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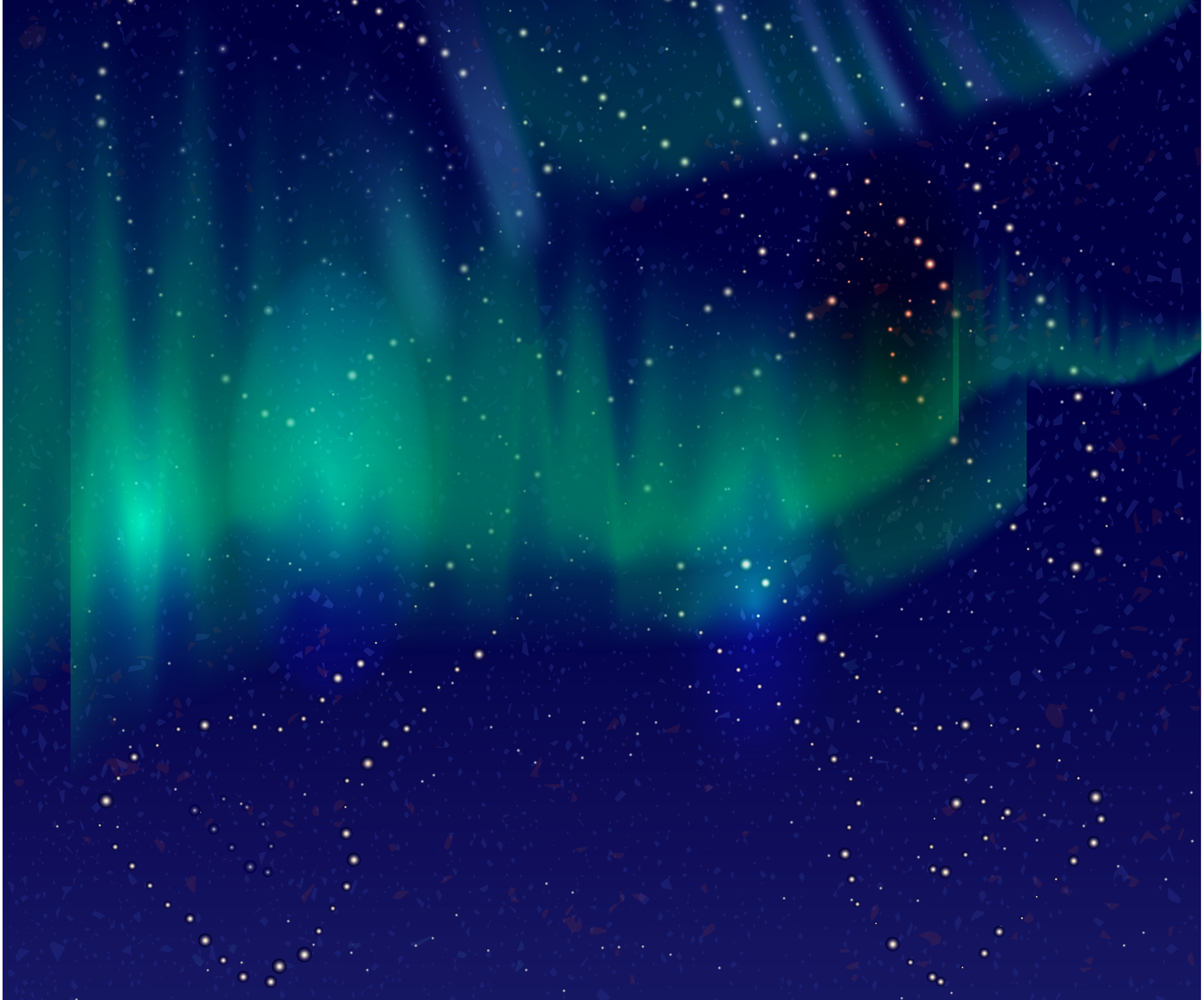

QUÉBEC MINING
NEWFOUNDLAND AND LABRADOR MINING
2021

Finance - Metals of the Future - Exploration and Production
Innovation - Clean Power - Abitibi, James Bay and Nunavik

Dear Reader,

Global Business Reports is delighted to be back in Québec, a dependably world-class mining jurisdiction with distinctive institutional support. The following pages investigate the latest developments across the mining value chain, from the organizations and institutions that provide the sector with financial strength, regulatory stability and transparency, to the junior explorers, large producers and service-sector companies operating on the ground.

GBR's research examines the continued momentum for exploration in the illustrious Abitibi Greenstone Belt, along with the emergence of the James Bay region and a strong governmental commitment to develop Nunavik's mining prowess.

Along with an expansion of development geographically, there is also now a much richer diversity of commodity exploration and development occurring in Québec. Metals and materials powering the green economy, such as vanadium, graphite, lithium, scandium and niobium have caught the attention of a market demanding a more sustainable energy future. Capital has followed in a meaningful way, as evinced by The Pallinghurst Group's billion dollars of investment in Nemaska Lithium and Nouveau Monde Graphite.

Nevertheless, the backbone of Québec's mining industry remains gold production, and while prices have remained stubbornly flat through summer and into fall of 2021, funding continues to roll in as capital favors the province's potent mix of prospectivity, professionalism and community support. Producers such as Eldorado Gold lead the way, exceeding production goals despite Covid restrictions. Québec's storied iron ore industry also saw a swift recovery, with Champion Iron achieving record profitability for fiscal year 2021.

In an addition to our Québec coverage, this year's report also profiles several of the leading juniors behind the staking rush occurring in neighboring Newfoundland and Labrador. Despite being a province of just over 500,000 people sparsely spread over a huge landmass, it accounts for 43% of Canada's iron ore shipments and just under a quarter of the country's nickel shipments. Now there is strong indication that Newfoundland and Labrador could grow substantially as a gold producer in the coming years.

The following pages are the culmination of over 80 interviews conducted with senior executives from Québec to provide a holistic view of the companies and themes shaping the industry today.

GBR thanks all our interviewees who have taken the time to provide their insights into the market.

Alfonso Tejerina
General Manager and Director,
Global Business Reports
(GBR)

QUÉBEC MINING, NEWFOUNDLAND AND LABRADOR MINING 2021
Industry Explorations
Global Business Reports

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INTRODUCTION TO QUÉBEC

"Québec is the best jurisdiction for mining investment, because we have everything you need: the mineral deposits, expertise, hydropower, and a big neighbor who is hungry for our minerals."

- Jonatan Julien,
Minister of Energy and Natural Resources,
Government of Québec

Image courtesy of AMQ

Introduction to Québec Mining

LEVERAGING STRENGTH FOR A NEW ERA OF MINING

In learning of Québec's cultural highlights, things quickly turn to food. In particular, the indulgent concoction of cheese curds, gravy and French fries called poutine. Addressing the popularity of the regionally conceived dish, Montreal-based chef Martin Picard said: "It is not haute gastronomy, but it permits Québec to get more interest from the rest of the world."

Although it is unlikely mining will ever elicit the same level of pride amongst Québécois that poutine does, it nonetheless carries a rich history of strong government and community support that warrants the attention of the mining world. Look at the Fraser Institute's Annual Survey of Mining Companies, and you will find Québec is a perennial top contender when it comes to investment attractiveness. Behind its consistency as a leading mining jurisdiction is a recipe of government incentives, skilled workforce, social license, and a financing ecosystem that make it a remarkably propitious region to mine. It also has the legal transparency and quality geological information database that enable companies to confidently explore the province's rich endowment of minerals and metals. As Jean-Francois Béland, vice president, Ressources Québec put it: "Mining is part of our DNA."

Mining fuels development

The fundamental reason Québécois support the development of mining is that it delivers socioeconomic results. In conversation with Minister of Energy and Natural Resources Jonatan Julien, he highlighted that mining accounts for 32,000 jobs in Québec, half of which are direct jobs and well remunerated at around C$100,000 annually.

Moreover, in royalties alone, Québec's mining industry accounted for C$393 million in revenue in 2020, a welcome increase compared to the C$290 million it contributed in 2019. Minister Julien stressed that when metal prices are strong, it positively impacts remote mining regions, giving government the financial wherewithal to invest in development. "We are implementing our own development plan for the North with C$1.4 billion in public investment in infrastructure and technology," he stated.

Josée Méthot, president & CEO of the Québec Mining Association (QMA) pointed out that mining's impact is felt in urban areas equally as much as it is in the remote areas where many of the mines are located. "We find that a great portion of the mining industry's large network of suppliers is often in large city centers such as Montreal, so not only do remote areas of Québec benefit from mining, large cities do as well," she affirmed.

An explorers paradise

Given the cyclical nature of the mining business, it is inevitable that exploration and development funding will be scarce at some point. However, even when times are good, mineral companies still need to stretch every dollar. Québec's system helps companies achieve this. This includes strong government funds willing to invest in exploration such as SIDEX, Le Fonds de Solidarité FTQ, Caisse de dépôt et placement du Québec (CDPQ), and Investissement Québec, exceptional infrastructure in producing regions like the Abitibi for gold, the Labrador Trough for iron ore, and clever incentives such as flow-through financing. Furthermore, up and coming prospective areas such as James Bay and Chibougamau have experienced an uptick in exploration activity as the past year progressed, whilst companies implemented health measures allowing them to return to site for exploration. According to Mathieu Savard, chairman of the board of the Québec Mineral Exploration Association (AEMQ): "In terms of fiscal incentives, there is no match in Canada: You can get more work done for each dollar spent than anywhere else in the country."

Filling the budget gap

After posting a 5.3% GDP decrease in 2020 after the province, along with the rest of the world, navigated Covid lockdowns and uncertainty, government ambitions to achieve a balanced budget have been put on the backburner. In many mining jurisdictions around the world, extractive industries would be one of the first targets to help fill the budgetary gap, but that is not the case in Québec. Even at a time when the government is forecasting a budget deficit of C$12.3 billion for fiscal year 2021-22, and damage caused by the pandemic leaving a structural deficit of C$6.5 billion, the province remains supportive of its mining incentives. Instead of dialing back, the mining industry has been targeted by the government as a key industry in Québec's post-pandemic economic recovery.

La Grande Alliance

While financial incentives are a crucial tenet of Québec's exploration environment, relations with communities and local First Nations groups are equally important. License to operate routinely tops the list of risks posed to the mining business, but Québec has been very proactive in cultivating strong community relations. Explaining the extent of how important getting this aspect right is, Justin Reid, CEO of Troilus Gold, whose Troilus gold project lies in the Frotet-Evans belt, noted: "You can have the best asset in the world, but if you do not have social license, it is worthless."

A shining example of advancement concerning community relations is La Grande Alliance, which is a C$4.7 billion dollar infrastructure agreement signed in February 2020 between the Cree and the province of Québec. It proposes road extensions and upgrades, a 700 km railway to the far northern reaches of Cree territory, a deep sea port, new power lines and the creation of a network of protected areas, among other infrastructure projects to be built in three stages over the next 30 years.

Under the plan, sensitive areas would be protected from development, with infrastructure built according to both community and industry needs. This will enable companies to unlock the wealth of the region's varied natural resources and create jobs and business opportunities for the Cree and James Bay residents. Azimut Exploration president & CEO, Jean-Marc Lulin noted that since the signing of La Grande Alliance: "There is a strong will from both the Québec government and the Cree Nation to move ahead in a new spirit. The Cree Nation is very proactive in supporting the mining industry to progress with new mining projects." ■

Jonatan Julien

Minister of Energy and Natural Resources
GOVERNMENT OF QUÉBEC

> Québec has 22 of the minerals that the US has identified as critical and strategic. We were the first province to prepare a plan for strategic minerals in Canada and the Ministry is putting C$90 million towards this plan.

Could you provide us with details of how your Ministry is promoting the link between mining and the energy transition?
99% of energy generated in Québec is renewable (95% hydro, 4% wind, 1% fossil). My vision is that we can use this capacity to go further and promote more mining activity. Mining accounts for 32,000 jobs in Québec, half of which are direct jobs and well remunerated at around C$100,000 annually. Québec has 22 of the minerals that the US has identified as critical and strategic. Over the last couple of years, we have been meeting with US States to discuss this, and they all agreed that sourcing options are currently very limited and that a lot will be at stake from a geopolitical standpoint. We were the first province to prepare a plan for strategic minerals in Canada and the Ministry is putting C$90 million towards this plan.

How much of this involves other parts of the value chain beyond mining?
Currently, the market is excellent for gold and iron, but strategic minerals require a different approach, because we see them as a complete value chain, going from exploration and exploitation to mineral transformation within the province and ending with recycling. For us, it is non-negotiable that mineral processing for strategic minerals needs to happen within Québec.

Today, there are 100,000 electric vehicles in Québec, which is 50% of the total amount in Canada, even if we only have 24-25% of the population. By 2030, we expect to have 1.5 million electric vehicles in Québec, so EVs will amount to 20% of total vehicles. By 2035, there will be no more sales of combustion engine cars. These are clear policies to work with. Additionally, by 2028-2030 the market will be mature enough to allow for a strong recycling segment and a circular economy.

How are current high metals prices boosting tax revenues and more mining investment?
Just in royalties, the mining industry represented C$393 million in 2020, versus C$290 million in 2019. Beyond that, there is the revenue from taxation for corporations and individual workers. When the metal prices are good, this positively impacts the whole economy, particularly in mining regions. We are implementing our own development plan for the North with C$1.4 billion in public investment in infrastructure and technology. That is the bit we can do from the government, but what makes the difference in terms of mining investment is metal prices.

When metal cycles are not good, however, we need to be well prepared through economic diversification. As an example, Rio Tinto Fer et Titane has a joint project with the Ministry to extract 3 million tonnes per year (mt/y) of scandium from waste. This is a niche metal, with global production of 15 million mt/y. Scandium allows to double or triple the strength of alloys for the aerospace industry, and this can complement very well Québec's aluminum industry in Lac-Saint-Jean.

What makes Québec an attractive mining destination, and what is your government doing to improve permitting processes?
To open a mine in Québec you need 660 different permits, so we cannot be like a madhouse where an investor has to knock on a dozen different doors. All involved ministries need to sit at the same table, and the mining company should only deal with one window. We have six pilot projects with this methodology, with the objective of reducing delays by 35%. So far we have already achieved a 20% reduction.

Québec is the best jurisdiction for mining investment, because we have everything you need: the mineral deposits, expertise, hydropower and a big neighbor who is hungry for our minerals. Therefore, investors need to follow us closely, not just on the mining side of things, but also on the development of the battery industry as well. ■

Josée Méthot

President & CEO
QUÉBEC MINING ASSOCIATION (AMQ)

> With our use of clean energy (hydropower) and strong regulations regarding environment protection and our social practices in relation with local communities, the region is a responsible source of minerals.

What uncertainties have QMA companies faced throughout the pandemic, and how have they navigated them?

In 2020, the main concern for the mining industry was to stay in operation while putting strict measures in place to prevent the propagation of Covid-19. The mining sector was shut down for three weeks last spring, but we did not know then that it would be for three weeks. Five mines continued operation; the niobium mine and iron ore mines as they are part of the steel value chain and the smelters were deemed essential, given they take months to shut down and to start up, the salt mine as well was deemed essential for public safety reasons since the salt is used to deice the roads The QMA was in constant discussion with our health and safety commission and public health in order to make sure that the strict measures to prevent Covid-19 (social distancing, personal protective equipment, testing labs, etc.) put in place by the industry were efficient. On the other hand, commodity prices have been very favorable for gold and iron ore, which are the two most important minerals in Québec.

Mining projects in development have also experienced uncertainties as they still must go through one provincial and one federal environmental permitting process. Both permitting processes were under review in the last few years and now we must learn to work with them.

What makes Québec unique as a mining jurisdiction?

With our use of clean energy (hydropower) and strong regulations regarding environment protection and our social practices in relation with local communities, the region is a responsible source of minerals.

Québec's public policies also distinguish us as the government is eager to put this region on the map as a responsible source of critical minerals. For this, they have developed a critical mineral development plan and a battery strategy. Our province also has a highly qualified workforce, great expertise and there are excellent training institutions.

What socioeconomic impact does the mining industry have in Québec?

The industry hires about 48,000 people directly and indirectly. We have also found that even though mines are located in remote regions, workers live all across Québec, which favors the distribution of wealth. Overall, in 2018, the fiscal and parafiscal revenue generated by the mining industry is estimated at C$1.3 billion for the Québec government (not counting corporate income tax). Total mining industry expenditure in Québec was C$9.9 billion in the province in 2018, with benefits across the province

How do you see the health of the mining industry today and the prospects for funding mining projects?

Financing for mining projects has not been easy in the last few years, especially for critical minerals; they cannot only mine the minerals but also process and transform them. For the critical minerals, we must work on the demand side. This means a new value chain must be built, instead of only a mine, so it is difficult to secure their financing as it entails more risks. I believe the government is starting to understand that we cannot look at the development of these mines as we used to do with iron ore or gold, as it is a totally different business model. This is why the government has developed their battery strategy to incentivize battery manufacturers or components manufacturers to build their plants in Québec and this way they are able secure the demand for these minerals.

How do you see the industry evolving over the next 2-3 years and what role is QMA going to play in this industry?

Mining Investments in Québec have decreased since 2012, and seem to be on a plateau since 2014. The government must put policies in place to change this situation and increase investment. There are currently 22 mines in operation in the province and the QMA is working hard to promote the appropriate conditions for new projects to be developed. We are pushing the government to streamline permitting processes and urging the federal and provincial governments to work together to establish only one environmental permitting process. We are also exploring how the tax regime can promote investment in Québec. Finally, we believe health and safety regulations should be adjusted so that they evolve at the same rate as new technologies. ■

Mathieu Savard

Chairman of the Board
QUÉBEC MINERAL EXPLORATION ASSOCIATION (AEMQ)

> We have seen huge consolidation by a few players in the Abitibi, which has reset the clock in the district. Companies now manage a large chunk of concessions in a systematic manner.

What was the impact of the pandemic over the 2020 figures for the exploration industry?

Overall, 2020 was not a bad year despite the challenges. The exploration segment had to stop between March and May 2020, and mining companies had to be quite cautious with the pandemic applying a number of protocols to protect staff and the communities around the projects. Despite that, 2020 exploration expenditures could be even higher than the C$500 million spent in 2019, due to the high gold price and the fact that companies could raise a significant amount of capital. Moreover, the Québec government extended the flow-through expenditures program for at least a year, and also extended the duration of concessions until April 2021, which helped the sector.

How does Québec rank as an attractive jurisdiction for mining and exploration investment, and do you expect the 2021 election to have an impact on the mining industry?

I believe that Québec is the best jurisdiction in the world for mining exploration. In the last Fraser Institute survey, Québec ranked as the sixth best jurisdiction worldwide. In terms of fiscal incentives, there is no match in Canada. You can get more work done for each dollar spent than anywhere else in the country. Québec also has a fantastic database of geological information, with all legacy data available to any interested parties. The province offers a high level of certainty for investors, with a stable regulatory framework, despite the recent passage of environmental regulations. With regard to the election, historically these processes have not had a deep impact on the industry. The big issue in the political arena right now is how to manage the pandemic.

Gold typically takes the spotlight, but do you expect other metals to raise more interest in the province?

We have seen huge consolidation by a few players in the Abitibi, which has reset the clock in the district. Companies now manage a large chunk of concessions in a systematic manner. This said, we are still seeing some new discoveries, especially in the areas that have been underexplored. We see Canadian Malartic announcing the Odyssey project, while there is also a lot of activity east of Detour with Walbridge Mining. Wesdome Mining is working to restart the Kiena mine, and a lot of different players are becoming active. The more exploration you conduct, the more likely the industry is to come up with a significant discovery, generating a domino effect.

Exploration expenditures reflect the increase of gold price last year, but the infrastructure programs by governments are also helping an increase of base metal prices. We should also see a push into strategic minerals exploration due to the legislative efforts by the US and Canadian governments to secure these metals for the green economy. In the last budget, Québec put together some fiscal incentives to add value to these commodities. Beyond Québec's traditional exploration areas – the Abitibi Greenstone belt, the James Bay and the Labrador Trough, we will also see new areas opening up for critical and strategic minerals.

What are the main challenges for the exploration sector in Québec?

In 2021 we should still see expenditures well above the C$500 million, so the challenge for the industry is not on the financing side, but on the manpower side. It is actually a problem all across Canada: a lack of drilling staff and delays to obtain lab results – these issues have worsened with the pandemic. The industry and the government need to plan for the future generation of workers, along with the incorporation of automation and new technologies.

Access to territory is key for our industry and you cannot take that for granted. We are working closely with the government because that challenge, together with the pandemic, has made things more difficult recently. Regarding the pandemic itself, I believe that the industry could use its resource to support the government in its vaccination efforts in certain areas. ■

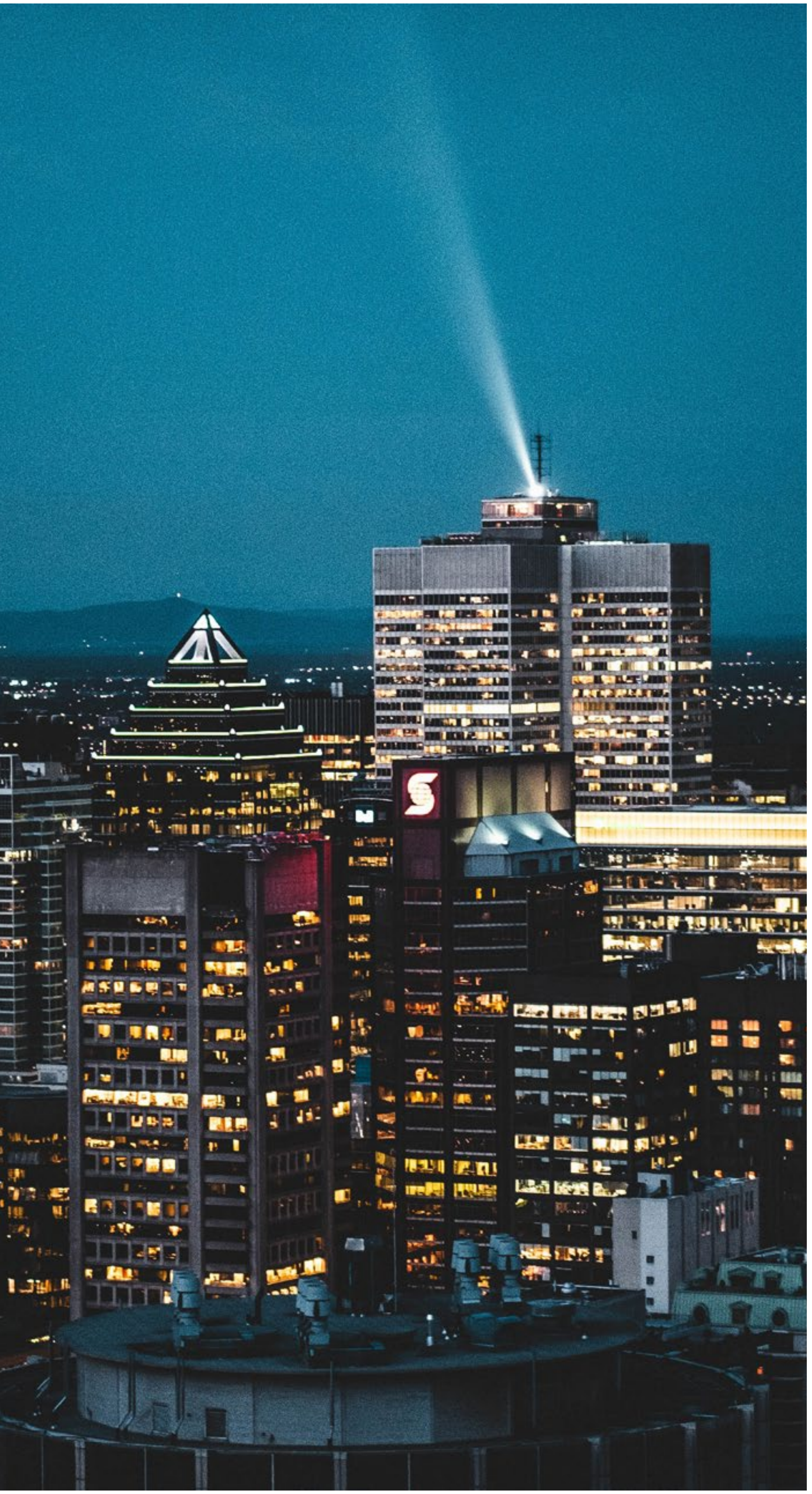
FINANCE

"I challenge you to find an ecosystem like we have in Québec in terms of its institutions dedicated to mining. It is a model for other parts of the world and there has been a real desire on the part of the Québec government to build on it."-

Paul Carmel,
President & CEO,
SIDEX

Image courtesy of Marc Olivier Jdoin - Unsplash

Image courtesy of Michael Descharles - Unsplash



Tapping into Québec's Financial Institutions

A QUANTUM OF INCENTIVE FOR A QUANTUM OF EXPLORATION

Flip through any investor presentation from a junior mining company in Québec and odds are the company will list some combination of SIDEX, Le Fonds de solidarité (FTQ), Caisse de dépôt et placement du Québec (CDPQ) and Investissement Québec among their key shareholders. Adroitly tapping Québec's government backed institutions for investment is a key component of successfully financing a mine in the province, and it is an advantage that makes it stand out as a mining jurisdiction globally and within Canada. When beginning exploration in Québec, companies know that there is a framework in place to assist in the development of their asset. If done successfully, a company can receive financing from cradle to grave, with SIDEX helping to finance the early exploration stage, then CDPQ coming in towards engineering and feasibility phase, and Investissment Québec entering near commercialization.

The logic behind this framework is that it allows mining companies operating in Québec to access capital in good years and bad years via a steady stream of funding. The results speak for themselves. Over the past twenty years, SIDEX has concluded around 350 financings for over 150 companies deploying approximately C$100 million. The fund has also grown from C$50 million to nearly C$90 million under management today, while returning C$16 million to investors over the life of the fund. Paul Carmel, president & CEO of SIDEX, outlined the funds' philosophy: "For many funds, any investment before a mineral resource is defined or a PEA is completed is deemed too risky. SIDEX is the opposite. When a company gets to that level, it is almost too advanced for us. We are at the front end of the process, which is often a very difficult step for companies to raise capital because it is so high risk that they do not meet the criteria of many funds."

Outside the Abitibi

Another aspect of SIDEX's mission is to help open new territories with strong discovery potential to exploration and attract new investments. Carmel continued: "If a company comes to us with a project on the Cadillac trend that has been operating and producing gold for 100 years and they are picking away at old discoveries, that will receive less focus and interest from us than a company that comes in and has a new theory in a new camp. That excites us, because it can create interest in less explored areas and lead to new discoveries."

Investment from these government sponsored funds can be a catalyst to attract capital to a company for several reasons. First it aligns the government of Québec with a project, which can bring legitimacy when going through the permitting process. Another factor is that these investments come as a result of extensive technical, financial and social due diligence. Therefore, a significant barrier dissuading investors without the capacity to perform in depth due diligence is removed.

When asked about Québec's ability to tap global investors to finance large scale critical mineral projects in the province, Pascal Lussier Duquette, director of investment banking-metals & mining at BMO Capital Markets underscored: "What outside investors want to see is that the local financial institutions are supportive of mining companies. If a junior comes to London to speak to investors about a battery material project in Québec and they can say that Caisse de dépôt and Investissement Québec are backing them with significant capital, that is comforting to international investors."

Some may consider an overreliance on government funding to weaken the robustness of the system, but in conversations with juniors and fund managers it is clear that governments' presence is crucial yet limited, as evinced by the Nemaska Lithium bankruptcy. Jean-Francois Béland, vice president at Ressources Québec, explained: "We are not here to compete with banks. We work with partners in the financial community to offer the best financial options to our clients. Many projects come to us with a special need for some element of financing that is not necessarily met by the market. Since we have the policy goal of economic development, there is a more tolerant approach to risk as well."

Québec's formula for building a financial ecosystem may seem simplistic on the surface. It boils down to the fact that government support is essential for building this type of ecosystem, which requires a variation of investment funds that invest at different stages of a project, and financial support for early exploration projects is essential. In reality, however, it is very difficult to implement, and that is why, despite other jurisdictions trying, few, if any have something comparable to incentivize miners. ■

Paul Carmel

President & CEO
SIDEX

> It is an exciting time right now in Québec, because there are many new areas that are very active. The Frotet-Evans and the La Grande /Eastmain greenstone belts are very hot right now.

Given it is SIDEX's 20th anniversary this year, how would you assess the success it has achieved in fulfilling its mandate?
SIDEX started 20 years ago and it has been a resounding success. It was put together by Fonds de solidarité FTQ and the Québec government, our two founding limited partners who put up the funds, to provide financial stimulus to the exploration sector of the Québec mining industry. It would allow exploration companies operating in Québec to access capital in good and bad years via a steady and consistent stream of funding. Back in 2001, our partners put up C$50 million, and since that time we have returned C$16 million to the investors. Today the fund is valued at close to C$90 million. Given that we are solely investing in Québec, and that we usually invest in very small, high risk companies, that is a strong track record. We currently have about 60 positions in our portfolio, but over the life of the fund, we have concluded about 350 financings in over 150 companies deploying approximately C$100 million.

What are your investment criteria?
The first criteria is that the company's property be located in Québec and that is has a well thought out exploration program based on sound geological principles. It can be very grassroots, which is one of the unique aspects of our fund. We are at the front end of the process, which is often a very difficult step for companies to raise capital because it is so high risk that they do not meet the criteria of many funds.
We participate in equity financing hard dollars (as opposed to flow through), which is attractive for a company because it allows them to benefit from a healthy tax rebate from the government.

Are there certain frontier areas of Québec that miners are keen on developing today?
It is an exciting time right now in Québec, because there are many new areas that are very active. The Frotet-Evans and the La Grande /Eastmain greenstone belts are very hot right now.

How are companies faring when it comes to fundraising given the increase in many metal prices over the past year?
Prices are rising, therefore one would assume that fundraising would be easier, but it is not that simple. Even though prices are higher the discovery ratios are lower. That is from an exploration standpoint. When you go into the producers, their track record of delivering what they promised over the last several decades has not been great either. Prices are higher, but many investors when it comes to the mining sector remain a little bit apprehensive because there has been a lot of disappointment on the discovery, production and ESG side of things. Having said that, mining is cyclical and it will come back - the investment environment is pretty healthy right now..

How does Québec present itself relative to other jurisdictions?
I believe we have a mining ecosystem in Québec that is unmatched by any other jurisdiction in the world. First, we have a government that realizes the importance of a strong and healthy mining industry. We are a first world jurisdiction and we are doing the utmost to ensure a thorough, but not an overly bureaucratic permitting processes. There are constant efforts to try to streamline the permitting process and make it more efficient. We also have a very skilled labor force; there are Québec miners currently working all around the world and they love to come home, so there is usually ample supply of workers, although I will admit that it is a challenge at the moment. We also have the financial ecosystem, where we have various pools of capital dedicated to mining from the early exploration stage right through the development and production phases. In sum, Québec covers most, if not all, of the bases with respect to fostering a healthy and prosperous environment for companies active in the mining industry. ■

Frank Mariage

Partner
FASKEN

> There is willingness both from the Québec government and from the federal government to support this industry because of their interactions with the US government and their need to put their hands on strategic minerals from reliable sources.

How would you assess the overall health of Québec's mining ecosystem in 2021?
Over the years, Québec has developed extensive expertise throughout the mining value chain that is recognized worldwide. We have an ecosystem of professionals including technical staff, lawyers, accountants, and a very sophisticated funding platform that supports the mining sector throughout the different phases of a project. This makes us stand out from other mining jurisdictions.
Since the beginning of the pandemic, the price of gold has really taken off and this has been very beneficial for Québec, as nine out of our 22 mines are gold mines. Now, we are also observing hype around strategic metals, with important discoveries in graphite and lithium. However, it is necessary to start carrying out the process of transforming these minerals locally in Québec. There is willingness both from the Québec government and from the federal government to support this industry because of their interactions with the US government and their need to put their hands on strategic minerals from reliable sources. Therefore, I believe there are some good years ahead of us for the development of a secondary transformation industry and the discovery potential is definitely there.

What have you seen on the acquisitions front over the last year?
When the pandemic hit in March 2020, it caused great uncertainty. Many of our clients had transactions related to gold that were subject to concurrent financings and they were unsure what to do regarding cancelling or postponing. I had to request extensions for those deals, and four months later, these deals were not only being closed, but they were oversubscribed in terms of the concurrent finance. This gives an idea of the shift that happened in 2020: suddenly, a huge amount of capital started flowing into mining, and gold played a huge part in this. We are certainly in a hot market right now. It started with gold, but now we are also closing financings for other elements such as lithium and graphite, which we did not see before. There is significant M&A activity on the gold front, and some in copper. It is an exciting time to be in the industry.

What initiatives does the government of Québec have in place to support the mining industry?
Québec has a unique financing system. For example, Investissement Québec and Caisse de dépôt et placement du Québec (CDPQ) are quasi-government entities that provide financial support to the mining industry. The flowthrough regime is very generous for mining exploration and the tax credits given for exploration in northern Québec are remarkable. I am also the Chairman of a mining exploration investment fund, SIDEX, created 20 years ago by the FTQ Solidarity Fund and the Government of Québec to support the diversification of exploration in the Province of Québec. This fund plays an important role in the ecosystem. Furthermore, the government is also making efforts to eliminate some of the red tape, as it currently takes more than 200 or so permits to put a mine into production.

How do Québec's community relations differ from other leading mining jurisdictions and what are the keys to successfully negotiating deals with First Nations?
Québec's relationship with First Nations are based on strong relationships and landmark agreements signed over the years which determine what can and cannot be done, and this is what sets us apart from other mining jurisdictions.
The key to success when dealing with community relations is essentially respect and transparency. First Nations must be informed about mining projects in their region and they need to be involved in the process.

Do you have a final message for GBR's audience about what makes Fasken a valuable partner in the industry?
Fasken is recognized worldwide for its mining expertise. We have extensive experience serving the whole mining value chain and supporting the evolution of projects in any phase, from their beginning until their closure. We can also provide services to all-sized companies, including start-ups, juniors and big producers. This differentiates us from the rest of the pack. Finally, we have a very passionate and experienced team in Québec. ■

Jean-Francois Béland

Vice President
RESSOURCES QUÉBEC

> Many projects come to us with a special need for some element of financing that is not necessarily met by the market. That is where Ressources Québec works to offer a tailored financing tool to meet their needs.

Can you provide an overview of Ressources Québec's mission and mandate?

Ressources Québec is part of Investissement Québec, and the role of Investissement Québec is to foster economic growth in the province. Investissement Québec achieves this by working to attract foreign investment, helping corporations establish, and then moving them towards growth. In parallel, we offer financing solutions such as equity and debt to help businesses thrive. Ressources Québec was initially focused on providing these solutions for mining, but our mandate has now broadened to include energy and forestry.

We can envision a plan where down the road we link a clean energy project with a mining project. These are complementary industries that could have a much greater level of collaboration. That is the logic behind the fund.

Can you speak about efforts in Québec to develop a battery materials supply chain?

The Premier of Québec decided that development of the electric vehicle battery supply chain would be a major focus of his administration, because we have the geology, skilled workforce, and we also have a lot of electricity, clean energy, and roughly 40,000 megawatts of hydroelectricity to produce the critical minerals that power the industry. Those are all the key elements to foster the battery industry, and the political will was there to move forward. Ressources Québec works at the crossroads of public policy, industrial policy and energy policy. For these reasons, we are working on decisions that will be shaping Québec for the next 50 years. If you compare EV's with what we saw in the early days of the auto industry, there are striking similarities.

Our goal is to pull companies together to develop the full battery EV supply chain from mineral to cell fabrication in Québec. There is a major race to develop these supply chains with strong competition from players in China. However, North Americans are now recognizing the need to be less reliant on Asia and to develop an integrated Canada-US value chain where we are independent from other countries. It is an approach where the state is carrying out industrial policy. This knowledge was lost over the last 40 years, as we were all focused on liberalism and globalization. Now we are rediscovering this because of the pandemic. We do not have vaccine capacity, we do not have mask capacity. What happened? This made many people realize that we need to return to the industrial policies of the past.

What does Ressources Québec do that the private sector cannot?

We are not here to compete with banks. We work with partners in the financial community to offer the best financial options to our clients. Many projects come to us with a special need for some element of financing that is not necessarily met by the market. That is where Ressources Québec works closely with the developer to offer a tailored financing tool to meet their needs. Since we have the policy goal of economic development, there is a more tolerant approach to risk as well. What people often miss about risk is that in high-risk industries, people profit immensely. The more risk you take, the greater the opportunity for profit. If you take risks with sensible mitigation steps, you are able to foster development. That is the beauty of entrepreneurial ecosystem we are working to uphold in Québec.

What are examples of Ressources Québec supporting energy development in the province?

There are many remote communities working off the grid, using extremely expensive diesel generators. This requires maintenance, transporting fuel often by road or sometimes shipping it by barge during the summer. It is expensive, polluting and there are a lot of CO_2 emissions in the air. There are some relatively easy wins pertaining to energy that Ressources Québec can support such as solar and wind energy. If these technologies work 20% of the time, you save 20% of GSA and that is a major win.

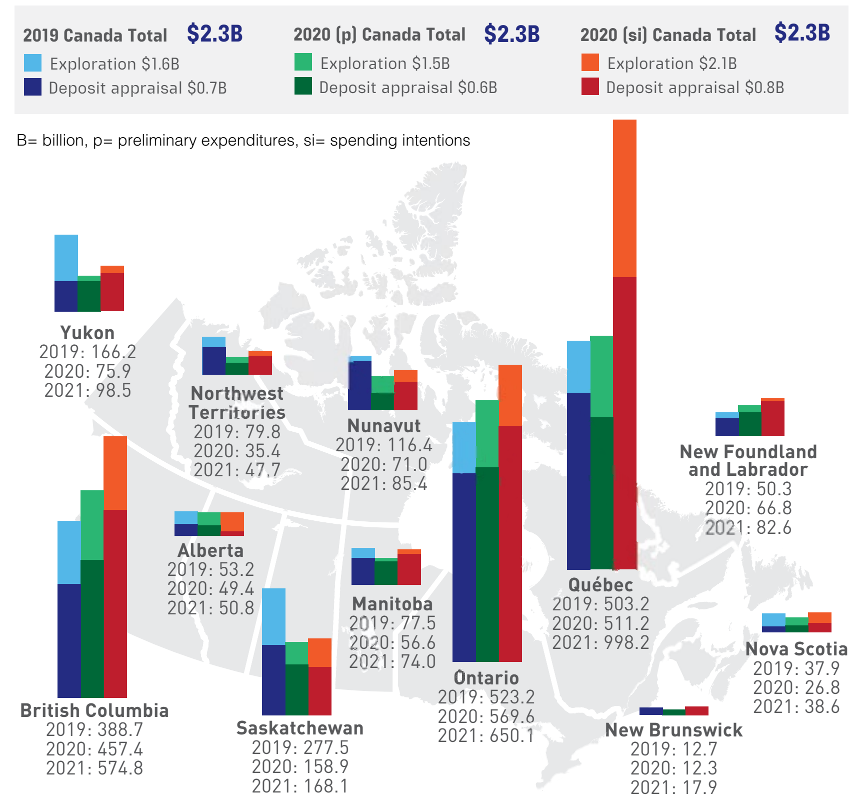
5-10 years ago, the market viewed clean tech as overly expensive. People now understand that using technology is a way of saving money. That is important progress for the environment, and for the industry's bottom line. ■

Québec's Investment Outlook

LA BELLE PROVINCE LEADS CANADIAN MINING FINANCE

Exploration and Deposit Appraisal Expenditures by province and territory, 2019-21

Sources: Natural Resources Canada, Institut de la statistique du Québec



In an industry as capital intensive as mining, a multitude of factors must amalgamate to move from exploration to production. Good geology is universally important, and Québec is blessed with it in abundance. However, in today's era, the sociology often outweighs the geology. A well-funded asset in the hands of the wrong management team can easily be worth zero, while simultaneously, that asset can be worth 10-100x if the team knows how to effectively navigate the hurdles that inevitably come along.

Financial snags can come from a variety of angles: poor community relations, lack of ESG compliance, poor capital structure, and cyclical downturns can all drive investors away and stymie project development.

Thanks to the structure of its laws, incentives and support for mining along with its wealth of talent, in Québec these hurdles tend to be far lower than in other jurisdictions around the world. Consequently, funding follows. According to Funding Portal, Québec accounted for 36% of Canada's mining finance dollars. This outpaces every other province including Ontario with 29% and British Columbia with 21%.

Despite the willingness to fund exploration and development projects relative to other jurisdictions, the past decade has nonetheless proven challenging for juniors across the board. With respect to precious metals funding, Pascal Lussier Duquette, director of investment banking-metals & mining at BMO Capital Markets pointed out that, over the past decade, precious metal focused funds have seen redemptions in most years. Inflows were positive in 2020, but still not sufficient to fully compensate for redemptions in previous years. "There are increasingly less specialist precious metals investors around and they have fewer dollars to invest. These are the investors that typically invest in smaller gold companies," he said.

SIDEX's Paul Carmel echoed that sentiment, highlighting that although the pricing environment for many commodities has improved over the past year, the logic of rising prices leading to increased fundraising is not that simple. "Even though prices are higher, the discovery ratios are lower from an exploration standpoint. When you go into the producers, their track record of delivering what they promised over the last several decades has not been great either. Prices are higher, but many investors remain apprehensive about the mining sector because there has been a lot of disappointment on the discovery, production and ESG side of things" Carmel affirmed.

A strong set up

A compelling argument can be made that the sentiment for commodities across the board is bullish moving forward. In response to the softening in prices over summer, Goldman Sachs' head of commodities research Jeff Currie told investors: "The only thing that can fight real physical inflation is rate hikes, not talk of rate hikes. The bullish commodity thesis is neither about inflation risks nor Fed forward guidance. It is about scarcity and strong physical demand."

Chad Williams, chairman & founder of Red Cloud Mining Capital was also not discouraged by the summer correction. His view is that mining is cyclical, and the cooling off period is understandable given the extent of the bounce off of Covid induced lows. "This can be in part attributed to seasonal lull and a digestion period, because some small junior stocks have gone up tenfold," Williams hypothesized. "I anticipate that over the next six to 12 months there will be a flurry of exploration news, because there is a lag between when capital is injected into a business and when companies are able to deploy that capital."'

Deal making powers on

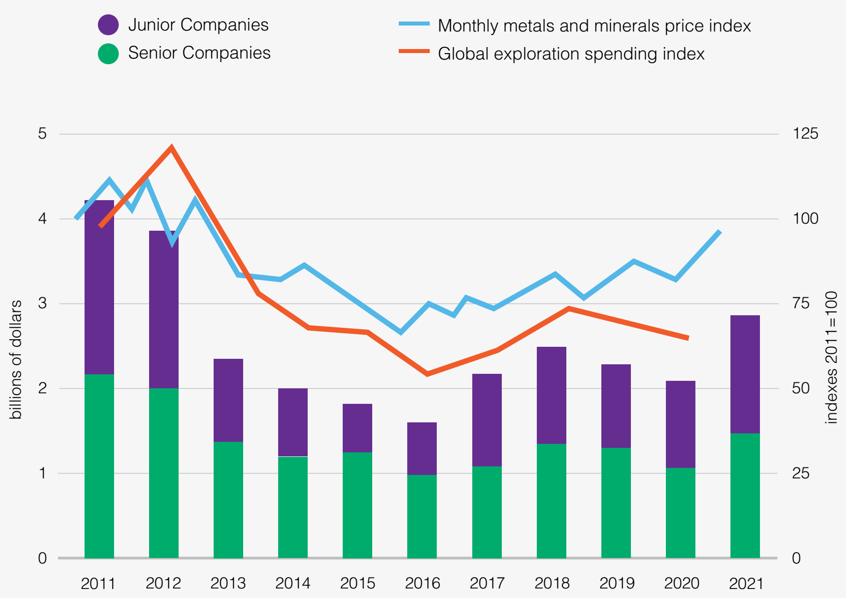
For Lavery, a Montréal-based law firm that advises miners on mergers and acquisitions, and coordinates due diligence reviews in connection with financings, the overall health of the market has been stronger than many might have anticipated. Josianne Beaudry, a partner at Lavery, observed: "As long as metal price are strong, transactions are more compelling. Although we believed at the start of the pandemic that there would be less transactions and that people would prefer to remain prudent, we have seen a more active market than we expected."

Fellow Lavery partner René Branchaud added that the fertile M&A environment in the province has kept them busy as ever from a workload standpoint. "We have been involved in several acquisitions of either companies or properties over the past year or two. This trend is continuing, with a lot of US and multinational corporations acquiring projects or mining companies in Québec."

At Fasken, another law firm present in Québec, Frank Mariage witnessed a powerful shift from widespread uncertainty when the pandemic initially hit in Spring 2020, to where we are today. According to Mariage, many of Fasken's clients had transactions related to gold that were subject to concurrent financings and they were unsure whether to cancel or postpone them. "I had to request extensions for those deals, and four months later, these deals were not only being closed, but they were oversubscribed in terms of the concurrent finance." Mariage continued: "This gives an idea of the shift that happened in 2020: suddenly, a huge amount of capital started flowing into mining and gold played an important part in this. It started with gold, but now we are also closing financings for other elements such as lithium and graphite, which we did not see before."

Appraisal Expenditures
by type of company, global exploration spending Index and monthly metals and MINERALS price index, 2011-2021

Sources: Natural Resources Canada, Institut de la statistique du Québec



Royalty model

One of the trends in Québec and the world is that the "easy money" has been made. The big challenge for companies right now is that the deposits they are finding are lower grade, deeper, harder to find and more complex. Companies have to spend more money to explore, and often spending more money and hitting a lot less. Companies must therefore consider a variety of different avenues to finance a project. Alternatively, they can look to less hospitable jurisdictions, but in the current context there is a clear preference toward geopolitically stable areas. "Post Covid, geopolitical risk is even more of a concern," said Sandeep Singh, president & CEO of Osisko Gold Royalties (OGR), which holds a 5% royalty on the Canadian Malartic mine, which is the most valuable royalty in the gold sector.

Singh, who took over OGR in January 2020, suggested that the royalty model is one that can be hugely beneficial to the industry. "We are coming into a period where there is more capital available, and equity markets are more open, but when you look back, there are always periods of time when that is not the case."

He explained that the industry just exited a long stretch where equity markets were relatively closed to most companies, particularly those in dire need of capital. Through that period, the royalty sector played an important role in providing capital to help advance assets. The benefit of financing via a royalty company is that the money is only repaid when the mine does well. This differs from debt, which can be a burden if a company is starting up an asset. "A royalty or stream is leveraged over the life of mine. It is spread out a bit more, and we only do well when the miner does well. There is a closer correlation to risk for us and the operator than there is on the debt side," Singh explained.

The other benefit for operators is that there is a value arbitrage that can be shared between the miner and the Royalty business. "Royalty companies trade at higher multiples, hence we can raise money cheaper as we have a lower cost of capital. If we can share some of that low cost of capital with a company then it may prevent them from having to issue equity at the wrong time resulting in excessive dilution," concluded Singh. ■

René Branchaud & Josianne Beaudry

RB: Partner
JB: Partner
LAVERY

RB

JB

We have been involved in several acquisitions of either companies or properties over the past year or two. This trend is continuing, with a lot of US and multinational corporations acquiring projects or mining companies in Québec.

How has Québec's mining industry evolved over the past two years?

RB: We have seen a lot of interest over the past few years in strategic minerals, such as lithium, niobium, nickel and other minerals that are used for the development of batteries, not only for cars but batteries in general. Québec has a lot of mining resources devoted to base metals and gold, but we see more and more junior mining companies as well as larger companies, such as BHP, investing in exploration in Québec to find strategic and critical elements.

JB: There is also a lot of interest in R&D because these minerals are more difficult to find. Technologies are being developed to better process them. This differs from gold or silver where we export the minerals without transformation. The government wants to incentivize companies, not only to extract the minerals, but also to transform them in Québec.

How is the provincial government supporting industry from an infrastructure and permitting standpoint?

RB: The government is investing in infrastructure up north, including the construction of roads and development of cities, while also trying to streamline the process to obtain permits. Companies need around 600 permits to open a mine, so streamlining the permitting would save time and money.

JB: Although you need many permits to develop a mine in Québec, in the most recent Fraser Institute report, Québec has raised its ranking, and one of the reasons for its high position is that it is easy, rapid, and transparent to get the permits.

What are the biggest challenges companies face when developing a mine in Québec?

RB: It is not unique to Québec, but the "not in my backyard" symptom can be an impediment to the permitting process. We all want electric cars, but there is a reluctance to produce the minerals here, and that is a huge problem even in the Abitibi now. To overcome social acceptability challenges, companies must make sure they have good ESG practices that will help alleviate this problem. The government and its different arms like Caisse de dépôt are huge investors pushing hard to develop good ESG practices, so I think industry is moving in the right direction. CDPQ will make sure that by 2050, all of its investments will be carbon neutral, so the government is pushing for positive changes in ESG.

Beyond financing, what are some of the biggest advantages for companies operating in Québec?

JB: The presence of natural resources is of utmost importance, but also hydroelectricity is very cheap, which is very attractive for project developers. Québec is also renowned for having skilled professionals in the mining industry, and from a political point of view, we are a very stable province. These factors bring comfort to investors for the development of mining projects.

To what extent is Québec's cheap hydroelectricity a draw for companies?

RB: Hydroelectricity was very significant for the creation of the aluminum industry. Québec does not produce bauxite. It comes mainly from Brazil, but the companies were bringing the bauxite to Québec to produce aluminum because of the agreements with Hydro Québec for the availability of cheap electricity. The government can do the same thing for other corporations that will transform minerals in the province, particularly for significant projects that require a lot of energy. Corporations have significant advantages working in Québec, especially in this era of ESG where you have to be carbon neutral.

What are your views on the current M&A environment in Québec?

RB: As an independent law firm, Lavery works closely with law firms in Ontario that have no presence in Québec, we have been involved in several acquisitions of either companies or properties over the past year or two. This trend is continuing, with a lot of US and multinational corporations acquiring projects or mining companies in Québec.

JB: As long as metal price are strong, transactions are more compelling. Although we believed at the start of the pandemic that there would be less transactions, and that people would prefer to remain prudent, we have seen a more active market than we expected. ■

Sandeep Singh

President & CEO
OSISKO GOLD ROYALTIES (TSX: OR)

"Osisko Gold Royalties has 17 different producing assets of different scale, size and importance. That means 17 different contributors to cash flow, with more set to come online every year going forward."

What motivated you to join Osisko Gold Royalties (OR) management team in 2020?
OR was a spin out of the M&A transaction with Agnico Eagle and Yamana Gold. I saw a great opportunity with a portfolio of assets that are meaningful in the sector. We believe we have a senior company set of royalty assets in an intermediate company, and it was not being valued the way it should be. OR has 17 different producing assets of different scale, size and importance. That means 17 different contributors to cash flow, with more set to come online every year going forward. It is an important and potent business model.

Can you provide an overview of OR's royalty portfolio and the overall strategy of the business?
Our portfolio has been constructed by design to focus on the right jurisdictions. 75% of our value is in Canada, and when you add the US, Mexico, and the right parts of South America, that constitutes the bulk of our value. Geopolitical risk is always something you want to be cognizant of in the mining sector. We are also partnered with some of the best operators in the business on some tier one assets that have meaningful longevity. That starts with our flagship asset, which is a 5% royalty on the Canadian Malartic mine. It is a mine that our team found, built, and then subsequently sold to Agnico and Yamana in 2014. We retained a 5% royalty on the open pit, which is our most valuable royalty in the gold sector. Most recently it doubled in value with the operators making the investment decision to spend US$1.3 billion to build the underground deposit. That will take our flagship asset out to two decades of mine life today, with the expectation that it will continue to grow significantly beyond that.

What role does OR play in supporting the mining ecosystem in Québec?
In addition to Canadian Malartic, we have other examples such as Eldorado's Lamaque, where we have a royalty.
On the development side, through our accelerator business, we have helped to relaunch some important projects in Québec. Osisko Mining's Windfall project is one example. Similarly, for Falco Resources in Rouyn-Noranda; we looked at it with a different lens through our technical skill set and saw something others did not. It is now on the cusp of doing interesting things working on sorting out a path forward with Glencore who have the Horne smelter on surface.

How does the royalty model benefit mining companies?
We are coming into a period now where there is more capital available and equity markets are more open, but there are always periods of time when that is not the case. We just exited a long stretch where equity markets were relatively closed to most companies, especially the companies that needed money the most. The royalty sector has played an important role in terms of advancing assets and providing capital that only gets repaid when the mine does well. Unlike debt, which can be a burden as you are starting up an asset, a royalty or stream is leveraged over the life of mine.

What makes OR's partnership with Carbon Streaming Corp promising from an ESG perspective?
In the royalty business we cannot offset our footprint directly. We rely on our operators to do so and thankfully we are partnered with like-minded operators who take ESG to heart. But we asked ourselves what can we do beyond just picking the right partners and the right assets? That is what led us to Carbon Streaming Corp, who are applying the streaming business model to funding projects in the carbon credit market. That means funding carbon sequestration projects, carbon offset projects, biodiversity projects, and then taking back the carbon credits that are generated. We are an equity holder, but we also have the right to participate in 20% of their deals. We put ourselves in the front row of a brand new sector, one that we think is going to grow materially moving forward and have a positive environmental and social impact. ■

Pascal Lussier Duquette

Director of Investment Banking-Metals & Mining
BMO CAPITAL MARKETS (TSX: BMO)

How would you assess the financing environment for juniors today?
The financing environment has been drawn to the gold sector since 2020, but since the beginning of 2021, the base metal sector has been in high demand from investors. Battery materials are also attracting a lot of investor interest.

What are your views on the M&A environment in Québec?
What we have seen over the last few years is a focus on consolidation M&A. Commodity valuation is less important in these cases, but it is the relative valuation between two businesses that matters. If someone is looking to acquire a copper company or project, they are going to think about it twice because prices are currently elevated along with valuations, and buyers are conscious of that. We see the M&A environment as healthy but not exuberant.
There has been much more M&A in the gold sector, where companies have merged in order to grow in size so they can have more diversified portfolio of mines. Their shares are more liquid and thus are more relevant to investors.

To what extent have alternatives like cryptocurrency and precious metals ETF's shifted the flow of funds away from juniors?
If you look over the past decade in North America, the precious metal focused investment funds in most years have seen redemptions. Therefore, there are increasingly less specialist precious metals investors around, and they have fewer dollars to invest. These are the investors that typically invest in smaller gold companies. Consequently, mining companies have to be larger and their shares more liquid so they can be interesting enough to attract generalist investors. ■

Chad Williams

Chairman & Founder
RED CLOUD MINING CAPITAL

How would you assess the financing environment today for junior miners?
Over the last 12 months capital has been readily available and that has led to a shortage of drills and people. As a result, costs of labor and supplies have escalated. Mining is cyclical, and while the past year has been good, the environment has now cooled off to an extent. This can be in part attributed to seasonal lull and a digestion period, because some small junior stocks have gone up tenfold. I anticipate that over the next six to 12 months there will be a flurry of exploration news, because there is a lag between when capital is injected into a business, and when companies are able to deploy that capital. Another factor slowing things down is that Covid has hampered the ability of companies to do site visits for due diligence. As things open up again, I think there will be a big uptick in M&A activity.

How would you compare the Québec governments' embrace of mining relative to other jurisdictions?
It is not hyperbole to say that the Québec government is the most supportive of any government in the world relative to mining. Not only are there tax efficient ways to finance with flow-through shares, there are Québec funds that invest directly in mining. They also have a world class track record in electrical power generation that enables projects to access clean, low-cost power.

How acute is the talent shortage in mining today, and what can be done to address this issue?
There is a real shortage of people available to work in the mining industry. Mining is not an industry that is appealing to a lot of people. What Québec should do is support the education of mining entrepreneurs, geologists, geoscientists, engineers, and business people. ■

MATERIALS AND METALS OF THE FUTURE

"Canada is just north of the US border, so we can produce our graphite or lithium and we can pop it on the train, and it will be down in Buffalo in a few hours. We are right at the doorstep to what will become the world's most important electrical vehicle market."

- Arne Frandsen,
Co-Chief Executive,
The Pallinghurst Group

Image courtesy of Nouveau Monde Graphite

Materials and Metals of the Future

QUÉBEC POSITIONS ITSELF AS AN INTEGRAL NORTH AMERICAN SUPPLY CHAIN PARTNER

When Henry Ford figured out how to make a car in 93 minutes, it triggered a phenomenon where he could sell as many Model T's as he could build. It was 1927's version of a product gone viral. The rapid growth in demand triggered a booming oil industry, and John D. Rockefeller walked away the biggest winner of all.

Just under a century later, we see history rhyming, with breakthroughs in battery technology leading to skyrocketing demand for Tesla cars, which are paving the way for an electric vehicle boom that threatens to fundamentally alter the makeup of the automotive industry. According to research firm Wards Intelligence, plug-in vehicle sales more than doubled in the first half of 2021 compared with 2020, far outpacing the 29% rise for total vehicle sales.

As a consequence of this sea change toward battery powered EV's and green energy technology in general, there are a plethora of elements in the periodic table that are going to be huge winners for decades to come. Those geologically endowed countries that have the scale and wherewithal to mine these materials profitably and sustainably will gain huge economic and geopolitical power, and their economies will be poised to prosper.

Conversely, countries lacking access to friendly sources of these minerals will handicap themselves, creating economic and national security vulnerabilities, while missing out on enormous opportunities for wealth creation and society enhancing innovation (Wood Mackenzie, estimates more than US$1 trillion will need to be invested globally in energy transition metals over the next 15 years to meet decarbonization targets).

This is particularly relevant given China dominates the mining and processing of these materials. With the fraying of diplomatic relations between China and the West in recent years, Canada and the US are now waking up to the fact that some decoupling of supply chains is sensible. This is true not just of mining, but for several other industries as wide ranging as medical equipment and semiconductors.

This is why these materials and minerals are often referred to under the banner of being 'Critical' or 'Strategic,' and it is why on Oct. 29, 2020, the Québec government launched its 'Québec Plan for the Development of Critical and Strategic Minerals (CSM).' It is a five year initiative to promote the development of minerals used in daily use technologies such as cell phones and laptops, as well as green energy technologies such as solar panels and windmills. The plan lists eight critical minerals it deems essential for the economy including copper, tin and zinc, and 12 strategic minerals used in key sectors of the province's policies, such as battery minerals like cobalt, nickel, graphite and lithium, that will be prioritized as part of the plan. The government will invest C$90 million through 2025 to advance geoscientific knowledge, provide financial support for exploration and R&D, and to support companies in their development projects.

Québec's plan will cooperate and move in parallel with the Canada-US Joint Action Plan on Critical Minerals signed in January 2020, which aims to create North American supply chains for CSMs currently available primarily through overseas markets such as China.

Giving further credence to Québec's strategy is the rare political consensus on the part of both sides of the American political aisle to develop a viable CSM supply chain. In a report released in June 2021 titled 'Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-based Growth' by President Biden's White House, it goes as far as considering Canadian companies "the only non-U.S. entities and persons who are considered a domestic source." The report also references Canada as a "global hub for mining project finance, including the risk finance that supports junior mining companies exploring for strategic and critical materials and developing the next generation of projects," all the while noting that Canada's substantial resources hold the potential through existing and planned projects to support US needs for over twenty strategic and critical materials.

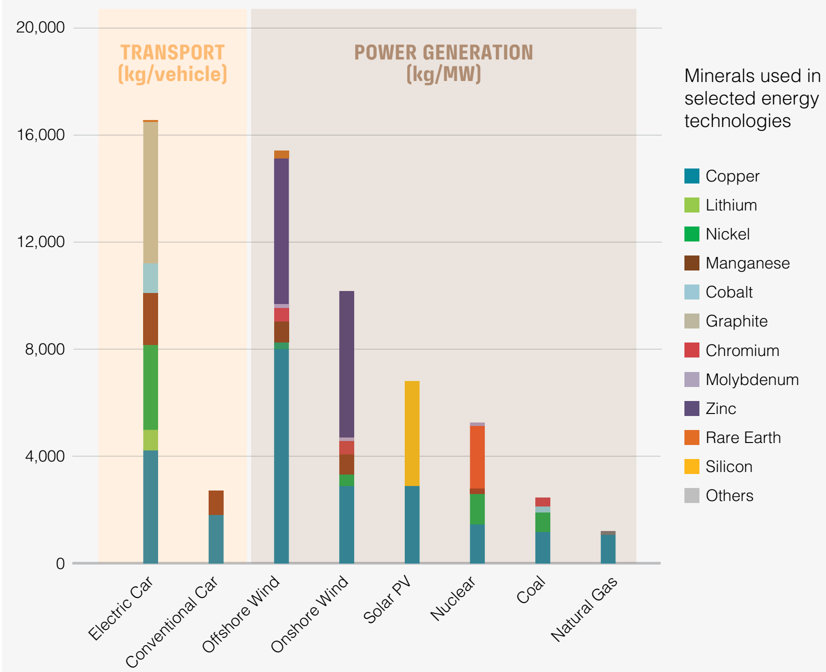
Given Québec's position within Canada, its abundance of skilled workers, large endowment of critical minerals coupled with government incentives to build clean ecologically friendly mines, it is well positioned to lead the way in supplying US markets with vertically integrated battery materials. ■

Canada's Critical Minerals List 2021

Source: Natural Resources Canada

Clean Energy Transition Implies Increased Mineral Demand

Sources: IEA



Lithium

QUÉBEC'S LITHIUM SPACE SEES A FLURRY OF ACTIVITY

One of the most fertile areas of investment in the development of Québec's battery material supply chain is lithium. Demand for the chemical is growing as companies build bigger battery powered machines. There will be a need for more lithium than in the past, because the applications are going from the lithium ion batteries the size of your mobile phone, to lithium ion batteries the size of your car, whereby the entire chassis of an electric vehicle is a lithium ion battery. It is an order of magnitude bigger, and as a result you need an order of magnitude increase in lithium supply. Fitch forecasts global lithium production will more than triple from 442,000 tonnes of lithium carbonate-equivalent (LCE) in 2020 to 1.5 million tonnes of LCE by 2030. Meanwhile, Premier François Legault's Coalition Avenir Québec government is doing all it can to build a lithium-ion battery industry, despite a history of painful failures in the past.

Nemaska's Whabouchi mine in Québec's northern James Bay region is one of the world's richest deposits of spodumene – a mineral source for lithium, yet the company failed in its last attempt to mine and transform the mineral, filing for bankruptcy protection in December 2019, and leaving thousands of retail investors and taxpayers with worthless shares.

Fortunately, The Pallinghurst Group, a European private equity firm already involved in Québec via a 15% ownership stake in Nouveau Monde Graphite, jumped at the opportunity to take over Nemaska and its flagship Whabouchi asset in a coalition deal which included Investissement Québec. Pallinghurst co-chief executive Arne Frandsen posits that the prior failure was driven by the company's poor capital structure and cost overruns. He commented: "Cyclicality and price volatility is not your friend in mining, because when it rains there are no umbrellas, and the banks are not keen on giving you anything at that point in time."

After a prolonged due diligence period, Frandsen and his team concluded that Whabouchi was the world class asset that they always believed it to be, but it needed a new structure not reliant on debt. "It has all the attributes we want in a project and most importantly, there is a minimum 33 year mine life at a consistent high grade of spodumene. It is one of the world's largest and best deposits, full stop," continued Frandsen.

Another company making waves with the development of lithium assets in Québec is Australia based Sayona Mining, whose Sayona Québec subsidiary is developing two projects in the Abitibi region. These include its flagship Authier lithium project and the emerging Tansim lithium project. Sayona is also close to finalizing a joint bid acquisition for the facilities of North American Lithium (NAL) in La Corne in Abitibi-Témiscamingue alongside Piedmont Lithium, which recently acquired a 25% stake in Sayona Québec. "One of our aims with the acquisition of NAL is to improve the established concentrator and create a production hub for all the lithium operations in the Abitibi region. The concentrator will be developed to become a world class production hub, which can be used by other lithium producers in the surrounding area who may not necessarily have the capital to build their own concentrator," said Guy Laliberté, CEO of Sayona Québec.

Sayona Québec's partnership with Piedmont, which is forging ahead with plans to develop a mine and chemical conversion plant in North Carolina, makes for a promising future, as the deal comes with an offtake agreement to provide 60,000 mt/y of spodumene concentrate to their operation in North Carolina.

Competitiveness through scale

Another notable deal with ramifications for lithium juniors in Québec is the proposed merger between Galaxy Resources and Orocobre, two Australia based companies. On the surface, the deal seems to be driven by Orocobre's Olaroz project, which is the first new lithium brine project in South America in 25 years. By acquiring Orocobre, Galaxy now has access to brine expertise, and also immediate access to a downstream outlet in Japan, where they are building a lithium hydroxide plant. The move also significantly de-risks their Sal De Vida project, which has many similarities.

Galaxy Resources CEO Simon Hay anticipates the move will mean that the company's James Bay asset located in Québec will also see a significant advantage through the merger. "The combined entities have a market capitalization of US$4 billion, and with that bigger scale, we will be able to attract and source funding a lot easier. That will enable us to build our own downstream converter, which hopefully will be located in Québec," Hay affirmed.

Galaxy's James Bay project has several notably strong characteristics, particularly compared to its Mt Cattlin asset currently in production. It has a low strip ratio of 3.7:1 LOM, with a grade of 1.4% Li_2O, where it currently mines Mt Cattlin at 1.1 to 1.2%. It also has an 18 year mine life producing at 330,000 mt/y spodumene. ■

Guy Laliberté

CEO
SAYONA QUÉBEC (ASX: SYA)

This bid is about advancing the development plans for both Sayona and Piedmont as we work to develop an Abitibi lithium hub in Québec.

Can you provide a brief background of Sayona Mining and its presence in Québec?

Sayona Mining was established in 2001 in Australia, but soon started expanding its presence into other regions with lithium opportunities. The company identified Québec as having great potential for lithium development because it is a strategic location to supply lithium and batteries to the North American market. Sayona Québec was thus founded in 2016 as a subsidiary of Sayona Mining. We are now developing two projects in the Abitibi region: our flagship Authier lithium project, and our emerging Tansim lithium project. We are also very close to finalizing the joint bid acquisition of the facilities of North American Lithium Inc. (NAL) in La Corne in Abitibi-Témiscamingue alongside Piedmont Lithium. This bid is about advancing the development plans for both Sayona and Piedmont as we work to develop an Abitibi lithium hub in Québec. If approved by the Superior Court, the project would move the Abitibi region and Québec to a first milestone in the international lithium market with Sayona Québec leading the way.

Can you elaborate on the partnership between Sayona Québec and Piedmont Lithium, and the company's pending acquisition of NAL?

We are delighted to have the support of Piedmont to develop our downstream activities in Québec in support of the government's strategy of creating a complete lithium value chain in the province. Piedmont is now the owner of 25% of Sayona Québec and on top of that, we have an offtake agreement to provide 60,000 mt/y of spodumene concentrate to their operation in North Carolina.

NAL has a lithium mine and concentrator located in Abitibi near our Authier project. One of our aims with the acquisition of NAL is to improve the established concentrator and create a production hub for all the lithium operations in the Abitibi region. The concentrator will be developed to become a world class production hub, which can be used by other lithium producers in the surrounding area who may not necessarily have the capital to build their own concentrator. The acquisition also offers the opportunity for the integration of our projects, enhancing our operational efficiency and overall output. NAL's assets create substantial synergies with a potential for low capex start-up given over C$400 million has been invested to date.

What level of support is Sayona receiving from government?

The government of Québec is very proactive in the development of the critical and strategic minerals and have shown their commitment to advancing electrification as a core part of their strategy by committing C$90 million to this effort. They are supportive of the trend to minimize environmental footprint and the Canadian government has an initiative where they provide rebates for the purchase or rental of electric or hybrid vehicles, which further supports demand for the growing electric vehicle industry.

The government is providing funding to support business development in the lithium industry and is also very much involved in R&D projects and initiatives of companies such as Sayona. We are very close to signing an agreement with the government on the green technology we want to develop with ICS. The technology process makes use of nitric acid as opposed to sulphuric acid for the production of lithium hydroxide. It is more cost effective and enables you to reduce 80% of all residues during production, making it cheaper and more environmentally friendly.

What are the advantages of Authier from a geological and infrastructure perspective?

Our flagship advanced stage Authier project is located in the Abitibi region of northern Québec, which is a huge hub for mining production. The site is 30 km from the city of Amos and 45km from the city of Val d'Or, both major mining service centers in Québec with various universities, colleges, and mining specialists. A rural road network connecting to a national highway a few kilometres away easily accesses the project. The site is 5 km from a hydro-electric power grid and 20 km from rail facilities which connects to an export port. The project's key attractions thus include its near-term development potential, access to world-class infrastructure and labor, economical hydroelectric power, and its strategic location near North American battery markets.

What are the biggest challenges to overcome when developing a lithium project?

It is a challenge to find the right balance between developing a profitable project, meeting environmental requirements, and attaining social acceptability. ■

Arne Frandsen

Co-Chief Executive
THE PALLINGHURST GROUP

Pallinghurst originated as a long-term iron ore and manganese investor before becoming the world's largest producer of colored gem stones. The company has now shifted its focus to PGM's and battery materials. What provoked this strategic pivot?
We decided five years ago that a vast decarbonization was on the horizon, so we wanted to reposition Pallinghurst as a producer of materials related to renewable energy and energy storage. I took my team of 30 people away from doing deals, and we went back to school, because it was very clear to us that the previous "experts" from the financial world had very little clue about lithium or graphite. They did not know their spodumene from their brine or their hydroxides from their carbonate. Likewise, for graphite there was little understanding of the differences between flake and purified, shaped and coated graphite. We saw this lack of knowledge around battery materials as an opportunity to lead the market in trying to understand what the materials of the future would be.

How did you come to a decision on which materials to invest in, and what made Québec a logical place to bet big?
We quickly identified that we wanted to be in lithium, graphite, and polymetallics, which consists of nickel base, copper and cobalt. Another break from the past for Pallinghurst was that we made the decision to no longer operate in Africa, and we also wanted to avoid entering into South America. The reason for this is that if a consumer is buying an electric car, the concept that Congolese children are mining the stuff inside their EV battery does not flow. The narrative also fails if you are taking brine up and playing with the water table in parts of South America, where consequently, farmers are not having water for their livestock and crops. Finally, there is the general rule of law aspect.
This led us to a decision to be present solely in investment grade countries, and clearly Canada, and Québec in particular, are the big winner. Australia is very attractive for a lot of reasons, but it is sitting on the other end of the world. Canada is just north of the US border, so we can produce our graphite or lithium and we can pop it on the train and it will be down in Buffalo in a few hours. We are right at the doorstep to what will become the world's most important electrical vehicle market. We see huge upside to being in Québec and we have already made a billion dollar commitment to our projects in the province.

> We saw this lack of knowledge around battery materials as an opportunity to lead the market in trying to understand what the materials of the future would be.

What can we expect to see from Nemaska over the coming year or two?
We had a nice partnership with Investissement Québec at Nouveau Monde graphite, and we did a similar deal in the case of Nemaska. It was a Pallinghurst-IQ 50-50 deal where Pallinghurst is managing the asset.
Since cutting the keys in December 2020, we are now eight months in and optimizing the mining schedule and feeding into the plant. For the next three decades plus, the Whabouchi mine will be feeding our plant in Bécancour, where we will be producing lithium hydroxide. The next two or three years will be all about building.

Can you provide an update on the progress at Nouveau Monde and its efforts to supply North America with high-purity anode material?
We are now finishing the first line of production, which is small at only 2,000 t/y, but that is enough material for the automakers to test our final product. We will have a real commercial line that will take materials from our mine in Québec, and then it will shape, purify and coat the anode material. When the market becomes more educated about this, they will become excited and that is why we moved Nouveau Monde onto the New York Stock Exchange. We are the first graphite company listed on the NYSE. The line we are opening is the first coded, purified, shaped materials plant outside of China ever. Come hell or high water, in the anode, there will be graphite, and Nouveau Monde is going to mine that graphite responsibly with an electrical fleet fed by Québec hydropower. ■

Eric Zaunscherb & Steffen Haber

EZ: Chairman
SH: President
CRITICAL ELEMENTS LITHIUM CORPORATION (TSXV: CRE)

EZ

Can you provide an introduction to Critical Elements Lithium and the progress it has made in recent years?
EZ: One of the things that attracted me to the board is the conservative approach of management. That entailed splitting our Rose lithium-tantalum project located on the Eeyou Istchee James Bay territory in Northern Québec into two pieces. Phase one is centered around the mine and concentrator to produce a spodumene concentrate, and phase two is devoted to producing lithium hydroxide. Recently we have been advancing the permitting process and the consultation has been completed. We are now optimistic that around mid-year 2021, we should see certificates of authorization, and that is the final permitting step that will allow us to move forward.

What were some of the key themes driving the rerating in Critical Elements' stock over the course of 2020 and into 2021?
SH: Given the gap between supply and demand, it is not only about money, it is more about time management. That is the dangerous thing for the capital market, because the capital market is getting desperate looking for new lithium stories. That is preparing the ground for a lot of new companies and new projects, which are designed in an unreliable way. Often their timelines are too aggressive, and that can be very dangerous for shareholders. Critical Elements has an important advantage over these companies, because it has been very slow and methodical in how it has developed its project.

What does it mean to be a large, responsible supplier of lithium to the energy storage system and electric vehicle industry?
EZ: With respect to large, Rose is our first project. It has a 17 year life according to the feasibility study. Secondly, we have a 700 km2 land package that already has demonstrated spodumene mineralization of an encouraging quantity. ■

Graphite

QUÉBEC'S GRAPHITE POTENTIAL BEGINS TO SHINE

When it comes to battery manufacturing, few resources are as vital as graphite. Lithium-ion batteries use graphite anodes because they cope well with the flow of lithium ions during charging and discharging. Historically, China has supplied upwards of 70% of global production. However, the Chinese market has now moved from being a low-cost exporter to the rest of the world to supplying its own domestic value added market. As a result, more flake graphite than before is staying within China, which is also starting to require more material from outside its borders. The rest of the world will no longer be able to solely rely on China and there must be a push to diversify with more mines developed beyond its borders.

When it comes to automakers, industry players and experts say being competitive on price is critical for the sector to develop in North America. Nouveau Monde Graphite's founder and CEO, Eric Desaulniers, explained that it is important to be resilient against the Chinese producers, but that is not deterring him from pressing forward with his two pillar plan to produce at its Matawinie mine in Saint-Michel-des-Saints, and shape, purify and coat the material at its nearby Bécancour facility. "By the end of 2023, we want to produce 100,000 tonnes of high-purity flake graphite at the Matawinie mine. Then, 40% will be sold directly as flake and 60% will be sent to Bécancour to be further processed into mainly lithium-ion anode material," Desaulniers explained.

In addition to developing a fully integrated product that can supply the North American market, Nouveau Monde has also been lauded for its commitment to building an all-electric mine. The company's chairman Arne Frandsen detailed: "We are presenting something which is 100% green, 100% carbon neutral. If you want to have decarbonization and electric vehicles, it does not work if we as miners are polluting the planet as we extract the minerals."

Desaulniers reiterated Frandsen's enthusiasm for the cause, highlighting the challenges and early skepticism it had to overcome to get this far: "We are proving to our customers that we can build a carbon neutral product at cost parity with the Chinese in large quantities, all based in Canada."

Not far from Matawinie geographically is Lomiko Metals, whose recently released preliminary economic assessment (PEA) for its 100%-owned La Loutre graphite project envisions an open-pit mine with an average annual production of 97,400 tonnes of graphite concentrate over a 14.7-year mine life for a total life-of-mine output of 1.4 million tonnes of graphite concentrate. The all-in sustaining costs are expected to average C$406 per tonne of graphite concentrate over the mine's life, and initial capital costs were estimated at C$236.1 million, with C$37.7 million budgeted for sustaining capital over the mine life.

A. Paul Gill, CEO of Lomiko Metals, explained that La Loutre lies within the Grenville Trend, a mineralized area where most of Québec's graphite is confined. The trend hosts a number of different projects such as Northern Graphite, Imerys Graphite & Carbon, Lomiko, Nouveau Monde, and Mason Graphite. "In the area Lomiko is located, you have a nice Goldilocks zone where you get the higher grades and you get significant flake size, but you do not get as much sulfur turning up in the project," said Gill. "Our ultimate goal is to produce something that is at least a 10 year mine producing 10 million tonnes or more at 10% grade."

La Loutre and Matawinie, are just the beginning for companies like Lomiko and Nouveau Monde, who are looking to make up for the dearth of graphite mines in North America. Gill concluded: "There are 200 mega factories being built worldwide today, which means that there will be demand, and whatever amount of graphite is being produced now will be soaked up by all of the lithium ion battery companies. The estimate is that you need at least one mine per mega factory. Worldwide there are currently 25 to 30 operating graphite mines. Therefore, there is a need to build many more mines to meet demand."" ■

Eric Desaulniers

President & CEO
NOUVEAU MONDE GRAPHITE (NYSE: NMG)

> We are constructing our project, we are fully permitted, and we are building what will be the largest graphite mine in the western world.

How has Nouveau Monde Graphite developed since we last spoke three years ago?

As a company, we are much more advanced. We are constructing our project, we are fully permitted, and we are building what will be the largest graphite mine in the western world. Not only are we set to produce graphite, but we are also positioned to transform the material for the end user. The transformation project is getting a lot of traction because it is critical to being fully integrated. We compete with the Chinese economy, as our product, which is anode material comes 100% from China. Despite this challenge, we are proving to our customers that we can build a carbon neutral product at cost parity with the Chinese in large quantities, all based in Canada.

What are the keys to executing your vision for the Matawinie project moving forward?

It starts with having the right foundation on the ground. It took a lot of effort to find this deposit and develop it the right way. As a result, our business model has proven successful in attracting the right talent. These are people who know how to process and sell graphite. We built a demonstration plant to be able to not only have a great resource in the ground, but to prove early on to our customers that we can process it effectively. We have qualified most of the flake applications, thanks to a demonstration plan of significance that has been running since 2018. Now, we are doing the same on the battery material side. The location is fantastic as well. We have one of the largest industrial parks in Canada an hour and a half from our deposit. We have cheap electricity, chlorine and access to skilled labor. These are key components that add up to make our economics very resilient compared to others looking to supply anode material.

The Matawinie and the Bécancour conversion facility are complementary assets. Can you speak to the advantage this provides?

By the end of 2023, we want to produce 100,000 mt/y of high-purity flake graphite at the Matawinie mine. Then, 40% will be sold directly as flake, and 60% will be sent to Bécancour to be further processed into mainly lithium-ion anode material. This constitutes 75% of our future EBITDA. The project in Bécancour will be commissioning before the end of 2024, and it will be finalized by mid-2025. The value-added transformation will kick in a year after we have started the mine.

What steps have been taken to make Matawinie the first ever all-electric open pit mine?

The best way to attract the right talent is to work on a project that will inspire people, and that is what we did. It is feasible to do it all-electric, and now that customers are prioritizing ESG, they are willing to a pay premium for our product because it is fully green and traceable.

How might the timing of Matawinie's production be well aligned with potentially tight supply and demand market dynamics?

In 2014, there was only one giga factory run by Tesla and Panasonic in Nevada. Today, there are 208 battery plants being built on the planet, with a third of those plants in the western world. However, there is no North American supply chain. Anode material for lithium-ion batteries come exclusively from China. The 208 plants will require about 2.8 million mt/y more of graphite by 2025. This means we are going to experience major growth. If you include all of those plants and all of the known deposits on the planet that could go into production, there is still a deficit of 100,000 tonnes starting in 2023, which is when we anticipate to go into production. ■

A. Paul Gill

CEO
LOMIKO METALS (TSXV: LMR)

> There are 200 mega factories being built worldwide today, which means that there will be demand, and whatever amount of graphite is being produced now will be soaked up by all of the lithium ion battery companies.

What is the genesis of Lomiko Metals?
In 2009, we formed Lomiko Metals because I wanted to focus on the green economy and battery materials. We focused on lithium and graphite, and we optioned different properties around the world. We eventually dropped those in lieu of a focused presence in Québec, which we felt was a much better jurisdiction for finding a viable graphite project that could ultimately become a mine. We now feel that we have found this with our La Loutre project.

What is the Importance of graphite for the battery material industry?
What makes graphite interesting is that it is essentially equivalent to copper when it comes to the electric vehicle industry. Graphite is going to be a core of the of the lithium ion battery; there is 15 times more graphite than there is lithium in the battery. What we now need to see is price increases. There are 200 mega factories being built worldwide today, which means that there will be demand, and whatever amount of graphite is being produced now will be soaked up by all of the lithium ion battery companies. The estimate is that you need at least one mine per mega factory. Worldwide there are currently 25 to 30 operating graphite mines. Therefore, there is a need to build many more mines to meet demand.

What makes La Loutre an appealing project for potential investors?
What appeals to the end purchaser of a mine, or the purchaser of the product, is the lowest possible price for the product that you can sell while still making a profit. We looked at a location that had near surface mineralization and good metallurgy in order to recover the material at a high rate. The deposit also had a stellar location that was close to infrastructure, highways and accessible, such that there was a number of ways to get hydropower in, and there was a workforce nearby. All of these factors are present with the La Loutre project. When we drilled, we found very good intercepts of over 100 meters of 14% graphite in one of the holes, and surrounding that are other very significant intercepts. Our ultimate goal is to produce something that is at least a 10 year mine producing 10 million tonnes or more at 10% grade.

Can you speak of the advantages of developing a graphite project in Québec?
The graphite industry in Québec is mostly confined to a swath of mineralized area that is called the Grenville Trend, which hosts a number of different projects such as Northern Graphite, Imerys Graphite & Carbon, Lomiko, Nouveau Monde and Mason Graphite. In the area Lomiko is located you get higher grades and significant flake size, but you do not get as much sulfur turning up in the project. Our La Loutre project is in the middle these other projects, which is a very beneficial place to be.

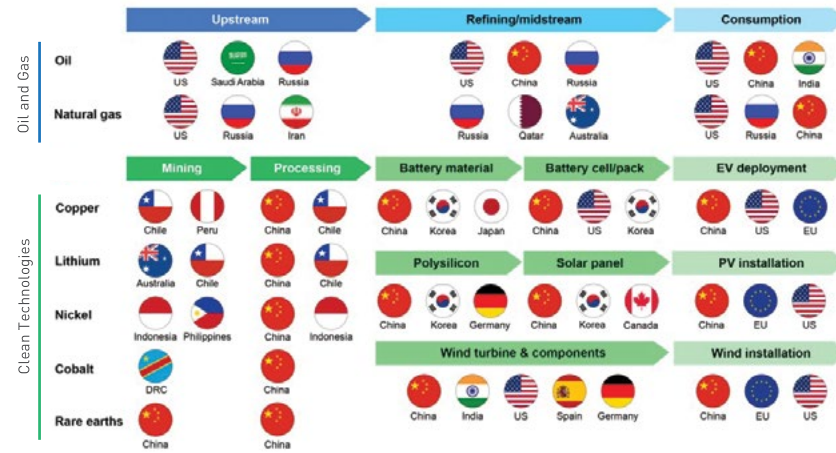
Can you provide an overview of the option agreement Lomiko recently struck with Critical Elements Lithium on its Bourier project?
In the area where the Bourier project is, there is Nemaska Lithium, Critical Elements' Rose project, and other groups have been picking up potential lithium exploration projects. What you have with the Bourier project is something that has been underexplored, considering the area that it is in, and we have a wonderful plan, in that the whole area has already been tested for geophysical anomalies with an airborne survey. Our plan is to plot where the current geophysical anomalies are that have been drilled, look for the same kind of anomalies on the Bourier project, and explore in those areas to see if we can make a discovery. I think it is a very logical approach, and if we make a lithium discovery, we have a partnership with Critical Elements baked into the agreement. It gives us a turnkey approach to lithium. ■

Scandium and Rare Earth Elements

SUPPLY CHAIN VULNERABILITIES NECESSITATE CHANGE

The Transition to a Clean Energy System

Source: IEA



After passing high school chemistry class, very few people are ever exposed again to esoteric elements like scandium and niobium. This is even more true of the 15 lanthanide elements considered to make up what are referred to as "Rare Earths." However, these elements are increasingly in the news cycle today as they are essential to many of the advanced technologies that will shape the economy in the coming decades.

Over the past year, scandium has made headlines in Québec, as Rio Tinto began operations at its scandium oxide demonstration plant in Sorel-Tracy, a move that will support its upcoming production of aluminum-scandium alloys. "For the first time, customers will benefit from a North American supply of scandium oxide for applications in solid oxide fuel cells, lasers, lighting products or as an additive to produce high-performance alloys," Stéphane Leblanc, Rio Tinto's managing director of its iron and titanium segments, said in a statement.

Imperial Mining Group, whose flagship Crater Lake scandium-rare-earth opportunity also lies in Québec, is feeling the effects of this momentum swing as they set out to establish their 43-101 resource report followed by a PEA in fall of 2021. Their president & CEO, Peter J Cashin, stressed: "Throughout the rare-earth run from 2008 to 2012, not a single major player indicated support for developing the rare earth space globally. When you get a major like Rio Tinto saying they are going to produce scandium and then scandium-aluminum alloy because they think there is a significant market for it, from our perspective, it is a validation of our conviction that there is money to be made in this space."

The benefits of scandium are plentiful and include the fact that when alloyed with aluminum it increases the strength and corrosion resistance of the metal, allowing it to be welded rather than riveted. As a result, aluminum-scandium alloys have the potential to lead to lighter aircraft, greater fuel efficiency and more cost-effective aircraft production. For the same reasons, scandium is also generating interest in the automotive industry. Despite these benefits, the issue has long been about insufficient supply. If manufacturers cannot get the metal in sufficient quantities, they have no reason to incorporate it. Imperial is in an advantageous location being based in Québec because Scandium is an important alloy additive to aluminum, and Québec produces 90% of Canada's and 60% of North America's aluminum. Cashin asserted: "We are next door to what could be the biggest consumer market for scandium-aluminum alloy: the US. There are natural synergies for a sustainable source of scandium to Québec's aluminum industry, and we have an asset that is considered one of the highest-grade scandium deposits in the world. It also has the additional benefit of significant rare earth credits." ■

Christopher Grove

President
COMMERCE RESOURCES CORP.
(TSXV: CCE)

> **Top of our list right now is the completion of the production of the samples requested by industry majors.**

What will drive future demand for rare earth elements?

The global demand for rare earth elements (REE's) continues to increase on an annualized basis, and electric vehicles are a significant part of that, along with wind turbines. As the world continues to face the realities of climate change - which should arguably be called a climate crisis now - the world will continue along the trajectory of replacing dependency on fossil fuels over to a greater reliance on renewables and clean and green energy, and the REE's are an essential factor in this drive to improve the environment.

What make Monazite such an appealing mineral to possess?

Monazite is the most attractive REE mineral because monazite hosted sources typically have a higher percentage of the four rare earth elements that are essential for permanent magnet manufacture. That is specifically the case in terms of our Ashram Rare Earth Elements/Fluorspar deposit, because in our enriched zone we have very high proportion of neodymium and praseodymium (21-24+% of the total REO) which we will be mining for a significant portion of the initial 25 year mine-life.

What are the components necessary for an attractive rare earths project?

Unlike gold, copper, or nickel, grade is not the most important thing when going into production for REE's. The type of REE mineralization is the key. Ashram averages just below 2% with significant tonnage in the current defined resource, which is broken down into 1.6 million mt measured at 1.77% REO, 27.7 million mt indicated at 1.90% REO, and 219.8 million mt inferred at 1.57% REO. That is a huge deposit, with a very attractive grade that is monazite dominant.

What are the near term goals for Commerce Resources?

Top of our list right now is the completion of the production of the samples requested by industry majors. We are looking at the completion of these samples this fall, and the delivery following. We then hope that one of those companies will find it attractive to enter into a project level investment with us on the basis of those samples, proving that we can produce a commercially marketable and viable REE concentrate sample. This would be a rare earth carbonate concentrate, that would not have any of the thorium that naturally exists in our deposit. We are in the process of stripping that out as part of the flowsheet development being completed by Hazen Research in Colorado. As for radioactive elements, we were very fortunate that we do not have any significant uranium in the deposit. There is several times more uranium in a typical granite countertop than there is in Ashram. There is a very low level of thorium at Ashram, which is common to the mineral monazite; however, its removal is well understood and the storage of it is well-regulated and safe. The amount of thorium is Ashram monazite is actually significantly less than that typically found in monazite derived from heavy mineral sand operations.

Why should rare earth elements investors put their money on Commerce?

Commerce owns 100% of the Ashram Rare Earth Elements/Fluorspar deposit, which is the largest defined monazite dominant resource in North America. There are heavy mineral sand operations throughout North America, and throughout the world, where monazite may be recovered as a by-product to zircon or rutile, but Ashram is the largest defined hardrock monazite deposit in North America. Ashram is a rock type called 'carbonatite' which speaks to size and grade, but it also speaks to the ease of processing and lower processing costs.

There are laterites that are monazite dominant, but typically the laterites are weathered carbonatites, and the weathering process which is naturally occurring over hundreds of millions of years changes the carbonatite into something that is more challenging and costly to process. The only laterite hosted REE project that has been successfully commercialized is Lynas in Australia, and arguably they might not have gotten into production were it not for the now US$400 million invested by the Japanese government into them. There will be a few winners in the REE sector because there are so few REE projects globally that have the right fundamentals. The Ashram has all of the essential fundamentals to go into production for rare earth elements. ■

Peter J. Cashin

President & CEO
IMPERIAL MINING GROUP
(TSXV: IPG)

Can you provide an overview of Imperial Mining and its portfolio of assets?

Our flagship project is Crater Lake, which is a scandium-rare-earth opportunity. We also have two high-quality gold assets not far from Osisko's Windfall Lake gold deposit. Our two gold assets are of high quality, and we have done work on both revealing ore-grade intersections. We are now at the drill-ready stage at both. Since acquiring the Crater Lake scandium-rare-earth property, we have done geophysics and groundwork, and this past winter we completed definition drilling on one of the three scandium mineralized areas that we identified. The intention at Crater is to roll it into a 43-101 resource report followed by a Preliminary Economic Assessment (PEA) coming in fall of 2021. That is an important milestone because it will produce a financial model of the eventual mining operation. This is an important prerequisite to meet Investissement Québec's investment involvement.

What are the advantages of the Crater Lake scandium-rare-earth property in northeastern Québec?

There are many good assets in North America, but in the past we got caught with the Chinese manipulating price. Consequently, the price of rare earths dropped in 2012, and North American companies could not attract exploration dollars to continue the development of those assets. Now the US is being threatened by China saying that they are going to restrict the supply of rare earths to US industry. This is critical because it is a direct threat to the American defense and green technologies.

Scandium is a different kind of play. Our advantage is that Québec produces 90% of Canada's and 60% of North America's aluminum. We have an asset that is considered one of the highest-grade scandium deposits in the world. It also has the additional benefit of significant rare earth credits.

Have investors begun to realize the opportunity in scandium and rare earths?

Recognition of the investment opportunity in critical metals is evolving, but at a snail's pace. The market is small and critical materials are opaque. They are not traded on the open market but by secret offtake and sales contracts where the price and volumes are not revealed. Investors want the certainty to look at a company's grade, multiplied by the number of pounds of metal, multiplied by current market price. Then they can put a dollar figure on what that asset is worth. ■

PRODUCTION IN QUÉBEC

"From a geologic perspective, Québec is one of the best jurisdictions in the world, so we are growing our footprint, and we are excited about our future here."

**- George Burns,
President & CEO,
Eldorado Gold**

Image courtesy of AMQ

Production in Québec

PRODUCERS OVERCOME COVID CHALLENGES TO CAPITALIZE ON RISING COMMODITY PRICES

When the pandemic struck, its impact on commodity prices and production levels was highly uncertain. The government of Québec initially declared aluminum production to be an essential service and required that all other mining companies scale down operations to a minimum in its initial directive on March 23, 2020. However, by April 13, 2020, the provincial government reversed course and allowed mining operations in the province to resume, subject to compliance with health and safety orders and recommendations. Results across commodities and companies have since diverged.

Mines like Canadian Malartic, the largest gold mine in Canada, bounced back quickly to deliver big production and cash flow for its 50/50 owners Agnico Eagle and Yamana, as well as Osisko Gold Royalties (OGR), who has a 5% net smelter return royalty on the mine. In addition to successful production, the mine owners came to a positive decision on the underground development of the mine. OGR president and CEO Sandeep Singh highlighted that this decision to spend US$1.3 billion to build the underground deposit doubles the value of their royalty. "That will take our flagship asset to two decades of mine life today, with the expectation that it will continue to grow significantly beyond that. Canadian Malartic is a substantial asset that underpins the value of our company," Singh affirmed.

Another important operation in the province is Eldorado Gold's Lamaque mine. After acquiring the project in 2017, Eldorado began producing in March 2019. Exactly one year later production ground to a halt due to province-wide restrictions for almost four weeks due to Covid. Despite the unexpected path, Lamaque reached over 144,000 ounces of production in 2020, 14,000 ounces more that its stated production goal. Eldorado president and CEO, George Burns reflected: "We lost about 8% of the hours of work that were going to be done underground, in the plant, and in our exploration. That put us on our backfoot." Adding to the issue, like other miners, Eldorado could not move people within the mine the way they used to due to physical distancing requirements. Despite both of those headwinds, the company still managed to outperform budget. "They moved more tons, by stretching out the underground ahead of plan. They pushed more through the plant than we expected, and this is a testament to our people's ability to create value and problem solve," Burns said of the Eldorado team.

Eldorado's ambitions with Lamaque and the surrounding area do not stop there. Management is open that their focus is on expanding and extending mine life at Lamaque. Consistent with their vision, in April 2021, Eldorado closed the acquisition of QMX Gold. "The QMX acquisition increases our land position in Québec by 5.5 times. QMX also sits adjacent to Lamaque, so there is deep knowledge and comfort with the geology and surrounding community. We invested in QMX over a year ago, similar to what we did with Integra, getting in early, familiarizing ourselves with their team. We think there is a bright future here and we have the operating capability to turn these exploration opportunities into gold production, and into profits and value for shareholders," Burns asserted.

Since acquiring Casa Berardi in 2014, Hecla Mining Company has made the property a key pillar of its strategy to find high quality assets in stable jurisdictions. As part of Hecla's portfolio, which includes Greens Creek in Alaska and Lucky Friday in Idaho, Casa Berardi is yet to achieve its full potential. However, Hecla president and CEO Phil Baker is determined to continue to improve their Québec operation. Of the eight years Hecla has owned Casa Berardi, it has generated positive free cash flow in seven of them, but Baker believes the 37 km long land position with both underground and surface mineralization has much more to offer. "(Casa Berardi) has a mill with a capacity of 4,000 mt/d that was only operating at about 2,300 mt/d, so there was a lot of capacity, and that has been our focus over the last eight years. Figuring out how to increase the throughput of the mine to utilize that infrastructure that is in place was a challenge, and we have successfully done that," Baker stated.

Hecla has now reached the mill's capacity of 4,000 mt/d, and moving forward, the company is seeking to establish the reliability of the operation, where interruptions that drive the cost up are a thing of the past.

Iron

While the majority of Québec's producing mines are gold, the Labrador Trough has an history as Canada's leading iron ore producing region.

Because of its potential for high grade iron ore, Champion Iron executive chairman, Michael O'Keeffe moved to Canada in pursuit of assets in the Labrador Trough. In 2014, the company's current CEO David Cataford joined the team as Champion shifted from an exploration company into developing the Fire Lake project. Along the way, Champion worked with the Québec government as part of their Plan Nord initiate to develop infrastructure in the region and enable different projects in the north of Québec to eventually see the light of day. After leading a feasibility study for a new rail that would go from the Fermont district to Pointe-Noire, the Bloom Lake mine became available.

Cataford and his team jumped at the opportunity to buy Bloom Lake in 2016, and ever since, it has proven to be a great investment. "We were buying C$4 billion worth of infrastructure and assets for about C$10 million. That gave us a great steppingstone to enter the high-grade iron ore market quickly," Cataford explained.

While in hindsight it seeme like an obvious bet after operating at record levels yielding record EBITDA, the Bloom Lake acquisition was not always in favor. "There was a lot of chatter about Bloom Lake being a high grade asset, but being a high cost producer. However, with the feasibility study that we completed, we saw an angle where we could halve the operating costs at the site. We started the project on time and on budget in 2018, and we have now delivered three full years of operations demonstrating that we halved the operating costs compared to the previous operator, while also increasing throughput to new records to about 8 million mt/y," said Cataford.

He continued, underscoring that despite being impacted by the government mandated ramp-down of operations in Q1 2021, one of the keys to its swift recovery to new highs was owed to investments made prior to the pandemic. "We did our feasibility study in 2018, and we identified areas that we could improve. It gets very cold around Bloom Lake, and there were elements related to weather that were not optimized. In the first year of operation, we found what those were, and we invested right away to fix them.

Looking ahead, Champion is working to nearly double production to 15 million mt/y in the next year. Concurrently, Cataford is adamant that the company remain disciplined in maintaining its commitment to producing quality high-grade iron ore with a low level of impurities. "It is very easy when prices are up to shift quality to get more throughput out, but we have upheld the high-grade production. We also came out with a new product at an even higher-grade iron ore, which is around 68% Fe, qualifying it to go down the electric arc route to produce steel," said Cataford.

Niobium

Another acquisition made early last decade that now has strong momentum behind it is in the niobium space with Magris' (Now Magris Performance Materials) acquisition of IAMGOLD's Niobec mine. Magris acquired this asset with the vision that niobium was a desirable market to be in due to an absence of producers and positive market dynamics. Niobium is used to effectively reduce the weight and enhance corrosion resistance of high strength steels; it is primarily used in automotive construction and pipeline applications. "In the current ESG environment, niobium lends itself well to a positive story of reducing environmental footprint." Matthew Fenton, president and CFO of Magris explained.

The fundamentals of niobium from a market growth perspective are positive. Niobec produces ferro-niobium, and the market has been growing at 5%-10% per year over the past few decades. A significant part of the demand and expected growth is coming from Asia, as they upgrade the quality of their steel. China is significantly behind in terms of the niobium per capita that they consume relative to western markets, and thus continues to be a large growth market.

In describing the assets' recent performance: "We saw a unique opportunity to acquire a great asset and business that has a long duration and significant free cash flow. Since acquisition, the asset has exceeded all our expectations," Aaron Regent, the company's chairman and CEO reflected. ■

David Cataford

CEO
CHAMPION IRON LIMITED (TSX: CIA)

"With our balance sheet already in net cash position of over C$330 million after only three years of operations, we are fully funded to complete the project and further position Champion as a global leader in high-grade iron ore."

How has Champion Iron Limited progressed from its origins to where it is today?
In 2013, there was a merger between the previous entity named Champion Iron Mines, and Mamba minerals, which was led by Michael O'Keeffe, who is our executive chairman today. Michael moved to Canada because he saw the large potential for high-grade iron ore production in the Labrador Trough. I joined the company in 2014, and our team shifted from an exploration company into developing the Fire Lake project. We also started working with the Québec government as part of their Plan Nord initiative to develop significant infrastructure in the region and enable different projects in the north of Québec to eventually see the light of day.
Soon after, the Bloom Lake mine ("Bloom Lake") became available. We seized the opportunity of buying Bloom Lake in 2016, and it was a great investment for Champion because we were essentially buying US$4 billion worth of infrastructure and assets for about C$10 million. That gave us a great steppingstone to enter the high-grade iron ore market quickly. Our focus turned rapidly to complete a feasibility study to make sure that we could restart Bloom Lake in the most diligent manner. There was a lot of chatter about Bloom Lake being a high grade asset, but being a high cost producer. However, with the feasibility study that we completed, we saw an angle where we could halve the operating costs at the site. We started the project on time and on budget in 2018, and we have now delivered three full years of operations, and we demonstrated that we halved the operating costs compared to the previous operator, while also increasing throughput to new records to about 8 million mt/y.

What led to Champion Iron's record profitability in fiscal 2021?
We have been extremely disciplined in maintaining our commitment to producing quality high-grade iron ore with low levels of impurities. We also came out with a new product at an even higher-grade iron ore, which is around 68% Fe, qualifying it to go down the electric arc route to produce steel. In the past year, not only has the global iron ore price been high, but the premium for the high-grade has been at all-time highs.

What is driving demand for high grade iron ore?
When the steel margins are elevated, steel mills are usually willing to pay more for high-grade iron ore to maximize output.
Furthermore, one of the shifts that we have seen in recent years is on the environment side. If you want to reduce your CO_2 emissions, you need to stop melting contaminants and focus on melting iron ore. The higher-grade material that you use in your blast furnace, the less CO_2 emissions you will produce per ton of steel.

Champion Iron is expanding production from 7.4 million mt/y today to 15 million mt/y. What is the roadmap to achieving this target?
We were very fortunate from the onset to have nearly US$4.5 billion invested at site. A large portion of that was invested to be able to bring Bloom Lake to a nameplate capacity of 7.4 million mt/y, but the previous owner had already started working on an expansion to bring Bloom Lake to 15 million mt/y. About 75% of the capex associated with that expansion had already been spent by our predecessor to bring the project online. We sanctioned the completion of that project last November, and our target start date for the expansion is mid 2022. With our balance sheet already in net cash position of over C$330 million after only three years of operations, we are fully funded to complete the project and further position Champion as a global leader in high-grade iron ore. In addition, we also completed the acquisition on April 1, 2021, of the Kami project only a few kilometers away from Bloom Lake. This project is another sizeable opportunity near available infrastructure and quality resources. We already mobilized a team to complete a study on the Kami project as we consider organic growth beyond our Bloom Lake. We expect to complete this study in the near term.. ■

George Burns & Sylvain Lehoux

GB: President & CEO
SL: VP & General Manager
ELDORADO GOLD (NYSE: EGO)

GB

SL

"Our plant is permitted and capable of 5,000 tonnes per day with a modest capital investment. The key is finding more ore to feed that hungry mill."

Can you provide an overview of Eldorado and its portfolio of assets throughout the world?
GB: We have five operating mines: two in Turkey, two in Greece, and one in Québec, Canada. We also have non-core assets in Brazil and Romania. Last year we produced about 530,000 ounces of gold, and if you do a two year look back (as of May 2021), Eldorado's share price is up 158%. In contrast, the GDX and GDXJ were up 65% and 62%, the S&P 43% and the S&P TSX was up 19%.
GB: We have an advanced stage development project in Greece called Skouries. It is a gold-copper project that is currently half built, and we have been positioning it with permitting and an improved contract with the Greek state to allow us to complete the construction. It has a 23 year mine life and it is going to offer an additional 140,000 oz/y of gold. Its byproduct of copper is significant: At current spot metal prices, copper revenues will pay all the operating costs and sustaining capital, making the all-in sustaining cost per ounce of gold virtually negative.

What makes Lamaque a strong asset for Eldorado, and how will the optimization plan improve potential production and environmental impact?
SL: Eldorado acquired the project in July 2017, and our objective was to build a solid mine focused on world class health and safety. We have a few kilometers between the mill and the mine. Therefore, we decided to move forward with the construction of a decline. This is going very well, and it will be a big improvement for Lamaque, because we will increase the life of mine, reduce greenhouse gases, and create direct and indirect jobs. With this decline, we will have no more trucks on public roads for ore haulage from the Triangle underground.
SL: Eldorado's assets in Québec are not only about Lamaque, though. We have also acquired new claims to continue exploration around Val-d'Or near our site. This year we plan to continue our exploration activities on our various properties. We achieve really good recovery at the mill, and we can increase our tonnage substantially moving forward.

Lamaque began producing in 2019. How have production and operations been impacted over the past year, and how is Eldorado positioned moving forward?
SL: We started producing at Lamaque in March 2019, and exactly one year after we were forced to stop for almost four weeks due to Covid-19. Despite this shutdown, we were able to exceed our 2020 production goal of 130,000 ounces. With our strong mining plan and hard work from our people, we reached over 144,000 ounces at Lamaque in 2020 and production in the first half of 2021 has remained strong.
GB: When you look at Lamaque, it is a series of stacked steeply dipping veins. We have been mining the first three veins over that two-year period, but late in 2020, we were able to get into the fourth vein, which had some high grade in it. All that contributed to a breakout year for Lamaque in its second year of operation.
Moving forward, our plant is permitted and capable of 5,000 tonnes per day with a modest capital investment. The key is finding more ore to feed that hungry mill. We had a discovery last year called the Ormaque zone, and within a year, we have an inferred resource of 803,000 ounces. The resource is open which offers expansion opportunities; we are infill drilling it to understand the drill density we need to create reserves, and it is adjacent to infrastructure. On top of that, we have been looking outside of Lamaque's footprint in other areas with new early-stage exploration properties outside of Val-d'Or.

Eldorado closed its acquisition of QMX Gold in April 2021. How did this deal come together?
GB: The QMX acquisition increases our land position in Québec by 5.5 times and it sits right next to Lamaque. We think there is a bright future here and we have the operating capability to turn these exploration opportunities into gold production and value for shareholders. ■

Phil Baker

President & CEO
HECLA MINING COMPANY (NYSE: HL)

Our approach to technology in general is that we are willing to fail in order to discover improvements.

How would you characterize the growth strategy Hecla Mining Company is pursuing?
One of the key pillars of our strategy has been to find the best assets we can find in good jurisdictions. Greens Creek is a world class asset; Lucky Friday, based off the fact that it has been operational for 75 years, is also world class. Casa Berardi has that same potential, but we still have more work to do there. All three of those assets are large land positions with large resources and as a result of that we can take the time, energy and investment to figure out how to improve them. That is what we have done at Greens Creek, what we think we are on the verge of at Lucky Friday, and that is where we are headed at Casa Berardi. That is fundamentally our strategy.

How do you intend to boost profitability at Casa Berardi in Québec?
Casa Berardi is a good asset now and has been a good asset from when we acquired it. Seven out of the eight years Hecla has owned the asset it has generated positive free cash flow. It has done extraordinarily well, but we think it can be better. It is a 37 km long land position, and we have identified both underground and surface mineralization, so we have a strategy of moving both of those forward. It has a mill with a capacity of 4,000 t/d that was only operating at about 2,300 t/d, so there was a lot of capacity, and that has been our focus over the last eight years. We have now reached the mill's capacity of 4,000 t/d, and the challenge moving forward is to establish the reliability of the of the operation, where we cut out interruptions that drive the cost up. Furthermore, if you look at gold recoveries at this mine relative to others it is relatively low, which is an opportunity. We have also seen material improvements in the recoveries going from less than 80% recoveries of gold to more than 90%, over the course of the last five years.

What are some of the ways in which Hecla has implemented autonomous technologies at Casa Berardi?
An existing operation putting in autonomous technology is a difficult task because the mines are not set up for that. We were fortunate in that we had a particular area of the mine that was isolated from the rest of the mine where we could put in remote haulage. As a result, we now have about 2.5 km of both haulage and hoisting that is completely autonomous. Our approach to technology in general is that we are willing to fail in order to discover improvements. Despite the experimentation, returns have been generated, and our haulage, hoisting and automation program has been a huge success. This is a model that we are going to take to our other mines in one form or another.

What are your views on future demand for silver?
Without silver nearly every piece of technological equipment would be bigger, as silver is the most conductive metal. It has played a fundamental part in the digitization of our world. Additionally, silver is a fundamental piece of the transition from an oil-based economy to a renewable-based economy. Silver is involved in solar energy photovoltaics, and wind energy where battery storage requires its use. All of that suggests that the demand for silver, which has grown at a 2% rate for these types of applications for energy use over the last decade, is probably going to continue to grow at least at that rate if not more. That suggests we are going to have a shortage of silver over the course of the next decade. Unlike gold, you have the industrial applications that only silver can effectively solve. There are almost no new projects to fill this growing demand over the course of the next five years. Consequently, the silver price is going to have to be higher to see new projects develop. ■

Gordon Stothart

President and CEO
IAMGOLD (TSX: IMG)

IAMGOLD has been active in developing assets in Québec for many years, could you touch on the history there and how the region fits within your strategic vision?
IAMGOLD has been in Québec for a long time, and we continue to advance exploration activities in the areas around our Westwood asset, where we have acquired several options and properties as part of larger Abitibi district hub-and-spoke concept. We are also present in the north-east part of the province and have enjoyed exploration success around the Nelligan and Monster Lake properties near Chibougamau, another mining district with long-term value potential. In 2019, we received the AEMQ Discovery of the Year award for our 3.2 million ounce maiden discovery at Nelligan. We continue to have strong roots in the province, particularly given a significant number of Québeckers in our company, who operate not only in the province, but globally.

How does Grand Duc fit into that puzzle?
At the end of 2019, in parallel with the work at Westwood, we started mining a small open pit satellite deposit, called Grand Duc, which is adjacent to the Doyon mill complex. Originally we expected to mine this deposit over 18 months, but as we progressed, we realized that there was significantly more gold ore than originally anticipated, and it was much higher grade compared to our conservative initial estimates. We have been able to expand this operation, keeping our mill full using the open pit material, while our underground operation was in suspension. ■

Patrick Sévigny

COO
STORNOWAY DIAMONDS (OTCMKTS: SWYDF)

Can you highlight some key challenges and milestones Stornoway Diamonds has navigated over the past three years?
In April 2020, Stornoway Diamonds chose to extend a care and maintenance period at Renard mine caused by the decline of the diamond market. In June 2020, Stornoway made the decision to resume the Renard mine operations by end of Q3 which was also the date projected by the diamond industry to restart their operations and sales cycles after they were put on hold for close to 6 months. Upon the restart of the operations at Renard, we encountered some operational challenges onsite that resulted in delays in production. We had to carry out significant rehabilitation of our underground areas and we had to re-hire, train and integrate new employees to replace the former ones who have left their functions when the mine was undergoing care and maintenance. By early 2021, operations were returning to their normal levels of productions as the diamond market was progressively recovering.
This came subsequently to Stornoway's decision to transfer from a publicly listed company to become a private entity and amidst a revamping of all levels of operations to ensure the highest level of efficiency. Our focus was on developing the main ore body to maintain production. Through innovation and development, we were able to significantly reduce our costs whilst maintaining a production of approximately 2.2 million carats per year.

As Québec's first and only diamond producer, do you feel that the province has potential to develop more diamond mines?
The province has become one of the world's best mining jurisdictions and boasts a favorable climate for investment. There is ample government and community support for mining, a good network of suppliers, as well as a great talent pool. The province is politically stable and offers a safe and favorable working environment. Despite this encouraging environment, we have not seen, to date, diamond exploration projects for Québec. ■

EXPLORATION AND DEVELOPMENT IN QUÉBEC

"The three things you need in the mining industry are management with skin in the game, a tight float, and projects with wings. Once you meet these three conditions, you have a better chance at succeeding in attracting the majors for a transaction."

- Jean-Marc Lacoste, President & CEO, Monarch Mining Corporation

Image courtesy of Commerce Resources

Abitibi Exploration and Development

HEALTHY EXPLORATION ENVIRONMENT BUILDS ON PAST SUCCESSES

The latest map of exploration drilling in Canada resembles a nighttime satellite image of the country: vast expanses of monochrome punctuated by clusters of brightness. If the clusters represented urban areas, the Abitibi greenstone belt would be a bustling metropolis.

Although the Abitibi has undergone several cycles of exploration and development since 1901, explorers see potential for more ore to be found, especially at depth. It is a more mature area, but with continuing improvements in mining technology, companies can now mine a lot deeper than in the past and still make money.

Most of the major base metal and gold mining camps on the Québec side, such as Malartic, Rouyn-Noranda and Val-d'Or, fall along the east-west trending Cadillac-Larder fault zone. Other well-known camps, including Casa Berardi and Matagami, occur along the Casa Berardi and Sunday Lake fault zones in the northern part of the belt.

Val-d'Or

One of the burgeoning stars in Val-d'Or is O3 mining, which after releasing two PEA's in a year is transitioning from explorer to developer. O3 was efficient in completing a PEA with an after-tax net present value (NPV5%) of C$423 million and a CAPEX of C$256 million in five months for its Marban project. Subsequently O3 entered a strategic partnership with Moneta Porcupine for the sale of Garrison where O3 Mining will continue with approximately 27% ownership in the Timmins camp. "Our decision to reallocate the Garrison project in Ontario enabled us to consolidate our focus on our projects in Val-d'Or, which host 3.7 million ounces of gold, and advance our exploration projects, all while maintaining exposure in the Timmins camp," said José Vizquerra, president & CEO of O3 Mining.

With the focus now fully on Marban and Alpha, O3 will continue its aggressive drill program to grow its resource at depth along the Cadillac Fault. "There is much more to be discovered in Québec at depth," Vizquerra added, pointing to the unrealized potential East Gouldie represented for Canadian Malartic.

Similarly, at Lamaque, O3 was able to find Triangle, a parallel structure that is now the future of Sigma-Lamaque. "The next parallel structure along the belt is at Omega within our Alpha project, and we are very excited about that," Vizquerra affirmed.

These moves are part of a broader strategy that the former Osisko spinout is deploying to become a best-in-class gold producer by 2026. The intent is to achieve this goal by focusing on projects where there is the most fundamental value and building on the corporate strategy implemented a few years ago, which is to convert and expand resources while making new discoveries.

Another spinout of the old Osisko, which sold the Canadian Malartic mine to Agnico Eagle and Yamana for C$4.3 billion in 2015, is Osisko Mining. Their Windfall gold deposit is located between Val-d'Or and Chibougamau in the Abitibi region in Urban Township.

Following a succession of deals, the company initiated a 50,000 meter drill program at Windfall, and following the consistent and exceptional results, the program was increased to 1.5 million meters, making Windfall the fastest advancing project in Canada. Approximately three years ago, Osisko sat at 3.1 million ounces gold. However, the most recent resource estimate brought Windfall to 6.1 million ounces. "Windfall is now firmly in the World-Class category (over 5 million ounces, over 8 g/mt Au average grade) of high-grade gold deposits in size and grade," noted Osisko Mining president Mathieu Savard."

This growth comes from the significant results Osisko had in the expansion of the Lynx zones that now represent over 60% of the resource base. "We are optimizing the capital program and operating plans as we advance our goal to move the project to first production in 2024. Our management team has a strong track record of delivering value for shareholders and stakeholders, and we believe that Windfall will soon be the second world-class deposit that we put into production in Québec," detailed Savard.

A stone throw from Osisko's Windfall project, BonTerra Resources has a resource portfolio of over 3 million ounces of gold from three deposits that were just updated in June 2021, as well as an operational mill within trucking distance from the three deposits. The company, which counts Wexford Capital and Kirkland Lake Gold amongst its largest shareholders, has been working hard to expand the resource at Gladiator, a high grade, narrow vein deposit. BonTerra CEO Pascal Hamelin explained: "It is fairly young in terms of geological knowledge, and in 2019, when we released the resource we did not even have 200,000 meters of drilling on the deposit. The deposit looks very promising and is open along strike and at depth."

As of June 2021, BonTerra had expanded the resource to 1.4 million ounces with a total of 246,386 m of drilling. The Gladiator deposit is on the shore of Lac Barry, and two drill rigs on the water are drilling through the summer into late fall. "Being a narrow vein subvertical structure, it is more inclined to be mined through underground mining techniques. Therefore, we are in the permitting process to start a decline which will allow us to drill year-round," Hamelin stated.

Another component of BonTerra's strategy is that it has the only permitted mill in the Urban-Barry camp. Their Bachelor mill is on the power grid, which provides a significant advantage in terms of operating costs. "Having an existing mill and an existing tailings facility reduces capex significantly when doing an economic assessment and putting projects into production. It also reduces the timeline of the permitting process," Hamelin said

Initially the mill is going to be licensed to process material from Barry and Moroy. However, once Gladiator is further ahead in the permitting process, the company will also get the license to accommodate material from this project.

Everybody had drilled from one direction to the other, but when we decided to drill the other way we found our Area 51 discovery. The challenge is to not be pressured by a certain group or dogmas, but to listen to the people who are intimate with the project, your field geologists. If you can do that you will be successful.

- Marz Kord, President & CEO, Wallbridge Mining

"The mining industry needs to start thinking about hauling materials to a central mill as this is much more economical, especially for smaller deposits which cannot justify the capex of a mill," Hamelin concluded.

A 2.5-hour drive north of Val d'Or along the paved 2-lane Hwy #109 and you hit Maple Gold Mines' Douay project, which covers 55 km of the Casa Berardi Deformation Zone. This project has been explored since Aurvista Gold delineated a substantial gold resource and consolidated a commanding land position the area. When the company rebranded in 2017, and brought on Ivanhoe veteran Matthew Horner, it changed its name to Maple Gold Mines, as they set about upgrading all the software of the company including transitioning from outsourcing technical work to establishing an in-house technical team. The company has created a new 45-person camp and they delivered a more conservative, updated resource estimate at Douay. According to Horner, the goal from the beginning was to build a major mining camp, and the way to achieve this was to line the project and company up with a strategic group.

Things came together in early 2021 when Maple formed a 50-50 JV partnership with Agnico Eagle to advance work at Douay. As a sweetener, Agnico also contributed its past-producing Joutel project into the partnership, so the property is now consolidated with two highly prospective projects that could become a major emerging gold camp in the region.

The idea of a joint venture was appealing to Maple, because despite public skepticism, Agnico's interest shows that there is potential for the project to become big and important. The second benefit of the deal was bringing in Agnico's Joutel project, which adjoins the Douay project to the south and diversifies the portfolio given Agnico produced at Joutel for 19 years when gold was at far lower prices. "Looking at comparable scenarios, Canadian Malartic is an example of a restart in Québec that is now the largest mine in Canada, and nobody thought it would work at the beginning. Kirkland Lake's Macassa is a similar example. It is well-known in our space that the best place to build a new mine is in the shadow of a headframe," Horner emphasized.

Another company active on the deal making front in the Abitibi was Monarch Mining, which holds a 100% interest in the Beaufor mine located about 20 km northeast of the town of Val-d'Or. Monarch Mining was created as a spinoff of some assets that were with Monarch Gold prior to its acquisition by Yamana, which closed January 21st, 2021. About 70% of the land package was transferred to the newly listed Monarch Mining. The rest, which mostly consists of the ounces in the Wasamac asset, was left behind with Yamana. 90% of the team transferred over to Monarch Mining, and the company now has four advanced properties with a fully permitted mill.

Beaufor is a mine that has produced 1.2 million ounces over the last 30 years, and the asset is currently being explored, as Monarch looks to add more ounces to the previously known mineralized envelope. "We are giving Beaufor a second chance at producing for many years to come, and we hope to start producing by the end of 2021 or beginning of 2022. We already knew the asset well since we operated it the last two years of its life in 2018 and 2019. It was put on care and maintenance in 2019, so it is very easy to put back into production," said Monarch Mining Corporation president and CEO Jean-Marc Lacoste.

Rouyn-Noranda

In Rouyn-Noranda, one of the most promising projects is Falco Resources' Horne 5, which is adjacent to Glencore's Horne smelter. The Horne 5 project has a long history, with Noranda successfully operating the original Horne mine for almost 50 years. Since 2018, Falco has been engaged in extensive consultation and outreach programs with the Province of Québec and the community of Rouyn-Noranda.

Horne 5 lies at a depth of between 600 and 2,300 m below the past-producing Horne mine. In order to access the gold-silver-copper-zinc deposit, Falco needs to rehabilitate an existing shaft, owned by Glencore. Glencore owns the mining concession at the property, while Falco holds mineral rights below 200 meters and surface rights around the shaft. According to Luc Lessard, president & CEO of Falco Resources: "After three years of working closely with Glencore to complete technical analysis, we signed copper and zinc offtake agreements in late 2020, and recently signed an Agreement in Principle to finalize a Principal Operating Agreement, expected in Q3 of this year. These are major milestones for Falco and position the company to advance the Horne 5 project through 2022 and beyond."

Falco released an updated feasibility study in May 2021 which estimated annual gold production of over 220,000 oz/year with low All-in Sustaining Costs of US$587/oz resulting in a robust NPV of US$761 million and an IRR of 18.9% after taxes and mining duties. The location is also advantageous because it gives Falco access to a highly skilled and experienced labor force with a long history in the mining industry. Key infrastructure is already in place to support the Horne 5 project, which includes the green Hydro Québec power source, surface access, underground workings, and airport and railway facilities.

Mines in Between

About halfway between the towns of Rouyn-Noranda and Val-d'Or, Radisson Mining Resources has its O'Brien project located in the heart of one of the most productive gold mining camps in Canada, the Cadillac Mining Camp, which boasts over 45 million ounces of gold (produced and in reserves and resources) and three mines presently in commercial production.

O'Brien was a consistent high grade producer for 20 years and produced just under 600,000 ounces from 1926 to 1957, with average grades in excess of 15 grams per tonne. The old timers mined down to 1.1 kilometers before the shutdown in 1957, and that was not because they ran out of gold, but because the gold price at the time was US$35 per ounce, which did not justify extending the shaft any deeper.

Since the mine was shut-down there was very little work done at O'Brien until the 70s, when the gold price began to move higher. A few companies undertook exploration programs at the project but the geology was not well understood until early 2019, when Radisson took a fresh look at the asset. This led to a new structural model, and that is when things started to fall into place. When asked what made him bullish on the future of O'Brien, Radisson president and CEO, Rahul Paul, replied: "Yes, costs are ten times higher today, but on the other hand the gold price is fifty times higher. To me this highlights the upside potential at O'Brien and explains why we are so eager to advance this project."

Radisson has also been actively working to grow its land position, and recently closed on the New Alger project acquisition and partnership with Renforth Resources. New Alger increased Radisson's land position nine-fold, giving it the scale to be relevant to a broader audience. It also increased the prospective strike Radisson controls along the Cadillac Break to over 5 km. "Prior to the deal, most of our work was focused to the east of the old O'Brien mine. The acquisition opened up the full potential from 2.5 km to the west of the O'Brien mine, with the same geologic setting but largely untested so far," Paul affirmed.

The acquisition is also important, because the camp is strategically significant to many large companies, and there have been notable acquisitions over the past year with Yamana acquiring the Wasamac project and Eldorado Gold acquiring QMX. There are no longer many smaller players with meaningful land positions left in the camp.

Another brownfield operation along the Cadillac Trend is the Granada gold mine, which has had a long but sporadic history of small-scale mining activities since the 1930's. Frank J. Basa, president & CEO of Granada Gold Mine looked at the core and felt there was value that had been missed. Initially the design was to develop the mine as a low-grade open pit, and the first resource was 2.8 million ounces at one gram per tonne. "To improve the economics, we then brought it down to 1.2 million ounces, and we were trying to sell it as a shipper. However, at one gram it does not ship well. This year, we took the grade to two grams in a smaller open pit," said Basa. "Now we are running a second 120,000 m of drilling. By the time that is done, we expect to have met our target of 2.5-3.0 million ounces with most of it underground at four grams, and we have all the permits required in order to ship. The ideal situation is somebody takes us out, and Granada begins shipping rock," Basa plotted.

Northern Abitibi

Approximately 110 km north of the town of Rouyn-Noranda lies Amex Exploration's Perron gold property. In 2018, as the company was exploring the property, their stock fluctuated between .06 and .10 cents. Three years later, in 2021 that stock trades between C$3.26 and C$2.31 thanks to a high-grade discovery on the Eastern Gold Zone. Since then, as Amex president &

Image courtesy of Amex Exploration

CEO, Victor Cantore puts it, it has been one financing after another. The company recruited Eric Sprott to join its shareholder ranks, and today he stands as the company's largest shareholder with a 15% stake in the company. As a consequence of a widespread willingness to finance further exploration on the property, Amex presently has 10 drills as part of its drilling program, which is one of the largest of its kind in Canada's mining industry.

For the 300,000 m drill program at Perron, 120,000 m were completed in 2020, with another 180,000 slated for 2021. "The goal of this large program is to start a resource calculation sometime at the end of 2021, and hopefully, in the first or second quarter of 2022 we should come up with a with a resource calculation," Cantore noted.

He also contends that Amex has barely scratched the surface of its property. "We have only explored 3.5 km of the 15 km of faults. Right now, we are looking at three main gold zones plus one polymetallic, and we intend to continue to expand and find new zones, just like the Eastern Gold Zone," Cantore said.

To complement such a large program, Amex also purchased a 7,000 ft2 core shack facility in Normétal. Speaking to the logic behind this investment Cantore explained: "It allows us to do everything in house without much traveling. We save on costs and it allows us to bring the core in, cut it, and send it off to the lab as quickly as possible."

Wallbridge Mining, located in Québec's northern Abitibi Greenstone Belt along the Detour-Fenelon Gold Trend, is another company seeking for world-class gold deposits. The area is highly underexplored in comparison to the other prolific gold belts in the southern portion of the Abitibi, like the Timmins-Porcupine, Kirkland Lake and Val d'Or camps. Spanning 97 km in east-west direction within this belt, Wallbridge's extensive 910 km2 regional land package offers excellent potential for new gold discoveries.

Momentum started to build in 2019 at Fenelon when Wallbridge discovered Area 51. Following this, Wallbridge made another discovery called Tabasco, but as it continued throughout 2019, it realized that the mineralization was expanding outside of the original property boundary they purchased. A year later, Wallbridged purchased Balmoral, which held the neighboring property, in an all share deal. This increased the size of the Fenelon property from 10 km2 to over 85 km2. More importantly, Balmoral owned essentially the entire land package from the Ontario border, where Kirkland Lake owns its Detour Lake mine 90 km east on the Québec side. In the words of Marz Kord, president & CEO of Wallbridge Mining: "This deal was not only accretive in terms of the Fenelon project, but it was also accretive in terms of organic growth, giving Wallbridge district scale potential. It is like owning between Val d'Or and Rouyn-Noranda but with 100 years less research and mining on it because this area is very underexplored."

Another attraction for investors is Kord's contrarian exploration philosophy. He posits that in exploration you need to be bold and sometimes a contrarian. "When people tell me you need to drill from north to south, I ask why don't you drill from south to north to see if there is a difference. That is how we get to discoveries. In the 10 years prior to our arrival, the owners had followed up in a small known area, whereas if they looked at the geology and tested some of the geologists' ideas, they would have made those discoveries before us." ■

José Vizquerra

President & CEO
O3 MINING (TSXV: OIII)

Our strategy is focused on Val-d'Or, where our Marban and Alpha projects cover important segments of the Cadillac Fault or its subsidiary structures.

O3 Mining released two PEA's over the past year. How do you intend to build on this momentum in 2021?

Our vision is to become a best-in-class gold producer by 2026, which we intend to achieve by focusing on our projects where there is the most fundamental value and building on our corporate strategy implemented a few years ago, which is to convert and expand our resources while making new discoveries. Part of this strategy is converting our knowledge of ounces and grade from exploration into positive economics. It is critical to define the monetary value of our mineral resource, and we accomplished it through the execution of two Preliminary Economic Assessments (PEA). We were very efficient in completing a PEA with an after-tax net present value (NPV5%) of C$423 million and a CAPEX of C$256 million in five months for Marban, and subsequently for Garrison, which is now part of a strategic partnership with Moneta Porcupine where O3 Mining has approximately 27% ownership. Our decision to reallocate the Garrison project in Ontario enabled us to consolidate our focus on our projects in Val-d'Or, which host 3.7 million oz of gold, and advance our exploration projects, all while maintaining exposure in the Timmins camp.

O3 currently has one of the largest drill campaigns in North America. What makes you bullish about being on the Cadillac Fault?

Our strategy is focused on Val-d'Or, where our Marban and Alpha projects cover important segments of the Cadillac Fault or its subsidiary structures. The Cadillac Fault is an extremely important geological feature. It is a deep-running fold separating two kinds of rocks dramatically and prepares the ground. The Val-d'Or region benefits from the entry of a lot of fluid in the fault resulting in the replication of mineralization every one and a half to two kilometers. From west to east there are several mine sites along the Cadillac Fault including Kirkland Lake, Larder Lake, Lapa, Canadian Malartic and Sigma-Lamaque. There are also many mine sites along its Marbenite and Norbenite subsidiary faults such as Marban, Kiena and Goldex. The repetition of mineralization is on a horizontal basis, but it is also fascinating at depth.

There is much more to be discovered in Québec at depth. An illustration of this unrealized potential has been at Lamaque they were able to find Triangle, a parallel structure that is now the future of Sigma-Lamaque. The next parallel structure along the belt is at Omega, within our Alpha project, and we are very excited about that.

How is O3 Mining leveraging AI to identify exploration targets?

Mira Geoscience's brings a valuable systematic approach. Their technology enhances our targeting in areas covered by overburden by tying together the drilling, geophysical, geochemical, and geological information into a dynamic 3D model. Used as a tool, targeting is done more effectively.

How have mentors influenced your approach to management?

The best gift that I ever received was the ability to spend as much time as possible with my grandfather. He was kind enough to allow me to go with him to the office every Saturday when he had his meetings with his geologists, engineers, and metallurgists. Seeing him interact made me realize that he spoke very little. He always listened first and then asked informed questions. Because of this, he had very loyal employees and always had a clear understanding of the opportunities and challenges within the company. ■

Mathieu Savard

President
OSISKO MINING (TSX: OSK)

> Windfall will soon be the second world-class deposit that we put into production in Québec. We don't expect it to be our last.

How has Osisko Mining evolved over time into the company it is today?

In 2015 (one year after the sale of the Canadian Malartic Mine to Agnico Eagle and Yamana for C$4.3 billion) the new Osisko Mining was created to continue where the first Osisko left off. We initiated a 50,000 m drill program at Windfall, and following exceptional results, the program was increased to 1.5 million m, making Windfall the fastest advancing project in Canada and probably globally. Last time we spoke with GBR, Osisko sat at 3.1 million oz gold, and now our most recent resource estimate brings Windfall to 6.1 million oz and still growing. Windfall is now firmly in the "World-Class" category (over 5 million ounces, over 8 g/t Au average grade) of high-grade gold deposits. This growth comes from the significant results we've had in the expansion of the Lynx zones that now represent over 60% of the resource base. Our recent preliminary economic assessment (PEA) results – which we believe are conservative – give a good insight into what Windfall could become.

What did the recent PEA on Windfall reveal about the economics of the project?

It provides a robust assessment for developing Windfall as a 3,100 tonne per day underground mine with a central processing mill at site. During the first seven years of full production Windfall is projected to produce an average of 300,000 oz Au per year at 8.1 g/t Au average diluted grade, with peak production of 328,000 oz Au in year six. Assuming US$1,500/oz Au, the project's pre-tax IRR is 50.6% and pre-tax NPV is C$2.6 billion; after-tax NPV is C$1.5 billion, and after-tax IRR is 39.3%. The after-tax payback period is 2.2 years from start of production, with a low all-in sustaining cost (AISC) of US$610/oz Au. The initial capex is estimated at C$544 million and envisions the creation of 600 direct and indirect jobs during operation and 500 jobs during construction. These are strong numbers, and we believe they will continue to improve as we complete our work and full feasibility study. Bear in mind that most of the published resource is located within the first 1,200 meters of vertical depth, and that to date, mineralization has been traced down as far as 2,600 meters of vertical depth. Windfall has a bright future ahead with strong upside potential.

What are the characteristics of Windfall that make it an attractive project?

Windfall is a rare high-grade world-class scale gold deposit located in one the best mining jurisdictions: Québec. Being in Québec provides a safe geopolitical base with predictable laws and regulations, the availability of financial incentives, and firm support by the government and population. Windfall is located on the traditional lands of the Cree community of Waswanipi, who along with the Cree First Nation Government, have shown strong support for the project. We have a large contingent of workers on the Windfall project from the First Nation communities and we are working hard to be a role model for natural resource development with our Cree partners.

What are your views on the current gold price environment?

The fundamentals for gold remain strong and we believe we are headed into an increasing gold price environment. Timing is everything in this business, and as we have completed the heavy technical evaluation work over the past five years, we have seen the price of gold head up from around US$1,200/oz when we started to today's current price of US$1,800/oz.

Do you have a final message for the readers of Global Business Reports?

We will complete our major 1.5 million meter drill program this fall, just a few months from now, and expect to have our mineral resource estimate update out by Christmas. This will support the feasibility study in early 2022. In the meantime, we are optimizing the capital program and operating plans as we advance our goal to move the project to first production in 2024. Our management team has a strong track record of delivering value for shareholders and stakeholders, and we believe that Windfall will soon be the second world-class deposit that we put into production in Québec. We don't expect it to be our last. ■

Victor Cantore

President & CEO
AMEX EXPLORATION (TSXV: AMX)

> Right now, we are looking at three main gold zones plus one polymetallic, and we intend to continue to expand and find new zones.

Can you provide an overview of Amex Exploration's strategy over the past four years?

I got involved with Amex Exploration in late 2016, and we started financing the company in 2017. By the end of 2018, we had made a high-grade gold discovery on the Eastern Gold Zone. The Company then had a major discovery under its belt and we were able to complete a series of successful financings that enabled us to launch an aggressive 300,000 m drill campaign. We presently have 10 drills on the property as part of our drilling program, which is one of the largest of its kind in Canada's mining industry. Our goal is to publish a NI-43-101 co pliant resource estimate in early 2022 followed by a PEA economic study. We are building value in Amex for its shareholders.

What are the geological characteristics of Perron, and what kind of work has been done on the property to date?

Amex is in a geological setting where there have been millions of ounces of gold produced. We are one of the first ones to make a gold discovery along the Chicobi Fault. Of particular interest to Amex is the type of rock where we are finding the gold mineralization; it's a sodic rhyolite, which is very special. There are currently studies being conducted on why and how it contains such high grade gold. Our property package is about 45 km2 and it is called the Perron property. The goal of this large program is to start a resource calculation sometime at the end of 2021, and hopefully, in the first or second quarter of 2022 we should have sizeable a gold resource calculation.

Given Amex's aggressive exploration program, are you able to find qualified workers to keep up with your growth ambitions?

Two years ago we had one drill, and we are now up to 10 drills today. One of the advantages we have is that we are right in the town of Normétal, and we are right where the infrastructure is. It is a small town, but 20 minutes away you have the town of La Sarre with 10,000 people and an airport. When it comes to staff, we are able to find skilled workers, many of whom come from the local community, and we are able to get housing at very reasonable costs.

What are your views on the M&A environment in the Abitibi region, and how might it affect the long-term valuation of Amex Exploration?

What is going to drive our story, and stories like ours is the price of gold. Gold peaked last year in August above US$2,000, and I believe that it will return to those highs. When you look at the world's economies and what is going on with monetary policy, it looks like inflation is going to be present. The only thing that could quell inflation is rising interest rates, but I do not believe central banks are going to let interest rates rise. What counts is going to be real rates, and if real rates are negative that is going to be positive for gold. This will attract more and more M&A activity, similar to what we are already starting to see in the Abitibi Region. For us, our plan is to drill and build up the biggest resource we can. After putting out the resource we intend to show all the blue sky that there is to continue to increase that resource.

We have barely scratched the surface here, as we have only explored 3.5 km of the 15 km of faults. Right now, we are looking at three main gold zones plus one polymetallic, and we intend to continue to expand and find new zones, just like the Eastern Gold Zone. As long as we continue to execute on our vision, our valuation will rise alongside our success. ■

Pascal Hamelin

CEO
BONTERRA RESOURCES (TSXV: BTR)

Our primary objective is to advance the geological knowledge of the three deposits through drilling, updating the resource, and preliminary economic assessment (PEA), which is scheduled for Q4 2021.

You took over as CEO of BonTerra Resources in 2020. What are some of your key objectives to drive shareholder value?
BonTerra has a resources portfolio of over 3 million oz of gold from three deposits that were just updated in June 2021, as well as an operational mill within trucking distance from the three deposits. We have been actively drilling since 2019 with the aim of demonstrating our plan to develop our assets to the market. Our primary objective is to advance the geological knowledge of the three deposits through drilling, updating the resource, and preliminary economic assessment (PEA), which is scheduled for Q4 2021. Depending on the PEA result, we will then move to prefeasibility and feasibility as to continue to grow the resource and advance the engineering to eventually proceed with construction.

What are the advantages of Gladiator compared to other major discoveries in Québec and the region?
Gladiator is a high grade, narrow vein deposit. It is fairly young in terms of geological knowledge, and in 2019, when we released the resource we did not even have 200,000 m of drilling on the deposit. The deposit looks very promising and is open along strike and at depth. In June 2021, we expanded the resource to 1.4 million with a total of 246,386 m of drilling .
The Gladiator deposit is on the shore of Lac Barry, and we have two drill rigs on the water drilling through the summer into late fall. Being a narrow vein subvertical structure, it is more inclined to be mined through underground mining techniques. Therefore, we are in the permitting process to start a decline which will allow us to drill year-round.

What is BonTerra's strategy with its other assets?
Our other assets are more advanced from a permitting perspective. The Barry deposit is on an existing mining lease and is already permitted, but we are still in the permitting process at the Bachelor mill to accept feed from the Barry deposit. In terms of engineering, the decline is already down 100 m below the surface. It is now a matter of completing resource estimate, doing the PEA, and then building the mine. We have a solid geology team working on the deposit and we expect some surprising results.

BonTerra has the only permitted mill in the Urban-Barry camp. What is the importance of this mill and how is this an advantage for the company?
In Québec, given our access to hydroelectricity, we have some of the lowest power costs in the world. The Bachelor mill is on the power grid which is a significant advantage in terms of operating costs. Having an existing mill and an existing tailings facility reduces capex significantly when doing an economic assessment and putting projects into production. It also reduces the timeline of the permitting process.
What support has BonTerra received in terms of the shareholder base of the company?
The largest shareholder of BonTerra is Wexford Capital, and they hold two board seats. The board is well aligned with shareholder interests, which contributes to our value driven approach. Our shareholder support is crucial to getting our assets into production, and 60% of our shareholder base are large intuitions such as Wexford Capital, Kirkland Lake Gold, Fidelity, Mmcap, and CDPQ. These institutions believe in the value we are working to unlock and are supporting us to execute the plan and get our PEA out in Q4 2021.

What is Bonterra's long term vision and what makes you a compelling company to invest in?
Bonterra is located in a jurisdiction that is mining friendly and where there is ample support for the industry. We are in a young camp and there is still significant opportunity for discovery, which is extremely exciting looking forward. We already have an operating mill which makes it even more attractive for us to build out our three assets, and we believe we will create a lot of wealth for all stakeholders. ■

Rahul Paul

President and CEO
RADISSON MINING RESOURCES (TSXV: RDS)

We are ramping up our exploration program in 2021, with the aim of a resource update next year, so you can expect strong news flow over the next 12 months.

Can you outline what encouraged Radisson to attempt to revive the historical O'Brien project?
We are exploring for gold right next to what historically was the richest gold mine by grade in Québec. Our 100% owned property is in a great mining camp, covering more than five kilometers of prospective strike along the Cadillac Fault, including more than 2.5 km to the east and 2.5 km to the west of the past producing O'Brien mine. This mine was a consistent high grade producer for 20 years. It produced just under 600,000 ounces from 1926 to 1957, with average grades in excess of 15 grams per tonne. The old timers mined down to 1.1 kilometers before the shutdown in 1957, and that was not because they ran out of gold, but because the gold price at the time was US$35 per ounce, which did not justify extending the shaft any deeper. A few companies undertook exploration programs at the project but the geology wasn't well understood until early 2019, when Radisson took a fresh look at the asset. This led to a new structural model, and that is when things started to fall in place.

What are the advantages of O'Brien's location?
We are located in elephant country, with a number of large producers within 70 km of O'Brien including Agnico-Eagle, IAMGOLD, Wesdome, Yamana and Eldorado. Québec is a great jurisdiction for mining, and we are located in the world renowned Bousquet Cadillac Mining Camp, which is widely considered the best mining camp in the province. We are right off the Trans-Canada Highway, and we have access to power, infrastructure, skilled labor, support services and everything needed to support a low-cost mining operation. In addition, there are a number of operating mills with spare capacity within driving distance of O'Brien which also plays to our advantage.

What are your observations on the deal making environment in the Abitibi, and what are the implications of Radisson's New Alger transaction?
This is a camp that is strategically important to many large companies, so I am not surprised to see a lot of consolidation in the camp. Following the recent acquisitions of the Wasamac project by Yamana and QMX by Eldorado, there are not many smaller players with meaningful land positions left in the camp.
The New Alger acquisition was a transformational acquisition for us. It increased our land position nine-fold and gave us the scale to be relevant to a broader audience. In addition, it increased the prospective strike we control along the Cadillac Break to over 5 km.

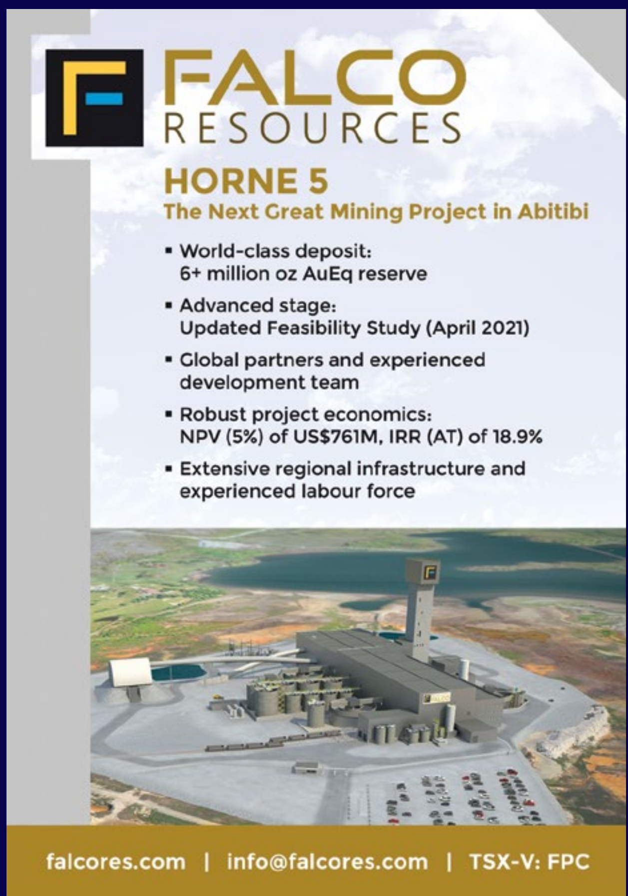
How do you view the current price environment for gold, and how does it affect Radisson's access to financing?
For several years money was not available to exploration companies, but now that is changing with investors becoming more positive on gold. In particular, companies with exploration assets in Canada have many more advantages including lower geopolitical risk, stable mining regulation, access to a broader range of financing alternatives and investors. Companies such as Radisson operating Québec benefit from strong financial support from provincial organizations such as the CDPQ and SIDEX, both large shareholders of Radisson. For these reasons we are able to raise money at very attractive terms to fund our exploration efforts.

What is Radisson's plan to progress O'Brien moving forward?
Since the last resource update in July 2019, we completed 60,000 meters of drilling to the end of 2020. I would say that the work that we have done so far has not only validated our model, but exploration results have continued to expand this deposit along strike and at depth. We have another 70,000 m of drilling to complete for a total of 130,000 m of total drilling that we plan to complete following the last resource update. We are ramping up our exploration program in 2021, with the aim of a resource update next year, so you can expect strong news flow over the next 12 months. ■

Luc Lessard

President & CEO
FALCO RESOURCES (TSXV: FPC)

Can you provide a summary of Falco Resources and its presence in Québec?
Falco Resources is a Canadian mining company focused on developing its Horne 5 project in the Abitibi region of Québec. We also own a large, prospective land package with approximately 70,000 hectares in the region that has been the site of 13 historical mines over the last 25 years.
Since 2018, we have been engaged in extensive consultation and outreach programs with the Province of Québec and the community of Rouyn-Noranda who we view as important stakeholders in the development of the Horne 5 Project.



After 3 years of working closely with Glencore to complete technical analysis, we signed copper and zinc offtake agreements in late 2020, and recently signed an Agreement in Principle to finalize a Principal Operating Agreement, expected in Q3 of this year.

What are the characteristics that make Horne 5 such an attractive project?
The Horne 5 project is very compelling because of its large size and favourable location. While essentially a gold project, Horne 5 is a fully mineralized, polymetallic system with significant base metals, including copper and zinc.
We released our updated feasibility study in May 2021, which estimated annual gold production of over 220,000 oz/year with low all-in sustaining costs of US$587/oz resulting in a robust NPV of US$761 million and an IRR of 18.9% after taxes and mining duties.
Our location is advantageous because it gives us access to a highly skilled labour force. Also, key infrastructure is already in place, which includes the green hydro Québec power source, surface access, underground workings, and airport and railway facilities.

Falco is Partnered with Osisko Gold Royalties and Osisko Development, can you speak to the structure of this partnership and how it helps advance the development of the project?
We signed a silver stream agreement with Osisko Gold Royalties (OGR-T) in February 2018, in which Osisko agreed to commit up to US$180 million toward the funding of the development of the Horne 5 project. In 2020, Osisko Gold Royalties moved its interest in Falco, along with other equity stakes in development projects, into the new entity Osisko Developments (ODV-T) which is now Falco's largest shareholder with an 18.2% equity stake.

What went into your decision to automate, and what does it mean for the environmental footprint of the project?
We plan to utilize the largest and most advanced underground mining equipment available, including an electric fleet where possible, that will enable us to optimize efficiencies, ensure the safety of our employees and minimize the ventilation system requirements.
We are committed to minimizing Falco's environmental footprint by implementing advanced technologies and environmentally responsible practices across all of our activities. ■

Matthew Hornor

President and CEO
MAPLE GOLD MINES (TSXV: MGM)

Can you provide a brief overview of how Maple Gold Mines evolved to where it is today?
The company was incorporated in 2011 under the name Aurvista Gold. From 2011 to 2017, Aurvista Gold delineated a substantial gold resource and consolidated a commanding land position at the Douay Gold project in Québec, Canada. There was a full leadership transition in 2017 when I joined as the President, CEO and Director. To reflect the transition, we rebranded the company as Maple Gold Mines.
Our goal from the beginning was to build a major mining camp, and my personal mandate was to line this project and company up with a strategic group. We achieved this goal in early 2021 upon the formation of a 50-50 JV partnership with Agnico Eagle, the largest gold producer in Québec and Canada, to advance work at Douay. Agnico also contributed its past-producing Joutel project into the partnership so we now have a consolidated property package with two highly prospective projects that could become a major emerging gold camp in the region.

What are some of the most attractive characteristics of Douay?
Our projects are located in one of the best places on the planet for mining, Québec, and one already has a substantial established resource. We also stand out amongst our peers because we are well capitalized with C$20 million in the bank and C$18.25 million in committed joint venture exploration funding from Agnico Eagle over four years at minimum. Both projects are virtually royalty free and now you have third-party validation from one of the best gold miners in the world, which increases our chances of success going forward. We also have a management team that is accomplished in the mining space and our overarching goal is to demonstrate to the market that the JV's two projects have the potential to host a 5-10-million-ounce emerging gold camp in the heart of the Abitibi. ■

Marz Kord

President & CEO
WALLBRIDGE MINING (TSX: WM)

How will Wallbridge Mining's recent acquisition of Balmoral Resources be accretive for shareholders?
That increased the size of the Fenelon property from 10 km2 to over 85 km2. More importantly, Balmoral owned pretty well the entire land package from the Ontario border, where Kirkland Lake owns its Detour Lake mine to 90 km east on the Québec side. This deal was not only accretive in terms of the Fenelon project, but it was also accretive in terms of organic growth, giving WM district scale potential. Furthermore, the deal also brought in other base metal assets like the Grasset deposit, which is a nickel deposit of significant size as well as some other base metal assets in Ontario and Québec.

How does Québec compare to Ontario as a mining jurisdiction?
The big difference between Ontario and Québec, particularly in the northern areas, is the infrastructure. You probably have projects similar to Fenelon in terms of potential, but they are not easily accessible. There are companies that have very good projects in Ontario along the James Bay coast but it costs over a billion dollars to put a road in to get there. In Québec, you have road access to the majority of the properties. In fact, at Fenelon you can drive a sedan to the open pit at the site and hydro power lines are less than 20 km away. On top of that, Québec offers incentives for exploration companies such as the refundable tax credit. Finally, when it comes to First Nation communities, we see that in Québec they are more business oriented. They understand that economic development is not exclusive to the mining company. Rather it can benefit the whole surrounding community. Therefore, they are willing to work with companies, and as a result projects get advanced much faster. Today we are proud to say that 20% of WM's workforce comes from First Nation communities. ■

Jean-Marc Lacoste & Mathieu Séguin

JML: President & CEO,
MS: Vice President, Corporate Development
MONARCH MINING CORPORATION (TSX: GBAR)

JML

MS

What is the genesis of Monarch Mining?
JML: We started Monarch Mining as a spinoff of some assets that were with Monarch Gold prior to its acquisition by Yamana, which closed January 21st, 2021. About 70% of the land package was transferred to the newly listed Monarch Mining and 90% of the team. We now have four advanced properties, with a fully permitted mill that is in the middle of a land package with close to 300 km2 of highly prospective gold real estate in Abitibi, Québec.

What are the characteristics of Beaufor that make it an attractive project?
JML: Beaufor is a mine that has produced 1.2 million oz over the last 30 years. This asset is currently being explored, and we are adding on a lot more ounces to the previously known mineralized envelope. It is a relatively cheap path to production, because the capex is very small to restart.

How does the track record of Monarch Mining's management team instill confidence in investors?
MS: Some companies hold their cards close to their chest, waiting for someone to give them a call, but in our previous company and in this one as well, we are proactive in terms of approaching companies. We invite companies to look at our assets. This is a different approach than some other companies, but we believe that when you are proactive deals happen more rapidly and more often.

Can you speak to the financial positioning of Monarch?
JML: We have C$19 million in the bank right now, and about C$4 million of that is from the exploration fund.
Our shareholder base is comprised of Alamos Gold, who owns about 13.5%, Yamana 9.9%, we have the three major Québec mining funds. Finally, 50% of our fund is retail, but we have three or four individuals that control about 50% of that. ■

Mark Fedosiewich & Laurent Eustache

MF: President & CEO,
LE: Executive Vice President
VIOR INC. (TSXV: VIO)

MF

LE

Can you introduce Vior Inc. and provide a brief over- view of the company's portfolio in Can- ada and Nevada?
MF: Vior is a Québec-based hybrid junior explorer. We are structured in such a way as to provide our shareholders with some excellent exposure to multiple potential gold discoveries, which we believe is the key driver for value creation in the mining industry. Our portfolio is made up of seven precious metals projects and two industrial metals projects in Québec. In addition, we have a 100% owned gold project in Nevada, as well as exposure to four other promising gold projects in this State via our strategic investment in Nevada-based Ridgeline Minerals (TSXV: RDG). Our near-term focus is directed towards our two district-scale gold projects in Québec, with our top priority being our flagship Belleterre gold project.

Can you comment on Vior's hybrid strategy?
LE: We have designed a strategy which consists of exploring and investing. This is an excellent way to diversify our risk, balance capital allocation, and ultimately, increase our exposure to new quality discoveries. It will also help us to increase the overall return on capital for our investor.

What factors make Québec and Nevada such attractive mining jurisdictions?
MF: Nevada ranks number one and Québec ranks number six in the Fraser Institute's most recent survey on the most attractive mining jurisdictions globally. We always invest in safe jurisdictions where the rule of law is paramount, where mining enjoys good acceptability and where great geology is proven. These criteria are embedded in both Nevada and Québec. In addition, Québec is one of the best mining jurisdictions in the world for mining financing that provides significant tax incentives for mineral exploration. These include some generous company tax credits as well as some very generous personal flow-through share deductions. Québec also has a good number of financial institutions, including some that are Government sponsored who actively invest in mineral exploration companies. ■

James Bay and Nunavik Exploration and Development

FOCUS ON DEVELOPMENT OPENS NEW OPPORTUNITIES IN NORTHERN QUÉBEC

"If a company comes to us with a project on the Cadillac Trend that has been operating and producing gold for 100 years, that will receive less focus and interest from us than a company that has a new theory in a new camp. That excites us, because it can create interest in less explored areas and lead to new discoveries," said Paul Carmel, president and CEO of SIDEX
The provincial hotspots are at opposite ends of the exploration spectrum: areas like the James Bay camp on the province's western limit and Nunavik host greenfield projects, whereas the well-established Abitibi belt to the south hosts several producing mines. The latter is benefiting from the perception of predictability, while the former is attracting investors willing to accept greater risk in exchange for the potential gains associated with discoveries in an emerging mining camp.
In the James Bay region, about 600 km north of the Abitibi, several juniors are attempting to replicate the success of the Éléonore gold discovery by Virginia Gold Mines in 2004 in metamorphic rocks near the contact between the La Grande and Opinaca geological sub-provinces. Goldcorp (now Newmont) bought Éléonore in 2005 for US$420 million and achieved commercial production in 2015. Today the Éléonore mine continues its operation as one of the top 10 largest producing mines in Canada, and its success has had an indelible impact on the current exploration landscape in James Bay.
Case in point, Québec Precious Metals Corporation (QPM) flagship Sakami project is located in the same mining district as well as along the same strike. Thus far, Sakami has showed promising results. In 2020, QPM discovered a 3.5 km long extension of the existing La Pointe deposit. "From here, the plan is to drill, drill and drill, our objective being to get to a multi-million ounce deposit that will be of a size that is sufficient to be sold to a company who can develop it," said QPM CEO Normand Champigny. "We have exploration rights on a lot of land to find more in this promising area of James Bay, and we believe James Bay is like the Abitibi was 100 years ago. We are still scratching the surface with a lot to be found".
Close by to QPM's Sakami project is Azimut Exploration's Elmer property within the Patwon discovery. Announced in January of 2020, Azimut has since worked to expand this discovery with additional drilling. Azimut anticipates this gold discovery will be one of the largest in the James Bay region since the Éléonore mine because the robustness, thickness, grade and geometry are all favorable. Moreover, the overall features of the Patwon gold zone seem simpler than at Éléonore, as there are no diluting dykes, refractory minerals, or internal folding.
The company's president and CEO Jean-Marc Lulin highlighted Azimut's 15 years of experience pursuing a data driven approach, working to better address exploration risk at a very early stage. "This has led us to identify genuine new targets, rather than putting a new name on an old target," Lulin explained.
Azimut has three strategic agreements with Rio Tinto, two agreements with Gold Corp (now Newmont), two with Hecla Mining, and two with SOQUEM. "Huge value can be created if existing numerical data is processed adequately. This message was somewhat marginal even a few years ago. Today, big data processing and AI are becoming buzzwords, but Azimut has successfully validated many of its data-based predictions through true discoveries, the key one being Elmer," Lulin added.
Another Newmont backed junior in the area is Sirios Resources. Its Cheechoo project produced its maiden resources estimate in late 2019, and, as of June 2021, released a resource estimate at close to 2 million ounces of gold, which is 93 million tons of 0.65 g/t gold. The project is a low grade, high tonnage situation, but with a very low strip ratio close to 1:1. A 2,500 meter drilling campaign on Cheechoo is underway. Sirios president and CEO, Dominique Doucet, described that Chechoo enjoys road access, an airport and connectivity with the hydroelectric network of Québec: "The beauty is that Éléonore mine is 50 km north of the hydroelectric complex of Hydro Québec with a special connection between the electricity production complex and the mine."

Nunavik

In Nunavik, in the far north of Québec, exploration is as greenfield as it gets. Orford Mining is undeterred by the many challenges of operating in the area because the company feels it has the potential for multiple discoveries on a massive land position in what it thinks is a new gold district at Qiqavik. Orford president and CEO David Christie said: "Unlike people beating around the Abitibi with all their projects or working in the Golden Triangle where things have been explored for quite a while, this is new and there are not often new gold districts discovered in Canada".
Orford controls a 390 km2 land package, and has already discovered a number of high grade gold showings. The company is the first to systematically explore that piece of land for gold, and has invested around C$3 million on the project this summer, the principal target being the IP Lake structural zone.
Orford is also working to progress its West Raglan nickel project in the Cape Smith Belt of Northern Québec. In January of 2021, Orford signed an earn-in agreement with Wyloo Metals where they can earn up to 80% of the project by spending C$25 million, completing a feasibility study and making a cash payment to Orford of C$1.5 million.
Similar to Qiqavik, Orford already has a number of discoveries throughout the 814 km2 land package, which sits on strike with the world class Raglan and Nunavik nickel deposits. "There is a lot to be excited about. You are not just buying a gold company, you are buying a gold company that has huge optionality on the nickel price," Christie told investors. ■

Normand Champigny

CEO
QUÉBEC PRECIOUS METALS CORPORATION (TSXV: QPM)

From here, the plan is to drill, drill and drill, our objective being to get to a multimillion ounce deposit.

What made 2020 a transitional year for Québec Precious Metals (QPM)?
QPM was created to find the next gold mine in the James Bay region. In 2020, the big change that occurred was our discovery of a 3.5 km long extension of the existing La Pointe deposit. From here, the plan is to drill, drill and drill, our objective being to get to a multimillion ounce deposit that will be of a size that is sufficient to be sold to a company who can develop it. We are explorers, we know James Bay well, and we have a strong working relationship with the local Cree community, which provides a distinct advantage for our company.

In addition to the La Pointe Extension, QPM also discovered Lloyd at Elmer East. What is the significance of this discovery?
Elmer is interesting because this is an area where Azimut Explorations announced a significant discovery in early 2020. We had projects in the area where we had done some surface work. We did a comprehensive targeting study with the assistance of GoldSpot Discoveries, which is also a significant shareholder. Based on the results of that study, plus the results from a mag airborne survey, we went to the field and came up with the Lloyd prospect discovery. We did two rounds of sampling, and although it is early days, it looks very encouraging. We will go back into the field later this year to further assess and extend the asset with a view of eventually drilling.

How has QPM nurtured close ties with local communities in the James Bay region?
There are three nearby Cree communities nearby: Chisasibi, Wemindji and Radisson. These are well established communities with infrastructure services, and they are connected by road. Although considered remote, this area is accessible and you can work 12 months a year at a reasonable cost.
The area has historically had good community relations even before the development of the Éléonore mine. In the 1970's, when Hydro Québec came in to build power lines, the James Bay Agreement was signed, and there have been two other agreements since then to foster economic development. The Cree authority, which is a semi-autonomous government authority in the region, must see clearly quantifiable benefits from industrial development, but also has to see that it is done responsibly with their participation and consultation. QPM is a small exploration company, but we want to create partnerships at the earliest possible stage. We have also included Cree and indigenous people as part of our drilling and camp crew. The next step is to get them engaged, doing more drilling and surface work by creating a formal partnership.

What is the strongest investment case for QPM?
We have continuous news flow, as we have been generating very positive drill results. We are advancing to the mineral resource estimate stage, which is the stage where you create the most value by identifying a significant resource and then having another company develop it, similar to how Virginia Gold sold Éléonore to Goldcorp in 2004 for approximately C$420 million. We have exploration rights on a lot of land to find more in this promising area of James Bay, and we believe James Bay is like the Abitibi was 100 years ago. We are still scratching the surface with a lot to be found. Our flagship Sakami project includes a favorable structure that is 23 kilometers long, and we have a strong shareholder base made up of Newmont and Québec institutions. We also have a great team that is well capitalized, and we have the ability to continue to raise capital when needed. ■

Jean-Marc Lulin

President & CEO
AZIMUT EXPLORATION (TSXV: AZM)

We consider Patwon one of the largest gold discoveries in Northern Québec since the Éléonore deposit in 2004. A new drilling program this fall is expected to produce a maiden resource.

How has Azimut grown over the past two years?
Azimut's priorities are focused on the James Bay and Nunavik regions. The Company's material progress is related to a substantial gold discovery made on the Elmer Property. The very first drilling program produced excellent results that were announced in January 2020. Since then, additional drilling led to expand the initial zone with additional strong results. We consider Patwon one of the largest gold discoveries in Northern Québec since the Éléonore deposit in 2004. A new drilling program this fall is expected to produce a maiden resource.

In what ways is Patwon comparable to Éléonore?
Éléonore was the first commercial gold mine in the James Bay region and is a true economic development milestone. It has been a great success because it was the first time a significant gold deposit went into production in the region. We see the Patwon discovery as having the potential to create a comparable impact. Even though it is still at a relatively early exploration stage, the robustness of the drilling results and the mineralization's thickness, grade, and geometry are very favourable. And just as importantly, the overall features of the Patwon gold zone seem simpler than at Éléonore: no diluting dykes, no refractory minerals, no internal folding.

What are the benefits of being located in the James Bay region of Québec?
Despite its location in Northern Québec, the James Bay region has excellent infrastructure. There are networks of paved highways, power lines and airports. The closest road and power lines to the Elmer Property are 5 km east of the property boundary. There is a willingness from both the Government of Québec and the Cree Nation to promote economic development. A new agreement with the Cree Nation called the Grande Alliance will play a key role in that respect. The Cree Nation has recognized the mining industry as one of the strategic sectors in the development of its communities.

Can you explain the nature of Azimut's partnership with SOQUEM?
Azimut and SOQUEM entered into two regional strategic agreements. One covers 176,300 km2 in the James Bay region. Signed in 2016, the agreement was designed using Azimut's predictive modelling approach. Our core expertise has always been data processing. Over the years, we have developed many tools to efficiently process Québec's large databases of numerical geoscience data, making it possible to identify previously unrecognized gold targets in the James Bay region. Based on the success of this first strategic agreement, we signed another in 2019 covering three wholly-owned district-scale polymetallic properties in Nunavik: the Rex, Rex South and Nantais projects.

How would you characterize Azimut's big data approach, and how does this stray from traditional approaches to exploration?
Azimut's core expertise is founded on advanced data processing to generate major exploration targets. We strongly believe this approach minimizes exploration risk at a very early stage. It allows us to identify genuine new targets rather than putting a new name on an old target. We are not using interpreted data at all, only numerical data. Azimut has used these capabilities to attract many quality partners, which led to three strategic agreements with Rio Tinto, two agreements with Goldcorp (now Newmont), two with Hecla Mining, and two with SOQUEM.
Huge value can be created if existing numerical data is processed adequately. Today, big data processing and AI are becoming buzzwords. But Azimut has been doing this for the past 15 years. In fact, Azimut has successfully validated many of its data-based predictions through true discoveries, the key one being Elmer.

How does Azimut manage to limit shareholder dilution while continuing to finance exploration at Patwon?
Azimut's capital structure is excellent, with many institutional shareholders and long-term private investors. Over the years, the partnership model minimized Azimut's need for financing. The robustness of the Patwon discovery, however, justified our recent US$28.75 million financing. Fortunately, rigorously managed over time, Azimut's share structure will still allow the share price to reflect the expected rise in value of our gold discovery.■

David Christie

President & CEO
ORFORD MINING (TSXV: ORM)

When you look at Orford, it has potential for multiple discoveries on a massive land position in what we think is a new gold district.

How has Orford Mining evolved?

In 2017, the founders of the company Dundee Corp and Karora Resources proceeded to take the company public, and since then we have been working to progress our two key assets and adding new assets to the portfolio. These assets at the foundation of Orford are the Qiqavik gold project, which is 100% owned by Orford, and a discovery that we think is a brand new gold belt in the Nunavik region of Northern Québec. There is 390 km2 of land there, and we have a number of high grade gold showings we have already discovered on the project. We are the first people to systematically explore that piece of land for gold, and we intend to spend approximately C$3.2 million on that project this summer. The principal target in 2021 will be the IP Lake structural zone.

The other key project from the beginning of the company is the West Raglan nickel project, which is also in the Cape Smith Belt of Northern Québec. In January of 2021, we signed an earn-in agreement with Wyloo Metals where they can earn up to 80% in our project by spending C$25 million, completing a feasibility study and making a cash payment to Orford mining of C$1.5 million. We already have a number of discoveries on this property throughout the 814 km2 land package, and it is very promising because the property sits on strike with the world class Raglan and Nunavik nickel deposits. Glencore's Raglan mine has more reserves today than when they opened the mine in the late 90s. We have the same grades on our project as the Raglan deposit, and Wyloo Metals is set to spend C$1.7 million on it this summer, with Orford operating the project.

In addition to these core assets, this past year, we staked three new projects in the heart of the Abitibi, in the Joutel region right next to Agnico Eagle's original gold mine. We have been exploring those properties this past winter. The Joutel properties total a 209 km2 land package, and we look forward to further progress in this area.

How is Orford positioned from a financial standpoint to continue to develop its portfolio of assets?

We raised C$5.25 million in October 2020, so we are fully funded for 2021. We have a very strong partner in Alamos Gold—their CEO, John McCluskey recently joined our board, and they own over 22% of the company. Karora Resources still owns over 9% of the company, so we have a lot of strategic support and a wide variety of institutional and retail support as well.

What makes Orford a compelling investment for potential shareholders in the junior exploration space?

When you look at Orford, it has potential for multiple discoveries on a massive land position in what we think is a new gold district. It has the potential for discovery of multi million ounce gold deposits on that project, and it is a new, unexplored project area, unlike people beating around the Abitibi with all their projects or working in the Golden Triangle, where things have been explored for quite a while. This is new, and there are not often new gold districts discovered in Canada. Coupled with the optionality of us working with a partner on the West Raglan nickel project, there is a lot to be excited about. You are not just buying a gold company you are buying a gold company that has huge optionality on the nickel price. I think those two things together make Orford a good buy in this market.

Furthermore, we are going to continue to look for things to add to our company, because I am a firm believer that increasing your NAV either through discovery or acquisitions is the only way to increase value. We are a small team, but we are looking at things all the time that will add to the value of Orford to by increasing the NAV per share for investors. ■

Chibougamau Exploration and Development

REVIVING PAST MINING CAMPS

Though the Abitibi remains in the spotlight for gold production, a handful of juniors have been willing to take on the risk of exploring and developing a mine in one of Québec's less known areas. Although the Chibougamau region is best known for its copper production in the 1930s to 1960s, significant gold potential has been demonstrated in recent years. As momentum in commodities as wide ranging as gold, copper and iron has picked up, so has the attention and funding.

Troilus Gold Corp and Kenorland Minerals are leading the push for a gold mining renaissance in Chibougamau. In the case of Troilus, it is pursuing a brownfield opportunity at the Troilus mine that formerly produced two million ounces of gold and 70,000 tons copper from 1996-2010. Despite this success, the corporate objectives of Inmet, who operated the mine during that period, were focused elsewhere. Troilus took over in 2017 and shortly thereafter, CEO Justin Reid began deploying a strategy to put substantial money into the ground and significantly increase the resource to give the project a new life. In the past two and a half years, Troilus has added 6.5 million ounces. "The reserve was exhausted, it was an undercapitalized mine, and most importantly it had not been explored at all for 25 years. We saw this as an opportunity to acquire a past producing mine that over its life had seen very little expansionary or exploration capital put into it, not because it was not a good asset, but because corporate priorities were elsewhere," Reid explained.

The Frotet-Evans Belt, where the Troilus mine lies, is part of a broader story where companies are now applying modern exploration techniques to the belt. Reid posits that the Frotet-Evans is the same greenstone belt, the same age, and same metamorphic grade as the Abitibi. However, the difference is that the Abitibi is exposed at surface, while minerals in the Frotet-Evans belt are buried underneath 10 to 15 meters of glacial till. "Historically, the majority of exploration in Northern Québec has been overwhelmingly focused on rocks that you can see, and the Frotet-Evans belt was considered more of a base metal belt than a gold belt," Reid said.

South of the Troilus mine on the Frotet-Evans belt is Kenorland Minerals' Frotet project. Kenorland, which was founded in 2016, began as a private company focusing mostly on project generation. In 2020, after two years of greenfield exploration in northern Québec, the company saw its Frotet project reach initial drill stage. Shortly after beginning its drill campaign in Q1 2020, it ended up making a significant high grade gold discovery, which compelled the company to list on the TSXV in 2021. The Frotet project is now under joint venture with Sumitomo Metal Mining, who holds an 80% interest while Kenorland remains the operator.

Although it is still early stages for a completely greenfields discovery, the team recognizes that it is just beginning to understand the geology and controls on mineralization. Fortunately, the early stage drill results have been impressive to many onlookers. Kenorland drilled a total of 7,800 meters during its discovery program in 2020, and on the second hole of the program hit 3.75 meters at 16.06 g/t Au. On the seventh hole they hit 29.08 meters at 8.47 g/t Au, a phenomenal intercept regardless of whether it is a first pass drill program or a mature exploration project. "That indicated right away that we were probably onto something special," noted Kenorland president and CEO, Zach Flood.

The next big drill program for the company was in Q1 of 2021, and this program revealed 5.72 meters at 90.56 grams. "We began to define an east-west vein that is carrying significant high grade gold. The grade is what is going to separate this project from other projects. If you have extraordinary grades, you can build ounces very quickly in a relatively small volume of rock," Flood added.

Other early stage exploration projects in the Chibougamau area include Delta Resources' Delta-2 property and Vanstar's Nelligan asset, which is in joint venture with IAMGOLD.

IAMGOLD currently owns 75% of the Nelligan project and they are earning-in by spending exploration dollars to advance the project. As part of its strategy to "re-seed" its pipeline with disciplined investment in organic growth, IAMGOLD is betting on the long term success of Chibougamau. According to Gordon Stothart, president and CEO of IAMGOLD: "Nelligan has significant opportunity to provide meaningful production in the future, and we would love to see this resource grow as we progress with exploration and development."

In cohesion, IAMGOLD also has its Monster Lake asset located 15km north of Nelligan, which has an identified resource of approximately 430,000 ounces at a grade of 12 g/t, and will continue to explore the deposit as it could provide a great sweetener to any startup operation at Nelligan. "We are excited about the Chibougamau district and expanding within the complex could bring some great long-term opportunities for IAMGOLD," Stothart affirmed.

Meanwhile, at Delta-2 the property is subdivided in two, because it has high potential for VMS deposits similar to the old high-grade Lemoine deposit, while also having potential for gold deposits, such as the Joe Mann deposit. These past producers are located respectively 1.5 km north and 15 km south of the Delta-2 property. Delta believes there is magmatic hydrothermal gold potential, and it recently completed over 6,100 meters of drilling that led to a new discovery called the Oli-Gold vein, where it intersected about 28 g/t gold over 3.3 meters near surface.

Copper

With an awareness of the Chibougamau/Lac Doré mining camp's history as a prolific copper producer, Doré Copper became public in December 2019. After studying historical production and exploration in the camp to better understand which deposits would have the best mineral potential going forward, the group settled on the high-grade Corner Bay copper deposit. Located on the south flank of the Chibougamau pluton, Corner Bay is in a relatively under-explored part of the Chibougamau/Lac Doré camp. Having spent over C$16 million since 2017, Doré plans to spend another C$14 million on exploration and infill drilling prior to the end of 2022. Doré expects to grow resources in the camp and have enough tonnage to look at a greater than 10 year life of mine plan.

The asset could also be used as part of a broader hub-and-spoke strategy, where its mill, which is located 14 km from the town of Chibougamau, could treat ores from nearby deposits. "In the case where another company finds a resource that is high-grade but not big enough to justify its own mill, being the only mill in the district, it would make sense to come to some type of arrangement, either toll milling or acquisition," said Doré Copper president and CEO Ernest Mast.

Mast believes market forces will continue to work in their favor moving forward as the world continues to decarbonize. Large copper projects are taking a long time to get permitted or they are not being approved, and with that comes difficulties in getting financed particularly given large capex requirements. "It opens the opportunity for smaller high-grade copper projects like Doré Copper's to advance because the impact is much smaller and there is still strong economics at these higher prices," Mast concluded.

Iron and Vanadium

Two of the most advanced projects in the Chibougamau area are Vanadium One Iron Corp's Mont Sorcier project and BlackRock Metals' BlackRock project.

In BlackRock Metals' case, its asset is fully permitted and ready for construction, but the company is still working on completing its construction financing, which amounts to a little over C$1 billion for phase 1 of the project. BlackRock's aim is to complete financing within 2021 in order to be in full construction in early 2022. The overall timeline for the project is approximately two years of construction prior to the ramp up and commercialization of the project itself.

BlackRock will develop vanadium, titanium and nodular iron – of which vanadium and titanium are on the critical minerals list. The underlying thesis supporting the development of the BlackRock mine is that electric furnaces only represent about 20% of global steel production. Many countries have set targets to increase this amount and, as a result, blast furnace plants will either be idled and replaced or refitted with electric furnaces. BlackRock estimates that the transition from 80% blast furnace to 80% electric furnace will reduce global CO_2 emissions in the order of 4-6%.

If this transition were to play out as some expect, the scrap market will be greatly impacted, because scrap contains contaminants which will increase demand for virgin iron units used to dilute contaminants. "We expect to see significant demand for nodular iron, foundry iron, pig iron and direct reduced iron. This is one of the reasons why we are seeing significant interest in our project. It fits all political and environmental agendas, and it has a great economic outlook with the demand for the products being fundamental to the green economy," affirmed BlackRock Metals president and CEO Sean Cleary.

Similar to Troilus's approach, Vanadium One revisited Mont Sorcier, which had extensive exploration and metallurgical testing done on it in the 1960's and 70's, using modern technology and exploration techniques. That resulted in the first 43-101 compliant resource being completed in 2019. The company's initial work delivered a resource of over 630 million tonnes, grading approximately 32% magnetite with very low titanium and other deleterious elements such as phosphorus, aluminum and silica, set to deliver a premium 65% iron ore concentrate with 0.6% vanadium pentoxide.

Vanadium One is now working toward the construction decision phase, the key focus being to deliver a bankable feasibility study that demonstrates the robustness of the project in order to attract the requisite investor interest. Vanadium One president and CEO Cliff Hale-Sanders outlined: "Mont Sorcier is well positioned to capitalize on this trend towards increasing demand for higher grade iron concentrates. Based on test work to date, we are very confident that we will be able to produce a clean 65% grade or better iron concentrate. This will put us in a premium product category, which typically attracts a 15-20% premium over the more standard 62% material." ■

Justin Reid

CEO

TROILUS GOLD CORP. (TSX: TLG)

"We saw this as an opportunity to acquire a past producing mine that, over its life, had seen very little expansionary or exploration capital put into it, not because it was not a good asset, but because corporate priorities were elsewhere."

From 1996-2010 the Troilus mine produced gold and copper. What was the appeal of this brownfield opportunity for Troilus Gold Corp.?

Troilus produced 2 million ounces of gold and 70,000 tons of copper during those 14 years. However, the corporate objectives of Inmet, who operated the mine during that period, were focused elsewhere. They were a global base metal company building Las Cruces in Spain. They also found and were developing Cobre Panama, which is now the sixth largest copper mine in the world. Troilus was a low grade, bulk tonnage gold deposit in Canada in a weak gold market. It was not a corporate priority for them, so when they were taken over by First Quantum, the rationale behind that was Cobre Panama. As a result, they shut the mine down. The reserve was exhausted, it was an undercapitalized mine, and most importantly it had not been explored at all for 25 years. We saw this as an opportunity to acquire a past producing mine that, over its life, had seen very little expansionary or exploration capital put into it, not because it was not a good asset, but because corporate priorities were elsewhere. Troilus took over in 2017 and since then we have put substantial money into the ground and significantly increased the resource giving the project a new life.

Can you speak to the results of your PEA? At what price are your assets able to produce economically viable gold?

We completed our PEA at US$1,475 gold, showing a 22 year mine life, producing 250,000 ounces of gold per year for at least the first 14 years via open pit. We produce gold at all in sustaining costs of about US$850 an ounce, which at those commodity prices gives you almost a US$600 million NPV after tax, and about a 23% after tax IRR. If you use today's prices that is closer to a billion dollar NPV and almost a 40% IRR. Since we put out the PEA we bought back our royalty from First Quantum, which was a 2.5% royalty, so that adds an additional US$100 million dollars to that value. On our base case assumptions this is an asset valued anywhere between a US$600 million to a billion dollars.

How would you assess the prospectivity of the Frotet-Evans belt, and is the mining world now waking up to the potential of the area?

300 km to the south and to the west of Troilus is the Abitibi, one of the most prolific gold belts in the history of the world. As you move north, the Frotet-Evans belt generally is the same greenstone belt, the same age, and same metamorphic grade. However, the difference is that where the Abitibi is exposed at surface, while we are buried underneath 10 to 15 meters of glacial till. Historically, the majority of exploration in Northern Québec has been overwhelmingly focused on rocks that you can see, and the Frotet-Evans belt was considered more of a base metal belt than a gold belt. It was not until the last 12-15 years that any kind of modern exploration techniques have been applied to this belt, and it was not until TLG took over the Troilus deposit that significant results have been found in the belt. It is a new belt in an old district.

What are the characteristics that distinguish the Troilus Gold project from others in the province?

Our scale is the first attribute that pops out. We are looking at a large, structurally controlled polymetallic belt, where we are seeing multiple generations of mineralization. This is indicative of a very large system. The fact that it is structurally controlled also gives us a focus for our exploration, which has enabled us to add 6.5 million ounces in the last two and a half years at Troilus. We are now sitting with a resource across all categories of 8.1 million ounces equivalent, making it one of the largest developing gold assets in Canada. ■

André Tessier

President & CEO
DELTA RESOURCES INC. (TSXV: DLTA)

How has Delta Resources advanced its Delta-1 and Delta-2 projects since acquiring them in fall of 2019?
Delta-1 is located in Ontario about 50 km west of Thunder Bay straddling the Trans-Canada Highway in the Shebandowan greenstone belt. It is a gold property that has a huge alteration zone, a large halo of mineralization of about 0.2 g/t gold, and we recently completed our second phase of drilling there.
Our Delta-2 property is similarly large in scale with 192 km2, located southeast of Chibougamau Québec. We subdivide this property in two, because it has high potential for VMS deposits, similar to the old high-grade Lemoine deposit. It also has potential for gold deposits, such as the Joe Mann deposit. These past producers are located respectively 1.5 km north and 15 km south of the Delta-2 property. We think that there is magmatic hydrothermal gold potential, and we recently completed over 6,100 m of drilling at that property that led a new discovery called the Oli-Gold vein, where we intersected about 28 g/t gold over 3.3 m near surface. It is now open over about 125 meters of strike length, and 100 meters vertical depth.

What are the key strengths of Delta-2's geology and location?
Chibougamau is in a renaissance period right now. In terms of incentives, exploring in Chibougamau is terrific because infrastructure is very close.
Our Delta-2 property sits just southeast of Chibougamau about 1.5 km south of the former high-grade producing Lemoine mine. The interesting thing there is that VMS deposits typically occur in clusters. In this case, the Lemoine mine is sitting there all by itself. This begs the question: Where is the rest of the cluster?. ■

Zach Flood

President & CEO
KENORLAND MINERALS (TSXV: KLD)

Kenorland has produced positive drill results at the Regnault target at Frotet. What does this mean for the future direction of this project?
We recently announced the results from our second significant program which was follow up to the initial discovery program, and these results were even more robust. These are all positive indications that the gold system we have discovered has the potential to grow and become something of great significance. Right now we are carrying out a 20,000 m drill program that will significantly advance the project and our understanding of the system.

Can you elaborate on the specifics of Kenorland's drill results at Renault?
We drilled a total of 7,800 m and on the second hole of the program we hit 3.75 meters at 16.06 g/t Au. On the seventh hole we hit 29.08 meters at 8.47 g/t Au, and that is a phenomenal intercept regardless of whether it is a first pass drill program or a mature exploration project. The next big drill program was in Q1 of this year, which followed up on that initial drilling. With this program we released 5.72 meters at 90.56 grams, and we began to define an east-west vein that is carrying significant high grade gold. The grade is what is going to separate this project from other projects.

How does Kenorland's exploration approach differ from data driven approaches?
Many explorers are focusing on areas with more data and more historical exploration to try to feed that information into their process and guide them in terms of where to look. In contrast, we leverage large datasets and use first principles to guide us to prospective regions, but within those regions we are looking for areas with relatively less data and less historical exploration. That is a fundamental characteristic of our projects, they are under-explored, and we believe these areas are where new discoveries will be made. ■

Cliff Hale-Sanders

President and CEO
VOYAGER METALS (TSXV: VONE) (FORMERLY VANADIUM ONE IRON CORP.)

Can you provide an overview of Vanadium One Iron Corp. and the evolution of the company?
Vanadium One was the first company in over 40 years to revisit Mont Sorcier using modern technology and exploration techniques that resulted in the first 43-101 compliant resource being completed in 2019. Our initial work delivered a robust resource of over 630 million t, grading approximately 32% magnetite with very low titanium and other deleterious elements such as phosphorus, aluminium, and silica set to deliver a premium 65% iron ore concentrate with 0.6% vanadium pentoxide.
We have since progressed by completing a PEA in 2020, which demonstrated robust economics with an NPV of over C$ 1.7 billion at a very low iron ore price relative to the current market prices. We also completed additional drilling in late 2020 and expanded the resource to over 1 billion tonnes, putting the deposit on a globally significant scale. While the bulk of our revenue will always be driven by iron, unlike other iron ore stories around the world, we expect the vanadium component to provide significant by-product credit revenues to enhance the overall economics of the project.
The Mont Sorcier project is located approximately 20 km outside of Chibougamau, with impressive existing infrastructure in one of the world's most friendly mining jurisdictions. Supporting project development is the fact that significant infrastructure is available to support the project immediately. Namely, the property is less than 10 km from low-cost provincial hydropower along maintained roads, and furthermore, there is easy access to a railway that goes from Chibougamau to the Port of Saguenay for year round access to the global market.

What are Vanadium One Iron's goals for the next two years?
Our key goal is to move the Mont Sorcier project to the construction decision phase by delivering a bankable feasibility study to demonstrate how robust the project is.■

Sean Cleary

President & CEO
BLACKROCK METALS

Can you give a brief background of BlackRock Metals?
BlackRock Metals is a private Canadian company focused on the development of critical minerals. We have three minerals that we are developing in Québec – vanadium, titanium, and nodular iron. We have developed an at surface open pit mining deposit located near Chibougamau, which is fully permitted and ready for construction. We expect to produce approximately 1 million tons of concentrate per year which will be shipped by rail to the metallurgical complex located in Saguenay, and converted into our three metal products for export, mostly to the North American and European market.

What is the current status of the BlackRock project and what is the roadmap forward for advancing the asset?
We are now considered to be a shovel ready project and are currently working on completing our construction financing. The capital requirements are a little over C$1 billion for phase 1 of the project and we hope to complete financing within 2021 as to be in full construction in early 2022. The overall timeline for the project is approximately two years of construction prior to the ramp up and commercializing the project itself.

What is the appetite for funding steel projects?
The steel industry in general is going through a massive transformation and today the US has approximately 75% of its steel production from electric furnaces which can use a lot more scrap as an input. We are therefore recycling metals and reducing the carbon footprint for the production of steel. If we look globally, electric furnaces only represent about 20% of steel production and many countries have set targets to increase this amount. That means blast furnace plants will either be idled and replaced or refitted with electric furnaces. By switching from 80% blast furnace to 80% electric furnace we will reduce global CO2 emissions in the order of 4-6%. ■

Ernest Mast

President and CEO
DORÉ COPPER
(TSXV: DCMC)

How has Doré Copper evolved as a company through the years?
Doré Copper is junior resource company that became public in December 2019. Doré Copper's assets are located in the Chibougamau/Lac Doré mining camp where mining activities commenced in the 1950's. Historically, the area has been a prolific producer of copper and gold as the deposits tend to be high-grade, and there were a number of companies exploiting the deposits up until 2008. Doré Copper, as a private company, became involved in 2017 when we signed an option with Ocean Partners to acquire a number of key assets in the camp. We were now owners of 13 deposits, so we reviewed the historical production and exploration to understand which deposits would have the best mineral potential. We first focussed on the high-grade Corner Bay copper deposit. We have spent over C$16 million since 2017 and plan to spend another C$14 million on exploration and infill drilling prior to the end of December 2022. With these drilling campaigns we expect to grow resources in the camp and have enough tonnage to look at +10 years life of mine plans.

Why is the Corner Bay deposit promising, and what progress has been made on the asset to date?
The Corner Bay asset is located on the south flank of the Chibougamau pluton, which is a relatively under-explored part of the Chibougamau/Lac Doré mining camp that historically produced 1.6 billion pounds of copper and 3.2 million ounces of gold. When we acquired the Corner Bay, the mineral resources stood at 1.5 million tonnes at about 3% copper and 0.28 g/t gold. With the drilling results obtained from our 2020/2021 drilling programs, we are confident in being able to reach over 5 million tonnes. The deposit remains open in a number of directions and we have identified other parallel veins. We have increased our 2021 drilling program to 30,000 m to continue to grow this deposit as we still see significant upside to it.
A previous operator started building the mine, so there is already a portal, 2 km of development, and access to three levels. There is also some surface infrastructure in place and roads to the site.
We are working towards a PEA for the end of Q4 2021. The PEA will evaluate a hub-and-spoke operation incorporating a number of advanced deposits feeding into our 2,700 t/d mill. As we advance the development of the camp, other mines will potentially come into operation and feed the mill.

Can you elaborate on Doré Copper's effort to consolidate its position in the Chibougamau area?
Doré Copper has done a number of transactions of which three are significant. We recently finalized the acquisition of the Cornerback property, approximately 2,200 hectares surrounding the Corner Bay deposit. Shortly after going public in December 2019, we signed an option agreement to acquire the former Joe Mann mine, which produced 1.2 million ounces of gold at a grade of 8.26 g/t. The third acquisition was the Norbeau property located 15 km north of Chibougamau. Norbeau produced approximately 160,000 ounces of gold at a grade of 14 g/t in the late 1960s. ■

Industry Views: Talk Your Belt

"Despite its location in northern Québec, the James Bay region has excellent infrastructure. There is also a strong will, from both the Québec government and the Cree Nation to move ahead in a new spirit. There is an agreement called La Grande Alliance, which will be key to encouraging mining moving forward. The Cree Nation is very proactive in supporting the mining industry to progress with new mining projects."

- Jean-Marc Lulin, President & CEO,
Azimut Exploration

"The big difference between Ontario and Québec, particularly in the northern areas, is the infrastructure. You probably have projects similar to Fenelon in terms of potential, but they are not easily accessible. There are companies that have very good projects in Ontario along the James Bay coast but it costs over a billion dollars to put a road in to get there."

- Marz Kord, President & CEO,
Wallbridge Mining

"The Cadillac Fault is an extremely important geological feature. It is a deep-running fold separating two kinds of rocks dramatically and prepares the ground. The Val-d'Or region benefits from the entry of a lot of fluid in the fault resulting in the replication of mineralization every one and a half to two kilometers."

- José Vizquerra, President & CEO,
O3 Mining

"Real estate on the Cadillac Break is really tight, and as a result, properties with a reasonable resource and permits are in a great position, because permits are very hard to get. It took us two years and C$6 million to get our permits."

- Frank J. Basa, President & CEO,
Granada Gold

"If you were in Canada in 1900, and you went onto the Cadillac fault, you would have been one of the first to explore an area that has since produced over 100 million ounces of gold. The Atlas fault was discovered 2,000 years ago by the Romans, but in modern times was kept as a secret by Managem, which is owned by the Royal Family. There were very few people who were aware of it, and it was strictly forbidden for any foreign companies to become a player in Morocco until 2008, when projects were put up for sale."

- Benoit La Salle, President & CEO,
Aya Gold and Silver

SERVICES

"Designing more cost-efficient projects is only one piece of the solution. You need to focus on the overall sustainability of the project and look at it from a holistic point of view."

- Cesar Inostroza,
Senior Vice-President-Mining and Metallurgy,
SNC-Lavalin

Image courtesy of AMQ

Engineering, Consulting & Drilling Services

SOLVING MINING'S MOST DIFFICULT ISSUES

Engineering, Construction and Consulting

Regardless of how rich a jurisdiction's mineral endowment is, usually above ground factors play an equally important role in driving investment decisions. Geopolitics, security and a straightforward mining code are obvious considerations, but beyond that, access to a workforce that is technically skilled, with an abundance of companies that provide services to aid miners in execution cannot be understated.

One of the mainstays of Québec's mining service economy for the last 50 years has been SNC-Lavalin. The company has led the design and construction of almost every aluminum smelter in the province, from the initial investments in the Saguenay, Becancour and Sept-Isles regions, to the most recent construction of the AP60 demonstration plant. SNC has also built gold and iron ore mines, processing plants, and today it continues to grow its sustainable mining group, which specializes in the design of tailings storage facilities, mine water management and closure plans.

"Our approach throughout the process of delivering the project is to constantly evaluate where we are, what challenges are present and how to mitigate potential problems. This means that when we arrive at the endpoint, our clients have predictability of the outcome," Cesar Inostroza, senior vice-president-mining and metallurgy at SNC-Lavalin, said of the company's philosophy.

Inostroza also spoke about the important role engineering firms play in boosting the competitiveness of Québec's burgeoning battery and critical material supply chains. He asserts that as the electrification trend grows, people are going to want to buy vehicles that are built with lithium, aluminum and other materials made in a sustainable manner. In that respect, Québec should be able to differentiate its mining processes from those of China and many other competitors around the world. "The positioning of Québec's energy generation through hydroelectric facilities, clean deposits, and engineering companies, such as ours, that look at sustainable development as the only way to deliver a project are key differentiators for Québec. This means the choice of technology, equipment, water, emissions, consumption of power, and clean energy are all considered when we design projects. Québec has all the ingredients to make that successful," he explained.

Québec's ability to execute on its green economy ambitions does not solely hinge on large engineering firms. Specialist technology-oriented firms like Seneca also possess an ability to develop, design and build complex processing infrastructure that has a material impact on lowering CO2 emissions. Seneca has been instrumental in helping Nouveau Monde develop a DC type of Acheson furnace, similar to what was used in the 1900's in the Niagara region for the silicon carbide market. The purification process is based on evaporating oxides out of the natural carbon by raising the temperature of the natural graphite. Seneca was mandated to design and build the processing unit, which is currently being commissioned to supply high purity graphite destined for lithium-ion battery anodes.

> *The biggest change is that we now see a globalization of the problems that occur within the mining industry. 25 years ago, if you had issues with people that were stealing your merchandise, they were not coming from around the world. They were coming from a 50 km radius. Today there are possible enemies all over the world lying there waiting for an error to be made or any type of situation that can offer them a weakness that they can exploit.*
>
> **- Claude A. Sarrazin, President, Groupe SIRCO**

Expanding the business model

Not only does Seneca supply engineering services to the community it is also now a developer that is investing in its own proprietary process technology to finance and commercialize first-generation commercial ventures. "We are now invested in the commercialization of our patented process technology to recycle commercial lithium-ion battery components, and by developing a proprietary hydrometallurgical solution, we can recycle the valued lithium-ion battery components at battery grade quality," said Raymond Simoneau, partner and vice-president of Seneca.

G Mining Services, a specialized mining consultancy firm based in Québec has also seen its business and ambitions scale in recent years. When GBR spoke to the company in 2019, they were in the middle of leading the construction of the Fruta del Norte project in Ecuador. They went on to complete that project on budget and three months early, according to G Mining Services' vice president-Finance, Michael Gignac. That success led to additional work from the Lundin family, as G Mining is now working for Bluestone Resources on their Cerro Blanco Project. They are also working on the phase two expansion of the mill at Fruta del Norte to aid Lundin Gold in increasing their throughput to 4,200 tonnes per day. Within Québec the company has been working with Galaxy Resources on their James Bay lithium project while also completing feasibility study work for Generation Mining on their Marathon project in Ontario.

"Right now, we see strong demand for our services across the board, from geology to underground to open pit mi-

ning engineering, the construction trades and processing," Gignac observed. That uptick in demand is leading to faster than expected growth, which is reflected in the expansion in hiring. "In 2020, G Mining Services employed about 80 people. Today, we employ close to 110 people, and anticipate that we will grow our staff to 150 employees over the next year based on our current workload," said Gignac.

The company also formed an entity called G Mining Ventures, which came about because the company felt that building a mine is more difficult than operating one. As Gignac explained: "This is because of the large CAPEX budgets, increased complexity and higher headcount required during the construction phase versus the operating phase. We brought the three mines we built through commissioning and into operations, so we are confident in our ability to operate a mine." From here, the objective is to acquire one or multiple precious metal assets that are close to a construction decision, and then the company will look to leverage its expertise to drive value for shareholders.

Brownfield Services

When it comes to expertise in brownfield projects, Norda Stelo is one of the leading consulting engineering and construction firms in Québec. As Norda Stelo CEO Alex Brisson and his colleague vice president-resources and industry Sophie Boisvert described, many of the company's projects consist of equipment and asset retrofitting, integration of new equipment, modification of process and layout, environmental evaluations due to modifications, and asset integrity evaluations. Also, because they have experience in process using a variety of chemicals, they are involved in design modifications, maintenance repairs and inspection programs to increase reliability of particularly vulnerable equipment of the plant process. "Because of our specialization in brownfield projects, we have come to understand that by extending the life of existing equipment and entire facilities, we ultimately have an impact not only on the financial health of our clients, but on the environment, including climate change," Brisson stated.

By and large, Norda Stelo relies on an AI driven digital platform it developed, which gives predictability on the health of existing facilities and supports sound decision making and planning regarding asset management. "Currently, most maintenance operations are based on the knowledge of experienced personnel without it being scanned or secured. By using analytical techniques to increase comprehension and scanning of asset data, the mine raises the level of monitoring and comprehension of its operational process," Boisvert added.

Underground Services

Given the plethora of underground mines scattered throughout Québec, companies like Procon and A2GC have carved out a competitive niche servicing the market. Although Procon is based in British Columbia, it felt it needed a physical presence in Eastern Canada, so in 2018 Procon acquired Val-d'Or-based Promec Mining. Since the merger, Procon Est du Canada Ltée (PCE) has picked up work from such notable clients as Eldorado Gold, Wallbridge, Agnico Eagle and Wesdome. PCE was recently awarded the F.J. O'Connell Trophy for its strong health and safety performance in 2020. Procon CEO John McVey highlighted: "This achievement is a testament to the success of the acquisition and the capabilities of the Procon team and culture that we have established in Eastern Canada over the past three years."

For A2GC, a boutique consulting firm founded in 2015 by Patrick Andrieux, its main expertise lies in rock mechanics and engineering. The aim is to minimize uncertainty, risks, costs, cycle times and delays, while also working to maximize productivity, production, and ultimately profits. Given the maturity of many of the mines in Québec, mines must now go deeper underground to find value. That complexity calls for specialized skills which A2GC offers. "The engineering challenges associated with geotechnical settings and mining in a deep and high stress environment are diverse and significant. Deep and high stress mining requires sound strategic mine planning approaches as well as good tactical processes. The development of the underground infrastructure required for the exploitation of deep reserves needs to be carefully designed," Andrieux expounded.

Drilling

Service providers like Major Drilling tend to be a strong bellwether for the overall health of the industry, because drilling demand reveals the extent to which companies are able to access capital to invest in exploration. In this since, from where Major Drilling president and CEO Denis Larocque sits, Québec is in the early stage of a new bull market cycle. His view is that the current cycle mirrors the 2004 to 2012 cycle. It started from 2013 to 2019, when there was six years of downturn, and very little exploration. "Now the mining companies are running out of reserves again, and despite the pandemic, we saw the seniors come to the table with bigger programs and the gold price improved. We saw the first wave come from the seniors, which got the attention of the investment community, and we then saw the juniors raise money."

Subsequent to that, precious metals juniors began getting funding for bigger programs, and consequently, Major Drilling was able to double its revenue from juniors year over year. "The next leg will come from base metals. We have not seen base metals yet come to the table with any serious increase in funding, and I think it is just a question of time before they start much bigger programs," Larocque predicted.

Labor

One of the most universal challenges that all mining companies and service providers are facing is the scarcity of qualified talent. Despite mining offering well above average salaries, the industry's workforce is aging, and the younger generation is not filling roles at the requisite pace. To solve this issue, the Comité sectoriel de main-d'oeuvre de l'industrie des mines (CSMO Mines) was founded in 2006 with the goal of balancing the supply and demand of skilled labor. The organization develops continuing education programs, identifies industry human resource requirements, and works to pinpoint employment issues facing its target clientele. "Certain positions are very difficult to recruit at the moment as there is a lack of qualified workers. Positions such as heavy equipment mechanics, foragers, supervisors, heavy equipment operators, mining technicians and engineers have a very scarce talent pool to tap into. This is also the case for new positions related to electrification and automation, instrumentation control and electromechanics," observed Kathy Gauthier, general director of CSMO Mines.

The organization is also working hard to make mining more inclusive and diverse by developing training programs for aboriginal workers. The next step for the organization is to rollout programs that will help better integrate women into the mining workforce as well. ■

Denis Larocque

President & CEO
MAJOR DRILLING

What are some of the key accomplishments of Major Drilling in Québec over the past three years?

Our presence in Québec goes back 40 years, and we are very proud to have achieved the longest hole ever drilled in the world at Osisko's Windfall project. Our ability to drill down to 3,467 meters deep shows the expertise Major Drilling possesses, and it is why we are seen by the industry as the go to company for drilling projects that are specialized and difficult.

Does the regional stability and pro mining attitude of the Québec government incentivize companies to take on projects that require more technical drilling campaigns?

Because Québec is a mature, mining friendly jurisdiction, it helps in terms of financing projects. We are seeing a lot of money being raised by juniors, seniors, and intermediates, and that includes specialized drilling projects. When you decide to drill at 3,400 meters deep it means you have plans of building a deep mine, and building a deep mine requires serious investment. Doing that in a more secure or stable mining jurisdiction is a big plus.

What are MDI's key priorities over the next year?

Growing our labor force is the number one requirement for boosting our growth, and we are making strong efforts in development of that. We are also focused on growing our presence in South America. It has been slow over the past year, but we see a lot of potential. Finally, we want to continue to grow our underground presence; we have done a big push in underground over the last few years, growing our market share and increasing our presence. That brings more stability to our revenue stream because underground continues throughout the life of a mine. Once you are in, you could be doing work there for thirty years, which lessens the impact of the cycles of exploration. ■

Cesar Inostroza

Senior Vice President - Mining and Metallurgy
SNC-LAVALIN

Québec's energy generation through hydroelectric facilities, clean deposits, and engineering companies, such as ours, that look at sustainable development as the only way to deliver a project are key differentiators for Québec.

What are some of the challenges of designing mines that feed the battery material supply chain?
There are two elements to consider. First you must plan the fundamental design of the process, such as the science behind converting the mineral into a finished product. This is the process engineering side of things that you need to master and control, and SNC-Lavalin has deep expertise in that realm to help our customers find solutions. The second big part is the project delivery piece.
The SNC-Lavalin way of integrating those two components gives our customers predictability of outcome. Our approach is to constantly evaluate where we are, what challenges are present, and how to mitigate potential problems. This means that when we arrive at the endpoint, our clients have predictability of the outcome.

What are the keys to engineering battery material projects in North America that are capable of becoming a viable alternative to Chinese supply?
Designing more cost-efficient projects is only one piece of the solution. You need to focus on the overall sustainability of the project and look at it from a holistic point of view. As the world is moving towards greener technologies and implementation of electric vehicles, our society is changing. People are going to want to buy vehicles that are built with lithium and aluminum made in a sustainable manner. At SNC-Lavalin we want to be part of that, and this is what differentiates the Québec market from China and many other competitors around the world. The cost structure of a Chinese project is very different. The positioning of Québec's energy generation through hydroelectric facilities, clean deposits, and engineering companies, such as ours, that look at sustainable development as the only way to deliver a project are key differentiators for Québec. This means the choice of technology, equipment, water, emissions, consumption of power, and clean energy choices are all considered when we design projects. Québec has all the ingredients to make that successful.

To what extent have you seen ESG considerations become a higher priority for mining clients in recent years?
Cost and schedule will always be important, because ultimately you are building a facility that must give investors a return on capital. However, without ESG considerations these mines are not going to get built. We see this conversation happening in spades with our customers. An important driver of this trend is that governmental funds, such as Investissement Québec and CDPQ, insist that the sustainability piece is fundamental. It is also fundamental in our work, because if we do not design projects incorporating those elements, it does not matter how cost efficient the project is, it will not have the social license to operate.

What are the biggest changes you have observed regarding market conditions over the past two years?
In 2019, there were very few projects that were seriously being considered for implementation. Therefore, most of the business revolved around doing smaller studies with long lead times before turning into real projects. In 2021, the number of studies has increased significantly in terms of clients wanting to understand how to implement their project, but more importantly, we see many more projects coming to fruition and actually getting done. With that comes significant human resource challenges. A feasibility study requires 10 to 20 engineers. Whereas, to do an implementation project you need 150 people. It is an order of magnitude difference, and now in 2021, we are seeing at least half a dozen opportunities of real projects that are going to get built. Consequently, demand for SNC-Lavalin's services is much greater. Our biggest challenge lies in being able to attract and retain talent. The Québec market has been so busy over the last few years building infrastructure projects that there is a under supply of talented folks because they are busy working on other projects. This challenge is being addressed head-on by SNC-Lavalin through career development programs, recruiting talent from our universities and giving our people exciting opportunities to develop their skills on challenging projects. ■

Michael Gignac

Vice President, Finance
G MINING SERVICES

Demand is so robust that we are currently growing faster than expected.

What were some of the highlights driving growth in G Mining Services business in recent years?
Last we spoke in 2019, we were in the middle of leading the construction of the Fruta del Norte project in Ecuador. We completed that project on budget and three months early. Right now, we are conducting different studies for many clients. We were glad to obtain additional work from the Lundin family as we are currently working for Bluestone Resources on their Cerro Blanco project. We are doing a feasibility study on their open pit scenario. Throughout the year, we have also been working with Galaxy Resources on their James Bay lithium project in Québec. Another highlight was the feasibility study work we have done for Generation Mining on their Marathon project.

What services are currently most in demand from clients?
Q1 2020 was slower because of Covid, but things started ramping up after that in Q2, and really heated up in the second half of the year. Right now, we see strong demand for our services across the board, from geology, underground and open pit mining engineering, the construction trades and processing.
Demand is so robust that we are currently growing faster than expected. In 2020, G Mining Services employed about 80 people. Today, we employ close to 110 people, and anticipate that we will grow our staff to 150 employees over the next year based on our current workload.

How is G Mining Services able to attract top talent?
I would say our culture brings people in, because good people want to be challenged to accomplish great things and GMS has many interesting challenges ahead. Good people also want to join a strong team to accomplish those feats and be proud of what they've built at the end of the day. The other thing is being in Montreal is a distinct advantage because there are many miners who have been working in remote parts of the world for many years, and they often appreciate being able to return and work from a world class city. We provide mining professionals the opportunity to work in the city and that is very helpful in recruiting.

G Mining Service works on projects around the world. How do they differ from your work in Québec?
We work across many different cultures, so each project is unique. You need to adapt to the culture, where the project is located. Sometimes standards differ overseas, but we apply North American standards for safety, and we bring our quality standards to wherever we are working. Québec is a hotbed for mining knowledge, mining services and goods; particularly relative to a country like Ecuador, which is not yet established as a mining jurisdiction. Over there, they do not have the same number of service providers. Also, in Québec, because our costs are higher, we try to use telecommunications better and technology is implemented more to help with efficiency and effectiveness.

Can you provide some background and an overview of the strategy behind G Mining Ventures?
G Mining Ventures came to be because we believe, in general, that building a mine is more difficult than operating one. This is because of the large CAPEX budgets, increased complexity and higher headcount required during the construction phase versus the operating phase. We brought the three mines we built through commissioning and into operations, so we are confident in our ability to operate a mine. We also like the long-term economics of gold. Over the past couple of years, we have been working on different mandates for Sprott and we built a good relationship based on trust and respect. From early 2020, Sprott was encouraging us to create this new entity to partner with us to acquire a project and build it out so that we can all gain from our construction skills. In the end, they came in with an equity investment and they now own 11% of the company. Moving forward, G Mining Ventures' objective is to acquire one or multiple precious metal assets that are close to a construction decision. From there, we intend to leverage our expertise to drive value for shareholders. ■

Raymond Simoneau

Partner and Vice President
SENECA

Most of our work consists of first-generation commercial projects that are innovation based, and typically address challenges associated with electrification, renewable energy use, circular economy, strategic materials and decarbonization.

Can you speak to the role and evolution of Seneca in Québec's mining industry?

Seneca's mission and vision is unchanged since our founding in 1997. We deliver a value proposition based on the development of process-oriented technology to support our clients either in modifying existing processing plants or in building new industrial infrastructure.

We are a process oriented EPCM firm involved in B2B commercial collaborations with our clients who are beginning to develop a valued project. Sometimes we may be involved in lab scale process demonstrations of metallurgical concepts, and it is our job to decipher the economic advantages. We continue through the front-end engineering studies (FEL'S), including the process development and process design stages. If the project passes the economic value barrier, we are then involved in the realization stages including the full EPCM and commissioning management.

Seneca differentiates itself by being capable of developing a business opportunity from the lab scale proof of concept, to the demonstration plant and then to the FIRST GEN COMMERCIAL plant.

As Seneca has grown to 130 employees, we can now address major projects and offer the full spectrum of EPCM services while tackling major greenfield projects. Today, most of our work consists of first-generation commercial projects that are innovation based, and typically address challenges associated with electrification, renewable energy use, circular economy, strategic materials and decarbonization. Our playground includes mining concentration, smelting using hydro, pyro and electro metallurgy, and purification of strategic materials up to the 5N purity.

Seneca is now investing in its own project development. What motivated this strategy expansion?

Not only do we supply engineering services to the community, but Seneca is now a developer and is investing in its own proprietary process technology to finance and commercialize first-generation commercial ventures. We are now invested in the commercialization of our patented process technology to recycle commercial lithium-ion battery components, and by developing a proprietary hydrometallurgical solution, we can recycle the valued lithium-ion battery components at battery grade quality. Our licensed technology is now being reviewed by strategic partners all over the world.

What role is Seneca playing in assisting Nouveau Monde with its graphite processing at Bécancour?

Having designed and built the Nemaska lithium demonstration plant in Shawinigan, Seneca was invited to contribute to the development of the first natural carbon purification plant to be built in Bécancour. By using renewable and abundant hydropower, we developed in collaboration with the Nouveau Monde a DC type of Acheson furnace, similar to what was used in the 1900's in the Niagara region for the silicon carbide market. The purification process is based on evaporating oxides out of the natural carbon by raising the temperature of the natural graphite. Seneca was mandated to design and build the processing unit, which is currently being commissioned to supply high purity graphite destined for lithium-ion battery anodes.

Is there more demand for constructing pilot and demonstration plants given the increased technical complexity of projects today?

We are involved in deploying a demonstration plant that will provide high value renewable reducers to the iron smelting process. These include renewable syngas and bio char that is produced using available urban biomass and forestry waste. In this case Seneca's technology is taking advantage of urban mining and circular economy principles to reduce the carbon footprint of traditional industries.

Can you elaborate on Seneca's urban mining strategy?

An example of an existing urban mining established concept is the recycling of more than 95 % of the lead content of the lead acid batteries from the end of life, scrapped vehicles.

Seneca is presently investing and developing a project in which valued metals are extracted from urban waste using hydrometallurgy techniques. The object is to recover more than 95 % of the content of a commercial alkaline battery without having to go to the energy intensive and high carbon dioxide emission traditional pyrometallurgy route. Therefore, we recycle some materials back to the industrial sector, minimizing the need to further exploit mining and smelting of resources that are more than often far away. ■

Alex Brisson & Sophie Boisvert

AB: CEO
SB: Vice President Resources and Industry
NORDA STELO

AB

SB

How has Norda Stelo's business model transformed in recent years?

AB: About six years ago we decided to change our business model, so our focus now is to create long term partnerships with our clients. In order to achieve this aim, we have three main objectives. First, we build confidence with our clients in order to facilitate long term partnerships. Second, we work to build our expertise to exceed our clients' expectations, and third Norda Stelo is committed to have a local presence which helps us better understand the reality of our clients. We are focusing on two markets. One is the infrastructure market, such as bridges, roads, ports and railways, and the other is the industrial market, which includes energy, mining and metals, and manufacturing. We have clients like Rio Tinto with whom we have developed long term partnerships, and our business model is to sign master service agreements with them, giving us the opportunity to participate in the development of their strategic projects year after year.

Can you elaborate on Norda Stelo's involvement in mining projects throughout Québec?

SB: We mostly conduct engineering on existing sites and plants that are brownfield projects. A lot of our projects consist of equipment and asset retrofitting, integration of new equipment, modification of process and layout, environmental evaluations due to modifications, asset integrity evaluations, etc.

Norda Stelo is specialized in brownfield projects. What are the advantages resulting from this focus?

AB: Because of our specialization in brownfield projects, we have come to understand that by extending the life of existing equipment and entire facilities, we ultimately have an impact not only on the financial health of our clients, but on the environment, including climate change. With this approach, we developed an AI driven digital platform that gives predictability on the health of existing facilities and supports sound decision making and planning regarding asset management. Optimizing the lifecycle of industrial facilities and assets in general is more profitable for asset owners and makes them more environmentally and socially responsible towards their surrounding communities and the planet.

How is Norda Stelo implementing digital technologies into its services?

SB: The mining industry should adopt technologies that favour a high level of autonomy. Optimal analysis of equipment data by artificial intelligence allows generation of a large volume of relevant information for sustainable asset management.

Currently, most maintenance operations are based on the knowledge of experienced personnel without it being scanned or secured. By using analytical techniques to increase comprehension and scanning of asset data, the mine raises the level of monitoring and comprehension of its operational process.

This is why we have developed a platform that merges the data gathered during asset inspections, maintenance activities, real time operational data with human engineering knowledge which will lead to machine learning models to improve the precision of predictions of asset performance. Human knowledge and artificial intelligence team up!

We also add environmental parameters in relationship with asset performance. For example, you decrease the environmental amortisement of a site by intelligently increasing its perennity. Our models consider GGE and the risk of loss of containment during the life cycle of each asset. The most optimal balance between equipment performance and environmental impact can be achieved.

How are automation and robotics impacting the mining world?

SB: Norda Stelo has a deep knowledge and experience in advanced automation and robotics coming from decades of manufacturing expertise. We have transferred this knowledge to heavy industries like mining. We develop and integrate robots in mining sites where human safety is an issue.

AB: There is a significant advanced automation and AI component associated with robotics, and when we think about mining, we mostly think of tier one, but there are also tiers two and three which include the manufacturers and equipment suppliers who are also in need of accessible solutions. We support the Investissement Québec approach with what they call the Initiative for Production Innovation through all the manufacturing industry in the province of Québec, and we are acting with them to help implement digital transformation technologies for companies who act as stakeholders for the mining district. ■

By extending the life of existing equipment and entire facilities, we ultimately have an impact not only on the financial health of our clients, but on the environment.

Jérémi Fournier

President
FOURNIER & FILS INC.

How has L. Fournier & Fils grown alongside the mining industry in the province?
Fournier has evolved into a solution provider for surface mining operations. We work with clients from exploration stage to closure, which means we begin working with exploration programs by building access roads for the drilling rigs, and setting up camps. In the construction phase, we can do all of the excavation, piping, formwork, concrete and infrastructure, and in the operating phase, we offer turnkey mining for open-pit mining, dam construction, tailings ponds, and road maintenance, and much more. Finally, we finish with mine closure, so we can do everything from cradle to grave.

Do you believe the expansion of exploration in Québec will lead to more projects going into construction?
Over the past year, we observed that there are many projects in the exploration stage that will soon transition to construction. There is Matawinie, Windfall, Kiena, Horne 5, and Côté Gold in northeastern Ontario. In our business, the construction and operation phase are where we get our big numbers, so it is very exciting for Fournier.

Few players have the ability to offer turnkey solutions to miners. How does Fournier achieve this?
We achieve our turnkey solutions through vertical integration of our operation. We do concrete production, aggregate crushing, mining works, civil works and we have a transport division as well. When we integrate all of that expertise, that is where we can come up with a total solution. Most of the competition will have expertise in one or two of those areas, but not all.

How is Fournier integrating new technologies into its business?
Fournier wants to be at the forefront of this revolution Tech is also transforming the excavation and backfill process with 3D GPS excavators and bulldozers. We rely heavily on these equipments. ■

John McVey & Christian Bourcier

JM: CEO
CB: Vice president & General Manager, Eastern Canada
PROCON

MF

In 2018 Procon acquired Promec Mining. Why was Québec a logical market to expand into?
JM: Procon is based in British Columbia, however at the time we had projects as far away as Labrador. We needed a physical presence in Eastern Canada, and the Abitibi region in Northern Québec is a famous mining camp with a prolific history. This compelled us to do an acquisition in that region. The other nice thing about Northern Québec is that most of the mines are underground. Procon specializes in underground mine development, production and related construction.

To what extent has staffing become a challenge given the tightness of the mining related labor market?
JM: Canada is a big country that is blessed with an abundance of natural resources. However, we have limited human resources given our population. When an industrial marketplace gets extremely busy, as was the case in the Alberta oil sands a decade ago, labour supply dries up, and we end up in a situation where competition for labour is fierce. I read recently that in Canada we have 120,000 people working in the mining industry, and over the next decade we will see 50% of that group retire. This poses a huge challenge, because we are an industry that sometimes is seen as a 'dinosaur' in terms of adopting new technology, leading ESG practices, and thereby attracting the next generation of workers. Consequently, as an industry, we must come to grips with how we attract future workers, including a focus on diversity and inclusion that has not previously existed. Procon is very focused on diversity and inclusion, and working constructively with First Nations and indigenous peoples is something that our company has always been focused on. Often, we are building these mines in their traditional territories. ■

Logistics Services

ENABLING REMOTE OPERATIONS

While the pandemic has caused many to question what the future of business travel will look like, Québec has a pair of airlines in Air Inuit and Nolinor who play an integral role in servicing remote communities in the North. As demonstrated throughout the pandemic, these airlines not only provide transportation for workers commuting to mining camps, they also act as an important lifeline to the territory, providing essential goods for the communities including perishable goods, food and medical supplies. For Air Inuit these supply routes were maintained at 100% throughout the pandemic. Christian Busch, CEO of Air Inuit, pointed out: "As Nunavik communities are not linked between themselves or with the southern area of Québec by roads, the aircraft acts as the sole commuting service, taxi, bus and ambulance."
Air Inuit is 100% owned by the Makivik Corporation. Its owners, therefore, are the Inuit of Nunavik, representing the 13,000 Inuit of Northern Québec. When asked to compare spring of 2020 with spring of 2021, Busch pointed to a starkly different environment. "Several of the restrictions on mining work have been lifted, while efforts to safeguard communities remain strong. Therefore, we are seeing more mining workers travel. Companies are progressing this year, and we are seeing them come back to continue their exploration campaigns."
There are two major mines in Air Inuit's territory, run by Canadian Royalties and Glencore, and these companies suffered major challenges during the Covid period. However, Busch continues to see things normalize in terms of workers returning. Looking ahead, Busch explained that the company will prioritize working together with the owner of the air strips, which is the Québec government, to elaborate a common vision with regards to airport infrastructure. Runways must be lengthened as most of them are 3,500 feet, and these days, flying regional aircraft on 3,500 foot gravel runways is a huge challenge. "We have to look at innovative situations, as when you are in a northern environment like ours, reality hits quickly as you are in an area where there is permafrost, and where the climate is very difficult in the winter," Busch reasoned.
Nolinor Aviation was equally resourceful in managing its business throughout the pandemic. The airline, which ran both mining related and tourist flights to the North, quickly focused on finding new opportunities as the pandemic took hold. "We were lucky that our business is mining focused, because unlike many airlines that had to shut down or reduce staff by 50%, our business activity remained buoyant. This is a testament to our mining clients who were very well structured and able to adapt, setting a system in place to continue their operations," said Marco Prud'Homme, president of Nolinor Aviation.
Nolinor, which counts Agnico Eagle amongst its top clients, did not see any drop-off in its mining related flights. The company was able to continue its growth by adding a contract for the Minerai De Fer, a mining operation in Wabush, and they now fly there every Tuesday and Wednesday with their Boeing 737-400, an aircraft added last year to the fleet.
"People now understand that the aircraft is not only about going from point A to point B, but it is about leaving on time from point A, and making sure that you are getting to point B safely," Prud'Homme said, referencing Nolinor's on time departure rate of around 98-98.5%. The company is now looking to add to its fleet of three Boeing 737-400s because mining clients have praised the aircraft for its low level of cabin noise and comfort. Despite the initial intent to use them for charter flights to Cuba and Florida, Prud'Homme anticipates some mining clients will want to continue to keep those Boeing 737-400 aircrafts under contract. ■

Marco Prud'Homme

President
NOLINOR AVIATION

How has Nolinor navigated the challenges of operating an airline during a pandemic?
We were lucky that our business is mining focused, because unlike many airlines that had to shut down or reduce staff, our business activity remained buoyant. We fly for Agnico Eagle, and they were very proactive in putting forward a testing program for their workers. People were getting tested at the airport, and we were flying with the highest level of safety with respect to Covid-19 prevention.
In the end, we did not see any drop-off in our mining related flights. In fact, we were able to continue our growth by adding a contract for the Minerai De Fer, a mining operation in Wabush. We fly there every Tuesday and Wednesday with our Boeing 737-400, an aircraft we added last year to our fleet. We now have three 737-400's, which seat about 156 passengers. We have also been receiving requests over the last few months, so we are expecting to have other mining contracts in the coming months.

What makes Nolinor's aircraft well suited for mining customers?
We have two markets. One of the markets is the mining industry, and the other is charter flights. In July of 2020 we launched a new brand called OWG targeting southern destinations, such as Cuba, Florida and Mexico. Nobody was launching new airlines last year, but we bought three Boeing 737-400's, completely stripped down the interior, installed brand new seats, with a new paint scheme, new design, and new lights. Unfortunately, Covid-19 spiked, and we had to shut down those flights. The silver lining was that we took those aircraft and we started to showcase them in the mining industry. Thus far, the feedback has been very positive. As a result, we now have to bring more aircraft into the fleet, because once the pandemic passes, some of our mining clients want to continue to keep those 400 aircraft under contract.

Can you provide an update on Nolinor's service in the Yellowknife area?
We have an aircraft that is based in Yellowknife. It is a full freighter 737-200, and that is our most active aircraft, because of all the mining contracts leaving from Yellowknife. It is the hub for many of the northern destinations for the mining industry. We are offering service for five to six projects over there, and we are flying almost every day. We also do ice strip landings where we land on frozen lakes. Overall, the year was strong in Yellowknife as well, with a slight uptick in flights.

> We were lucky that our business is mining focused, because unlike many airlines that had to shut down or reduce staff by 50% percent, our business activity remained buoyant.

With respect to aviation services, have you seen an evolution in the priorities of mining companies given the current strong commodity price environment?
Over the last few years, the main incentive was pricing. Mining companies were looking for very cheap, low-cost service. The industry is now realizing there can be a lack of efficiency that comes with those type of services. Nolinor's long term vision has always been to invest in better avionics systems, better real time in-flight tracking devices, real time sat phone communication with our crew, and a centralized database to be able to provide real time information for departure times and passenger tracking. All those investments come with a price tag. Nolinor's prices were never the cheapest in the market, but our on time departure rate was always around 98-98.5%. If you are saying that your flight is going to leave at 7:00 am, and it leaves at 10:30am, you are losing money at the mine, because those workers are not working, or you are paying people overtime. Choosing an airline that is consistently on time, has huge benefits. People now see this more and more, and they understand that the aircraft is not only about going from point A to point B, but it is about leaving on time from point A, and making sure that you are getting to point B safely. That is our mindset at Nolinor Aviation. The questions we are now getting from the industry are less related to price, and more about the systems that we are putting in place. ■

Christian Busch

CEO
AIR INUIT

How has Air Inuit dealt with the challenges Covid posed to the airline industry?
In Air Inuit's particular case we are the lifeline of our territory, and as Nunavik communities are not linked between themselves or with the southern area of Québec by roads, aircraft act as the sole commuting service, taxi, bus and ambulance. There was a total shutdown of the region at the beginning of Covid to protect the people and the territory as medical infrastructure and medical resources are limited in the area. The cooperation between the different major organizations of the region allowed a common strategy to maintain safe and necessary air transportation services for the wellness of the communities. This concerted plan included services for those providing medical services, and essential workers to make sure that communities continued to receive essential goods and get the proper servicing of equipment. Most commercial scheduled flight were suspended, and the flight program became one that was controlled by the health authorities to safeguard the territory. On the other side, the cargo situation, which includes things like essential goods for the communities, perishable goods, food and medical supplies was maintained at 100%.

> Air Inuit is a regional carrier owned by the people of Nunavik in northern Québec, Canada. The airline is in its 44th year of service, employs a dedicated team of 800 employees and operates a fleet of 28 aircraft ranging from the King Air 350, Twin Otter, Dash8 to the Boeing 737.

To what extent has mining related travel into Nunavik improved year over year?
If we compare spring of 2020 with spring of 2021, the difference is stark. Several of the restrictions on mining work have been lifted, while efforts to safeguard communities remain strong. Therefore, we are seeing more mining work travel. Companies are progressing this year, and we are seeing them come back to continue their exploration campaigns. We have two major mines on our territory run by Canadian Royalties and Glencore that also had major challenges during the Covid period, and we are now seeing things normalize in terms of workers returning.

What are your top priorities as the newly appointed CEO of Air Inuit?
Air Inuit is a specialized organization with 43 years of operations as a carrier. We operate a fleet of diversified aircraft in a very remote territory. The reality is that most of our runways are gravel and gravel runways have a high impact on aircraft maintenance. One of our priorities is to work together with the owners of those air strips, which is the Québec government, to elaborate a common a vision with regards to airport infrastructure. We need lengthening of our runways, as most of them are 3,500 feet.
Access to equipment to service your runways, is another big challenge because you have one opportunity to bring large equipment up to our communities, and it is in the summer during the shipping time. Once the ships have navigated you are waiting an extra year to bring the equipment back up there, therefore efficient planning is key. The day you decide to have paved runways you better have the basic equipment plus your backups already up there because you are not getting backup equipment if something breaks down within the same year. We fly Twin Otters, Dash-8's and Boeing 737 200's, which might seem of older generation, but we fly them out of obligation, not by choice, because the 737 200 is the only jet that is certified to land and operate on gravel. In order to realize our vision of a modernized, more environmentally friendly fleet, in the coming years we need to have the infrastructure that goes with it. Finally, the success of our company lies on the 800 employees who ensure the airline operates with high standards of safety, service and innovation and I thank them for their contribution. ■

EQUIPMENT & INNOVATION

"Electrification combined with digitalization such as tracking systems can together reduce energy consumption up to 70%. Those trends make operations safer and greener but also more accessible for all."

- Kim Valade, General Manager, Meglab

Image courtesy of Nouveau Monde

Software Solutions

NEW TECHNOLOGY ENABLES NEW POSSIBILITIES

When it comes to adopting new technologies the mining industry is notoriously reluctant towards changes. Often new technologies promise huge advantages, but for mining companies, safety and predictability are often the biggest priorities. Nevertheless, technology and software permeate all aspects of today's mining industry where there is a large appetite for solutions that make deposits more economical and environmentally friendly and operations safer, more transparent and efficient.

Industrial IoT firm Symboticware has been working to provide mining customers actionable insights through predictive AI solutions since its early days utilizing NORCAT's Underground Center in Sudbury. The company has managed to grow its customer base for nearly 13 years by partnering with dozens of large mining companies including Glencore, Barrick, Vale and Newmont. All of this was achieved without a need to raise outside capital, but

When we tell prospective customers that we have a scalable, tuned-to-site solution that will give early indicators of impending failures and enable extended asset life while reducing fuel burn and greenhouse gas emissions, the initial response is often something along the lines of, "Yeah, we heard that from other people before, so what are you doing differently?" The short answer is that, instead of adapting an approach developed initially for fixed assets, our approach to the AI is tailored specifically for the challenges of mobile equipment.

- Amanda Truscott, Co-Founder and CEO, Rithmik Solutions

now, as Symboticware looks to further scale up its business and continue introducing cutting edge innovation, it has raised C$2.8 million in its first-ever private financing round led by venture capital firm GreenSky Capital Inc. and supported by MaRS Investment Accelerator Fund, Celtic House Asia Partners and Axion.

When asked about the tough questions he would get from investors when raising money, Ash Agarwal, president & CEO of Symboticware, acknowledged that VC's want to make sure they are investing in a large and fast moving market, and that there is a big enough problem that can be solved by the proposed solution. Furthermore, there must be a team in place that can execute effectively on the vision. "Answering these questions gets harder when it comes to the mining industry for reasons associated with slow speed of adoption and long sales cycles. We work in an industry where everyone wants to be the first to come second," said Agarwal.

Fortunately, he notes that things are improving rapidly in today's environment. "With GHG emissions, productivity, safety and operating costs being on top of the board agenda, there is widespread demand for our solution which answers the market size and speed adoption question to a great extent. From a solutions perspective, with our proprietary technologies and integrated hardware-software-AI solutions, we are in the most favorable place to solve these problems," Agarwal elaborated.

Another company tapping venture capital funding is Rithmik Solutions, who closed a US$1.2 million round of funding to commercialize its "AI-First" mobile mining analytics product. Asset Health Analyzer (AHA), as it is dubbed, was initially developed by Kevin Urbanski and Kris Isfeld, who, prior to founding Rithmik, worked with Honeywell on their mobile equipment monitor (MEM). His takeaway from that experience was that unplanned maintenance remained a huge issue even within technologically advanced companies. Getting that ratio of planned to unplanned maintenance is a high priority for mining companies, so he sought to leverage data to develop software that could turn it into actionable information. This, in turn, would be used to identify early indicators of what is happening with equipment, and consequently, companies could head off big problems while they were still small.

Amanda Truscott, co-founder and CEO of Rithmik Solutions, was encouraged by the impact this technology could have on improving the mining industry's environmental footprint. "The biggest advantage comes from reduced fuel burn as a result of equipment that runs more efficiently. Our technology has been independently assessed as having the ability to enable improvements in that area of up to 15%," Truscott revealed.

Rockwell Automation has a wealth of experience developing and deploying everything from sensors to safety devices, controllers, panels, electric drives, distributed control systems (DCS) and IoT platforms right up to the boardroom. According to Ben Sharpe, an industry operations consultant at Rockwell: "The market has encouraged Rockwell Automation to expand its offering in high value IoT. The challenge in the industry is having raw data from mining to concentrators and smelter operations connected right through to the delivery of the commodity. It is about having data in context so the information is relevant and actionable."

Rockwell recently signed an agreement with the Canadian Mining Innovation Council (CMIC) to be a member of their high-efficiency Conjugate Anvil Hammer Mill (CAHM) project. This research project targets reducing energy in the comminution circuit by 35-50% and includes a significant number of end-users in Québec. The company is not only working with mining end-users, but also third parties delivering services alongside it into the mining sector. One key partner is Laval based SimWell, which is a supply chain simulation company doing analysis both internally in the mine, from pit-to-port, and externally for rail and ocean transport and delivery. "Their solutions have been integral to the mining industry, especially since the onset of the pandemic and with the government's focus on developing critical mineral operations and supply chain reshoring," added Sharpe.

Maptek is another technology company whose solutions gravitate around bringing value to the data its customers collect. Maptek offers a wide range of products across the mining value chain and on the mine planning and geological modeling side. Its flagship Vulcan product provides advanced 3D tools to the customer as they are understanding and quantifying their deposit and moving to the production planning and scheduling phases. More than 19,000 licenses of Vulcan are in use across the globe for applications ranging from exploration, geological modelling, mine design and rehabilitation planning for both underground and open pit mining operations. "Our aim is to provide information to our users so that they can effectively interact with the data to enable them to make the best decision with regards to mining as safely and economically as possible," said Jesse Oldham, global project strategy manager at Maptek. ■

The mining industry has traditionally been known to be slow adopters of technology as there is a resistance to change. I believe that this is due to skepticism of the unknown, and with AI, machine learning, digitization and automation technologies becoming more established and proven over the past few years, we are seeing a greater appetite for the adoption thereof. There is also the perception that AI and automation will replace the human factor in operations, but the reality is that human intervention and interpretation will always be necessary, maybe just in a new and different way than what we are used to.

- Rodrigo Villarreal, Director of Sales and Technical Sales, Maptek Canada

Ash Agarwal

President & CEO
SYMBOTICWARE

Symboticware is founded around the idea that it is possible to have highly productive, reliable and safer operation of off-highway vehicles.

What is the key problem Symboticware solves for the mining industry?
Symboticware is founded around the idea that it is possible to have highly productive, reliable and safer operation of off-highway vehicles.
Resource companies such as Mining, Agriculture, Forestry, Construction etc. spend more than US$100 billion every year towards unscheduled downtime of off-highway vehicles. Additionally, more than 5 billion tonnes of GreenHouse-Gases (GHG) are produced from these vehicles every year.
We are the Operating System of Intelligence for the natural resources industries. We know data. But more than that, we know that actions drive value. Hence, we provide our customers actionable insights from world's best predictive AI solutions.

How are Symboticware's technologies being used in the field?
Symboticware started in 2008, and dozens of large mining companies including Glencore, Barrick, Vale, and Newmont have been our loyal customers for more than a decade. Our customers' needs are now changing. Digital transformation and its relation with productivity, safety, carbon footprint and operating costs is now a board agenda. The adoption of digital technologies has been accelerated and customers expect a full scope solution. We offer our customers an end-to-end hardware and AI- software platform along with cutting edge communication technologies such as our patented Store-and-Forward, Data Muling, and Private LTE through our partners.
With our integrated end-to-end solutions, our customers across the industries will be able to optimize their fleet productivity, operating costs, their carbon footprint and operator safety.
As a recognition of our work towards optimizing GHG emissions from mobile vehicles, Symboticware has recently been recognized as a cleantech company by Export Development of Canada.

What are the challenges and opportunities related to technology penetration in Québec's mining sector?
There are certain opportunities that are present across the mining industry and around the world. As I said before, there is an accelerated adoption of digital technologies. However, decision centralization and/or a less productive dynamic between HQ and sites prevent the identification of opportunities and implementation of appropriate technologies. Sometimes, there is a tendency to find a solution that can be deployed across all the sites. Oten, all sites do not have common problems and something that works great at a site may not be effective at others. One site may require one solution more urgently than the other site, so this centralization can be a problem.
The second issue is a lack of innovation and technological penetration. It's an industry-wide phenomenon, however, Québec falls a little behind some other peer regions. From a global perspective, the blame for lack of innovation falls on the machine manufacturers and technology suppliers because they're supposed to invent on their customers' behalf.
Obviously, machine manufacturers' vested interest in maximizing the sale of their parts and services prevent them from offering a solution that can help customers optimize their operating costs. It's unfortunate that some of the technology suppliers become part of a machine manufacturer and lose their independence.

What are the tough questions investors ask about Symboticware when you are raising money, and how do you respond to those questions?
A VC's job is to get solid financial returns for their investors. They make sure that they are investing in a large and fast moving market, a big enough problem that can be solved by the proposed solution, and in a team that can execute effectively on the vision. Answering these questions gets harder when it comes to the mining industry for reasons associated with slow speed of adoption and long sales cycles. We work in an industry where everyone wants to be the first to come second.
Fortunately, things are getting a lot better. With GHG emissions, productivity, safety and operating costs being on top of the board agenda, there is a widespread demand for our solution which answers the market size and speed adoption question to a great extent. From a solutions perspective, with our proprietary technologies and integrated hardware-software-AI solutions, we are in the most favorable place to solve the above problems. Finally, when it comes to our team, we are assembling one of the best teams in the mining tech space to build the most impactful tech solutions. ■

Ben Sharpe

Industry Operations Consultant
ROCKWELL AUTOMATION

Can you provide an overview of the products and services Rockwell Automation offers?
Rockwell Automation offers everything from sensors to safety devices, controllers, panels, electric drives, distributed control systems (DCS), and IoT platforms right up to the boardroom. From a services and engineering perspective, we offer a full suite including network analysis and installation, electrical data capturing, TUV audits (which are becoming valuable for robotics in mining), cyber security analysis and deployment, mobility networks, robotics applications, and integrated remote operations centers (IROC). We are also working with OEMs around inventory reduction and control to minimize warehouse costs, while still meeting demand.

Can you elaborate on the mining industry's adoption rate of new technologies?
The adoption of disruptive technologies and approaches started approximately five years ago when people began to realize that technologies were being developed rapidly and they had to start implementing to keep up with the times and optimize operations. Challenges faced due to the pandemic have proven the necessity of remote access, remote support capability and connectivity. Companies want data such as ESG and continuous tailings reports back up to the boardroom quickly.

What technologies does Rockwell Automation offer to increase the effectiveness of data correlation across operations?
In 2019, Rockwell Automation invested US$1 billion into a company called PTC, which is specialized in bringing multiple formats of data together making it interpretable and actionable. We recently purchased Toronto-based company Fiix Inc., which is a computerized work order management company with an incorporating analytics solution that not only records and assigns costs to maintenance, but also analyzes the characteristics of the different maintenance activities to identify when someone needs further training or if there is a mechanical piece of equipment which is failing at a higher percentage rate. ■

Rodrigo Villarreal & Jesse Oldham

RV: Director of Sales and Technical Sales
MAPTEK CANADA
JO: Global Project Strategy Manager
MAPTEK


RV


JO

Can you highlight some of Maptek's key products?
JO: On the mine planning and geological modeling side, Vulcan is our flagship product that provides advanced 3D tools. More than 19,000 licenses of Vulcan are in use across the globe for applications ranging from exploration, geological modelling, mine design, and rehabilitation planning for both underground and open pit mining operations.
Another core business consists of our terrestrial laser scanners and point cloud processing software, PointStudio. These solutions increase the speed and safety of acquiring spatial data across a mine site.
Our Maptek Evolution software enables dynamic and agile scheduling with an emphasis on optimization. The product produces short, medium, long term, and strategic life of mine schedules alongside practical production plans that enable users to maximise their deposit value without compromising operations. Evolution also can optimize haulage fleets to deliver cost savings early in the schedule.
We also offer the Maptek Sentry system, a mobile system allowing for reliable, remote and safe monitoring of mine workings. Sentry combines a Maptek laser scanner with software to monitor, analyse, and report rapid and gradual movements of slopes and openings.
We also provide solutions on the operations side, such as BlastLogic, which facilitates superior blast performance by integrating different data sets, such as mine planning, drill guidance, field survey, load design parameters, and post-blast evaluation into an intelligent blast management system.
We recently launched our DomainMCF, a new paradigm for domain modelling that uses machine learning to generate domain predictions directly from sample data to rapidly create geologic domain models.

What are Maptek's growth objectives for the next three years?
RV: We understand value creation at every level and we add value with our products, services, business-oriented mindset, and ultimately our relationships. ■

Innovative Exploration

DELIVERING A NEW EXPLORATION TOOLBOX

After 30 years building a reputation as a dependable service provider, IOS Services Géoscientifiques decided to pursue a bold new mission. While IOS still offers regular services such as sampling and drill supervision, it now offers exclusive technology that gravitates around automated mineralogy. The logic is that the mining industry is moving from chemistry to mineralogy in terms of exploration techniques. The company's president Réjean Girard elaborated: "Aside of gold, mines do not produce metal, they produce mineral concentrates. Switching from assays to mineral abundance requires access to complicated and expensive technologies,

so we redeveloped these on our proprietary platform making them five times faster than MLA and QEMSCAN and delivering hard chemical data on minerals, not only proxies."

Such performance enabled the development of a variety of applications from automated petrography, alteration mapping, to metallurgy and environment assessment. IOS's greatest success has been in automating detrital mineral sorting for drift exploration purposes. The fusion of geological experience, artificial intelligence and basic machine engineering leads to cost reductions, better detection limits and more useful data. "Most companies use AI for the purpose of targeting, to process data and find patterns to pinpoint towards the right deposit. We use it to solve daily issues mainly for image analysis and pattern recognition," Girard stated.

IOS spreads a mineral concentrate on a holder, puts it under a motorized petrographic microscope and, within minutes, develops a picture of every gold grain. The machine takes a mosaic of pictures, detects automatically the gold-looking grains, applies an AI algorithm, calculates the probability of it being a gold grain, and obtains the stage coordinate.

Géophysique TMC provides geophysical ground data collection through surveys, including magnetic, electromagnetic, induced polarization (IP), gravimetry, magnetotellurics, surface and borehole TDEMs. The newest geophysical method is called CSAMT (Controlled-source Audio-frequency Magnetotellurics).

When asked about the most common geophysical techniques being used in Québec today, TMC's co-owner, Gabriel McCrory, explained: "In the Abitibi gold belt you see a lot of induced polarization (IP). This is a low cost and quick method that allows you to collect data and get valuable drilling targets. There are many swamps and waterways in Québec, so the geologists do not always see the rocks or outcrops. As a result, they use induced polarization surveys."

With other techniques like IP, TMC has been asking for deeper penetration configurations and hoping to get more into 3D IP. This technique enables TMC to not only collect data line per line, but also in between the lines, so they can have a cloud of reading points. This data is very precise and there is no interpolation.

The other method that is commonly used is electromagnetics. "Demand for EM has been slower, but this year it has been booming with a lot of surface and borehole EM work," McCrory explained.

Vision 4K, a partner of Géophysique TMC, started as an aerial video company and grew into providing specialized UAV-based geophysical surveys and aerial imagery for the mining industry. After seeing that existing UAV MAG surveys did not harness the full potential of drone technology, the company concluded that resulting data could be greatly improved by flying closer to the ground and maintaining centimetric accuracy on the vertical and horizontal planes. The development of a fully autonomous obstacle avoidance system allowed the company to achieve its first objective by maintaining lower flight altitudes while staying clear of trees in the flight path. The addition of Real Time Kinematics (RTK-GPS) navigation further improved positioning of the sensor and removed the need for tie-lines and most leveling processing. ■

Réjean Girard

President
IOS SERVICES GÉOSCIENTIFIQUES

> For IOS, AI is seen as a technological tool rather than a purpose; we use it to solve daily issues.

How has IOS shifted its strategy in recent years?

IOS offers regular services such as sampling and drill supervision at regional scale, but we have developed proprietary powerful techniques that we now offer on a global scale.

Can you elaborate on the specialized products IOS offers?

IOS offers exclusive technology that gravitates around automated minerology, as the industry is moving from chemistry to minerology in terms of exploration techniques. Except gold, mines do not produce metal, they produce mineral cocnentrates. Switching from assays to mineral abundance requires access to complicated and expensive technologies, but we redeveloped these in our proprietary platform that are five times faster than MLA and QEMSCAN and that deliver hard chemical data on minerals, not only proxies. Such performance enabled the development of a variety of applications from automated petrography, alteration mapping, metallurgy and environment assessment. Our best success is in automating detrital mineral sorting (gold, pgm, kim's, etc) for drift exploration purposes. Hence, this leads to cost/price reduction, better detection limits and more useful data. It requires a fusion between geological experience, artificial intelligence and basic machine engineering.

Can you describe how Artificial Intelligence is transforming the mining industry?

For IOS, AI is seen as a technological tool rather than a purpose; we use it to solve daily issues mainly for image analysis and pattern recognition, in a similar way to Google Images. For example, in one of the applications, we spread a mineral concentrate on a holder, put it under a motorized petrographic microscope and within minutes, we have a picture of every gold grain. This process used to be done manually and workers would spend the whole day searching for gold grains. Now, the machine takes a mosaic of pictures, detects automatically the gold-looking grains, applies AI algorithm, calculates the probability of it being a gold grain, and obtains the stage coordinate. Then, we transfer the sample to an SEM along with coordinates and the machine acquires a chemical analysis of the grains to confirm it is gold. This takes five minutes instead of an hour, free of errors.

How do you see the current state of drilling activity in Québec today?

There is currently not a single rig or helicopter available in Québec today. If someone wants a rig for a project, the drilling company must be warned 3-6 months in advanced and even then, it is not guaranteed, and there is no certainty about the efficiency of the team. Furthermore, there is a shortage of qualified staff. This generates massive inflation and a collapse in the quality of work. As a result, a bubble has been created and it will burst. The overall trend is that the amount of drilling required to define a deposit constantly increases and the industry has less and less people to do it with. There is no other option but to improve efficiency and to automate processes.

How do you see the industry moving forward in the next 2-3 years and what are the implications for IOS?

Looking at the global economy, my forecast is that there will be a bull run for metals in the next three years. This is because governments have reacted to the pandemic by injecting massive liquidity in the system. However, the production of goods and wealth did not increase, so this injected money is directed towards speculation. A bubble is being created, and people in finance are fully aware that it will sooner or later burst, so they are seeking refuge for their monetary assets. There will be a bull run for gold as this is one of the few safe harbors to protect assets. In addition, the economic recovery of the current financial crisis will come from developing countries and infrastructure construction, which will require metals.

Do you have a final message for our readership and your client base?

Our aim is not to get bigger, but to get better. IOS is a problem solving company. We have a proven track record of figuring out solutions to technical, scientific and operational problems. We deliberately choose to capitalize on this, and it was the right choice. ■

Gabriel McCrory

Co-Owner
GÉOPHYSIQUE TMC

Can you give an overview of the services Géophysique TMC offers to the mining industry?

Géophysique TMC mainly focuses on geophysical ground data collection through surveys, including magnetic surveys, electromagnetic surveys, induced polarization, gravimetry, magnetotellurics, surface and borehole TDEMs.
TMC also offers various drilling tools for rental. We can provide orientation tools either magnetic or gyro, rig aligners and core orientation tools.

What are the newest geophysical methods you are using in the field?

The newest geophysical method that we have is CSAMT (Controlled-source Audio-frequency Magnetotellurics).
Reaching over 2,000 meters deep of high-quality data with that technique has brought interest from our clients.

What are the most common geophysical techniques being used in Québec today?

In the Abitibi gold belt, you see a lot of induced polarization (IP). This is a low cost and quick method that allows you to collect data quickly and get valuable drilling targets.
With IP, we have been asking more for deeper penetration configuration and more into 3D IP. This last method not only collects data line per line, but also in between the lines, so you can have a cloud of reading points. This data is very precise, and there is no interpolation.
The other method that is commonly used is electromagnetics, either from surface or within boreholes.
Demand for EM has been slower the last few years, but this year it has been booming, with a lot of surface and borehole EM work.

How would you assess the current exploration environment?

We have rarely been so busy.
It is hard to find workers in the industry, so, we are looking to develop new techniques that help us lower the number of people in the field. For example, we need line cutters to do our work, but they are getting pretty rare, and it is hard to find workers with this skillset. With drones, you can work without the line cutters. ■

Francis Fournier & Gianni Bartolacci

FF: President & CEO
GB: Director Business Development
COREM


FF


GB

What are some of the key challenges industry faces that technological development is seeking to improve?

FF: The mining sector is facing some important challenges. Reducing energy consumption, limiting the environmental impact, and cutting water consumption are top of mind for many companies, and in the last three years, we have seen an increase in investment in this area. The way that we work with our members is through a collaborative approach, where they put together the challenges, the needs that they have and then they share the risks and benefits.
Corem intends to evolve this collaborative approach in the area of critical and strategic minerals. Since these minerals are key to the electrification of transportation and will be in high demand worldwide in the coming years.
GB: For gold producers, their challenges are more in terms of ore hardness. They have to find new technologies to crush rock. How to innovate to reduce energy consumption is the primary challenge of most gold producers in Québec. Therefore, they are interested in finding new comminution technologies to reduce the ore size, while using minimal energy. In the ferrous sector, when they produce the iron concentrate and when pelletizing, their challenge is to meet the requirement of the government to reduce CO2 emissions. When you reach the critical and strategic minerals, that involves a lot of hydrometallurgy processes and there is the question of social acceptability on the process because you are working with chemical reagents.

How does Corem's work encourage mining companies to adopt technologies?

GB: The derisking phase is so important because you can have a technology that works at the lab level or the pilot scale level, but it does not mean that when you develop that technology at the demonstration level it will work exactly the same way. Mining companies need to be confident in a technologies ability to scale before adopting it. ■

Cleanly Powering the Mines

ELECTRIFICATION AND GREEN SOLUTIONS DRIVE A NEW ERA OF INNOVATION

With Québec's ambitious plans to position itself as a leading jurisdiction for environmentally responsible mine development, and with increased pressure on mining companies from shareholders to prioritize lower carbon alternatives to diesel, a number of technically advanced products have entered the market that will enable a seamless transition.
Distributed Gas Solutions Canada (DGSC) has been developing turnkey solutions of compressed natural gas (CNG) and liquified natural gas (LNG) to supply the industrial, mining and transportation markets. DGSC is now nearing completion of its first CNG station in the Saguenay region in the town of Chicoutimi, where it expects to begin fueling trucks with CNG in fall of 2021. Andrew Wilkins, vice president of business development and marketing at DGSC, pointed out: "90% of Canada's population lives within 100 km of the US border, and a majority of mining operations are not served by the natural gas distribution network."
The fuel requirements in remote areas of Canada for industrial and mining equipment are significant. "We can see the macroeconomic landscape for fuels in Canada being driven by the Liberal government's National Carbon Tax and Clean Fuel Standard, and we see the Conservatives committing to the same GHG reduction objectives by 2030 using an alternate Carbon Tax program," said Wilkins
Rouyn-Noranda based Adria Power Systems is also devoted to facilitating the industry's transition to lower carbon. Adria started to work with charging systems for mining machinery. The advantage of Adria's new system is that it offers strong performance, good efficiency, and a clean signal. Their one-megawatt bi-directional system charger with multiple bridge-able outputs is a first in the mining industry, and it will be put to the test in collaboration with Nouveau Monde Graphite at the Matawinie mine. "In five to 10 years, the concept of an all-electric mine will not be that much of a big deal in the sense that the charging support will have to be integrated normally into the operation rather than as a specialized piece of equipment," Adria Power Systems president and CEO, Jean-Francois Couillard forecasted.
ESG principles do not only apply to transportation and equipment. Companies like Newmont are actively looking at alternative processing technologies, as pressure mounts around the use and release of chemicals such as cyanide. Compounding this problem is the fact that the industry is turning to deposits with greater arsenic concentrations, which require specific treatment approaches and a permanent arsenic fixation process. That is where Dundee Sustainable Technologies (DST) comes in. DST works with advanced developers and operators to find a cyanide-free alternative. Describing its CLEVR process, DST executive vice president Jean-Philippe Mai explained: "Our process operates in a fully closed loop, which means there is no liquid effluent, contact time is one to two hours as opposed to 36-48 hours, and we operate in ambient temperature and pressure, so there are no exotic metals or materials required… With a focus on regenerating the active reagents, sodium hypochlorite in the case of CLEVR, and operating in a fully closed loop eliminates the need for tailings ponds."

Opportunity encourages consolidation

With all the excitement surrounding innovation in Québec it is understandable that synergies will be discovered and companies will push for a stronger foothold in the province. This was the case when it came to Epiroc's acquisition of Meglab in March of 2021.
Meglab had been bringing ideas and integrating new technology and solutions for an electric, connected, digital and automated mine, and its presence designing innovative solutions and manufacturing equipment in its factories in Abitibi-Témiscamingue made Meglab a particularly attractive partner for Epiroc.
The discussion about the acquisition started, about a year prior when the Meglab team offered installation and maintenance services for Epiroc equipment at the mine site. Today, these machines need to be electric, so they need the infrastructure, and people on site to program, and provide technical service. "During our discussions with Epiroc, the synergies and possibilities to go further in the solutions offered became clear. Their intention was also to grow Meglab as a standalone brand, so it was going in the same direction that we wanted," affirmed Kim Valade, general manager of Meglab.
From Epiroc's perspective it is committed to the region as evinced by its earlier acquisition of Fordia, a drilling solutions provider, but now with Meglab, Epiroc see much more potential to expand in Québec. "Meglab gives us brand agnostic ability to design, build and connect the infrastructure required for mines to convert to electrification and 'battery-fication'. This acquisition allows us to accelerate the pace of innovation and helps us transition technology seamlessly across our existing and future offerings," said Jason Smith, integration manager, North America at Epiroc. ■

Jason Smith

Integration Manager, North America
EPIROC

What is the role of Epiroc in Québec's mining industry?
We have always been present and committed to the region, but now with Meglab, we see much more potential for the region and the industry as a whole when we combine our strengths.

How will Meglab advance the infrastructure required for large-scale transition to BEVs?
Meglab gives us brand agnostic ability to design, build and connect the infrastructure required for mines to convert to electrification and "battery-fication". This acquisition allows us to accelerate the pace of innovation and helps us transition technology seamlessly across our existing and future offerings.

What are the key advances in the electrification of mines in Québec and challenges that must be overcome?
With the change to electrification of equipment comes challenges, such as adjusting the electrical grid, handling of batteries and considering the use of equipment to optimize for efficient battery runtime to name a few. We see electrification increasing the collaboration between mining companies and OEMs as well as bringing standardization with charging solutions, mine design and safety procedures.
We offer turnkey solutions such as BaaS (Batteries as a Service), common charging systems, open telematics to track and monitor the health and productivity of equipment, customized support packages that integrate our personnel into the customer operations and full training packages.

What are the 2021 objectives and long-term vision for Epiroc Canada?
We see Canada as a key market for electrification and we will be setting up a competency hub, which will help us connect electrification solutions with mining operations all across North America.
Our ultimate goal is to build the mine of the future together with our customers and support mines in their digital and electrification transition. Our overarching mission is to drive the productivity and sustainability transformation in our industry by nurturing new ideas for technology and successfully bringing them to market for the benefit of our customers. ■

Jean-Francois Couillard

President & CEO
ADRIA POWER SYSTEMS

Can you provide an overview of Adria Power Systems and the products and services you offer?
We produce electrical equipment for the mining industry focused mostly on power equipment. This includes distribution centers and switchgears. Our products are used predominantly in underground mines, but we also do business and build products for surface mines.
A while ago we started to work with charging systems for mining machinery, and we developed a new charging infrastructure that offers very good performance, with good quality signal.

How pervasive do you anticipate all electric mines will become?
Things like the environment, and health and safety are very influential, but the economics have shifted as well as the technology has evolved and performance has improved. Battery chemistries are evolving to deliver better performance at a lower cost. We see this completely replacing diesel in the coming years. We also have incentives from the government which further expedite change in the industry. In the next 15 years, I would not be surprised that there is zero diesel in any mines.

The Innovative Vehicle Institute (IVI), Propulsion Québec and the National Research Council of Canada (NRC), are collaborating with Adria Power Systems and others on the development of a new electric propulsion system with rapid recharging infrastructure adapted to heavy vehicles in the open-pit mining industry. Can you outline Adria's role?
The goal was to take a Western Star surface truck, and to make it battery operated. Our role is to supply the charging infrastructure. It was an opportunity for us to build at this power level to do some testing as well. We are also doing the battery assembly. ■

Kim Valade

General Manager
MEGLAB

Meglab brings ideas and integrates new technology and solutions for an electric, connected, digital and automated mine.

Can you provide an overview of Meglab's expertise and how it is being applied at specific projects throughout Canada?
Our vision is to enable better and safer mines that reduce the industry's carbon footprint. Our team thinks about designing innovative solutions and we manufacture the equipment in our factories in Abitibi-Témiscamingue. In addition to integrating and designing technology, we also have people that work directly at the mine to install, integrate, and make it work. Our focus is very much on the service side of the business.
We work closely with our partners to offer creative solutions that are well aligned with the specific needs of the projects. For example, at the Eleonore mine, the remote location of the site led us to the idea of building the electrical substation in a marine container for its robustness and versatility. Our Yellow-Sub idea offered an all-in-one equipment ready to install at the site, much like a manufactured home.
Our trusted relationships have allowed us to continue to innovate and participate in some really interesting projects like Borden, Ontario, which is a 100% electric mine. Meglab made all the electrical underground infrastructure design underground, and we offered innovative ideas like the 1,000 Volts substation. We also brought in all the tracking and communication systems making this mine one of the one of the most technologically advanced mines.

How is Meglab's business evolving with the growth of electric mining underground?
As we see more electrification of mines, companies are looking for new ways of doing things. We need to collaborate and work as a team with the mines more than ever in order to offer solutions that meet the highest aspirations of the industry. More frequently, electric installation comes in the second or third phase of the development of a mining a project. However, if a company wants to go all electric and be fully efficient, you have to plan for it in the feasibility step. The key is taking a global approach where all stakeholders are involved in rethinking the mine design.
Our team believes in the green mine and we are actually developing a Megacharge to accelerate and facilitate the transition to electrification and battrification of mines. The MegaCharge is a stand-alone piece of equipment that has the capacity to charge multiple pieces of equipment in addition to the whole electrical infrastructure.

This March it was announced that Epiroc will be acquiring Meglab. How did this deal come together?
It all started with our people because our relationship draws on a common dream. For several years, both of our teams worked together on a variety of projects. Because Meglab provides connectivity, power control solutions and supports technology integration, we have had many opportunities to work together. Over time we built a good relationship and trust between our people. Our client orientated service and our desire to create and innovate to bring in new ideas and make a difference in the mining sector has made the difference. The discussion about the acquisition started about a year ago when the Meglab team offered installation and maintenance services for Epiroc equipment at the mine site. Today, these machines need to be electric, so they need the infrastructure, and people on site to program, and provide technical service. During our discussions with Epiroc, the synergies and possibilities to go further in the solutions offered became clear. Their intention was also to grow Meglab as a standalone brand, so it was going in the same direction as we wanted. They want to bring great opportunities to our team.
We never built Meglab to sell because we are family business. However, technology moves so fast that if we really wanted to make a change in the market, we needed to have this synergy. Epiroc has the machines and Meglab has the technology. Also, for our people it opens many opportunities for them to grow and to access a global vision for the future. Epiroc is in 115 countries, so this is a great opportunity to expand Meglab's global presence. ■

NEWFOUNDLAND & LABRADOR

"Mining in Newfoundland and Labrador has been one of the region's main growth drivers for many decades. Like any industry, it has its ebbs and flows, but currently we are at a high point in terms of interest, exploration, and capital."

- Andrew Parsons,
Ministry of Industry, Energy and Technology,
Government of Newfoundland and Labrador

Image courtesy of Matador Mining

Introducing Newfoundland and Labrador

LIFTING THE FOG ON MINING POTENTIAL

When Newfoundland and Labrador Finance Minister Siobhan Coady took the podium to deliver the government's 2021 budget speech at the House of Assembly in St. John's in May, she began by emphatically saying: "In this moment we can learn from the past and change the future," highlighting that the "status quo is no longer acceptable."

The numbers on Newfoundland and Labrador's ledger explain why the current state of affairs is untenable. The budget deficit for 2020-21 came in at north of C$1.6 billion — a dire figure, albeit better than expected. This year's projected deficit is about half that total, at C$826 million, but nonetheless

We are educating society about what mining means to us as a province. We have strong relationships and benefit agreements with our indigenous communities and this is a big advantage for companies. By being very small, we are a very neighborly province and relationships are much easier to cultivate.

- Andrew Parsons, Ministry of Industry, Energy and Technology, Government of Newfoundland and Labrador

still well short of the government's ambitions for a balanced budget.

Since confederation, annual deficits have become the norm, being reported in all but 10 years, and Newfoundland and Labrador has the highest per capita expenditures and net debt in the country. The cumulative effect of years of spending outpacing revenue has led interest costs on the debt to be one of the largest public expenditures. The precarious state of the treasury might convince some that austerity measures are likely. However, based off the latest budget it is clear that belt tightening will not come at the expense of the province's burgeoning mining industry.

The reason the provincial government is prioritizing the mining industry is straightforward: it has displayed a clear return on investment. Last year mineral exploration reached its highest point in five years with close to 400 mineral exploration applications processed. This year the province is projecting over C$4 billion in mineral shipments, more than C$80 million in exploration expenditures, and approximately 7,700 person years of employment. In an interview with Minister Andrew Parsons, who heads the Government of Newfoundland and Labrador's Ministry of Industry, Energy and Technology, he noted: "Mining in Newfoundland and Labrador has been one of the region's main growth drivers for many decades. Like any industry, it has its ebbs and flows, but currently we are at a high point in terms of interest, exploration and capital."

Further validating the government's decision to continue its support for mining are studies such as that from The Prospectors and Developers Association of Canada (PDAC), which states that every dollar of government spending on public geoscience results in C$5 in private sector exploration. Recognizing this importance, and its role in helping attract new exploration investment to the province this year, government

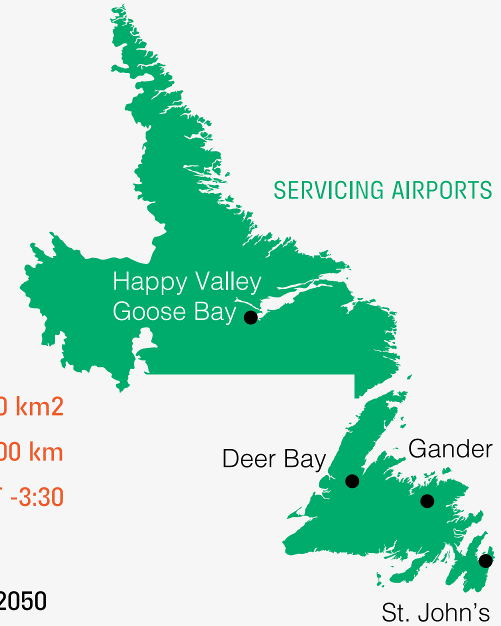
POPULATION
528,800

St. John's
206,000

STRATEGIC LOCATION

Landmass	400,000 km2
Coastline	17,000 km
Time Zone	GMT -3:30

Commitment to Net-Zero by 2050
Last port on route to Europe



is investing an additional C$2.5 million for focused geoscience data collection interpretation, while also investing C$1.7 million for the mineral exploration industry through the Prospectors Assistance Program (PAP) and the Junior Exploration Assistance Program (JEA). Minister Parsons added: "Even while we work through a tough fiscal situation in Newfoundland and Labrador, we are still finding ways to invest in the development of our mining sector." This collective effort is capturing attention of organizations like the Fraser Institute, which ranked the province number one in Canada and globally for policy attractiveness and third in Canada and eighth globally in terms of investment attractiveness.

Staking Rush

Newfoundland and Labrador is a province of just over 500,000 people sparsely populated over a huge land mass. It accounts for 43% of Canada's iron ore shipments and just under a quarter of the country's nickel shipments. During 2020, the province saw the highest amount of claim staking since 2008, with 47,200 claims staked. There have already been nearly 80,000 claims staked so far in 2021 (as of July 14th) and the government has received nearly 500 exploration plans.

The government is now in year three of its Mining the Future 2030 action plan, which has four key pillars – competitiveness and efficient regulatory process; public geoscience marketing and education; indigenous and community engagement; and innovation and emerging technologies.

Given the staking rush that has been occurring over the past two years, Newfoundland Gold was created because of the need to bring industry leaders together to create awareness of the dynamism of Newfoundland, and in particular, its enormous potential for gold mining. "There is a phenomenal gold rush happening, and this is going to take the world by storm. We set out to educate people on the jurisdiction, highlighting why it is an amazing place to work," said Janet Lee-Sheriff, Newfoundland Gold's CEO.

One of those reasons making Newfoundland and Labrador an appealing place to operate is that the permitting time is short. There are a number of permits to get, but you can permit in eight to 12 weeks, which makes it very cost effective to implement a business plan.

Lee-Sheriff also points to the availability of well qualified workers as being a big tailwind for mine developers and explorers. "The nice thing about Newfoundland is that the people have a history of mining and industrial development," she said.

These are workers who have in large part weathered difficult times, whereby they lost their primary industries, be it cod fishing, mine closures or industrial slowdown. Consequently, many Newfoundlanders have had to leave the province in order to find work. "If you go to many mining towns, these communities would be made up of 50 to 75% Newfoundlanders. They were willing to go 3,000 miles to get a job, but they now can take the skills that they would use elsewhere and go home," Lee-Sheriff concluded. ■

The most amazing thing that Newfoundland has done is while all the governments across Canada were cutting their budgets for their geological survey, the government of Newfoundland and Labrador increased theirs. They invested time into putting everything online so companies can now go in and know what to stake.

- Janet Lee-Sheriff, CEO, Newfoundland Gold

Andrew Parsons

Ministry of Industry,
Energy and Technology
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

> [On top of iron ore], there has always been a gold play in the province, and we are currently seeing a flurry of gold-related exploration activity in Central Newfoundland.

Can you provide an overview of the presence of the mining industry in Newfoundland and Labrador?
Mining in Newfoundland and Labrador has been one of the region's main growth drivers for many decades. Like any industry, it has its ebbs and flows, but currently we are at a high point in terms of interest, exploration and capital. I have been very lucky that my predecessor, Siobhan Coady is now the Minister of Finance and when I look to her for funds to invest in mining she is very forthcoming. Even while we work through a tough fiscal situation in Newfoundland and Labrador, we are still finding ways to invest in the development of our mining sector.
The province currently has 12 producing mines, with six metal and nine non-metal commodities present. The metals are iron ore, nickel, copper, cobalt, gold and silver, and the non-metals are barite, fluorspar, dolomite, limestone, gypsum, peat, pyrophyllite, stone, as well as sand and gravel. Iron ore has been the backbone of the mining industry and has always been solid, even during the pandemic. There has also always been a gold play in the province, and we are a leading jurisdiction in Canada with an ongoing flurry of gold-related exploration activity in Central Newfoundland.
Newfoundland and Labrador is a province of just over 500,000 people, sparsely populated over a huge land mass. We account for 43% of Canada's iron ore shipments, and just under a quarter of the country's nickel shipments. Our projected gross value of mineral shipments for 2021 is approximately C$4 billion with about C$82.6 million projected exploration expenditures for 2021. The mining industry contributes approximately 5.5% towards our GDP, and we are estimating just over 7,700 person years of employment for 2021. During 2020, we had the highest amount of claim staking in our province since 2008 with 47,200 claims staked. There have already been nearly 80,000 claims staked so far in 2021 (as of July 14t) and we have received nearly 500 exploration plans.

How is the province equipped to keep up with such significant growth from an infrastructure and human resource perspective?
Employment opportunities are arising faster than our population can fill them and consequently, we are working hard to incentivize population growth and immigration.

What is your long-term vision for the growth of the mining industry in Newfoundland and Labrador?
We are in year three of the Mining the Future 2030 action plan which has four key pillars – competitiveness and efficient regulatory process; public geoscience marketing and education; indigenous and community engagement; and innovation and emerging technologies. We are investing in geoscience to put more information out there for people to have access to, and we invest heavily in junior exploration and prospecting by offering grants to companies. We are also educating society about what mining means to us as a province. We have strong relationships with our indigenous communities. By being very small, we are a very neighborly province and relationships are much easier to cultivate.

Can you speak to the role that battery materials play in Newfoundland and Labrador's mining industry?
Newfoundland and Labrador has 20 of the minerals that are on the critical list. We are producers of nickel, copper, cobalt and barite, and have ongoing projects in different stages targeting antimony, manganese, tungsten, vanadium and uranium, which are all vital to the energy transition and electrification. We know that there are customers out there ready to consume what we have to offer, and products are being sold before they are even extracted. One of the challenges and opportunities present is that we have an energy surplus, but a capacity shortage. We are investing in adding capacity but are also exporting electricity to the maritime provinces and down to the Eastern seaboard. We are fortunate to have the ability to add hydrogen, electrification and renewable energy solutions to our mining industry and we will also be able to export our resources and surplus for the rest of the region to benefit. ■

Craig Roberts

CEO
NEW FOUND GOLD (TSXV: NFG)

> We have eight drills currently running and may expand this further to accelerate drill testing of a very large prospective target area.

Can you provide an overview of New Found Gold and the company's Queensway gold project?
New Found Gold (NFG) was founded in 2016 and focused on opportunities with high grade potential. One of the first projects it visited was the Queensway project. NFG saw potential in the area and negotiated deals with the 11 landowners and staked a large land area around the property covering +100 km of strike along what was interpreted to be primary crustal scale gold mineralizing structures. Historical drilling on the property delivered high grade gold results, but the operating company at the time was interested in base metals and did not continue with the project.
Between 2016 and 2019, approximately C$8 million of work was done on the property, including a detailed till sampling program covering the JBP fault zone, a property wide VTEM magnetic and EM survey covering 821 km2, a regional scale till survey to sample over 750 locations, and a 1,950 m diamond drilling program at the JBP and Appleton fault zone. In late 2019 an initial 10 hole drill program returned 19 m of 92.9 g/t Au at the Keats zone on the Appleton Fault.
NFG continued to raise funds privately to continue with exploration activities and to stake more land, and in August 2020, NFG completed its IPO and initiated a 25,000 m diamond drilling program at the JBP and Appleton fault zones as the first phase of a 200,000 m drill program. The initial drilling at Keats was successful in extending the high grade gold mineralization down plunge, with a high grade zone now drill defined over 465 m down plunge and open. Early in the program a new discovery was made at the Lotto zone approximately 2 km north of Keats, which led to a recent drill intercept at Lotto of 150.3 g/t Au gold over 11.5 m. In June 2021, NFG announced an interval of 430.2 g/t Au over 5.25m at the Golden Joint zone, a new high-grade discovery approximately 1 km north of Keats.
Moving forward, our plan is to continue to step out on these discoveries, to test multiple additional high grade gold targets. We have eight drills currently running and may expand this further to accelerate drill testing of a very large prospective target area. With approximately C$80 million in working capital, NFG is well funded to pursue our exploration programs.

Can you elaborate on the "gold rush" occurring in Newfoundland?
The mining world is becoming more aware of the gold potential in Newfoundland and there are great opportunities for juniors in the region. Looking specifically at the corridor that the Queensway project lies on, Labrador Gold Corp. has what appears to be a continuation of the structures we are exploring to the north. We see good potential in a number of juniors in Newfoundland, and some have already seen some impressive success. NFG is most familiar with the specific project area we operate in, so we have invested in companies that adjoin us that can complement our asset.

What are New Found Gold's key objectives for the next few years?
Along the Appleton fault we currently have +15 high priority targets and are continuing to add new targets along 7.8 km of strike. The 12.4 km of strike along the JBP structure approximately 5km east of Appleton has similar prospectivity. We are focused on bringing all the tools and resources we can for intelligent targeting. At some point we will move to initial resource estimates on our discovery areas.

Do you have a final message about Newfoundland as a mining jurisdiction?
The government and communities in Newfoundland are incredibly supportive and keen on developing the mining industry for its economic benefits. There is a great industrial base with skilled people in Gander. We are fortunate to have access from Gander by travelling 15 minutes along the Trans-Canada Highway, and there are power lines running through our property. Newfoundland is located in a first world stable political jurisdiction. Given our project's location, access, infrastructure, political jurisdiction and industry standard permitting process, NFG is in an extremely good position to build significant project value as we rapidly advance drilling and other exploration work. ■

Ian Murray

Executive Chairman
MATADOR MINING (ASX: MZZ)

Can you give a brief overview of Matador Mining and the company's portfolio?
Matador Mining (ASX: MZZ; OTCQX: MZZMF) is an Australian listed company that owns tenement in Newfoundland Canada, including the Cape Ray gold project and the Hermitage project. We have published a PEA on the Cape Ray project, which already has 837,000 ounces of gold in mineral resource which are within a 15 km strike zone. We own over 120 strike km of the Cape Ray shear and see vast potential beyond what we have already discovered, to add more resources and to grow the mining inventory in Newfoundland.

What characteristics contribute to the attractiveness of the Cape Ray gold project?
Newfoundland is significantly underexplored and has extremely exciting geology. There are structures that run up the East coast of North America and we know that there is gold in the system as multiple discoveries have already been made. In Newfoundland there is also access to low-cost power which is 95% renewable, with a target to get to 100%. The mining industry has the support of local government, provincial government, local communities, and the first nation groups which want exploration and mine development to be successful. They understand that it contributes to job and wealth creation for the island. Everything you are looking for in an exploration destination is in Newfoundland.

Relative to more developed areas in Canada, how underexplored is Newfoundland and to what extent has drilling in the region expanded over the past few years?
The number of tenements pegged three years ago has increased four-fold today. Four years ago, the total drilling on the island was 70,000 m. Drilling activity on the island has increased significantly and with up to 400,000 m of diamond drilling estimated to occur on the Island for gold exploration during 2021 alone. Newfoundland is today known as a gold exploration destination.

What is Matador Mining's exploration and drilling strategy moving forward?
Matador Mining has held our tenements for approximately three years and has significantly grown our area landholdings across the prospective, yet poorly explored Cape Ray shear. In 2020, we did the first level of systematic exploration, starting with ground magnetics surveys to establish what is under the transport of cover and identify structures which could host significant gold systems. In addition, we also tested auger drilling, which is a quick and cost-effective drilling system able to easily drill through the shallow transport of cover. Our testing was successful and we identified the path finding elements for gold on our belt. In 2021, we are flying aeromagnetic surveyors across the vast majority of our tenement holding, which will be followed up with expanded auger drilling and then diamond drilling. We have five auger drill rigs testing areas in the belt and we have access to three diamond drill rigs for the season. We are taking a systematic approach to identify rock structures through aeromagnetic surveys, testing the structures to make sure they have the path finding elements for a gold system and, if they do, we will follow up with diamond drilling.

"We own over 120 strike km of the Cape Ray shear and see vast potential beyond what we have already discovered, to add more resources and to grow the mining inventory in Newfoundland."

What was the motivation behind the Hermitage property acquisition?
Our local geologist highlighted to us that there was an area, Hermitage, which had previously been explored by base metals explorers. They did not find anything significant for them, but had identified base metal elements which included our path finder elements. This means that it should be a good host system for gold, but no one has ever explored this area for gold before. This is a bolt-on to our Cape Ray project and looks to have good potential that we want to test in 2022.

To what extent is the market willing to take risks on junior mining companies?
We have just raised A$16 million through the Canadian Charity flow-through model, which is very efficient from a lack of dilution perspective. Through this process, we attracted two big North American funds onto our share register, Franklin Templeton, and CI Sentry. From a current capital market perspective, the capital is there for good exploration in highly prospective areas. ■

Exploration and Development in Newfoundland and Labrador

NEW DISCOVERIES REVEAL RICH POTENTIAL

The discussion around mining in Eastern Canada is often overshadowed by the prolific Abitibi greenstone belt that spans across the border between Ontario and Québec, but Newfoundland offers one of the most extensive mining histories in Canada, with small-scale mining being undertaken as early as the 1770s, and expanding into a major industry by the 1860s, when Tilt Cove was one of the world's largest copper producers. In many ways, mining has shaped the economic, social and cultural history of Newfoundland. For today's mining companies the province offers world-class geology, significant infrastructure and exceptional access to a skilled workforce.

That said, it is fair to wonder why Newfoundland's mining sector has been in relative hibernation for many decades. The answer is in large part due to a lack of accessible land. Before joining Canada, Newfoundland was developing its own railway system. Part of the deal in order to get a company to build and operate the railway system across Newfoundland was that they had to tie up land tenure for 50 years. Therefore, all the mineral rights were locked up. After this period, the province shifted to developing the pulp and paper industry, so the ability to capitalize on all the gold potential was again pushed back many decades.

With those impediments to development now removed, exploration is being reignited throughout the province. In a conversation with Matt Manson, president & CEO of Marathon Gold, he provided a brief history, recalling that there has been a gold mining industry in Newfoundland for quite a while, as there are relatively small gold mining projects on the Baie Verte peninsula in the north of the island. That includes Anaconda, Rambler and Maritime Resources. Large scale mining in Newfoundland has either been centered around Voisey's Bay with the iron ore projects in Labrador, or base metal VMS deposits in Central Newfoundland, where you find the Buchans deposit and later the Duck Pond mine. The big change, however, pertains to gold. Projects of the kind Marathon is bringing - a large scale open-pittable project with millions of ounces of resources and a substantial gold production profile - are new.

After being spun out from the acquisition of Marathon PGM, one of the first projects that the company became involved in was the Valentine gold project. There had been gold showings in the Valentine Lake area of central Newfoundland going back as far as the 80s, but in 2010, Marathon made a series of deals where it ended up owning 100% of the asset. Since then, there has been a consistent program of drilling. By 2020, over 4 million ounces had been identified, and the mine was ready to be built. As of summer 2021, Marathon completed its feasibility study and is now in the homestretch of its environmental assessment permitting process. According to Matt Manson: "Of the crop of gold explorers and developers in Newfoundland we are the most advanced with our project in the final stretches of permitting and it is ready to be built."

Valentine will be a two pit open pit mine producing 173,000 ounces per year with a 13 year mine life and a lot of exploration potential to push that further. "We are several years ahead of everybody else in terms of the development timeline, but certainly the exploration going on is showing that a lot of good projects are emerging in the province. I do not think we are going to be the only larger scale gold mine that is developed in the near to medium term future in Newfoundland," Manson proclaimed.

New Sprottland

The reason Manson and many others including renowned investor Eric Sprott have strong conviction that Newfoundland has tremendous potential to bring gold mining projects into development is that there has been a host of excellent drill results coming out of the area. The leading company from this perspective is New Found Gold Corp.

When New Found was established in 2016, the founding team was focused on finding opportunities with high grade potential, and one of the first projects they visited was what is today the Queensway project. Historical drilling on the property delivered high grade gold results, but the operating company at the time was interested in base metals and did not continue with the project. Between 2016 and 2019 approximately C$8 million of work was done on the property, including a detailed till sampling program covering the JBP fault zone, a property wide VTEM magnetic and EM survey covering 821 km2, a regional scale till survey to sample over 750 locations, and a 1,950 m diamond drilling program at the JBP and Appleton fault zone. In late 2019 an initial 10 hole drill program returned 19 m of 92.9 g/t Au at the Keats zone on the Appleton fault. Success at Keats was further bolstered by New Found's high-grade discovery at Lotto, 2.0 kilometers to the north, and by other recent high-grade drill intercepts along the Appletone fault zone

These results catapulted the notoriety of New Found and enabled it to IPO in August, 2020. Since that time, New Found has continued to capture investor enthusiasm. Eric Sprott has also stayed true to his philosophy of doubling down on winning companies, even as valuations rise. Consequently he now has a 20% stake in New Found along with Palisades Goldcorp at 31%, and a strong retail and institutional base that owns 33% (as of July 2, 2021). "Moving forward, our plan is to continue to step out on these discoveries and to test multiple additional high grade gold targets. We have eight drills currently running and may expand this further to accelerate drill testing of a very large prospective target area. With approximately C$80 million in working capital, New Found is well funded to pursue our exploration programs," detailed Craig Roberts, CEO, New Found Gold.

New Found and Sprott have also been active backers of companies that own adjacent land packages. In this case Labrador Gold Corp is well positioned with its Kingsway property that it acquired in March 2020. Roberts explained that there are different styles of geology and mineralization moving east to west. "Looking specifically at the corridor that the Queensway project lies on, Labrador Gold has what appears to be a continuation of the structures we are exploring to the north. We see good potential in a number of juniors in Newfoundland, New Found is most familiar with the specific project area we operate in, so we have invested in companies that adjoin us that can complement our asset."

In conversation with Roger Moss, Labrador Gold Corp's president and CEO, he outlined the young company's history recalling conversations with Shawn Ryan, whose soil-sampling technique is responsible for the discovery of millions of ounces of gold in the Yukon, where he plied his trade for decades. Over the past few years, his sights have been set on Newfoundland and Labrador. "I knew that he had claims in Newfoundland, and it turns out they were next door to New Found Gold and along strike from that discovery," said Moss. "We were aggressive in acquiring that property from Shawn and ended up in a bidding war, which we ultimately won. These two licenses followed by a third license became our Kingsway property, which covers 77 km2."

Since beginning work on the property in July 2020, Lab Gold has completed 1,600 m of RAB drilling, and in early October, the company identified visible gold in a boulder of quartz vein, very close to what they are now calling Big Vein because it stands up out of the ground and it is visible over 25 meters.

Although there is still a long road ahead for Lab Gold, Moss commented: "Our land package has incredible potential. When we look at what New Found Gold has along the Appleton fault zone, they are looking at 7.5 km strike length in the northern part of their Queensway project. That extends onto our ground and continues across it for 12 km." He added: "We have explored the idea of getting more ground, but most of it has been staked now, and I think we have some of the best ground in Newfoundland."

Another relatively new exploration play being backed by Sprott and New Found Gold is Exploits Discovery. After seeing the work that GoldSpot Discoveries and New Found Gold had done on the Appleton fault, Exploits' team assembled a land package consisting of over 2,000 km2 of ground surrounding New Found Gold. Exploits' land package was selected to be around deep seated structures including the Appleton fault, Dog Bay Line, and GRUB Line, and made its IPO in September of 2020. "With such a large land package one of the key things we have focused on are these deep-seated structures. The great thing about that is they show up with geophysics. Exploits has flown over 12,000 blind kilometers for our VTEM survey, which means that every 100 m we have a helicopter flying back and forth with a geophysics tool over the ground," said Chris Huggins, director of Exploits Discovery Corp.

Moving forward, Exploits will continue to establish knowledge of the ground it is on and the ground that it has acquired to date is built on the epizonal Fosterville model. "We are doing the geophysics and geology to understand what is going on, while also investing our money in the ground to test these theses out" Huggins affirmed.

Cape Ray Shear

Along the Cape Ray Shear, Australia based Matador Mining owns a tenement in Newfoundland that includes the Cape Ray gold project and the recently acquired Hermitage project, which will act as a bolt-on to the Cape Ray project. Matador published a PEA on the Cape Ray project, revealing 837,000 ounces of gold in mineral resource all within a 15 km strike zone. "We own over 120 strike kilometers of the Cape Ray shear and see vast potential beyond what we have already discovered to add more resources and to grow the mining inventory in Newfoundland," stated Ian Murray, executive chairman of Matador Mining.

Magna Terra Minerals was founded as a spin out of Anaconda Mining, a company founded by Magna Terra president & CEO, Lew Lawrick, when the focus for Anaconda shifted to Nova Scotia and resources were directed there. Since August of 2020, Magna Terra has been working to advance its 100% owned Great Northern and Viking projects. These projects are on a major fault structure that runs though the entire island and is a splay off of another major fault structure where Marathon has its Valentine Lake camp. It is on these structures where older granitic rocks intersect younger sedimentary rocks, and the secondary fault that splays off of these major faults is where there is a better propensity to define mineralizing events where gold will have come to surface. "These structural corridors are where you want to look, and Magna Terra has multiple kilometers along this major structure," Lawrick underscored.

Brownfield Potential

Newfoundland also has brownfield operations that are not far behind Marathon's Valentine project in their development. Maritime Resources flagship Hammerdown gold project had a PEA completed on it in March 2020 with the aim to restart the historic Hammerdown mine. Garett Macdonald, president & CEO of Maritime Resources pointed out that Hammerdown was the highest grade gold mine ever to operate in Newfoundland's history at roughly 15 g/t. "Mining concluded in 2004 due to a significant decrease in gold prices. Gold prices have increased substantially from that point, so we are currently drilling around the established deposit with the hope of making a significant discovery," Macdonald said.

Explaining Maritime's strategy, Macdonald stated that the goal was to look for a low capital, high margin opportunity to get to cash flow quickly, utilizing what was available locally. Maritime had a brownfield mine site and a processing facility in the vicinity that had treated ore from Hammerdown before. Maritime then went through the motions to put everything back together and did a technical study that looked at a 70,000 ounce per year operation for the first five years. "We are now following up with all the technical work to advance the project to the next stage of feasibility. The fact that there is already an existing mill and permitted tailings pond contributed to us getting through the permitting process quickly, and we submitted our project for registration in July 2020." Macdonald said.

Maritime has subsequently received approval for its EIA in May 2021, and it has a compact, low capital, high grade, high margin starter operation that will soon begin to generate to cash flow.

Looking Forward

This combination of early stage exploration and later stage development, brownfield and greenfield projects continues to excite many in the mining world, and undoubtedly Newfoundland will be an exceedingly important region for mining investors to understand and gain exposure to. So long as government continues with its supportive and transparent policies, discoveries will continue to be made, and in time, mining will return in a big way to Newfoundland and Labrador. ■

Matt Manson

President & CEO
MARATHON GOLD CORP. (TSX: MOZ)

Marathon has been ahead of the curve on the gold rush into Newfoundland. How have you seen activity in the province evolve to where it is today?

After being spun out from the acquisition of Marathon PGM, one of the first projects that the company got involved in was the Valentine gold project. Marathon did a series of deals where it ended up owning 100% of the asset. Since 2010, there has been a consistent program of drilling. By 2020 there were over 4 million ounces there, and the mine was ready to be built. As of summer 2021, we have a feasibility study done, we are in the homestretch of our environmental assessment permitting process, we are building a team and we know that the economics of the project are very strong.

It will be a two pit open pit mine producing 173,000 ounces per year with a 13 year mine life and a lot of exploration potential to push that further. I hope our work has opened people's eyes to the potential of Newfoundland to find gold deposits at scale, and now we are seeing the biggest staking rush in the world. I do not think we are going to be the only larger scale gold mine that is developed in the near to medium term future in Newfoundland.

What are the keys to developing a mine on budget and on schedule?

Our best schedule for building Valentine is to start early on all of the infrastructure so that roads and connectivity are assured before we break ground at the site with civil works. If you can order these things in the correct way, then you do not get surprised with schedule issues mid build, and you have the highest probability of coming in on budget. ■

Garett Macdonald

President & CEO
MARITIME RESOURCES CORP (TSXV: MAE)

Can you give an overview of Maritime Resources?

Maritime Resources is a mining company, focused in Newfoundland and Labrador. Our Hammerdown gold project is our primary focus, and we completed a PEA in March 2020 with the aim to restart the historic Hammerdown mine. Hammerdown was the highest grade gold mine ever to operate in Newfoundland's history, at roughly 15 g/t.

We went through the motions to put it all back together and did a technical study that looked at a 70,000 ounce per year operation for the first five years. We are now following up with all the technical work to advance the project to the next stage of feasibility. The fact that there is already an existing mill and permitted tailings pond contributed to us getting through the permitting process quickly, and we submitted our project for registration in July 2020. Subsequently we received approval for our EIA in May 2021. We have a compact, low capital, high grade, high margin starter operation to get us to cash flow, which we will then use to grow the company from there.

For the past two years we have been consolidating our land package around Hammerdown mine site and have identified various drilling targets. Our 40,000 m drilling program is already fully financed and we aim to have this program as well as a feasibility study completed by the end of 2021.

What makes Maritime Resources attractive to potential shareholders?

Maritime Resources currently has a market cap of approximately C$ 70 million. We have a clear path to production. Our goal is to become a plus 100,000 ounce per year producer and we believe that Newfoundland has the mineral potential for us to achieve this goal. We will continue to branch out, explore, and test new targets as to grow the company towards becoming a large gold producer in the region. ■

Fluorspar Production in Newfoundland

Image courtesy of Matador Mining

PUSH FOR CRITICAL MINERALS BRINGS JOBS BACK TO ST.LAWRENCE

Although much of the hype about the revitalization of Newfoundland's mining sector is centered around exciting early stage gold discoveries, the province already has 12 producing mines, with six metal and nine non-metal commodities present. Included in this list is Canada Fluorspar Inc.'s (CFI) St.Lawrence Fluorspar project, which was shut down for nearly 40 years until Golden Gate Capital provided the funding to bring the mine back into production in 2018. With ships now returning to the St. Lawrence harbor to load up with fluorspar to take to markets in the US, it is both a boon for the local economy and for chemical companies looking to de-risk their supply chain away from China. CFI president and CEO Bill Dobbs noted: "We are the newest producer of acid grade fluorspar in the world and our open pit mine is one of the top four fluorspar mines globally. CFI has shipped to customers all over the world, so we are not a junior mining company or a project - we are an operating business with some of the largest chemical companies in the world as our customers."

The thesis behind Golden Gate Captal's 2014 purchase of CFI from its previous owners was that the underlying fundamentals for fluorspar were beginning to fundamentally shift as the global economy embraces renewable energy and everything from automobiles to mining equipment become increasingly reliant on lithium-ion batteries. While fluorspar is an industrial mineral used in the production of many things used every day from refrigerants, aluminum, steel and many of the high-end polymers found in automobiles, home insulation, medical devices, and Gore-Tex fabric, there was also a realization that it would play an important role as a next-generation material found in solar panels, wind turbines and in the latest battery chemistries. These batteries utilize the LiPF6 molecule, where the Li is lithium, and the F6 represents six fluorine atoms, which is what comes from the fluorspar.

The other positive market dynamic was that since the 1980s, when the Chinese came in, prices have recovered substantially, and while the majority of the world's fluorspar is still produced in China, China went from producing a lot of fluorspar and exporting it to now being one of the world's biggest consumers. "The dynamics there are that the Chinese are consuming a lot of fluorspar with their economy. Secondly, they have mined a large portion of their fluorspar deposits and certainly most of the high grade, high quality deposits," Dobbs pointed out.

Most of the mines in China are underground and byproducts of other types of mining like coal and tin mining, and their environmental and safety standards are unacceptable to anyone in the Western world. In this regard CFI feels it has a distinct advantage in that it operates with strict safety and environmental controls, and monitors the carbon output of its operations. These advantages were in place for some time, but the current confluence of factors makes Newfoundland a desirable destination for top tier fluorspar producers like CFI to ramp up their current operations and invest with a long term view. ■

Bill Dobbs

President & CEO

CANADA FLUORSPAR INC.

What is the genesis of Canada Fluorspar Inc.?

When Golden Gate Capital purchased Canada Fluorspar Inc (CFI) in 2014 it was a small, listed company on the TSX, and it had a joint venture with a large European chemical company. Golden Gate Capital purchased the company with the intention of building a new mine and processing facility, and invested a significant amount of capital. In 2018, CFI had over 250 employees and started producing acid grade fluorspar. We are the newest producer of acid grade fluorspar in the world and our open pit mine is one of the top four fluorspar mines globally. CFI has shipped to customers all over the world; we are an operating business with some of the largest chemical companies in the world as our customers.

The fluorspar market has historically been volatile. What was the opportunity that convinced you to invest in fluorspar production in North America?

Since the 1980s, when the Chinese came in, prices have recovered substantially, as more uses of fluorspar besides the traditional aluminum and steel. Large chemical companies with huge R&D budgets use molecules like fluorspar, and they are always looking for new uses. For example, in 1980, when CFCs were phased out globally, companies innovated and removed the properties from future refrigerants. Today, the latest generation of HFO's contain a lot more fluorspar than the old ones, and they have zero carbon footprint as well. That is a hallmark of the innovative chemical companies that are our customers, and we work with them to supply an environmentally friendly and safely mined product. Not all fluorspar producers in the world operate with the standards that we do in Canada. We operate with the highest level of health, safety and environmental controls, and we monitor the carbon output of our operations. The majority of the world's fluorspar is produced in China, and they went from producing a lot of fluorspar and exporting it all over the world to now being one of the world's biggest consumers. The Chinese consumer is one of the most coveted in the world as they consume most of the fluorspar that is produced in China to the point where China has become a net importer. The dynamics there are that they are consuming a lot of fluorspar with their economy. Secondly, they have mined a large portion of their fluorspar deposits and certainly most of the high grade, high quality deposits. Most of the mines in China are underground and they are by-products of other types of mining like coal and tin mining. About 5,000 people die a year in those mines. Their environmental and safety standards are unacceptable to anyone in the Western world. The other convincing aspect was the growing use of fluorspar in light weighting applications. At its core, fluorspar is a next generation, industrial mineral that is used by a lot of industries, and green vehicles use a lot of fluorspar. If you want to extend the range of an electric vehicle, it is very hard to achieve this through improvements in battery technology. We are still using the same lithium-ion batteries that we used 20 years ago, so making it lighter is the easiest way to do that.

> "We are the newest producer of acid grade fluorspar in the world and our open pit mine is one of the top four fluorspar mines globally."

What is the biggest draw of being in Newfoundland?

Newfoundlanders are some of the hardest working, best people to work with. They have a great reputation throughout Canada and the world in the oil and gas and mining industries for their expertise, education level and their ability to get the job done. It is a pleasure to be based in Newfoundland and to be able to offer jobs to Newfoundlanders who have had a difficult time since the cod fishery came to a screeching halt 30 years ago. Being able to open up a new operating mine in Newfoundland allows us to be able to offer jobs to people and families who do not have other opportunities or have to work away to have a good opportunity. As one employee mentioned, it is the dream of every Newfoundlander to be able to work at home. ■

During our research, we speak to business leaders across the value chain to gain a qualitative understanding of the state of the mining industry based on their experiences. Through what amounts to several hundreds of conversations, we compile a database of valuable knowledge on a range of important topics. In these pages, please find a brief selection of quotations that we feel best summarize some of the challenges the mining community should expect to encounter going forward, the opportunities to find success, and also thoughts we found to be motivational. Thank you to all of the individuals that took the time to share their insights with us, and we look forward to continuing to learn from you in the years to come.

"Gold peaked last year in August above US$2,000, and I believe that it will return to those highs. When you look at the world's economies and what is going on with monetary policy, it looks like inflation is going to be present."

- Victor Cantore,
President & CEO,
Amex Exploration

"For several years money was not available to exploration companies, but now that is changing with investors becoming more positive on gold. In particular, companies with exploration assets in Canada have many more advantages including lower geopolitical risk, stable mining regulation, access to a broader range of financing alternatives and investors. "

-Rahul Paul,
President and CEO,
Radisson Mining Resources

"The key to success when dealing with community relations is essentially respect and transparency; First Nations must be informed about mining projects in their region, and they need to be involved in the process."

- Frank Mariage,
Partner,
Fasken

"We see more complicated projects in regions like Québec, whereas you would not venture into a project with a high technical risk profile in an unsophisticated mining jurisdiction."

- Denis Larocque,
President & CEO,
Major Drilling

"Québec hosts approximately 80% of all the lithium identified in North America and is becoming a strategic asset as a supply source for critical minerals in demand for the North American lithium-ion battery market."

- Guy Laliberté,
CEO,
Sayona Québec

"Québec also has a fantastic database of geological information, with all legacy data available to any interested parties. The province offers a high level of certainty for investors, with a stable regulatory framework, despite the recent passage of environmental regulations."

- Mathieu Savard,
Chairman of the Board,
Québec Mineral Exploration Association (AEMQ)

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QUÉBEC MINERAL EXPLORATION ASSOCIATION (AEMQ)
www.aemq.org

MINISTRY OF ENERGY AND NATURAL RESOURCES
www.mern.gouv.qc.ca

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
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