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January 1, 1949

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## A GEOLOGICAL ODYSSEY THRU THE PROVINCE OF ONTARIO, CANADA

By JOEL HALPERN

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During the month of June my suppressed symptoms of spring fever erupted and I was left with a desire to travel north. This led me on a strange and fascinating journey through northern Ontario. I inveigled my friend John to accompany me. I told him he would never regret such an enlightening tour, I don't think he ever will. We made our little expedition extremely interesting from a geological standpoint. Unfortunately in many instances our explorations were limited by our peculiar means of travel (hitch-hiking). In spite of this we were able to do most of the things that we originally planned. In the course of our travels we collected fossils, minerals and some interesting anecdotes about the romance of mining.

I met John in Toronto. There we made some inquiries about certain fossil localities from the Museum of the University of Toronto and then I went over to the Bureau of Mines to get some more detailed information and some maps of various mineral localities. After making the usual inquiries about Cobalt, Sudbury and the northern gold fields, I casually inquired about Coral Rapids. (Coral Rapids is a tiny railroad station on the Moosonee line of the Northern Ontario Railway about 90 miles south of James Bay, the southern extension of Hudson Bay; some interesting fossil corals and plants of about Devonian Age have been found there). Hadn't I heard there had been a big Uranium strike up there and the news had been on the front pages of all the Toronto papers? Well this to put it mildly increased my enthusiasm for the trip immensely. So after getting a word or two of advice (e.g. take plenty of fly dope and mosquito netting) and purchasing some supplies, we left Toronto by truck for North Bay.

We arrived in North Bay 238 miles north of Toronto the following morning. From there we secured transportation to the town of Cobalt once one of the silver

mining centers of the world. Today it is a village of two thousand people. The landscape is dotted with huge piles of waste rock, rusty mine shafts and rusty tin shanties. Despite the fact that an article appeared in one of the leading New York newspapers saying that Cobalt is undergoing a revival due to the fact that some of the waste rock contained Uranium; I found no sign of such increased activity. After speaking to some of the geologists who did survey the piles with Geiger Counters, they told me that it was just a routine check and nothing of unusual interest had been found.

### Silver-Miller Mine

One of the few silver mines still operating in this area is the Silver-Miller Mine which is largely owned by American interests and since I was an American tourist I was treated very kindly by Mr. Miller. The mine is located about three miles from town near the edge of a small lake in a densely wooded area. The mine employs about 25 men and there is one shaft about 500 feet deep. The mine itself is part of an old claim that was given up and then reopened by Mr. Miller, an old time prospector, who was sure that he would strike pay dirt. After drilling under the lake they struck a rich vein and have been producing high quality silver ore ever since. One of the engineers showed me around the property. There is one wooden shaft house. Nearby there are two piles of rock. One of these is an ore pile the other waste. A short distance away there is a two story wooden building that serves as the office. I was a little surprised to see all the different forms in which native silver is found. I saw samples of silver in the form of wires growing out of rock, in the regular massive form, imbedded in calcite, and in thin sheets found between layers of rock. In the mine office there were several pieces of solid native silver weighing as much as 50 pounds each. Most of the silver occurs at the junction between the

Nipshemning diabase and the basalt rock, these junctions occur at two levels and it is from there that most of the output of the mine comes.

Later during my visit I was fortunate enough to be able to go underground. After being equipped with a metal hat, acetylene lamp, rubber coat and boots I descended the shaft. The silver occurs in thin calcite veins sometimes native but more often thinly disseminated throughout the rock or with cobaltite or smaltite. The metal is mined by stoping, that is, they drill up and then blast down and carry the ore away in cars.

Thru the kindness of the mine manager, I was allowed to explore the mine and ore piles. I was able to secure some rather good specimens of leaf silver, massive silver, hollandite, stephanite, cobaltite, smaltite, niccolite and several other minerals.

#### Collecting Fossils at Wabi

From Cobalt we went north to New Lisekard a distance of ten or twelve miles. There we went out to the tip of Wabi or Dawson's Point, a short piece of land protruding into Lake Timiskaming. Under the crumbling limestone cliffs, we collected fossil corals chiefly of the Silurian Age. These cliffs are very interesting for they consist partly of the so-called lithographic limestone an extremely smooth stone used for lithography. I sent my collection back to the University which I attend so that it may be possible to check on the extent of the Inland Sea which once existed there during Geologic Time (probably Silurian time).

#### Coral Rapids, Ontario

We now continued north thru Englehart, Winston (Swastika), and Cochrane. From Cochrane we travelled north to Coral Rapids by train. It was our only alternative since there are no roads north of Cochrane. The train was quite an experience in itself. It runs north only on Tuesday and Thursday and south on Wednesday and Friday. There is no schedule and the time you arrive at your destination depends entirely on the good will of the train crew. The people going up on the train were mostly Indians and trappers. However we did meet one "happy" pros-

pector who offered to fly us to the Yukon where we could easily make our fortune in a Uranium find. Nevertheless he did give us some helpful hints on identifying native gold. It can be easily distinguished from iron pyrites by its rough feel, the same is also true of native silver. About six hours later we arrived in Coral Rapids. The train stopped before a group of sheds: a watertower and one house belonging to the section foremen. The whole town was out to greet us, the postmaster, an old pensioner and his wife, three section hands and the section foreman. The woods surrounding the track and the town consist largely of conifers interspersed with some birch. Away from the railroad the whole area is largely muskeg and infested with insects. Thus boots and fly dope are a necessity. At the town we met several geologists who represented some of the largest mining concerns in the Dominion. They were very courteous and invited us to their camp four miles upstream on the Abitibi River, which parallels the railroad line. (Note: All of this area is within the Arctic Watershed, i.e. all waters flow toward the Arctic Ocean.) Therefore upstream is south.

Arriving at their camp the following day, we were informed that we would be guided to the sight of the original strike and to date the only one. We were also a little disappointed to learn the truth about this Uranium find. It was so vastly different from the newspaper account. Wherever the outcrop is exposed it causes activity on the Geiger counter. On the most sensitive (2M) scale the meter will go off scale in most places in the vein, but on the intermediate (10M) scale, the readings over the vein, with the Geiger counter resting on the outcrop are about 4 to 8 times normal. Nevertheless the land has been staked by many mining concerns and individuals for miles around. Even the men on the train crew have their claims.

#### Uranium Strike at Coral Rapids

From the geologists' camp, the claim is only about a mile but it is on the other side of the river at the head of Otter Rapids. Crossing the river above the

rapids then following a portage for about 30 chains to the north, and then striking back toward the river, is the easiest way of reaching the vein. The site of the strike is indeed picturesque. It is located at the foot of the Rapids. The towering cliffs and the extremely turbulent water remind one of the Grand Canyon of the Yellowstone. The vein outcrops in a rocky cleft between the river and the shore. The vein itself is only about a foot wide. The radioactivity seems to be confined to a single vein of carbonate material. The carbonate is a pale grey-green color and crystalline, with a granular texture, weathering to a smooth brown surface. It is probably impure dolomite and reacts only slightly to cold dilute hydrochloric acid. The only common ore mineral noted in the carbonate vein is specularite. Pyrite is sparsely present in tiny cubes and chalcopyrite although noted is quite rare. Microscopic analysis of the vein material shows it to consist of more than 75 percent carbonate, with the remainder made up of feldspar, mica, and hematite. The feldspars are in poorly formed phenocrysts of orthoclase and albite, which shows all stages of replacement. The mica is pale-green muscovite and probably the cause of the greenish color of the vein. The  $U_3O_8$  runs between .12 and .03 percent. The fact that radioactivity is present in the pegmatites which surround the vein suggest that further prospecting may uncover valuable deposits.

#### **More Fossils Collected**

This ended our mineral collecting in the area but our fossil collecting was just beginning. Several miles downstream at a locality called Sextant Rapids we secured some fairly good specimens of leaf imprints in a green micaceous shale one or two feet above the water level of the river. Further upstream at Coral Rapids I obtained some nice Paleozoic invertebrates at the base of some overhanging limestone cliffs.

#### **Sylvanite Gold Mine**

On our way home we stopped at Kirkland Lake and were fortunate enough to be able to visit the Sylvanite Gold mine. The gold found in this camp is

mostly in the combined state and is finely disseminated throughout the rock. The ore runs between twelve and fourteen dollars a ton. Compared to the silver mine I had previously seen, the gold mine really represented mass production. There were several hundred men working there. The property included a huge crushing mill and a large refining plant. The main shaft goes down more than 4,000 feet. The ore occurs in large veins sometimes as much as twelve feet across.

After being blasted out the ore is brought to the surface where it is finely crushed and then ground into a well divided powder. This powder is then treated with sodium cyanide solution in order to dissolve the gold and silver. The tailings or waste rock is then filtered off by means of huge rotary drums and discarded. In fact the original Kirkland Lake has been completely filled up with tailings. The solution containing gold and silver is then passed thru finely divided zinc and the gold and silver are precipitated as a black sludge. From this the metals are easily extracted.

When I came back to the mine office after going underground I was shown several samples of native gold and was fortunate enough to secure a specimen containing native gold and sylvanite, a gold-silver telluride for which the mine is named.

#### **Acknowledgment**

I am indebted to Mr. Nelson Hogg, Provincial Geologist, Timmins, Ont., for some of the information on the Uranium strike at Coral Rapids. Recent correspondence shows that the radioactivity is due mainly to thorium.