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Canada's **Top** **Forty** *Mining Companies*

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A look at how 'juniors' make a difference by creating new opportunities



Staff Report

As most of the world knows, the Prospectors and Developers Association of Canada is recognized as one of the more respected authorities on what's happening within the exploration and development industry.

From its work with government agencies regarding standards, procedures and securities regulations, to Aboriginal affairs and Corporate Social Responsibility (CSR), to its widely popular annual conference and convention in Toronto, PDAC is an organization well versed in almost every aspect of what it takes to find and build a mine.

Representing more than 10,000 individual and corporate members across Canada, the Association has a direct pulse on exploration and development from coast to coast to coast, and because of its contact with companies and individuals on the front line of mining, it knows what's happening within the industry on a first-hand basis.

Today it's no secret that what's happening within the "junior" mining sector in Canada, and around the world for that matter, is not too encouraging and by all accounts, it won't be for months to come.

There is, in fact, a 'capital crisis' and in December 2012, mining industry analyst John Kaiser caused even more shockwaves to ripple throughout the industry when his research suggested that up to 700 exploration companies could be in danger of disappearing by the end of 2013, with less than \$200,000 of working capital in their bank accounts. Kaiser's report cast a spotlight on the precarious financial health of the grassroots exploration industry; risk-tolerant money has been drying up, and what little is out there has been flowing to companies with flagship projects.

In response to those predictions, the Board of the PDAC struck an ad-hoc Capital Crisis Committee to investigate the issue and generate ideas for actions that could be taken to shore up grassroots

exploration in 2013. The Committee gathered and analyzed data from a wide range of sources, confirming that companies focused on grassroots exploration were indeed facing serious financing challenges, notwithstanding fairly robust metals prices. The Capital Crisis Committee also identified potential solutions in three areas: facilitating access to capital; maintaining highly qualified people; and shoring up the viability of companies.

Tough issues facing the junior mining fraternity have been clearly spelled out by PDAC, and in a report by EY (Ernst & Young) entitled the Canadian Mining Eye in which it says "Canadian mining equities continued to significantly underperform given concerns around global economic growth and as a result commodity prices."

Gold prices, the Canadian Mining Eye continues, witnessed a historic fall in April with concerns that the Cyprus Government and a few other European countries might sell their gold reserves to raise cash. With

Century Iron Mines' "Iron Arm Camp," located about 3 km from the company's Joyce Lake project (more details about the project on pages 38-39), is modern and well equipped to serve the needs of staff working in the area.



close to two-thirds of the constituents of the Canadian Mining eye index owning gold and/or silver assets, the direction of precious metals remain important.

As far as the "outlook" for Canadian mining and metals companies is concerned, EY says the sharp decline in equity fundraising witnessed earlier in 2013 is also likely to continue in the near term but opportunities will always exist for those willing to take a long-term view of the sector.

"It's about balancing cost reduction and operational efficiency efforts with strategic transactions."

EY concludes by saying that exploration companies exposed to current capital restraints should be pursuing unique, creative financing arrangements and thinking about how they can advance to the next stage in their growth agenda including consolidation between juniors with cash and those with property, mergers of equals, and streaming deals that

sell off a royalty interest from a non-strategic asset for up-front financing.

Those are all constructive suggestions and the message is clear that creative thinking and looking for new ways to control costs while at the same time maintaining a growth agenda are critical for all companies involved with exploration and development.

Jonathan Rudd, a geophysicist and professional engineer with the Toronto-based geophysical services company of Quantec Geoscience, says that securing capital for exploration projects has always been a question of telling a convincing story of property quality, strong management and recorded success. But recently, he says; "Deeper targets and increasing financial pressures have proved fatal for mining exploration projects—while tough decisions continue to blight budget management.

"You're already watching your budgets closely, but it's not enough to make

you stand out. Instead, your competitive advantage rests in altering your exploration process. Now more than ever, your success hinges on the steps you take before you approach investors.

"Embracing new technology will allow you to demonstrate to investors your ability to extract resources faster and more cost-effectively, and the earlier in your plan that you add new technology, the more you will be able to create a robust, efficient, and effective project so that it's easier to prove how you'll spend less money, and increase returns more quickly," says Rudd.

Traditionally, Rudd explains, exploration companies get a simple, preliminary survey done that gives some reliability in terms of what resources exist in the property, then they seek financing for the drill program but because the drill holes are narrow (sampling only a small portion of the earth) and geology can quickly change, the lack of understanding

Helicopters used by VMS Ventures and North American Nickel have helped in the discovery of new deposits thanks to air-borne geophysical technology that enables geologists to evaluate large areas faster.



of the details between the boreholes makes this approach “imprecise, unreliable and expensive.”

“You wouldn’t be the first company to believe you’re sitting on the proverbial gold mine only to feel the frustration of your drill budget running out ‘three feet from the gold’ deposit.

“Throwing money at the problem doesn’t help; you can get more drilling finance and still not get the results you expected. You could go round, round, and round until finally there are no more investors to approach. That’s how the mining industry gets in trouble—and the credibility of a miner’s promise is ruined.

“The mining industry has been here before but it’s vitally important to the future of fundraising, and the future of the junior mining industry, that exploration teams start using new technologies as a matter of best practice,” says Rudd.

“Technology has revolutionized industries before. Surgeons now rely on MRI or CAT scans before making an assessment, rather than older X-RAY technology. Similarly, a reconnaissance or sparse-data geophysical survey provides only a partial picture when

you’re trying to demonstrate the quality of a property to investors.

“By showing investors that you plan to use the latest technology and explaining how the technology will help you avoid notorious exploration problems, you can build a case strong enough to attract multiple investors,” concludes Rudd.

The preceding comments and predictions are based largely on observations and statistics but the following comes straight from the field, so to speak, as John A. Roozendaal and John Pattison, President and Director, VMS Ventures and Director of North American Nickel (NAN), and Chief Geologist, VMS Ventures and North American Nickel respectively (both companies are based in Vancouver) look at technology (particularly aerial) and how it’s making exploration easier.

Here’s what Roozendaal and Pattison have to say.

Technology is evolving all the time in the mining industry and progressive exploration and resource development companies are constantly on the lookout for technologies that can help them discover ore bodies faster and at less cost.



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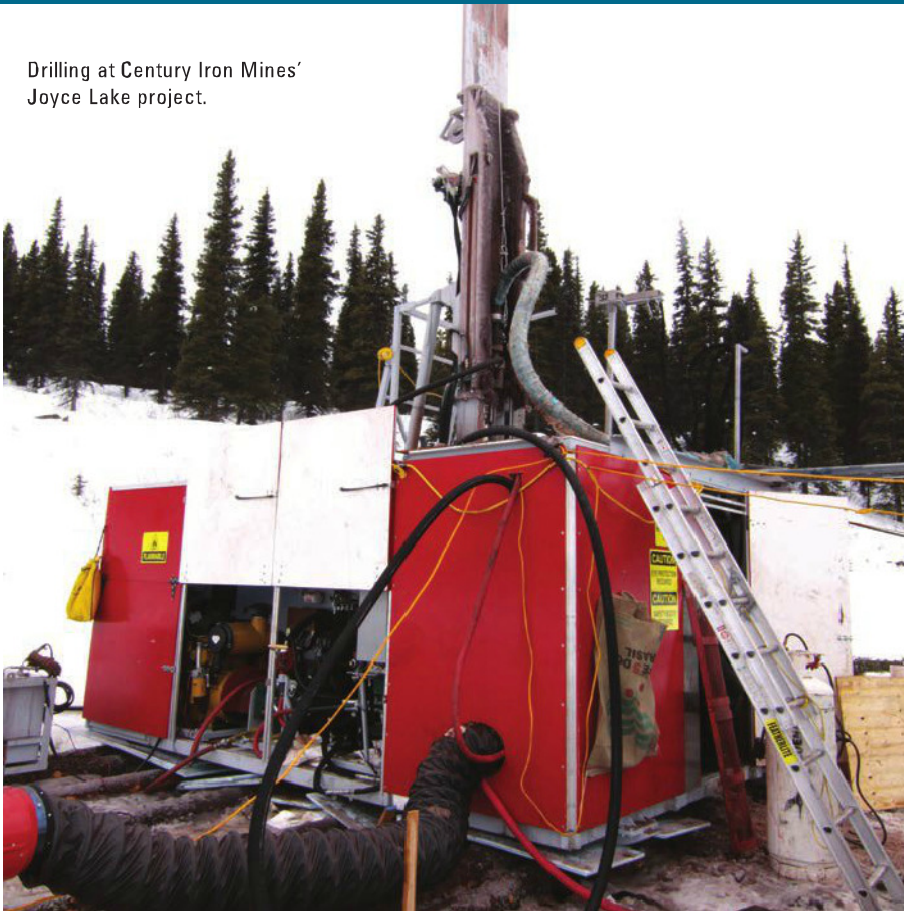
It is a fact that, in many of the world's productive mineral belts, most of the exposed or shallow deposits have already been discovered, but new technologies are now allowing geologists to see deeper and evaluate large areas faster so that discoveries can continue to be made.

The use of helicopter-borne geophysical technology, for example, is one of the modern tools that was recently used to help discover a high-grade copper deposit in a mature mining camp in record time.

The authors say the company has experienced excellent results by using aerial technology; namely its exploration program in the Flin Flon Greenstone Belt in northern Manitoba and the discovery of the Reed Lake copper deposit. The discovery hole, collared just 100 meters from a paved Provincial highway connecting two long-established mining towns (Snow Lake and Flin Flon), cored through more than 43 meters of massive sulphide mineralization averaging 4.38% Cu, 1.56% Zn, 0.85 g/t Au and 13.1 g/t Ag.

The deposit now has a 43-101 inferred resource of 2.55 mil-

Drilling at Century Iron Mines' Joyce Lake project.



lion tonnes at 4.52% Cu, 0.91% Zn, 0.64g/t Au and 7.68g/t Ag. The deposit is being developed under a joint venture agreement between VMS Ventures (30%) and Hudbay Minerals (70%). As a result, the developers are now in the position of knowing that Reed Lake will be a producing mine by the end of 2013.

Geologists selected the Flin Flon Greenstone Belt because it is one of the more prolific Volcanogenic Massive Sulphide Deposit greenstone belts in the world in terms of dollar value of discovered mineralization per square kilometer.

The belt has produced more than 183 million tonnes of ore averaging 2.5% Cu and 4.5% Zn from 27 mines during more than 80 years of continuous production. It is exposed over an area of approximately 12,000 km²; however, an area of at least equal size on the south side of the belt is completely buried beneath much younger, un-mineralized sedimentary rocks completely unrelated to the rocks hosting the ore bodies.

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Not surprisingly, says Roozendaal and Pattison, the vast majority of the mines (present and past producing) are situated in the exposed part of the belt while the buried portion has seen little exploration and even less mining activity. It was in this buried portion of the belt that we saw an opportunity to use a new technology in the form of helicopter time domain electromagnetics (TEM) to “see through” the younger cover rocks and rapidly explore the prospective Flin Flon Greenstone rocks beneath. A technical team quickly assembled a large land package and began looking for a helicopter TEM system to explore it with.

Currently, VMS’s sister company, North American Nickel Inc., in which VMS has an approximate 27.5% interest, is using even more advanced helicopter TEM technology to explore a large (4,983 km²) grassroots nickel sulphide project called Maniitsoq on the southwest coast of Greenland. While it is located in a relatively remote part of the world, the Maniitsoq project has the advantage of being situated along a year-round pack-ice free coast line and having abundant rock exposure.

In the 1960s and 70s, Danish explorers identified a large (over 70 km long) belt of high-grade nickel sulphide occurrences at Maniitsoq but had difficulty following the mineralization in the subsurface. Most of the occurrences are hosted in a rock called norite and for this reason, the belt is referred to as the Greenland Norite Belt (GNB). Two major mining companies explored the belt for nickel in the 1990s but left without drilling.

NAN geologists evaluated the GNB in 2011 and decided there was potential to discover economic deposits using helicopter geophysics in combination with diamond drilling and down-hole geophysical surveys. In 2012, NAN surveyed a large portion of the GNB with the VTEM system, identified numerous EM anomalies and drilled nine holes. Three of the holes intersected high grade nickel sulphide mineralization.

The mineralization occurs beneath a zone of much weaker, disseminated mineralization that was discovered in the 1960s. In May and June, NAN was able to raise over \$7 million to finance a follow-up drilling at Maniitsoq this year. The money was raised in spite of very chal-

lenging market conditions for the mineral exploration and development sector.

Continuing on that positive note, Century Iron Mines Corporation of Toronto is another Canadian exploration and development company making news lately thanks to its interests in four iron ore projects in Canada. The Duncan Lake Project is located in western Québec, and three others, Sunny Lake, Attikamagen, and the Altius Properties, all located in the Labrador Trough region of Québec and Newfoundland & Labrador.

Century Iron’s current strategy is to develop the DSO (Direct Shipping Ore) projects first (Joyce Lake, Lac Le Fer and Schefferville West), bring them into production starting from 2015, and use the proceeds to develop the lower-grade and more capital-intensive BIF (banded iron formation) projects, e.g., Rainy Lake.

The DSO targets have up to 7 Mt each at 60%+ Fe and thus would be mined for three to four years. The first phase of operation

will involve crushing and screening. The material produced will be lump and sinter fines with iron and weight recovery of 100%. Thus, no tailings will be generated. Lower-grade material would be stockpiled at first and processed afterwards.

Century Iron plans to bring the Joyce Lake DSO (Attikamagen) project into production in 2015/2016. After that, the Lac Le Fer (Sunny Lake) and Schefferville West (Altius properties) projects should start producing.

The company plans to use cash flows from producing DSO projects, plus additional funds, to build a 28-km road from the Rail Loop to the Joyce Lake mine. Later, and in stages, the company intends to build a railway from the Rail Loop to Joyce Lake. There will also be other infrastructure for the BIF projects.

The Project

The Joyce Lake Direct-Shipping-Ore (DSO) project is part of Century Iron’s Attikamagen



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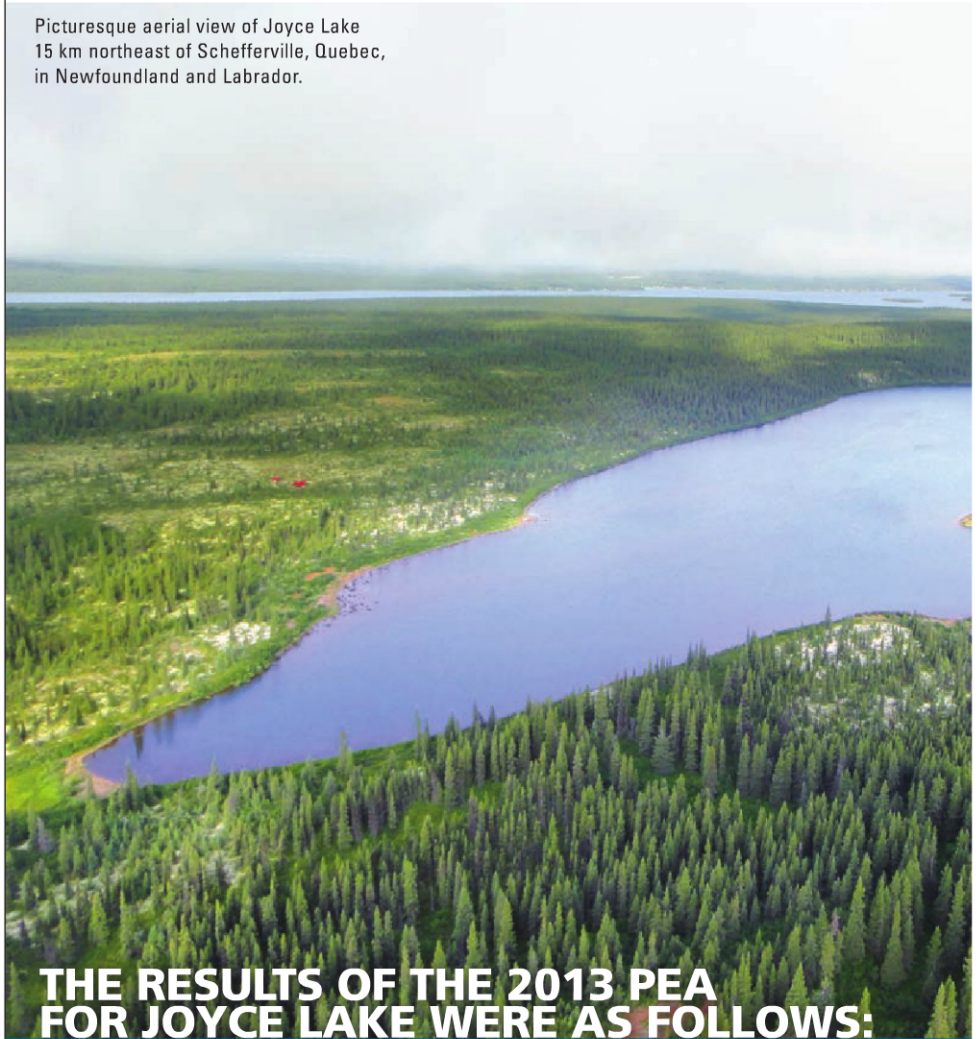
project, which is located 15 kilometres northeast of Schefferville, Quebec, in Newfoundland and Labrador. Attikamagen is a joint venture with WISCO and Champion Iron Mines Limited.

Century Iron's NI 43-101-compliant estimate of March 2013 had shown 10 million tonnes of Measured and Indicated mineral resources at Joyce Lake, with an average grade of 59.45% total iron (TFe)

plus an additional 5.6 million tonnes of Inferred mineral resources at a cut-off grade of 50% TFe.

This first mineral resource estimate for Joyce Lake was a milestone in the development of Century Iron's Labrador Trough iron ore mining camp. The estimate covered only the northern part of the Joyce Lake property, and Century Iron is continuing to advance explora-

Picturesque aerial view of Joyce Lake 15 km northeast of Schefferville, Quebec, in Newfoundland and Labrador.



THE RESULTS OF THE 2013 PEA FOR JOYCE LAKE WERE AS FOLLOWS:

- The Net Present Value (NPV), using an 8% discount factor, is \$90.4 million pre-tax; \$51.8 million after-tax;
- The Internal Rate of Return is 37.0% pre-tax, and 27.1% after-tax;
- The payback period is 2.5 years pre-tax, and 2.6 years after-tax;
- The mine life is expected to be 4 years, at 1 Mtpy in year 1 and 2 Mtpy (million tonnes per year) in years 2-4 of iron ore lump and sinter fines;
- Output is expected to be 65% sinter fines and 35% lump iron ore;
- The operating costs (loaded on ship at Sept Iles) are estimated at \$62.80 per tonne of iron ore; and
- The initial required project capital is \$96.6 million of which \$27.1 million

tion beyond the current resource boundaries. The mineralization remains open to the south.

The company has two other DSO targets with similar geophysical signatures, about three kilometres south and south-west of Joyce Lake.

Highlights

Century Iron added considerably to its

resource estimate in 2012 and further in 2013, and is now one of the larger iron ore companies in Canada.

Century Iron has two strategic Chinese investors: (1) Wuhan Iron and Steel (Group) Corp. with a 25% equity interest; and (2) China Minmetals Corporation with a 5% equity interest.

The company has signed definitive joint-venture agreements with WISCO

for Attikamagen, and Sunny Lake. The agreements will help ensure that Century Iron will have the necessary funds to develop these properties.

Information provided by the featured companies and PDAC indicate that Exploration and Development in Canada is alive and still active and despite some troubled times, it will continue to be the envy of the world.

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will be for rail cars and trucks. The Company plans to lease the rail cars and trucks and is looking into obtaining hedge or off-tale debt financing for the remainder of the project capital. Mining activities will be year-round, with an ice bridge used in winter to bring mineralized rock across Iron Arm Bay in Lake Attikamagen.



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