: Robert Rosenblat

Address: 104 Anthony Road, Downsview, Ontario

Township or Area: Monmouth Twp.

Type of survey and number of Assessment days credit per claim	Mining claims
Geophysical	EO. 497947
Electromagnetic ____ days	497948
Magnetometer ____ days	501937
Radiometric 21 days	
Induced polarization ____ days	
Section 86 (18) ____ days	
Geological ____ days	
Geochemical ____ days	
Man days [X] Airborne [ ]	
Special provision [ ] Ground [X]	

Notice to recorded holder:

[X] Survey reports and maps in duplicate must be submitted to the Projects Unit, Toronto within 60 days from the date of recording of this work.

July 10/78

Mining recorder

c.c. Robert Rosenblat

[ ] Reports and maps are being forwarded to the Projects Unit with this letter.

Form LA. 065 (03/74)

2.2754

THE TOWNSHIP OF MONMOUTH

COUNTY OF HALIBURTON

EASTERN ONTARIO MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

Dudley Twp. M.84

Glamorgan Twp. M.95

Cardiff Twp. M.69

Anstruther Twp. M.45

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KINGS HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

NOTES

This Map Is Not To Be Used —FOR SURVEY PURPOSES—

400' Surface rights reservation along the shores of all lakes and rivers.

Original shoreline shown thus:

F.R.I. shoreline shown thus:

Patents Map shoreline shown thus:

For status of summer resort locations shown thus

Please contact Ministry of Natural Resources.

PLAN NO.- M.164

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

200