A GUIDE TO Prospecting in Newfoundland and Labrador

Contributed by:

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What is prospecting?

Prospecting may be considered as the ***art and science*** of searching for minerals and rocks that are attractive, interesting or of economic value. This may include rock-hounding, collecting fossils or mineral specimens of gem quality. Prospecting is an ***activity*** that appeals to people of many different walks of life, who enjoy being in the outdoors. Fisher people, loggers, hunters, and others quickly add a whole new perspective to their outdoor life after they have taken a prospecting course. Rocks which had previously gone unnoticed come alive and tell a story to the newly-awakened prospecting eye. To the experienced eye, an outcropping of rock is a chapter of the earth's history frozen in time and space, waiting to be unravelled.

Figure 1: Al Keats, panning for gold. **Alex Turpin, taking a sample**

A professional prospector, one who is engaged in the search for a commercial ore deposit, systematically walks the ground, observing bedrock and boulders and collecting samples for either mineral or chemical analysis. If he/she discovers something of interest, he/she may stake mineral claims, and proceed to explore the prospect in detail. This can be a time-consuming and

expensive venture, sometimes requiring extensive knowledge and sophisticated equipment. However it can also be financially rewarding as it may lead to forming a commercial arrangement with a mining company.

On the other hand, an amateur prospector or rock hound may simply enjoy looking for interesting rocks and minerals anytime he or she is outdoors. This can be a fulfilling and rewarding lifetime hobby and can yield a multitude of eye-catching specimens and conversation pieces.

For more information and links to articles that will expand your knowledge on prospecting, please refer to the Appendix.

Prospecting in Newfoundland and Labrador: Some history

Perhaps the earliest recorded prospecting venture in Newfoundland and Labrador was that which occurred near the present harbour of St. John's, instigated by Sir Humphrey Gilbert. In 1583, Gilbert brought out a Saxon miner, named Daniel, who prospected the shores and reported silver. No commercial deposits of any mineral were found, however, and both Gilbert and Daniel were lost on the return voyage (Online Canadian Encyclopaedia).

One of the most famous historic mineral discoveries in Newfoundland and Labrador was that of the Buchans lead-zinc-copper-silver-gold mine in Central Newfoundland by prospector Matty Mitchell in the early 1900's. The Buchans prospect became a world class mine which operated more than half a century, and gave rise to a still-thriving town. The tradition of prospecting has continued down through the years, with the most notable recent success story being the discovery of the world-class Voisey's Bay nickel-copper-cobalt mine by local prospectors Al Chislett and Chris Verbiski in 1993. Other prospecting discoveries include well-known, past-producing mines, such as Rambler (copper) and Advocate (asbestos), on the Baie Verte Peninsula, the Beaver Brook Mine (antimony), near Gander, and significant deposits such as

Kitts-Michelin (uranium), Cape Ray (gold) and Point Leamington (copper/zinc).

Figure 2: Prospectors Matty Mitchell-ca. 1905? (left) and Chris Verbiski with Al Chislett-ca. 1995 (right), at Voisey's Bay, 1994.

Why prospect?

People who spend time in the outdoors can add prospecting to their activities with ***little or no added costs***. The only essential piece of equipment is a rock hammer (and safety glasses). Prospecting can be quite ***rewarding*** when economic minerals or interesting rocks are first discovered. Gemstones and fossils are also found in Newfoundland and Labrador and are much sought after by collectors. Prospecting can be quite strenuous depending on the terrain, making it an excellent way of ***keeping fit*** and enjoying nature. Some prospectors make a full time living at their craft and a rare few (not necessarily experienced) may discover a rich mineral deposit and become ***millionaires!***

Why is prospecting important?

Exploration and development of new mineral prospects creates substantial wealth and economic spin-off activity: this is especially important in rural areas which depend on resource development for jobs. Prospecting generates new mineral discoveries (or "prospects") and is the critical first stage of the mineral exploration process. Mining companies explore these new prospects, hoping to define greater accumulations of valuable minerals on or below the surface. If these minerals are found in sufficient quantity, which can be extracted and processed for a profit, then a mine may be developed. In most instances, of course, this is not the case.

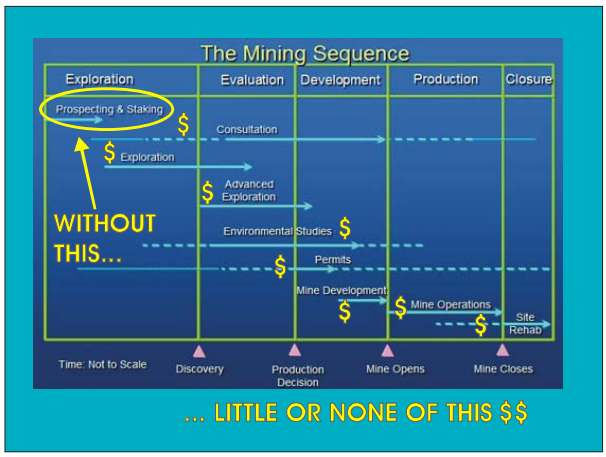

Figure 3: The importance of prospecting

Many millions of dollars are spent without finding an economic mineral deposit; exploration companies then move on to examine other new prospects. But when a prospect does become a mine, the economic impact can be enormous.

What makes a good prospector?

Good prospectors share several traits, some of which they are born with and some acquired by practise:

-It helps considerably to have ***a love of the outdoors***!

-Be willing to ***learn new skills***…

-Be a ***keen observer***…

-Be persistent: this is often the key to finding significant mineralization…

-Be willing to ***listen to your gut feeling***…

-Be willing to ***work hard*** and spend lots of time in the field…

-Explore where no one else has dared to go…

-The combination of all or some of these skills increases ***the luck factor***!

Most successful prospectors possess great persistence and stamina, and are gifted with the ability to think ***"outside the box"***. They also tend to be self-reliant, and competent in most aspects of travel, working and living in the wilderness. Many have strong entrepreneurial instincts.

Most professional prospectors are familiar with the fundamentals of mineral exploration and basic principles regarding the geology of ore deposits. This knowledge is typically gained through ***self-education and experience***, which in some cases may be augmented by government- and private-sector-sponsored ***training courses***. Many seasoned prospectors have gained additional experience through employment with mining and exploration companies. Newfoundland and Labrador's prospectors enjoy a ***well-earned reputation*** as being amongst the most passionate, keen, energetic and successful anywhere.

In recent years, a variety of factors have combined to encourage a new generation of successful prospectors in Newfoundland and Labrador. These include

- Prospecting success, which has often led to lucrative commercial agreements, or employment with companies, or both
- Government training, mentoring and fiscal incentive programs, which support and encourage prospecting and exploration.
- A growing list of major mining companies is becoming aware of the geological diversity of Newfoundland and Labrador and the mineral potential of its highly prospective, under-explored geological terranes.
- Changes in the 1970's/1980's to our mineral land tenure system which provided individuals with the opportunity to stake anywhere in the province.

How to prospect safely

The basic rule of thumb in the bush is to ***work with a buddy***. If this is not

possible in some situations, ensure that ***someone knows*** where you are going, and when you plan to return. Some other important suggestions are:

- Apply ***common sense*** to all situations.
- ***Remain calm*** in an emergency.
- Never work on a cliff edge. Be careful of falling rock at cliff bottoms, and wear a ***hard hat*** if working in a quarry!
- Always carry or wear ***adequate clothing*** to protect from cold, rain and sunburn.
- Check your ***local weather forecast*** before going out.
- Always wear ***safety glasses*** when using a hammer. Geologists have lost an eye because they did not wear glasses while hammering rocks. Make sure that the people around you have eye protection too.
- Know how to use your ***map and compass***.
- Carry and know how to use a ***GPS*** (Geographic Positioning System).
- Know how to deal with ***black bears*** – respect them at all times!
- If you are using a boat or canoe, a ***life jacket is essential*** and bring extra oars.
- If driving an ATV, always wear a ***helmet*** and carry a small ***maintenance kit***.
- Carry ***first aid*** and ***survival kits*** in your backpack. A survival kit does not need to be fancy to work. All you need is something to keep you warm, some food and some shelter. The bare minimum is a box of waterproof matches, a few granola bars, nuts and a space blanket. Think about what you would need to survive cold and wet, overnight in the woods. Don't make it heavy or you will be tempted to leave it behind. A first aid kit should help you treat minor injuries and stabilize major injuries until help arrives. Make sure that you carry a triangular bandage, some pressure bandages and band-aids at all times. Carry insect repellent and sun block.

- ***Remember: The best safety rule is to keep alert, remain cool, calm and collected and think about what you are doing. Foresee and thus avoid danger.***

What are a prospector's "tools of the trade"?

- Rock hammer or rock pick.
- Safety glasses.
- Plastic and paper (Kraft) sample bags
- A waterproof marker to label samples
- Notebook with waterproof cover, pencils and waterproof pens
- Maps – Topographic and Geologic
- Aerial Photograph
- Air photo holder/clipboard
- Compass (with clinometer to measure angles) and GPS
- Camera, extra film and photo scale
- Hand lens or magnifying glass
- Orange flagging tape
- Pocket knife to test hardness of minerals
- Bottle of dilute (10%) hydrochloric acid (a few drops cause carbonate minerals to fizz)
- Magnet to test for magnetic minerals
- Lots of insect repellent and/or fly net to protect face
- First Aid and Survival Kits
- Material to start fire in emergency (you may find dry Old Man's Beard and birch bark in the woods)
- Back Pack: Lightweight with enough room for samples, lunch, first aid kit, survival kit, raingear, sweater and a few odds and ends; external pockets help you organize things; waterproof to protect contents and good padded straps and a waist belt.

What to Wear?

Good sturdy boots with non-slip soles and ankle support; steel toes are an extra benefit.

Some people prefer **gumboots** if working in marshes or wet bogs.

Heavy wool socks help to prevent blistering.

Strong **loose cotton pants** help you move in brush and will not tear.

Wear a belt, and remember ***light or neutral colours will attract less flies.***

Wear a long T-shirt to tuck into pants; this helps prevent chafing with backpack and makes it harder for black flies to bite you.

Long sleeve shirts that button up to the neck to keep flies out.

Fly Net.

Work gloves.

Hat to keep sun off.

Safety glasses.

Always carry a sweater and a raincoat with you. You can get hypothermia even in the summer.

How to use all this stuff?

It might seem like a lot of equipment to carry around all day, but you will use much of it on a regular basis. Here is how all this equipment might work together for a successful day in the bush. You have ***walked*** all day in the woods, over bogs, through a boulder field, over and under dead falls using your ***map, compass and air photo*** to navigate from outcrop to outcrop. The flies are thick, but your ***cotton shirt*** and hat keep them out. It was cold after lunch so you put on your ***sweater***. You find the outcrop you could see on your air photo. Walking along the base of it you find a quartz vein. You put on your ***safety glasses*** and making sure your ***buddy*** has his on also, you break off a piece with your ***hammer***. With your ***hand lens*** you see a little piece of gold so you mark an X on your ***map*** and put a number by it. You place the ***sample*** in your ***plastic sample bag***

and mark the number on the bag with your ***waterproof marker***. In your ***notebook*** you write the same number and make some notes: "Gold found in quartz vein, hosted by rusty rock - sample number PP-09-001" (PP are your initials, 09 is the year and 001 is the sample number). Most people now use GPS units – so make note of your UTMs (Glossery). You write the same number on the sample with your waterproof pen. You put your ***scale card*** by the vein, take a ***picture*** and record it in your notebook. It starts to rain so you put on your ***rain gear*****.** Check your map; pick out an easy route home because it is dangerous to walk over wet boulders and logs. You see on your air photo an old logging road which leads out of the forest back to your camp. It is a bit longer but it is easier going so you walk to the road and follow it back to the camp, arriving on schedule, safe and sound, with news of a new gold occurrence (Amended from Hayes, 1998).

Figure 4: Prospectors in Labrador

Where to begin

Some research is necessary before you begin prospecting. The more informed you are, the more effective will be your prospecting efforts and the easier it will be in the field.

Geology Map: Obtain a geology map of the area you will be prospecting. You may not know anything about rocks but at least you will be able to immediately start relating terms on the map to actual rocks on the ground.

Topographic Map: Essential for finding your way around the country. These maps give a very good "bird's eye" view of the land. They provide reliable details about rivers, ponds, cliffs, hills, bogs, roads. All serious prospectors now get their topographic maps loaded onto their GPS units so that they can actually follow their traverses on screen. The most common scale of topographic map is 1:50,000.

Previous work: Has there been any previous exploration work done on the area you are going to investigate? You can obtain this information through the Department of Natural Resources. Much of the previous exploration work done in Newfoundland and Labrador is now available on-line for free.

What to look for

All rocks may look the same to a novice prospector, however, with a little bit of practice, different rocks take on a character of their own. Newfoundland and Labrador is blessed with more diverse geology than many other places, which makes it that much more interesting for prospecting. Successful prospectors break a lot of rocks to see what they contain. The bedrock may be a nondescript quartz vein with nothing of interest visible – but break it open and it may reveal a nugget of gold! Rocks which contain metals or minerals of economic value are said to be ***'mineralized'***, or to contain ***'mineralization'***. Certain features common to many mineralized rocks are usually signposts for an experienced prospector. These include:

Gossans: Typically, one of the most tell-tale signs of mineralization in a rock is the presence of a ***"gossan"***. This is the weathered, rusted surface of a rock containing iron-bearing sulphide minerals, which on contact with air and water have turned varying shades of red, brown and yellow. Gossans are easily recognized and are a likely sign of mineralization, possibly base metals. Pyrite is usually the most abundant sulphide in deposits associated with volcanic rocks. Learn to distinguish between gossan and the more orange-coloured, weathered surface that occurs on certain types of rocks rich in other iron-bearing minerals. But be on the lookout: some of the richest deposits, like Buchans, are pyrite-poor and high grade boulders from these are not gossanous.

Figure 5: Discovery Hill gossan - Voisey's Bay, Labrador.

Quartz veins: Many (but not all) gold showings are contained within, or associated with, quartz veins. White or greyish quartz veins are easily seen in a rock, and are usually worth a closer look. Although gold may not be visible, gold-bearing veins will often contain other minerals, such as pyrite, which may indicate its presence.

Boulders: Look for boulders with massive quartz (it may contain gold), metallic minerals or mineralization. Find out the ice directions in the area and attempt to trace the boulders back to their source. Pay particular attention to mineralized, angular boulders – these are close to their source. Rounded boulders with sharp edges worn away, may have travelled long distances – perhaps many kilometres.

Figure 6: "The Big Kahuna" Mineralized boulder found by Messina Minerals in Central Newfoundland.

Alteration*:** Alteration is a common feature which refers to physical and chemical changes in a rock associated with mineralization. One has to know what an unaltered or "fresh" rock is to appreciate the significance of an altered rock. A ***fresh rock still has its original composition and mineralogy, regardless of its origin. Alteration occurs in that rock when it is invaded by hot fluids which change its composition. These fluids are commonly associated with economic minerals, and thus alteration and mineralization are associated. One of the most important things to know about alteration zones is that they are generally much larger than the actual zone of mineralization. If you find altered rocks you may be close to finding the mineralized zone! Chlorite, quartz, sericite

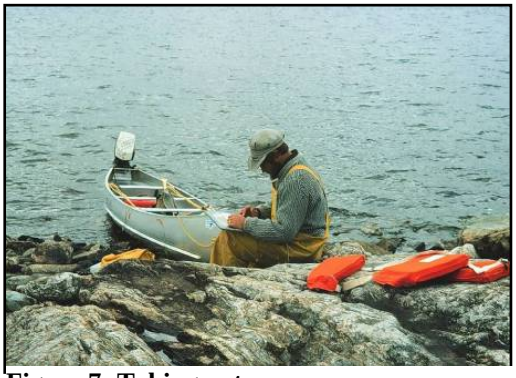

Figure 7: Taking notes

and pyrite are common alteration minerals. Thus, to use a hunting analogy, finding alteration is a bit like finding fresh moose tracks – you know the moose is near!

What are Samples?

A professional prospector will usually collect samples from mineralized rocks that he/she finds, and send them to a lab for analysis to determine the metal content. The results will help to determine the next course of action. There are different sampling methods used depending on the amount of mineralization and the stage of exploration. Samples are simply pieces of rock which are intended to be representative of the mineralized outcrop or boulder they came from. Some tips to follow when taking samples include the following.

- Take ***fist sized samples*** - adequate for geochemical analyses.
- Try to sample ***fresh rock*** (trim or remove weathered surfaces).
- If a ***gossan*** is present try to get a sample which represents the fresh rock underneath it.
- Pinpoint your ***sample location*** on a map, air photo, or with a GPS co-ordinate.
- Bag and ***number the sample*** (the lab will use this number)
- ***Do not wear rings or jewelry which could result in false analyses*** (gold, silver, etc)

The Grab Sample…

A simple "first pass" sample that one grabs from an outcrop with perhaps a little speck of pyrite showing, is called a "grab sample". Such a sample, ideally, is at least fist-sized and when analyzed will give an indication of the metals, if any, that are present in the outcrop. Generally, it is better to take several small pieces (instead of just one): these will be more representative of that outcrop, and therefore of the mineralization. You should always consider keeping a representative sample (one piece that looks typical of the

mineralized bedrock) for future reference, since the samples sent to the lab will not be returned to you.

The Chip Sample…

The chip sample may be taken on a return visit to an outcrop, when an earlier grab sample has indicated the presence of mineralization. In this method, small chips of rock are taken every few centimetres across the mineralized zone and when analyzed, will give a more accurate representation of the nature and amount of mineralization present. Enough chips are taken to half-fill a medium-sized sample bag and several such chip samples may be taken across the width of the outcrop (typically over 1 – 3 meter intervals).

The Channel Sample…

The channel sample is a continuous sample taken by rock saw (ideally) across an approximate metre-wide section of the outcrop. When analyzed, this sample will give a very accurate representation of the metal content. Again, several samples will normally be taken across the outcrop. Channel sampling is normally done by mineral exploration companies. Rock saws can generally be rented through local hardware outlets.

The Soil Sample…

There might be one little quartz knob, a metre across, with a speck of gold, in the middle of a bog. The question is – is there more? One way to find out is to do a small soil survey, termed a reconnaissance survey. Lay out a small flagged grid of lines (say 25 to 50 meters apart) perpendicular to the estimated trend (length) of the vein. Take soil samples at 10 to 25 metre spacing along these lines (the number of samples depends on your budget!). A typical soil profile or cross-section in wooded areas of a northern climate will have

Figure 8: Taking a soil sample

several layers, called horizons. The lowermost is usually greyish and clay-rich, and may contain fragments of the underlying bedrock. Above this may be a red to brown or yellowish earthy soil. This is the preferred sample type, where it exists. The topmost layer will usually be black and organic-rich, often with partially decomposed leaves and twigs. It is important to be as consistent as possible in sampling the same soil horizon, and to briefly describe the color and appearance of each sample. Other types of sediment that are sampled by prospectors include till, stream and lake sediments.

Figure 9: Winter lake sediment sampling

To read more on sample types and how to take them and how to assess your analytical results refer to the Prospectors Guide to Geochemistry (Appendix).

What makes a good property?

Initial stages:

A new bedrock prospect with interesting grades of metal is a good start. If little previous exploration work has been carried out, this may be even more promising.

More advanced properties:

Properties that have had previous exploration work may also benefit from additional prospecting. In the case of an advanced property, it is particularly

important that the prospector is aware of the work previously done and results obtained. These results may suggest areas for additional work. Mineral Assessment reports of previous work are available from files at the Department of Natural Resources in St. John's. In some instances, a property with a lot of previous work is hard to sell, because this work did not enhance it. For example, previous drilling may have been inadequate (for a variety of reasons), but the lack of success could discourage a potential optionee. Researching historical reports can provide crucial knowledge of the nature and extent of previous work and may reveal targets that were not tested, or recommendations that were not followed up.

Certain characteristics of properties and of metal markets in general, are helpful regardless of the exploration stage. Easier access will better your chances of getting a company to look at the property. Strong metal prices allow exploration companies to raise (and spend) more money, and may create more interest in new prospects. The presence of a significant new discovery can generate considerable interest in the surrounding area, or other places with similar geology, and spark a staking rush. The Voisey's Bay discovery was an exceptional case, prompting record claim staking, approximately 250,000 claims, and exploration spending, approximately $400, million dollars, and resulting in hundreds of option and joint venture agreements over a three year period.

Should you stake a mineral claim?

If this is a new prospect and you have just received your first analytical results, you have to decide if the results merit staking a claim. Sometimes the answer is easy; if you have 1 to 2 % Ni and 2 to 3 % Cu in a couple of samples with indications that the mineralized zone is bigger, or if you have 0.5 to 2 % Cu in granitic rocks over a hundred metres, then you stake! More often than not, you get some moderately anomalous results (e.g. 20 to 100 ppb Au) and elevated As. In the latter case, you might want to keep your results to yourself and resample the area first before

acquiring claims. The danger is that someone else might stake that very property while you are rechecking! So, perhaps the best answer is to err on the side of caution and stake anyway. It does not cost very much to maintain a claim for one year (see below).

How to stake a mineral claim

A person must be at least 19 years old to acquire mineral rights (stake claims) in Newfoundland and Labrador. A mineral licence gives you the exclusive right to explore for minerals on the land covered by that licence. The actual staking process is no longer done in the field but in the comfort of your kitchen, office or tent using a computer! The requirements are high speed access to the on-line staking system from the Department of Natural Resources website (Appendix). A client number, user name and password are assigned by the Mineral Recorder's Office (Appendix) when you register, which is mandatory. The cost to stake a single claim is $60, which consists of a $10 dollar recording fee, and a $50 security deposit. The latter is refunded after you complete the first year work requirement and file an acceptable report. Fees must be paid by Visa or Mastercard. Anyone who has attained "Genuine Prospector" status (see Appendix) can stake up to 30 claims per calendar year without paying the security deposit (a saving of $1500 on your cash flow if you stake 30 claims!).

A single claim is a 500 metre by 500 metre block of land (shown on right) or one quarter of a UTM square on a topographic map. You may stake multiple claims (up to 256) in a single block, as long as they are attached on at least one side. Some lands, including federal and provincial parks, wilderness areas, ecological reserves and currently staked areas,

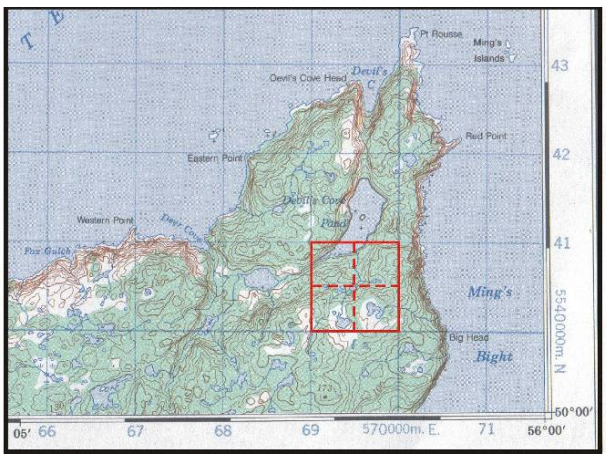

Figure 10: A block of 4 mineral claims

are not available for staking.

As a claim staker, be aware of the difference between mineral rights and (surface) ownership rights. You may own a cabin in the woods, but you will not have any rights to the minerals under your cabin unless you stake the area. If there is privately owned land on your claims, you must notify the owners that you are prospecting in the area and get their permission to explore on their land. If you intend to explore for quarry materials such as sand and gravel, you will need a separate permit for quarry rights. Thus, separate parties can own the quarry rights and the mineral rights. Avoid any potential conflicts simply by keeping lines of communication open with various owners.

How to maintain your claims

Once you have staked some claims, you have to follow certain rules to keep them in good standing. A useful document to help you with this is called the Claims Brochure and is found on the Natural Resources website (Appendix).

One of the main requirements is to perform assessment work on your claims each year. The minimum amount required is $200/claim in the first year, and increases thereafter (see Claims Brochure). So, for example, two 8-hour days of prospecting per claim will cover your first year of assessment credit.

An assessment report must be filed by the owner of the claims at the end of each year, describing the work done and results obtained. This report must be sent to the Mineral Claims Recorders Office, Department of Natural Resources. A sample assessment report is available on the Department's website (Appendix). Work that is eligible for assessment credit includes the following:

- Prospecting
- Line cutting

- Soil, stream, till or lake sampling surveys
- Sample analyses
- Trenching
- Geological mapping
- Property visit costs, by companies interested in optionin
- Some research work….

To find information on how to option your claims refer to the Prospectors Guide to Options (Appendix).

Some important discoveries by prospectors in Newfoundland and Labrador

The discovery of the Daniel's Harbour Zinc Mine by Michael Labchuk

Early one morning in the spring of 1963, prospector ***Michael Labchuk***, while working for Leitch Gold Mines Ltd, hiked to the location of a modest stream sediment zinc anomaly reported by Brinex to the east of the small fishing community of Daniel's Harbour on Newfoundland's Great Northern Peninsula. Mike found the stream but could see no rock outcroppings or glacial boulders in the thick forest cover. Then, through the early morning mist, he happened to see sunlight shimmering on a small lake a few hundred metres in the distance, through the alder grove. Perhaps some outcroppings may be exposed along the lake shore, he thought and so with quickened step, he set off to explore the lake. Breaking through the alder bed, he came out onto a sandy beach, glistening in the sunlight. He quickly realized the reason for the glisten, as the beach was almost entirely composed of sphalerite (a zinc mineral). Ironically, the beach was also littered with numerous 12-gauge shot gun shells, the empty cartridges the only reminder of local hunters' duck hunting trips in the fall. Near the end of the beach, jutting up through the

alders, was a limestone breccia outcropping of massive zinc ore glistening in the morning rays; ***the "A" Zone of the future Daniel's Harbour Zinc Mine***.

The discovery of the Point Leamington Zinc-Copper massive sulphide deposit by Al Keats

While collecting stream sediment samples south west of Point Leamington, in the late summer of 1971, Noranda prospector, Allan Keats, carefully made his way upstream, collecting samples at regular intervals. He, along with his father, Ted, had been employed with Noranda since 1969 as prospectors and geophysical field technicians and also because of their interest in finding a long lost silver deposit which Ted's grandfather, Suley Joe, had found in the area between Port Blandford and the south coast of Newfoundland. Prospecting was Allan's passion and he loved every chance that he could get to "find a mine", his dream and ambition. As he moved upstream, he would crack open any boulder to see if it showed any indications of economic minerals. He noticed several angular boulders that looked different from thee other rocks in the area. He cracked one of the boulders open; it was massive sulphide, a mixture of pyrite, a common constituent of VMS deposits, and the copper mineral chalcopyrite. Excited by his find, he took a small sample and reported his find to Ron Hawkes and Peter Dimmell, geologists for Noranda in Gander. Peter went to the camp, which was located at the north end of Lewis Lake and stayed overnight, discussing the find with Al and Ted. In the morning, Al and Peter walked to the discovery site. The massive sulphide boulders were up to 1.5 m long and 0.5 metres wide. Within days, field work was started with line-cutting and a geophysical survey to locate the conductive airborne anomaly on the ground. Within a month of the massive sulphide boulder discovery, in September of 1971, a diamond drill was mobilized to the site and the first drill hole encountered 73.5 metres of volcanic massive sulphide mineralization under 3 metres of peat bog. This

was the discovery hole for the Point Leamington volcanic massive sulphide deposit, one of the largest in the province.

The source of Allan's massive sulphide boulders had been discovered – What a Find!

The Discovery of Duck Pond / Tally Pond "ore" by Al Keats

It was spring of 1974 and the Noranda Exploration Company Ltd field crew had just established a semi-permanent base camp for their summer's work along a new woods road just to the northeast of Tally Pond. Having finished his supper, ***Allan Keats,*** who was Noranda Newfoundland's geophysical party chief, and the company's most enthusiastic and successful prospector, grabbed his prospecting pick and set off prospecting. Al had recently discovered lead-zinc mineralization in outcrop in rusty volcanic rocks on a newly bulldozed road, while carrying out a stream sediment survey on Crown Land along East Pond. Results of the stream geochemistry showed strong zinc, lead and copper values in the area of the base metal mineralization. Al's pace quickened as dusk began to set in obscuring the landscape details, when he eyed an interesting boulder covered in black muck and turf that had been uncovered and rolled over into the boggy area adjacent to the road. He saw what he thought might be pyrite on one corner of the angular boulder which was unusually heavy. One hard crack with his prospector's pick revealed the boulder's make-up - massive chalcopyrite and pyrite. A few days later the lab result was in, confirming Allan's visual estimate, assaying approximately 10 % copper from the boulder. This was the first indication of economic grade, copper-rich massive sulphides in the Tally Pond Volcanic Belt and prompted the acquisition of a much larger claim group by Noranda and, after intensive exploration, the discovery of the Boundary Deposit in 1979/1980 and the Duck Pond Deposit in 1986, now being mined by Teck Corporation. Continued prospecting work by Allan, his father and brothers, resulted in other massive sulphide finds in the area that continued to pique Noranda's interest. His perseverance in prospecting in the area, along with the efforts of

several keen field geologists (Peter Dimmell, Wayne Reid, Colin McKenzie and Bud Janes) resulted in discoveries which did not outcrop and were discovered by diamond drilling.

Allan's boulder find - part of our mineral heritage in Newfoundland and Labrador.

Clyde Childs – Prospector; York harbour, Bay of Islands

Born in York Harbour in the early 1930's, ***Clyde Childs*** showed an early interest in the exploration industry, largely because of the local York Harbour Copper Mine. Later, he embarked on a prospecting career which, for over 35 years, took him to many parts of Newfoundland and Labrador and even to the Central USA. He worked extensively in Labrador and participated as lead prospector in many of the exploration programs and mineral discoveries made there. Later, Clyde worked on the island, first in the White Bay area. He concentrated on exploring areas of new road construction, observing "***where could you find a better trench to expose the underlying bedrock***". Following the advance of the Cat Arm Road, north of Jackson's Arm, in 1983 Clyde made a significant new discovery of granite-hosted gold mineralization, yielding significant grades up to 11 grams per tonne gold. Clyde's prospecting success in the White Bay area resulted in the recognition of a new mineralized region. In the fall of 1984, while prospecting the Rendell Jackman Fee Simple Grant near King's Point, Clyde observed some quartz float with pyrite, on a new woods road. This float assayed several grams per tonne of gold and was located just west and down slope from the future Hammer Down Gold Mine. Clyde's find had the same style of quartz vein-hosted gold mineralization that occurred in the Hammer Down Mine which operated between 2001 and 2004. In 1991, Clyde Childs discovered several gold prospects and one Copper-Nickel-PGE prospect on the Glover Island Property on Grand Lake. As with other of his discoveries, this property continues to be actively explored. Clyde's love of prospecting,

geology and his native province were integral in cultivating a successful career, highlighted by mine or potential mine discoveries. His quest for new discoveries and desire for knowledge resulted in him having an excellent grasp of geological concepts and, permitted him in his own quiet manner to intelligently participate in discussions on the geology and mineralization of Newfoundland and the world.

Voisey's Bay Nickel-Copper-Cobalt discovery by Al Chislett and Chris Verbiski

September, 1993, two Newfoundland prospectors, hunting for diamonds in the wilderness of northern Labrador spotted a rusty gossan, just southwest of Nain. Low on fuel for their helicopter, they returned a few days later. Within minutes of chipping off a few rock samples, Al Chislett and Chris Verbiski knew they were on to something big. Wispy trails, called stringers, of chalcopyrite, pentlandite and pyrrhotite shooting through troctolite, indicated the presence of copper and perhaps nickel. The outcrop where the two prospectors made their find is now known to the mining world as "Discovery Hill". The following year, drill hole number two of a four-hole diamond drilling program, intersected a 33 metre massive sulphide section rich in copper, nickel and cobalt. Diamond drill hole seven intersected 104 metres of massive sulphide – the ore body now known as "The Ovoid" – grading 3.9 % Ni and 2.8 % Cu.

By the end of June, 1995, 31.7 million tonnes of mineable reserves in the"Ovoid" grading 2.83 % nickel, 1.68 % copper and 0.12 % cobalt had been delineated. The Voisey's Bay nickel-copper-cobalt deposit is one of the richest mineral finds ever discovered in Canada in the past 100 years and is now recognized as a world class deposit. The story of how it was discovered is testament to the prospecting skills, talent and luck of Albert Chislett and Chris Verbiski.

Appendix

To access all the Prospector Guides, go to the Matty Mitchell website at
http://www.nr.gov.nl.ca/mines&en/geosurvey/matty_mitchell/prosp_info.stm

To use the on-line claim staking system you must be registered. To register you must forward a completed application to the Mineral Claims Recorder. The application is at this website
http://www.nr.gov.nl.ca/mines&en/permits/mineral/MiriadRegistration.pdf

Once you are ready to stake claims, go to this website
https://www.claimstaking.gov.nl.ca/

To maintain your claims, check out this brochure for all the necessary information and more
http://www.nr.gov.nl.ca/mines&en/mqrights/ClaimsBrochureMarch%202009.pdf

For an even more comprehensive "Guidebook to Exploration, Development and Mining in Newfoundland and Labrador" go to this web page
http://www.nr.gov.nl.ca/mines&en/mqrights/Pros-Expl-Mining_Guidebook.pdf

Once your first assessment report is due, go to this web page for a "How to" write the report
http://www.nr.gov.nl.ca/mines&en/mqrights/Reg55.pdf

And for extra information on how to write that report, go to
http://www.nr.gov.nl.ca/mines&en/mqrights/Check%20List%20for%20Assessment%20Reports.pdf

If you would like information on Prospector Training and Prospecting Grants, go to http://www.nr.gov.nl.ca/mines&en/programs/prospectors/

If you would like to apply to become a "Designated Prospector" go to this web page and download the application form http://www.nr.gov.nl.ca/mines&en/permits/mineral/GenuineProspector.pdf

To see a glossary of geological terms, go to
http://www.ucmp.berkeley.edu/glossary/glossary_2.html
or
http://www.nr.gov.nl.ca/mines&en/geosurvey/matty_mitchell/pdf/Glossary.pdf
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