



Department of Natural Resources Mines Branch

Summer, 2007

# **Duck Pond Officially Opens...**



Initial Discovery, Duck Pond



Minesite Construction, Duck Pond



Completed Minesite, Duck Pond



#### Official Opening, Duck Pond



- Uranium, Gold क्ष Iron Ore
- Mining Sector Update
- Gold in Newfoundland & Labrador
- Prospector's Corner
- Historic Mine Spotlight



First Concentrate Shipment, Duck Pond

### **MINISTER'S MESSAGE**



Honorable Kathy Dunderdale Minister of Natural Resources

This issue of MINFO marks the beginning of another season of tremendous activity in the province's mining industry. Last year, we saw exploration expenditures reach a 10-year high of \$98 million and this year we expect that total to jump to an unprecedented \$116 million. The value of our mineral shipments is also expected to reach a record-high \$3 billion this year.

A combination of factors is behind these rising numbers, including the continuing rise in mineral prices and the growing attractiveness of Newfoundland and Labrador as a destination for mineral exploration and development. In addition, a significant reason for this unprecedented period of prosperity is the hard work, expertise and enthusiasm of the people in the industry, particularly the people within the Department of Natural Resources. This year alone, we have seen many excellent examples of the difference our people are making in this industry.

Earlier this year, in March, at the annual conference of the Prospectors and Developers Association of Canada, industry people from across our country told me time and again that our Geological Survey is one of the finest anywhere. In fact, prospectors and exploration companies trust the Survey's publications and research to make major investment decisions. The Survey's professionalism has been invaluable in working with the Geological Survey of Canada on joint research initiatives in a spirit of cooperation and discovery.

In March, one of our geologists, David Liverman launched *Killer Snow*, a new book featuring true stories of Newfoundlanders and Labradorians who have witnessed the ferocious power of avalanches. With the help of his Geological Survey colleagues, David put 15 years of avalanche research inside the covers of this book. *Killer Snow* is a remarkable work and should be required reading for anyone who participates in our outdoor winter activities.

Again in March, the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL) recognized Geological Survey senior geologist Sean O'Brien for outstanding service to his profession. In particular, PEGNL noted Sean's continuing positive impact on the Geoscience community locally, nationally and internationally thanks to his mapping, researching and renowned expertise on the province's geology.

I also want to take this opportunity to congratulate senior geologist Andy Kerr who recently received the Distinguished Service Award from the Geological Association of Canada for his years of outstanding service. Andy has volunteered his time to the Newfoundland Section through many roles, including president.

Finally, I want to offer a special thank-you to our MIRIAD Team from the Mineral Lands Group. This group recently won a Public Service Award for Excellence for developing and implementing our new MIRIAD online claim staking system. This system has revolutionized how claim staking is done and has provided a major service to the exploration industry.

I want to congratulate not just these particular people, but everyone in the Mines Branch for your team work, professionalism and contribution to the province. I thank you for your commitment to public service.

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Note: Currency in Canadian Dollars unless otherwise noted.

### MINING SECTOR UPDATE

The Newfoundland and Labrador mining industry produces more than a dozen mineral commodities that contribute to both our economy and quality of life. These products range from slate to copper, and from iron ore and dolomite to nickel.

The estimated 2006 value of mineral shipments (\$2.5 billion) was more than three times the level it was just five years ago (\$754 million). Shipments are forecast to rise to \$3.3 billion in 2007, mainly due to increased nickel and copper production and higher commodity prices.

During 2007, growth in the Newfoundland and Labrador mining industry will be a result of the addition of two new operations. Aur Resources has started production at its base-metal mine at Duck Pond, and Crew Gold has reactivated the Nugget Pond mill on the Baie Verte Peninsula to process gold ore from Greenland. Also, Anaconda Gold anticipates operating the Pine Cove Gold Mine on the Baie Verte Peninsula by year-end and Beaver Brook Antimony Mines is anticipated to be in production by autumn.

In line with higher global metal prices and increasing local mineral production, the level of exploration investment in the province is increasing. Preliminary numbers indicate that in 2006, about \$98 million was spent on mineral exploration and deposit appraisal. This is expected to increase to about \$116 million in 2007.

Direct employment in the Newfoundland and Labrador mining industry is forecast to increase from approximately 3,500 person years in 2006 to 3,550 in 2007.

For more information on the mining industry in this province visit our website: *http://www.geosurv.gov.nl.ca/minesen/mines\_commodities/* 





### AUR RESOURCES INC. OFFICIALLY OPENS DUCK POND MINE

n May 9, 2007, Aur Resources officials, employees, their families, and members of businesses, organizations, and government agencies celebrated the official opening of the Duck Pond Mine. The special event marked the reward of more than 20 years of exploration, discovery, development, and construction. The base-metal mine is located in central Newfoundland, approximately 100 km southwest of Grand Falls-Windsor.



Falconbridge and Noranda initiated mineral exploration on the

property in 1973. The initial discovery of copper was made by Gambo native, Allan Keats, a special guest at the ceremony. The property changed hands several times until Aur Resources acquired it in March 2002. Aur Resources began development of the mine in December 2004, and started construction in January 2005.

Construction of the Duck Pond mine was completed in December 2006 and production of copper and zinc concentrates started in January 2007. The first shipment of concentrates left Turf Point, St. George's Bay in western Newfoundland, in April 2007.

The plan for the current reserves is to mine and mill 4.1 million tonnes of ore, at a rate of 1,800 tonnes per day, over a projected mine life of 6.2 years. The 3.7 million tonnes of ore from the deeper Duck Pond deposit will be mined using ramp access and underground mining methods in the initial five years, while the 0.4 million tonnes of ore from the near-surface Boundary deposit will be mined by open pit in the remaining years.

Based on the existing reserves, the annual production is expected to be: 41 million pounds of copper; 76 million pounds of zinc; 574 thousand ounces of silver; and 5,000 ounces of gold.

Approximately 1.1 million tonnes of inferred resources have been identified, which, if upgraded to reserves, could extend the mine life to about eight years.

The Duck Pond operation employs 192 people full-time. Approximately one-half of these employees live in the on-site camp accommodations, and one-half commute daily.

The total capital investment to December 31, 2006, to construct the mine, concentrator facility and related infrastructure was US\$115 million, of which US\$85 million was spent in 2006. An additional US\$19 million will be incurred in 2007 to complete mine development and construction. The yearly operating cost at the mine is expected to be US\$45 million, which will bring significant economic benefits to the region.

### **CREW GOLD PROJECT**

rew Gold Corporation acquired the Nugget Pond processing facility on the Baie Verte Peninsula from New Island Resources in October 2006. Crew Gold saw this as a long term solution to processing ore from their Nalu-

naq Gold Mine in south western Greenland, which it operates through its subsidiary company Nalunaq Gold Mines.

Crew began processing Nalunaq ore at the mill in February 2007. Shipments currently arrive through the temporary port facility at Goodyear's Cove in South Brook.

The reactivation of the Nugget Pond mill will benefit the Baie Verte Peninsula through direct employment creating 30 new full-time positions as well as indirect employment created by the increased economic activity. The life of the Nalunaq Mine is approximately 10 years and will help provide economic stability in the Baie Verte area.



### **VOISEY'S BAY PROJECT**

Shipments by Voisey's Bay Nickel Company (VBNC) have been projected to exceed \$1.5 billion and the Voisey's Bay project is forecasted to generate 850 person years during 2007. Employment is estimated to increase to 1,700 in 2008, 2,500 in 2009, and 2,800 person years in 2010 before it decreases to 1400 person years in 2011 due to the completion of construction of the commercial processing plant. These employment figures represent the number of individuals required as operations staff for the mine/mill in Voisey's Bay and the Demonstration Facility at Argentia, administrative and exploration staff employed in the province, and the construction workforce required for the commercial processing plant at Long Harbour.



The Voisey's Bay project continues to advance as per the schedule outlined in the Development Agreement. The company is currently working towards making a decision regarding the type of commercial (nickel) processing facility which will be constructed at Long Harbour. The decision is due by the end of 2008 with plant construction to be completed by the end of 2011.

On January 5, 2007, CVRD-Inco Limited (formerly Inco Limited) announced that the amalgamation of Inco, the parent company of VBNC, and a subsidiary of CVRD had been completed. Inco's shares have been de-listed from both the Toronto and New York stock exchanges. CVRD is a Brazilian-based mining company and is one of the world's largest metals and mining businesses maintaining activities in more than 20 countries (see page 11).

### **REPORT ON URANIUM**

The increasing price of uranium is fueling unprecedented exploration levels for this commodity. The search for uranium is expected to account for about \$46 million, or 40% of the total \$116 million predicted for exploration during 2007. To put it in perspective, the average yearly exploration expenditure for all mineral commodities over the past 10 years has been about \$45 million.

The price of uranium has risen fivefold since January 2005, from trading at \$20 a pound to \$125 a pound by May 2007. Two factors are contributing to this massive price rise: increasing demand and dwindling supplies. Demand is increasing as the total number of nuclear reactors in the world is set to increase by 50%. There are currently 442 reactors in operation and a further 250 new reactors reported under construction. China needs to build two reactors a year if it is to meet its 2020 target of providing 4% of its electricity needs from nuclear power, India currently has eight nuclear power stations under construction and Russia is building three.

High uranium prices have little impact on their eventual users, which are nuclear power plants. Demand for uranium is highly "inelastic", which means demand does not necessarily decrease as prices rise. This is typical of commodities that have no conventional substitute. Uranium only accounts for a negligible portion of the total costs of electricity generation from nuclear power. For example, at \$85 per pound, uranium fuel adds \$4.25 per megawatt-hour of electricity. With a megawatt-hour of electricity selling for as much as \$60, uranium only accounts for 7% of its price.

Currently, the most advanced uranium projects in Newfoundland and Labrador are the Michelin and Jacques Lake deposits near Postville. To date, Aurora Energy Resources Inc. has outlined approximately 58 million pounds of indicated and an additional 38 million pounds of inferred uranium oxide resource in these deposits. The company will conduct 75,000 to 100,000 m of diamond drilling during 2007 through what it claims is the world's largest single uranium exploration project with a budget of \$21 million. According to Aurora, the uranium contained in the Michelin Deposit alone is sufficient to power 1 million homes for 67 years.

### **REPORT ON GOLD**

Commodity supply and demand largely determines the price of most minerals; however, gold prices are also affected by its use as to monetary and investment vehicle.

Gold is used as a commodity and has many industrial uses. The fashion and jewellery industries are the largest consumers of gold, followed by the dental industry. Gold is also critical to the high tech and aerospace industries, and other industries that demand its unmatched physical properties.

Despite gold's use as a traditional commodity, the use of gold as a monetary asset is the largest determining factor of its price. Gold has always been a liquid asset and has maintained its value in real purchasing power which provides economic security to its holder. As a result of its use as a currency, central bank and financial institutional trading, interest rates, inflation/deflation, exchange rate fluctuations, and political/ economic conditions all affect global gold prices.



Through the late 1990s, gold prices were depressed, averaging about US\$335/oz, as a result of a relatively stable worldwide economy with low inflation. During 2000, gold bottomed out at US\$279.10/oz but at that time some important gold market fundamentals began to change. Gold producers ceased hedging activities and used gold production to settle forward sales contracts; this resulted in increased demand for gold and put an upward pressure on gold prices.

The gold bull market was boosted in 2001 by the September 11 terrorist attacks and the Enron bankruptcy in December. The combined effect prompted the start of strong buying by investors and has continued to the present with gold closing on May 29, 2007 at US\$656.80/oz. Throughout this period investor buying has been driven by a weakening US dollar, intensifying producer de-hedging, production decline, rising geopolitical risks, and the subsequent rise in oil prices since 2005.

According to Virtual Metals Group, gold demand will actually be less than supply this year. However, despite this forecast, the price of gold is projected to increase due to the expectation that the US dollar will not recover during the upcoming year. They project that gold will exceed US\$700/oz over the next year.

### **REPORT ON IRON ORE**

The growth in (iron) ore demand is being driven by China." This was the consensus at the Iron Ore Symposium held on May 2, 2007, at the CIM Mining Conference and Exhibition held in Montreal. A common message was that the iron ore industry is currently experiencing higher prices and this is expected to continue so long as the economy of China continues along its current pace.

Iron ore is not an openly traded commodity like other metals such as gold, nickel and copper, therefore price information is not as publicly available due to it being set through negotiated contracts. The information that is available, however, indicates that iron ore has experienced a significant appreciation over the past number of years. The US Geological Survey reported that iron ore prices increased by approximately 70% in 2005 and a further 20% in 2006. Industry participants at the Iron Ore Symposium disagreed on the longer termed price forecasts that included projections for prices to decrease back to more historical levels, as a result of the supply-demand curve moving back into equilibrium, to prices continuing to rise due to increasing Chinese demand, and, prices levelling off at the current level to reflect a new equilibrium for prices considering current economic and social conditions. Despite these variations in long-term price forecasts, the general consensus was at least a continuation of the current higher prices into the short and intermediate terms.

The current conditions found in the iron ore market are presenting mining companies with a number of opportunities and challenges. Higher prices realized for iron ore have provided mines with additional cash flow and this provides an opportunity for these operations to make investments which can contribute to improved efficiencies and reduced costs. However, as higher prices filter their way through the economy, it is contributing to higher operating costs being incurred for items such as fuel, tires, equipment and labour. The increased economic activity which is underlying higher commodity prices is also contributing to shortages of items such as heavy-equipment tires and increased demand for shipping services and skilled personnel. Shipping costs, for example, have almost quadrupled during the past 5 years. These are the opportunities and challenges faced by mining companies as the worldwide mining boom continues.

# **EXPLORATION EXPENDITURES TO EXCEED \$100 MILLION**

laim staking and exploration spending are up sharply in the province over the past three years, primarily as a result of increased interest in the province's uranium potential (Figure 1). Much of the new activity is concentrated in central and western Labrador and south-central Newfoundland (Map 1). The more advanced uranium projects are at Michelin, and Moran Lake. Expenditure levels are forecast to remain strong as programs advance from grass-roots prospecting to the drilling stage.

Gold and base-metal exploration and development also continue at strong levels, with production at Voisey's Bay and Duck Pond, and developing projects at Pine Cove and Beaver Brook, which may see production later this year. Major, ongoing drill projects include Boomerang, Rambler, Golden Promise and Jackson's Arm. Many other drill projects are scheduled for 2007.

# **DID YOU KNOW?**

You can stake a mineral claim in the province from anywhere in the world online at:

### www.claimstaking.gov.nl.ca



#### Newfoundland and Labrador Claims Staked



#### Newfoundland and Labrador Exploration Expenditures



Figure 1. Claims staked and exploration expenditures, 2000 to 2007 (forecast).

# **HISTORIC MINE SPOTLIGHT: BELL ISLAND**

"Big money, wonderful big money. It was 32 cents an hour, and we brought home \$19.20 for a six-day week." Charles Bown, Bell Island miner, referring to his wages in 1938.

When Charles Bown first started working in the Wabana iron mines of Bell Island in 1938, the mines had been in production for over four decades. When the last of the Wabana mines closed in 1966, it ended 71 years of mining that saw about 80 million tons of ore extracted.

The rocks consist of fossil-rich shales and sandstones containing many hematite or iron-rich beds. Only the thickest and most consistent of the hematite beds were mined, such as the Dominion Formation (lower bed), Scotia Formation (middle bed) and Gull Island Formation (upper bed). These sedimentary layers dip at approximately 10° to the north-northwest. A visitor can see this distinctive layering all along the exposed coastal area.



The presence of iron ore was first recorded in the late 16<sup>th</sup> century, but it was not until the 1890s that the deposits attracted the attention of entrepreneurs. By 1892, the deposits had come under the control of the Butler family of Top-

sail, who brought in agents of the New Glasgow Iron, Coal and Rail Company of Nova Scotia. Scotia opened the first mine on Bell Island in the summer of 1895 using local miners to quarry and hand-cob the ore from the lowermost of the three iron-rich beds.



In 1899, the Whitney Company (latterly called the Dominion Iron and Steel Corporation or Dosco) acquired the rights to the lower and upper beds on land, and 776 hectares of submarine claims to a distance of 1.6 km from the shoreline. The Scotia Company retained all rights seaward of the Dosco ground.

In 1902, the surface exposures of the lower and middle beds were mined out and underground production began. Access to the submarine iron ore deposits was gained through four portals that followed the iron-rich formations down-dip and out under the waters of Conception Bay. The mine workings would eventually extend 15 km<sup>2</sup> under the bay with recoveries from room and pillar panels ranging from 50 to 63%, depending on physical conditions. (Room and pillar mining is an

underground mining method where pillars of rock are left in place to support the ceiling of the mined out areas or rooms.)

The history of mining on Bell Island is one characterized by constant change, from the companies that mined the ore to the means of production, to lighting. The first source of light for the miners came from candles, which were worn on their cloth hats or put in small cutouts that were placed in the walls of the shafts every 10 to 12 feet. This was followed by seal-oil lamps, which were used until 1912 and eventually gave way to carbide lamps. These lamps used calcium carbide to give off light and amazingly, the mounds of used calcium carbide can still be seen today at the same spots where the miners would scrape it out of the cartridges before replenishing them. The carbide lamps were used until the mid-1930s when battery-pack lights came on the scene.



Bell Island, in its heyday, had a population of between 12,000 to 14,000 people. Scores

of people from nearby fishing communities such as Brigus and Cupids, left to work in the new industry. The mines also attracted experienced Welsh and German miners who had worked in the copper mines in Notre Dame Bay, such as Bett's Cove and Little Bay.

The Wabana ore deposit was of high quality, vast and close enough to the Cape Breton Coal fields to feed the giant steel mills in Sydney, Nova Scotia. Bell Island ore was also shipped to more distant parts of the world, such as the United States and Germany. The iron mines drew Bell Island into the international network of the mining and steel industry, and over the period of mining operations (1895-1966), distant powers and events shaped much of the history of the mines and of the island itself.

From the beginning of mining until 1914, Bell Island prospered. With the start of World War I, however, a setback occurred in the industry because one of the main customers for Bell Island iron ore had been Germany, to which exports had stopped. During the war, there was a brief recovery with new markets being found, only to have another collapse occur in 1918 with the end of war production. Again the mines recovered with exports to Germany but when French troops occupied the industrial heartland of Germany, the Ruhr, in an attempt to prevent rearmament there in 1923, another decrease in shipments occurred. A further setback came with the depression of the 1930s.



When Charles Bown worked his first shift underground in 1938, the Bell

Island mines were experiencing a post-depression period of recovery and growth that lasted into the late 50s. Many of the mining activities were automated and mechanized during this period of prosperity. This era was not to last, as 1959 saw the closure of one of the three remaining mines and the beginning of the end for the historic mine site. The final blow came when Number Three Mine was shut down in April of 1966. At the time of its closure, Bell Island was Canada's longest continually operating mining project. Since the mines opened, close to 80 million tons of ore had been shipped to Germany, the United States, Belgium, Holland and to Canada.

At the time of closure, Wabana was facing the late-life crisis of all evolving mines; increasing pressure to improve productivity, and demands for a higher quality product in a changing world market place. As iron ore smelters world-wide converted to new smelting technology, the demand for direct shipping ore began to shrink, and the high silica and phosphorous contents of the Wabana ore made it an un-attractive product. Research to improve the ore grade and remove contaminants had been under way for some time but the changes were never implemented. Arguably the opening of large-scale, low-cost open-pit iron mines - such as Wabush and IOC - was the main reason that Wabana closed down. Many of the former miners at Wabana would put down their head lamps and underground equipment, and move their families to western Labrador and become part of the next major iron ore producing region in the province.

### **MINERAL INCENTIVE PROGRAM CONTINUES**

The Mineral Incentive Program is being continued for the 2007-08 fiscal year and has a total budget of \$2.5 million, the same as last year. The budget allocations for the three components will remain the same, i.e., Prospectors Assistance and Training at \$400,000, Junior Exploration Assistance at approximately \$1.85 million, and Natural Stone Assessment \$250,000.

Prospectors Assistance supports resident prospectors through non-refundable grants of up to \$4000 for traditional, grassroots prospecting on crown lands or lands staked in the prospectors name. Prospectors can also apply for an extra \$2,000 on their grants for air support (helicopter or float plane) to access remote properties that have no other means of access. Prospectors must outline a detailed sampling plan if applying for this funding.

Junior Exploration Assistance supports independent junior exploration companies or individuals with non-refundable grants of up to \$100,000 for eligible exploration work on the Island and up to \$150,000 for eligible exploration work in Labrador on new and existing mineral targets. The funding is provided through a 50/50 cost-sharing measure for exploration work within the province. Again this year, approximately \$500,000 is being allocated toward non-drilling, grass roots projects such as ground and airborne geophysical surveys and regional geochemical surveys.

Under the Natural Stone Assessment, companies or individuals can receive non-refundable grants up to \$50,000 to conduct exploration and assessment on new or undeveloped natural stone (defined as raw stone, rough block, cut slabs or finished product ) prospects. This will also include assessment of alternate uses for existing/inactive stone quarries (i.e., monument stone from slab stone quarries and vice versa). Funding is provided through a 75/25 (government/industry) cost-sharing measure for exploration and natural stone assessment work within the province.

As well, the Department of Natural Resources, in conjunction with the Bay St. George Campus of the College of the North Atlantic (CNA) in Stephenville, conducted the annual 14-day Prospectors Training Course between May 28th and June 10th. After completing this field-oriented training course, resident prospectors are eligible to apply for status as Genuine Prospectors which enables them to stake up to thirty (30) claims per year without having to pay the \$50 deposit per claim. The department has again delivered the prospector training course in Labrador between July 3 to 15 in conjunction with the CNA campus in Happy Valley-Goose Bay.

# **GEOLOGICAL FIELD PROJECTS FOR 2007**

#### **REGIONAL GEOLOGY SECTION**

*Ian Knight* will be continuing detailed field mapping in the Cormack Lake and Stephenville areas of western Newfoundland. The Port au Port area is a significant area for petroleum exploration and also for the production of the limestone and dolostone used in various industrial processes and agriculture. He will spend about three months in the area with a twoperson field party.

*Doug Boyce* will also be working in western Newfoundland for about a month carrying out a systematic study and collecting fossils in various areas between Port au Port and Cormack Lake. The fossils collected will then be identified and correlated with fossils found in other units. This allows a more precise geological history of the development of western Newfoundland to be constructed.

*Charles Gower* will be working in the Mealy Mountains around Cartwright examining areas where previous mapping has indicated some ambiguous geological relationships that need to be resolved. Charles will spend about one month in the field.

#### GEOCHEMISTRY/GEOPHYSICS AND TERRAIN SCIENCES

*Jerry Ricketts* will conduct mapping of granular aggregate on the Avalon Peninsula and in selected areas extending to Clarenville. Sand and gravel is an important resource and delineation of new deposits is critical in this area of the province which is faced with chronic shortages of suitable material. This will be a 2-month 2-person project.

*Martin Batterson* and *David Taylor* are planning a 2-week field season for the Burin Peninsula to complete sampling for till geochemistry. The project is entirely helicopter supported (approximately 25 hours), in areas inaccessible by other means of transportation. This survey completes coverage of the regional study started in 2005.

*Martin Batterson* and *David Taylor* will have a two to four week field project in central Newfoundland. This is the start of a project that aims to provide systematic till geochemistry of parts of NTS sheets 12 A/6, 7, 10, 11 (plus 12A/9 if time permits) with an emphasis on sampling over bedrock units considered most prospective for base metals.

*John McConnell,* with *Jerry Ricketts* will upgrade the density and quality of lake-sediment geochemistry in the Cartwright - Sandwich Bay areas of Labrador in a two-week helicopter-supported project. Uranium is the main commodity of interest.

#### MINERAL DEPOSITS SECTION

*John Hinchey* will continue his metallogenic studies project in the Victoria Lake Group of central Newfoundland, with emphasis this year on the northern part of the Tulks Belt, southwest of Millertown. This is an active exploration area.

*Greg Sparkes* will commence a new project directed at the metallogeny of uranium, with emphasis on Labrador. Year 1 will have a regional focus, with the objective of seeing as many new uranium prospects as possible, and developing more focused research proposals for subsequent years. He will be working from Goose Bay, but travelling back and forth from various areas.

*Andy Kerr* will also be doing some field work, consisting of visits to active exploration projects, with a view towards developing future research programs in new areas or subjects. The section will also continue its program of mentoring and supporting local prospectors in their exploration efforts.

*Greg Stapleton* and *Jan Smith* will continue to update and expand the Mineral Occurrence Data System (MODS) over the summer using student assistance.

The section has commenced work towards new "commodity series" reports for Iron Ore, Uranium and granite-related commodities (tungsten, molybdenum, etc.).

### WHO IS CVRD?

ompanhia Vale do Rio Doce (CVRD) announced on August 11, 2006, an all cash offer of \$86 per share for Inco and this proved to be the deal that Inco share-

holders accepted. This bid beat competing offers by Phelps Dodge, Teck Cominico, and even a three way deal which would have seen Inco combine with Phelps Dodge and long time competitor Falconbridge. On October 24, 2006, CVRD announced that it had obtained control of Inco by acquiring 75.66% of its

outstanding common shares. During the ensuing month, CVRD successfully acquired the remaining Inco stock and Inco Limited officially became a wholly-owned subsidiary of CVRD on January 4, 2007, and changed its name to "CVRD Inco Limited".

CVRD was incorporated in 1942 by Brazil's Federal Government to undertake iron ore mining in the state of Minas Gerais. From this beginning, CVRD has continually expanded to become the largest mining and metals company in

Companhia Vale do Rio Doce

the Americas and the second largest in the world in terms of enterprise value. The company has both offices and operations on all five continents.

> CVRD has a diversified mining based product mix which includes iron ore, nickel, copper, aluminum, kaolin, potash, coal and others. In fact, the company is the largest global producer and exporter of iron ore having a participation of approximately 33% of the market. With the acquisition of Inco, it has

become the world's largest producer of nickel having an annual production estimated at 250,600 tons. In addition to its significant natural resource reserves, the company is also the largest logistics operator in Brazil where it owns and operates three railroads and twelve marine terminals.

CVRD shares are traded on both the New York and Sao Paulo Stock Exchanges; the company has an estimated market capitalization of US\$80 billion. For more information, visit *www.cvrd.com.br*/

### GOLD IN NEWFOUNDLAND AND LABRADOR, "PAST AND PRESENT"

Have you ever wondered where gold fits into New-foundland and Labradors' rich mineral history?

Historically, gold production in this province was in the form

of a by-product from mining VMS (volcanogenic massive sulphide) deposits. The mining era started in 1860 with the opening of the Terra Nova Copper Mine at Baie Verte. This was followed closely by the Betts Cove and Tilt Cove Copper deposits. It was not until the 1890s that gold was detected and subsequently

mined as a by-product at the Tilt Cove Mine. Between then and 1996, numerous VMS deposits (i.e., Buchans, Rambler) were exploited with combined gold production, as a byproduct, of approximately 30 to 35 tonnes. At current gold prices that would be about \$1.3 billion.

In this province, the first gold-only discoveries were made in the late 1870s on the Baie Verte Peninsula and were followed in 1903 by short-lived mines at Ming's Bight (Goldenville Mine) and nearby Sop's Arm (Browning Mine). Neither was very successful and by 1935 there were only 26 recorded occurrences of gold.

Interest in gold exploration waned until 1976 when significant gold mineralization was discovered near Cape Ray on the south coast of Newfoundland. This was followed in 1984 by the discovery of the Hope Brook Deposit, which became the provinces' first gold mine. Hope Brook went into pro-



duction in 1986 and operated almost continuously until 1997. The discovery prompted a surge in gold exploration that lasted until 1990. Approximately 200 new gold discoveries

> were made during this period, two of which formed the basis for the later Nugget Pond (1997-2001) and Hammerdown (2001-2004) mines.

Lower gold prices in the late 1990s resulted in a decrease in gold exploration. The price of gold has since rebounded, and as a result, exploration

and mine development is on the upswing. Many past producing mines, previously discovered deposits and prospects are being re-investigated and several promising new grassroots discoveries have been made.

After a 2 year hiatus, with the opening of Aur Resources' Duck Pond Mine in March 2007, the province is now a gold producer once again. Also, in the development phase is the Pine Cove Deposit on the Baie Verte Peninsula that, Anaconda Gold Corp. plans to bring into production by year-end. Other properties such as Cape Ray, Valentine Lake and the former Rambler Mine are at advanced exploration stages with known resources. The last several years grass roots exploration has unearthed a number of promising discoveries which could eventually become mines.

The future of gold mining in this province looks bright indeed!

# PROVINCE CONTRIBUTES STONE TO AIR INDIA MEMORIAL

A special piece of Newfoundland and Labrador has arrived in Toronto to form a section of the Air India Flight 182 disaster memorial.

"We are proud to be able to contribute to this important memorial," said the Honourable Kathy Dunderdale, Minister of Natural Resources. "The senseless loss of so many lives touched people in this province and across the country and we join with the other provinces in paying tribute to the victims and their families."

The province's contribution is a 100 kg block of unique virginite stone. The green and white rock will join stones from the other Canadian provinces to form a sundial at the memorial site in Toronto, where approximately two-thirds of the victims resided.



"This distinctive stone is a fitting gift from the people of the province," the minister said. "It is a beautifully-coloured, hard and weather-resistant rock. It will form a lasting and heartfelt tribute to the victims of Air India Flight 182 and the loved ones they left behind."

The virginite came from the Baie Verte area and occurs in rocks that were part of the sea floor in an ancient ocean hundreds of millions of years ago. The province donated the stone and Meyer-Dunsworth Geological Consultants of Pasadena prepared and shipped it to City of Toronto for masonry work and installation.

Memorial organizers unveiled the monument June 23, 2007, the 22nd anniversary of the bombing.

# NEW REPORTING PROCEDURES FOR MINERAL EXPLORATION ASSESSMENT REPORTS

s a result of an October, 2005 survey of the mineral exploration industry, the Minister of Natural Resources approved revisions to the "Guidelines for the form of Assessment Reports and Illustrations" on February 1, 2006. Mineral exploration assessment work reports are now required to be submitted in both hard copy and digital PDF format.

The revisions were considered necessary for several reasons; the first was to enhance and streamline the process of posting new and historical mineral exploration assessment reports on the web. To date, 5130 historical reports have been posted and are available for viewing/printing free of charge. A second reason was to reduce the handling time by personnel of the Geoscience Publications and Information Section in the cataloguing, retrieval and the reproduction of assessment reports. Finally, the revision would help to standardize the submission of reports into one or a few recognized formats.

Individuals and genuine prospectors can still submit reports as hard copy but are encouraged to also submit their reports in PDF formats. Details contained in the guidelines can be viewed at *www.nr.gov.nl.ca/mines&en/*.

# **MIRIAD UPDATE**

The Province introduced a number of enhancements to the Mineral Rights Administration System (MIRIAD) over the last few months. To provide better response and performance during peak staking activity, the Department, in conjunction with the Office of the Chief Information Officer, has added additional server capacity, and reconfigured the system to remove any potential processing conflicts between the staking system and other map based systems, such as the Geological Survey's Resource Atlas.

# MIRIAD TEAM WINS PUBLIC SERVICE AWARD OF EXCELLENCE

The Mineral Rights Administration Database (MIRIAD) provides clients with a state-of-the-art system, for mineral claim staking that allows real-time acquisition of mineral licences from anywhere in the world, at any time, through a combined use of the internet and e-commerce. The system has met with tremendous client satisfaction, providing significant savings to both the private sector and the provincial government, and has made Newfoundland and Labrador a more competitive place to do business.

The leadership, vision and tenacity displayed by the MIRIAD team brought this project to reality. To meet the needs of industry, the team developed an efficient system that made use of GIS technology. MIRIAD has levelled the playing field for individual prospectors and companies located anywhere in the province, and has eliminated the advantage previously enjoyed by individuals and companies located within the northeast Avalon. They collaborated to develop the method and programming needed to implement their ideas. Since its inception in February 2005, it has become the centrepiece of the province's mineral tenure system and plays a vital role in the management of the province's mineral resources.

MIRIAD has resulted in major cost efficiencies for government as it is automatically maintained and requires little manual supervision. It offers major savings in both time and money to exploration companies, and it has attracted the interest of other jurisdictions across Canada. It has revolutionized the way mineral rights are acquired in the province and has been touted as one of the reasons why mineral exploration activity and investment has significantly increased over the past two years.

The development of MIRIAD was borne from a real desire by the team to achieve excellence and lead in this area. Because of the dedication of this team, the standard has now been set for on-line staking in Canada. Working virtually flawlessly since being launched, the system has received high praise from all segments of the industry. It is now used as a model for similar systems worldwide. The work of this team has helped ensure that investment in provincial mineral exploration is directed more fully to where it can benefit the province and clients most - in the ground, unlocking mineral wealth.

The members of the MIRAID team bring to their positions a high degree of integrity, a solid work ethic and a desire to serve their clients to the very best of their abilities. They are an example of the public service meeting its full potential in marrying creativity with commitment and providing a valuable service to the people of the province and, indeed, beyond.

# MATTY MITCHELL PROSPECTORS RESOURCE ROOM

In the first quarter of 2007, the Matty Mitchell Prospectors Resource Room (MMPRR) participated in two major national trade shows and conferences: the Exploration Roundup in Vancouver and Prospectors and Developers Association Conference in Toronto. The Resource Room will be involved to varying levels with new Mines Branch promotional efforts in several other venues in the coming year. And as always, the Resource Room will be heavily involved in the Annual Mineral Resources Review, set for November 1-3 at the Delta Hotel in St. John's.

In other news, the MMPRR geologist gave a presentation and led a field trip for participants in the "Becoming an Outdoors Woman" (BOW) weekend in May. In June and July, the Resource Room made presentations at the annual, two-week-long Stephenville and Happy Valley/Goose Bay prospector training courses.

The MMPRR has several new rock and mineral samples that are available for prospectors to study on-site. These include a beautiful massive specimen of native copper from Seal Lake, Labrador donated by Silver Spruce Resources; a large polished slab of rock showing alteration and Pb-Zn-Cu-Ag massive sulphide mineralization from Paragon's Lake Douglas Prospect, central Newfoundland; a specimen of Cu-Zn-Au ore from underground in the new Duck Pond Mine in central Newfoundland; and Crew Gold has generously donated a suite of 5 samples from its Nalunaq (gold) Mine in southern Greenland. This ore is processed at the Nugget Pond facility. We thank all the donors of these specimens and remind everyone that all donations of such interesting rocks and minerals are gratefully accepted.

We also have some new literature on hand including "Mining Explained" a layperson's guide to geological terms as well as a variety of wall charts and CDs which are teaching aids for basic geology. We encourage you to drop by and learn more about outreach initiatives the Resource Room undertakes in concert with the Geological Survey.

We're located on the first floor of the Natural Resources Building, 50 Elizabeth Avenue, St. John's, NL. Telephone 709-729-2120, e-mail matty@gov.nl.ca. See you soon!

### **PROSPECTOR'S CORNER**



The Province of Newfoundland and Labrador boasts one of the most vibrant, enthusiastic and successful prospecting fraternities in North America. For the second time in ten years, Canada's youngest province has received national recognition by the Prospectors and Developers Association of Canada (PDAC) at its largest ever annual convention and Trade Show held in Toronto in early March. Canada's first family of prospecting - the Keats-Stares family of Benton - was recognized for 40 years of prospecting in Canada over four generations. The family was awarded the 2007 Prospector of the Year Award. One of the discoveries that can be credited to the family - the Duck Pond copper-zinc deposit - is now entering production under the ownership of Aur Resources. Members of the five families have generated over tens of millions of dollars in exploration expenditures and have made an outstanding contribution to mining in the province and Canada. The

"family" has sent no less than 18 men from five clans - Keats, Stares, Crockers, Barretts and Smiths - into prospecting over this 40-year period.

It all started with patriarch Ted Keats, Allan's father. Ted's great grandfather, Suley Joe of the Mi'kmaq First Nation, returned to Port Blandford, in the 19th century with a high-grade silver sample that he had found on a hunting trip. As legend has it, he talked of a massive silver showing back in the bush.

The sample - and the legend - was passed down from generation to generation. In 1969, Ted and Allan took the silver nugget to Noranda's Newfoundland office in Gander where they were offered prospecting work in the upper Terra Nova River area. They signed on for \$250 per month, plus food and supplies and were flown to a nearby lake. They never did find that lost silver showing, but they found some other impressive samples along the way.

Throughout the 1970s and '80s, Ted and Allan were involved in exploration leading to the Point Leamington, Burnt Pond and Tally Pond-Duck Pond base-metal discoveries by Noranda.

Allan's discovery of disseminated base-metals mineralization and massive sulphide boulders, along with prospecting discoveries by others, including his brother Fred, kept Noranda in the Tally Pond-Duck Pond area. This led to the discovery of the Boundary and Duck Pond deposits in 1977 and 1986, respectively. Duck Pond was recently brought into production by Aur Resources.

Adding to his earlier successes, Allan worked with his son Kevin to stake and explore the Linear and Joe Batts Pond gold properties in central Newfoundland, both now under option to Paragon Minerals.

Brother Fred spent the last 35 years with Noranda Falconbridge and now Xstrata. He is employed on the Raglan nickel project where he is credited with several discoveries.

Allan's brother Calvin discovered the Linda and Snow White veins on the Golden Promise gold property in central Newfoundland and uranium showings in Labrador. The oldest brother, Suley, named after his grandfather, teamed with Calvin to discover stibnite boulders leading to the discovery of the Beaver Brook antimony deposit, also in central Newfoundland. Brother-in-law Calvin Crocker has also prospected all over the world, most recently with Linear Gold on its Ixhuatan property in Mexico.

Ted Keats' grandsons carry on the tradition. Stephen Stares is the CEO of Benton Resources, which he runs with his brother Michael. The two discovered massive sulphides at the Aldina prospect, west of Thunder Bay, Ontario.

Michael joined his uncle on stage to accept the award and told the audience that prospecting in northern Ontario has provided him with so many adventures that even "Indiana Jones would be jealous."

PDAC president Pat Dillon, master of ceremonies for the evening, noted that the mining community has "a lot to learn" from how the Keats-Stares clan raised its brood.

# **APPOINTMENTS**

**DR. ANDREW KERR** has been appointed to the Senior Geologist position, Mineral Deposits Section. Andy has been fulfilling the duties of this position in an acting capacity for the past year. He brings much economic-geology research experience to his new role from his many years as a Project Geologist in the Survey's Regional Geology and Mineral Deposits section.

**BERNADINE LAWLOR** was hired in May and is assisting with the screening and preparation of Approvals for Mineral Exploration, as well as other land use related applications. Bernadine has a BSc in earth sciences.

**BRADLEY WAY** was appointed in November 2006 to the position of Mineral Industry Analyst with the Mineral Development Division. Brads' formal education includes a B. Sc. (Earth Sciences) from Memorial University. He has worked as a Geologist with the Mines Branch for the last seven years, most recently with the Department of Natural Resource's Mineral Incentive Program.

**COREY SNOOK** was appointed Communications and Marketing Manager in October 2006. Based in St. John's, his primary responsibility is to support the department's communication and marketing efforts across the mines, energy, agrifoods and forestry branches. Prior to arriving at Natural Resources, Corey was a journalist with the CBC in Toronto and NTV in St. John's.

**GREGORY SPARKES** was hired as a Project Geologist by

the Geological Survey. Greg did his B.Sc. Honours at Memorial with a thesis on epithermal breccias. In 2005, he completed his Masters degree, which focused on the geology, geochemistry and geochronology of epithermal gold systems in the eastern Avalon Peninsula. Since graduating, Gregory has done contract work for the Survey in 2005, extending upon his thesis study, and for Crosshair Exploration in 2006 on its Moran Lake uranium project.

**HEATHER HICKMAN** was hired in April and is responsible for the screening of Applications for Exploration Approval and preparation of Exploration Approvals. Heather is replacing Steve Ash who has taken a position in the private sector. Heather has an MSc in environmental sciences.

**SHARON TRACEY** was appointed in November 2006 to the position of Clerk Typist III with the Mineral Incentive Program. Sharon's education includes a Business Administration Certificate and she has worked with the Department of Education for twenty-four years before joining the Department of Natural Resources.

**DR. RICHARD WARDLE** was appointed to the position of Assistant Deputy Minister, Mines, on February 7, 2007. He brings a wealth of knowledge and experience to the position that he acquired through his tenure with the department since 1976. Over the years he has worked as a project geologist, senior geologist, Mineral Policy Consultant and had been ADM, Mines (Acting) since June 2006.

### **AWARDS**

**ANDY KERR**, an employee of the Department of Natural Resources, has been awarded the 2007 Distinguished Service Award by the Geological Association of Canada. Andy is a long-standing member of the Newfoundland and Labrador Section of GAC, having served as its president and most notably as its Technical Program chair over the past five years.

**SEAN O'BRIEN**, an employee of the Department of Natural Resources, has been awarded the 2007 Award of Service by the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL) for his outstanding contribution to his profession in the province.

#### Mining Executive Passes Away

**CARSON PARSONS,** 71, of St. George's passed away on March 2, 2007. Mr. Parsons was president of Galen Gypsum Mines Limited in western Newfoundland. Our sympathy is extended to the Parsons family, and his many relatives and friends.

### **PHOTO CREDITS**

Cover; Aur Resources Inc., Department of Natural Resources

*Inside*; Aur resources Inc; Department of Natural Resources; Crew Gold Corporation; Canadian Heritage Information Network, Bell Island Community Museum; CVRD Inco; Canadian Broadcasting Corporation

# UPCOMING EVENTS

The North American Minerals Symposium (NAMS) will be a one-day session (August 23, 2007) of the "9th Biennial Meeting of the Society for Geology Applied to Mineral Deposits (SGA) conference (August 20-23, 2007) to be held at: Conference Centre, Trinity College Dublin, Dublin, Ireland

For information on SGA, see www.conferencepartners.ie/sga2007/index.html. For information on the NAMS session, see the SGA website Local contact is: Andy Kerr, Department of Natural Resources Tel: (709) 729-2164; Fax: (709) 729-4270

Email: andykerr@gov.nl.ca

The 46th Conference of Metallurgists (COM 2007) And the 6th International Copper/Cobre Conference (Cu2007) August 26-29, 2007 Toronto, Ontario Contact: Bridgett Farah, MetSoc of CIM Tel: (514) 939-2710, ext. 1329; Fax (514) 939-9160 Email: metsoc@cim.org Website: www.metsoc.org/com2007/

Resource Investors Forum 2007 September 18-19, 2007 Fairmont Newfoundland, St. John's, NL Contact: Newfoundland and Labrador Chamber of Mineral Resources Tel: (709) 722-9542, Fax: (250) 391-1787 Email: director@nlcmr.ca Website: www.investorsforum.ca/

Blendon 19th Annual Canadian Conference on Markets for Industrial Minerals October 16-17, 2007 Montreal, Quebec Tel: (250) 391-8820 Email: info@blendon.com Website: www.blendon.com/conference.shtml

30th Annual Review of Activities Department Natural Resources, Mines Branch November 1, 2007 Delta St. John's Hotel and Conference Centre Contact: Norm Mercer Tel: (709) 729-6193; Email: normmercer@gov.nl.ca

CIM Newfoundland Branch Annual Conference and Trade Show November 1-3, 2007 Delta St. John's Hotel and Conference Centre Contact: Len Mandville Tel: (709) 729-6439; Email: lenmandville@gov.nl.ca

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Home Page http://www.gov.nl.ca/mines&en/

Information and statistics quoted are from data provided by government and /or industry publications: for details, the reader should direct their enquiries to the Mineral Development Division of the Department of Natural Resources.